HERCULES

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July 23, 2012

VIA ELECTRONIC DELIVERY

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Mr. Chris Sanders
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Mississippi Department of Environmental Quality
515 Amite Street
Jackson, Mississippi 39201

Subject: **Submission of Final Phase II Workplan for Administrative Order**
Hercules Incorporated, Hattiesburg Facility
Hattiesburg, Forrest County, Mississippi
USEPA ID No. MSD 008 182 081
Docket No. RCRA-04-2011-4251

Dear Mr. Lamberth, Ms. Knight, and Mr. Sanders:

On March 19, 2012, Hercules Incorporated (Hercules; a wholly owned subsidiary of Ashland, Inc.) received comments from the U.S. Environmental Protection Agency (USEPA) and Mississippi Department of Environmental Quality (MDEQ) on the Phase II Sampling and Analysis Work Plan (Work Plan), dated September 30, 2011. These comments indicated that a revised Work Plan was to be resubmitted to USEPA and MDEQ by April 13, 2012. Based on a March 30, 2012, request from Hercules, USEPA granted an extension of the submittal date to May 4, 2012. On May 4, 2012, Hercules submitted a Draft Revised Phase II Sampling and Analysis Work Plan, as required. During several subsequent conference calls and e-mail messages with USEPA and MDEQ representatives, additional revisions to the Work Plan were mutually agreed upon. Hercules received tentative approval of the Revised Phase II Sampling and Analysis Work Plan on July 12, 2012, and is submitting the hardcopies to USEPA and MDEQ in accordance with this approval and we anticipate formal approval to be forthcoming.

As specified in Paragraph 95 of the Order, the following certification is made:

I certify that the information contained in and accompanying this submission is true, accurate, and complete. As to those identified portions of this submission for which I cannot personally verify the truth and accuracy, I certify as the facility official having supervisory responsibility for the person who, acting upon my direct instructions, made the verification, that this information is true, accurate, and complete.

Signature: ______________________________

Name: Keith C. Silverman

Title: Vice President Environmental Health & Safety and Product Regulatory, Ashland Inc.

If there are any questions concerning this submittal, please contact Hercules Project Coordinator Mr. Timothy Hassett at (302) 995-3456.

Sincerely,

Keith C. Silverman
Vice President
Operations and Environmental Health & Safety,
Ashland Inc.

KCS/cep

cc: Meredith C. Anderson – USEPA Region 4, Atlanta, GA
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Revised Phase II Sampling and Analysis Work Plan

USEPA RCRA 3013(a)
Administrative Order
EPA ID No. MSD 008 182 081
Docket No. RCRA-04-2011-4251
MDEQ AI No. 2022

Hattiesburg, Mississippi

20 July 2012

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Revised Phase II Sampling and Analysis Work Plan

USEPA RCRA 3013(a)
Administrative Order
Hattiesburg, Mississippi

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20 July 2012

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1. Introduction

Hercules Incorporated (Hercules) submits this Revised Phase II Sampling and Analysis Work Plan (Revised Phase II Work Plan) pursuant to Paragraph 75 of the May 9, 2011, Administrative Order (the AO) issued by Region 4 of the U.S. Environmental Protection Agency (USEPA). The AO was issued pursuant to Section 3013(a) of the Resource Conservation and Recovery Act (RCRA), 42 United States Code §6934(a), and is specific to Hercules' Hattiesburg, Mississippi, site (Figures 1 and 2; referred to as the "Site" or the "former Hercules Plant" herein). As discussed during the June 9, 2011, meeting, components of the Phase II activities were addressed in the Revised Phase I Sampling and Analysis Work Plan (Revised Phase I Work Plan; ARCADIS 2011a). Specifically, a portion of the groundwater assessment identified as part of Phase II will be conducted under Phase I as required to properly assess the potential migration of Site-related constituents to off-site properties. The Revised Phase I Work Plan was approved by USEPA on December 9, 2011. As of the date of this report, implementation of the Revised Phase I Work Plan is ongoing. On March 19, 2012, USEPA issued a disapproval of the September 20, 2011, Phase II Sampling and Analysis Work Plan. This Revised Phase II Work Plan addresses USEPA comments in its March 19, 2012, disapproval letter.

1.1 Purpose and Scope

The scope of the AO, and the activities required under the AO, including implementation of the Work Plan, is limited to assessing the presence, magnitude, extent, direction, and rate of movement of the constituents to be investigated under the AO (the "Constituents"). The Work Plan approach includes incorporating and utilizing existing sampling data previously collected as part of Site-related assessments conducted in the area by Hercules, USEPA, or the State of Mississippi (the State) that relate to the purposes of the AO, including assessments to characterize the source(s) of site-related Constituents, characterize the potential pathways of migration of Constituents, define the degree and extent of the presence of any Constituents, and identify actual or potential human and/or ecological receptors. Detected Constituents will be investigated to determine the nature and extent of these Constituents relative to any identified or potential human or ecological receptors.

2. Background

2.1 Historic Operations

The Hercules Hattiesburg facility began operations in 1923. Throughout the facility's history the operations consisted of extracting and/or working with rosins from pine stumps to produce rosin derivatives, paper chemicals, and Delnav, an agricultural insecticide (miticide). Structures at the Site included offices, a laboratory, a powerhouse, production buildings, a wastewater treatment plant, settling ponds, a landfill, and central loading and packaging areas. The plant began to reduce production in the 1980s. Process operations at the Site were shut down at the end of 2009. Former process areas were primarily located on the southern and eastern portions of the Site at the locations shown on Figure 3. The following process areas were located at the Hercules Plant:

- **Power House (1920s to 2000s):** This area used boilers to produce steam used in other parts of the plant. The Power House also used spray ponds for cooling. The following chemicals were used at various times in the Power House area: boiler treatment chemicals and fuel (natural gas, oil, or wood stumps).

- **Field Storage (1920s to 1980s):** This area was used to store substances used in various parts of the plant. The stored chemicals were transferred to each process area as necessary.

- **Laboratory (1920s to 2000s):** This area was used to perform analytical testing for the facility. It stored and used various chemicals in laboratory quantities.

- **Primary Operations (1924 to 1982):** Primary operations consisted of milling, extracting, and refining processes conducted to separate rosin from its plant carrier (primarily pine stumps). Milling was a mechanical process. The following chemicals were used at various times in extraction and refining processes: benzene, methyl isobutyl ketone (MIBK), pexite, plant gas, solvenol, and terpenes.

- **Poly-Pale (1937 to 2005):** The Poly-Pale unit produced polymerized resin by dimerization. The following chemicals were used at various times in the Poly-Pale area: benzene, cyclohexane, Dowtherm (a mixture of 73 percent diphenyl oxide and 27 percent 1,1-biphenyl), lime, sulfuric acid, rosin, and toluene.

- **Pilot Plant (1939 to 1982):** The Pilot Plant was used to demonstrate that experimental bench processes could be scaled up for production. Dowtherm was used in this area in addition to various rosin polymerization and hydrogenation constituents.

- **Hard Resins/Continuous Esterification Unit (CEU) Area (1939 to 2004):** The Hard Resins/CEU area produced rosin and resin derivatives. The following chemicals were used at various times in the Hard Resins area: acetic acid, alcohol, Dowtherm, fumaric acid, glycerine, magnesium oxide, maleic anhydride, methanol, mineral spirits, paraformaldehyde, pentaerythritol, phthalic anhydride, toluene, rosin, and triphenylphosphite.

- **Hydroperoxides/PMHP (1940s to 1980s):** This unit produced hydrogen peroxides and paramenthane hydrogen peroxides (PMHP). The following chemicals were used at various times in the Hydroperoxides/PMHP area: paracymene (p-cymene) and paramenthane.

- **Rubber Chemicals/Resin 731 (1940s to 1980s):** This area produced modified rosins by dehydrogenation. The following chemicals were used in this area: Dowtherm and rosin.

- **Staybelite/Foral/Staybelite Resin (1940s to 1990s):** This area produced modified rosins by hydrogenation. The following chemicals were used in this area: Dowtherm, hydrogen, palladium on carbon catalyst, Raney nickel catalyst, and rosin.

- **Catalyst Regen (1940s to 2000s):** This area was used to regenerate catalyst used in other process areas. The following chemicals were used at various times in the Catalyst Regen area: Raney cobalt catalyst, Raney nickel catalyst, and sodium hydroxide.

- **Delnav (1950 to 1987):** The Delnav unit primarily produced the pesticide Delnav. Delnav consists of the cis- and trans- isomers of dioxathion. The pesticides toxophane and TORAK were also produced in the Delnav unit for a limited period of time. The following chemicals were used in the Delnav area: benzene, carbon tetrachloride, chlorine, cis/trans-dioxathion, cyclohexane, 1,4-dioxane, DTB peroxide, ethanol, hydrochloric acid, NDCEP-N(1,2-dichloroethyl)phthalimide, ortholeum, and phosphorus penta-sulfide.

- **CEU (1950s to 1990):** This area produced modified rosins. The following chemicals were used in this area: Dowtherm, glycerin, and rosin.

- **Paste size (1950s to 1980s):** This area was used to produce a paper coating for better printability. Potassium hydroxide and sodium hydroxide were used in this area.

- **Rosin Amine/Rosin Amine Derivatives (RAD) (1951 to 2005):** The RAD unit produced rosin amine derivatives. The following chemicals were at various times used in the RAD area: acetic acid, ammonia, Dowtherm, ethylene oxide, isopropanol, sodium methylate, rosin, and triethanolamine.

- **Terpene Derivatives (1953 to 1983):** The Terpene Derivatives unit produced terpene derivatives, such as para-cymene (p-cymene), para-menthane (p-menthane), and synthetic pine oil.

- **Liquid Loading (1960 to 1982):** This area served as the primary liquid loading point. The following chemicals were managed at various times in the liquid loading area: pine oil, terpenes, and turpentine.

- **Kymene (1964 to 2009):** The Kymene unit produced a wet strength resin paper chemical. The following chemicals were used at various times in the Kymene area: adipic acid, diethylene triamine, epichlorohydrin, formic acid, hexamethylenediamine, sulfuric acid, and urea.

- **Tall Oil (1965 to 1972):** The Tall Oil unit produced tall oil rosin and fatty acids. Crude tall oil was used in this area.

- **Parcol/AKD/Defoamer Paracol (1966 to 2009):** The Parcol/AKD unit produced paper chemical emulsion. The following chemicals were used at various times in the Paracol/AKD area: biocides, stearamide, hydrocarbon wax, and polymerized fatty acid.

- **Effluent Treatment (1969 to present):** The Effluent Treatment area was the facility's wastewater treatment area. The facility had a separate storm water system and industrial sewer. These systems were used to keep non-contact storm water and process wastewater separate. Non-contact storm water collected at the Site was ultimately discharged to the Bouie River through various conveyances. Facility wastewater flowed through the Impoundment Basin (IB), then underwent dissolved air flotation (DAF) treatment. The effluent stream then underwent neutralization and entered an equalization tank. Effluent from the equalization tank flowed through carbon absorption towers with eventual discharge to a National Pollutant Discharge Elimination System (NPDES) outfall. The following chemicals are used in the Effluent Treatment area for neutralization: sodium hydroxide and sulfuric acid.

- **Vinsalyn (1970s to 1980s):** This area was used to produce a thermoplastic binder. The following chemicals were used at various times in the Vinsalyn area: tall oil pitch and vinsol (rosin).
- **Defoamer (1970 to 2008):** This unit produced rosin-based defoamer. The following chemicals were used at various times in the Defoamer area: biocides, silica, and stearamide.
- **Metal Resinates (1982 to 1998):** Produced rosin/printing ink solution. The following chemicals were used in this area: calcium hydroxide, printing ink solvent, rosin, toluene, and zinc oxide.
- **Neuphor (1986 to 2008):** The Neuphor unit produced paper chemicals. The following chemicals were used at various times in the Neuphor area: agefloc, fumaric acid, kymene, malic anhydride, rosin, and sodium lignin sulfonate.

2.2 Current Conditions

Process operations were shut down at the end of 2009. Some facility structures have been demolished. Prior to demolition of any tank, vessel, piping, or storage container, it was emptied of its contents. The contents were recycled, reused, sold, or properly disposed off site. Also, all process equipment, tankage, and piping have been emptied and decontaminated, with the exception of tanks ET-10, ET-18, and ET-19. Figure 4 shows the configuration of buildings currently located at the Site.

Security personnel are present at the facility 24 hours a day, 7 days a week. The Site perimeter is secured by chain-link fencing with controlled access points. Security cameras are placed around the site for monitoring purposes. Logs used to maintain a record of on-site visitors are maintained at the security office.

As part of plant demolition and decommissioning activities, Hercules has been working with the Mississippi Department of Environmental Quality (MDEQ) to decommission the on-site wastewater treatment IB and is currently working with them to gain approval of the IB Decommissioning Work Plan submitted in August 2010 and revised January 2011 (ARCADIS 2011b). Storm water that falls in the IB continues to be tested and managed under the conditions of the most recent MDEQ pre-treatment discharge permit.

Hercules has had air, storm water, NPDES, and State-issued Water Pollution Control (pre-treatment) permits that covered discharges from the Site when it was in operation. Hercules continues to conduct sampling and reporting activities associated with storm water and pre-treatment discharges. There are currently no active air emissions from the facility as there are no active manufacturing processes.

In 2005, after Site investigations conducted under the MDEQ Voluntary Evaluation Program were approved, a Corrective Action Plan (2005 CAP, Groundwater & Environmental Services, Inc. [GES] 2005) was submitted to MDEQ. MDEQ approved the 2005 CAP, which called for a remedy that included monitored natural attenuation (MNA) with institutional controls. Additionally, Hercules and MDEQ established a Restricted Use Agreed Order (RUAO, No. 5349 07) in 2008 for management of the Site. The RUAO has been the primary regulatory mechanism driving current environmental monitoring at the Site. The components of the 2005 CAP and RUAO are discussed further in Section 2.6. A monitoring program was implemented and controls were established to restrict the land use and activities on site. The monitoring program for groundwater and surface water is currently conducted on a semiannual basis and consists of water level gauging and analysis of select samples for volatile organic compounds (VOCs) (semiannually) and Dioxathion/Dioxenethion (annually).

2.3 Site Location

The Hercules Site is located on approximately 200 acres of land north of West Seventh Street in Hattiesburg, Forrest County, Mississippi (Figure 1). The Site is located in Township 4 North, Range 13 West, within Sections 4 and 5 just north of Hattiesburg, Mississippi. The geographic coordinates of the front gate of the Site are 31° 20' 20" North latitude and 89° 18' 25" West longitude. The physical address of the Site is 613 West Seventh Street, Hattiesburg, Mississippi.

The Site is bordered to the north by Highway 42, beyond which is the Illinois-Central & Gulf Railroad, as well as various residential and commercial properties. The southern property boundary is bordered by West Seventh Street and by Roseland Park cemetery and Zeon Chemicals, L.P., to the south-southwest. Across from these locations are residential areas. The eastern and western boundaries are bordered by residential and commercial areas. The Site is zoned for industrial use and this zoning category is unlikely to change in the future due to the RUAO, size of the property, and available infrastructure.

2.4 Previous Investigations

Various investigations have been conducted at the Hercules Site since the early 1980s. The work has included geophysical investigations and sampling of soil, groundwater, surface water, and stream sediment for analysis of various constituents, including VOCs, semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), metals, cyanide, Dioxathion, and Dioxenethion. The results of previous investigations are discussed in reports, which have been submitted to or developed by the MDEQ and/or USEPA. Summaries of the non-routine groundwater monitoring reports are listed below:

- *Preliminary Assessment,* Mississippi Bureau of Pollution Control, December 1989.

  A state preliminary assessment was completed in December 1989 and indicated two source areas which included approximately 38 acres of contaminated soil and a cluster of six unlined surface impoundments containing approximately 900,000 cubic feet of material. These quantities were defined using five sampling locations. Constituents such as acetone, benzene, toluene, methyl ethyl ketone (MEK), PCBs, cadmium, cobalt, lead, and mercury were identified in the soil and the surface impoundment contained arsenic, benzene, toluene, MEK, and heavy metals.

- *Site Inspection Report*, Black & Veatch (B&V) Waste Science and Technology Corp., April 1993 (commissioned by USEPA).

  In 1992, a site inspection, field investigation, and geophysical survey were conducted by B&V as a contractor for USEPA to collect information regarding potentially hazardous environmental conditions at the Site. The USEPA was concerned about potential releases to groundwater, surface water, soil, and air and the potential threats to human health and ecology. The geophysical survey program was initiated to identify sample locations and evaluate former areas where drums, sludge, boiler ash, and other process wastes were reportedly land filled, land applied, or buried. Four sediment (HI-SD-01 through HI-SD-04), two surface water (HI-SD-01 and HI-SD-02), five surface soils (HI-SS-01 through HI-SS-05), two subsurface soils (HI-SB-01 and HI-SB-5), and three groundwater (HI-MW-B1, HI-TW-01, and HI-TW-05) samples were collected from a number of strategic locations selected based on historical information, hydrological data, field observations, and geophysical survey results. All samples were analyzed for parameters in the Target Compound List (TCL) and Target Analyte List including organics, pesticides, PCBs, metals, and cyanide. Surface water sample results summarized in the 1993 B&V report indicated that arsenic and sodium concentrations exceeded background concentrations. The inorganics barium, copper, iron, magnesium, manganese, nickel, and zinc were detected at concentrations above background or the sample quantitation limit. No TCL organics were detected in sediment or surface water samples.

- *Work Plan for Well Installation,* Bonner Analytical Testing Company (BATCO), June 1997; *Installation, Sampling, and Analysis Report,* BATCO, December 1997; and *Quarterly Monitor Well Sampling Event Reports, BATCO, June 1998 th*rough *October 1998.*

  BATCO prepared a report dated December 1, 1998, which presented results of four quarterly groundwater monitoring events conducted between December 1997 and December 1998. BATCO installed six shallow groundwater monitoring wells (MW-1 to MW-7) in December 1997. The wells were competed at depths between 10 and 20 feet below ground surface (ft bgs). The results of the four quarterly sampling events are summarized in the December 1, 1998, report and indicate no significant detections of the eight RCRA metals (low levels of metals were detected above the laboratory method detection limit [MDL] in various wells over the quarterly events, as well as several detections of the non-RCRA metals beryllium, nickel, copper, and zinc). Acetone was detected above the MDL twice in two different wells. MEK and isopropyl benzene (cumene) were each detected once, and an aromatic hydrocarbon compound was tentatively identified in one well. An organophosphate compound was tentatively identified in all four sampling events in MW-4. In general, MW-4, located near the sludge pits, indicated low levels of metals and the organic compounds discussed above.

- *Site Investigation Work Plan, Eco-Systems, Inc. (Ec*o-Systems), February 1999.

  A site investigation was conducted in accordance with the *Site Investigation Work Plan* (Eco-Systems 1999) and additional comments from MDEQ in an approval letter dated April 5, 1999. The activities described in the work plan centered on efforts to determine whether dioxathion, the miticide contained in Delnav, was present in Site soil and groundwater. The investigation also included an evaluation of the groundwater flow regime and refinement of the Site hydrogeologic model.

The scope of the 1999-2000 investigation included the installation of fourteen piezometers (TP-1 to TP-14), five monitoring wells (MW-7 to MW-11), and four staff gauges (SG-1 to SG-4) to provide hydrogeologic and groundwater quality information near the former dioxathion production areas and near the former wastewater sludge pits. Piezometers TP-1 through TP-14 were installed to evaluate groundwater flow conditions in the uppermost saturated interval beneath the Site. Monitoring Wells MW-7, MW-8, and MW-9 were installed to assess groundwater quality at points near the former Delnav production areas and Monitoring Wells MW-10 and MW-11 were installed to assess groundwater quality between the sludge disposal pits and Greens Creek.

Prior to the sampling of the new and existing monitoring wells, questions arose regarding the analytical method for dioxathion and the quality of dioxathion for use as a laboratory standard. As a result, Hercules in conjunction with MDEQ's consultant Mississippi State University developed analytical protocols for soil and groundwater. These protocols were documented in the *Sampling and Analysis Protocol for Determination of Dioxathion in Water* (Hercules 2002).

Because the quality of available analytical standards was questionable, Hercules contracted with Sigma-Aldrich Chemicals to synthesize dioxathion standards. In August 2002, dioxathion of a suitable quality had been manufactured to be used as a laboratory standard and Hercules and MDEQ agreed to a laboratory protocol.

In October 2002, groundwater samples were collected from Wells MW-1, MW-4, MW-5, MW-8, MW-9, and MW-11 for analyses of dioxathion and dioxenethion by both BATCO and the Mississippi State Chemical Laboratory to test the newly established protocol. Monitoring Wells MW-5 and MW-6 were also sampled for analysis of VOCs and SVOCs.

Isomers of dioxathion were detected in Wells MW-4, MW-5, MW-8, MW-9, and MW-11; however, no concentrations were detected at concentrations above the MDEQ Tier 1 Target Remediation Goals (TRGs). No VOCs or SVOCs were detected above the MDL in samples collected from MW-5 and MW-6. A complete summary of the sampling/analytical methods and results of the October 2002 sampling was provided in the *Site Investigation Report* (Eco-Systems 2003a).

In December 2002, groundwater samples were collected for analysis of dioxathion (MW-1 through MW-11), VOCs (MW-4 and MW-7 through MW-11), and SVOCs (MW-7 through MW-11). Samples were analyzed by BATCO and a split sample for MW-11 was collected by MDEQ. Concentrations of dioxathion, dioxenethion, VOCs, and SVOCs were detected at various locations. Various VOCs were detected at concentrations exceeding the TRGs in Wells MW-4, MW-8, MW-9, and MW-11. No other constituents were detected at concentrations above the applicable TRG.

- *Interim Groundwater Monitoring Report,* Eco-Systems, January 2003; and *Site Investigation Report, Eco-Systems,* April 2003.

  The *Interim Groundwater Monitoring Report (*Eco-Systems 2003b) was submitted describing the results of this sampling and recommending confirmation sampling prior to completing the remaining activities outlined in the 1999 Work Plan. In response, MDEQ issued a letter dated February 3, 2003, approving the proposed confirmation sampling and requesting completion of the work plan tasks. In addition, MDEQ requested submittal of a supplemental work plan for groundwater delineation and a geophysical survey. A summary of the December 2002 sampling was provided in the *Site Investigation Report* (Eco-Systems 2003a).

  On February 11, 2003, groundwater, surface water, and stream sediment samples were collected in accordance with the February 3, 2003, MDEQ request. Wells MW-4, MW-8, MW-9, and MW-11 were sampled for confirmation of the 2002 VOC results. In addition, surface water and sediment samples were collected from five locations (CM-1 through CM-5) in Greens Creek for analysis of dioxathion and VOCs. Total organic carbon (TOC) and grain size analyses were also performed on sediment samples. Duplicate samples of surface water and sediment were collected by MDEQ at location CM-3.

  VOCs were detected in groundwater at concentrations exceeding the TRGs in Wells MW-4, MW-8, MW-9, and MW-11. The sample collected from MW-8 had the highest reported VOC concentrations.

  Various VOCs were detected in each of the samples collected from surface water locations CM-1 (upgradient) through CM-5. The greatest number of VOCs were detected in the surface water sample collected from CM-1 (the westernmost location), possibly indicating an upstream source for VOCs. Dioxathion was detected in surface water at CM-2 and dioxenethion was detected in surface water at CM-3, CM-4, and CM-5.

Various VOCs were detected in each of the samples collected from stream sediment locations CM-1 through CM-5. Similar to results for the surface water samples, the greatest number of VOCs were detected in the sediment sample collected from CM-1 (upgradient). Dioxathion was detected in sediment at CM-1, CM-3, and CM-5. TOC was reported in sediment samples at concentrations ranging between 2 and 7 parts per million (ppm). The sample collected from CM-3 showed primarily silt and clay and the samples collected from CM-4 and CM-5 showed primarily sand and gravel.

A summary of the sampling/analytical methods and results of the February 2003 sampling was provided in the *Site Investigation Report* (Eco-Systems 2003a).

- *Work Plan for Supplemental Site Investigation,* Eco-Systems, June 2003; and *Supplemental Site Investigation Report, Eco-Sy*stems, November 2003.

A supplemental site investigation was conducted in accordance with the *Work Plan for Supplemental Site Investigation* (Eco-Systems 2003c) approved by MDEQ in a letter dated July 11, 2003. The supplemental work plan was prepared at the request of MDEQ to delineate the lateral and vertical extent of constituents of concern (CoCs) in groundwater, collect hydrogeologic information, conduct a geophysical investigation to delineate the lateral boundaries of the waste in the former landfill and locate accumulations of buried metal in the landfill and in a potential burial area identified in the western portion of the Site, conduct single-well response tests to provide hydraulic conductivity estimates, and collect surface water and stream sediment from Greens Creek to evaluate locations upstream from previous sampling locations.

To obtain the required data, Hercules advanced eighteen Geoprobe® borings (GP-1 through GP-18) to define the lateral and vertical extent of VOCs in groundwater and to investigate groundwater quality in the vicinity of select piezometers, collected groundwater samples from permanent Monitoring Wells MW-1, MW-4, MW-10, and MW-11 for analysis of VOCs and dioxathion, conducted a geophysical investigation using ground conductivity and magnetic intensity methods at two areas of the Site (former landfill area and small grid area located west of the main plant), and collected surface water samples from two locations (upstream location CM-0 and previous location CM-1) and a stream sediment sample from one location (upstream location CM-0).

The results of the above activities provided a summary of known conditions in the area and further defined the extent of on-site areas. Carbon tetrachloride, benzene, and naphthalene isoconcentration maps depicting the extent of these constituents detected in groundwater from the *Supplemental Site Investigation Report* (Eco-Systems 2003d) are included in Appendix A.

- *Hattiesburg, Mississippi, Investigations, MDEQ*, April 2004.

  As part of a response to requests by the public, in April 2004, MDEQ conducted a sampling event in the drainage pathways discharging from the Hercules facility. Four sediment samples (two from Greens Creek and two from the former “Hercules Ditch”) and three surface water samples (two from Greens Creek and one from the former “Hercules Ditch”) were collected and analyzed for VOCs, SVOCs, pesticides/PCBs, metals, and dioxathion. Samples collected from locations S-1 and S-2 were collected from Greens Creek across Highway 42 from the facility. Samples collected from locations S-3 and S-4 were collected downgradient of an on-site process water storage tank (Tank ET-10, referred to in the memo as the “NPDES tank”). No surface water was collected from location S-3 because it was dry.

  Concentrations of toluene below the MDEQ TRGs were detected in soil collected at locations S-3 and S-4. No other constituents were detected in soil and no constituents were detected in surface water. While some trace concentrations of target analytes were detected, the report concluded that “the results of these samples did not detect any compounds above MDEQ’s target remediation goal levels.”

- *Remedial Action Evaluation,* Eco-Systems, July 2004; *and Corrective Action Plan Revision 01,* GES*, January* 2005.

  A Remedial Action Evaluation was prepared to evaluate and recommend remedial alternatives for the following areas: Sludge Pits, Landfill, Greens Creek, and Groundwater. Each of the remedial alternatives were evaluated with respect to the protection of human health and the environment and based on the following criteria: long-term effectiveness; potential to reduce mobility, toxicity or volume; short term effectiveness; implementability; and cost efficiency.

  The following conclusions were presented for each evaluated area:

- Sludge Pits: sludge does not pose a significant risk to human health and the environment; potential direct exposure risk for site workers and wildlife; potential indirect exposure risk resulting from leaching and natural weather events overflowing the pit berms;

- Landfill: no current risk to human health and the environment; future land use changes could expose landfill materials and/or mobilize constituents from the landfill into the groundwater or nearby surface water;

- Groundwater: VOCs present in on-site groundwater at concentrations above TRGs; no VOCs above TRGs in off-site groundwater; and

- Greens Creek: surface water and sediment containing VOCs and dioxathion do not pose a significant risk to human health and the environment; the results from samples collected upstream of Hercules property may indicate an off-site source.

In the final revised CAP (GES 2005), the primary components of the proposed remedial alternatives consisted of groundwater and surface monitoring networks, deed restrictions, and fencing as summarized below for each evaluated area:

- Sludge Pits: MNA combined with institutional controls/deed restrictions to restrict current/future land use and ensure that contaminated groundwater does not migrate from the sludge pits at unacceptable levels;

- Landfill: MNA combined with deed restrictions to restrict future land use and ensure that contaminated groundwater does not migrate from the landfill at unacceptable levels;

- Groundwater: MNA combined with deed restrictions to restrict future land use in the area of groundwater containing VOCs in excess of TRGs and to ensure that contaminated groundwater does not migrate from the Site at unacceptable levels; and

- Greens Creek: MNA combined with institutional controls/deed restrictions to restrict current/future land use of Greens Creek to ensure that contaminated water does not migrate at unacceptable levels from Greens Creek.

The CAP also called for contingency plans for specific units, if groundwater monitoring indicated a potential release. These contingency plans included such actions as installation of an engineered cap, installation of a horizontal barrier, or implementation of in-situ chemical oxidation. To date, groundwater monitoring results have not indicated a need to implement the contingency plan for any unit.

- *Memorandum, Sludge Sample Analyses, Hattiesburg, Mississippi,* Eco-Systems, October 2008.

  In 2008, Hercules conducted sludge characterization sampling as part of plans to decommission the IB. The initial sampling event conducted on July 1, 2008, included collection of composite samples from the west end of the IB (SS-1), east end of the IB (SS-2) and from the wastewater holding tank (SS-3). Individual sample aliquots were collected from various locations via hand auger and combined in the field to produce composite samples. Prior to collection, each aliquot location was vertically mixed to the extent practicable by advancing and extracting the hand auger from the surface to the limit of the auger rods. Samples were submitted for toxicity characteristic leaching procedure (TCLP) analysis of VOCs, SVOCs, pesticides, PCBs, herbicides, and metals, and also for reactive cyanide, reactive sulfide, pH, and percent solids. Based on the results of this initial sampling, two additional events were conducted to confirm and further characterize sludge at the west end of the IB, where a TCLP benzene concentration (1.3 milligrams per liter [mg/L]) was detected above TCLP limits (0.5 mg/L) in SS-1.

  On July 30, 2008, one composite sludge sample (SS-1-073008) was collected to confirm the benzene concentrations detected in SS-1 during the July 1 sampling event. The confirmation sample was collected following the same procedures and from the same general aliquot locations as was completed for the original sample SS-1. Samples were analyzed for TCLP-VOCs by TestAmerica and BATCO. One benzene result (0.586 mg/L) was detected above the TCLP limit in the confirmation sample analyzed by BATCO while the result of the TestAmerica analysis (0.44 mg/L) was below the TCLP limit.

  In September 2008, a third sludge sampling event was conducted to investigate whether a potential localized source area for VOCs existed within the western end of the IB. Six discrete soil samples (SS-5 through SS-10) were collected and analyzed for VOCs by TCLP. Three of the samples contained concentrations of benzene below the TCLP limit, while the other three samples (SS-5 at 5.5 mg/L, SS-6 at 3.2 mg/L, and SS-8 at 3.2 mg/L) contained concentrations of benzene above the TCLP limit.

- *Groundwater Assessment Report*, Eco-Systems, November 2009*.*

  Hercules submitted a work plan to MDEQ in July 2009 to evaluate groundwater conditions near the IB. The work plan outlined the locations and procedures for the installation and sampling of five monitoring wells. MDEQ approved the work plan with revisions in a letter dated July 22, 2009. On September 15-16, 2009, five soil borings were advanced near the IB. Each boring was converted to a monitoring well (MW-20 through MW-24). Groundwater samples were collected from each monitoring well and analyzed for VOCs, SVOCs, pesticides, PCBs, metals, and Delnav. The analytical results were compared to TRGs. Concentrations of VOCs and SVOCs were reported above the TRGs. Pesticides, PCBs, metals, and Delnav groundwater concentrations were reported below TRGs for each of these analyses. Based on the VOC and SVOC results, Wells MW-20 through MW-24 were included in routine groundwater sampling events in 2010.

- *Sludge Characterization and Bench Scale Treatability Work Plan*, ARCADIS, March 2010; *Sludge Characterization and Bench Scale Treatability Report, A*RCADIS, August 2010; *and Response to Sludge Characterization and Bench Scale Treatability Report*, ARCADIS, January 2011.

  The focus of this investigation was to collect data necessary to assess potential options for managing the sludge contained in the IB.

  Hercules is currently working with MDEQ toward the approval of a decommissioning plan to remove and properly dispose of the sludge.

- USEPA Sludge Pit Sampling (2010)

  In September 2010, at the request of MDEQ, representatives of the Science and Ecosystem Support Division (SESD) conducted a sampling investigation at the on-site sludge disposal area. Between September 28-29, 2010, SESD representatives collected 13 subsurface waste samples (HERC01 through HERC13) ranging from depths between 0 and 7 ft bgs. Twelve of the locations were collected from the Sludge Pit area (referred to in the SESD report as the “back forty” area). These samples were collected from various areas within the Sludge Pit which are delineated by berms and represent areas where the facility placed sludge at different times. One sample (HERC08) was collected from a lined pond referred to in the SESD report as the “wetlands” area. Samples were collected based on visual observations and results from field screening conducted with a Thermo Toxic Vapor Analyzer 1000B. Samples were analyzed by the SESD laboratory for total VOCs, SVOCs, metals, and/or toxicity characteristics.

Various VOCs, SVOCs, and metals were detected in the sludge samples. USEPA compared the analytical data to the TRGs for unrestricted soil use and the USEPA Regional Screening Levels (RSLs). Benzene (10 samples), ethylbenzene (1 sample), isopropylbenzene (1 sample), toluene (11 samples), 1,1’-biphenyl (1 sample), naphthalene (7 samples), arsenic (4 samples), Chromium VI (13 samples), and vanadium (9 samples) exceeded the MDEQ TRGs and/or residential USEPA RSLs.

USEPA analyzed samples with detected total analyte concentrations by the TCLP method. Benzene was above the TCLP regulatory limit of 0.5 mg/L in six of the samples. No other VOCs, SVOCs, or metals failed the TCLP limits or exceeded USEPA or MDEQ regulatory levels. A summary of the investigation activities and analytical results was provided in the *Field Investigation Report* (SESD 2011).

As demonstrated by the chronology of reports presented above, Hercules has worked with MDEQ for more than 20 years to understand the environmental conditions at the Site. Figure 5 is a composite map that shows the location where previous sampling was conducted at the Site. Based on the mutual understanding of Site conditions (i.e., the delineation of impacted areas, an understanding of groundwater flow regimes, exposure pathways), in 2005 MDEQ and Hercules began formalized corrective action and ongoing management activities in a RUAO. Since the implementation of the RUAO, Hercules and MDEQ continued to work together to address environmental issues at the Site not covered by the RUAO.

2.5 Corrective Action Plan and Restrictive Use Agreed Order

The January 20, 2005, CAP (GES 2005) summarized the findings of the Site investigations between 1999 and 2003 as follows:

- Delineation of the lateral limits of the Landfill based on geophysical investigation has been completed;

- VOCs were detected in groundwater at concentrations above MDEQ Tier 1 TRGs near the Landfill and other areas of the Site;

- VOCs and Dioxathion were detected at concentrations less than TRGs in surface water and sediment samples collected from Greens Creek with some indication of upstream off-site sources (i.e., upgradient sample showed similar Constituents as seen on site and downstream from the Site);

- VOCs and Dioxathion were detected in one of three groundwater monitoring wells located hydraulically downgradient of the sludge pits; and

- There was no indication of migration of VOCs or Dioxathion onto off-site properties via groundwater or surface water.

Additionally, the 2005 CAP presented the following conclusions:

- Sources, source area CoC concentrations, and vertical and horizontal extent of groundwater containing CoCs were defined sufficiently for remedial planning purposes;

- The existing data do not indicate that the Site poses a significant threat to human health and the environment in its current use as a chemical production facility; and

- If changes in land use occur or additional information is obtained, the current risk scenario for the Site could also change.

Based on an evaluation of the data obtained during the previous site investigations, a remedy consisting of MNA and institutional controls was proposed in the 2005 CAP to address the environmental conditions at the Site. In 2005, MDEQ approved the implementation of MNA of groundwater and surface water and institutional controls as proposed in the 2005 CAP.

On March 8, 2005, after the submission of the CAP, but prior to the implementation of the RUAO discussed below, MDEQ provided their assessment of environmental conditions in the area, including those at Hercules, in a correspondence addressed to Hattiesburg Mayor Johnny Dupree. The MDEQ letter included as an attachment an unsigned February 24, 2004, letter to the “Mobile-Bouie Street Neighborhood” from MDEQ. The 2004 MDEQ letter indicated that:

> *For Hercules … The only contamination found to date of any significance is groundwater contamination near the center of the property in the old Delnav process area adjacent to the old landfill site. The investigation to date does not show any groundwater contamination off of the Hercules property. Additionally, samples of surface water and sediments have been take[n] in Greens Creek … and no contamination of concern has been found.*

In January 2008, Hercules entered into a RUAO with MDEQ to restrict the land use and activities on- site while constituents in site-wide groundwater attenuate. In conjunction with the RUAO, Hercules executed a Notice of Land Use Restrictions documenting that soil and groundwater contained benzene, chlorobenzene, carbon tetrachloride, chloroform, 1,2-dichloroethane, and toluene in excess of MDEQ’s TRGs. As a result, the following restrictions were placed on the property:

- There shall be no excavating, drilling, or other activities that could create exposure to contaminated media without approval from MDEQ;

- The groundwater at the Site shall not be used, unless otherwise approved by MDEQ;

- Monitoring wells shall be protected and maintained. In the event that a monitoring well is destroyed or damaged or is no longer needed, a plan for repair, reinstallation or abandonment of the well(s) must be submitted to MDEQ for approval; and

- No wells shall be installed without prior approval from MDEQ.

MDEQ indicated in the RUAO that, “…once the requirements of it have been completed that (1) the Site will be protective of the public health and the environment; and (2) no further corrective action will be required at this time.”

The Site has been operated in accordance with the 2005 CAP and RUAO since 2007. Compliance with the RUAO has consisted of routine groundwater sampling and reporting. Since 2007, Hercules has conducted groundwater sampling and submitted routine groundwater monitoring reports to MDEQ in accordance with the RUAO.

Routine groundwater monitoring reports summarizing data collection activities conducted to comply with the RUAO are submitted to MDEQ. Initial data collection events were conducted quarterly. Due to the stability of the reported concentrations, beginning in 2008 data collection activities were reduced to semiannually with MDEQ's consent. Currently groundwater sampling is conducted semiannually. Tables 1A and 1B present the groundwater and surface water VOC concentrations obtained for the Site from December 2002 through July 2011. Isoconcentration maps for four VOC constituents (benzene, carbon tetrachloride, chlorobenzene, and chloroform) using the July 2011 data are included on Figures 6 through 9. A comparison of these figures to isoconcentration maps included in the November 2003, *Supplemental Site Investigation Report* (Appendix A) indicates that these constituents have undergone limited migration and are located in the vicinity of previously detected constituent concentrations.

At the areas covered by the RUAO, conditions to date have not warranted the implementation of contingency plans called for in the Remedial Action Plan. In the event that Site conditions change, the following contingency plans were included in the January 2005 CAP:

- Sludge Pit Area Contingency Plan: Installation of an engineered cap;
- Landfill Area Contingency Plan: Implementation of in-situ chemical oxidation or installation of a horizontal containment barrier;
- Groundwater Area Contingency Plan: Implementation of in-situ chemical oxidation; and
- Greens Creek Area Contingency Plan: Address the potential migration of constituents from the Sludge Pit Area.

3. Conceptual Site Model Summary

The regional geology, Site-specific geology, known physical characteristics of the Site, and observations made of the community near the Hercules Site were composited into a graphical conceptual site model (CSM) (Figure 10). The graphic CSM highlights potential areas of release (former production operations, wastewater IB, landfill, sludge pits), impacted media, transport mechanisms, and potential exposure pathways specific to the Site. As shown on the CSM, soil, groundwater, surface water, and soil gas to indoor air pathways potentially exist at the Site and, therefore, will be the focus of the data collection efforts of this Phase II Investigation. Additional detail related to the development and use of the CSM to investigate conditions at the Site is provided in the subsections below. Data collected during subsequent phases of investigation will be used to refine and update the CSM so that a better understanding of the nature of impacts, migration pathways, and potential receptors can be developed.

3.1 Site Conditions

3.1.1 Regional Hydrology

The Site is located within the Pine Hills physiographic region of the Coastal Plain physiographic province (Foster 1941). The topography of the region is characterized by a maturely dissected plain which slopes generally to the southeast. The topography is dominated by the valleys of the Bouie and Leaf Rivers coupled with the nearly flat or gently rolling bordering terrace uplands.

The geologic formations beneath the Site are as follows (in descending order):

- Pleistocene alluvial and terrace deposits;

- The Miocene-aged Hattiesburg and Catahoula Sandstone formations;

- The Oligocene-aged Baynes Hammock Sand and Chickasawhay Limestone formations; and

- The Oligocene-aged Bucatunna Clay member of the Byron formation of the Vicksburg group.

The recent-aged alluvial and terrace deposits consist of gravel, silts, and clays. The thicknesses of the alluvial and terrace deposits are variable due to erosion. Based upon driller’s logs of wells located in the vicinity of the Site, thickness of the alluvial and terrace deposits is estimated to be up to 30 feet on site and up to 50 feet closer to the rivers. The first groundwater-bearing unit at the Site occurs within the alluvial and terrace deposits.

Beneath the alluvial and terrace deposits lies the Hattiesburg formation, which is comprised predominantly of clay. Regionally within Forrest County, the Hattiesburg formation contains at least two prominent sand beds at depth beneath the clay from which a viable water supply is obtained. Logs from area wells indicate that the Hattiesburg formation ranges from approximately 130 feet to 260 feet in thickness.

The Catahoula sandstone underlies the Hattiesburg formation. It is not exposed near the Site, but is penetrated by numerous wells in the area. A driller’s log of a municipal well approximately 1.25 miles northwest of the Site indicated that approximately 770 feet of Catahoula sandstone was encountered.

Near the Site, the Catahoula sandstone overlies the Chickasawhay limestone. Neither the Chickasawhay limestone nor the Bucatunna formation is considered to be a viable aquifer. The Bucatunna formation is comprised of clay and effectively acts as a confining layer for the underlying Oligocene aquifer.

The Miocene aquifer is comprised of both the Hattiesburg and Catahoula sandstone formations. The aquifer system is composed of numerous interbedded layers of sand and clay. Because of their interbedded nature, the Hattiesburg and Catahoula sandstone cannot be reliably separated. The formations dip southeastward approximately 30 feet to 100 feet per mile. While this dip steepens near the coast, the formations thicken. The shallowest portions of the aquifer system are unconfined with the surficial water table ranging from a few inches to greater than 6 ft bgs. Deeper portions of the aquifer are confined, with artesian conditions common.

3.1.2 Site-Specific Hydrogeology

Surficial soils in the vicinity of the Hercules Site include the Prentice-Urban Land Complex; the Trebloc silt loam; and the Brassfield-Urban Land complex. In general, these soils are described as poorly to moderately well drained and strongly acidic. The parent material from which the soil was derived is mainly marine deposits of sandy, loamy, and clayey material.

Borings installed during Site investigations encountered soils that are generally described as gray and tan, fine-grained sand with varying amounts of silt, clay, and gravel from the surface to depths ranging from 5 ft bgs to greater than 26 ft bgs (Appendix B). These sandy soils are typical of the Pleistocene alluvial and terrace deposits. Underlying the sandy soils is a gray to orange-brown, stiff, silty and/or sandy clay. Descriptions of the clay are consistent with descriptions of the Miocene Hattiesburg formation.

The Hattiesburg Formation has been encountered in all Site borings that have penetrated the overlying alluvial material indicating the formation is consistent across the Site. An exploratory boring was installed in the northern portion of the Site to obtain Site-specific information for thickness and vertical permeability of the

Hattiesburg Formation (Eco-Systems 2004). Information obtained from the boring (Appendix B) indicates that the Hattiesburg formation is at least 20 feet thick beneath the Site and has a hydraulic conductivity of 1.28×10^{-7} centimeters per second (cm/sec).

Water level information is routinely collected from monitoring wells, piezometers, and several Greens Creek staff gauges. Groundwater in the uppermost, saturated interval beneath the Site tends to follow the surface topography. In the former production areas, which are located in the southeastern portion of the Site, the potentiometric surface indicates the presence of a groundwater divide, which trends southwest and northeast. Current and historic potentiometric surface maps (Appendix C) indicate that groundwater located to the northwest of the divide moves northwestward toward Greens Creek. On the north side of Greens Creek, the potentiometric surface indicates that groundwater in the uppermost, saturated interval moves generally southward toward Greens Creek, until another less prominent surface drainage feature causes groundwater to flow more northwesterly. Groundwater southeast of the divide moves southeastward.

Slug testing was conducted at on-site Monitor Wells MW-2 (Northern Area), MW-6 (Former Landfill Area), and MW-7 (Former Production Area) (Eco-Systems 2004). Estimates of hydraulic conductivity were calculated using methods described by Bouwer & Rice (Bouwer and Rice 1976; Bouwer 1989). Hydraulic conductivity estimates varied from 1.31×10^{-3} cm/sec (3.71 feet per day [ft/day]) for MW-6 to 4.19×10^{-3} cm/sec (11.9 ft/day) for MW-2 with an average of $2.51 \text{ X } 10^{-3}$ cm/sec (7.12 ft/day). Using the mean of the hydraulic conductivity estimates and historic potentiometric data, the estimated horizontal groundwater velocity from three areas of the Site were estimated using Darcy's Law. Darcy's Law can be expressed by the following equation:

$$V = \frac{Ki}{\eta}$$

Where:

V = Average linear groundwater velocity

K = Hydraulic conductivity

i = Hydraulic gradient

η = Effective porosity

Based on a review of historic potentiometric maps and published information, the following inputs were used to calculate the estimated groundwater flow for each area:

Area	Hydraulic Conductivity (ft/day)	Effective Porosity (%)	Hydraulic Gradient (ft/ft)	Groundwater Velocity (ft/day / ft/yr)
Northern Area (MW-2)	11.9	33%	0.006	0.216 / 78.8
Former Landfill Area (MW-6)	3.71	33%	0.03	0.337 / 123
Former Production Area (MW-7)	8.14	33%	0.007	0.173 / 63.0

ft/day	Feet per day.
ft/ft	Feet per feet.
ft/yr	Feet per year.

This analysis determined that the horizontal groundwater velocity ranged from 0.173 ft/day (63 feet per year [ft/yr]) in the Former Production Area (MW-7) to 0.337 ft/day (123 ft/yr) in the Former Landfill Area (MW-6).

3.1.3 Topography and Surface Water

The topography of the Site ranges from 170 feet mean sea level (ft msl) to 150 ft msl. Surface water drainage patterns at the Site conform generally to the topography. Topography slopes generally to the south in the Sludge Disposal Area and to the north/northwest in the former Industrial Landfill Area and the Former Delnav Production Area. A topographic divide located south/southeast of the Former Delnav Production Area separates surface water drainage flowing in a north to northwesterly direction from surface water that flows in an east to southeasterly direction. Surface water flow pathways are depicted on Figure 11.

The east-trending, perennial stream Greens Creek and its natural and man-made tributaries are the main surface drainage features in the area (Drainage A). Greens Creek leaves the Site at its northeast corner, enters a culvert that runs beneath a neighboring industrial property, and subsequently flows into the Bouie River, located approximately 1 mile to the north/northeast. Two unnamed intermittent drainage features are also present. One flows from the northeast corner of the Site (Drainage B) and the other flows from the southeastern portion of the Site (Drainage C).

In the sludge pit area, a drainage ditch enters the Site from the West. This ditch previously flowed north of the sludge pit area in a generally southeasterly direction and discharged into Greens Creek. To minimize the off-site flow of surface water in the vicinity of the sludge pit area, this drainage ditch was rerouted to direct water southward along the Hercules fenceline until it ultimately discharges into Greens Creek.

The northeastern drainage (Drainage B) flows intermittently, collecting storm water from the northeast areas of the Site and then travels through a surface water feature into the Bouie River. The southeastern drainage (Drainage C) flows intermittently, collecting storm water from the southern areas of the Site and entering two culverts before it leaves the Site which transports the surface water approximately 1,000 feet before it discharges into a surface drainage feature which flows to the Bouie River. Historically, this southeastern drainage directed permitted process water discharge through a surface feature the entire length to the Bouie River, which was the focus of the previous MDEQ investigation (MDEQ 2004) described in Section 2.4. The MDEQ investigation determined that constituent concentrations were not detected above MDEQ TRGs. These drainage features are depicted on Figure 11.

Elevations of surface water within Greens Creek are significantly lower than the groundwater. This indicates that, while groundwater may contribute to flow in Greens Creek, hydraulic connection between the uppermost saturated interval and Greens Creek is retarded. The retardation of the water moving from the alluvial material to the creek is likely due to silt and clay in the creek bed and the sand adjacent to the creek.

3.1.4 Storm Water Outfalls

Storm water that falls on the Site sheet flows to a conveyance system that consists predominantly of earthen ditches. As shown on Figure 11, the ditches aggregate and route the storm water flow to one of five outfall locations included in the Site’s Storm Water Pollution Prevention Plan (Hercules 2010).

Outfall SW001 is located near the main entrance to the Site along the southern Site boundary. This outfall's drainage basin represents approximately 1.2 acres. The outfall is an earthen ditch, which discharges into an eastward-flowing ditch along West 7th Street. This storm water is eventually discharged through Outfall SW005 (Drainage C). Currently, there is no process activity in this area.

Outfall SW002 is located west of Outfall SW001 and receives runoff from approximately 7.0 acres. Storm water that enters this area is discharged through an earthen ditch that discharges into the eastward-flowing ditch along West 7th Street. This storm water is eventually discharged through Outfall SW005. Currently, there is no process activity in this area.

Outfall SW003 is located where Greens Creek exits the Site, near the northeastern corner of the property. During historic plant operations, storm water from the sludge pits, the former landfill, and a production area was routed through this outfall. Currently, this outfall receives runoff from the entire undeveloped area in the western portion of the Site. Greens Creek is a perennial stream and more than 100 acres within the facility drain to the creek. With the exception of the former Tall Oil/Neuphor process areas (which is not active), this outfall routes water from an area not used for process operations.

Outfall SW004 is located at the northeastern corner of the Hercules Site, near the intersection of Providence Street and North Main Street. The drainage basin represents approximately 16 acres. During historic plant operations, storm water from production areas was routed through this outfall. After leaving the facility, this unnamed tributary (Drainage B) discharges into the Bouie River. Currently, there is no process activity in this area.

Outfall SW005 was previously considered a storm water outfall, prior to its being permitted under NPDES permit MS0001830. Storm water that discharges through Outfall SW005 is routed to Drainage C. Outfall SW005 drainage basin represents approximately 25 acres of the central area of the Site. During historic plant operations, this outfall was the Site’s primary discharge point for storm water that entered former process areas. After leaving the facility, this unnamed tributary discharges into the Bouie River. With the exception of the discharge of storm water from the IB through a permitted outfall to the publicly owned treatment works, currently there is no process activity in this area.

3.1.5 Surface Water and Historical Process Wastewater Management

When the Hercules Plant was in operation, wastewater generated in the process units accumulated in sumps typically located within each unit. The process wastewaters consisted of water that remained after recoverable amounts of chemicals were removed. Recovered chemicals were reused in process operations, while the remaining wastewater was discharged from each unit. The wastewater exiting each process unit was primarily routed through piping that did not receive storm water and was routed to the Effluent Treatment System, which includes the IB. After treatment, water from the IB was discharged to Drainage C under an NPDES permit (NPDES permit MS0001830). Currently, storm water that enters the IB is discharged to the publicly owned treatment works in accordance with an MDEQ permit.

3.1.6 Groundwater Flow Pathways

As discussed in Section 3.1.2, groundwater in the first water-bearing zone predominantly flows in two different directions on-site, northwesterly and southeasterly (Figure 12). This water-bearing zone is underlain by the Hattiesburg formation, a competent clay layer extending underneath the entire Site. Naturally occurring subsurface groundwater flow is the primary factor influencing potential constituent transport in the subsurface. Hercules does not have any groundwater extraction nor injection systems located in the first water-bearing zone that would alter this flow.

North of the groundwater divide, groundwater flows toward Greens Creek. This naturally occurring flow direction results in the migration of groundwater in a northwesterly direction in the vicinity of the former landfill area. This groundwater ultimately enters into Greens Creek. As calculated in Section 3.1.2, this naturally occurring groundwater movement results in an approximately groundwater velocity of 123 ft/yr in this area. It should be noted that a review of the groundwater constituent plume located in the vicinity of the former landfill does not indicate that subsurface constituents migrate at this rate, only the groundwater.

North of Greens Creek, groundwater flows from off-site properties onto the Site in a southerly direction. This groundwater flows underneath the sludge pits and is discharged into Greens Creek. As calculated in Section 3.1.2, this naturally occurring groundwater movement results in an approximate groundwater velocity of 79 ft/yr in this area.

The flow of groundwater near the City sewer pipe beneath Providence Street is considered a potential subsurface flow pathway and will be investigated during the implementation of this Revised Phase II Work Plan. Groundwater in the vicinity of the IB area flows in an easterly direction.

3.1.7 Potential Historical On-Site Source Areas

The Hercules Plant operated over 80 years. The sludge pits and former industrial landfill were in operation through the life-cycle of various production units. Because these areas were used for the accumulation of waste products, they are considered the primary historic on-site potential source areas for constituent releases. Through investigations directed by USEPA and/or MDEQ, the surface water and subsurface conditions in the vicinity of the sludge pits and former industrial landfill have been characterized and documented. Sample locations from these investigations are shown on Figure 5. Subsurface conditions in these areas are currently monitored through routine groundwater sampling of a network of wells approved in the RUAO. The results of the routine groundwater sampling have been documented in formal reports submitted to MDEQ. These areas are located north of the main process areas.

Because of the layout of Site infrastructure (rail lines, roads, pipe racks, tank farms, etc.) plant operations were mainly sited in the southern and eastern portions of the Site. During the operational history, different production operations (described earlier in Section 2.1) occupied the same area of the facility at different times. Various raw materials, intermediates, and finished products were stored at the facility in tanks, vessels, warehouses, or lay-down areas. Typically, tanks and vessels were located in the vicinity of the process units that required the contained substance. Therefore, if spills occurred, the spilled materials were generally co-located within the process unit areas. Historic unit operations and material accidentally released from these units is a potential on-site source area for constituent releases.

Prior to the adoption of natural gas as the fuel source for the on-site boiler, wood wastes that were not transported off site for disposal were burned in the Power House area for steam generation. The resultant boiler ash and process wastes were buried in the landfill.

Other waste materials were disposed of in permitted off-site facilities. Transportation of waste to off-site facilities was accomplished via tractor trailer and by rail.

3.1.8 Conceptual Site Model Summary

A review of available Site data (July 2011 groundwater flow map, surface water drainage features, July 2011 laboratory analytical results, etc.) was conducted in order to develop a comprehensive CSM. The review identified the following potential data gaps that will be focused on during implementation of the Phase II investigation:

- Soil and groundwater constituent concentrations in former process areas, including the southeastern portion of the Site near Providence Street;

- Soil and groundwater constituent concentrations near the western and northwestern Site boundaries; and

- Surface water constituent concentrations at various locations along conveyance pathways.

3.2 Preliminary Conceptual Exposure Model

A component of the CSM is a preliminary conceptual exposure model. An exposure model evaluates potential exposure pathways that may result in exposure of a target population. An exposure pathway consists of the following four elements: (1) a source and mechanism of constituent release to the environment; (2) a retention or transport medium for the released constituent; (3) a point of potential contact by the receptor with the impacted medium (the exposure point); and (4) a route of exposure to the receptor at the exposure point (e.g., ingestion, inhalation, or dermal contact).

The conceptual exposure model provides the framework for the exposure assessment. It characterizes the primary and secondary potential sources and their release mechanisms and identifies the primary potential exposure points, receptors, and exposure routes. Exposure points are places or “points” where exposure could potentially occur, and exposure routes are the basic pathways through which constituents may potentially be taken up by the receptor (e.g., ingestion, inhalation, dermal contact).

The conceptual exposure model incorporates the Site-specific analytical data with Constituent-specific fate and transport information to identify migration pathways, and activity and use patterns to identify the unique receptors and exposure pathways. Figure 10 identifies the sources, release mechanisms, transport pathways, and potential receptors for the Hattiesburg Site. These are discussed in detail below.

3.2.1 Potential Sources

Operations began at the Hattiesburg Site in 1923. Rosin derivatives, paper chemicals, and Delnav (a miticide) were produced at the Site. Structures at the Site included offices, a laboratory, a powerhouse, production buildings, a wastewater treatment plant, settling ponds, a landfill, and central loading and packaging areas. Site-related

Constituents associated with these operations have been detected in soil, groundwater, surface water, and sediment on the Hercules property. Detected constituent concentrations may act as continuing sources of contamination if mobilized by the naturally occurring flow of groundwater through these areas. Activities conducted during this Phase II work will identify source areas.

3.2.2 Release Mechanisms

Constituents detected in environmental media during the previous Site investigations have included organic and inorganic constituents. The migration of Constituents released in the past is influenced by Site environmental factors and the physical and chemical properties of the Constituents.

Constituents could potentially migrate from the former Hercules Plant via several mechanisms. When the Hercules Plant was active, normal permitted operations and potential inadvertent releases could have resulted in distribution of constituents at the Site. Because the Hercules Plant is no longer operational, these types of releases are not expected to occur. The potentially impacted soils at the Site can act as a source of constituents to other media. Migration into air may occur via volatilization or fugitive dust emissions; transport into the surface water can occur via surface runoff and groundwater discharge; and migration into groundwater can occur by infiltrating rainwater through impacted soil with subsequent leaching and transport. One other process that will influence migration is the attenuation of certain constituents through naturally occurring processes.

3.2.3 Potential Receptors

The Site is inactive and thus exposure of current Site workers is not expected to be significant because they do not routinely work around former process areas or disposal locations (landfill, sludge pits) and there are no significant subsurface construction activities; however, in the future, the Site could be redeveloped for industrial use and hypothetical future construction workers and Site workers could be exposed to constituents in soil on the Site. The evaluation of hypothetical future site workers will be a more conservative assessment of site worker exposure because such workers are more likely to work around the Site. It is unlikely that exposure to constituents in groundwater would occur because of restrictions to use of on-site groundwater as a potable water supply.

The Site is surrounded by commercial, industrial, and residential land uses. Data collected during the Phase I and Phase II Site investigations under the AO will be used to evaluate the potential exposure to Site-related constituents. This will include an evaluation of potential exposure to off-site receptors.

3.2.4 Potential Exposure Pathways

There are currently no points of exposure to groundwater on site. Workers on the property could be exposed to constituents in the surface soil through incidental ingestion, dermal contact, and inhalation of vapors or dust. While the presence of trespassers is unlikely, any trespassers on the property could also contact the surface soils and be exposed to Site-related constituents. If the hypothetical trespasser were to wade in the surface water on or leaving the Hercules property, they could contact Site-related constituents in the surface water or sediments. Additionally, aquatic and terrestrial biota are identified as potential receptors.

Shallow groundwater at the property boundary contains Site-related constituents. If Site-related constituents in groundwater extend beyond the property boundary, and groundwater is extracted for some purpose, then the potential exists for this pathway to be complete. Further, if volatile constituents associated with the former Hercules Plant are present off site, these VOCs could migrate from the groundwater into the vapor phase resulting in potential exposure. However, the Notice of Land Use Restrictions filed and recorded with the Forrest County Chancery Clerk’s office on February 25, 2008 (Appendix D) prohibits the use of groundwater at the Site.

4. Preliminary Constituents of Concern

Consistent with the AO, the historic operations, past investigation results, and the Appendix IX constituent list were considered to identify preliminary constituents for the Phase I and Phase II investigations. In July 2011, Hercules collected samples from selected wells and analyzed for the Appendix IX list during the course of routine semiannual groundwater sampling per the RUAO. This effort was conducted to provide data that would be used to establish a CoC list as requested in USEPA comments to the Phase I Sampling and Analysis Work Plan. The Appendix IX analyte list was used in groundwater sampling of selected wells conducted in July 2011 to assess current conditions relative to this comprehensive analyte list. The laboratory reports from this sampling event are included in the Revised Phase I Work Plan. The data are provided in tabular format in Table 2. An evaluation and screening of the current and historic groundwater and surface water data collected during routine groundwater monitoring events were conducted to identify the Site-related constituents on which to focus future assessments (Table 3). The constituents detected during the previous investigations were compared to the MDEQ TRGs and USEPA RSLs, conservatively assuming the groundwater or surface water would be used as a potable water supply, even though this is unlikely to occur due to the restricted covenant put in place as part of the RUAO and the low yield of the first water-bearing zone. In addition, the preliminary data generated during implementation of the Revised Phase I Work Plan were evaluated to identify constituents on which to focus future assessments.

The following summarizes the process used to evaluate the constituents detected in the previous data. The groundwater and surface water data from the previous routine groundwater investigations were compared to the screening levels (Tables 3 and 4). The maximum detected concentrations were compared to the TRGs and RSLs. Additionally, the minimum and maximum detection limits were compared to the TRGs and RSLs. The preliminary Phase I data were compared to the standards presented in the Quality Assurance Project Plan (QAPP) submitted to USEPA in the December 16, 2011, Revised Phase I Work Plan.

4.1 Groundwater

The groundwater data were evaluated first by class of compounds and then by individual constituents within a class. A discussion of this evaluation is provided below.

4.1.1 Polychlorinated Biphenyls

PCBs were not detected in the groundwater at the Site. The reporting limits were above both the TRGs and RSLs (i.e., screening levels); however, there is no evidence that these constituents were manufactured or used extensively at the plant.

A preliminary screening of Phase I data indicates very limited detections and only one exceedance of a screening standard, which is in an off-site sample. Therefore, PCBs were not included on the analyte list.

4.1.2 Pesticides

Although there were no detections of toxaphene, there was limited manufacturing of the compound at the Site. Therefore, toxaphene will be included on the analyte list.

Two pesticides, alpha-BHC and gamma-BHC (Lindane), were detected during the July 2011 routine groundwater sampling. Because the alpha-BHC and gamma-BHC were not manufactured at the facility and their presence is most likely associated with a registered Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) use, both constituents will not be included on the analyte list. The other pesticides on the Appendix IX analyte list were not detected.

Endosulfan I; endosulfan II; endosulfan sulfate; endrin; endrin aldehyde; endrin ketone; kepone; and methoxyclor did not have reporting limits exceeding the screening levels and there was no manufacturing of these compounds.

4,4'-DDD; 4,4'-DDE; 4,4'-DDT; heptachlor; heptachlor epoxide; and technical grade chlordane had maximum reporting limits above their respective screening levels, but their minimum reporting limits were below their screening levels. There was no manufacturing or known use of these compounds at the Hercules Site.

4-Chlorobenzilate; aldrin; beta-BHC; delta-BHC; dieldrin; and isodrin had reporting limits that exceeded their respective TRGs and RSLs. These compounds were not manufactured or used at the Site.

A preliminary screening of Phase I data indicates Endosulfan I was detected in one sample. It was reported at a concentration below its screening standard. Therefore, toxaphene will be the only pesticide included on the analyte list.

4.1.3 Herbicides

2,4-D was detected in the groundwater at a concentration below the TRG and RSL. Reporting limits of 2,4,5-T and 2,4,5-TP were below their respective screening levels. These compounds were not manufactured at the Site. The other herbicides on the Appendix IX analyte list were not detected. A preliminary screening of Phase I data indicates that herbicides were not detected. Therefore, none of the herbicides will be included on the analyte list.

4.1.4 Volatile Organic Compounds

For the July 2011 groundwater sampling event, the following constituents were detected at concentrations exceeding either their TRG or RSL and were identified as constituents for the analyte list: 1,1-dichloroethene; 1,2-dichloroethane; 1,2-dichloropropane; 4-methyl-2-pentanone; acetone; benzene; bromodichloromethane;

carbon tetrachloride; chlorobenzene; chloroform; chloromethane; dibromochloromethane; ethylbenzene (detected above the RSL but not the TRG); methylene chloride; tetrachloroethene; toluene; trichloroethene; and vinyl chloride.

A preliminary screening of Phase I data indicates the following constituents were detected at concentrations exceeding screening standards and were identified as constituents for the analyte list: 1,2-dibromoethane; 1,2-dichloroethane; 1,4-dioxane (1,4-dioxane was also detected in the SVOC analyses; it will be added as an SVOC analyte because the SVOC analytical method yields a lower detection limit); benzene; carbon tetrachloride; chlorobenzene; chloroform; ethylbenzene; naphthalene; trichloroethene; and xylenes.

4.1.5 Semivolatile Organic Compounds

For the July 2011 groundwater sampling event, the following constituents were detected at concentrations exceeding either their TRG or RSL and were identified as constituents for the analyte list: 1,1’-biphenyl; 1,4-dioxane; naphthalene; 1,4-dichlorobenzene; and 1,2,4-trichlorobenzene.

A preliminary screening of Phase I data indicates that the following constituents were detected at concentrations exceeding screening standards and were identified as constituents for the analyte list: 1,1’-biphenyl; 1,4-dioxane; 2-nitrophenol; acetophenone; dibenzo(a,h)anthracene; indeno(1,2,3-cd)pyrene; naphthalene; and pentachlorophenol.

4.1.6 Inorganics

None of the inorganics detected in the groundwater were reported at concentrations above their TRGs in the July 2011 sampling event. Arsenic was detected at a maximum concentration exceeding the RSL, but the detections were below the TRG. The maximum chromium concentration of 5 micrograms per liter (µg/L) is below the drinking water standard. Thallium’s reporting limits were above the RSL.

Mercury was not detected in groundwater and the detection limits were below the TRG and RSL. Cyanide was not detected in groundwater, and the detection limits were below the TRG and RSL. Thus, mercury and cyanide were not included on the analyte list.

A preliminary screening of Phase I data indicates that the following constituents were detected at concentrations exceeding screening standards and were identified as constituents for the analyte list: arsenic; cobalt; lead; and thallium.

4.1.7 Dioxins/Furans

There were no reported detections of 2,3,7,8-TCDD during the July 2011 groundwater sampling event; however, the reporting limits were above the TRG and RSL. The dioxin/furan total toxic equivalent (TEQ) for all samples was reported at 0.00. A preliminary screening of the Phase I data indicates one dioxin was detected. A comparison to screening standards indicates it is below the standard. Because the total TEQ was 0.00 for the July 2011 data and the one detection in the Phase I data is below the screening standards, dioxins and furans were not included on the analyte list.

4.2 Surface Water

Six surface water sampling locations (CM-0 through CM-5) are routinely monitored. The historical data are included in Table 1B and the locations are designated with a CM followed by the sampling location. The following constituents were detected in surface water (including detections in upgradient sampling locations): 1,1-dichloroethene; 1,2,3-trichlorobenzene; 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; 1,2-dichlorobenzene; 1,3-dichlorobenzene; 1,4-dichlorobenzene; 1,2-dichloroethane; 2-chlorotoluene; 4-chlorotoluene; acetone; benzene; bromobenzene; carbon tetrachloride; chlorobenzene; chloroethane; cis-1,2-dichloroethene; ethylbenzene; methyl ethyl ketone; styrene; tetrachloroethene; toluene; trichloroethene; vinyl chloride; dioxenethion; and dioxathion.

The historical data indicate the following VOCs were not detected at concentrations above both of the screening levels: 1,1-dichloroethene; 1,2,4-trichlorobenzene; 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; 1,2-dichlorobenzene; 1,3-dichlorobenzene; 1,4-dichlorobenzene; 2-chlorotoluene; 4-chlorotoluene; acetone; bromobenzene; carbon tetrachloride; chlorobenzene; methyl ethyl ketone; styrene; and toluene.

MDEQ derived a TRG for total dioxathion. The concentrations of dioxathion were below the screening level. A screening level is not available for the dioxenethion isomer, which is a breakdown product of dioxathion.

In the July 2011 sampling event, cis-1,2-dichloroethene and vinyl chloride were the only constituents detected. cis-1,2-Dichloroethene was never detected above the screening levels. Vinyl chloride has exceeded the screening level. cis-1,2-Dichloroethene and vinyl chloride were included on the analyte list.

Surface water samples collected from upgradient locations (AO-SW-01 through AO-SW-05) during implementation of the Phase I SAP were not included in the preliminary evaluation of Phase I data. A preliminary screening of Phase I data indicates the following constituents were detected at concentrations exceeding screening standards and were identified as constituents for the analyte list: 1,4-dioxane; 2,2'-oxybis (1-chloropropane); acetophenone; arsenic; benzene; carbon tetrachloride; chloroform; naphthalene; and tetrachloroethene.

4.3 Soil

Soil samples are not collected during routine sampling events. During implementation of the Revised Phase I Work Plan, soil samples were collected from on-site and off-site locations. All of the Phase I soil sample results were evaluated in this preliminary CoC evaluation.

4.3.1 Pesticides/Herbicides

Seven pesticides were detected in sediment samples during implementation of the Revised Phase I Work Plan. There were no reported detections of herbicides in sediment during the Phase I sampling event. A preliminary screening of Phase I data indicates dieldrin exceeded screening standards. Dieldrin was identified as a constituent for the analyte list.

4.3.2 Volatile Organic Compounds

For the Phase I soil sampling event, the following constituents were detected at concentrations exceeding screening standards and were identified as constituents for the analyte list: carbon tetrachloride and chloroform.

4.3.3 Semivolatile Organic Compounds

For the Phase I soil sampling event, the following constituents were detected at concentrations exceeding screening standards and were identified as constituents for the analyte list: benzo(a)pyrene and benzo(b)fluoranthene.

4.3.4 Inorganics

Seventeen inorganics were detected in soil samples during implementation of the Revised Phase I Work Plan. A preliminary screening of Phase I data indicates arsenic exceeded screening standards. Therefore, arsenic is identified as a constituent for the analyte list.

4.3.5 Dioxins/Furans

Dioxins and furans were reported to be present in each of the soil samples collected during the Phase I sampling event. A preliminary screening of the Phase I data indicates that three dioxin congeners were detected at concentrations exceeding screening standards. Therefore, dioxins and furans were identified as constituents for the analyte list

4.4 Sediment

Sediment samples are not collected during routine sampling events. During implementation of the Revised Phase I Work Plan, sediment samples were collected from locations upgradient and downgradient of the Site. Because the purpose of this section is to identify potential Site-related constituents that will be carried forth in subsequent monitoring events, only the downgradient sample results were included in this preliminary CoC evaluation.

4.4.1 Pesticides/Herbicides

Seven pesticides were detected in sediment samples during implementation of the Revised Phase I Work Plan. There were no reported detections of herbicides in sediment during the Phase I sampling event. A preliminary screening of Phase I data indicates none of the detected pesticides exceeded screening standards.

4.4.2 Volatile Organic Compounds

For the Phase I sediment sampling event, vinyl chloride was detected at a concentration exceeding its screening standards. Therefore, vinyl chloride is identified as a constituent for the analyte list.

4.4.3 Semivolatile Organic Compounds

For the Phase I sediment sampling event, the following constituents were detected at concentrations exceeding screening standards and were identified as constituents for the analyte list: benzo(a)pyrene and benzo(b)fluoranthene.

4.4.4 Inorganics

Fourteen inorganics were detected in sediment samples during implementation of the Revised Phase I Work Plan. A preliminary screening of Phase I data indicates the following constituents exceeded screening standards and were identified as constituents for the analyte list: arsenic and cobalt.

4.4.5 Dioxins/Furans

Dioxins and furans were reported to be present in each of the sediment samples collected during the Phase I sampling event. However, none of the reported dioxins and furans exceeded screening standards.

4.5 Summary

Based on the evaluations of the July 2011 sampling data and preliminary Phase I data, discussions with USEPA, evaluations of historical analytical data, and a review of the manufacturing processes at the Site, the following analyte list is proposed for the Phase II assessment activities:

- VOCs (SW-846 8260B or equivalent drinking water standards)
    - 1,2-Dibromoethane
    - 1,1-Dichloroethene
    - 1,2-Dichloroethane
    - 1,2-Dichloropropane
    - 4-Methyl-2-pentanone
    - Acetone
    - Benzene
    - Bromodichloromethane
    - Carbon Tetrachloride
    - Chlorobenzene
    - Chloroethane
    - Chloroform

  - Chloromethane
  - cis-1,2-Dichloroethene
  - Dibromochloromethane
  - Ethylbenzene
  - Methylene Chloride
  - Methyl Isobutyl Ketone
  - Naphthalene
  - Styrene
  - Tetrachloroethene
  - Toluene
  - Trichloroethene
  - Vinyl Chloride
  - Xylenes
- SVOCs (SW-846 8270C or equivalent drinking water standards)
  - 1,1'-Biphenyl
  - 1,2,4-Trichlorobenzene
  - 1,4-Dioxane
  - 1,4-Dichlorobenzene
  - 2-Nitrophenol
  - 2,2'-Oxybis(1-Chloropropane)
  - Diphenyl oxide
  - Acetophenone
  - Benzo(a)pyrene
  - Benzo(b)fluoranthene
  - Dibenzo(a,h)anthracene
  - Indeno(1,2,3-cd)pyrene
  - Naphthalene
  - Pentachlorophenol
- Pesticides (USEPA 8081A or equivalent drinking water standards)
  - Dieldrin
  - Toxaphene
- Inorganics (SW-846 6010, 6020, or equivalent drinking water standards)
  - Arsenic

  - Cobalt
  - Lead
  - Thallium

- Dioxins and Furans (SW-846 8290, USEPA 1613, or equivalent drinking water standards)Dioxathion/Dioxenethion (BATCO 088.1)

This preliminary CoC list will be revised as necessary after subsequent investigations. Approximately 10 percent of the surface water and groundwater samples will be analyzed for the complete list of analytes. Additionally, modifications to this analyte list may be proposed to address the soil gas, sub-slab, and indoor air media after additional groundwater sampling is complete. Any revisions to the CoC list will be approved by USEPA and MDEQ prior to implementation.

5. Phase II Project Objectives

5.1 Administrative Order Objectives

The objectives of the Revised Phase II Work Plan are to:

- Determine the presence of Site-related Constituents at on-site locations;
- Evaluate the nature and extent of Site-related Constituents at on-site and off-site locations;
- Evaluate the Site-related Constituents’ potential impact to human health and the environment;
- Determine the presence, magnitude, extent, direction, and rate of movement of Site-related Constituents within and beyond Site boundaries; and
- Document the procedures to characterize source areas, potential migration pathways, and identify actual or potential human and/or ecological receptors.

Execution of the activities set forth in this Revised Phase II Work Plan, in concert with activities completed under the Revised Phase I Work Plan required by the AO, will obtain data that can be used to determine if impacts exist on and/or off site. Media that will be evaluated may include soil, soil gas, surface water, sediment, and/or groundwater. If an evaluation of these media indicates a potential vapor exposure pathway, air samples may also be collected.

5.2 Data Quality Objectives

Data collected in accordance with the procedures described in this Revised Phase II Work Plan will be evaluated in accordance with the objectives described in the QAPP. Data quality objectives (DQOs) established for this project are included in the QAPP. The project activities will be performed as required by the USEPA AO for the investigation of potential environmental impacts at or originating from the Site.

6. Phase II Environmental Investigation

The scope of work for the investigation described below is designed to meet the requirements of the AO. Due to the similar nature of the work proposed in this Revised Phase II Work Plan and the work that will be performed during the implementation of the Revised Phase I Work Plan, submitted under separate cover, the field work proposed herein will be conducted in accordance with the Health and Safety Plan submitted as Appendix E of the Revised Phase I Work Plan (ARCADIS 2011a).

Based on the sampling proposed in this document, Hercules proposes to collect the following number of samples (as detailed in the following sections and displayed on Figure 13).

Sample Media	Number of Sample Locations
Soil (direct push)	22
Soil (hand auger)	11
Groundwater	22
Surface Water	19
Sediment	19
Soil Gas	Will be collected, if warranted, based on the results of groundwater sampling.
Water from Sewer	2

Note: Samples will be submitted for the analyses included in the Quality Assurance Project Plan.

6.1 Field Investigation Procedures

A detailed discussion of the field procedures that will be employed to complete the field tasks is provided in the following sections. All field procedures are in accordance with the USEPA Field Branches Quality System and Technical Procedures (USEPA 2011). All soil, groundwater, sediment, and surface water samples collected will be analyzed by a National Environmental Laboratory Accreditation Program certified laboratory.

6.2 Soil Sampling

6.2.1 Identification of Soil Sampling Locations

Soil sampling locations have been selected within Hercules property boundaries to address soil quality in shallow and subsurface soil. Direct-push and manual soil sampling techniques will be used to collect soil samples from the locations shown on Figure 13.

Direct-push techniques (DPTs) consist of hydraulically pushing or driving a small-diameter, hollow steel rod to a target depth and collecting a soil or groundwater sample. The equipment necessary for the collection of samples using the DPT is self-contained or vehicle-mounted unit. The steel probe rods, 3 feet to 5 feet in length, are threaded for easy connection and have tight seals to provide a continuous length of rod. The rods are hydraulically driven or hammered to target depths.

Soil samples will be collected from the following intervals in each boring advanced using DPT and retained for chemical analyses:

- The soil sample at the 0 to 2 ft bgs interval;
- The soil sample exhibiting the highest organic vapor analyzer (OVA) reading;
- The soil sample collected at the soil/groundwater interface;
- The soil sample at the base of the probehole; and
- Soil samples that are visibly stained.

Manual soil sampling techniques consist of using hand-auger equipment to obtain soil samples. Soil samples will be collected from the following intervals and retained for chemical analyses:

- The soil sample at the 0 to 1 ft bgs interval; and
- The soil sample at the 1 to 2 ft bgs interval.

Details of soil sample collection techniques are provided in the following sections and a map showing proposed soil sampling locations is provided in Figure 13. Soil sampling locations were selected to determine if historical operation areas have impacted soil quality and to quantify any potential human health or ecological risks that may be associated with those areas. The rationale for selecting the sampling locations shown on Figure 13 is included in Table 5.

The soil sample results will be evaluated using the assessment procedures contained in Sections 9 and 10 and the decision logic presented on Figures 15A and 15B. In the event that the decision logic indicates additional soil samples are needed for delineation, the additional soil samples will be collected from the 0 to 1 ft bgs soil interval, 1 to 2 ft bgs soil interval, and other soil intervals as needed to define the nature and extent of impacted soil. Sampling will be conducted in accordance with the sample collection procedures and analytical parameters in the following sections of this Revised Phase II Work Plan.

6.2.2 Soil Sampling Procedure

The USEPA SESD guidance document SESDPROC-300R2 will be utilized during the collection of soil samples for laboratory analysis. Soil sampling will be performed and documented in accordance with procedures outlined in the document and with the Standard Operating Procedures (SOP) provided in Appendix N of the Revised Phase I Work Plan. Where conflicts exist between the two guidance documents, the SESD guidance will prevail. Conditions that require deviations from practices in the guidance will be documented in field books, soil sampling sheets, and final reports that will become part of the project records. Soil samples will be preserved, handled, and shipped in accordance with SESDPROC-300-R1 and the project-specific QAPP. The analytical program for the soil program is discussed in Section 7 and the evaluation process is described in Section 8.

The lithology of the soil samples collected will be described through visual observations of the soil/bedrock cores using the Unified Soil Classification System (USCS) and/or the ASTM Standard D 2488 for Description and Identification of Soils. The Boring/Well Construction Log (Appendix E) will be used to record lithologic logging observations. The following logging sequence will be used for the description of unconsolidated materials:

- Describe major soil type and percentage;
- Describe composition of the soil;
- Describe the moisture, texture, and color of the soil;
- Document other geologic observations such as bedding characteristics, structure and orientation, and primary and secondary permeability/porosity (if possible); and
- Document observations on drilling progress including sample interval loss and recovery.

Samples will be preserved according to the selected analytical method. Specific method preservation requirements, size, and type of sample containers to be used, and holding times for each parameter are contained in the QAPP.

6.2.3 Soil Sample Collection

The following procedures will be used during the collection of soil samples from direct push borings:

1. Record borehole location and intended sample depth intervals on the Boring/Well Construction Log.
2. Line the steel soil sampler core barrel with an acetate, polyethylene, or Teflon liner and attach sampler to end of steel rods.
3. Hydraulically push or drive the soil sampler and rods to intended depth.
4. Open the core barrel and disassemble, revealing the soil core sample within the liner.

5. Remove a portion of the liner over the entire length of the core using an appropriate cutting tool.

6. VOC samples will be collected immediately from defined soil sample intervals (soil/groundwater interface or depth of probehole), when encountered.

7. After collection of VOC sample, screen soils immediately in the field using an OVA (e.g., photoionization detector [PID], flame ionization detector [FID]) to document the levels of organic vapors present. To collect volatile organic headspace readings, place a portion of the soil sample in a sealed plastic bag approximately two-thirds full allowing for approximately 30 percent headspace. Place the bag in a dry area, which is as close to room temperature (70º F) as practicable. After 10 minutes, use a PID or FID to measure the vapors that accumulate in the bag due to off-gassing from the sample. Base PID/FID usage on the target analytes. If a PID is used, select the appropriate lamp based on the target analyte. Record the measurement on the Sample/Core Log (Appendix E).

8. If additional soil intervals are targeted for sample collection, a second probehole in the immediate vicinity of the original probehole will be advanced. To collect the soil sample(s) for laboratory analysis, the sampler will don a clean pair of disposable gloves immediately prior to sample collection. VOC samples will be collected directly from the target depth interval of the soil core to minimize disturbance using an EnCore™ sampler or equivalent (Terra Core). Transfer the remaining soil from the target depth interval to a stainless steel bowl. Mix the soil using a stainless steel spoon until the sample is visually uniform. Remove any debris or larger rocks observed during mixing using the spoon. Collect non-VOC analysis samples from the bowl and place in appropriate sample container, label the container, and place on ice. Note on the field sample log the depth interval from which the sample aliquot was collected. The container and preservative requirements for soil samples are outlined in the QAPP for this project.

9. Extract from the liners the portion of the soil core not submitted to the laboratory for analysis and use for logging purposes.

10. Describe the soil samples in the field. The lithology of the soil will be described by a qualified and experienced ARCADIS representative through visual observations of the soil core using the USCS or ASTM designation.

11. Place all soil cuttings in drums or roll-off box.

12. Properly decontaminate all down-hole sampling equipment prior to subsequent use in consecutive sample collection.

6.2.4 Schedule of Sampling

Soil sampling will be conducted at the locations shown on Figure 13. Soil sampling will be initiated upon approval of this Revised Phase II Work Plan and obtaining access agreements for off-site sampling locations. Access agreements will be presented to the property owner for review and approval. A preliminary schedule for soil sampling is included as Table 6. No samples will be collected without the owner's signed access agreement.

6.2.5 Borehole Abandonment

Direct push soil borings that are not used for temporary well installation will be abandoned by allowing the saturated portion of the formation (i.e., unconsolidated sands and gravel) to collapse back into the borehole as the DPT rods are retracted. The upper 10 feet of the borehole will be plugged with granular bentonite and hydrated with potable water to make an impermeable seal.

Open boreholes not used for monitoring well installation, temporary wells, or permanent wells will be abandoned as follows:

1. The entire borehole will be grouted with cement and bentonite slurry containing high solids mixed to the manufacturer’s specifications. The bentonite slurry will be placed with a tremie pipe from the bottom of the annular area to be grouted to ensure proper placement of the slurry.

2. The abandoned borehole will be marked with a flag or stake to allow for surveying.

6.3 Surface Water and Sediment Sampling

Preliminary analysis of surface water on the Site has identified three major drainages which will be sampled during implementation of the Revised Phase I Work Plan. Additional intermittent drainage ditches throughout the property, which may be influenced by the Site, will be sampled during the Phase II activities, as discussed below.

6.3.1 Identification of Surface Water and Sediment Sampling Locations

Initial actions performed by Hercules in response to the AO included performing a review of available maps, historical reports, and related resources that identify surface water features within and beyond the 0.5-mile search radius specified by USEPA. There are numerous small drainage features on the Hercules Site that collect storm water runoff from rain events but these ditches are typically dry except in periods of heavy rainfall. A detailed evaluation of hydrologic setting at the Site was performed by B&V and summarized in 1993 B&V Report. The report concluded that, and as discussed in Section 1.2, Topography and Surface Water, the Site is predominantly drained by three waterways, which include:

- The perennial Greens Creek, which flows in an easterly direction (Drainage A);
- An unnamed, intermittent drainage ditch that flows in a northerly direction and exits the northeast corner of the Hercules Site, crosses North Main Street, and flows within a culvert below a neighboring industrial facility until it daylights approximately 1,000 feet northeast of the Hercules property line (Drainage B); and
- An unnamed, intermittent drainage ditch located in the southeastern portion of the Site, which flows south of the Site's wastewater treatment plant and exists in both closed-culverted and open conditions along its generally easterly flow path (Drainage C).

The Site's three main drainages flow northeast for 1.0 to 1.2 miles before entering the Bouie River, which flows in a southeasterly direction (B&V 1993). Depending on which pathway surface water enters the Bouie River from the Site, it then travels between 0.9 and 1.9 miles southeast and enters the Leaf River. The Bouie and Leaf Rivers are utilized for sport and commercial fishing according to the 1993 B&V report; however, the report states that Greens Creek is too small to be used for fishing or swimming. This usage of Greens Creek will be determined during implementation of this Revised Phase II Work Plan.

The on-site surface water features identified in historical reports and the smaller intermittent drainages that have not been sampled to date, are the focus of the proposed sediment and surface water sampling program outlined in this Revised Phase II Work Plan.

Proposed surface water and sediment sample collection locations along the reaches of on-site drainage features are shown on Figure 13. The rationale for collecting a sample at each location is provided in Table 7. Nineteen co-located surface water and sediment samples (where possible) will be collected within the facility boundary to evaluate Constituent concentrations on Hercules property. The majority of the sample locations are proposed for the three main drainages, or tributaries to those drainages, to fully characterize Constituent concentrations within the drainages and to identify habitat characteristics in and around these features. The remaining sample locations are along the southern property boundary (West 7th Street). Sampling will not be performed in closed culverts or conveyances that are not readily accessible and open to the surface. Proposed surface water and sediment sample locations are shown on Figure 13. Details of the sample collection procedures and analytical parameters are provided in the following sections of this Revised Phase II Work Plan.

At each surface water and sediment sampling location a screening-level assessment of surface water use, habitat, and potential for threatened and endangered species will be performed to capture visual observations at the time of the sampling.

The surface water and sediment sample results will be evaluated using the assessment procedures contained in Sections 9 and 10 and the decision logic presented on Figures 15A and 15B. In the event that the decision logic indicates additional surface water and/or sediment samples are needed for delineation, the additional sampling will be conducted in accordance with the sample collection procedures and analytical parameters in the following sections of this Revised Phase II Work Plan.

6.3.2 Surface Water Sampling Procedure

The USEPA SESD guidance document SESDPROC-201-R1 will be utilized during the collection of surface water samples for laboratory analysis. Surface water sampling will be performed and documented in accordance with procedures outlined in the document and with the SOP provided in Appendix J of the Revised Phase I Work Plan. Where conflicts exist between the two guidance documents, the SESD guidance will prevail. Conditions that require deviations from practices in the guidance will be documented in field books, surface water sampling sheets, and final reports that will become part of the project records. Surface water samples will be preserved, handled, and shipped in accordance with SESDPROC-201-R1 and the project-specific QAPP. The analytical program for the surface water program is discussed in Section 7 and the evaluation process is described in Section 8.

6.3.3 Sediment Sampling Procedure

The USEPA SESD guidance document SESDPROC-200-R2 will be utilized during the collection of sediment samples for laboratory analysis. Sediment sampling will be performed and documented in accordance with procedures outlined in the document and with the SOP provided in Appendix K of the Revised Phase I Work Plan. Where conflicts exist between the two guidance documents, the SESD guidance will prevail. Conditions that require deviations from practices in the guidance will be documented in field books and sediment sampling sheets that will become part of the project records. Sediment samples will be collected from within the upper 0- to 6-inch sediment layer present at each location. Each sediment sample will be preserved, handled, and shipped in accordance with SESDPROC-200-R2 and the project-specific QAPP. The analytical program for the sediment program is discussed in Section 7 and the evaluation process is described in Section 8.

6.3.4 Schedule of Sampling

Surface water and sediment sampling will be conducted at the locations shown on Figure 13. A preliminary schedule for surface water and sediment sampling is included as Table 6.

6.4 Groundwater Sampling (Temporary and Permanent Wells)

Temporary or permanent groundwater monitoring wells will be installed and sampled to investigate the presence of Site-related Constituents in groundwater:

Step 1: Install pre-packed well screens using direct push technology to collect screening-level groundwater data.

Step 2: Based on a review of the screening level groundwater data, install permanent monitoring wells, if required, to collect shallow groundwater confirmation samples.

In addition, depth-to-water measurements and ground-surface elevations at each well point will be determined to assess the direction and gradient of groundwater flow. This section describes the sampling activities that will be performed to evaluate Constituents in groundwater.

6.4.1 Identification of Groundwater Sampling Locations

6.4.1.1 *Upper Water-Bearing Zone*

Based on Hercules' preliminary evaluation of the CSM, and to address USEPA comments during the June 9, 2011 and September 27, 2011, meetings, and to augment the monitoring data collected during routine groundwater monitoring events, groundwater screening data from the upper water-bearing zone will be collected in the vicinity of the locations as depicted on Figure 13.

The rationale for selecting the groundwater sampling locations shown on Figure 13 is provided in Table 5. The actual groundwater sample locations will be determined in the field and will be based on utility clearances.

Groundwater samples collected using pre-packed well screens are considered screening-level data, suitable for obtaining an understanding of groundwater quality.

Groundwater sample results will be evaluated using the assessment procedures contained in Section 9 and the decision logic presented on Figures 16A and 16B. In the event that the decision logic indicates additional groundwater samples are needed for delineation, the additional sampling will be conducted in accordance with the sample collection procedures and analytical parameters in the following sections of this Revised Phase II Work Plan.

6.4.1.2 *Deep Aquifer*

Groundwater samples were collected from two of Hercules' on-site deep wells during implementation of the Revised Phase I Work Plan. These wells are screened in the Catahoula sandstone, which is below the Hattiesburg formation. The results of the deep well sampling will be evaluated as part of the Phase I investigation. In the event that the Phase I investigation concludes that additional deep well sampling or aquifer assessment is required, additional sampling and/or assessment may be conducted as part of the Phase II investigation. Monitor wells into the deep aquifer will be installed in accordance with the procedures below, if warranted.

6.4.2 Monitor Well Installations for Groundwater Sampling

6.4.2.1 *Temporary Well Installation Procedures*

Groundwater samples from the first water-bearing zone will be collected by installing temporary groundwater monitoring wells completed with pre-packed well screens using a DPT drilling rig. Small-diameter (¾-inch internal diameter) polyvinyl chloride (PVC) wells equipped with 10 feet of pre-packed well screen will be installed in the locations illustrated on Figure 13 so that groundwater quality samples can be collected. The screened interval of these temporary monitoring wells will be set so that approximately 2 feet of the screened interval is above the static water table and 8 feet is below the water table. This will ensure that the screen interval intersects both the saturated and unsaturated zones of the shallow aquifer. Following utility clearing, a DPT rig will be used to collect continuous soil samples using a macro-core sampler from the ground surface to a depth equivalent to the base of the first water-bearing zone. If the saturated zone is greater than 15 feet thick or if the field screening values indicate potential impacts at depth, a second screened interval may be installed in the area. After the cores are collected, they will be opened and soils screened and collected for laboratory analysis as discussed above in Section 6.2.

6.4.2.2 *Groundwater Sampling Using Permanent Well Procedures*

The temporary wells may be converted to permanent groundwater monitoring wells, or permanent groundwater monitoring wells may be installed to facilitate the collection of shallow groundwater samples and the measurement of groundwater elevations, if deemed necessary based on an evaluation of the groundwater screening data. The preferred alternative is to convert the temporary well pre-packed screens into permanent wells, but in some instances the original pre-packed screens may be removed and a monitoring well installed adjacent to the screening location. All monitoring wells will be drilled and installed by a Mississippi-licensed water well driller, using one of the following techniques depending upon anticipated field conditions:

- Hollow-Stem Auger;
- Mud Rotary; or
- Rotosonic.

All soil cuttings generated during the drilling of the boreholes will be collected and stored in a drum or roll-off box while awaiting characterization.

6.4.2.3 *Monitor Well Construction Details*

The monitor wells will be constructed so that the top of the well screen is just above the water table. In the event that the groundwater bearing zone has a continuous interval greater than 15 feet in vertical length, a second monitor well will be installed to monitor the deeper portion of the zone. In either case, monitor well screens will not be greater than 10 feet long. All monitoring wells will be installed and developed in accordance with SESD GUID-101_R0. Procedures for both the conversion of DPT temporary wells to permanent wells and installation of traditional wells are provided in the SOP provided in Appendix M of the Revised Phase I Work Plan.

Monitoring well construction details will be documented on the appropriate Well Construction Log. No water will be introduced during monitoring well construction unless the borehole conditions require stabilization. If required, the water will be obtained from the public water supply system.

1. The screened interval for all monitoring wells is anticipated to be 5- to 10-foot sections of factory-milled 10-slot, 2-inch O.D., schedule 40 PVC screen, placed in the bottom of each well. The well screen attached to threaded, flush joint, 2-inch O.D., schedule 40 PVC casing will be inserted in the borehole through the minimum 6.25-inch O.D. hollow-stem auger.

2. The screened interval of the monitoring wells are anticipated to be 8 to 18 ft bgs.

3. PVC casing will be threaded to the screen and brought to a height of 3 feet above ground level for completion.

4. The annular space between the well and the borehole wall will be backfilled with a clean, graded, size 20 to 40 silica sand pack that will extend from the bottom of the borehole to a minimum of 2 feet above the top of the screened interval. The sand pack will be placed by tremie pipe from the bottom of the borehole through the hollow-stem augers to ensure complete placement around the well screen. The hollow stem auger will be retrieved as the sand pack is emplaced and can typically serve as the tremie pipe for filter pack placement.

5. Approximately 1 foot of very fine sand grade size 50 or smaller may be emplaced above the filter pack to prevent the migration of the bentonite slurry into the well screen.

6. A minimum thickness of 3 feet of bentonite pellets or chips will be placed on top of the filter pack as a seal. If the seal is within the unsaturated zone at the time of installation, granular bentonite will be placed in 1-foot lifts, saturated with potable water, and allowed to hydrate. Hydration time will conform to the manufacturer's recommendations before further work on the well is performed.

7. The annular space from the top of the bentonite seal to within 1 foot beneath the frost line (approximately 30 to 36 inches bgs) will be filled with a cement and bentonite slurry containing high solids mixed to the manufacturer's specifications. Alternatively, cement/bentonite slurry consisting of 8 gallons water and 5 percent bentonite by weight per bag of Portland cement will be used, with a target density of 14 to 15 pounds per gallon. The bentonite slurry will be placed with a tremie pipe from the bottom of the annular area to be grouted to ensure proper placement of the slurry.

8. The remaining annular space near land surface will be filled with concrete. All wells with aboveground surface completions will be completed above grade using a protective steel cover. A concrete apron will be installed around the cover. The apron will be a minimum of 2 feet by 2 feet and 6 inches in thickness, and shall be sloped to promote drainage away from the well. The wells will also be equipped with locking caps.

9. At selected locations, steel guard posts or protective barriers will be installed around the wells in a manner designed to prevent vehicles from accidentally damaging the well.

6.4.2.4 *Groundwater Level Measurements*

Water level measurements will be referenced to a surveyed elevation point located on the top of the well casing. This measurement point will be surveyed by a Certified Land Surveyor and referenced to feet above mean sea level. An electronic water level probe will be used to gauge the water level in the new wells, in addition to the existing monitoring wells and piezometers at the facility.

Water levels will be recorded in the temporary monitoring wells, existing monitoring wells and new monitoring wells within 24 hours prior to each groundwater sampling event. The total well depth may also be measured at this time to determine if sediment has accumulated in the well thereby reducing the effective well depth. Water level measurements at each Site will begin with the upgradient wells (i.e., inferred least contaminated wells) and proceed to the downgradient wells (i.e., inferred most contaminated wells). Water-level measurements will be collected within a single 24-hour period and will be measured twice to check the reproducibility of the measurement data. This measurement validation helps ensure accuracy with regard to the water level data collection. The procedure for obtaining water level measurements is as follows:

1. Describe the area surrounding the well, whether or not the lock was secure (if applicable), if the well could have been impacted by surface water runoff, ambient weather conditions and other factors that could affect the final data analysis. This documentation is recorded on a Water Level Measurement Form.

2. Decontaminate the electronic water probe prior to initiating water level measurements and between all wells and piezometers.

3. Unlock the protective casing and remove the inner cap on the riser.

4. Check the probe to verify that it is operational, then lower down the monitoring well.

5. If the well is not vented, allow the water level to equilibrate for a few minutes prior to collecting the first measurement. Take fluid level measurements from a fixed reference point (the north side of the top of the PVC riser) using an electric tape graduated in 0.01-foot intervals.

6. Repeat the measurements until two measurements are obtained that are within 0.01 foot.

7. Remove and decontaminate the probe, replace the inner cap, and lock the protective casing.

6.4.2.5 *Groundwater Sampling Procedures*

The USEPA SESD guidance document SESDPROC-301-R2 will be utilized during the collection of groundwater samples for laboratory analysis. Groundwater sampling will be performed and documented in accordance with procedures outlined in the document and with the SOP provided in Appendix L of the Revised Phase I Work Plan. Where conflicts exist between the two guidance documents, the SESD guidance will prevail. Conditions that require deviations from practices in the guidance will be documented in field books, surface water sampling sheets, and final reports that will become part of the project records. Groundwater samples will be preserved, handled, and shipped in accordance with SESDPROC-301-R2 and the project-specific QAPP. The analytical program for the groundwater sampling program is discussed in Section 7 and the evaluation process is described in Section 8.

A groundwater sample will be collected from each of the groundwater monitoring wells (either temporary or permanent) following installation and well development. Samples from the monitoring wells will be collected using low-flow/low-stress sampling techniques in accordance with the procedures specified in the SOP.

New monitoring wells will not be sampled for at least 24 hours following non-stressful means of well development (e.g., purging with submersible pump or bailer) and 48 hours following stressful means of well development (e.g., air lift, surge and purge). Monitoring wells will be purged prior to collecting groundwater samples to ensure that representative formation water is being sampled. The monitoring wells will be purged and sampled in the same order as that for water-level measurements (upgradient to downgradient, or least contaminated to most contaminated where known based upon prior sampling results). Prior to introduction into the well, all non-dedicated equipment and materials will be decontaminated.

The following procedures will be implemented when performing well purging prior to sample collection:

1. Put on clean latex or vinyl surgical gloves or nitrile gloves.

2. Unlock the metal protective casing, remove the well cap, and document the general condition of the well.

3. Determine static fluid-level elevation using electronic probe. Record on Groundwater Sampling Form.

4. Compute the volume of water in the well. The volume of water to be purged will be computed based on the total well depth recorded upon the completion of well installation. The total depth will be measured periodically during the monitoring program to determine if sediment has accumulated in the well thereby reducing the effective well volume. If it is determined that sediment has accumulated in the well, then the new well depth will be used to compute the volume of water to be purged.

5. Insert the pre-cleaned bladder (or peristaltic) pump and tubing into the well to the midpoint of the well screen. Record installation time in field notes. Dedicated Teflon and/or PVC bailers may be used to facilitate sample collection where site conditions warrant, such as low recovery wells.

6. Start pump at the lowest possible flow rate and adjust the pumping rate to approximately 100 milliliters per minute (mL/min). Record pump start time in field notes. Verify the flow rate with the graduated cylinder or equivalent by collecting the water from the discharge line for one minute. Record results in field notes. Based on the recovery rate of the well, the pump may need to be raised or lowered to adequately purge the entire well column. Adjustments will be recorded in the field notes.

7. Monitor water level to verify that little or no drawdown (0 to 0.3 foot) is occurring in the well. If desired, the flow rate may be increased to up to 300 mL/min in more permeable formations as long as little or no drawdown is observed in the well. Record measurements and flow rates in field notes.

8. Obtain field parameter measurements (temperature, specific conductance, pH, dissolved oxygen, oxidation-reduction potential [ORP], and turbidity) every 5 minutes and record on the Groundwater Sample Log. Purge until the criteria listed below have been met (unless low well recovery precludes this):

    - The field parameters stabilize to within +/- 10 percent of three consecutive meter readings taken at least 5 minutes apart.

    - The measured turbidity is less than 10 nephelometric turbidity units (NTUs), unless low recovery precludes this. In the event that turbidity is not less than 10 NTUs using standard well purging techniques (i.e., a bailer), an appropriate number of well volumes (three to five) will be removed. In the event that turbidity stabilizes at a level greater than 10 NTUs when using low flow sampling procedures, this groundwater will be considered representative of the groundwater in the formation. The representative groundwater will be containerized and submitted for analysis.

9. Collect VOC samples for laboratory analysis (if required) at a low flow rate (100 mL/min) directly into the appropriate sample container. If a peristaltic pump is used, the downhole tubing will be filled using suction and removed from the well to prevent the sample from contacting the pump head. The pump speed is reduced and the direction reversed to push the sample out of the tubing and into the sample containers. Ensure that no air bubbles are present in the vial. Secure sample container lid and store sample containers in chilled cooler after filling out the sample label.

10. Collect additional samples for non-VOC analysis (collecting in the order of explosives, metals, and indicator parameters). If samples are being collected using a peristaltic pump following VOC sample collection, repeat steps 1 through 8. Collect non-VOC samples at low flow rate (100 mL/min). Flow rates of up to 500 mL/min can be used if all stabilization criteria are achieved. Unless specified in the site-specific work plan, metals samples will be collected unfiltered. If site conditions require filtration for metals analysis, an in-line 45 micron filter will be used. Secure sample container lids and store sample containers in chilled cooler.

11. Complete sampling documentation on the Groundwater Sampling Form, record the collection date and time on the sample key, and fill out the Well Sampling Summary form.

12. If inadequate water is present in the well to fill the required sample containers, return periodically within 24 hours until adequate sample volume is obtained and field parameters measured. Collect groundwater for individual analyses in the appropriate sample order. If required, collect VOCs and store first, then metals, and other indicator parameters.

13. If drawdown in the well cannot be maintained within the 0.3-foot requirement, sample collection will be performed after three well volumes of groundwater have been purged. Begin sample collection with VOC analysis unless otherwise noted in the site-specific work plan. For wells that purge dry before all of the samples are collected, allow the well to recover and then make one more attempt to collect the remaining samples within a 24-hour period.

14. Turn off pump. Remove portable pump from well and decontaminate or dispose. Tubing will be left as dedicated tubing in the well or disposed of after use.

15. Determine the total depth of the well. Compare the measurement of the total depth of the well with previous measurements and well construction log to determine available screen length. Record on water sampling log. If more than 20 percent of a well screen is occluded by sediment, the well must be redeveloped prior to collecting future groundwater quality samples. Samples collected prior to the total well depth measurement will be representative only if the field data indicate that the well met stabilization criteria prior to sampling.

16. Replace cap on well and protective casing lock well.

6.4.2.6 *Schedule of Groundwater Sampling*

Groundwater sampling will be initiated upon approval of this Revised Phase II Work Plan and obtaining access agreements for off-site sampling locations. A review of county tax records will be performed to determine which proposed sampling locations identified on Figure 13, if any, will require private property access. Access agreements will be presented to the property owner for review and approval. The sampling event will be scheduled once all access agreements are obtained. A preliminary schedule for groundwater sampling is included in Table 6. No samples will be collected without the owner's signed access agreement.

6.4.2.7 *Temporary Monitor Well Abandonment*

Temporary wells will be abandoned by the following procedures.

1. The temporary well riser pipe and well screen will be removed from each borehole. The riser pipe and screen will be decontaminated by steam cleaning at the designated decontamination area and will be discarded in a sanitary waste landfill.

2. The entire borehole will be grouted with cement and bentonite slurry containing high solids mixed to the manufacturer’s specifications. The bentonite slurry will be placed with a tremie pipe from the bottom of the annular area to be grouted to ensure proper placement of the slurry.

The abandoned borehole will be marked with a flag or stake.

6.5 Vapor Intrusion Evaluation

The vapor intrusion pathway will be evaluated for on-site conditions consistent with the sample decision flow chart provided on Figure 14, if necessary. This approach starts with a broad view of the potential pathway, characterizing sampling media one step at a time originating with groundwater, then progressing to soil gas, sub-slab, and indoor air evaluations, as appropriate. The key is to focus the sampling efforts on those areas or buildings with the greatest potential for indoor air exposure to Constituents. Generally, buildings within 100 feet of the source (in this case groundwater) will be the focal point of any further investigation; however, if the groundwater exhibits concentrations below screening levels that are protective of indoor air exposures, then further evaluation would not be warranted.

The following describes the specific procedures for screening shallow groundwater data and for collecting and evaluating soil gas data near the edge of the delineated shallow groundwater plume and/or within the plume. Soil gas data will be screened using USEPA RSLs assuming a 0.1 attenuation factor moving from soil gas to indoor air. If soil gas samples exceed the screening levels, sub-slab soil gas and indoor air sampling in buildings will be warranted.

The first step in the evaluation of the vapor intrusion pathway is the comparison of shallow (water table) groundwater data to calculated groundwater screening levels (SLs) protective of indoor air exposure. These SL values have been calculated using the most recent USEPA residential indoor air RSLs (June 2011 table) consistent with USEPA (2002) guidance as follows:

$$C_{gw} = C_{ia} \text{ x CF x } 1/\text{HLC} * 1/\text{AF}$$

Where:

C_{gw} = groundwater to indoor air screening level (or groundwater SL)

C_{ia} = concentration in indoor air (residential air concentrations from the USEPA RSL table)

CF = conversion factor (0.001 m^3/L)

HLC = Henry's Law Constant (unitless and constituent-specific)

AF = attenuation factor (0.001)

If the calculated groundwater SL is below a federal drinking water standard such as the Maximum Contaminant Level (MCL), the MCL will be used as the criteria instead. Groundwater SLs will be calculated corresponding to a target cancer risk level of 1×10^{-6} (1 in 1,000,000) or a Hazard Quotient (HQ) of 1.0 for screening purposes, although the entire Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) target risk range (1×10^{-6}) and an HQ of 1 may be considered prior to sampling additional environmental media.

A screening procedure will be implemented during the Phase II activities to evaluate new groundwater data obtained during the proposed on-site investigation activities. If further investigation activities are required based on the results of soil gas sampling, shallow groundwater samples will be collected as described in Section 6.4 until concentrations are below either the calculated groundwater SLs or the MCLs, whichever is greater. At the completion of the on-site groundwater assessment, USEPA, MDEQ, and Hercules will determine if soil gas samples should be collected or if the data indicate that no further evaluation of the vapor intrusion exposure pathway is warranted.

6.6 Soil Gas Sampling

Soil gas sampling, if warranted, will be conducted to assist in the delineation and evaluation of the vapor intrusion exposure pathway. The overall goal of the soil gas sampling program is to confirm that VOCs associated with historical plant operations are not migrating within the vadose zone at concentrations that could be of concern for vapor intrusion. As noted above, a focused number of soil gas samples were collected from the southeast portion of the Site as part of the Phase I investigation. Additional soil gas samples may be collected based on the results of shallow groundwater sampling and screening as outlined in Figure 14 and Section 6.6.4.

6.6.1 Identification of Soil Gas Sampling Locations

Soil gas samples, if required on site, will be collected approximately 1 to 2 feet above the water table. The exact location of the samples will be determined in the field based on groundwater data and will be subject to subsurface utility restrictions.

6.6.2 Soil Gas Sampling Procedure

Soil gas sampling probes will be installed as temporary (or semi-permanent) points consistent with the SOP SESDPROC-307-R2. Specifically, 6-inch stainless steel screens (or implants) will be installed using a DPT drilling rig. An extraction pit will be created around the stainless steel screen using either glass beads (as specified in the SOP) or clean sand. The sample probe will be finished at the ground surface with a temporary well cover. Soil gas samples will be collected approximately 24 hours after sample port installation and after the sample probe has been allowed to come to equilibrium. At this time, the vapor probe will be connected to a sample container (SUMMA® canister) at ground surface. All samples will be collected at a flow rate no greater than 200 milliliters per minute or 30 minutes for a 6-liter SUMMA® canister. After the prescribed sampling period, the sample containers will be closed and disconnected.

Soil gas samples will be preserved, handled, and shipped in accordance with SESDPROC-307-R2 and the project-specific QAPP. The analytical program for the soil gas program is discussed in Section 7 and the evaluation process is described in Section 8.

During the soil gas sampling, potentially affected structures near the soil gas locations will be evaluated to determine the building construction.

6.6.3 Schedule of Sampling

Soil gas sampling, if required, will be initiated upon approval of proposed sampling locations from USEPA.

6.6.4 Soil Gas Screening

Soil gas data collected will be evaluated using multiple lines of evidence, as follows:

- Evaluation of potential background sources of Constituents detected in soil gas;
- Comparison to conservative SLs (i.e., soil gas SLs); and
- Evaluation of the CSM to assess how Site-specific conditions may affect interpretation of the results.

As a first step in the analysis of the soil gas data, an analysis of potential background sources of Constituents detected in soil gas will be conducted to assess whether the Constituent is related to the Hercules Site, or may be the result of an alternate source in the vicinity of the sampling point. If Constituents are clearly not identifiable as being Site-related, a petition for no further analysis will be made to USEPA/MDEQ.

For potentially Site-related Constituents, soil gas SLs will be calculated from the USEPA residential air (or indoor air) RSLs (current date is June 2011) as follows:

$$C_{sg} = C_{ia} / AF$$

Where:

C_{sg} = soil gas to indoor air screening level (or soil gas SL)

C_{ia} = concentration in indoor air (residential air RSL from current RSL table)

AF = attenuation factor (0.1)

The soil gas results will then be compared to the calculated soil gas SLs at a target risk range of 1×10^{-6} and an HQ of 1. If all Constituent concentrations are below the soil gas SLs, then no further evaluation may be necessary. If any Constituent concentrations exceed a soil gas SL, then sub-slab, soil gas, and indoor air sampling may be warranted. As part of this process, the CSM will be evaluated and a determination made if there are any Site-specific factors (i.e., geology, hydrogeology, and building construction) that could influence the interpretation of the data. The results of the soil gas screening will be used to identify the next step in the evaluation of the vapor intrusion pathway (i.e., sub-slab, soil gas, and/or indoor air sampling).

6.7 Sub-slab, Soil Gas, and Indoor Air

Based on the soil gas sampling results and data evaluation, a sub-slab soil gas and indoor air sampling program may be implemented. Sub-slab soil gas and indoor air sampling will be initially focused on buildings within the site.

6.7.1 Identification of Potential Indoor Air Sampling Locations

Soil gas, sub-slab, and/or indoor air sample locations will be selected, as necessary, based on the results of soil gas sampling and analysis.

6.7.2 Sub-slab, Soil Gas, and Indoor Air Sampling Procedure

Soil gas, sub-slab, and/or indoor air sampling will be conducted consistent with SOPs provided in Appendix P of the Revised Phase I Work Plan, SESDPROC-303-R4, and SESDPROC-307-R2, as appropriate. Prior to sampling, a Site reconnaissance will be conducted at each building. The overall goal of the Site reconnaissance is to complete a building survey that identifies construction conditions, heating, ventilation, and air conditioning operation, any preferential vapor migration pathways (i.e., sump pump), and products that are stored or used within the building. Any products that contain Site-related VOCs will be requested to be removed from the occupied structure 48 hours prior to sampling. A copy of the building survey and product inventory form is provided as an attachment to the SOP.

Indoor air samples may also be collected at all buildings where a sub-slab soil gas sample will be obtained. When indoor air samples are collected, a corresponding upwind, outdoor air (background) sample will be collected. Indoor air and outdoor air samples will be collected using SUMMA® canisters. Both types of air samples will be preserved, handled, and shipped in accordance with SESDPROC-303-R4, SESDPROC-307-R2, and the project-specific QAPP. The analytical program for the indoor air program is discussed in Section 7 and the evaluation process is described in Section 8.

6.7.3 Schedule of Sampling

Soil gas, sub-slab, and/or indoor air sampling will be initiated after completion of soil gas sampling and analysis and obtaining access agreements for any off-site sampling locations. Access agreements will be presented to the property owner for review and approval. The sampling event will be scheduled once access agreements are obtained. No samples will be collected without the owner's signed access agreement.

6.8 City of Hattiesburg Sewer Sampling

On October 1, 2010, MDEQ collected water samples from two manholes (A370 and A372) located beneath Providence Street. These manholes are connected to the City of Hattiesburg sewer collection system. The approximate locations of the manholes are shown on Figure 13. The samples were analyzed by MDEQ’s Office of Pollution Control Laboratory for VOCs. Acetone was detected in the sample collected from the A370 manhole location. Acetone, benzene, carbon tetrachloride, chloroform, and toluene were detected in the sample collected from the A372 manhole location.

Hercules will collect grab samples of the water contained in manholes A370 and A372. These samples will be submitted for the same analyses as the groundwater samples collected from on-site locations. The results of the sampling will be evaluated to determine if additional soil and/or groundwater sampling will be conducted in the Providence Street area.

7. Analytical Program

The DQOs for all data collection are described in Section 5.2 and the QAPP included in the Revise Phase I Work Plan. The analytical methods that will be used to complete the assessments of the various media are included in the QAPP. The detection limits that will be used as the reporting limits will be the selected laboratory's method detection limits for the instruments utilized in their particular laboratory.

Appropriate quality assurance and quality control (QA/QC) samples will be prepared as air, soil, surface water, sediment, and/or groundwater samples are being collected. The QA/QC samples will include:

- Trip blanks (1 per cooler);
- Field blanks (1 per 20 samples);
- Rinse blanks (1per 20 samples);
- Field duplicates (1 per 20 samples); and
- Matrix spike/matrix spike duplicate samples (1 per 20 samples).

The sampling personnel will complete a chain-of-custody form that will accompany the samples to the laboratory. Additional information on the QA/QC program is provided in the QAPP included in the Revise Phase I Work Plan.

8. Data Evaluation

Data generated during this assessment will be managed in accordance with the procedures identified in the QAPP included in the Revise Phase I Work Plan. The data verification process outlined in the QAPP will ensure that data collected during the assessment activities meet the DQOs and are acceptable for evaluation.

Applicable USEPA and MDEQ standards and screening levels will be used to evaluate the analytical data to determine if concentrations are protective of human health and the environment. The lower of the USEPA RSLs and MDEQ Tier 1 TRG standards and screening levels will be used to evaluate the analytical data to determine if concentrations are protective of human health and the environment. Detections of Constituents will be evaluated using the decision matrices provided for the targeted media (Surface Water and Sediment, Figures 15A and 15B; Groundwater, Figures 16A and 16B; and Indoor Air, Figure 14).

If maximum detected concentrations of the Constituent are below USEPA and MDEQ standards or screening levels for any medium, then the Constituent is dropped from further consideration because there will be no excess risk to human health and adverse effects would not be expected to occur.

9. Human Health Risk Assessment

A human health risk assessment (HHRA) will be conducted to evaluate the effect of Constituents identified in Site soil, groundwater, soil gas and indoor air, sediment, and surface water on human health. Based on land use considerations, human exposure to this Site is expected to be limited because the site is a closed industrial facility with continuous fencing and a locked gate. Residential use of the property is not likely to occur based on zoning for the Site. However, land use could change sometime in the future. Therefore, the risk assessment will evaluate exposure of hypothetical future youth trespassers, Site workers, and construction workers. As a conservative measure, hypothetical future residential use of the Site will also be included in the risk assessment. Potential human health risks associated with current and reasonably expected future Site conditions and land use will be evaluated, and the results of the risk assessment will be used to evaluate the potential need for and the degree of remedial measures necessary to achieve Site closure based on Site-specific human health concerns (if any). The human health risk evaluation will be a section of the Remedial Investigation report and will draw upon the information described above and presented in earlier sections of that report. Thus, this section of the work plan will focus on the methodology used in the exposure assessment, toxicity assessment, risk characterization, development of risk-based remediation goals (if necessary), and uncertainty analysis. Each of these elements is described below.

The HHRA will be conducted consistent with methods outlined by MDEQ (2002) guidance and methods recommended by the USEPA in their risk assessment guidelines (USEPA 1989).

9.1 Constituent Characterization

The available data from previous investigations will be presented and evaluated for use in the risk assessment by comparing to background and available screening levels. Data considered to be usable and representative of the site will be included in the risk assessment and data summary tables will be prepared for each medium (surface soil, subsurface soil, groundwater, sediment, surface water, and, if appropriate, fish tissue). The summary tables will include the frequency of detection, the range of detection limits, the range of detected values, the arithmetic average concentration, the arithmetic average background concentration (if applicable), the risk-based screening values, and whether the Site-related Constituent is a constituent of potential concern (COPC).

As discussed in the previous section, the screening levels will be obtained from the most recent USEPA RSL table and the Mississippi TRGs.

9.2 Toxicity Assessment

Toxicity values for potential non-carcinogenic and carcinogenic effects are determined from available databases. For this risk assessment, toxicity values will be obtained from the following sources and will be compared to those values included in the current USEPA RSL table.

- USEPA's Integrated Risk Information System (IRIS)
- The Provisional Peer Reviewed Toxicity Values (PPRTVs) derived by USEPA's Superfund Health Risk Technical Support Center (STSC) for the USEPA Superfund program
- The Agency for Toxic Substances and Disease Registry (ATSDR) minimal risk levels (MRLs)
- The California Environmental Protection Agency/Office of Environmental Health Hazard Assessment's toxicity values
- The USEPA Superfund program's Health Effects Assessment Summary Tables

9.2.1 Non-Carcinogenic Effects

The potential for non-carcinogenic effects is estimated by comparing a calculated exposure dose with a reference dose (RfD) for each individual constituent. The RfD represents a daily exposure level that is designed to be protective of human health, even for sensitive individuals or subpopulations. The reference concentration (RfC) is a comparable level that represents an air concentration designed to be protective of human health, including sensitive individuals and subpopulations.

The RfD and RfC represent a daily exposure level that is not expected to cause adverse non-carcinogenic health effects. Chronic RfDs and RfCs are used to assess long-term exposures ranging from 7 years to a lifetime. Subchronic RfDs and RfCs are used to evaluate the potential for adverse health effects associated with exposure to constituents over a period of 2 weeks to 7 years.

For the constituents previously detected, Table 8 presents the RfDs used to assess oral and dermal exposure, and Table 9 presents the RfCs used to evaluate inhalation exposure. These tables also present the target sites associated with the non-carcinogenic toxicity values for each constituent varying with the exposure route. USEPA confidence values and uncertainty factors associated with the RfDs also are listed. The uncertainty factor represents areas of uncertainty inherent in the extrapolation from the available data. The confidence levels (low, medium, high) assess the degree of confidence in the extrapolation of available data. These levels account for data deficiencies or uncertainties, such as individual sensitivity and variability, interspecies variability (if animal data are used), database deficiency, and the extrapolation between exposure doses/durations.

9.2.2 Carcinogenic Effects

For the constituents previously detected, Table 10 presents the carcinogenic toxicity values for oral and dermal exposure, and Table 11 presents the carcinogenic toxicity values for inhalation exposure to the potential COPCs at the site. The carcinogenic toxicity value used in the calculation of potential cancer risks is the cancer slope factor (CSF), which is derived from the conservative assumption that any dose level has a possibility of causing cancer for the majority of constituents. The unit risk factor (URF) is used to evaluate inhalation exposure. The cumulative dose, regardless of the particular exposure period, determines the risk; therefore, separate CSFs are not derived for subchronic and chronic exposure periods.

9.2.3 Dermal Toxicity Values and Dermal Absorption

Whenever possible, route-specific toxicity values have been used; however, the USEPA has not yet developed toxicity values for dermal exposures. For this reason, the oral toxicity values (RfD_o and CSF_o) and the oral absorption efficiency were used to derive adjusted toxicity values (RfD_a and CSF_a) (adjusted to the absorbed dose) for use in assessing dermal exposure (USEPA 1989):

$$RfD_a = RfD_o \times \text{Oral Absorption Efficiency}$$

$$CSF_a = CSF_o / \text{Oral Absorption Efficiency}$$

The adjusted toxicity values presented in Table 8 (RfD_as) and Table 10 (CSF_as) represent the theoretical toxicity of the orally absorbed dose of the constituent. An oral absorption efficiency factor (or relative absorption factor) describes the ratio of the absorbed fraction of a constituent from a particular exposure medium to the fraction absorbed from the dosing vehicle used in the toxicity study for that constituent. Oral absorption efficiency values are used in the derivations of the risk-based soil and groundwater constituent concentrations to account for differences in the proportion of absorbed constituent in the soil and groundwater compared to the proportion absorbed in the toxicity studies forming the bases of the toxicity reference values. Oral absorption efficiencies are constituent-specific because they depend on unique physical-chemical properties of each constituent. As a conservative measure, the oral absorption efficiencies were assumed to be equal to 1 (i.e., 100 percent absorption) for all constituents via the inhalation pathways. Uncertainty is associated with the adjusted toxicity values and with the dermal risks derived using these values due to the uncertainty in the oral toxicity values combined with the uncertainty in the oral absorption efficiency default and constituent-specific values. However, the calculated dermal risks are expected to be very conservative and, therefore, will overestimate human health risks.

Table 12 presents the dermal absorption parameters for the COPCs. The dermal absorption efficiency is used to estimate dermal uptake from a soil matrix. The permeability coefficient and non-steady state dermal absorption parameters are used to estimate dermal uptake from water.

9.3 Exposure Assessment

Exposure pathways have been identified based on an evaluation of the site characterization information and the fate and transport properties of the constituents of interest. The exposure pathways evaluated identify likely points where human receptors may contact affected media under current or potential future conditions at the Site. The principal pathways by which exposure could occur are identified and presented in this section.

An exposure pathway is defined by the following four elements: 1) a source and mechanism of constituent release to the environment; 2) an environmental transport medium for the released constituent; 3) a point of potential contact with the contaminated medium (the exposure point); and 4) an exposure route at the exposure point. The purpose of the exposure assessment is to estimate the ways a population may potentially be exposed to constituents at a site. This typically involves projecting concentrations along potential pathways between sources and receptors. The projection usually is accomplished using site-specific data and, when necessary, mathematical modeling. Exposure can occur only when the potential exists for a receptor to directly contact released constituents or when there is a mechanism for released constituents to be transported to a receptor. Without exposure there is no risk; therefore, the exposure assessment is a critical component of the risk assessment.

The CSM provides the framework of the risk assessment. It characterizes the primary and secondary potential sources and release mechanisms and identifies the primary exposure points, receptors, and exposure routes. Exposure points are places or “points” where exposure could potentially occur, and exposure routes are the means by which constituents of interest may be taken up by the receptor (ingestion, inhalation, and dermal contact).

9.3.1 Potential Receptors

The facility is inactive and thus exposure of current site workers is not expected to be significant because they do not routinely work around former process areas or disposal locations (landfill, sludge pits) and there are no significant subsurface construction activities; however, in the future, the facility could be redeveloped for industrial use and hypothetical future construction workers and site workers could be exposed to constituents in soil. Site workers are not expected to contact constituents in surface water or sediment; however, at the request of USEPA, dermal contact with surface water and sediments by a future outdoor worker will be considered in the risk assessment. It is unlikely that exposure to constituents in groundwater would occur because of restrictions to use on-site groundwater as a potable water supply and its depth bgs.

The Site is surrounded by commercial, industrial, and residential land uses. The potential for exposure to constituents that have migrated off site will be evaluated in the risk assessment. Additionally, the potential for exposure to constituents in Greens Creek and other downstream surface water bodies will be evaluated in the risk assessment. Based on the data collected, these exposure scenarios will be evaluated qualitatively or quantitatively in the risk assessment. The potential for trespassers to contact site-related constituents on the Site will also be considered.

9.3.2 Potential Exposure Pathways

There are currently no points of exposure to groundwater on site. Workers on the property could be exposed to constituents in the surface soil through incidental ingestion, dermal contact, and inhalation of vapors or dust. Additionally, while the presence of trespassers is unlikely, any trespassers on the property could also contact the surface soils and be exposed to Site-related constituents. If the hypothetical trespasser were to wade in the surface water on the former Hercules property, they could contact COPCs in the surface water, fish, or sediments.

Shallow groundwater on the property boundary contains Site-related constituents. Several constituents were present above TRGs and RSLs. While groundwater is not used as a potable water supply on the property, individuals could be exposed to volatile constituents migrating into buildings on the property. Additionally, if the groundwater were used in the future for non-potable uses, exposure could occur to constituents detected in the groundwater. Potable use of groundwater will not be considered in the risk assessment because of the Notice of Land Use Restrictions filed and recorded with the Forrest County Chancery Clerk’s office on February 25, 2008, which prohibits the use of groundwater at the Site.

9.3.3 Exposure Point Concentrations

The 95 percent upper confidence level (UCL) on the arithmetic mean (assuming a one-tailed distribution) will be used to identify the exposure point concentrations (EPCs). Consistent with USEPA methodology, both the mean and UCL concentrations will be calculated using the ProUCL software available from USEPA. Non-detected values will be treated following the software protocol. The UCL will be selected using the output from the ProUCL software. The UCL is a statistical number calculated to represent the mean concentration with 95 percent confidence that the true arithmetic mean concentration for the site will be less than the UCL. The high level of confidence (i.e., 95 percent) is used to compensate for the uncertainty involved in representing the site conditions with a finite number of samples. If the 95 percent UCL is greater than the maximum detected concentration, the maximum detected concentration will be used as the EPC.

9.3.4 Exposure Assumptions

The exposure assumptions proposed for use in the risk assessment are provided in Tables 13 and 14 for constituents exhibiting mutagenic mode of action.

9.4 Risk Characterization

Potential risks to human health are evaluated quantitatively by combining calculated exposure levels and toxicity data. A distinction is made between non-carcinogenic and carcinogenic endpoints, and two general criteria are used to describe the HQ for non-carcinogenic effects and excess lifetime cancer risk (ELCR) for constituents evaluated as human carcinogens.

9.4.1 Hazard Quotient for Non-Cancer Hazard

Exposure doses are averaged over the expected exposure period to evaluate non-carcinogenic effects. The HQ is the ratio of the estimated exposure dose and the RfD. Thus, an HQ greater than 1 indicates that the estimated exposure level for that constituent exceeds the RfD or RfC. This ratio does not provide the probability of an adverse effect. Although an HQ less than 1 indicates that health effects should not occur, an HQ that exceeds 1 does not imply that health effects will occur, but that health effects are potentially possible.

The sum of the HQs is the hazard index (HI). A limitation with the HI approach is that the assumption of dose additivity is applied to compounds that may induce different effects by different mechanisms of action. Consequently, the summing of HIs for a number of compounds that are not expected to induce the same type of effects or that do not act by the same mechanism may overestimate the potential for toxic effects. Consistent with USEPA risk assessment guidelines for chemical mixtures, in the event that the total HI for an exposure scenario exceeds 1, it is incumbent on a risk assessor to segregate HQs by target organ/critical effect (USEPA 1989). Therefore, if the calculated HI exceeds 1 as a consequence of summing several HQs for constituents not expected to induce the same type of effects or that do not act by the same mechanism, the HIs may be segregated by effect and mechanism of action to derive separate HIs for each target-organ/critical-effect group (USEPA 1989).

9.4.2 Excess Lifetime Cancer Risk

The ELCR is an estimate of the potential increased risk of cancer that results from lifetime exposure, at specified average daily dosages, to constituents detected in media at a site. Estimated doses or intakes for each constituent are averaged over the hypothesized lifetime of 70 years. It is assumed that a large dose received over a short period is equivalent to a smaller dose received over a longer period, as long as the total doses are equal. The ELCR is calculated as the product of the exposure dose and the CSF or URF. The risk values provided in this report indicate the potential increased risk, above that applying to the general population, which may result from the exposure scenarios described in the Exposure Assessment (Section 9.3). The risk estimate is considered to be an upper-bound estimate; therefore, it is likely that the true risk is far less than that predicted by the model.

USEPA considers ELCRs within and below the range of 10^{-6} to 10^{-4} as potentially acceptable cancer risks. Site-specific remedial goal options (RGOs) will be calculated for those constituents with ELCRs exceeding the 10^{-6} target risk value for the relevant constituents and exposure scenarios.

9.4.3 Receptor-Specific Excess Lifetime Risk and Hazard Evaluation

The exposure parameters for each of the human receptors (hypothetical future site worker, construction worker, youth trespasser, and residents) are presented in Tables 13 and 14. The physical and chemical properties relevant to evaluating exposure and characterization of risk are presented in Table 15. The equations used to derive the risk estimates for receptor contact with soil are presented in Table 16. The equations used to derive the risk estimates for receptor contact with groundwater are presented in Table 17. The equations used to derive the risk estimates for receptor contact with surface water and sediment are presented in Tables 18 and 19, respectively. The risk estimates include exposure to the COPCs in soil via incidental ingestion, dermal contact, and inhalation of particulates released from the soil; exposure to the COPCs in groundwater and surface water via incidental ingestion, dermal contact, and inhalation of particulates released from the groundwater; and exposure to the COPCs in sediment via incidental ingestion and dermal contact. Exposure through the fish ingestion pathway will be evaluated using the equations in Table 20.

9.5 Development of Risk-Based Remediation Goals

If necessary, based on the risk estimates, human health-based RGOs will be developed for exposure pathways and constituents for which the risk estimates are not considered acceptable. The RGOs will be calculated using site-specific exposure information for the exposure scenarios identified above. For carcinogens, these RGOs will be set to achieve potential upperbound excess risk levels of 1 x 10^{-4}, 1 x 10^{-5}, and 1 x 10^{-6}. For constituents exhibiting non-carcinogenic systemic toxicity, the RGOs will be set to achieve an HQ of 0.1, 1, and 3 (USEPA 2000a). The range of RGOs is provided for risk management decision making. If the proposed RGO is based on an HQ or risk level other than those preferred by MDEQ (HQ of 1 and risk level of 10^{-6}), appropriate justification will be provided in the document.

10. Screening-Level Ecological Risk Assessment Approach

This section presents the screening level ecological risk assessment (SLERA) approach that will be used for the site. A SLERA evaluates the potential risk to terrestrial and aquatic wildlife that may be exposed to site-related constituents. A SLERA is designed to provide a conservative estimate of the risks that may exist for wildlife and incorporates uncertainty in a precautionary manner. The purpose of a SLERA is to either indicate the need for a more rigorous and focused evaluation (i.e., a baseline ecological risk assessment [BERA]), or to indicate that there is a high probability of no adverse risks for wildlife and, therefore, no need for further evaluation (USEPA 1997 and 2000b).

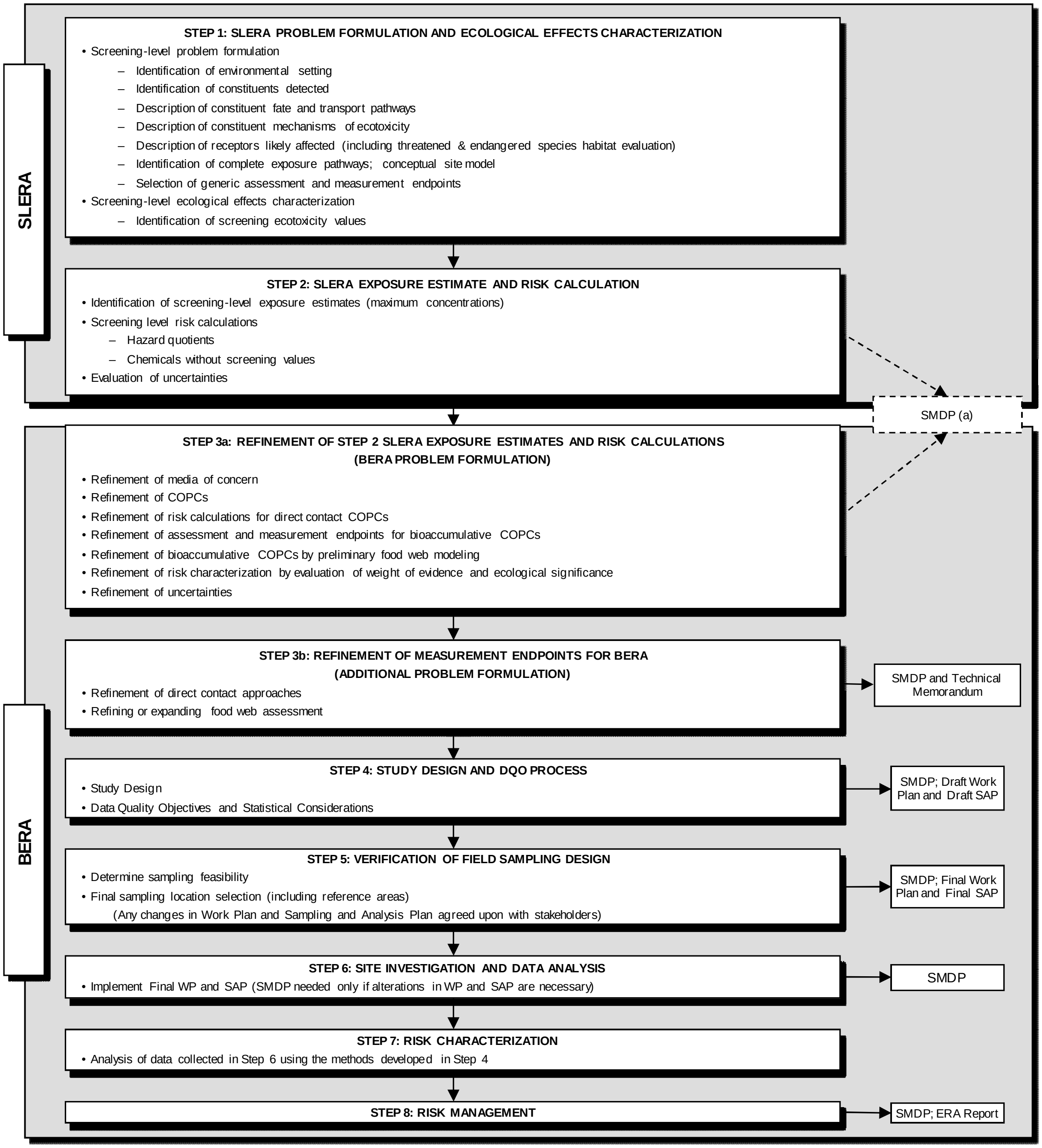
The ecological risk assessment (ERA) for this site will be conducted in a manner consistent with the following USEPA and MDEQ guidance:

- "Ecological Risk Assessment Guidance for Superfund" (USEPA 1997)

- "Guidelines for Ecological Risk Assessment" (USEPA 1998)

The comprehensive USEPA eight-step ERA process incorporates process is shown on the attached exhibit, which incorporates refinements recommended by USEPA Region 4 (USEPA 2000b). Steps 1 and 2 comprise the traditional SLERA, and Steps 3 through 8 comprise the BERA process. Step 3 can be subdivided into Step 3a, a refinement of the SLERA results, and Step 3b, the refinement of measurement endpoints for the BERA. The USEPA encourages the submittal of the results of

Exhibit
Expanded Eight-Step Ecological Risk Assessment Process



STEP 1: SLERA PROBLEM FORMULATION AND ECOLOGICAL EFFECTS CHARACTERIZATION
- Screening-level problem formulation
  - Identification of environmental setting
  - Identification of constituents detected
  - Description of constituent fate and transport pathways
  - Description of constituent mechanisms of ecotoxicity
  - Description of receptors likely affected (including threatened & endangered species habitat evaluation)
  - Identification of complete exposure pathways; conceptual site model
  - Selection of generic assessment and measurement endpoints
- Screening-level ecological effects characterization
  - Identification of screening ecotoxicity values

STEP 2: SLERA EXPOSURE ESTIMATE AND RISK CALCULATION
- Identification of screening-level exposure estimates (maximum concentrations)
- Screening level risk calculations
  - Hazard quotients
  - Chemicals without screening values
- Evaluation of uncertainties

SMDP (a)

STEP 3a: REFINEMENT OF STEP 2 SLERA EXPOSURE ESTIMATES AND RISK CALCULATIONS (BERA PROBLEM FORMULATION)
- Refinement of media of concern
- Refinement of COPCs
- Refinement of risk calculations for direct contact COPCs
- Refinement of assessment and measurement endpoints for bioaccumulative COPCs
- Refinement of bioaccumulative COPCs by preliminary food web modeling
- Refinement of risk characterization by evaluation of weight of evidence and ecological significance
- Refinement of uncertainties

STEP 3b: REFINEMENT OF MEASUREMENT ENDPOINTS FOR BERA (ADDITIONAL PROBLEM FORMULATION)
- Refinement of direct contact approaches
- Refining or expanding food web assessment

SMDP and Technical Memorandum

STEP 4: STUDY DESIGN AND DQO PROCESS
- Study Design
- Data Quality Objectives and Statistical Considerations

SMDP; Draft Work Plan and Draft SAP

STEP 5: VERIFICATION OF FIELD SAMPLING DESIGN
- Determine sampling feasibility
- Final sampling location selection (including reference areas)

(Any changes in Work Plan and Sampling and Analysis Plan agreed upon with stakeholders)

SMDP; Final Work Plan and Final SAP

STEP 6: SITE INVESTIGATION AND DATA ANALYSIS
- Implement Final WP and SAP (SMDP needed only if alterations in WP and SAP are necessary)

SMDP

STEP 7: RISK CHARACTERIZATION
- Analysis of data collected in Step 6 using the methods developed in Step 4

STEP 8: RISK MANAGEMENT

SMDP; ERA Report

Notes:

(a)	SMDP occurs EITHER after Step 2 or after Step 3a
COPCs	Constituents of Potential Concern
DQO	Data Quality Objectives
GW	Groundwater
SAP	Sampling and Analysis Plan

Source: Adapted from USEPA (1997 and 2000b)

SMDP	Scientific Management Decision Point
SW/SD	Surface water and sediment
WP	Work Plan
BERA	Baseline ERA
SLERA	Screening-level ERA
USEPA	United States Environmental Protection Agency

Steps 1 through 3a as a single deliverable document (USEPA 2000b). Therefore, the screening-level approach for this site will consist of a SLERA/BERA 3a evaluation.

As illustrated on the exhibit, the eight-step process includes points for communication with USEPA and MDEQ and collaborative decision-making, consistent with the USEPA paradigm (USEPA 1997 and 2000b). These points are called scientific management decision points (SMDPs). As can be seen on the exhibit, the first SMDP is purposefully flexible (per the USEPA paradigm) to occur after Steps 2 or 3a, depending on the results obtained at Step 2.

The following courses of action will be considered in the SMDP at the end of the SLERA/BERA 3a process:

1. No further action is warranted – There is adequate information to conclude that significant ecological risks are unlikely;

2. Further assessment of ecological risks – The information is not adequate to make a decision at this point; or

3. Remedial action – For the media and constituents that are identified at the end of SLERA/BERA 3a as possibly being associated with significant ecological risks (in order to evaluate whether cost-effective actions can be implemented to reduce or prevent risks to wildlife).

The risk assessment will present the results of the SLERA/BERA 3a process and the SMDP. The following sections discuss these elements of the risk assessment approach for the site.

10.1 Step 1: Screening-Level Problem Formulation and Ecological Effects Characterization

The screening-level problem formulation serves to define the reasons for the SLERA and to define the methods for analyzing/characterizing risks (USEPA 1998). The background information on site characterization, receptors, and ecosystem characteristics is vital to the problem formulation, as is information on the sources and effects of the stressors (USEPA 1998).

10.1.1 Screening-Level Problem Formulation

The screening-level problem formulation will provide information used to establish the overall goals, breadth, and focus of the SLERA/BERA 3a. The goal of this effort is a conservative evaluation of the likelihood for adverse effects (and the ecological significance of predicted adverse effects) to wildlife that may be exposed to constituents.

The problem formulation will produce three outputs: 1) assessment endpoints that adequately reflect management goals and the ecosystem the goals are meant to protect; 2) a conceptual site model that describes the relationships between stressors and the assessment endpoints; and 3) a description of how ecological risks will be quantitatively evaluated (USEPA 1998 and 2001a).

The remainder of this section provides an overview of the components that will comprise the screening-level problem formulation.

Characterization of Environmental Setting – The environmental setting, as it pertains to ecological receptors, will be described. The environmental setting will detail the biological resources of each area, as well as their abiotic environment. This will include descriptions of available aquatic and terrestrial habitat (as appropriate) and listings of organisms that are likely to use the habitats. The local and nearby land uses will also be described because human land use affects habitat quality and quantity. The environmental setting will be constructed using available site reports, maps, aerial photographs, communication with appropriate agencies, and information obtained during a site reconnaissance (USEPA 1997).

A habitat characterization and biological survey will be conducted to document the location, condition and extent of available terrestrial, wetland, and aquatic habitats located on and within a 0.5-mile radius of the Site. The objectives of the survey will be to gather qualitative and semi-quantitative information on the ecological communities present or potentially occurring at and surrounding the Site, describe the pathways by which biological receptors could potentially be exposed to media containing Site-related Constituents, and document readily apparent evidence of stress on ecological receptors at the Site. The results of this survey will be documented in the Checklist for Ecological Assessment/Sampling (USEPA 1997) and the Ecological Checklist (MDEQ 2002) to evaluate areas that can be excluded from further ecological evaluation. The objectives of this task are to:

- Document, quantify, and characterize the location and extent of available terrestrial, wetland, and aquatic habitats at the Site; and

- Conduct an observational survey of ecological receptors that utilize the Site.

The result of this survey will be used to determine if suitable habitat for any of these species actually occurs at the Site and to identify potential receptors for a SLERA. A map will be developed that depicts the location and extent of terrestrial, wetland, and aquatic habitats within the Site and surrounding property within the 0.5-mile radius.

This process will identify habitats and species potentially present, potential contaminant migration pathways, exposure pathways, and the potential for chemical and non-chemical stressors. This information will be used to develop a CSM.

Identification of Constituents Detected – The occurrence of constituents will be summarized for surface soil, surface water, and sediment.

Description of Constituent Fate and Transport Pathways – The problem formulation will consider the fate and transport pathways that might allow the constituents of interest to interact with terrestrial and aquatic wildlife. The environmental setting will be used to determine fate and transport pathways that are likely to result in potentially complete exposure pathways for each stressor.

Description of Constituent Mechanisms of Ecotoxicity – The general mechanisms of ecological toxicity for the potential stressors will be described in the screening-level problem formulation. This information will help evaluate the importance of potential exposure pathways and focus the selection of assessment endpoints. The description of constituent mechanisms of toxicity will be presented without consideration of constituent concentrations, as the information is developed, in order to understand the possible effects, rather than describe the concentrations at which these effects might occur.

Description of Potentially Affected Categories of Receptors – The identification of the categories of receptors most likely to be exposed to the Site-related constituents of interest will help focus the SLERA/BERA 3a. This will include the evaluation of potential exposures to individual organisms of threatened and endangered species. The NatureServe (www.natureserve.org) database will be searched to identify protected species that may occur near the Site. An ecological reconnaissance by a biologist/ecologist will be conducted to evaluate whether habitat for threatened and endangered species exists at the Site and the quality of that habitat. Field surveys to determine the presence or absence of listed species in the study area will not be conducted at this stage in the risk assessment process.

Identification of Potentially Complete Exposure Pathways and Conceptual Site Model – Potentially complete exposure pathways will be identified and discussed. A complete exposure pathway is "one in which the chemical can be traced or expected to travel from the source to a receptor that can be affected by the chemicals" (USEPA 1997 and 1998). Therefore, a constituent, its migration from the source, a receptor, and the mechanisms of toxicity of that constituent must be demonstrated before a complete exposure pathway can be identified. The table below illustrates possible exposure routes for the general types of receptors that are expected to be present for the media of concern at the site (i.e., surface soil, surface water, and sediment) (USEPA 1997).

Organism	Possible Exposure Routes
Terrestrial animals	Inhalation, ingestion, dermal absorption, food web
Terrestrial plants	Direct contact/absorption, leaf absorption of contaminants deposited on leaves, root contact/absorption
Aquatic animals	Dermal or gill absorption, ingestion, food web
Aquatic plants	Direct contact/absorption, leaf absorption of soil vapor (emergent vegetation), leaf absorption of contaminants deposited on leaves (emergent vegetation)

As for the human health risk assessment, an ecological CSM will be developed for the Site. This ecological CSM will integrate the potential sources of the constituents of interest, the media in which they are present, the exposure routes by which they may interact with ecological receptors, and potential ecological receptors. It should serve as a predictive model to link the Site-related constituents of interest with potential receptors. The CSM will be patterned after the USEPA guidance on building appropriate CSMs (USEPA 1997 and 1998).

An exposure pathway is not considered complete for a potential receptor if suitable habitat for that receptor is not present where constituents of interest are located. Results of the ecological reconnaissance will be used to determine the presence and extent of viable habitat for terrestrial wildlife.

Selection of Generic Assessment and Measurement Endpoints – Assessment endpoints are the explicit expression of the ecological values to be protected (USEPA 1997). The selection of assessment endpoints requires knowledge of the affected environment, information about the constituents released (including ecotoxicological properties related to detected concentrations), and an understanding of the societal values that will drive risk management decision-making (Suter et al. 1995; USEPA 1999). For the SLERA/BERA 3a, the assessment endpoints will be adverse effects on ecological receptors, where receptors are plant and animal populations and communities.

Because direct measurement of assessment endpoints is often difficult (or impossible), surrogate endpoints (called measurement endpoints) are used to provide the information necessary to evaluate whether the values associated with the assessment endpoint are being protected. A measurement endpoint is a measurable ecological characteristic and/or response to a stressor (USEPA 1998). Measurement endpoints are also referred to as measures of potential effect (USEPA 1998). For the SLERA/BERA 3a, the only measurement endpoint used is expressed as an HQ. An HQ is the ratio of a constituent concentration to an associated screening ecotoxicity value. Screening ecotoxicity values are described as part of the Screening-Level Ecological Effects Characterization (Section 10.1.2) and HQs are described as part of the Screening-Level Risk Characterization (Section 10.2).

10.1.2 Screening-Level Ecological Effects Characterization (Ecotoxicity Screening Values)

The screening-level ecological effects characterization involves the identification of ecotoxicity screening values that will be used for surface soil, surface water, and sediment at the site. Ecotoxicity screening values are chemical concentrations in environmental media below which there is negligible or insignificant risk to receptors exposed to those media (USEPA 2000b). With the exception of a limited number of numeric water quality criteria, MDEQ does not have ecological screening values; therefore, screening values from the following sources will be considered for this site:

- USEPA Region 4 “Ecological Risk Assessment Bulletins - Supplement to RAGS” website (USEPA 2001b);

- USEPA Ecological Soil Screening Levels website; and

- USEPA Region 5 Ecological Screening Levels.

10.2 Step 2: Screening-Level Exposure Estimate and Risk Calculation

The screening-level exposure assessment is comprised of the estimation of ecological exposures, risk estimation, risk characterization, and the evaluation of uncertainties (USEPA 1997 and 2001a). These form the foundation of evidence to support the scientific management decision point.

Estimation of Screening-Level Exposure Estimates – The exposure concentrations that will be used in the SLERA will be the maximum detected concentrations (USEPA 2001a). The data set from which the maximum concentrations will be identified is the same as that used for the human health risk assessment (Section 3). All available data will be used for surface soil because soils are relatively stable and likely to remain in place over long time scales.

Screening-Level Risk Calculations (Hazard Quotients) – To estimate risk in the SLERA, HQs will be calculated. An HQ is the unitless ratio of a chemical concentration in a medium to the screening ecotoxicity values for that chemical in that medium. As indicated in the previous section, maximum constituent concentrations and conservative screening ecotoxicity values for each media will be used for the HQ calculations in the SLERA. HQs equal to or less than a value of 1 (reported using one significant figure) will indicate that adverse impacts to wildlife are unlikely (USEPA 2001a). HQs exceeding a value of 1 will indicate that further assessment may be necessary to evaluate the potential for adverse impacts to wildlife.

Uncertainties – Uncertainties associated with the SLERA are generally compensated for via conservative assumptions in the analysis of exposure and effects. Therefore, most uncertainties at this stage of the risk assessment process are expected to overestimate potential risks to ecological receptors. Uncertainties will be discussed briefly following the SLERA and more fully in Step 3a, should it be performed.

Reporting –The first SMDP is purposefully flexible (per the USEPA paradigm) to occur after Steps 2 or 3a, depending on the results obtained at Step 2. The purpose of the flexibility of the first SMDP is so that additional evaluation of risks can occur and reporting can be streamlined into a single report. The results of the SLERA will be expressed in terms of the following conclusions or recommended actions:

- There is adequate information to conclude that ecological risks are unlikely and no further action is warranted.

- The information is not adequate to make a decision at this point. The ERA process will continue to Step 3a – the initial step of the BERA.

10.3 Step 3a: Refinement of Exposure Estimates and Risk Characterization (BERA Problem Formulation)

The BERA is designed to more realistically identify the nature and extent of ecological risks in order to support informed environmental management decision-making (USEPA 1997 and 2000b). Step 3a of the BERA is a refinement of the Step 2 exposure estimates and risk characterization, focused only on the constituents of potential ecological concern (COPECs) and media that progress beyond the SLERA. Where further ecological evaluation is indicated, it will be conducted with the intent to be an “incremental iteration of exposure, effects, and risk characterization” (USEPA 2001a). This incremental iteration (if necessary) may include:

- refinement of the COPECs (USEPA 1997 and 2001a);
- refinement of risk calculations using alternative exposure and effects concentrations (USEPA 1997 and 2001b); and
- refinement of risk characterization considering the ecological significance of risk estimates (USEPA 1994a; Henning and Shear 1998; Durda and Preziosi 1999; Menzie et al. 1996).

The methods for refinement of exposure and risk are summarized below.

Refinement of COPECs –The refinement of the COPECS identified in the SLERA is necessary to help focus further risk assessment activities on the constituents that pose the greatest potential risk to ecological receptors. USEPA guidance for this approach (USEPA 1997, 2000b, and 2001c) indicates that the refinement of COPECs streamlines the overall ERA process by using realistic criteria to focus the risk assessment on those constituents that may pose unacceptable ecological risks. It is intended as an “incremental iteration of exposure, effects, and risk characterization” (USEPA 2001c). The outcome of this screening is that constituents are either excluded as COPECs or retained for further evaluation in the BERA process.

The process for refining the COPECs consists of evaluating each constituent separately by performing the following actions:

1. *Calculation of an EPC* – The EPC used in the HHRA (Section 3) will also be used in the ERA. More specifically, the EPC is equal to the lesser of the 95 percent UCL on the mean and the maximum concentration for each constituent and medium combination with at least 10 results. If fewer than 10 results are available, then the EPC defaults to the maximum detected concentration.

2. *Comparison with background concentrations* – Constituents that are present at a concentration greater than the background concentration, including constituents not detected in background, will be retained for further consideration. Exceptions will be made for some vital electrolytes and essential nutrients including calcium, iron, magnesium, sodium, and potassium (USEPA 2001c). These constituents will be retained for further consideration only if they are present at concentrations greater than two times the background concentration.

3. *Frequency of detection* – Constituents detected in greater than 5 percent of the samples in a given medium will be retained as COPECs and considered in the next step of the refinement process.

4. *Comparison of EPCs with Screening Ecotoxicity Values* — Constituents with EPCs greater than the SLERA screening ecotoxicity value, and analytes for which there are no screening ecotoxicity values, will be retained for further consideration in the refinement process.

5. *Identification of Direct Contact and Bioaccumulative COPECs* — Constituents identified as COPECs based on the criteria above will be considered COPECs for direct contact exposures. In the absence of guidance from MDEQ, the list of bioaccumulative constituents prepared by the Texas Natural Resource Conservation Commission (TNRCC; now Texas Commission on Environmental Quality) will be used to identify potential bioaccumulative COPECs (TNRCC 2000). A direct contact COPEC that is listed as a bioaccumulative compound will also be considered and evaluated as a bioaccumulative COPEC.

At this point in the risk assessment process, the COPECs and the media in which they occur, will be presented in tabular form. In addition, constituents that are likely to bioaccumulate in the food web will be identified. Constituents that remain COPECs will be further evaluated. However, if at the end of the refinement of COPECs there are no COPECs, the risk assessment process will be complete for the site.

Refinement of Risk Calculations for Direct Contact COPECs – Refinement of the SLERA risk calculations will consist of recalculation of the HQs using the refined exposure estimates (i.e., EPCs) and an expanded range of sources for ecotoxicity screening values (i.e., the EPCs will be divided by toxicity values obtained from the scientific literature, where these values are available). There are several reasons to include alternate ecotoxicity screening values, and the methodology is consistent with the approach for "incremental iteration of exposure, effects, and risk characterization" (USEPA 2001c and 1997). For example, some constituents may not have screening values in the guidance used in the SLERA. Also, an expanded range of ecotoxicity values may provide insight into the type or likelihood of impacts (e.g., threshold effects level versus probable effects level).

In addition to using suites of alternate ecotoxicological screening values to refine the risk calculations, some ecotoxicity screening values may be recalculated to better represent ecological receptors at the site and site conditions. For example, if a surface water screening value based primarily on effects on coldwater salmonids is exceeded, it may be more appropriate to calculate a value based on warm-water species. Also, many screening values for surface water incorporate conservative uncertainty factors to compensate for the use of toxicity data for a limited number of species (e.g., Suter and Tsao 1996).

Predictions of the likelihood for adverse effects, if any, for the direct contact COPECs will be based on HQs (USEPA 1997 and 2000b). The results of the refined risk calculations will be presented in tabular form, and constituents with HQs greater than 1 will be further considered to assess whether unacceptable ecological risks may exist. A range of HQs may be provided for some COPECs in some media because a range of screening ecotoxicity values provides greater insight into potential ecological risks. However, if there are no constituents for which the HQ is greater than 1, the risk assessment process for direct contact toxicity will be considered complete.

Refinement of Risk Calculations for Bioaccumulative COPECs – Bioaccumulative COPECs are those that may have toxic effects when they transfer through the food web. In order to calculate risks of bioaccumulative COPECs, the assessment and measurement endpoints need to be refined because the SLERA endpoints are general in nature and do not identify receptors that are susceptible to food web exposures. The assessment endpoints for bioaccumulation will be based on receptors appropriate to the habitat present at the site (based on the ecological reconnaissance), as well as the media in which bioaccumulative COPECs are identified. The measurement endpoints will depend upon the mechanisms of ecotoxicity for the COPECs, as well as the species potentially exposed to the COPECs.

Example assessment and measurement endpoints that could be used for the site include:

Assessment Endpoint	Measurement Endpoint	Effects Measured
Survival and reproductive success of birds exposed to bioaccumulative compounds	Changes in survival and reproduction as indicated by food web modeling	NOAEL and LOAEL related to chronic effects such as eggshell thinning or reduced fledgling survival
Survival and reproductive success of mammals exposed to bioaccumulative compounds	Changes in survival and reproduction as indicated by food web modeling	NOAEL and LOAEL related to chronic effects such as reduced survival and reduced litter size

NOAEL – no adverse effects levels.

LOAEL – lowest adverse effects levels.

Preliminary ingestion-based food web modeling will be used in Step 3a of the BERA to evaluate bioaccumulative COPECs. The purpose of the food web modeling is to characterize potential exposures to COPECs via the food web and to identify potential adverse effects for mammals and birds. Through this preliminary food web modeling, COPECs will either be eliminated or retained for further consideration.

Wildlife receptors that may be exposed to bioaccumulative COPECs at any given area of the site will depend upon the habitat present and the media in which bioaccumulative COPECs are identified. Exposure parameters for the standard food web model (USEPA 1993; Sample et al. 1996) are dependent upon the wildlife receptor. Wildlife receptors known to be susceptible to food web exposures and for which dietary and toxicological information is generally available include short-tailed shrews (*Blarina brevicauda*), American robins (*Turdus migratorius*), raccoons (*Procyon lotor*), and kingfishers (*Ceryle alcyon*). Whether these or other common receptor species are used for the food web model will depend on the results of the ecological reconnaissance and the assessment of ecological risks described above.

Exposure calculations will be performed to characterize potential exposures to COPECs via the food web and to identify potential adverse effects for mammals and birds. Ingestion modeling is based on species-specific exposure parameters and ingestion intake requirements. The EPCs will be used to evaluate potential ingestion-based exposures.

Food web ingestion-based models use constituent-specific toxicity reference values (TRVs) for the purpose of estimating risk. TRVs are available from a variety of sources such as Sample et al. (1996 and 1997), IRIS, ATSDR, USEPA (2001d), and many chemical-specific scientific sources and publications. Toxicological benchmarks are typically reported as NOAELs and LOAELs. Both NOAELS and LOAELs will be used in the food web modeling so that a range of predicted food web impacts can be evaluated.

Predictions of the likelihood for adverse effects, if any, from the food web modeling evaluation will be based on HQs (USEPA 1997 and 2000b). The HQs will be calculated by dividing the estimated ingestion intakes by the reference toxicity values. An HQ value of 1 (rounded to one significant figure) or less will be considered to indicate that adverse effects are not expected.

Refinement of Risk Characterization by Evaluation of Ecological Significance – The USEPA provides information on issues related to evaluating the ecological significance of risk estimates (USEPA 1994b). Consideration of these issues will be used to identify ecologically significant impacts and those impacts that are not ecologically significant. These issues include the spatial extent of the release, the persistence of the release (i.e., the temporal scale), and natural variability within the system (and whether impacts can be measured separate from natural variability). This type of analysis will be used in conjunction with the HQs to evaluate whether predicted impacts (if any) will be considered ecologically significant.

Uncertainties – Uncertainty is “a component of risk resulting from imperfect knowledge of the degree of hazard or of its spatial and temporal distribution” (USEPA 1997). Uncertainties that may lead to either an overestimate or underestimate of risk are associated with each stage of risk assessment. Uncertainty is inherent to ERA, in part, because the sciences of ecology and ecotoxicology are relatively young and not yet fully developed (Kapustka and Landis 1998; Newman 1998). Uncertainty also exists in many aspects of the toxicology relied upon for conducting ERAs (Newman 1998; Lovett Doust and Schmidt 1993).

The lack of ecotoxicity screening values for constituents is one of the main contributors to uncertainty associated with a SLERA/BERA 3a evaluation. There will likely be constituents that lack ecotoxicity screening values, and HQs cannot be calculated for these constituents. Therefore, a constituent that lacks a ecotoxicity values will be discussed in terms of considerations such as ecotoxicity screening values for similar compounds, comparison with background concentrations, the magnitude of the detected concentrations, and the spatial distribution of constituents.

10.4 Scientific Management Decision Point

As noted above, the first SMDP may occur after Steps 2 or 3a, depending on the results obtained at Step 2. The following courses of action will be evaluated at the end of Step 3a:

- No further action is warranted - There is adequate information to conclude that significant ecological risks are unlikely;
- Further Evaluation - The information is not adequate to make a decision at this point. The ERA will proceed (e.g., to Step 3b); or
- Remedial action - For the media and constituents that are identified at the end of Step 3a as possibly being associated with significant ecological risks (in order to evaluate whether cost-effective actions can be implemented to reduce or prevent risks to wildlife).

The results of the SLERA/BERA 3a will be expressed in terms of these conclusions or recommended actions.

11. Reporting

At a minimum, quarterly progress reports will be submitted to USEPA and MDEQ during the assessment activities. During periods of increased activity, monthly progress reports will be submitted to USEPA and MDEQ. The progress reports will consist of the following:

- Summary of work performed during the reporting period;
- Discussion of work expected to be performed in the next reporting period;
- Summary of investigation results received during the reporting period;
- Issues that have arisen and/or been resolved; and

- An updated, detailed project schedule.

Upon completion of field activities and analytical data validation, a project final report will be prepared. The final report will document all field activities and present an interpretation of drinking water, groundwater, surface water, sediment, soil gas, and indoor air conditions. Appropriate tables, figures, and appendices will be included in the report to support the text. The report will present a risk evaluation of the data focusing on the areas of investigation and will conclude by presenting recommendations for a path forward.

12. Project Schedule

An estimated schedule for the implementation of this Revised Phase II Work Plan is included in Table 6. Implementation will begin upon receiving approval of this Revised Phase II Work Plan from USEPA and MDEQ. The duration of assessment activities will be dependent on field conditions and obtaining property access, in the event that off-site activities are required. In the event additional time is required due to unforeseen issues, the schedule will be adjusted accordingly and approved by USEPA and MDEQ.

13. Project Team

A Project Management Plan (PMP) was included in the Revised Phase I Work Plan. The PMP contains the roles and responsibilities of supervisory personnel included on the Project Team. In addition, the roles and responsibilities of parties that may be subcontracted to provide services during the implementation of this Revised Phase II Work Plan are also included in the PMP. The PMP included in the Revised Phase I Work Plan will be utilized during the implementation of this Revised Phase II Work Plan.

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Tables

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																
		Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloromethane	Chloroform	cis-1,2-dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane	1,1-Dichloroethene	Ethylbenzene	Methylene Chloride	Methyl Ethyl Ketone
MDEQ_GW		608	5.0	0.17	8.5	8.5	5.0	100	3.6	1.4	0.15	70	5.0	5.0	7.0	700	5.0	1,906
MW-02	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-05	**32**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-03	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**7.5**	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	**54**
	Feb-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-04	Dec-02	ND	**14**	ND	ND	ND	**10.00**	**1.81**	**63**	**1.72**	ND	ND	ND	ND	ND	ND	ND	NA
	Feb-03	NA	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 12.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0	NA
	Aug-03	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 5.0	NA
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**3.6**	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																
		Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloromethane	Chloroform	cis-1,2-dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane	1,1-Dichloroethene	Ethylbenzene	Methylene Chloride	Methyl Ethyl Ketone
MDEQ_GW		608	5.0	0.17	8.5	8.5	5.0	100	3.6	1.4	0.15	70	5.0	5.0	7.0	700	5.0	1,906
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-05	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.3**	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.8**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.2**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-06	**60**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-07	**52**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.6**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-08	**85**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	**27**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-06	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-06	< 25	**56**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**58**	< 5.0	< 10.0
	Feb-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-08	**490**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-07	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																
		Acetone	**Benzene**	**Bromodichloromethane**	**Bromoform**	**Bromomethane**	**Carbon Tetrachloride**	**Chlorobenzene**	**Chloroethane**	**Chloromethane**	**Chloroform**	**cis-1,2-dichloroethene**	**1,2-Dichloroethane**	**1,2-Dichloropropane**	**1,1-Dichloroethene**	**Ethylbenzene**	**Methylene Chloride**	**Methyl Ethyl Ketone**
MDEQ_GW		608	5.0	0.17	8.5	8.5	5.0	100	3.6	1.4	0.15	70	5.0	5.0	7.0	700	5.0	1,906
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-06	< 25	**93**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**61**	< 5.0	< 10.0
	Feb-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-08	Dec-02	ND	**6,900**	**6.84**	ND	**4.07**	**16,000**	**290**	**66**	**39.2**	**1,800**	**19.0**	**20**	ND	**17.0**	**55.6**	**26.1**	NA
	Feb-03	NA	< 500	**4.72**	< 10.0	< 10.0	**12,000**	**230**	**85.5**	**3.34**	**1,300**	**17.5**	**79.8**	< 10.0	**1.85**	**67.5**	< 13	NA
	Aug-05	< 6,300	**18,000**	< 1.0	< 250	< 250	**3,500**	< 250	< 250	< 250	**510**	NA	**500**	< 250	< 250	< 250	< 1,300	< 10.0
	Nov-05	< 2,500	**17,000**	< 1.0	< 100	< 100	**1,000**	**160**	< 100	< 100	**260**	NA	< 100	< 100	< 100	**260**	< 500	< 10.0
	Feb-06	< 2,500	**11,000**	< 1.0	< 100	< 100	**480**	**160**	< 100	< 100	**130**	NA	< 100	< 100	< 100	**290**	< 500	< 10.0
	May-06	< 630	**11,000**	< 25	< 25	< 25	**2,200**	**170**	< 25	< 25	**280**	**29.0**	< 25	< 25	< 25	**190**	**380**	< 10.0
	Aug-06	**750**	**15,000**	< 1.0	< 1.0	< 1.0	**640**	**220**	**3.80**	< 1.0	**450**	**34.0**	< 1.0	< 1.0	**6.40**	**280**	**510**	< 10.0
	Nov-06	< 2,500	**13,000**	< 1.0	< 100	< 100	**330**	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	**190**	< 500	< 1,000
	Feb-07	< 250	**990**	< 1.0	< 10.0	< 10.0	**840**	**24**	< 10	< 10	**100**	< 10.0	< 10	< 10.0	< 10.0	**12**	< 50	< 100
	May-07	< 2,500	**9,600**	< 1.0	< 50	< 50	**6,100**	**220**	< 50	< 50	**890**	< 50	< 50	< 50	< 50	**100**	< 250	< 500
	Nov-07	< 2,500	**14,000**	< 1.0	< 100	< 100	**370**	< 100	< 100	< 100	< 100	NA	< 100	< 100	< 100	**110**	< 500	< 10.0
	May-08	< 2,500	**3,200**	< 1.0	< 100	< 100	**15,000**	**350**	< 100	< 100	**2,200**	NA	< 100	< 100	< 100	**110**	< 500	< 10.0
	Nov-08	< 2,500	**3,400**	< 1.0	< 100	< 100	**1,800**	**150**	< 100	< 100	**460**	NA	< 100	< 100	< 100	**33**	**170**	< 10.0
	May-09	< 620	**540**	< 25	< 25	< 25	**2,300**	**110**	< 25	< 25	**1,300**	< 25	< 25	< 25	< 25	< 25	< 125	< 250
	Dec-09	< 620	< 1,000	< 25	< 25	< 25	**2,700**	**180**	< 25	< 25	**610**	< 25	< 25	< 25	< 25	**68**	**380**	< 250
	May-10	< 250	**2,900**	< 10.0	< 10.0	< 10.0	**8,000**	**180**	< 10.0	< 10.0	**1,400**	< 10.0	**63**	< 10.0	< 10.0	**22**	**230**	< 100
	Dec-10	< 1,200	**6,000**	< 50	< 50	< 50	**1,000**	**150**	< 50	< 50	**300**	< 25	< 50	< 50	< 50	**74**	**560**	< 500
	Jul-11	< 1,300	**4,600**	< 50	< 50	< 50	**2,600**	**220**	< 50	< 50	**640**	< 50	< 50	< 50	< 50	**55**	**340**	< 500
MW-09	Dec-02	ND	**9.15**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5.92**	ND	**2.48**	NA
	Feb-03	NA	**64**	< 10.0	< 10.0	< 10.0	**20.7**	J **5.85**	**19.7**	< 10.0	J **9.83**	< 10.0	J **1.43**	< 10.0	< 10.0	J **1.53**	< 13.0	NA
	Aug-05	< 25	**12**	< 1.0	< 1.0	< 1.0	< 1.0	**1.00**	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	**3.2**	**1.40**	< 5.0	< 10.0
	Nov-05	< 25	**16**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	**3.4**	**3.0**	< 5.0	< 10.0
	Feb-06	< 25	**18**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	**4.1**	**3.8**	< 5.0	< 10.0
	May-06	< 25	**8.10**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**3.2**	< 1.0	< 5.0	< 10.0
	Aug-06	< 25	**10**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**6.0**	1.0	< 5.0	< 10.0
	Nov-06	**34**	**18**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**6.5**	**3.8**	**6.8**	< 10.0
	Feb-07	< 25	**7.60**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**4.6**	< 1.0	< 5.0	< 10.0
	May-07	< 25	**8.40**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**2.6**	< 1.0	< 5.0	< 10.0
	Nov-07	< 25	**9.10**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**3.7**	< 1.0	< 5.0	< 10.0
	May-08	< 25	**3.50**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.2**	< 1.0	< 5.0	< 10.0
	Nov-08	**46**	**1.90**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																
		Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloromethane	Chloroform	cis-1,2-dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane	1,1-Dichloroethene	Ethylbenzene	Methylene Chloride	Methyl Ethyl Ketone
MDEQ_GW		608	5.0	0.17	8.5	8.5	5.0	100	3.6	1.4	0.15	70	5.0	5.0	7.0	700	5.0	1,906
	May-09	< 25	**1.10**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-09	**210**	**1.60**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	**3.00**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.3**	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-10	Aug-03	NA	< 1.0	< 1.0	1.6	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 5.0	NA
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-11	Dec-02	ND	**114**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	Feb-03	NA	J **6.39**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 12.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0	NA
	Aug-03	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 5.0	NA
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	` 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-09	**42**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																
		Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloromethane	Chloroform	cis-1,2-dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane	1,1-Dichloroethene	Ethylbenzene	Methylene Chloride	Methyl Ethyl Ketone
MDEQ_GW		608	5.0	0.17	8.5	8.5	5.0	100	3.6	1.4	0.15	70	5.0	5.0	7.0	700	5.0	1,906
MW-12	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-06	**91**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-08	**32**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-09	**28**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-13	Aug-05	< 25	**120**	< 1.0	< 1.0	< 1.0	**260**	**10**	< 1.0	< 1.0	**96**	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-05	**29**	**78**	< 1.0	< 1.0	< 1.0	**53**	**9**	< 1.0	< 1.0	**56**	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	**110**	< 1.0	< 1.0	**1.6**	**77**	**22**	< 1.0	< 1.0	**63**	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-06	< 25	**48**	< 1.0	< 1.0	< 1.0	**110**	**5**	< 1.0	< 1.0	**33**	**1.00**	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Aug-06	< 25	**72**	< 1.0	< 1.0	< 1.0	**45**	**17**	< 1.0	< 1.0	**35**	**3.10**	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-06	< 25	**94**	< 1.0	< 1.0	< 1.0	**27**	**19**	< 1.0	< 1.0	**30**	**4.00**	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-07	< 25	**160**	< 1.0	< 1.0	< 1.0	**680**	**14**	< 1.0	< 1.0	**120**	**2.50**	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-07	< 25	**320**	< 1.0	< 1.0	< 1.0	**1,400**	**13**	< 1.0	< 1.0	**130**	**1.30**	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-07	< 25	**180**	< 1.0	< 1.0	< 1.0	**560**	**9**	< 1.0	< 1.0	**140**	**1.20**	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-08	< 250	**780**	< 1.0	< 20	< 20	**3,200**	**23**	< 20	< 20	**260**	< 20	< 20	< 20	< 20	< 20	< 100	< 200
	Nov-08	< 250	**250**	**5.60**	< 20	< 20	**880**	**14**	< 20	< 20	**180**	**1.80**	**6.10**	< 20	< 20	< 20	< 100	< 200
	May-09	< 620	**1,200**	< 25	< 25	< 25	**3,500**	< 25	< 25	< 25	**340**	< 25	< 25	< 25	< 25	< 25	< 125	< 250
	Dec-09	< 620	**790**	< 25	< 25	< 25	**2,000**	**29**	< 25	< 25	**310**	< 25	< 25	< 25	< 25	< 25	< 120	< 250
	May-10	< 500	**2,600**	< 20	< 20	< 20	**4,000**	**110**	< 20	< 20	**1,900**	< 20	< 20	< 20	< 20	< 20	< 100	< 200
	Dec-10	< 250	**530**	< 10.0	< 10.0	< 10.0	**970**	**25**	< 10.0	< 10.0	**230**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 50	< 100
	Jul-11	< 250	**390**	< 10.0	< 10.0	< 10.0	**620**	**24**	< 10.0	< 10.0	**210**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 50	< 100
MW-14	Aug-05	**34**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-05	**35**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	**180**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-06	**440**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-07	**72**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-08	**650**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-08	**590**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																
		Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloromethane	Chloroform	cis-1,2-dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane	1,1-Dichloroethene	Ethylbenzene	Methylene Chloride	Methyl Ethyl Ketone
MDEQ_GW		608	5.0	0.17	8.5	8.5	5.0	100	3.6	1.4	0.15	70	5.0	5.0	7.0	700	5.0	1,906
	May-09	**260**	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 10.0	< 20.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-15	Aug-05	**84**	**1.7**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-06	**50**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-06	**1,500**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-07	**350**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-07	**62**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-08	**2,300**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-09	**1,300**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 25.0	< 50.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-16	Aug-05	< 25	**2.3**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-05	< 25	**1.2**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	**1.1**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.3**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-17	Aug-05	< 6,300	**6,200**	< 1.0	< 250	< 250	**1,500**	**340**	< 250	< 250	**1,200**	NA	< 250	< 250	< 250	< 250	< 1,300	NA
	Nov-05	< 13,000	**1,500**	< 1.0	< 500	< 500	**17,000**	< 500	< 500	< 500	**1,600**	NA	< 500	< 500	< 500	< 500	< 2,500	NA
	Feb-06	< 13,000	**1,300**	< 1.0	< 500	< 500	**37,000**	**600**	< 500	< 500	**2,600**	NA	< 500	< 500	< 500	< 500	< 2,500	NA
	May-06	< 6,300	**4,200**	< 250	< 250	< 250	**30,000**	**530**	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 1,300	NA
	Aug-06	**570**	**1,000**	< 1.0	< 1.0	< 1.0	**33,000**	**610**	**3**	< 1	**3,000**	**26**	< 1.0	< 1.0	**6.0**	**36**	**10.0**	< 10.0
	Nov-06	< 5,000	**2,100**	< 1.0	< 200	< 200	**26,000**	**470**	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 1,000	< 2,000
	Feb-07	< 5,000	**3,300**	< 1.0	< 200	< 200	**48,000**	**810**	< 200	< 200	**3,400**	< 200	< 200	< 200	< 200	< 200	< 1,000	< 2,000

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																
		Acetone	**Benzene**	**Bromodichloromethane**	**Bromoform**	**Bromomethane**	**Carbon Tetrachloride**	**Chlorobenzene**	**Chloroethane**	**Chloromethane**	**Chloroform**	**cis-1,2-dichloroethene**	**1,2-Dichloroethane**	**1,2-Dichloropropane**	**1,1-Dichloroethene**	**Ethylbenzene**	**Methylene Chloride**	**Methyl Ethyl Ketone**
MDEQ_GW		608	5.0	0.17	8.5	8.5	5.0	100	3.6	1.4	0.15	70	5.0	5.0	7.0	700	5.0	1,906
	May-07	**740**	**5,300**	< 1.0	< 20	< 20	**32,000**	**770**	< 20	< 20	**2,800**	< 20	< 20	< 20	< 20	< 20	< 100	< 200
	Nov-07	< 5,000	**3,000**	< 1.0	< 200	< 200	**45,000**	**890**	< 200	< 200	**4,600**	< 200	< 200	< 200	< 200	< 200	< 1,000	< 2,000
	May-08	< 5,000	**4,800**	< 1.0	< 200	< 200	**47,000**	**930**	< 200	< 200	**3,600**	< 200	< 200	< 200	< 200	< 200	< 1,000	< 2,000
	Nov-08	< 5,000	**1,800**	< 1.0	< 200	< 200	**34,000**	**720**	< 200	< 200	**3,500**	< 200	< 200	< 200	< 200	< 200	< 1,000	< 2,000
	May-09	< 5,000	**8,100**	< 1.0	< 200	< 200	**39,000**	**640**	< 200	< 200	**2,900**	< 200	< 200	< 200	< 200	< 200	< 1,000	< 2,000
	Dec-09	< 12,000	**4,500**	< 500	< 500	< 500	**54,000**	**1,200**	< 500	< 500	**7,100**	< 500	< 500	< 500	< 500	< 500	< 2,500	< 5,000
	May-10	< 2,500	**7,500**	< 100	< 100	< 100	**40,000**	**740**	< 100	< 100	**8,400**	< 100	< 100	< 100	< 100	**230**	**660**	< 1,000
	Dec-10	< 12,000	< 500	< 500	< 500	< 500	**32,000**	**760**	< 500	< 500	**5,900**	< 500	< 500	< 500	< 500	< 500	< 2,500	< 5,000
	Jul-11	< 5,000	**3,600**	< 200	< 200	< 200	**25,000**	**770**	< 200	< 200	**3,000**	< 400	< 200	< 200	< 200	< 200	< 200	< 2,000
MW-18	Aug-05	< 25	**10.00**	< 1.0	< 1.0	< 1.0	< 1.0	**45**	< 1.0	< 1.0	< 1.0	NA	< 1.0	**2.30**	**2.60**	**1.60**	< 5.0	< 10.0
	Nov-05	< 25	**3.90**	< 1.0	< 1.0	< 1.0	< 1.0	**26**	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	**1.60**	< 1.0	< 5.0	< 10.0
	Feb-06	< 25	**4.20**	< 1.0	< 1.0	< 1.0	< 1.0	**31**	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	**1.50**	< 1.0	< 5.0	< 10.0
	May-06	< 25	**6.50**	< 1.0	< 1.0	< 1.0	< 1.0	**35**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**2.30**	**1.10**	< 5.0	< 10.0
	Aug-06	< 25	**4.80**	< 1.0	< 1.0	< 1.0	< 1.0	**34**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**20**	**3.10**	**1.20**	< 5.0	< 10.0
	Nov-06	**61**	**2.90**	< 1.0	< 1.0	< 1.0	< 1.0	**23**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.10**	< 1.0	< 1.0	< 5.0	< 10.0
	Feb-07	< 25	**4.10**	< 1.0	< 1.0	< 1.0	< 1.0	**28**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.40**	**1.70**	< 1.0	< 5.0	< 10.0
	May-07	< 25	**4.00**	< 1.0	< 1.0	< 1.0	< 1.0	**33**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.30**	**1.60**	**1.00**	< 5.0	< 10.0
	Nov-07	< 25	**1.20**	< 1.0	< 1.0	< 1.0	< 1.0	**26**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.20**	**1.40**	< 1.0	< 5.0	< 10.0
	May-08	< 25	**1.70**	< 1.0	< 1.0	< 1.0	< 1.0	**31**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**2.00**	< 1.0	< 5.0	< 10.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**23**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.00**	< 1.0	< 5.0	< 10.0
	May-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**24**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**21**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	**1.1**	< 1.0	< 1.0	< 1.0	< 1.0	**20**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.00**	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**18**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**21**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-19	Aug-05	< 25	**20**	< 1.0	< 1.0	< 1.0	< 1.0	**7.50**	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	**1.90**	< 5.0	< 10.0
	Nov-05	< 25	**19**	< 1.0	< 1.0	< 1.0	< 1.0	**6.40**	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	**1.30**	< 5.0	< 10.0
	Feb-06	< 25	**22**	< 1.0	< 1.0	< 1.0	< 1.0	**9.80**	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	**2.10**	< 5.0	< 10.0
	May-06	**28**	**21**	< 1.0	< 1.0	< 1.0	< 1.0	**7.20**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.70**	< 5.0	< 10.0
	Aug-06	< 25	**18**	< 1.0	< 1.0	< 1.0	< 1.0	**6.30**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**2.10**	< 5.0	< 10.0
	Nov-06	< 25	**20**	< 1.0	< 1.0	< 1.0	< 1.0	**6.20**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**2.00**	< 5.0	< 10.0
	Feb-07	< 25	**32**	< 1.0	< 1.0	< 1.0	< 1.0	**8.50**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**2.40**	< 5.0	< 10.0
	May-07	< 25	**36**	< 1.0	< 1.0	< 1.0	< 1.0	**9.50**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**2.50**	< 5.0	< 10.0
	Nov-07	< 25	**44**	< 1.0	< 1.0	< 1.0	< 1.0	**10**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.10**	**2.60**	< 5.0	< 10.0
	May-08	< 25	**66**	< 1.0	< 1.0	< 1.0	**6.70**	**13**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.50**	**2.30**	< 5.0	< 10.0
	Nov-08	< 25	**58**	< 1.0	< 1.0	< 1.0	< 1.0	**9.70**	< 1.0	< 1.0	**1.10**	< 1.0	< 1.0	< 1.0	< 1.0	**2.40**	< 5.0	< 10.0
	May-09	< 25	**65**	< 1.0	< 1.0	< 1.0	**11.0**	**14**	< 1.0	< 1.0	**4.70**	< 1.0	< 1.0	< 1.0	**1.30**	**2.00**	< 5.0	< 10.0
	Dec-09	< 25	**64**	< 1.0	< 1.0	< 1.0	**4.50**	**12**	< 1.0	< 1.0	**2.90**	< 1.0	< 1.0	< 1.0	< 1.0	**2.40**	< 5.0	< 10.0
	May-10	< 25	**52**	< 1.0	< 1.0	< 1.0	**3.20**	**10**	< 1.0	< 1.0	**3.60**	< 1.0	< 1.0	< 1.0	**1.40**	**1.90**	< 5.0	< 10.0
	Dec-10	< 25	**61**	< 1.0	< 1.0	< 1.0	< 1.0	**9.1**	< 1.0	< 1.0	**2.70**	< 1.0	< 1.0	< 1.0	< 1.0	**2.20**	< 5.0	< 10.0
	Jul-11	< 25	**54**	< 1.0	< 1.0*	< 1.0	**3.5**	**9.9**	< 1.0	< 1.0	**3.30**	< 1.0	< 1.0	< 1.0	< 1.0	**1.30**	< 5.0	< 10.0
MW-20	Sep-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																
		Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloromethane	Chloroform	cis-1,2-dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane	1,1-Dichloroethene	Ethylbenzene	Methylene Chloride	Methyl Ethyl Ketone
MDEQ_GW		608	5.0	0.17	8.5	8.5	5.0	100	3.6	1.4	0.15	70	5.0	5.0	7.0	700	5.0	1,906
MW-21	Sep-09	< 1,200	**4,400**	< 50	< 50	< 50	< 50	**170**	< 50	< 50	**6,800**	< 50	< 50	< 50	< 50	< 50	< 250	< 500
	May-10	< 1,200	**3,500**	< 50	< 50	< 50	**280**	**150**	< 50	< 50	**7,800**	< 50	< 50	< 50	< 50	< 50	< 250	< 500
	Dec-10	< 1,200	**4,400**	< 50	< 50	< 50	< 50	**180**	< 50	< 50	**7,300**	< 50	**84**	< 50	< 50	< 50	< 250	< 500
	Jul-11	< 1,300	**3,200**	< 50	< 50	< 50	< 50	**150**	< 50	< 50	**4,300**	< 100	< 50	< 50	< 50	< 50	< 50	< 500
MW-22	Sep-09	**86**	**9.80**	< 1.0	< 1.0	< 1.0	< 1.0	**7.70**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	**6.60**	< 1.0	< 1.0	< 1.0	< 1.0	**4.90**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	**6.30**	< 1.0	< 1.0	< 1.0	< 1.0	**2.30**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	**10.0**	< 1.0	< 1.0	< 1.0	< 1.0	**8.70**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
MW-23	Sep-09	**1,600**	**9,200**	< 100	< 50	< 100	< 50	**190**	< 100	< 100	**1,400**	< 100	< 50	< 50	< 50	< 50	**290**	< 500
	May-10	< 2,500	**10,000**	< 100	< 50	< 100	< 100	**180**	< 100	< 100	**2,000**	< 100	< 100	< 100	< 100	< 100	< 500	< 1,000
	Dec-10	< 2,500	**7,600**	< 100	< 50	< 100	< 100	< 100	< 100	< 100	**2,900**	< 100	< 100	< 100	< 100	< 100	< 500	< 1,000
	Jul-11	< 2,500	**8,800**	**<** 100	**<** 100	**<** 100	**<** 100	**140**	**<** 100	**<** 100	**3,200**	**<** 100	**<** 100	**<** 100	**<** 100	**<** 100	< 500	< 1,000
MW-24	Sep-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Dec-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																				
		Methyl Isobutyl Ketone	Styrene	Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	Total Xylenes	Bromobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Naphthalene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	p-Isopropyltoluene	Dibromochloromethane	Isopropylbenzene
MDEQ_GW		139	100	5.0	1,000	5.0	2.0	10,000	--	122	--	600	5.5	75	6.2	--	70	12.0	12.0	--	0.13	679
MW-02	Aug-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-03	Aug-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	**65**	< 1.0	< **39**	**1.2**	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-04	Dec-02	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5.38**	ND	ND	ND	ND	ND	ND	**1.26**
	Feb-03	NA	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 15.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	B **34.4**	B **45.9**	B **9.79**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
	Aug-03	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Aug-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	**68**	< 1.0	**21**	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																				
		Methyl Isobutyl Ketone	Styrene	Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	Total Xylenes	Bromobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Naphthalene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	p-Isopropyltoluene	Dibromochloromethane	Isopropylbenzene
MDEQ_GW		139	100	5.0	1,000	5.0	2.0	10,000	--	122	--	600	5.5	75	6.2	--	70	12.0	12.0	--	0.13	679
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-05	Aug-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-06	Aug-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	< 1.0	**12**	< 1.0	< 1.0	**50**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-07	Aug-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																				
		Methyl Isobutyl Ketone	Styrene	Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	Total Xylenes	Bromobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Naphthalene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	p-Isopropyltoluene	Dibromochloromethane	Isopropylbenzene
MDEQ_GW		139	100	5.0	1,000	5.0	2.0	10,000	--	122	--	600	5.5	75	6.2	--	70	12.0	12.0	--	0.13	679
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**110**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-08	Dec-02	NA	ND	**8.51**	**28**	**5.80**	ND	ND	ND	ND	ND	**2.71**	**3.75**	**3.80**	**9.14**	ND	ND	ND	ND	**23.9**	**4.45**	**4.60**
	Feb-03	NA	**1.25**	**48.9**	**35.4**	**3.2**	< 10.0	**62.4**	< 10.0	< 10.0	< 10.0	**2.22**	< 10.0	**3.14**	B **25**	B **25.3**	B **5.73**	**1.92**	**1.80**	**23.8**	< 10.0	**4.35**
	Aug-05	< 10.0	< 250	< 250	< 250	< 250	< 250	< 500.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 100	< 100	**270**	< 100	< 100	**410**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 100	< 100	**300**	< 100	< 100	**600**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 25	< 25	**240**	< 25	< 25	**340**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	**8.40**	**410**	**2.80**	**2.60**	**640**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 1,000	< 100	< 100	**270**	< 100	< 100	**430**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 100	< 10	< 10	**11**	< 10.0	< 10.0	**22**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 500	< 50	< 50	**79**	< 50	< 50	**160**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 100	< 100	**110**	< 100	< 100	< 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 100	< 100	< 100	< 100	< 100	< 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 100	< 100	< 100	< 100	< 100	**60**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 250	< 25	< 25	< 25	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 250	< 25	< 25	**43.0**	< 25	< 25	**95**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 100	< 10.0	< 10	**10.0**	< 10	< 10	< 20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 500	< 50	< 50	< 50	< 50	< 50	< 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 500	< 50	< 50	< 50	< 50	< 50	< 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-09	Dec-02	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Feb-03	NA	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 15.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	B **31.7**	B **36.8**	B **4.98**	< 10.0	< 10.0	J **1.80**	< 10.0	J **1.92**
	Aug-05	< 10.0	< 1.0	< 1.0	**1.2**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	**1.1**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	**48**	< 1.0	< 1.0	**4.2**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	**1.6**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	**1.5**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																					
		Methyl Isobutyl Ketone	Styrene	Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	Total Xylenes	Bromobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Naphthalene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	p-Isopropyltoluene	Dibromochloromethane	Isopropylbenzene
MDEQ_GW		139	100	5.0	1,000	5.0	2.0	10,000	--	122	--	600	5.5	75	6.2	--	70	12.0	12.0	--	0.13	679
	May-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-10	Aug-03	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Aug-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-11	Dec-02	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Feb-03	NA	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 15.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	B **42.6**	B **53.40**	B **13.55**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
	Aug-03	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Aug-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																				
		Methyl Isobutyl Ketone	Styrene	Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	Total Xylenes	Bromobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Naphthalene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	p-Isopropyltoluene	Dibromochloromethane	Isopropylbenzene
MDEQ_GW		139	100	5.0	1,000	5.0	2.0	10,000	--	122	--	600	5.5	75	6.2	--	70	12.0	12.0	--	0.13	679
MW-12	Aug-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-13	Aug-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.10**	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.70**	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	**2.40**	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	**2.10**	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	**2.50**	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.60**	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 200	< 20	< 20	< 20	< 20	< 20	< 20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 200	< 20	< 20	< 20	< 20	< 20	< 20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 250	< 25	< 25	< 25	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 250	< 25	< 25	< 25	< 25	< 25	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 200	< 20.0	< 20	< 20*	< 20	< 20	< 40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 100	< 200	< 10.0	< 10.0	< 10.0	< 10.0	< 20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 100	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	Aug-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																			
		Methyl Isobutyl Ketone	Styrene	Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	Total Xylenes	Bromobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Naphthalene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	p-Isopropyltoluene	Dibromochloromethane	Isopropylbenzene
MDEQ_GW		139	100	5.0	1,000	5.0	2.0	10,000	--	122	--	600	5.5	75	6.2	--	70	12.0	12.0	--	0.13	679
	May-09	< 20.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-15	Aug-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 50.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-16	Aug-05	< 10.0	< 1.0	< 1.0	**5.2**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	**2.1**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	**3.5**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-17	Aug-05	NA	< 250	< 250	**920**	< 250	< 250	**680**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	NA	< 500	< 500	< 500	< 500	< 500	< 1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	NA	< 500	< 500	< 500	< 500	< 500	< 1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	NA	< 250	< 250	**720**	< 250	< 250	**540**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	**8.00**	**69**	< 1.0	< 1.0	**93**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 2,000	< 200	< 200	< 200	< 200	< 200	< 400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 2,000	< 200	< 200	**270**	< 200	< 200	**420**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																					
		Methyl Isobutyl Ketone	**Styrene**	**Tetrachloroethene**	**Toluene**	**Trichloroethene**	**Vinyl Chloride**	**Total Xylenes**	**Bromobenzene**	**2-Chlorotoluene**	**4-Chlorotoluene**	**1,2-Dichlorobenzene**	**1,3-Dichlorobenzene**	**1,4-Dichlorobenzene**	**Naphthalene**	**1,2,3-Trichlorobenzene**	**1,2,4-Trichlorobenzene**	**1,2,4-Trimethylbenzene**	**1,3,5-Trimethylbenzene**	**p-Isopropyltoluene**	**Dibromochloromethane**	**Isopropylbenzene**
MDEQ_GW		139	100	5.0	1,000	5.0	2.0	10,000	--	122	--	600	5.5	75	6.2	--	70	12.0	12.0	--	0.13	679
	May-07	**570**	< 20	**22**	**450**	< 20	< 20	**810**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 2,000	< 200	< 200	**210**	< 200	< 200	< 400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 2,000	< 200	< 200	**450**	< 200	< 200	**670**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 2,000	< 200	< 200	< 200	< 200	< 200	< 400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 2,000	< 200	< 200	< 200	< 200	< 200	< 400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 5,000	< 10,000	< 500	< 500	< 500	< 500	< 1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 1,000	< 100	< 100	**520**	< 100	< 100	**830**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 5,000	< 500	< 500	< 500	< 500	< 500	< 1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-18	Aug-05	< 10.0	< 1.0	**1.10**	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	**1.00**	**1.20**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-19	Aug-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 10.0	< 1.0	< 1.0	**1.00**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 10.0	< 1.0	< 1.0	< 1.00	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 10.0	< 1.0	< 1.0	**1.40**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 10.0	< 1.0	< 1.0	**2.70**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 10.0	< 1.0	< 1.0	**1.90**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 10.0	< 1.0	< 1.0	**2.70**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 10.0	< 1.0	< 1.0	**2.40**	< 1.0	< 1.0	**2.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	**3.00**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	**2.50**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	**2.40**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-20	Sep-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 1a. Summary of Groundwater Analytical Results (December 2002 through July 2011), Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																				
		Methyl Isobutyl Ketone	Styrene	Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	Total Xylenes	Bromobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Naphthalene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	p-Isopropyltoluene	Dibromochloromethane	Isopropylbenzene
MDEQ_GW		139	100	5.0	1,000	5.0	2.0	10,000	--	122	--	600	5.5	75	6.2	--	70	12.0	12.0	--	0.13	679
MW-21	Sep-09	**640**	< 50	< 50	**4,800**	< 50	< 50	< 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 500	< 50	< 50	**4,500**	< 50	< 50	< 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	**510**	< 50	< 50	**4,500**	< 50	< 50	< 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 500	< 50	< 50	**2,600**	< 50	< 50	< 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-22	Sep-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	**21**	< 1.0	< 1.0	**1.1**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-23	Sep-09	**1,300**	< 100	< 100	**3,300**	< 500	< 50	< 100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	**1,000**	< 100	< 100	**3,300**	< 100	< 100	< 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 1,000	< 100	< 100	**1,400**	< 100	< 100	< 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< **1,100**	**<** 100	**<** 100	**1,300**	**<** 100	**<** 100	**<** 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-24	Sep-09	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-10	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

<	Less than.
- -	Standard not promulgated.
B	Compound detected in the associated method blank.
J	Estimated value.
RSL	Regional Screening Level
MDEQ_GW	Mississippi Department of Environmental Quality Tier 1 Target Remediation Goals.
NA	Not analyzed.
µg/L	Micrograms per liter.
Boldface	Compound detected.
▨	Shaded cells indicate that the reported result exceeds the MDEQ criteria.

Some Appendix IX parameters not shown due to no detections for that parameter.

Table 1b. Summary of Surface Water Analytical Results (September 2003 through July 2011) , Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																		
		Acetone	**Benzene**	**Bromodichloromethane**	**Bromoform**	**Bromomethane**	**Carbon Tetrachloride**	**Chlorobenzene**	**Chloroethane**	**Chloromethane**	**Chloroform**	**cis-1,2-Dichloroethene**	**1,2-Dichloroethane**	**1,2-Dichloropropane**	**1,1-Dichloroethene**	**Ethylbenzene**	**Methylene Chloride**	**Methyl Ethyl Ketone**	**Methyl Isobutyl Ketone**	**Styrene**
USEPA Water Criteria [a]		12,000	2.2	0.55	4.3	47	0.23	130	21,000	190	5.7	28	0.38	0.50	330	530	4.6	4,900	1,000	1,100
CM-00	Sep-03	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**5.0**	**4.1**	< 5.0	NA	NA	**3.16**
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Feb-07	**42**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.10**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
CM-01	Feb-03	NA	**2.82**	< 10.0	< 10.0	< 10.0	**3.03**	< 10.0	**20.5**	< 10.0	**2.34**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.00	< 13.0	NA	NA	< 10.0
	Sep-03	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	**6.58**	< 5.0	< 1.0	< 1.0	< 1.0	**1.71**	< 1.0	< 5.0	**1.55**	< 5.0	NA	NA	**2.36**
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-06	**62**	**8.40**	< 1.0	< 1.0	< 1.0	< 1.0	**24**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**57**	< 5.0	< 10.0	< 10.0	< 1.0
	Feb-07	**49**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
CM-02	Feb-03	NA	**1.17**	< 10.0	< 10.0	< 10.0	**1.48**	< 10.0	**15.6**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0	NA	NA	< 10.0
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0

Table 1b. Summary of Surface Water Analytical Results (September 2003 through July 2011) , Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																		
		Acetone	**Benzene**	**Bromodichloromethane**	**Bromoform**	**Bromomethane**	**Carbon Tetrachloride**	**Chlorobenzene**	**Chloroethane**	**Chloromethane**	**Chloroform**	**cis-1,2-Dichloroethene**	**1,2-Dichloroethane**	**1,2-Dichloropropane**	**1,1-Dichloroethene**	**Ethylbenzene**	**Methylene Chloride**	**Methyl Ethyl Ketone**	**Methyl Isobutyl Ketone**	**Styrene**
USEPA Water Criteria [a]		12,000	2.2	0.55	4.3	47	0.23	130	21,000	190	5.7	28	0.38	0.50	330	530	4.6	4,900	1,000	1,100
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Feb-07	**92**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Dec-09	**34**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
CM-03	Feb-03	NA	**3.66**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	**8.42**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0	NA	NA	< 10.0
	Aug-05	< 25	**1.10**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-05	< 25	**1.40**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Feb-06	< 25	**1.10**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-06	< 25	**1.60**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Feb-07	**63**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-07	< 25	**4.80**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-08	< 25	**1.90**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
CM-04	Feb-03	NA	**2.25**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	**3.43**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0	NA	NA	< 10.0
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.00	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.00	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-06	**31**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.40**	**17**	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	**160**	< 10.0	< 1.0
	Feb-07	**160**	**1.30**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0

Table 1b. Summary of Surface Water Analytical Results (September 2003 through July 2011) , Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																		
		Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloromethane	Chloroform	cis-1,2-Dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane	1,1-Dichloroethene	Ethylbenzene	Methylene Chloride	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Styrene
USEPA Water Criteria [a]		12,000	2.2	0.55	4.3	47	0.23	130	21,000	190	5.7	28	0.38	0.50	330	530	4.6	4,900	1,000	1,100
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-09	< 25	**4.10**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Dec-09	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**7.60**	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
CM-05	Feb-03	NA	**4.04**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 12.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0	NA	NA	< 10.0
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Feb-07	< 25	**2.00**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-08	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-09	< 25	**4.00**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Dec-09	**47**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	May-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Nov-10	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0
	Jul-11	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 10.0	< 10.0	< 1.0

Table 1b. Summary of Surface Water Analytical Results (September 2003 through July 2011) , Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																			
		Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	Total Xylenes	Bromobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Naphthalene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	p-Isopropyltoluene	Dibromochloromethane	Isopropylbenzene
USEPA Water Criteria [a]		0.69	1,300	2.5	0.025	190	130	180	190	420	320	63	0.14	35	35	15	87	390	0.40	390
CM-00	Sep-03	< 1.0	< 1.0	< 1.0	< 1.0	**8.31**	**4.18**	**3.40**	**4.61**	**3.44**	**3.66**	**7.54**	< 5.0	< 5.0	< 5.0	< 1.0	**1.04**	< 1.0	< 1.0	< 1.0
	Aug-05	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-10	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CM-01	Feb-03	< 10.0	< 10.0	< 10.0	< 10.0	< 15.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	**25.7**	**32.2**	**3.36**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
	Sep-03	< 1.00	**4.66**	< 1.00	< 1.00	**7.41**	**13**	**2.53**	**4.17**	**3.76**	**3.42**	**6.35**	**14.7**	**6.64**	**1.8**	**1.3**	**1.57**	< 1.0	< 1.0	< 1.0
	Aug-05	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 1.0	**2.70**	< 1.0	< 1.0	**86**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-10	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CM-02	Feb-03	< 10.0	< 10.0	< 10.0	< 10.0	< 15.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	**20.3**	**24.8**	**2.37**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
	Aug-05	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 1b. Summary of Surface Water Analytical Results (September 2003 through July 2011) , Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																			
		Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	Total Xylenes	Bromobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Naphthalene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	p-Isopropyltoluene	Dibromochloromethane	Isopropylbenzene
USEPA Water Criteria [a]		0.69	1,300	2.5	0.025	190	130	180	190	420	320	63	0.14	35	35	15	87	390	0.40	390
	Aug-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 1.0	**21**	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-10	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CM-03	Feb-03	< 10.0	< 10.0	< 10.0	< 10.0	< 15.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	**20.1**	**23**	**2.13**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
	Aug-05	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-10	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CM-04	Feb-03	< 10.0	< 10.0	< 10.0	< 10.0	< 15.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	**13**	**12.2**	**1.26**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
	Aug-05	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	**90**	< 1.0	**26**	**2.6**	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 1b. Summary of Surface Water Analytical Results (September 2003 through July 2011) , Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location	Date	Concentrations in µg/L																		
		Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	Total Xylenes	Bromobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Naphthalene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	p-Isopropyltoluene	Dibromochloromethane	Isopropylbenzene
USEPA Water Criteria [a]		0.69	1,300	2.5	0.025	190	130	180	190	420	320	63	0.14	35	35	15	87	390	0.40	390
	May-08	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-10	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CM-05	Feb-03	< 10.0	< 10.0	< 10.0	< 10.0	< 15.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	**7.51**	**5.54**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
	Aug-05	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-05	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aug-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-06	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Feb-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-07	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-08	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-09	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec-09	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-10	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-10	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jul-11	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

[a]	The USEPA National Recommended Water Criteria are listed. If a value was not available, the most recent USEPA Tapwater Regional Screening Levels (2011) were used.
<	Less than.
NA	Not analyzed.
µg/L	Micrograms per liter.
USEPA	United States Environmental Protection Agency National Recommended Water Quality Criteria.
Boldface	Compound detected.
▨	Shaded cells indicate that the reported result exceeds the USEPA National Water criteria or USEPA Tapwater RSLs if a National Recommended Water Criteria is not available.

Some Appendix IX parameters not shown due to no detections for that parameter.

Table 2. Summary of July 2011 Groundwater Analytical Results, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location ID:		**EPA RSL**			**MW-02**	**MW-03**	**MW-04**	**MW-05**	**MW-06**	**MW-07**	**MW-08**	**MW-09**	**MW-10**	**MW-11**	**MW-12**	**MW-13**	**MW-14**
Date Collected:	**CAS #**	**TAP WATER**	**MDEQ_GW**	**UNITS**	**07/27/11**	**07/27/11**	**07/27/11**	**07/28/11**	**07/28/11**	**07/28/11**	**07/26/11**	**07/28/11**	**07/27/11**	**07/27/11**	**07/27/11**	**07/26/11**	**07/28/11**
PEST/PCB-EPA 8081A/8082																	
4,4'-DDD	72-54-8	2.80E-01	2.79E-01	µg/L	<0.099	NA	<0.1	NA	NA	NA	<0.1 [<0.098]	NA	NA	NA	<0.099	<0.1	NA
4,4'-DDE	72-55-9	2.00E-01	1.97E-01	µg/L	<0.099	NA	<0.1	NA	NA	NA	<0.1 [<0.098]	NA	NA	NA	<0.099	<0.1	NA
4,4'-DDT	50-29-3	2.00E-01	1.97E-01	µg/L	<0.099	NA	<0.1	NA	NA	NA	<0.1 [<0.098]	NA	NA	NA	<0.099	<0.1	NA
4-Chlorobenzilate	510-15-6	6.10E-01	2.48E-01	µg/L	<0.5	NA	<0.51	NA	NA	NA	<0.51 [<0.49]	NA	NA	NA	<0.5	<0.51	NA
Aldrin	309-00-2	4.00E-03	3.94E-03	µg/L	<0.05	NA	<0.051	NA	NA	NA	<0.051 [<0.049]	NA	NA	NA	<0.05	<0.051	NA
Alpha-BHC	319-84-6	1.10E-02	1.06E-02	µg/L	<0.05	NA	<0.051	NA	NA	NA	**0.61 [0.75]**	NA	NA	NA	<0.05	**0.25**	NA
Aroclor-1016	12674-11-2	9.60E-01	9.57E-01	µg/L	<0.99	NA	<1	NA	NA	NA	<1 [<0.98]	NA	NA	NA	<0.99	<1	NA
Aroclor-1221	11104-28-2	6.80E-03	3.35E-02	µg/L	<2	NA	<2	NA	NA	NA	<2 [<2]	NA	NA	NA	<2	<2	NA
Aroclor-1232	11141-16-5	6.80E-03	3.35E-02	µg/L	<0.99	NA	<1	NA	NA	NA	<1 [<0.98]	NA	NA	NA	<0.99	<1	NA
Aroclor-1242	53469-21-9	3.40E-02	3.35E-02	µg/L	<0.99	NA	<1	NA	NA	NA	<1 [<0.98]	NA	NA	NA	<0.99	<1	NA
Aroclor-1248	12672-29-6	3.40E-02	3.35E-02	µg/L	<0.99	NA	<1	NA	NA	NA	<1 [<0.98]	NA	NA	NA	<0.99	<1	NA
Aroclor-1254	11097-69-1	3.40E-02	3.35E-02	µg/L	<0.99	NA	<1	NA	NA	NA	<1 [<0.98]	NA	NA	NA	<0.99	<1	NA
Aroclor-1260	11096-82-5	3.40E-02	3.35E-02	µg/L	<0.99	NA	<1	NA	NA	NA	<1 [<0.98]	NA	NA	NA	<0.99	<1	NA
Beta-BHC	319-85-7	3.70E-02	3.72E-02	µg/L	<0.05	NA	<0.051	NA	NA	NA	<0.051 [<0.049]	NA	NA	NA	<0.05	<0.051	NA
Delta-BHC	319-86-8	- -	- -	µg/L	<0.05	NA	<0.051	NA	NA	NA	<0.051 [<0.049]	NA	NA	NA	<0.05	<0.051	NA
Dieldrin	60-57-1	4.20E-03	4.19E-03	µg/L	<0.099	NA	<0.1	NA	NA	NA	<0.1 [<0.098]	NA	NA	NA	<0.099	<0.1	NA
Endosulfan I	959-98-8	- -	- -	µg/L	<0.05	NA	<0.051	NA	NA	NA	<0.051 [<0.049]	NA	NA	NA	<0.05	<0.051	NA
Endosulfan II	33213-65-9	- -	- -	µg/L	<0.099	NA	<0.1	NA	NA	NA	<0.1 [<0.098]	NA	NA	NA	<0.099	<0.1	NA
Endosulfan Sulfate	1031-07-8	- -	- -	µg/L	<0.099	NA	<0.1	NA	NA	NA	<0.1 [<0.098]	NA	NA	NA	<0.099	<0.1	NA
Endrin	72-20-8	1.10E+01	2.00E+00	µg/L	<0.099	NA	NA	NA	NA	NA	<0.1 [<0.098]	NA	NA	NA	<0.099	<0.1	NA
Endrin Aldehyde	7421-93-4	- -	- -	µg/L	<0.099	NA	<0.1	NA	NA	NA	<0.1 [<0.098]	NA	NA	NA	<0.099	<0.1	NA
Endrin Ketone	53494-70-5	- -	- -	µg/L	<0.099	NA	<0.1	NA	NA	NA	<0.1 [<0.098]	NA	NA	NA	<0.099	<0.1	NA
Gamma-BHC (Lindane)	58-89-9	6.10E-02	2.00E-01	µg/L	<0.05	NA	<0.051	NA	NA	NA	**0.3 [0.45]**	NA	NA	NA	<0.05	<0.051	NA
Heptachlor	76-44-8	1.50E-02	4.00E-01	µg/L	<0.05	NA	<0.051	NA	NA	NA	<0.051 [<0.049]	NA	NA	NA	<0.05	<0.051	NA
Heptachlor Epoxide	1024-57-3	7.40E-03	2.00E-01	µg/L	<0.05	NA	<0.051	NA	NA	NA	<0.051 [<0.049]	NA	NA	NA	<0.05	<0.051	NA
Isodrin	465-73-6	- -	- -	µg/L	<0.05	NA	<0.051	NA	NA	NA	<0.051 [<0.049]	NA	NA	NA	<0.05	<0.051	NA
Kepone	143-50-0	6.70E-03	- -	µg/L	<0.99 *	NA	<1 *	NA	NA	NA	<1 [<0.98]	NA	NA	NA	<0.99 *	<1	NA
Methoxychlor	72-43-5	1.80E+02	4.00E+01	µg/L	<0.099	NA	<0.1	NA	NA	NA	<0.1 [<0.098]	NA	NA	NA	<0.099	<0.1	NA
Technical Chlordane	57-74-9	- -	2.00E+00	µg/L	<0.5	NA	<0.51	NA	NA	NA	<0.51 [<0.49]	NA	NA	NA	<0.5	<0.51	NA
Toxaphene	8001-35-2	6.10E-02	3.00E+00	µg/L	<5	NA	<5.1	NA	NA	NA	<5.1 [<4.9]	NA	NA	NA	<5	<5.1	NA
Herb-EPA 8151A																	
2,4,5-T	93-76-5	3.70E+02	3.65E+02	µg/L	<0.51	NA	<0.51	NA	NA	NA	<0.51 [<0.5]	NA	NA	NA	<0.51	<0.5	NA
2,4,5-TP	93-72-1	2.90E+02	5.00E+01	µg/L	<0.51	NA	<0.51	NA	NA	NA	<0.51 [<0.5]	NA	NA	NA	<0.51	<0.5	NA
2,4-D	94-75-7	3.70E+02	7.00E+01	µg/L	<0.51	NA	<0.51	NA	NA	NA	<0.51 [<0.5]	NA	NA	NA	<0.51	<0.5	NA
Volatile Organics-EPA 8260B																	
1,1,1,2-Tetrachloroethane	630-20-6	5.20E-01	4.06E-01	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
1,1,1-Trichloroethane	71-55-6	9.10E+03	2.00E+02	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
1,1,2,2-Tetrachloroethane	79-34-5	6.70E-02	5.27E-02	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
1,1,2-Trichloroethane	79-00-5	2.40E-01	5.00E+00	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
1,1-Dichloroethane	75-34-3	2.40E+00	7.98E+02	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
1,1-Dichloroethene	75-35-4	3.40E+02	7.00E+00	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
1,2,3-Trichloropropane	96-18-4	7.20E-04	6.23E-03	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
1,2-Dibromo-3-chloropropane	96-12-8	3.20E-04	2.00E-01	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
1,2-Dibromoethane	106-93-4	6.50E-03	5.00E-02	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
1,2-Dichloroethane	107-06-2	1.50E-01	5.00E+00	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
1,2-Dichloropropane	78-87-5	3.90E-01	5.00E+00	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
2-Butanone	78-93-3	7.10E+03	1.91E+03	µg/L	<10	<10	<10	<10	<10	<10	<500 [<500]	<10 [<10]	<10	<10 [<10]	<10	<100	<10
2-Chloro-1,3-butadiene	126-99-8	1.60E-02	1.43E+01	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
2-Hexanone	591-78-6	4.70E+01	1.46E+03	µg/L	<10	<10	<10	<10	<10	<10	<500 [<500]	<10 [<10]	<10	<10 [<10]	<10	<100	<10
3-Chloropropene	107-05-1	6.50E-01	- -	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
4-Methyl-2-pentanone	108-10-1	2.00E+03	1.39E+02	µg/L	<10	<10	<10	<10	<10	<10	<500 [<500]	<10 [<10]	<10	<10 [<10]	<10	<100	<10
Acetone	67-64-1	2.20E+04	6.08E+02	µg/L	<25	<25	<25	<25	<25	<25	<1,300 [<1,300]	<25 [<25]	<25	<25 [<25]	<25	<250	<25
Acetonitrile	75-05-8	1.30E+02	1.25E+02	µg/L	<40	<40	<40	<40	<40	<40	<2,000 [<2,000]	<40 [<40]	<40	<40 [<40]	<40	<400	<40
Acrolein	107-02-8	4.20E-02	4.16E-02	µg/L	<20	<20	<20	<20	<20	<20	<1,000 [<1,000]	<20 [<20]	<20	<20 [<20]	<20	<200	<20
Acrylonitrile	107-13-1	4.50E-02	3.67E-02	µg/L	<20	<20	<20	<20	<20	<20	<1,000 [<1,000]	<20 [<20]	<20	<20 [<20]	<20	<200	<20
Benzene	71-43-2	4.10E-01	5.00E+00	µg/L	<1	<1	<1	<1	<1	<1	**4,600 [5,100]**	<1 [<1]	<1	<1 [<1]	<1	**390**	<1
Bromodichloromethane	75-27-4	1.20E-01	1.68E-01	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Bromoform	75-25-2	8.50E+00	8.48E+00	µg/L	<1	<1	<1	<1 *	<1 *	<1 *	<50 [<50]	<1 * [<1 *]	<1	<1 * [<1]	<1	<10	<1 *
Bromomethane	74-83-9	8.70E+00	8.52E+00	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Carbon Disulfide	75-15-0	1.00E+03	1.04E+03	µg/L	<2	<2	<2	<2	<2	<2	<100 [<100]	<2 [<2]	<2	<2 [<2]	<2	<20	<2
Carbon Tetrachloride	56-23-5	4.40E-01	5.00E+00	µg/L	<1	<1	<1	<1 *	<1	<1	**2,600 [2,700 *]**	<1 [<1]	<1	<1 * [<1]	<1	**620**	<1 *
Chlorobenzene	108-90-7	9.10E+01	1.00E+02	µg/L	<1	<1	<1	<1	<1	<1	**220 [240]**	<1 [<1]	<1	<1 [<1]	<1	24	<1
Chloroethane	75-00-3	2.10E+04	3.64E+00	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1

Table 2. Summary of July 2011 Groundwater Analytical Results, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location ID:		EPA RSL			MW-02	MW-03	MW-04	MW-05	MW-06	MW-07	MW-08	MW-09	MW-10	MW-11	MW-12	MW-13	MW-14
Date Collected:	CAS #	TAP WATER	MDEQ_GW	UNITS	07/27/11	07/27/11	07/27/11	07/28/11	07/28/11	07/28/11	07/26/11	07/28/11	07/27/11	07/27/11	07/27/11	07/26/11	07/28/11
Chloroform	67-66-3	1.90E-01	1.55E-01	µg/L	<1	<1	<1	<1	<1	<1	**640 [640]**	<1 [<1]	<1	<1 [<1]	<1	**210**	<1
Chloromethane	74-87-3	1.90E+02	1.43E+00	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
cis-1,2-Dichloroethene	156-59-2	7.30E+01	7.00E+01	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
cis-1,3-Dichloropropene	10061-01-5	- -	- -	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Dibromochloromethane	124-48-1	1.50E-01	1.26E-01	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Dibromomethane	74-95-3	8.20E+00	6.08E+01	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Dichlorodifluoromethane	75-71-8	2.00E+02	3.48E+02	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Ethyl Methacrylate	97-63-2	5.30E+02	5.48E+02	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Ethylbenzene	100-41-4	1.50E+00	7.00E+02	µg/L	<1	<1	<1	<1	<1	<1	**55 [61]**	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Iodomethane	74-88-4	- -	- -	µg/L	<5	<5	<5	<5	<5	<5	<250 [<250]	<5 [<5]	<5	<5 [<5]	<5	<50	<5
Isobutanol	78-83-1	1.10E+04	1.83E+03	µg/L	<40	<40	<40	<40	<40	<40	<2,000 [<2,000]	<40 [<40]	<40	<40 [<40]	<40	<400	<40
Methacrylonitrile	126-98-7	1.00E+00	1.04E+00	µg/L	<20	<20	<20	<20	<20	<20	<1,000 [<1,000]	<20 [<20]	<20	<20 [<20]	<20	<200	<20
Methyl Methacrylate	80-62-6	1.40E+03	1.42E+03	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Methylene Chloride	75-09-2	4.80E+00	5.00E+00	µg/L	<5	<5	<5	<5	<5	<5	**340 [350]**	<5 [<5]	<5	<5 [<5]	<5	<50	<5
Pentachloroethane	76-01-7	7.50E-01	- -	µg/L	<5	<5	<5	<5	<5	<5	<250 [<250]	<5 [<5]	<5	<5 [<5]	<5	<50	<5
Propionitrile	107-12-0	- -	- -	µg/L	<20	<20	<20	<20	<20	<20	<1,000 [<1,000]	<20 [<20]	<20	<20 [<20]	<20	<200	<20
Styrene	100-42-5	1.60E+03	1.00E+02	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Tetrachloroethene	127-18-4	1.10E-01	5.00E+00	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Toluene	108-88-3	2.30E+03	1.00E+03	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
trans-1,2-Dichloroethene	156-60-5	1.10E+02	1.00E+02	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
trans-1,3-Dichloropropene	10061-02-6	- -	- -	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
trans-1,4-Dichloro-2-butene	110-57-6	1.20E-03	- -	µg/L	<2	<2	<2	<2	<2	<2	<100 [<100]	<2 [<2]	<2	<2 [<2]	<2	<20	<2
Trichloroethene	79-01-6	2.00E+00	5.00E+00	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Trichlorofluoromethane	75-69-4	1.30E+03	1.29E+03	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Vinyl Acetate	108-05-4	4.10E+02	4.12E+02	µg/L	<2	<2	<2	<2	<2	<2	<100 [<100]	<2 [<2]	<2	<2 [<2]	<2	<20	<2
Vinyl Chloride	75-01-4	1.60E-02	2.00E+00	µg/L	<1	<1	<1	<1	<1	<1	<50 [<50]	<1 [<1]	<1	<1 [<1]	<1	<10	<1
Xylenes (total)	1330-20-7	2.00E+02	1.00E+04	µg/L	<2	<2	<2	<2	<2	<2	<100 [<100]	<2 [<2]	<2	<2 [<2]	<2	<20	<2
Semivolatile Organics-EPA 8270C																	
1,1'-Biphenyl	92-52-4	8.30E-01	3.04E+02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
1,2,4,5-Tetrachlorobenzene	95-94-3	1.10E+01	1.10E+01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
1,2,4-Trichlorobenzene	120-82-1	2.30E+00	7.00E+01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
1,2-Dichlorobenzene	95-50-1	3.70E+02	6.00E+02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
1,3,5-Trinitrobenzene	99-35-4	1.10E+03	1.10E+03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
1,3-Dichlorobenzene	541-73-1	- -	5.48E+00	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
1,3-Dinitrobenzene	99-65-0	3.70E+00	3.65E+00	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
1,4-Dichlorobenzene	106-46-7	4.30E-01	7.50E+01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
1,4-Dioxane	123-91-1	6.70E-01	6.09E+00	µg/L	<9.9	NA	**23**	NA	NA	NA	**13,000 [9,400]**	NA	NA	NA	<12	**470**	NA
1,4-Naphthoquinone	130-15-4	- -	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
1-Naphthylamine	134-32-7	- -	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2,2'-Oxybis(1-Chloropropane)	108-60-1	3.20E-01	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2,3,4,6-Tetrachlorophenol	58-90-2	1.10E+03	1.10E+03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2,4,5-Trichlorophenol	95-95-4	3.70E+03	3.65E+03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2,4,6-Trichlorophenol	88-06-2	6.10E+00	6.09E+00	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2,4-Dichlorophenol	120-83-2	1.10E+02	1.10E+02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2,4-Dimethylphenol	105-67-9	7.30E+02	7.30E+02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2,4-Dinitrophenol	51-28-5	7.30E+01	7.30E+01	µg/L	<49	NA	<52	NA	NA	NA	<5,200 [<2,500]	NA	NA	NA	<62	<250	NA
2,4-Dinitrotoluene	121-14-2	2.20E-01	7.30E+01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2,6-Dichlorophenol	87-65-0	- -	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2,6-Dinitrotoluene	606-20-2	3.70E+01	3.65E+01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2-Acetylaminofluorene	53-96-3	1.80E-02	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2-Chloronaphthalene	91-58-7	2.90E+03	4.87E+02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2-Chlorophenol	95-57-8	1.80E+02	3.04E+01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2-Methylnaphthalene	91-57-6	1.50E+02	1.22E+02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2-Methylphenol	95-48-7	1.80E+03	1.83E+03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2-Naphthylamine	91-59-8	3.70E-02	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2-Nitroaniline	88-74-4	3.70E+02	4.17E-01	µg/L	<49	NA	<52	NA	NA	NA	<5,200 [<2,500]	NA	NA	NA	<62	<250	NA
2-Nitrophenol	88-75-5	- -	4.16E-01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
2-Picoline	109-06-8	- -	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
3 & 4 Methylphenol	15831-10-4	- -	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
3,3'-Dichlorobenzidine	91-94-1	1.50E-01	1.49E-01	µg/L	<59	NA	<63	NA	NA	NA	<6,200 [<3,000]	NA	NA	NA	<75	<290	NA
3,3'-Dimethylbenzidine	119-93-7	6.10E-03	7.28E-03	µg/L	<20	NA	<21	NA	NA	NA	<2,100 [<1,000]	NA	NA	NA	<25	<98	NA

Table 2. Summary of July 2011 Groundwater Analytical Results, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location ID: Date Collected:	CAS #	EPA RSL TAP WATER	MDEQ_GW	UNITS	MW-02 07/27/11	MW-03 07/27/11	MW-04 07/27/11	MW-05 07/28/11	MW-06 07/28/11	MW-07 07/28/11	MW-08 07/26/11	MW-09 07/28/11	MW-10 07/27/11	MW-11 07/27/11	MW-12 07/27/11	MW-13 07/26/11	MW-14 07/28/11
3-Methylcholanthrene	56-49-5	9.80E-04	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
3-Nitroaniline	99-09-2	- -	- -	µg/L	<49	NA	<52	NA	NA	NA	<5,200 [<2,500]	NA	NA	NA	<62	<250	NA
4,6-Dinitro-2-methylphenol	534-52-1	2.90E+00	3.65E+00	µg/L	<49	NA	<52	NA	NA	NA	<5,200 [<2,500]	NA	NA	NA	<62	<250	NA
4-Aminobiphenyl	92-67-1	3.20E-03	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
4-Bromophenyl-phenylether	101-55-3	- -	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
4-Chloro-3-Methylphenol	59-50-7	3.70E+03	7.30E+04	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
4-Chloroaniline	106-47-8	3.40E-01	1.46E+02	µg/L	<20	NA	<21	NA	NA	NA	<2,100 [<1,000]	NA	NA	NA	<25	<98	NA
4-Chlorophenyl-phenylether	7005-72-3	- -	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
4-Nitroaniline	100-01-6	3.40E+00	- -	µg/L	<49	NA	<52	NA	NA	NA	<5,200 [<2,500]	NA	NA	NA	<62	<250	NA
4-Nitrophenol	100-02-7	- -	2.92E+02	µg/L	<49	NA	<52	NA	NA	NA	<5,200 [<2,500]	NA	NA	NA	<62	<250	NA
4-Nitroquinoline-1-oxide	56-57-5	- -	- -	µg/L	<20	NA	<21	NA	NA	NA	<2,100 [<1,000]	NA	NA	NA	<25	<98	NA
4-Phenylenediamine	106-50-3	6.90E+03	6.94E+03	µg/L	<2,000	NA	<2,100	NA	NA	NA	<210,000 [<100,000	NA	NA	NA	<2,500	<9,800	NA
5-Nitro-o-toluidine	99-55-8	7.50E+00	2.03E+00	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
7,12-Dimethylbenz(a)anthracene	57-97-6	8.60E-05	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
a,a'-Dimethylphenethylamine	122-09-8	- -	- -	µg/L	<2,000	NA	<2,100	NA	NA	NA	<210,000 [<100,000	NA	NA	NA	<2,500	<9,800	NA
Acenaphthene	83-32-9	2.20E+03	3.65E+02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Acenaphthylene	208-96-8	- -	2.19E+03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Acetophenone	98-86-2	3.70E+03	4.16E-02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Aniline	62-53-3	1.20E+01	1.17E+01	µg/L	<20	NA	<21	NA	NA	NA	<2,100 [<1,000]	NA	NA	NA	<25	<98	NA
Anthracene	120-12-7	1.10E+04	4.34E+01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Aramite	140-57-8	2.70E+00	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Benzo(a)anthracene	56-55-3	2.90E-02	9.17E-02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Benzo(a)pyrene	50-32-8	2.90E-03	2.00E-01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Benzo(b)fluoranthene	205-99-2	2.90E-02	9.17E-02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Benzo(g,h,i)perylene	191-24-2	- -	1.10E+03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Benzo(k)fluoranthene	207-08-9	2.90E-01	9.17E-01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Benzyl Alcohol	100-51-6	3.70E+03	1.10E+04	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
bis(2-Chloroethoxy)methane	111-91-1	1.10E+02	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
bis(2-Chloroethyl)ether	111-44-4	1.20E-02	9.20E-03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
bis(2-Ethylhexyl)phthalate	117-81-7	4.80E+00	6.00E+00	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Butylbenzylphthalate	85-68-7	3.50E+01	2.69E+03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Chrysene	218-01-9	2.90E+00	9.17E+00	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Diallate	2303-16-4	1.10E+00	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Dibenzo(a,h)anthracene	53-70-3	2.90E-03	9.17E-03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Dibenzofuran	132-64-9	3.70E+01	2.43E+01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Diethylphthalate	84-66-2	2.90E+04	2.92E+04	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Dimethoate	60-51-5	7.30E+00	- -	µg/L	<9.9 *	NA	<10 *	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12 *	<49	NA
Dimethylphthalate	131-11-3	- -	3.65E+05	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Di-n-Butylphthalate	84-74-2	3.70E+03	3.65E+03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Di-n-Octylphthalate	117-84-0	- -	2.00E+01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Dinoseb	88-85-7	3.70E+01	7.00E+00	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Disulfoton	298-04-4	1.50E+00	1.46E+00	µg/L	<9.9 *	NA	<10 *	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12 *	<49	NA
Ethyl Methanesulfonate	62-50-0	- -	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Ethyl Parathion	56-38-2	2.20E+02	2.19E+02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Famphur	52-85-7	- -	- -	µg/L	<9.9 *	NA	<10 *	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12 *	<49	NA
Fluoranthene	206-44-0	1.50E+03	1.46E+03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Fluorene	86-73-7	1.50E+03	2.43E+02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Hexachlorobenzene	118-74-1	4.20E-02	1.00E+00	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Hexachlorobutadiene	87-68-3	8.60E-01	8.59E-01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Hexachlorocyclopentadiene	77-47-4	2.20E+02	5.00E+01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Hexachloroethane	67-72-1	4.80E+00	4.78E+00	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Hexachlorophene	70-30-4	1.10E+01	1.10E+01	µg/L	<4,900	NA	<5,200	NA	NA	NA	<520,000 [<250,000	NA	NA	NA	<6,200	<25,000	NA
Hexachloropropene	1888-71-7	- -	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Indeno(1,2,3-cd)pyrene	193-39-5	2.90E-02	9.17E-02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Isophorone	78-59-1	7.10E+01	7.05E+01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Isosafrole	120-58-1	- -	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Methapyrilene	91-80-5	- -	- -	µg/L	<2,000	NA	<2,100	NA	NA	NA	<210,000 [<100,000	NA	NA	NA	<2,500	<9,800	NA
Methyl Methanesulfonate	66-27-3	6.80E-01	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Methyl Parathion	298-00-0	9.10E+00	9.13E+00	µg/L	<9.9 *	NA	<10 *	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12 *	<49	NA
Naphthalene	91-20-3	1.40E-01	6.20E+00	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Nitrobenzene	98-95-3	1.20E-01	3.53E+00	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
N-Nitrosodiethylamine	55-18-5	1.40E-04	4.46E-04	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
N-Nitrosodimethylamine	62-75-9	4.20E-04	1.31E-03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
N-Nitroso-di-n-butylamine	924-16-3	2.40E-03	1.89E-03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
N-Nitroso-di-n-propylamine	621-64-7	9.60E-03	9.57E-03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
N-Nitrosodiphenylamine	86-30-6	1.40E+01	1.37E+01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA

Table 2. Summary of July 2011 Groundwater Analytical Results, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location ID:		EPA RSL			MW-02	MW-03	MW-04	MW-05	MW-06	MW-07	MW-08	MW-09	MW-10	MW-11	MW-12	MW-13	MW-14
Date Collected:	CAS #	TAP WATER	MDEQ_GW	UNITS	07/27/11	07/27/11	07/27/11	07/28/11	07/28/11	07/28/11	07/26/11	07/28/11	07/27/11	07/27/11	07/27/11	07/26/11	07/28/11
N-Nitrosomethylethylamine	10595-95-6	3.10E-03	3.04E-03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
N-Nitrosomorpholine	59-89-2	1.00E-02	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
N-Nitrosopiperidine	100-75-4	7.20E-03	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
N-Nitrosopyrrolidine	930-55-2	3.20E-02	3.19E-02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
o,o,o-Triethylphosphorothioate	126-68-1	- -	- -	µg/L	<9.9	NA	22	NA	NA	NA	3,400 [3,300]	NA	NA	NA	<12	190	NA
o-Toluidine	95-53-4	- -	2.79E-01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
p-Dimethylaminoazobenzene	60-11-7	1.50E-02	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Pentachlorobenzene	608-93-5	2.90E+01	2.92E+01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Pentachloronitrobenzene	82-68-8	2.60E-01	2.58E-01	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Pentachlorophenol	87-86-5	1.70E-01	1.00E+00	µg/L	<49	NA	<52	NA	NA	NA	<5,200 [<2,500]	NA	NA	NA	<62	<250	NA
Phenacetin	62-44-2	3.10E+01	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Phenanthrene	85-01-8	- -	1.10E+03	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Phenol	108-95-2	1.10E+04	2.19E+04	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Phorate	298-02-2	7.30E+00	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Pronamide	23950-58-5	2.70E+03	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Pyrene	129-00-0	1.10E+03	1.83E+02	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Pyridine	110-86-1	3.70E+01	3.65E+01	µg/L	<49	NA	<52	NA	NA	NA	<5,200 [<2,500]	NA	NA	NA	<62	<250	NA
Safrole	94-59-7	9.80E-02	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Sulfotep	3689-24-5	1.80E+01	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Thionazin	297-97-2	- -	- -	µg/L	<9.9	NA	<10	NA	NA	NA	<1,000 [<510]	NA	NA	NA	<12	<49	NA
Dioxins-EPA 8290																	
2,3,7,8-TCDD	1746-01-6	5.20E-01	3.00E+01	pg/L	<10	NA	<10	NA	NA	NA	<11 [<10]	NA	NA	NA	<9.8	<10	NA
Total TEQ	- -	- -	- -	pg/L	0.00	NA	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	0.00	NA
Inorganics-EPA 6020																	
Antimony	7440-36-0	1.50E+01	6.00E+00	µg/L	<5	NA	<5	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	<5	NA
Arsenic	7440-38-2	4.50E-02	5.00E+01	µg/L	**2.9**	NA	<2.5	NA	NA	NA	**42 [44]**	NA	NA	NA	<2.5	**5.7**	NA
Barium	7440-39-3	7.30E+03	2.00E+03	µg/L	76	NA	110	NA	NA	NA	260 [260]	NA	NA	NA	120	49	NA
Beryllium	7440-41-7	7.30E+01	4.00E+00	µg/L	<0.5	NA	<0.5	NA	NA	NA	<0.5 [<0.5]	NA	NA	NA	<0.5	<0.5	NA
Cadmium	7440-43-9	- -	5.00E+00	µg/L	<0.5	NA	<0.5	NA	NA	NA	<0.5 [<0.5]	NA	NA	NA	<0.5	<0.5	NA
Chromium	7440-47-3	- -	- -	µg/L	<5	NA	<5	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	<5	NA
Cobalt	7440-48-4	1.10E+01	2.19E+03	µg/L	4.2	NA	<0.5	NA	NA	NA	<0.5 [<0.5]	NA	NA	NA	3.4	1.5	NA
Copper	7440-50-8	1.50E+03	1.30E+03	µg/L	<5	NA	<5	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	<5	NA
Lead	7439-92-1	- -	1.50E+01	µg/L	<1.5	NA	<1.5	NA	NA	NA	<1.5 [<1.5]	NA	NA	NA	<1.5	<1.5	NA
Nickel	7440-02-0	7.30E+02	7.30E+02	µg/L	<5	NA	<5	NA	NA	NA	<5 [<5]	NA	NA	NA	9.7	<5	NA
Selenium	7782-49-2	1.80E+02	5.00E+01	µg/L	<2.5	NA	<2.5	NA	NA	NA	<2.5 [<2.5]	NA	NA	NA	<2.5	<2.5	NA
Silver	7440-22-4	1.80E+02	1.83E+02	µg/L	<1	NA	<1	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	<1	NA
Thallium	7440-28-0	3.70E-01	2.00E+00	µg/L	<1	NA	<1	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	<1	NA
Tin	7440-31-5	2.20E+04	2.19E+04	µg/L	<5	NA	<5	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	<5	NA
Vanadium	7440-62-2	- -	2.56E+02	µg/L	<10	NA	<10	NA	NA	NA	<10 [<10]	NA	NA	NA	<10	<10	NA
Zinc	7440-66-6	1.10E+04	1.10E+04	µg/L	<20	NA	<20	NA	NA	NA	<20 [<20]	NA	NA	NA	34	41	NA
Inorganics-EPA 7470A																	
Mercury	7439-97-6	6.30E-01	2.00E+00	µg/L	<0.2	NA	<0.2	NA	NA	NA	<0.2 [<0.2]	NA	NA	NA	<0.2	<0.2	NA
Miscellaneous-9034																	
Sulfide	18496-25-8	- -	- -	mg/L	<1	NA	1.1	NA	NA	NA	5 [17]	NA	NA	NA	<1	<1	NA
Miscellaneous9012A																	
Cyanide	57-12-5	7.30E-01	2.00E-01	mg/L	<0.01	NA	<0.01	NA	NA	NA	<0.01 [<0.01]	NA	NA	NA	<0.01	<0.01	NA

*	Laboratory duplicate analysis was outside control limits.
<	Less than.
- -	Standard not promulgated.
▨	Shaded cells indicate that the reported result exceeds the EPA RSL or MDEQ_GW.
Boldface type	Compound detected.
EPA	U.S. Environmental Protection Agency.
MDEQ	Mississippi Department of Environmental Quality.
MDEQ_GW	MDEQ Tier 1 Target Remediation Goal.
mg/L	Milligrams per liter.
µg/L	Micrograms per liter.
NA	Not analyzed.
pg/L	Picogram per liter.
RSL	Regional Screening Level.
TEQ	Toxic equivalent.

Table 2. Summary of July 2011 Groundwater Analytical Results, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location ID: Date Collected:	CAS #	EPA RSL TAP WATER	MDEQ_GW	UNITS	MW-15 07/28/11	MW-16 07/28/11	MW-17 07/26/11	MW-18 07/27/11	MW-19 07/26/11	MW-20 07/27/11	MW-21 07/26/11	MW-22 07/27/11	MW-23 07/26/11	MW-24 07/27/11
PEST/PCB-EPA 8081A/8082														
4,4'-DDD	72-54-8	2.80E-01	2.79E-01	µg/L	NA	NA	<0.99	NA	<0.099	NA	NA	NA	<0.099	NA
4,4'-DDE	72-55-9	2.00E-01	1.97E-01	µg/L	NA	NA	<0.99	NA	<0.099	NA	NA	NA	<0.099	NA
4,4'-DDT	50-29-3	2.00E-01	1.97E-01	µg/L	NA	NA	<0.99	NA	<0.099	NA	NA	NA	<0.099	NA
4-Chlorobenzilate	510-15-6	6.10E-01	2.48E-01	µg/L	NA	NA	<4.9	NA	<0.49	NA	NA	NA	<0.49	NA
Aldrin	309-00-2	4.00E-03	3.94E-03	µg/L	NA	NA	<0.49	NA	<0.049	NA	NA	NA	<0.049	NA
Alpha-BHC	319-84-6	1.10E-02	1.06E-02	µg/L	NA	NA	**1.5 p**	NA	<0.049	NA	NA	NA	<0.049	NA
Aroclor-1016	12674-11-2	9.60E-01	9.57E-01	µg/L	NA	NA	<9.9	NA	<0.99	NA	NA	NA	<0.99	NA
Aroclor-1221	11104-28-2	6.80E-03	3.35E-02	µg/L	NA	NA	<20	NA	<2	NA	NA	NA	<2	NA
Aroclor-1232	11141-16-5	6.80E-03	3.35E-02	µg/L	NA	NA	<9.9	NA	<0.99	NA	NA	NA	<0.99	NA
Aroclor-1242	53469-21-9	3.40E-02	3.35E-02	µg/L	NA	NA	<9.9	NA	<0.99	NA	NA	NA	<0.99	NA
Aroclor-1248	12672-29-6	3.40E-02	3.35E-02	µg/L	NA	NA	<9.9	NA	<0.99	NA	NA	NA	<0.99	NA
Aroclor-1254	11097-69-1	3.40E-02	3.35E-02	µg/L	NA	NA	<9.9	NA	<0.99	NA	NA	NA	<0.99	NA
Aroclor-1260	11096-82-5	3.40E-02	3.35E-02	µg/L	NA	NA	<9.9	NA	<0.99	NA	NA	NA	<0.99	NA
Beta-BHC	319-85-7	3.70E-02	3.72E-02	µg/L	NA	NA	<0.49	NA	<0.049	NA	NA	NA	<0.049	NA
Delta-BHC	319-86-8	- -	- -	µg/L	NA	NA	<0.49	NA	<0.049	NA	NA	NA	<0.049	NA
Dieldrin	60-57-1	4.20E-03	4.19E-03	µg/L	NA	NA	<0.99	NA	<0.099	NA	NA	NA	<0.099	NA
Endosulfan I	959-98-8	- -	- -	µg/L	NA	NA	<0.49	NA	<0.049	NA	NA	NA	<0.049	NA
Endosulfan II	33213-65-9	- -	- -	µg/L	NA	NA	<0.99	NA	<0.099	NA	NA	NA	<0.099	NA
Endosulfan Sulfate	1031-07-8	- -	- -	µg/L	NA	NA	<0.99	NA	<0.099	NA	NA	NA	<0.099	NA
Endrin	72-20-8	1.10E+01	2.00E+00	µg/L	NA	NA	<0.99	NA	<0.099	NA	NA	NA	<0.099	NA
Endrin Aldehyde	7421-93-4	- -	- -	µg/L	NA	NA	<0.99	NA	<0.099	NA	NA	NA	<0.099	NA
Endrin Ketone	53494-70-5	- -	- -	µg/L	NA	NA	<0.99	NA	<0.099	NA	NA	NA	<0.099	NA
Gamma-BHC (Lindane)	58-89-9	6.10E-02	2.00E-01	µg/L	NA	NA	<0.49	NA	<0.049	NA	NA	NA	<0.049	NA
Heptachlor	76-44-8	1.50E-02	4.00E-01	µg/L	NA	NA	<0.49	NA	<0.049	NA	NA	NA	<0.049	NA
Heptachlor Epoxide	1024-57-3	7.40E-03	2.00E-01	µg/L	NA	NA	<0.49	NA	<0.049	NA	NA	NA	<0.049	NA
Isodrin	465-73-6	- -	- -	µg/L	NA	NA	<0.49	NA	<0.049	NA	NA	NA	<0.049	NA
Kepone	143-50-0	6.70E-03	- -	µg/L	NA	NA	<9.9	NA	<0.99	NA	NA	NA	<0.99	NA
Methoxychlor	72-43-5	1.80E+02	4.00E+01	µg/L	NA	NA	<0.99	NA	<0.099	NA	NA	NA	<0.099	NA
Technical Chlordane	57-74-9	- -	2.00E+00	µg/L	NA	NA	<4.9	NA	<0.49	NA	NA	NA	<0.49	NA
Toxaphene	8001-35-2	6.10E-02	3.00E+00	µg/L	NA	NA	<49	NA	<4.9	NA	NA	NA	<4.9	NA
Herb-EPA 8151A														
2,4,5-T	93-76-5	3.70E+02	3.65E+02	µg/L	NA	NA	<0.51	NA	<0.5	NA	NA	NA	<0.5	NA
2,4,5-TP	93-72-1	2.90E+02	5.00E+01	µg/L	NA	NA	<0.51	NA	<0.5	NA	NA	NA	<0.5	NA
2,4-D	94-75-7	3.70E+02	7.00E+01	µg/L	NA	NA	<0.51	NA	<0.5	NA	NA	NA	10 D	NA
Volatile Organics-EPA 8260B														
1,1,1,2-Tetrachloroethane	630-20-6	5.20E-01	4.06E-01	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
1,1,1-Trichloroethane	71-55-6	9.10E+03	2.00E+02	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
1,1,2,2-Tetrachloroethane	79-34-5	6.70E-02	5.27E-02	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
1,1,2-Trichloroethane	79-00-5	2.40E-01	5.00E+00	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
1,1-Dichloroethane	75-34-3	2.40E+00	7.98E+02	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
1,1-Dichloroethene	75-35-4	3.40E+02	7.00E+00	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
1,2,3-Trichloropropane	96-18-4	7.20E-04	6.23E-03	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
1,2-Dibromo-3-chloropropane	96-12-8	3.20E-04	2.00E-01	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
1,2-Dibromoethane	106-93-4	6.50E-03	5.00E-02	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
1,2-Dichloroethane	107-06-2	1.50E-01	5.00E+00	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
1,2-Dichloropropane	78-87-5	3.90E-01	5.00E+00	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
2-Butanone	78-93-3	7.10E+03	1.91E+03	µg/L	<10	<10	<2,000	<10	<10	<10	<500	<10	<1,000	<10
2-Chloro-1,3-butadiene	126-99-8	1.60E-02	1.43E+01	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
2-Hexanone	591-78-6	4.70E+01	1.46E+03	µg/L	<10	<10	<2,000	<10	<10	<10	<500	<10	<1,000	<10
3-Chloropropene	107-05-1	6.50E-01	- -	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
4-Methyl-2-pentanone	108-10-1	2.00E+03	1.39E+02	µg/L	<10	<10	<2,000	<10	<10	<10	<500	21	**1,100**	<10
Acetone	67-64-1	2.20E+04	6.08E+02	µg/L	<25	<25	<5,000	<25	<25	<25	<1,300	<25	<2,500	<25
Acetonitrile	75-05-8	1.30E+02	1.25E+02	µg/L	<40	<40	<8,000	<40	<40	<40	<2,000	<40	<4,000	<40
Acrolein	107-02-8	4.20E-02	4.16E-02	µg/L	<20	<20	<4,000	<20	<20	<20	<1,000	<20	<2,000	<20
Acrylonitrile	107-13-1	4.50E-02	3.67E-02	µg/L	<20	<20	<4,000	<20	<20	<20	<1,000	<20	<2,000	<20
Benzene	71-43-2	4.10E-01	5.00E+00	µg/L	<1	<1	**3,600**	<1	**54**	<1	**3,200**	**10**	**8,800**	<1
Bromodichloromethane	75-27-4	1.20E-01	1.68E-01	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
Bromoform	75-25-2	8.50E+00	8.48E+00	µg/L	<1 *	<1 *	<200	<1	<1	<1	<50	<1 *	<100	<1
Bromomethane	74-83-9	8.70E+00	8.52E+00	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
Carbon Disulfide	75-15-0	1.00E+03	1.04E+03	µg/L	<2	<2	<400	<2	<2	<2	<100	<2	390	<2
Carbon Tetrachloride	56-23-5	4.40E-01	5.00E+00	µg/L	<1	<1 *	**25,000 ***	<1	**3.5**	<1	<50	<1 *	<100	<1
Chlorobenzene	108-90-7	9.10E+01	1.00E+02	µg/L	<1	<1	**770**	21	9.9	<1	**150**	8.7	**140**	<1
Chloroethane	75-00-3	2.10E+04	3.64E+00	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1

Table 2. Summary of July 2011 Groundwater Analytical Results, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location ID:		EPA RSL			MW-15	MW-16	MW-17	MW-18	MW-19	MW-20	MW-21	MW-22	MW-23	MW-24
Date Collected:	CAS #	TAP WATER	MDEQ_GW	UNITS	07/28/11	07/28/11	07/26/11	07/27/11	07/26/11	07/27/11	07/26/11	07/27/11	07/26/11	07/27/11
Chloroform	67-66-3	1.90E-01	1.55E-01	µg/L	<1	<1	**3,000**	<1	**3.3**	<1	**4,300**	<1	**3,200**	<1
Chloromethane	74-87-3	1.90E+02	1.43E+00	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
cis-1,2-Dichloroethene	156-59-2	7.30E+01	7.00E+01	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
cis-1,3-Dichloropropene	10061-01-5	- -	- -	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
Dibromochloromethane	124-48-1	1.50E-01	1.26E-01	µg/L	<1	<1	<200	<1	<1	<1	<50	<1 *	<100	<1
Dibromomethane	74-95-3	8.20E+00	6.08E+01	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
Dichlorodifluoromethane	75-71-8	2.00E+02	3.48E+02	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
Ethyl Methacrylate	97-63-2	5.30E+02	5.48E+02	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
Ethylbenzene	100-41-4	1.50E+00	7.00E+02	µg/L	<1	<1	<200	<1	1.3	<1	<50	<1	<100	<1
Iodomethane	74-88-4	- -	- -	µg/L	<5	<5	<1,000	<5	<5	<5	<250	<5	<500	<5
Isobutanol	78-83-1	1.10E+04	1.83E+03	µg/L	<40	<40	<8,000	<40	<40	<40	<2,000	<40	<4,000	<40
Methacrylonitrile	126-98-7	1.00E+00	1.04E+00	µg/L	<20	<20	<4,000	<20	<20	<20	<1,000	<20	<2,000	<20
Methyl Methacrylate	80-62-6	1.40E+03	1.42E+03	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
Methylene Chloride	75-09-2	4.80E+00	5.00E+00	µg/L	<5	<5	<1,000	<5	<5	<5	<250	<5	<500	<5
Pentachloroethane	76-01-7	7.50E-01	- -	µg/L	<5	<5	<1,000	<5	<5	<5	<250	<5	<500	<5
Propionitrile	107-12-0	- -	- -	µg/L	<20	<20	<4,000	<20	<20	<20	<1,000	<20	<2,000	<20
Styrene	100-42-5	1.60E+03	1.00E+02	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
Tetrachloroethene	127-18-4	1.10E-01	5.00E+00	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
Toluene	108-88-3	2.30E+03	1.00E+03	µg/L	<1	<1	<200	<1	2.4	<1	**2,600**	1.1	**1,300**	<1
trans-1,2-Dichloroethene	156-60-5	1.10E+02	1.00E+02	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
trans-1,3-Dichloropropene	10061-02-6	- -	- -	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
trans-1,4-Dichloro-2-butene	110-57-6	1.20E-03	- -	µg/L	<2	<2	<400	<2	<2	<2	<100	<2	<200	<2
Trichloroethene	79-01-6	2.00E+00	5.00E+00	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
Trichlorofluoromethane	75-69-4	1.30E+03	1.29E+03	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
Vinyl Acetate	108-05-4	4.10E+02	4.12E+02	µg/L	<2	<2	<400	<2	<2	<2	<100	<2	<200	<2
Vinyl Chloride	75-01-4	1.60E-02	2.00E+00	µg/L	<1	<1	<200	<1	<1	<1	<50	<1	<100	<1
Xylenes (total)	1330-20-7	2.00E+02	1.00E+04	µg/L	<2	<2	<400	<2	<2	<2	<100	<2	<200	<2
Semivolatile Organics-EPA 8270C														
1,1'-Biphenyl	92-52-4	8.30E-01	3.04E+02	µg/L	NA	NA	<1,000	NA	**770**	NA	NA	NA	<97	NA
1,2,4,5-Tetrachlorobenzene	95-94-3	1.10E+01	1.10E+01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
1,2,4-Trichlorobenzene	120-82-1	2.30E+00	7.00E+01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
1,2-Dichlorobenzene	95-50-1	3.70E+02	6.00E+02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
1,3,5-Trinitrobenzene	99-35-4	1.10E+03	1.10E+03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
1,3-Dichlorobenzene	541-73-1	- -	5.48E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
1,3-Dinitrobenzene	99-65-0	3.70E+00	3.65E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
1,4-Dichlorobenzene	106-46-7	4.30E-01	7.50E+01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
1,4-Dioxane	123-91-1	6.70E-01	6.09E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	**890**	NA
1,4-Naphthoquinone	130-15-4	- -	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
1-Naphthylamine	134-32-7	- -	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2,2'-Oxybis(1-Chloropropane)	108-60-1	3.20E-01	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2,3,4,6-Tetrachlorophenol	58-90-2	1.10E+03	1.10E+03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2,4,5-Trichlorophenol	95-95-4	3.70E+03	3.65E+03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2,4,6-Trichlorophenol	88-06-2	6.10E+00	6.09E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2,4-Dichlorophenol	120-83-2	1.10E+02	1.10E+02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2,4-Dimethylphenol	105-67-9	7.30E+02	7.30E+02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2,4-Dinitrophenol	51-28-5	7.30E+01	7.30E+01	µg/L	NA	NA	<5,000	NA	<500	NA	NA	NA	<480	NA
2,4-Dinitrotoluene	121-14-2	2.20E-01	7.30E+01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2,6-Dichlorophenol	87-65-0	- -	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2,6-Dinitrotoluene	606-20-2	3.70E+01	3.65E+01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2-Acetylaminofluorene	53-96-3	1.80E-02	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2-Chloronaphthalene	91-58-7	2.90E+03	4.87E+02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2-Chlorophenol	95-57-8	1.80E+02	3.04E+01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2-Methylnaphthalene	91-57-6	1.50E+02	1.22E+02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2-Methylphenol	95-48-7	1.80E+03	1.83E+03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2-Naphthylamine	91-59-8	3.70E-02	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2-Nitroaniline	88-74-4	3.70E+02	4.17E-01	µg/L	NA	NA	<5,000	NA	<500	NA	NA	NA	<480	NA
2-Nitrophenol	88-75-5	- -	4.16E-01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
2-Picoline	109-06-8	- -	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
3 & 4 Methylphenol	15831-10-4	- -	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	660	NA
3,3'-Dichlorobenzidine	91-94-1	1.50E-01	1.49E-01	µg/L	NA	NA	<6,000	NA	<600	NA	NA	NA	<580	NA
3,3'-Dimethylbenzidine	119-93-7	6.10E-03	7.28E-03	µg/L	NA	NA	<2,000	NA	<200	NA	NA	NA	<190	NA

Table 2. Summary of July 2011 Groundwater Analytical Results, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location ID: Date Collected:	CAS #	EPA RSL TAP WATER	MDEQ_GW	UNITS	MW-15 07/28/11	MW-16 07/28/11	MW-17 07/26/11	MW-18 07/27/11	MW-19 07/26/11	MW-20 07/27/11	MW-21 07/26/11	MW-22 07/27/11	MW-23 07/26/11	MW-24 07/27/11
3-Methylcholanthrene	56-49-5	9.80E-04	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
3-Nitroaniline	99-09-2	- -	- -	µg/L	NA	NA	<5,000	NA	<500	NA	NA	NA	<480	NA
4,6-Dinitro-2-methylphenol	534-52-1	2.90E+00	3.65E+00	µg/L	NA	NA	<5,000	NA	<500	NA	NA	NA	<480	NA
4-Aminobiphenyl	92-67-1	3.20E-03	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
4-Bromophenyl-phenylether	101-55-3	- -	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
4-Chloro-3-Methylphenol	59-50-7	3.70E+03	7.30E+04	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
4-Chloroaniline	106-47-8	3.40E-01	1.46E+02	µg/L	NA	NA	<2,000	NA	<200	NA	NA	NA	<190	NA
4-Chlorophenyl-phenylether	7005-72-3	- -	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
4-Nitroaniline	100-01-6	3.40E+00	- -	µg/L	NA	NA	<5,000	NA	<500	NA	NA	NA	<480	NA
4-Nitrophenol	100-02-7	- -	2.92E+02	µg/L	NA	NA	<5,000	NA	<500	NA	NA	NA	<480	NA
4-Nitroquinoline-1-oxide	56-57-5	- -	- -	µg/L	NA	NA	<2,000	NA	<200	NA	NA	NA	<190	NA
4-Phenylenediamine	106-50-3	6.90E+03	6.94E+03	µg/L	NA	NA	<200,000	NA	<20,000	NA	NA	NA	<19,000	NA
5-Nitro-o-toluidine	99-55-8	7.50E+00	2.03E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
7,12-Dimethylbenz(a)anthracene	57-97-6	8.60E-05	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
a,a'-Dimethylphenethylamine	122-09-8	- -	- -	µg/L	NA	NA	<200,000	NA	<20,000	NA	NA	NA	<19,000	NA
Acenaphthene	83-32-9	2.20E+03	3.65E+02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Acenaphthylene	208-96-8	- -	2.19E+03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Acetophenone	98-86-2	3.70E+03	4.16E-02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Aniline	62-53-3	1.20E+01	1.17E+01	µg/L	NA	NA	<2,000	NA	<200	NA	NA	NA	<190	NA
Anthracene	120-12-7	1.10E+04	4.34E+01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Aramite	140-57-8	2.70E+00	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Benzo(a)anthracene	56-55-3	2.90E-02	9.17E-02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Benzo(a)pyrene	50-32-8	2.90E-03	2.00E-01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Benzo(b)fluoranthene	205-99-2	2.90E-02	9.17E-02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Benzo(g,h,i)perylene	191-24-2	- -	1.10E+03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Benzo(k)fluoranthene	207-08-9	2.90E-01	9.17E-01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Benzyl Alcohol	100-51-6	3.70E+03	1.10E+04	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
bis(2-Chloroethoxy)methane	111-91-1	1.10E+02	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
bis(2-Chloroethyl)ether	111-44-4	1.20E-02	9.20E-03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
bis(2-Ethylhexyl)phthalate	117-81-7	4.80E+00	6.00E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Butylbenzylphthalate	85-68-7	3.50E+01	2.69E+03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Chrysene	218-01-9	2.90E+00	9.17E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Diallate	2303-16-4	1.10E+00	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Dibenzo(a,h)anthracene	53-70-3	2.90E-03	9.17E-03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Dibenzofuran	132-64-9	3.70E+01	2.43E+01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Diethylphthalate	84-66-2	2.90E+04	2.92E+04	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Dimethoate	60-51-5	7.30E+00	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Dimethylphthalate	131-11-3	- -	3.65E+05	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Di-n-Butylphthalate	84-74-2	3.70E+03	3.65E+03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Di-n-Octylphthalate	117-84-0	- -	2.00E+01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Dinoseb	88-85-7	3.70E+01	7.00E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Disulfoton	298-04-4	1.50E+00	1.46E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Ethyl Methanesulfonate	62-50-0	- -	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Ethyl Parathion	56-38-2	2.20E+02	2.19E+02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Famphur	52-85-7	- -	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Fluoranthene	206-44-0	1.50E+03	1.46E+03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Fluorene	86-73-7	1.50E+03	2.43E+02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Hexachlorobenzene	118-74-1	4.20E-02	1.00E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Hexachlorobutadiene	87-68-3	8.60E-01	8.59E-01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Hexachlorocyclopentadiene	77-47-4	2.20E+02	5.00E+01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Hexachloroethane	67-72-1	4.80E+00	4.78E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Hexachlorophene	70-30-4	1.10E+01	1.10E+01	µg/L	NA	NA	<500,000	NA	<50,000	NA	NA	NA	<48,000	NA
Hexachloropropene	1888-71-7	- -	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Indeno(1,2,3-cd)pyrene	193-39-5	2.90E-02	9.17E-02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Isophorone	78-59-1	7.10E+01	7.05E+01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Isosafrole	120-58-1	- -	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Methapyrilene	91-80-5	- -	- -	µg/L	NA	NA	<200,000	NA	<20,000	NA	NA	NA	<19,000	NA
Methyl Methanesulfonate	66-27-3	6.80E-01	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Methyl Parathion	298-00-0	9.10E+00	9.13E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Naphthalene	91-20-3	1.40E-01	6.20E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Nitrobenzene	98-95-3	1.20E-01	3.53E+00	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
N-Nitrosodiethylamine	55-18-5	1.40E-04	4.46E-04	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
N-Nitrosodimethylamine	62-75-9	4.20E-04	1.31E-03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
N-Nitroso-di-n-butylamine	924-16-3	2.40E-03	1.89E-03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
N-Nitroso-di-n-propylamine	621-64-7	9.60E-03	9.57E-03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
N-Nitrosodiphenylamine	86-30-6	1.40E+01	1.37E+01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA

Table 2. Summary of July 2011 Groundwater Analytical Results, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Location ID: Date Collected:	CAS #	EPA RSL TAP WATER	MDEQ_GW	UNITS	MW-15 07/28/11	MW-16 07/28/11	MW-17 07/26/11	MW-18 07/27/11	MW-19 07/26/11	MW-20 07/27/11	MW-21 07/26/11	MW-22 07/27/11	MW-23 07/26/11	MW-24 07/27/11
N-Nitrosomethylethylamine	10595-95-6	3.10E-03	3.04E-03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
N-Nitrosomorpholine	59-89-2	1.00E-02	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
N-Nitrosopiperidine	100-75-4	7.20E-03	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
N-Nitrosopyrrolidine	930-55-2	3.20E-02	3.19E-02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
o,o,o-Triethylphosphorothioate	126-68-1	- -	- -	µg/L	NA	NA	12,000	NA	<99	NA	NA	NA	<97	NA
o-Toluidine	95-53-4	- -	2.79E-01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
p-Dimethylaminoazobenzene	60-11-7	1.50E-02	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Pentachlorobenzene	608-93-5	2.90E+01	2.92E+01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Pentachloronitrobenzene	82-68-8	2.60E-01	2.58E-01	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Pentachlorophenol	87-86-5	1.70E-01	1.00E+00	µg/L	NA	NA	<5,000	NA	<500	NA	NA	NA	<480	NA
Phenacetin	62-44-2	3.10E+01	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Phenanthrene	85-01-8	- -	1.10E+03	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Phenol	108-95-2	1.10E+04	2.19E+04	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	140	NA
Phorate	298-02-2	7.30E+00	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Pronamide	23950-58-5	2.70E+03	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Pyrene	129-00-0	1.10E+03	1.83E+02	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Pyridine	110-86-1	3.70E+01	3.65E+01	µg/L	NA	NA	<5,000	NA	<500	NA	NA	NA	<480	NA
Safrole	94-59-7	9.80E-02	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Sulfotep	3689-24-5	1.80E+01	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Thionazin	297-97-2	- -	- -	µg/L	NA	NA	<1,000	NA	<99	NA	NA	NA	<97	NA
Dioxins-EPA 8290														
2,3,7,8-TCDD	1746-01-6	5.20E-01	3.00E+01	pg/L	NA	NA	<10	NA	<10	NA	NA	NA	<10	NA
Total TEQ	- -	- -	- -	pg/L	NA	NA	0.00	NA	0.00	NA	NA	NA	0.00	NA
Inorganics-EPA 6020														
Antimony	7440-36-0	1.50E+01	6.00E+00	µg/L	NA	NA	<5	NA	<5	NA	NA	NA	<5	NA
Arsenic	7440-38-2	4.50E-02	5.00E+01	µg/L	NA	NA	**28**	NA	**14**	NA	NA	NA	**19**	NA
Barium	7440-39-3	7.30E+03	2.00E+03	µg/L	NA	NA	120	NA	51	NA	NA	NA	240	NA
Beryllium	7440-41-7	7.30E+01	4.00E+00	µg/L	NA	NA	<0.5	NA	<0.5	NA	NA	NA	3.3	NA
Cadmium	7440-43-9	- -	5.00E+00	µg/L	NA	NA	<0.5	NA	<0.5	NA	NA	NA	<0.5	NA
Chromium	7440-47-3	- -	- -	µg/L	NA	NA	<5	NA	<5	NA	NA	NA	5	NA
Cobalt	7440-48-4	1.10E+01	2.19E+03	µg/L	NA	NA	0.69	NA	<0.5	NA	NA	NA	0.71	NA
Copper	7440-50-8	1.50E+03	1.30E+03	µg/L	NA	NA	<5	NA	<5	NA	NA	NA	<5	NA
Lead	7439-92-1	- -	1.50E+01	µg/L	NA	NA	<1.5	NA	<1.5	NA	NA	NA	<1.5	NA
Nickel	7440-02-0	7.30E+02	7.30E+02	µg/L	NA	NA	<5	NA	<5	NA	NA	NA	<5	NA
Selenium	7782-49-2	1.80E+02	5.00E+01	µg/L	NA	NA	<2.5	NA	<2.5	NA	NA	NA	<2.5	NA
Silver	7440-22-4	1.80E+02	1.83E+02	µg/L	NA	NA	<1	NA	<1	NA	NA	NA	<1	NA
Thallium	7440-28-0	3.70E-01	2.00E+00	µg/L	NA	NA	<1	NA	<1	NA	NA	NA	<1	NA
Tin	7440-31-5	2.20E+04	2.19E+04	µg/L	NA	NA	<5	NA	<5	NA	NA	NA	<5	NA
Vanadium	7440-62-2	- -	2.56E+02	µg/L	NA	NA	<10	NA	<10	NA	NA	NA	16	NA
Zinc	7440-66-6	1.10E+04	1.10E+04	µg/L	NA	NA	<20	NA	57	NA	NA	NA	<20	NA
Inorganics-EPA 7470A														
Mercury	7439-97-6	6.30E-01	2.00E+00	µg/L	NA	NA	<0.2	NA	<0.2	NA	NA	NA	<0.2	NA
Miscellaneous-9034														
Sulfide	18496-25-8	- -	- -	mg/L	NA	NA	4.2	NA	<1	NA	NA	NA	7.9	NA
Miscellaneous9012A														
Cyanide	57-12-5	7.30E-01	2.00E-01	mg/L	NA	NA	<0.01	NA	<0.01	NA	NA	NA	<0.01	NA

*	Laboratory duplicate analysis was outside control limits.
<	Less than.
- -	Standard not promulgated.
▨	Shaded cells indicate that the reported result exceeds the EPA RSL or MDEQ_GW.
Boldface type	Compound detected.
EPA	U.S. Environmental Protection Agency.
MDEQ	Mississippi Department of Environmental Quality.
MDEQ_GW	MDEQ Tier 1 Target Remediation Goal.
mg/L	Milligrams per liter.
µg/L	Micrograms per liter.
NA	Not analyzed.
pg/L	Picogram per liter.
RSL	Regional Screening Level.
TEQ	Toxic equivalent.

Table 3. Combined Groundwater Screening Evaluation, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Constituent [a]		2011 Data				Historic Data				Combined												
		Max Detect	Location of Maximum Detection	Detection Limit Max	Detection Limit Min	Max Detect	Location of Maximum Detection	Detection Limit Max	Detection Limit Min	Max Detect	Location of Maximum Detection	Detection Limit Max	Detection Limit Min	MDEQ TRG [b]	Does max detect exceed MDEQ TRG?	Does max DL exceed MDEQ TRG?	Does min DL exceed MDEQ?	USEPA RSL [c]	Surrogate Value	Does max detect exceed RSL?	Does max DL exceed RSL?	Does min DL exceed RSL?
Pesticides/PCBs (µg/L)																						
4,4'-DDD		–	--	0.99	0.10	NA	--	NA	NA	--	--	0.99	0.10	0.28	ND	**YES**	No	0.28		ND	**YES**	No
4,4'-DDE		–	--	0.99	0.10	NA	--	NA	NA	--	--	0.99	0.10	0.20	ND	**YES**	No	0.20		ND	**YES**	No
4,4'-DDT		–	--	0.99	0.10	NA	--	NA	NA	--	--	0.99	0.10	0.20	ND	**YES**	No	0.20		ND	**YES**	No
4-Chlorobenzilate		–	--	4.9	0.49	NA	--	NA	NA	--	--	4.9	0.49	0.25	ND	**YES**	**YES**	0.61		ND	**YES**	No
Aldrin		–	--	0.49	0.05	NA	--	NA	NA	--	--	0.49	0.05	0.004	ND	**YES**	**YES**	0.004		ND	**YES**	**YES**
Alpha-BHC		1.5	MW-17(7/26/2011)	0.05	0.05	NA	--	NA	NA	1.5	MW-17(7/26/2011)	0.05	0.05	0.01	**YES**	**YES**	**YES**	0.01		**YES**	**YES**	**YES**
Aroclor 1016		–	--	9.9	0.99	NA	--	NA	NA	--	--	9.9	0.99	0.96	ND	**YES**	**YES**	0.96		ND	**YES**	**YES**
Aroclor 1221		–	--	20	2.0	NA	--	NA	NA	--	--	20	2.0	0.03	ND	**YES**	**YES**	0.01		ND	**YES**	**YES**
Aroclor 1232		–	--	9.9	0.99	NA	--	NA	NA	--	--	9.9	0.99	0.03	ND	**YES**	**YES**	0.01		ND	**YES**	**YES**
Aroclor 1242		–	--	9.9	0.99	NA	--	NA	NA	--	--	9.9	0.99	0.03	ND	**YES**	**YES**	0.03		ND	**YES**	**YES**
Aroclor 1248		–	--	9.9	0.99	NA	--	NA	NA	--	--	9.9	0.99	0.03	ND	**YES**	**YES**	0.03		ND	**YES**	**YES**
Aroclor 1254		–	--	9.9	0.99	NA	--	NA	NA	--	--	9.9	0.99	0.03	ND	**YES**	**YES**	0.03		ND	**YES**	**YES**
Aroclor 1260		–	--	9.9	0.99	NA	--	NA	NA	--	--	9.9	0.99	0.03	ND	**YES**	**YES**	0.03		ND	**YES**	**YES**
Beta-BHC		–	--	0.49	0.05	NA	--	NA	NA	--	--	0.49	0.05	0.04	ND	**YES**	**YES**	0.04		ND	**YES**	**YES**
Delta-BHC	[d]	–	--	0.49	0.05	NA	--	NA	NA	--	--	0.49	0.05	0.04	ND	**YES**	**YES**	0.04	[d]	ND	**YES**	**YES**
Dieldrin		–	--	0.99	0.10	NA	--	NA	NA	--	--	0.99	0.10	0.004	ND	**YES**	**YES**	0.00		ND	**YES**	**YES**
Endosulfan I	[e]	–	--	0.49	0.05	NA	--	NA	NA	--	--	0.49	0.05	219	ND	No	No	220		ND	No	No
Endosulfan II	[e]	–	--	0.99	0.10	NA	--	NA	NA	--	--	0.99	0.10	219	ND	No	No	220		ND	No	No
Endosulfan Sulfate	[e]	–	--	0.99	0.10	NA	--	NA	NA	--	--	0.99	0.10	219	ND	No	No	220		ND	No	No
Endrin		–	--	0.99	0.10	NA	--	NA	NA	--	--	0.99	0.10	2.0	ND	No	No	11		ND	No	No
Endrin Aldehyde	[f]	–	--	0.99	0.10	NA	--	NA	NA	--	--	0.99	0.10	2.0	ND	No	No	11		ND	No	No
Endrin Ketone	[f]	–	--	0.99	0.10	NA	--	NA	NA	--	--	0.99	0.10	2.0	ND	No	No	11		ND	No	No
Gamma-BHC (Lindane)		0.3	MW-08(7/26/2011)	0.49	0.05	NA	--	NA	NA	0.3	MW-08(7/26/2011)	0.49	0.05	0.20	**YES**	**YES**	No	0.06		**YES**	**YES**	No
Heptachlor		–	--	0.49	0.05	NA	--	NA	NA	--	--	0.49	0.05	0.40	ND	**YES**	No	0.02		ND	**YES**	**YES**
Heptachlor Epoxide		–	--	0.49	0.05	NA	--	NA	NA	--	--	0.49	0.05	0.20	ND	**YES**	No	0.01		ND	**YES**	**YES**
Isodrin	[g]	–	--	0.49	0.05	NA	--	NA	NA	--	--	0.49	0.05	0.004	ND	**YES**	**YES**	0.004	[g]	ND	**YES**	**YES**
Kepone		–	--	9.9	0.99	NA	--	NA	NA	--	--	9.9	0.99	NA	ND	NA	NA	0.007		ND	**YES**	**YES**
Methoxychlor		–	--	0.99	0.10	NA	--	NA	NA	--	--	0.99	0.10	40	ND	No	No	180		ND	No	No
Technical Chlordane		–	--	4.9	0.49	NA	--	NA	NA	--	--	4.9	0.49	2.0	ND	**YES**	No	0.19		ND	**YES**	**YES**
Toxaphene		–	--	49	4.9	NA	--	NA	NA	--	--	49	4.9	3.0	ND	**YES**	**YES**	0.06		ND	**YES**	**YES**
Herbicides (µg/L)																						
2,4,5-T		–	--	0.51	0.5	NA	--	NA	NA	--	--	0.51	0.50	365	ND	No	No	370		ND	No	No
2,4,5-TP		–	--	0.51	0.5	NA	--	NA	NA	--	--	0.51	0.50	50	ND	No	No	290		ND	No	No
2,4-D		10	MW-23(7/26/2011)	0.51	0.5	NA	--	NA	NA	10	MW-23(7/26/2011)	0.51	0.50	70	No	No	No	370		No	No	No
Volatile Organic Compounds (µg/L)																						
1,1,1,2-Tetrachloroethane		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	0.41	ND	**YES**	**YES**	0.52		ND	**YES**	**YES**
1,1,1-Trichloroethane		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	200	ND	No	No	9,100		ND	No	No
1,1,2,2-Tetrachloroethane		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	0.05	ND	**YES**	**YES**	0.07		ND	**YES**	**YES**
1,1,2-Trichloroethane		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	5.0	ND	**YES**	No	0.24		ND	**YES**	**YES**
1,1-Dichloroethane		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	798	ND	No	No	2.4		ND	**YES**	No
1,1-Dichloroethene		–	--	200	1.0	17	MW-08(12/1/2002)	500	1	17	MW-08(12/1/2002)	500	1.0	7.0	**YES**	**YES**	No	340		No	**YES**	No
1,2,3-Trichloropropane		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	0.01	ND	**YES**	**YES**	0.0007		ND	**YES**	**YES**
1,2-Dibromo-3-chloropropane		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	0.20	ND	**YES**	**YES**	0.0003		ND	**YES**	**YES**
1,2-Dibromoethane		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	0.05	ND	**YES**	**YES**	0.01		ND	**YES**	**YES**
1,2-Dichloroethane		–	--	200	1.0	500	MW-08(8/1/2005)	500	1	500	MW-08(8/1/2005)	500	1.0	5.0	**YES**	**YES**	No	0.15		**YES**	**YES**	**YES**
1,2-Dichloropropane		–	--	200	1.0	20	MW-18(8/6/2006)	500	1	20	MW-18(8/6/2006)	500	1.0	5.0	**YES**	**YES**	No	0.39		**YES**	**YES**	**YES**
2-Butanone		–	--	2,000	10	NA	--	NA	NA	--	--	2,000	10	1,906	ND	**YES**	No	7,100		ND	No	No
2-Chloro-1,3-butadiene		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	14	ND	**YES**	No	0.02		ND	**YES**	**YES**
2-Hexanone		–	--	2,000	10	NA	--	NA	NA	--	--	2,000	10	1,460	ND	**YES**	No	47		ND	**YES**	No
3-Chloropropene		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	NA	ND	NA	NA	0.65		ND	**YES**	**YES**
4-Methyl-2-pentanone		1,100	MW-23(7/26/2011)	2,000	10	NA	--	NA	NA	1,100	MW-23(7/26/2011)	2,000	10	139	**YES**	**YES**	No	2,000		No	No	No
Acetone		–	--	5,000	25	2300	MW-15(11/18/2008)	13,000	25	2,300	MW-15(11/18/2008)	13,000	25	608	**YES**	**YES**	No	22,000		No	No	No
Acetonitrile		–	--	8,000	40	NA	--	NA	NA	--	--	8,000	40	125	ND	**YES**	No	130		ND	**YES**	No
Acrolein		–	--	4,000	20	NA	--	NA	NA	--	--	4,000	20	0.04	ND	**YES**	**YES**	0.04		ND	**YES**	**YES**
Acrylonitrile		–	--	4,000	20	NA	--	NA	NA	--	--	4,000	20	0.04	ND	**YES**	**YES**	0.05		ND	**YES**	**YES**
Benzene		8,800	MW-23(7/26/2011)	1.0	1.0	18000	MW-08(8/1/2005)	1000	1	18,000	MW-08(8/1/2005)	1,000	1.0	5.0	**YES**	**YES**	No	0.41		**YES**	**YES**	**YES**
Bromodichloromethane		–	--	200	1.0	6.84	MW-08(12/1/2002)	500	1	6.8	MW-08(12/1/2002)	500	1.0	0.17	**YES**	**YES**	**YES**	0.12		**YES**	**YES**	**YES**
Bromoform		–	--	200	1.0	1.55	MW-10(8/1/2003)	500	1	1.6	MW-10(8/1/2003)	500	1.0	8.5	No	**YES**	No	8.5		No	**YES**	No
Bromomethane		–	--	200	1.0	4.07	MW-08(12/1/2002)	500	1	4.1	MW-08(12/1/2002)	500	1.0	8.5	No	**YES**	No	8.7		No	**YES**	No
Carbon Disulfide		390	MW-23(7/26/2011)	400	2.0	NA	--	NA	NA	390	MW-23(7/26/2011)	400	2.0	1,043	No	No	No	1,000		No	No	No

Table 3. Combined Groundwater Screening Evaluation, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

		2011 Data				Historic Data				Combined												
Constituent [a]		**Max Detect**	**Location of Maximum Detection**	**Detection Limit Max**	**Detection Limit Min**	**Max Detect**	**Location of Maximum Detection**	**Detection Limit Max**	**Detection Limit Min**	**Max Detect**	**Location of Maximum Detection**	**Detection Limit Max**	**Detection Limit Min**	**MDEQ TRG [b]**	**Does max detect exceed MDEQ TRG?**	**Does max DL exceed MDEQ TRG?**	**Does min DL exceed MDEQ?**	**USEPA RSL [c]**	**Surrogate Value**	**Does max detect exceed RSL?**	**Does max DL exceed RSL?**	**Does min DL exceed RSL?**
Carbon Tetrachloride		25,000	MW-17(7/26/2011)	100	1.0	54000	MW-17(12/10/2009)	100	1	54,000	MW-17(12/10/2009)	100	1.0	5.0	**YES**	**YES**	No	0.44		**YES**	**YES**	**YES**
Chlorobenzene		770	MW-17(7/26/2011)	1.0	1.0	1200	MW-17(12/10/2009)	500	1	1,200	MW-17(12/10/2009)	500	1.0	100	**YES**	**YES**	No	91		**YES**	**YES**	No
Chloroethane		–	--	200	1.0	200	MW-17(11/6/2006)	500	1	200	MW-17(11/6/2006)	500	1.0	3.6	**YES**	**YES**	No	21,000		No	No	No
Chloroform		4,300	MW-21(7/26/2011)	1.0	1.0	8400	MW-17(5/13/2010)	250	1	8,400	MW-17(5/13/2010)	250	1.0	0.15	**YES**	**YES**	**YES**	0.19		**YES**	**YES**	**YES**
Chloromethane		–	--	200	1.0	39.2	MW-08(12/1/2002)	500	1	39	MW-08(12/1/2002)	500	1.0	1.4	**YES**	**YES**	No	190		No	**YES**	No
cis-1,2-Dichloroethene		–	--	200	1.0	34	MW-08(8/6/2006)	500	1	34	MW-08(8/6/2006)	500	1.0	70	No	**YES**	No	73		No	**YES**	No
cis-1,3-Dichloropropene	[h]	–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	0.08	ND	**YES**	**YES**	0.43		ND	**YES**	**YES**
Dibromochloromethane		–	--	200	1.0	4.45	MW-08(12/1/2002)	10	1	4.5	MW-08(12/1/2002)	200	1.0	0.13	**YES**	**YES**	**YES**	0.15		**YES**	**YES**	**YES**
Dibromomethane		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	61	ND	**YES**	No	8.2		ND	**YES**	No
Dichlorodifluoromethane		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	348	ND	No	No	200		ND	No	No
Ethyl Methacrylate		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	548	ND	No	No	530		ND	No	No
Ethylbenzene		55	MW-08(7/26/2011)	200	1.0	290	MW-08(2/6/2006)	500	1	290	MW-08(2/6/2006)	500	1.0	700	No	No	No	1.5		**YES**	**YES**	No
Iodomethane	[i]	–	--	1,000	5.0	NA	--	NA	NA	--	--	1,000	5.0	8.5	ND	**YES**	No	8.7		ND	**YES**	No
Isobutanol		–	--	8,000	40	NA	--	NA	NA	--	--	8,000	40	1,825	ND	**YES**	No	11,000		ND	No	No
Isopropylbenzene		–	–	–	–	4.6	MW-08(12/1/2002)	10	1	4.6	MW-08(12/1/2002)	10	1.0	679	No	No	No	680		No	No	No
Methacrylonitrile		–	--	4,000	20	NA	--	NA	NA	--	--	4,000	20	1.04	ND	**YES**	**YES**	1.0		ND	**YES**	**YES**
Methyl Methacrylate		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	1,419	ND	No	No	1400		ND	No	No
Methylene Chloride		340	MW-08(7/26/2011)	1,000	5.0	660	MW-17(5/13/2010)	2,500	5	660	MW-17(5/13/2010)	2,500	5.0	5.0	**YES**	**YES**	No	4.8		**YES**	**YES**	**YES**
Pentachloroethane		–	--	1,000	5.0	NA	--	NA	NA	--	--	1,000	5.0	NA	ND	NA	NA	0.75		ND	**YES**	**YES**
Propionitrile		–	--	4,000	20	NA	--	NA	NA	--	--	4,000	20	NA	ND	NA	NA	NA		ND	NA	NA
Styrene		–	--	200	1.0	1.25	MW-08(2/1/2003)	10,000	1	1.3	MW-08(2/1/2003)	10,000	1.0	100	No	**YES**	No	1,600		No	**YES**	No
Tetrachloroethene		–	--	200	1.0	68	MW-04(11/6/2006)	500	1	68	MW-04(11/6/2006)	500	1.0	5.0	**YES**	**YES**	No	0.11		**YES**	**YES**	**YES**
Toluene		2,600	MW-21(7/26/2011)	200	1.0	4800	MW-21(9/29/2009)	500	1	4,800	MW-21(9/29/2009)	500	1.0	1,000	**YES**	No	No	2,300		**YES**	No	No
trans-1,2-Dichloroethene		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	100	ND	**YES**	No	110		ND	**YES**	No
trans-1,3-Dichloropropene	[h]	–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	0.08	ND	**YES**	**YES**	0.43		ND	**YES**	**YES**
trans-1,4-Dichloro-2-butene	[j]	–	--	400	2.0	NA	--	NA	NA	--	--	400	2.0	0.004	ND	**YES**	**YES**	0.001		ND	**YES**	**YES**
Trichloroethene		–	--	200	1.0	21	MW-04(11/6/2006)	500	1	21	MW-04(11/6/2006)	500	1.0	5.0	**YES**	**YES**	No	2.0		**YES**	**YES**	No
Trichlorofluoromethane		–	--	200	1.0	NA	--	NA	NA	--	--	200	1.0	1,288	ND	No	No	1,300		ND	No	No
Vinyl Acetate		–	--	400	2.0	NA	--	NA	NA	--	--	400	2.0	412	ND	No	No	410		ND	No	No
Vinyl Chloride		–	--	200	1.0	2.6	MW-08(8/6/2006)	500	1	2.6	MW-08(8/6/2006)	500	1.0	2.0	**YES**	**YES**	No	0.02		**YES**	**YES**	**YES**
Xylenes (total)		–	--	400	2.0	NA	--	NA	NA	--	--	400	2.0	10,000	ND	No	No	200		ND	**YES**	No
Semivolatile Organic Compounds (µg/L)																						
1,1'-Biphenyl		770	MW-19(7/26/2011)	1,000	9.9	NA	--	NA	NA	770	MW-19(7/26/2011)	1,000	9.9	304	**YES**	**YES**	No	0.83		**YES**	**YES**	**YES**
1,2,4,5-Tetrachlorobenzene		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	11.0	ND	**YES**	No	11		ND	**YES**	No
1,2,4-Trichlorobenzene		–	--	1,000	9.9	13.55	MW-11(2/1/2003)	5	5	14	MW-11(2/1/2003)	1,000	9.9	70	No	**YES**	No	2.30		**YES**	**YES**	**YES**
1,2-Dichlorobenzene		–	--	1,000	9.9	2.71	MW-08(12/1/2002)	10	1	2.7	MW-08(12/1/2002)	1,000	9.9	600	No	**YES**	No	370		No	**YES**	No
1,3,5-Trinitrobenzene		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	1,095	ND	No	No	1,100		ND	No	No
1,3-Dichlorobenzene		–	--	1,000	9.9	3.75	MW-08(12/1/2002)	10	1	3.8	MW-08(12/1/2002)	1,000	9.9	5.5	No	**YES**	**YES**	370		No	**YES**	No
1,3-Dinitrobenzene		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	3.7	ND	**YES**	**YES**	3.7		ND	**YES**	**YES**
1,4-Dichlorobenzene		–	--	1,000	9.9	3.8	MW-08(12/1/2002)	10	1	3.8	MW-08(12/1/2002)	1,000	9.9	75	No	**YES**	No	0.43		**YES**	**YES**	**YES**
1,4-Dioxane		13,000	MW-08(7/26/2011)	1,000	9.9	NA	--	NA	NA	13,000	MW-08(7/26/2011)	1,000	9.9	6.1	**YES**	**YES**	**YES**	0.67		**YES**	**YES**	**YES**
1,4-Naphthoquinone		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	NA		ND	NA	NA
1-Naphthylamine		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	NA		ND	NA	NA
2,2'-Oxybis(1-Chloropropane)		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	NA		ND	NA	NA
2,3,4,6-Tetrachlorophenol		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	1,095	ND	No	No	1,100		ND	No	No
2,4,5-Trichlorophenol		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	3,650	ND	No	No	3,700		ND	No	No
2,4,6-Trichlorophenol		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	6.1	ND	**YES**	**YES**	6.1		ND	**YES**	**YES**
2,4-Dichlorophenol		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	110	ND	**YES**	No	110		ND	**YES**	No
2,4-Dimethylphenol		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	730	ND	**YES**	No	730		ND	**YES**	No
2,4-Dinitrophenol		–	--	5,200	49	NA	--	NA	NA	--	--	5,200	49	73	ND	**YES**	No	73		ND	**YES**	No
2,4-Dinitrotoluene		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	73	ND	**YES**	No	0.22		ND	**YES**	**YES**
2,6-Dichlorophenol	[k]	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	73	ND	**YES**	No	73	[k]	ND	**YES**	No
2,6-Dinitrotoluene		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	37	ND	**YES**	No	37		ND	**YES**	No
2-Acetylaminofluorene		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	0.02		ND	**YES**	**YES**
2-Chloronaphthalene		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	487	ND	**YES**	No	2,900		ND	No	No
2-Chlorophenol		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	30	ND	**YES**	No	180		ND	**YES**	No
2-Methylnaphthalene		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	122	ND	**YES**	No	150		ND	**YES**	No
2-Methylphenol		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	1,825	ND	No	No	1,800		ND	No	No
2-Naphthylamine		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	0.04		ND	**YES**	**YES**
2-Nitroaniline		–	--	5,200	49	NA	--	NA	NA	--	--	5,200	49	0.42	ND	**YES**	**YES**	370		ND	**YES**	No
2-Nitrophenol		–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.42	ND	**YES**	**YES**	1,800		ND	No	No

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	2011 Data				Historic Data				Combined												
Constituent [a]	**Max Detect**	**Location of Maximum Detection**	**Detection Limit Max**	**Detection Limit Min**	**Max Detect**	**Location of Maximum Detection**	**Detection Limit Max**	**Detection Limit Min**	**Max Detect**	**Location of Maximum Detection**	**Detection Limit Max**	**Detection Limit Min**	**MDEQ TRG [b]**	**Does max detect exceed MDEQ TRG?**	**Does max DL exceed MDEQ TRG?**	**Does min DL exceed MDEQ?**	**USEPA RSL [c]**	**Surrogate Value**	**Does max detect exceed RSL?**	**Does max DL exceed RSL?**	**Does min DL exceed RSL?**
2-Picoline	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	NA		ND	NA	NA
3 & 4 Methylphenol	660	MW-23(7/26/2011)	1,000	9.9	NA	--	NA	NA	660	MW-23(7/26/2011)	1,000	9.9	NA	NA	NA	NA	NA		NA	NA	NA
3,3'-Dichlorobenzidine	–	--	6,200	59	NA	--	NA	NA	--	--	6,200	59	0.15	ND	**YES**	**YES**	0.15		ND	**YES**	**YES**
3,3'-Dimethylbenzidine	–	--	2,100	20	NA	--	NA	NA	--	--	2,100	20	0.01	ND	**YES**	**YES**	0.01		ND	**YES**	**YES**
3-Methylcholanthrene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	0.003		ND	**YES**	**YES**
3-Nitroaniline	–	--	5,200	49	NA	--	NA	NA	--	--	5,200	49	NA	ND	NA	NA	3.4		ND	**YES**	**YES**
4,6-Dinitro-2-methylphenol	–	--	5,200	49	NA	--	NA	NA	--	--	5,200	49	3.7	ND	**YES**	**YES**	2.90		ND	**YES**	**YES**
4-Aminobiphenyl	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	0.003		ND	**YES**	**YES**
4-Bromophenyl-phenylether	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	3.7		ND	**YES**	**YES**
4-Chloro-3-Methylphenol	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	73,000	ND	No	No	3,700		ND	No	No
4-Chloroaniline	–	--	2,100	20	NA	--	NA	NA	--	--	2,100	20	146	ND	**YES**	No	0.34		ND	**YES**	**YES**
4-Chlorophenyl-phenylether	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	3.7		ND	**YES**	**YES**
4-Nitroaniline	–	--	5,200	49	NA	--	NA	NA	--	--	5,200	49	NA	ND	NA	NA	3.4		ND	**YES**	**YES**
4-Nitrophenol	–	--	5,200	49	NA	--	NA	NA	--	--	5,200	49	292	ND	**YES**	No	180		ND	**YES**	No
4-Nitroquinoline-1-oxide	–	--	2,100	20	NA	--	NA	NA	--	--	2,100	20	NA	ND	NA	NA	NA		ND	NA	NA
4-Phenylenediamine	–	--	210,000	2,000	NA	--	NA	NA	--	--	210,000	2,000	6,935	ND	**YES**	No	6,900		ND	**YES**	No
5-Nitro-o-toluidine	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	2.0	ND	**YES**	**YES**	7.5		ND	**YES**	**YES**
7,12-Dimethylbenz(a)anthracene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	0.0003		ND	**YES**	**YES**
a,a'-Dimethylphenethylamine	–	--	210,000	2,000	NA	--	NA	NA	--	--	210,000	2,000	NA	ND	NA	NA	NA		ND	NA	NA
Acenaphthene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	365	ND	**YES**	No	2,200		ND	No	No
Acenaphthylene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	2,190	ND	No	No	2,200		ND	No	No
Acetophenone	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.04	ND	**YES**	**YES**	3,700		ND	No	No
Aniline	–	--	2,100	20	NA	--	NA	NA	--	--	2,100	20	12	ND	**YES**	**YES**	12		ND	**YES**	**YES**
Anthracene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	43	ND	**YES**	No	11,000		ND	No	No
Aramite	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	2.7		ND	**YES**	**YES**
Benzo(a)anthracene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.09	ND	**YES**	**YES**	0.03		ND	**YES**	**YES**
Benzo(a)pyrene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.20	ND	**YES**	**YES**	0.003		ND	**YES**	**YES**
Benzo(b)fluoranthene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.09	ND	**YES**	**YES**	0.03		ND	**YES**	**YES**
Benzo(g,h,i)perylene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	1,095	ND	No	No	1,100		ND	No	No
Benzo(k)fluoranthene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.92	ND	**YES**	**YES**	0.29		ND	**YES**	**YES**
Benzyl Alcohol	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	10,950	ND	No	No	3,700		ND	No	No
bis(2-Chloroethoxy)methane	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	110		ND	**YES**	No
bis(2-Chloroethyl)ether	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.01	ND	**YES**	**YES**	0.01		ND	**YES**	**YES**
bis(2-Ethylhexyl)phthalate	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	6.0	ND	**YES**	**YES**	4.8		ND	**YES**	**YES**
Butylbenzylphthalate	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	2,690	ND	No	No	35		ND	**YES**	No
Chrysene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	9.2	ND	**YES**	**YES**	2.9		ND	**YES**	**YES**
Diallate	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	1.1		ND	**YES**	**YES**
Dibenzo(a,h)anthracene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.01	ND	**YES**	**YES**	0.0029		ND	**YES**	**YES**
Dibenzofuran	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	24	ND	**YES**	No	37		ND	**YES**	No
Diethylphthalate	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	29,200	ND	No	No	29,000		ND	No	No
Dimethoate	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	7.3		ND	**YES**	**YES**
Dimethylphthalate	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	365,000	ND	No	No	29,000		ND	No	No
Di-n-Butylphthalate	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	3,650	ND	No	No	3,700		ND	No	No
Di-n-Octylphthalate	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	20	ND	**YES**	No	3,700		ND	No	No
Dinoseb	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	7.0	ND	**YES**	**YES**	37		ND	**YES**	No
Disulfoton	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	1.5	ND	**YES**	**YES**	1.5		ND	**YES**	**YES**
Ethyl Methanesulfonate	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	NA		ND	NA	NA
Ethyl Parathion	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	219	ND	**YES**	No	220		ND	**YES**	No
Famphur	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	NA		ND	NA	NA
Fluoranthene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	1,460	ND	No	No	1,500		ND	No	No
Fluorene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	243	ND	**YES**	No	1,500		ND	No	No
Hexachlorobenzene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	1.00	ND	**YES**	**YES**	0.04		ND	**YES**	**YES**
Hexachlorobutadiene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.86	ND	**YES**	**YES**	0.86		ND	**YES**	**YES**
Hexachlorocyclopentadiene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	50	ND	**YES**	No	220		ND	**YES**	No
Hexachloroethane	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	4.8	ND	**YES**	**YES**	4.8		ND	**YES**	**YES**
Hexachlorophene	–	--	520,000	4,900	NA	--	NA	NA	--	--	520,000	4,900	10.95	ND	**YES**	**YES**	11		ND	**YES**	**YES**
Hexachloropropene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	NA		ND	NA	NA
Indeno(1,2,3-cd)pyrene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.09	ND	**YES**	**YES**	0.03		ND	**YES**	**YES**
Isophorone	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	70	ND	**YES**	No	71		ND	**YES**	No
Isosafrole	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	NA		ND	NA	NA
Methapyrilene	–	--	210,000	2,000	NA	--	NA	NA	--	--	210,000	2,000	NA	ND	NA	NA	NA		ND	NA	NA

Table 3. Combined Groundwater Screening Evaluation, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

	2011 Data				Historic Data				Combined												
	Max	Location of Maximum Detection	Detection Limit		Max	Location of Maximum Detection	Detection Limit		Max	Location of Maximum Detection	Detection Limit		MDEQ	Does max detect exceed MDEQ TRG?	Does max DL exceed MDEQ TRG?	Does min DL exceed MDEQ?	USEPA	Surrogate	Does max detect exceed RSL?	Does max DL exceed RSL?	Does min DL exceed RSL?
Constituent [a]	Detect		Max	Min	Detect		Max	Min	Detect		Max	Min	TRG [b]				RSL [c]	Value			
Methyl Methanesulfonate	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	0.68		ND	**YES**	**YES**
Methyl Parathion	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	9.1	ND	**YES**	**YES**	9.1		ND	**YES**	**YES**
Naphthalene	–	--	1,000	9.9	42.6	MW-11(2/1/2003)	5	5	43	MW-11(2/1/2003)	1,000	9.9	6.2	**YES**	**YES**	**YES**	0.14		**YES**	**YES**	**YES**
Nitrobenzene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	3.5	ND	**YES**	**YES**	0.12		ND	**YES**	**YES**
N-Nitrosodiethylamine	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.0004	ND	**YES**	**YES**	0.0001		ND	**YES**	**YES**
N-Nitrosodimethylamine	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.001	ND	**YES**	**YES**	0.0004		ND	**YES**	**YES**
N-Nitroso-di-n-butylamine	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.002	ND	**YES**	**YES**	0.002		ND	**YES**	**YES**
N-Nitroso-di-n-propylamine	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.010	ND	**YES**	**YES**	0.01		ND	**YES**	**YES**
N-Nitrosodiphenylamine	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	13.7	ND	**YES**	No	14		ND	**YES**	No
N-Nitrosomethylethylamine	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.003	ND	**YES**	**YES**	0.003		ND	**YES**	**YES**
N-Nitrosomorpholine	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	0.01		ND	**YES**	**YES**
N-Nitrosopiperidine	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	0.007		ND	**YES**	**YES**
N-Nitrosopyrrolidine	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.03	ND	**YES**	**YES**	0.03		ND	**YES**	**YES**
o,o,o-Triethylphosphorothioate	12,000	MW-17(7/26/2011)	99	9.9	NA	--	NA	NA	12,000	MW-17(7/26/2011)	99	9.9	NA	NA	NA	NA	NA		NA	NA	NA
o-Toluidine	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.28	ND	**YES**	**YES**	NA		ND	NA	NA
p-Dimethylaminoazobenzene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	0.02		ND	**YES**	**YES**
Pentachlorobenzene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	29	ND	**YES**	No	29		ND	**YES**	No
Pentachloronitrobenzene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	0.26	ND	**YES**	**YES**	0.26		ND	**YES**	**YES**
Pentachlorophenol	–	--	5,200	49	NA	--	NA	NA	--	--	5,200	49	1.0	ND	**YES**	**YES**	0.17		ND	**YES**	**YES**
Phenacetin	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	31		ND	**YES**	No
Phenanthrene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	1,095	ND	No	No	11,000		ND	No	No
Phenol	140	MW-23(7/26/2011)	1,000	9.9	NA	--	NA	NA	140	MW-23(7/26/2011)	1,000	9.9	21,900	No	No	No	11,000		No	No	No
Phorate	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	7.3		ND	**YES**	**YES**
Pronamide	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	2,700		ND	No	No
Pyrene	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	183	ND	**YES**	No	1,100		ND	No	No
Pyridine	–	--	5,200	49	NA	--	NA	NA	--	--	5,200	49	37	ND	**YES**	**YES**	37		ND	**YES**	**YES**
Safrole	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	0.31		ND	**YES**	**YES**
Sulfotep	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	18		ND	**YES**	No
Thionazin	–	--	1,000	9.9	NA	--	NA	NA	--	--	1,000	9.9	NA	ND	NA	NA	NA		ND	NA	NA
Dioxins (pg/L)																					
2,3,7,8-TCDD	–	--	11	9.8	NA	--	NA	NA	--	--	11	9.8	4.5	ND	**YES**	**YES**	0.52		ND	**YES**	**YES**
Total TEQ	–	--	0.00	0.00	NA	--	NA	NA	--	--	0.00	0.00	4.5	ND	No	No	0.52		ND	No	No
Inorganics (µg/L)																					
Antimony	–	--	5.0	5.0	NA	--	NA	NA	--	--	5.0	5.0	6.0	ND	No	No	15		ND	No	No
Arsenic	42	MW-08(7/26/2011)	2.5	2.5	NA	--	NA	NA	42	MW-08(7/26/2011)	2.5	2.5	50	No	No	No	0.05		**YES**	**YES**	**YES**
Barium	260	MW-08(7/26/2011)	–	–	NA	--	NA	NA	260	MW-08(7/26/2011)	--	--	2,000	No	ND	ND	7,300		No	ND	ND
Beryllium	3.3	MW-23(7/26/2011)	0.5	0.5	NA	--	NA	NA	3.3	MW-23(7/26/2011)	0.50	0.50	4.0	No	No	No	73		No	No	No
Cadmium	–	--	0.5	0.5	NA	--	NA	NA	--	--	0.50	0.50	5.0	ND	No	No	18		ND	No	No
Chromium	[l] 5.0	MW-23(7/26/2011)	5.0	5.0	NA	--	NA	NA	5.0	MW-23(7/26/2011)	5.0	5.0	100	No	No	No	0.04	[l]	**YES**	**YES**	**YES**
Cobalt	4.2	MW-02(7/27/2011)	0.5	0.5	NA	--	NA	NA	4.2	MW-02(7/27/2011)	0.50	0.50	2,190	No	No	No	11		No	No	No
Copper	–	--	5.0	5.0	NA	--	NA	NA	--	--	5.0	5.0	1,300	ND	No	No	1,500		ND	No	No
Lead	–	--	1.5	1.5	NA	--	NA	NA	--	--	1.5	1.5	15	ND	No	No	0.24		ND	**YES**	**YES**
Nickel	9.7	MW-12(7/27/2011)	5.0	5.0	NA	--	NA	NA	9.7	MW-12(7/27/2011)	5.0	5.0	730	No	No	No	730		No	No	No
Selenium	–	--	2.5	2.5	NA	--	NA	NA	--	--	2.5	2.5	50	ND	No	No	180		ND	No	No
Silver	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	183	ND	No	No	180		ND	No	No
Thallium	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	2.0	ND	No	No	0.37		ND	**YES**	**YES**
Tin	–	--	5.0	5.0	NA	--	NA	NA	--	--	5.0	5.0	21,900	ND	No	No	22,000		ND	No	No
Vanadium	16	MW-23(7/26/2011)	10	10	NA	--	NA	NA	16	MW-23(7/26/2011)	10	10	256	No	No	No	NA		NA	NA	NA
Zinc	57	MW-19(7/26/2011)	20	20	NA	--	NA	NA	57	MW-19(7/26/2011)	20	20	10,950	No	No	No	11,000		No	No	No
Inorganics (µg/L)																					
Mercury	–	--	0.2	0.2	NA	--	NA	NA	--	--	0.2	0.2	2.0	ND	No	No	0.63		ND	No	No
Miscellaneous (mg/L)																					
Sulfide	7.9	MW-23(7/26/2011)	1.0	1.0	NA	--	NA	NA	7.9	MW-23(7/26/2011)	1.0	1.0	NA	NA	NA	NA	NA		NA	NA	NA
Miscellaneous (mg/L)																					
Cyanide	–	--	0.01	0.01	NA	--	NA	NA	--	--	0.01	0.01	0.20	ND	No	No	0.73		ND	No	No

–	Not detected/ not analyzed/ not applicable.
µg/L	Micrograms per Liter.
ND	Non-detects.
NA	Not analyzed/not applicable.
MDEQ	Mississippi Department of Environmental Quality.

Table 3. Combined Groundwater Screening Evaluation, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

	2011 Data				Historic Data				Combined												
	Max	Location of Maximum Detection	Detection Limit		Max	Location of Maximum Detection	Detection Limit		Max	Location of Maximum Detection	Detection Limit		MDEQ	Does max detect exceed MDEQ TRG?	Does max DL exceed MDEQ TRG?	Does min DL exceed MDEQ?	USEPA	Surrogate	Does max detect exceed RSL?	Does max DL exceed RSL?	Does min DL exceed RSL?
Constituent [a]	**Detect**		**Max**	**Min**	**Detect**		**Max**	**Min**	**Detect**		**Max**	**Min**	**TRG [b]**				**RSL [c]**	**Value**			

TRG	Target Remediation Goal.
USEPA	U.S. Environmental Protection Agency.
RSL	Regional Screening Levels.
DL	Detection limit.
TEQ	Toxic equivalent.

[a] Only constituents detected at least once are presented.
For duplicate samples, the highest detected value or the lowest detection limit were used.

[b] TRG groundwater values source: *Subpart II, Mississippi Department of Environmental Quality Risk Evaluation Procedures for Voluntary Cleanup and Redevelopment of Brownfield Sites* , Appendix A Tier 1 Target Remediation Goals (February 2002).

[c] USEPA RSLs (June 2011).

[d] Technical BHC used as a surrogate.

[e] Endosufan used as a surrogate.

[f] Endrin used as a surrogate.

[g] Aldrin used as a surrogate.

[h] 1,3-Dichloropropene used as a surrogate.

[i] Bromomethane is used as a surrogate.

[j] 1,4-Dichloro-2-butene used as a surrogate.

[k] 2,4-Dinitrophenol used as a surrogate.

[l] RSL for chromium (VI) used as a surrogate for total chromium.

Table 4. Combined Surface Water Screening Evaluation, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

			2011 Data				Historic Data				Combined															
Constituent [a]		New Units	Max Detect	Location of Maximum Detection	Detection Limit Max	Detection Limit Min	Max Detect	Location of Maximum Detection	Detection Limit Max	Detection Limit Min	Max Detect	Location of Maximum Detection	Detection Limit Max	Detection Limit Min	National Ambient Water Quality Criteria [b]	Does max detect exceed Water Criteria?	Does max DL exceed Water Criteria?	Does min DL exceed Water Criteria?	MDEQ TRG [c]	Does max detect exceed MDEQ TRG?	Does max DL exceed MDEQ TRG?	Does min DL exceed MDEQ TRG?	USEPA RSL [d]	Does max detect exceed RSL?	Does max DL exceed RSL?	Does min DL exceed RSL?
Volatile Organic Compounds (µg/L)																										
1,1,1,2-Tetrachloroethane		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	–	ND	NA	NA	0.41	ND	**YES**	**YES**	0.50	ND	**YES**	**YES**
1,1,1-Trichloroethane		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	–	ND	NA	NA	200	ND	No	No	7,500	ND	NO	NO
1,1,2,2-Tetrachloroethane		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	0.17	ND	**YES**	**YES**	0.05	ND	**YES**	**YES**	0.066	ND	**YES**	**YES**
1,1,2-Trichloroethane		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	0.59	ND	**YES**	**YES**	5.0	ND	No	No	0.24	ND	**YES**	**YES**
1,1-Dichloroethane		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	–	ND	NA	NA	798	ND	No	No	2.4	ND	NO	NO
1,1-Dichloroethene		µg/L	–	--	1.0	1.0	5.0	CM-00(9/1/2003)	10	1.0	5.0	CM-00(9/1/2003)	10	1.0	330	No	No	No	7.0	No	**YES**	No	260	NO	NO	NO
1,2,3-Trichlorobenzene	[e]	µg/L	NA	--	NA	NA	32	CM-01(2/1/2003)	5.0	5.0	32	CM-01(2/1/2003)	5.0	5.0	35	No	No	No	70	No	No	No	5.2	**YES**	NO	NO
1,2,4-Trichlorobenzene		µg/L	NA	--	NA	NA	3.4	CM-01(2/1/2003)	10	5.0	3.4	CM-01(2/1/2003)	10	5.0	35	No	No	No	70	No	No	No	0.99	**YES**	**YES**	**YES**
1,2,4-Trimethylbenzene		µg/L	NA	--	NA	NA	1.3	CM-01(9/1/2003)	10	1.0	1.3	CM-01(9/1/2003)	10	1.0	–	NA	NA	NA	12	No	No	No	15	NO	NO	NO
1,3,5-Trimethylbenzene		µg/L	NA	--	NA	NA	1.6	CM-01(9/1/2003)	10	10	1.6	CM-01(9/1/2003)	10	10	–	NA	NA	NA	12	No	No	No	87	NO	NO	NO
1,2,3-Trichloropropane		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	–	ND	NA	NA	0.006	ND	**YES**	**YES**	0.00065	ND	**YES**	**YES**
1,2-Dibromo-3-Chloropropane		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	–	ND	NA	NA	0.20	ND	**YES**	**YES**	0.00032	ND	**YES**	**YES**
1,2-Dichlorobenzene		µg/L	NA	--	NA	NA	3.8	CM-01(9/1/2003)	10	10	3.8	CM-01(9/1/2003)	10	10	420	No	No	No	600	No	No	No	280	NO	NO	NO
1,3-Dichlorobenzene		µg/L	NA	--	NA	NA	3.7	CM-00(9/1/2003)	10	10	3.7	CM-00(9/1/2003)	10	10	320	No	No	No	5.5	No	**YES**	**YES**	280	NO	NO	NO
1,4-Dichlorobenzene		µg/L	NA	--	NA	NA	7.5	CM-00(9/1/2003)	10	10	7.5	CM-00(9/1/2003)	10	10	63	No	No	No	75	No	No	No	0.42	**YES**	**YES**	**YES**
1,2-Dichloroethane		µg/L	–	--	1.0	1.0	1.7	CM-01(9/1/2003)	10	1.0	1.7	CM-01(9/1/2003)	10	1.0	0.38	**YES**	**YES**	**YES**	5.0	No	**YES**	No	0.15	**YES**	**YES**	**YES**
1,2-Dichloropropane		µg/L	–	--	1.0	1.0	–	-	10	1.0	--	--	10	1.0	0.50	ND	**YES**	**YES**	5.0	ND	**YES**	No	0.38	ND	**YES**	**YES**
2-Butanone (MEK)		µg/L	–	--	10	10	NA	--	NA	NA	--	--	10	10	–	ND	NA	NA	1,906	ND	No	No	4,900	ND	NO	NO
2-Chloro-1,3-butadiene		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	–	ND	NA	NA	14	ND	No	No	0.016	ND	**YES**	**YES**
2-Chlorotoluene		µg/L	NA	--	NA	NA	3.4	CM-00(9/1/2003)	10	10	3.4	CM-00(9/1/2003)	10	10	–	NA	NA	NA	122	No	No	No	180	NO	NO	NO
4-Chlorotoluene	[f]	µg/L	NA	--	NA	NA	4.6	CM-00(9/1/2003)	10	10	4.6	CM-00(9/1/2003)	10	10	–	NA	NA	NA	122	No	No	No	190	NO	NO	NO
2-Hexanone		µg/L	–	--	10	10	NA	--	NA	NA	--	--	10	10	–	ND	NA	NA	1,460	ND	No	No	34	ND	NO	NO
3-Chloro-1-propene		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	–	ND	NA	NA	NA	ND	NA	NA	0.63	ND	**YES**	**YES**
4-Methyl-2-pentanone (MIBK)		µg/L	–	--	10	10	NA	--	NA	NA	--	--	10	10	–	ND	NA	NA	139	ND	No	No	1,000	ND	NO	NO
Acetone		µg/L	–	--	25	25	160	CM-04(2/7/2007)	25	25	160	CM-04(2/7/2007)	25	25	–	NA	NA	NA	608	No	No	No	12,000	NO	NO	NO
Acetonitrile		µg/L	–	--	40	40	NA	--	NA	NA	--	--	40	40	–	ND	NA	NA	125	ND	No	No	130	ND	NO	NO
Acrolein		µg/L	–	--	20	20	NA	--	NA	NA	--	--	20	20	6.0	ND	**YES**	**YES**	0.04	ND	**YES**	**YES**	0.041	ND	**YES**	**YES**
Acrylonitrile		µg/L	–	--	20	20	NA	--	NA	NA	--	--	20	20	0.051	ND	**YES**	**YES**	0.04	ND	**YES**	**YES**	0.045	ND	**YES**	**YES**
Benzene		µg/L	–	--	1.0	1.0	8.4	CM-01(11/6/2006)	1.0	1.0	8.4	CM-01(11/6/2006)	1.0	1.0	2.2	**YES**	No	No	5.0	**YES**	No	No	0.39	**YES**	**YES**	**YES**
Bromoform		µg/L	–	--	1.0	1.0	–	--	10	1.0	--	--	10	1.0	4.3	ND	**YES**	No	8.5	ND	**YES**	No	7.9	ND	**YES**	NO
Bromobenzene	[g]	µg/L	NA	--	NA	NA	13	CM-01(9/1/2003)	10	10	13	CM-01(9/1/2003)	10	10	130	No	No	No	100	No	No	No	54	NO	NO	NO
Bromodichloromethane		µg/L	NA	--	NA	NA	–	--	10	1.0	--	--	10	1.0	0.55	ND	**YES**	**YES**	0.17	ND	**YES**	**YES**	0.12	ND	**YES**	**YES**
Bromomethane		µg/L	–	--	1.0	1.0	–	--	10	1.0	--	--	10	1.0	47	ND	No	No	8.5	ND	**YES**	No	7.0	ND	**YES**	NO
Carbon disulfide		µg/L	–	--	2.0	2.0	NA	--	NA	NA	--	--	2.0	2.0	–	ND	NA	NA	1,043	ND	No	No	720	ND	NO	NO
Carbon tetrachloride		µg/L	–	--	1.0	1.0	3.0	CM-01(2/1/2003)	10	1.0	3.0	CM-01(2/1/2003)	10	1.0	0.23	**YES**	**YES**	**YES**	5.0	No	**YES**	No	0.39	**YES**	**YES**	**YES**
Chlorobenzene		µg/L	–	--	1.0	1.0	24	CM-01(11/6/2006)	10	1.0	24	CM-01(11/6/2006)	10	1.0	130	No	No	No	100	No	No	No	72	NO	NO	NO
Chlorodibromomethane		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	0.4	ND	**YES**	**YES**	0.13	ND	**YES**	**YES**	0.15	ND	**YES**	**YES**
Chloroethane		µg/L	–	--	1.0	1.0	21	CM-01(2/1/2003)	12	1.0	21	CM-01(2/1/2003)	12	1.0	–	NA	NA	NA	3.6	**YES**	**YES**	No	21,000	NO	NO	NO
Chloroform		µg/L	–	--	1.0	1.0	2.3	CM-01(2/1/2003)	10	1.0	2.3	CM-01(2/1/2003)	10	1.0	5.7	No	**YES**	No	0.15	**YES**	**YES**	**YES**	0.19	**YES**	**YES**	**YES**
Chloromethane		µg/L	–	--	1.0	1.0	–	--	10	1.0	--	--	10	1.0	–	ND	NA	NA	1.4	ND	**YES**	No	190	ND	NO	NO
cis-1,2-Dichloroethene		µg/L	7.6	CM-04(7/29/2011)	1.0	1.0	17	CM-04(11/6/2006)	10	1.0	17	CM-04(11/6/2006)	10	1.0	–	NA	NA	NA	70	No	No	No	28	NO	NO	NO
cis-1,3-Dichloropropene	[h]	µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	0.34	ND	**YES**	**YES**	0.08	ND	**YES**	**YES**	0.41	ND	**YES**	**YES**
Dibromochloromethane		µg/L	NA	--	NA	NA	–	--	10	1.0	--	--	10	1.0	0.40	ND	**YES**	**YES**	0.13	ND	**YES**	**YES**	0.15	ND	**YES**	**YES**
Dibromomethane		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	–	ND	NA	NA	61	ND	No	No	7.9	ND	NO	NO
Dichlorobromomethane		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	0.55	ND	**YES**	**YES**	0.17	ND	**YES**	**YES**	0.12	ND	**YES**	**YES**
Dichlorodifluoromethane		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	–	ND	NA	NA	348	ND	No	No	190	ND	NO	NO
Ethyl methacrylate		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	–	ND	NA	NA	548	ND	No	No	420	ND	NO	NO
Ethylbenzene		µg/L	–	--	1.0	1.0	57	CM-01(11/6/2006)	10	1.0	57	CM-01(11/6/2006)	10	1.0	530	No	No	No	700	No	No	No	1.3	**YES**	**YES**	NO
Ethylene Dibromide		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	–	ND	NA	NA	0.05	ND	**YES**	**YES**	0.0065	ND	**YES**	**YES**
Iodomethane	[i]	µg/L	–	--	5.0	5.0	NA	--	NA	NA	--	--	5.0	5.0	47	ND	No	No	8.5	ND	No	No	7.0	ND	NO	NO
Isobutyl alcohol		µg/L	–	--	40	40	NA	--	NA	NA	--	--	40	40	–	ND	NA	NA	1,825	ND	No	No	4,600	ND	NO	NO
Isopropylbenzene		µg/L	NA	--	NA	NA	–	--	10	1.0	--	--	10	1.0	–	ND	NA	NA	679	ND	No	No	390	ND	NO	NO
p-Isopropyltoluene		µg/L	NA	--	NA	NA	–	--	10	1.0	--	--	10	1.0	–	ND	NA	NA	NA	ND	NA	NA	390	ND	NO	NO

Footnotes on last page.

Table 4. Combined Surface Water Screening Evaluation, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

		2011 Data					Historic Data				Combined															
Constituent [a]		**New Units**	**Max Detect**	**Location of Maximum Detection**	**Detection Limit Max**	**Detection Limit Min**	**Max Detect**	**Location of Maximum Detection**	**Detection Limit Max**	**Detection Limit Min**	**Max Detect**	**Location of Maximum Detection**	**Detection Limit Max**	**Detection Limit Min**	**National Ambient Water Quality Criteria [b]**	**Does max detect exceed Water Criteria?**	**Does max DL exceed Water Criteria?**	**Does min DL exceed Water Criteria?**	**MDEQ TRG [c]**	**Does max detect exceed MDEQ TRG?**	**Does max DL exceed MDEQ TRG?**	**Does min DL exceed MDEQ TRG?**	**USEPA RSL [d]**	**Does max detect exceed RSL?**	**Does max DL exceed RSL?**	**Does min DL exceed RSL?**
Methacrylonitrile		µg/L	–	--	20	20	NA	--	NA	NA	--	--	20	20	–	ND	NA	NA	1.0	ND	**YES**	**YES**	0.75	ND	**YES**	**YES**
Methyl ethyl ketone		µg/L	NA	--	NA	NA	160	CM-04(11/6/2006)	10	10	160	CM-04(11/6/2006)	10	10	–	NA	NA	NA	1,906	No	No	No	4,900	NO	NO	NO
Methyl isobutyl ketone		µg/L	NA	--	NA	NA	–	--	10	10	--	--	10	10	–	ND	NA	NA	139	ND	No	No	1,000	ND	NO	NO
Methyl methacrylate		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	–	ND	NA	NA	1,419	ND	No	No	1,400	ND	NO	NO
Methylene Chloride		µg/L	–	--	5.0	5.0	–	--	13	5.0	--	--	13	5.0	4.6	ND	**YES**	**YES**	5.0	ND	**YES**	No	4.7	ND	**YES**	**YES**
Naphthalene		µg/L	NA	--	NA	NA	NA	–	NA	NA	NA	--	NA	NA	–	NA	NA	NA	6.2	NA	NA	NA	0.14	NA	NA	NA
Pentachloroethane		µg/L	–	--	5.0	5.0	NA	--	NA	NA	--	--	5.0	5.0	–	ND	NA	NA	NA	ND	NA	NA	0.56	ND	**YES**	**YES**
Propionitrile		µg/L	–	--	20	20	NA	--	NA	NA	--	--	20	20	–	ND	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA
Styrene		µg/L	–	--	1.0	1.0	3.2	CM-00(9/1/2003)	10	1.0	3.2	CM-00(9/1/2003)	10	1.0	–	NA	NA	NA	100	No	No	No	1,100	NO	NO	NO
Tetrachloroethene		µg/L	–	--	1.0	1.0	90	CM-04(11/6/2006)	10	1.0	90	CM-04(11/6/2006)	10	1.0	0.69	**YES**	**YES**	**YES**	5.0	**YES**	**YES**	No	0.072	**YES**	**YES**	**YES**
Toluene		µg/L	–	--	1.0	1.0	21	CM-02(11/6/2006)	10	1.0	21	CM-02(11/6/2006)	10	1.0	1,300	No	No	No	1,000	No	No	No	860	NO	NO	NO
trans-1,2-Dichloroethene		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	140	ND	No	No	100	ND	No	No	86	ND	NO	NO
trans-1,3-Dichloropropene	[h]	µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	0.34	ND	**YES**	**YES**	0.08	ND	**YES**	**YES**	0.41	ND	**YES**	**YES**
trans-1,4-Dichloro-2-butene	[j]	µg/L	–	--	2.0	2.0	NA	--	NA	NA	--	--	2.0	2.0	–	ND	NA	NA	0.001	ND	**YES**	**YES**	0.0012	ND	**YES**	**YES**
Trichloroethene		µg/L	–	--	1.0	1.0	26	CM-04(11/6/2006)	10	1.0	26	CM-04(11/6/2006)	10	1.0	2.5	**YES**	**YES**	No	5.0	**YES**	**YES**	No	0.44	**YES**	**YES**	**YES**
Trichlorofluoromethane		µg/L	–	--	1.0	1.0	NA	--	NA	NA	--	--	1.0	1.0	–	ND	NA	NA	1,288	ND	No	No	1,100	ND	NO	NO
Vinyl acetate		µg/L	–	--	2.0	2.0	NA	--	NA	NA	--	--	2.0	2.0	–	ND	NA	NA	412	ND	No	No	410	ND	NO	NO
Vinyl chloride		µg/L	3.2	CM-04(7/29/2011)	1.0	1.0	2.6	CM-04(11/6/2006)	10	1.0	3.2	CM-04(7/29/2011)	10	1.0	0.025	**YES**	**YES**	**YES**	2.0	**YES**	**YES**	No	0.015	**YES**	**YES**	**YES**
Xylenes, Total		µg/L	–	--	2.0	2.0	NA	--	NA	NA	--	--	2.0	2.0	–	ND	NA	NA	10,000	ND	No	No	190	ND	NO	NO

–	Not detected/ not analyzed/ not applicable.
DL	Detection limit.
MDEQ	Mississippi Department of Environmental Quality.
NA	Not analyzed/not applicable.
ND	Non-detects.
RSL	Regional Screening Levels.
TRG	Target Remediation Goal.
USEPA	U.S. Environmental Protection Agency.
µg/L	Micrograms per Liter.

[a] All analyzed constituents are presented.
For duplicate samples, the highest detected value or the lowest detection limit were used.
[b] USEPA National Recommended Water Quality Criteria (human health for the consumption of water and organisms) (USEPA 2009).
[c] TRG groundwater values source: *Subpart II, Mississippi Department of Environmental Quality Risk Evaluation Procedures for Voluntary Cleanup and Redevelopment of Brownfield Sites*, Appendix A Tier 1 Target Remediation Goals (February 2002).
[d] USEPA Regional Screening Levels (USEPA 2011a).
[e] TRG for 1,2,4-trichlorobenzene used as a surrogate.
[f] TRG for 2-Chlorotoluene used as a surrogate.
[g] TRG for chlorobenzene used as a surrogate.
[h] 1,3-Dichloropropene used as a surrogate.
[i] Bromomethane is used as a surrogate.
[j] TRG for 1,4-Dichloro-2-butene used as a surrogate.

Table 5. Proposed Soil and Groundwater Sample Location Rationale, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

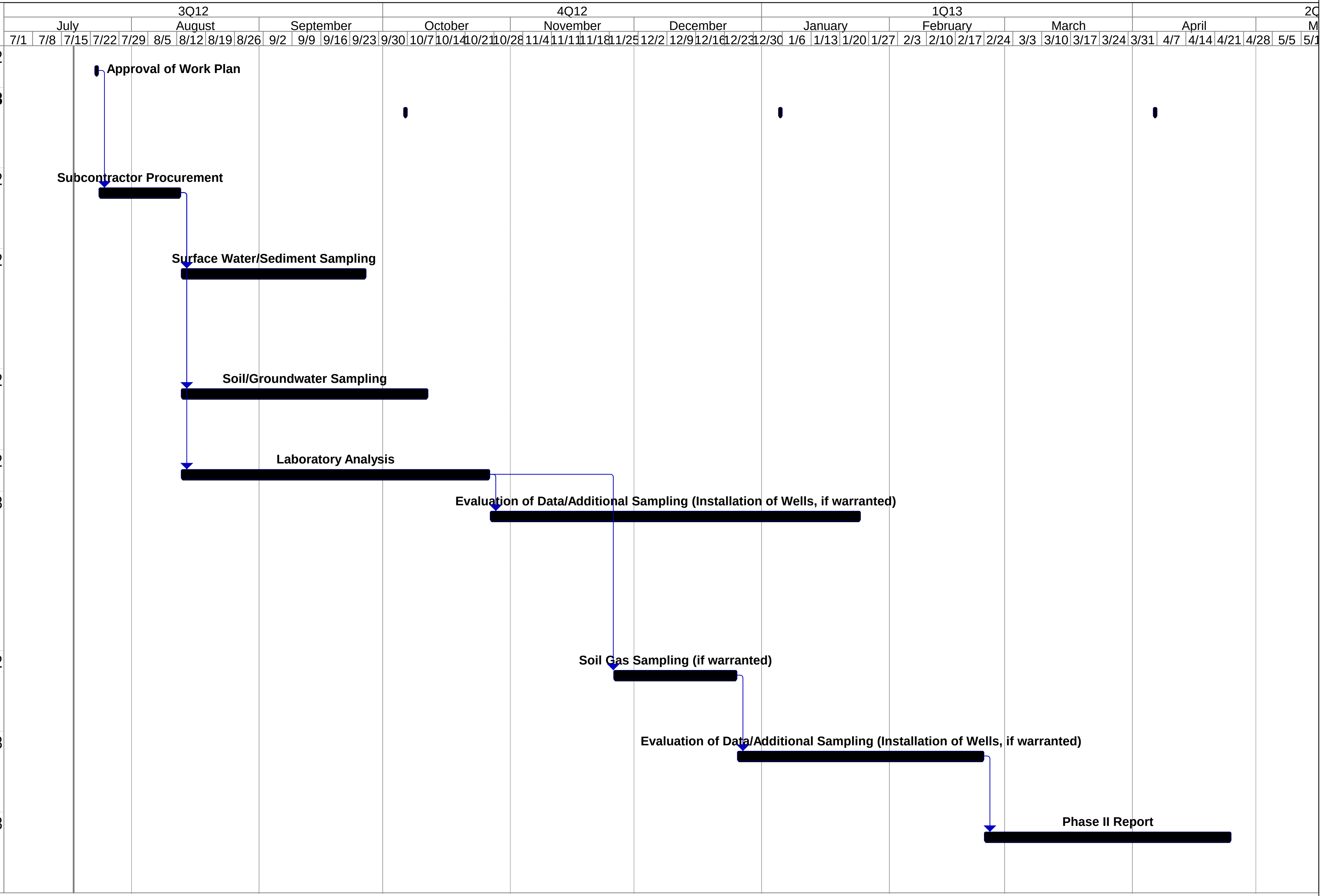
Sample Location	Area	Sampling Conducted (Phase)	Rationale
AO-GP-01	Sludge Pits	I	Establish conditions on western boundary of sludge pits near the Hercules property.
AO-GP-02	Tall Oil	II	Establish conditions near Tall Oil loading/unloading rack.
AO-GP-03	Tall Oil	I	Establish conditions between Hercules and Zeon Chemical.
AO-GP-04	Tall Oil	I	Establish conditions between Hercules and cemetery.
AO-GP-05	Tall Oil	II	Establish conditions near unit.
AO-GP-06	Hydroperoxides	II	Establish conditions near former tank farm.
AO-GP-07	Hydroperoxides	II	Establish conditions near unit.
AO-GP-08	Hydroperoxides	II	Establish conditions near Hydroperoxides loading/unloading rack.
AO-GP-09	Terpene Derivatives	II	Establish conditions near unit.
AO-GP-10	Terpene Derivatives	II	Establish conditions near unit.
AO-GP-11	Poly-Pale	II	Establish conditions near former Dowtherm storage in unit.
AO-GP-12	Poly-Pale	II	Establish conditions near unit.
AO-GP-13	Vinsalyn/Paste Size	II	Establish conditions near unit.
AO-GP-14	Catalyst Regen	II	Establish conditions near Providence Street boundary.
AO-GP-15	Extracting	II	Establish conditions near unit.
AO-GP-16	Refining	II	Establish conditions near unit.
AO-GP-17	Liquid Loading	II	Establish conditions near unit.
AO-GP-18	Field Storage	II	Establish conditions near former tank farm.
AO-GP-19	Hard Resins	I	Establish conditions near Providence Street boundary.
AO-GP-20	Fuel Storage	I	Establish conditions near fuel storage between Hercules and cemetery.
AO-GP-21	Fuel Storage	I	Establish conditions at former fueling operations in parking area.
AO-GP-22	Field Storage/Laboratory	I	Establish conditions near field storage and laboratory.
AO-GP-23	Field Storage	I	Establish conditions near former tank farm.
AO-GP-24	Fuel Oil Unloading	I	Establish conditions near unloading operation.
AO-GP-25	Near Providence Street Boundary	I	Establish conditions near Providence Street property boundary.
AO-GP-26	Near Providence Street Boundary	I	Establish conditions near Providence Street property boundary.
AO-GP-27	Near Greens Creek Entrance	I	Establish conditions near property boundary and utility corridor.
AO-GP-28	Near Providence Street Boundary	I	Establish conditions near Providence Street property boundary.
AO-GP-29	Near Providence Street Boundary	I	Establish conditions near Providence Street property boundary.
AO-GP-30	Near Providence Street Boundary	I	Establish conditions near Providence Street property boundary.
AO-GP-31	Near Providence Street Boundary	I	Establish conditions near Providence Street property boundary.
AO-GP-32	Near Hwy 42	I	Establish conditions near Hwy 42 property boundary.

Table 5. Proposed Soil and Groundwater Sample Location Rationale, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Sample Location	Area	Sampling Conducted (Phase)	Rationale
AO-GP-33	Near Hwy 42	I	Establish conditions near Hwy 42 property boundary.
AO-GP-34	Sludge Pits	II	Establish groundwater conditions near Sludge Pits. Soil will not be sampled.
AO-GP-35	Northeast corner	II	Establish conditions near intersection of Hwy 42 and Providence St.
AO-GP-36	Tall Oil	II	Establish conditions near unit.
AO-GP-37	South of Terpene Derivatives	II	Establish conditions south of Terpene Derivatives Unit
AO-GP-38	Extracting	II	Establish conditions near unit.
AO-GP-39	Refining	II	Establish conditions near unit.
AO-GP-40	Field Storage	II	Establish conditions near field storage area.
AO-SS-09	Delnav	II	Establish soil conditions near unit. Groundwater will not be sampled.
AO-SS-10	Delnav	II	Establish soil conditions near unit. Groundwater will not be sampled.
AO-SS-11	Delnav	II	Establish soil conditions near unit. Groundwater will not be sampled.
AO-SS-12	Delnav	II	Establish soil conditions near unit. Groundwater will not be sampled.
AO-SS-13	Delnav	II	Establish soil conditions near unit. Groundwater will not be sampled.
AO-SS-14	Field Storage	II	Establish soil conditions near unit. Groundwater will not be sampled.
AO-SS-15	Field Storage	II	Establish soil conditions near unit. Groundwater will not be sampled.
AO-SS-16	Field Storage	II	Establish soil conditions near unit. Groundwater will not be sampled.
AO-SS-17	Field Storage	II	Establish soil conditions near unit. Groundwater will not be sampled.
AO-SS-18	Field Storage	II	Establish soil conditions near unit. Groundwater will not be sampled.
AO-SS-19	Field Storage	II	Establish soil conditions near unit. Groundwater will not be sampled.
MW-1	South of Facility	II	Establish groundwater conditions South of facility. Soil will not be sampled.

Table 6. Preliminary Project Schedule, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg Facility, Hattiesburg, Forrest County, Mississippi.

ID	Task Name	Duration	Start	Finish
1	Approval of Work Plan	1 day	7/23/2012	7/24/2012
2	**Quarterly Progress Report Period ***	**277 days**	**7/6/2012**	**4/8/2013**
6	Subcontractor Procurement	20 days	7/24/2012	8/13/2012
7	Surface Water/Sediment Sampling	45 days	8/13/2012	9/27/2012
8	Soil/Groundwater Sampling	60 days	8/13/2012	10/12/2012
9	Laboratory Analysis	75 days	8/13/2012	10/27/2012
10	Evaluation of Data/Additional Sampling (Installation of Wells, if warranted)	90 days	10/27/2012	1/25/2013
11	Soil Gas Sampling (if warranted)	30 days	11/26/2012	12/26/2012
12	Evaluation of Data/Additional Sampling (Installation of Wells, if warranted)	60 days	12/26/2012	2/24/2013
13	Phase II Report	60 days	2/24/2013	4/25/2013



* Monthly reports will be submitted during periods of increased activity.
Note: Additional time may be warranted if additional delineation is necessary.
Date: 7/18/2012

Task	▬	External Tasks	▬	Manual Task	▬	Finish-only	]
Split	┈	External Milestone	◆	Duration-only	▬	Progress	▬
Milestone	◆	Inactive Task	▭	Manual Summary Rollup	▬	Deadline	⇩
Summary	▬	Inactive Milestone	◆	Manual Summary	▬		
Project Summary	▬	Inactive Summary	▭	Start-only	[		

Table 7. Proposed Surface Water and Sediment Sample Location Rationale, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Sample Location	Area	Relationship of Flow Direction to Origination on Hercules	Rationale
AO-SW-17	Sludge Pits	Upgradient	Water flowing onto Hercules from residential/commercial area.
AO-SW-18	Sludge Pits	Upgradient	Water flowing onto Hercules from residential/commercial area.
AO-SW-19	Sludge Pits	Downgradient	Water discharging to Greens Creek after flowing through Hercules property.
AO-SW-20	Surface Water Drainage into Greens Creek	Downgradient	Water discharging to Greens Creek after flowing through Hercules property.
AO-SW-21	Surface Water Drainage into Greens Creek	Downgradient	Water discharging to Greens Creek after flowing through Hercules property.
AO-SW-22	Surface Water Drainage into Greens Creek	Downgradient	Water discharging to Greens Creek after flowing through Hercules property.
AO-SW-23	Surface Water Drainage into Greens Creek	Downgradient	Water discharging to Greens Creek after flowing through Hercules property.
AO-SW-24	Surface Water Drainage to offsite Conveyance Leading to the Bouie	Downgradient	Water discharging off site after flowing through Hercules property.
AO-SW-25	Near Zeon Chemical	Upgradient	Water flowing onto Hercules from Zeon Chemical.
AO-SW-26	Near Cemetery	Upgradient	Water flowing onto Hercules from the cemetery.
AO-SW-27	From Tall Oil Plant	Downgradient	Water discharging to Greens Creek after flowing through Hercules property.
AO-SW-28	From Tall Oil Plant	Downgradient	Water discharging to Greens Creek after flowing through Hercules property.
AO-SW-29	Near Cemetery	Upgradient	Water flowing onto Hercules from the cemetery.
AO-SW-30	Former Process Areas	Downgradient	Water discharging to City culvert.
AO-SW-31	Near Providence Street	Downgradient	Water discharging to City culvert after flowing through Hercules property.
AO-SW-32	Former Process Areas	Upgradient	Water flowing through Hercules prior to discharging to City culvert.
AO-SW-33	Former Process Areas	Upgradient	Water flowing through Hercules prior to discharging to City culvert.
AO-SW-34	Near W. 7th Street	Upgradient	Water flowing onto Hercules from the cemetery.
AO-SW-35	Near W. 7th Street	Downgradient	Water flowing through Hercules prior to discharging to City culvert.

Table 8. Noncarcinogenic Toxicity Values for Oral and Dermal Exposure, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Constituents	Oral RfD (mg/kg/day) [a]				Adjustment Factor [b]	Dermal RfD (mg/kg/day) [b]				Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor
	Subchronic	[ref]	Chronic	[ref]		Subchronic	[ref]	Chronic	[ref]		
Pesticides											
Alpha-BHC	8.0E-03	c	8.0E-03	A	1	8.0E-03	c	8.0E-03	A	NA	NA
Gamma-BHC (Lindane)	3.0E-03	H	3.0E-04	I	1	3.0E-03	H	3.0E-04	I	liver, kidney	medium/1000
Herbicides											
2,4-D	1.0E-02	H	1.0E-02	I	1	1.0E-02	H	1.0E-02	I	blood, liver, kidney	medium/100
Volatile Organic Compounds											
Acetone	2.7E+00	cx	9.0E-01	I	1	2.7E+00	cx	9.0E-01	I	liver, kidney	medium/1000
Benzene	1.0E-02	P	4.0E-03	I	1	1.0E-02	P	4.0E-03	I	blood	medium/100
Bromobenzene	8.0E-03	c	8.0E-03	I	1	8.0E-03	c	8.0E-03	I	liver	medium/1000
Bromodichloromethane	8.0E-03	P	2.0E-02	I	1	8.0E-03	P	2.0E-02	I	kidney	medium/1000
Bromoform	2.0E-01	H	2.0E-02	I	1	2.0E-01	H	2.0E-02	I	liver	medium/1000
Bromomethane	1.4E-02	H	1.4E-03	I	1	1.4E-02	H	1.4E-03	I	forestomach	medium/1000
Carbon Disulfide	1.0E-01	c	1.0E-01	I	1	1.0E-01	c	1.0E-01	I	fetus	medium/100
Carbon Tetrachloride	1.3E-02	cx	4.0E-03	I	1	1.3E-02	cx	4.0E-03	I	liver	medium/1000
Chlorobenzene	2.0E-01	cx	2.0E-02	I	1	2.0E-01	cx	2.0E-02	I	liver	medium/1000
Chloroethane	NA		5.0E-04		1	NA		5.0E-04		NA	NA
Chloroform	1.0E-02	H	1.0E-02	I	1	1.0E-02	H	1.0E-02	I	liver	medium/1000
Chloromethane	NA		NA		1	NA		NA		NA	NA
2-Chlorotoluene	2.0E-01	H	2.0E-02	I	1	2.0E-01	H	2.0E-02	I	WB	low/1000
4-Chlorotoluene	7.0E-02	c	2.0E-02	X	1	7.0E-02	c	2.0E-02	X	WB	low/1000
Dibromochloromethane	7.0E-02	P	2.0E-02	I	1	7.0E-02	P	2.0E-02	I	liver	medium/1000
1,2-Dichlorobenzene	9.0E-01	H	9.0E-02	I	1	9.0E-01	H	9.0E-02	I	NR	low/1000
1,3-Dichlorobenzene [c]	9.0E-01	H	9.0E-02	Is	1	9.0E-01	H	9.0E-02	Is	NA	NA
1,4-Dichlorobenzene	7.0E-02	c	7.0E-02	A	1	7.0E-02	c	7.0E-02	A	NA	NA
1,1-Dichloroethene	5.0E-02	c	5.0E-02	I	1	5.0E-02	c	5.0E-02	I	liver	medium/100
cis-1,2-Dichloroethene	1.0E-01	H	2.0E-03	I	1	1.0E-01	H	2.0E-03	I	blood	low/3000
1,2-Dichloroethane	2.0E-02	c	6.0E-03	X	1	2.0E-02	c	6.0E-03	X	kidney	low/3000
1,2-Dichloropropane	7.0E-02	A	9.0E-02	A	1	7.0E-02	A	9.0E-02	A	liver	1000
Ethylbenzene	5.0E-02	P	1.0E-01	I	1	5.0E-02	P	1.0E-01	I	liver, kidney	high/1000
Isopropylbenzene	4.0E-01	H	1.0E-01	I	1	4.0E-01	H	1.0E-01	I	kidney	low/1000
Methyl ethyl ketone	2.0E+00	H	6.0E-01	I	1	2.0E+00	H	6.0E-01	I	fetus	low/3000
4-Methyl-2-pentanone	8.0E-02	c	8.0E-02	H	1	8.0E-02	c	8.0E-02	H	liver, kidney	NA
Methylene Chloride	6.0E-03	c	6.0E-03	I	1	6.0E-03	c	6.0E-03	I	liver	medium/100
Naphthalene	2.0E-02	c	2.0E-02	I	1	2.0E-02	c	2.0E-02	I	weight loss	low/3000
Styrene	2.0E+00	cx	2.0E-01	I	1	2.0E+00	cx	2.0E-01	I	liver, RBCs	medium/1000
Tetrachloroethene	6.0E-03	c	6.0E-03	I	1	6.0E-03	c	6.0E-03	I	neurotoxicity	medium/1000
Toluene	8.0E-01	P	8.0E-02	I	1	8.0E-01	P	8.0E-02	I	liver, kidney	medium/3000
1,2,3-Trichlorobenzene	8.0E-03	P	8.0E-04	X	1	8.0E-03	P	8.0E-04	X	NA	low/10000
1,2,4-Trichlorobenzene	9.0E-02	P	1.0E-02	I	1	9.0E-02	P	1.0E-02	I	adrenal, brain	medium/1000
Trichloroethene	5.0E-04	c	5.0E-04	I	1	5.0E-04	c	5.0E-04	I	heart, kidney	high/10
1,2,4-Trimethylbenzene [d]	1.0E-01	Ps	1.0E-02	Ps	1	1.0E-01	Ps	1.0E-02	Ps	liver	medium/10,000
1,3,5-Trimethylbenzene	1.0E-01	P	1.0E-02	X	1	1.0E-01	P	1.0E-02	X	liver	medium/10,000
Vinyl Chloride	3.0E-03	c	3.0E-03	I	1	3.0E-03	c	3.0E-03	I	liver	medium/30

Table 8. Noncarcinogenic Toxicity Values for Oral and Dermal Exposure, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Constituents	Oral RfD (mg/kg/day) [a]				Adjustment Factor [b]	Dermal RfD (mg/kg/day) [b]				Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor
	Subchronic	[ref]	Chronic	[ref]		Subchronic	[ref]	Chronic	[ref]		
Semi-Volatile Organic Compounds											
1,1'-Biphenyl	5.0E-02	c	5.0E-02	I	1	5.0E-02	c	5.0E-02	I	kidney	medium/100
1,4-Dioxane	3.0E-02	I	3.0E-02	I	1	3.0E-02	I	3.0E-02	I	NA	NA
3 & 4 Methylphenol [e]	5.0E-03	Hs	5.0E-03	Hs	1	5.0E-03	Hs	5.0E-03	Hs	CNS, WB	low/1000
o,o,o-Triethylphosphorothioate	NA		NA		1	NA		NA		NA	NA
Phenol	6.0E-01	H	3.0E-01	I	1	6.0E-01	H	3.0E-01	I	fetus	medium/300
Inorganics											
Arsenic	3.0E-04	c	3.0E-04	I	1	3.0E-04	c	3.0E-04	I	NA	medium/3
Barium	2.0E-01	c	2.0E-01	I	0.07	1.4E-02	c	1.4E-02	I	kidney	medium/300
Beryllium	5.0E-03	H	2.0E-03	I	0.007	3.5E-05	H	1.4E-05	I	intestine	low-medium/300
Chromium	2.0E-02	H	3.0E-03	I	0.25	5.0E-03	H	7.5E-04	I	NR	low/300
Cobalt	3.0E-04	c	3.0E-04	P	1	3.0E-04	c	3.0E-04	P	thyroid	low/3000
Nickel	2.0E-02	H	2.0E-02	I	0.04	8.0E-04	H	8.0E-04	I	WB	medium/300
Sulfide	NA		NA		1	NA		NA		NA	NA
Vanadium	5.0E-03	c	5.0E-03	S	1	5.0E-03	c	5.0E-03	S	hair	low/100
Zinc	3.0E-01	c	3.0E-01	I	1	3.0E-01	c	3.0E-01	I	blood	medium/3

References [ref]:

A	Agency for Toxic Substances Disease Registry (ATSDR 2012a).
H	USEPA, Health Effects Summary Table (HEAST) (USEPA 1997).
I	USEPA, Integrated Risk Information System (IRIS) (USEPA 2012b).
P	Provisional Peer Reviewed Toxicity Values (PPRTV) (USEPA 2012c).
S	USEPA User's Guide (USEPA 2012d).
X	PPRTV Appendix (USEPA 2012e).
c	The chronic value is used if available.
CNS	Central nervous system.
mg/kg/day	Milligrams per kilogram per day.
NA	Not available or applicable.
NR	None reported.
RfD	Reference Dose.
RBCs	Red blood cells.
s	Value is based on use of a surrogate compound, as indicated.
WB	Whole body (includes increased mortality and changes to body weight).
x	The uncertainty factor for subchronic to chronic extrapolation was removed.
[a]	Toxicity values were obtained following USEPA recommended hierarchy (USEPA 2003).
[b]	The oral-to-dermal adjustment factor (oral absorption efficiency) is used to calculate the dermal RfD values (USEPA 2004). RfD (dermal) = RfD (oral) × Adjustment Factor (oral absorption efficiency).
[c]	1,2-Dichlorobenzene is used as a surrogate.
[d]	1,3,5-Trimethylbenzene is used as a surrogate.
[e]	4-Methylphenol toxicity values are used.

Table 9. Noncarcinogenic Toxicity Values for Inhalation Exposure, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

	Inhalation RfC (mg/m^3) [a]					
Constituents	Subchronic	[ref]	Chronic	[ref]	Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor
Pesticides						
Alpha-BHC	NA		NA		NA	NA
Gamma-BHC (Lindane)	NA		NA		NA	NA
Herbicides						
2,4-D	NA		NA		NA	NA
Volatile Organic Compounds						
Acetone	3.1E+01	c	3.1E+01	A	NA	NA
Benzene	8.0E-02	P	3.0E-02	I	blood	medium/100
Bromobenzene	6.0E-02	c	6.0E-02	I	liver	medium/300
Bromodichloromethane	NA		NA		NA	NA
Bromoform	NA		NA		NA	NA
Bromomethane	5.0E-03	H	5.0E-03	I	nasal	high/100
Carbon Disulfide	7.0E-01	c	7.0E-01	I	PNS	medium/30
Carbon Tetrachloride	1.0E-01	c	1.0E-01	I	liver	medium/100
Chlorobenzene	5.0E-02	c	5.0E-02	P	liver,kidney	low/1000
Chloroethane	1.0E+01	H	1.0E+01	I	fetus	medium/300
Chloroform	2.4E-01	A	9.8E-02	A	liver, kidney, CNS	low-med/100
Chloromethane	9.0E-01	cx	9.0E-02	I	brain	medium/1000
2-Chlorotoluene	NA		NA		NA	NA
4-Chlorotoluene	NA		NA		NA	NA
Dibromochloromethane	NA		NA		NA	NA
1,2-Dichlorobenzene	2.0E+00	H	2.0E-01	H	WB	NA/1000
1,3-Dichlorobenzene [b]	2.0E+00	H	2.0E-01	Hs	NA	NA
1,4-Dichlorobenzene	2.5E+00	H	8.0E-01	I	liver	medium/100
1,1-Dichloroethene	2.0E-01	c	2.0E-01	I	liver	medium/30
cis-1,2-Dichloroethene	NA		NA		NA	NA
1,2-Dichloroethane	7.0E-03	c	7.0E-03	P	liver	low/3000
1,2-Dichloropropane	1.3E-02	H	4.0E-03	I	nasal	high/300
Ethylbenzene	9.0E+00	P	1.0E+00	I	developmental	medium/100
Isopropylbenzene	4.0E-01	c	4.0E-01	I	kidney, adrenal	medium/1000
Methyl ethyl ketone	5.0E+00	c	5.0E+00	I	developmental	medium/300
4-Methyl-2-pentanone	3.0E+00	c	3.0E+00	I	fetus	low-med/300
Methylene Chloride	6.0E-01	c	6.0E-01	I	NA	NA
Naphthalene	3.0E-03	c	3.0E-03	I	nasal	medium/3000
Styrene	3.0E+00	H	1.0E+00	I	CNS	medium/30
Tetrachloroethene	4.0E-02	c	4.0E-02	I	neurotoxicity	medium/1000
Toluene	5.0E+00	P	5.0E+00	I	CNS	medium/300
1,2,3-Trichlorobenzene	NA		NA		NA	NA
1,2,4-Trichlorobenzene	2.0E-02	P	2.0E-03	P	liver	medium/3000
Trichloroethene	2.0E-03	c	2.0E-03	I	heart, kidney	high/10
1,2,4-Trimethylbenzene	1.0E-01	P	7.0E-03	P	lung	low/3000
1,3,5-Trimethylbenzene	1.0E-02	P	0.0E+00		NS	low/3000
Vinyl Chloride	1.0E-01	c	1.0E-01	I	liver	medium/30
Semi-Volatile Organic Compounds						
1,1'-Biphenyl	4.0E-04	c	4.0E-04	P	liver,kidney	300
1,4-Dioxane	3.6E+00	c	3.0E+00	C	NA	NA
3 & 4 Methylphenol	NA		NA		NA	NA
o,o,o-Triethylphosphorothioate	NA		NA		NA	NA
Phenol	2.0E-01	c	2.0E-01	C	NA	NA
Inorganics						
Arsenic	1.5E-05	c	1.5E-05	C	developmental/reproductive	NA
Barium	5.0E-03	H	5.0E-04	H	fetus	NA/1000
Beryllium	2.0E-05	c	2.0E-05	I	lung	medium/10
Chromium	1.0E-04	c	1.0E-04	I	lung	medium/300
Cobalt	6.0E-06	c	6.0E-06	P	respiratory	medium to low/300
Nickel	9.0E-05	c	9.0E-05	A	NA	NA
Sulfide	NA		NA		NA	NA
Vanadium	1.0E-04	c	1.0E-04	A	NA	NA
Zinc	NA		NA		NA	NA

Table 9. Noncarcinogenic Toxicity Values for Inhalation Exposure, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

References [ref]:

A	Agency for Toxic Substances Disease Registry (ATSDR 2012a).
C	CalEPA, Toxicity Criteria database (CalEPA 2012f).
H	USEPA, Health Effects Summary Table (HEAST) (USEPA 1997).
I	USEPA, Integrated Risk Information System (IRIS) (USEPA 2012b).
P	Provisional Peer Reviewed Toxicity Values (PPRTV)v(USEPA 2012c).

c	The chronic value is used if available.
CNS	Central nervous system.
mg/m^3	Milligrams per cubic meter.
NA	Not available or applicable.
NS	Nervous system.
PNS	Peripheral nervous system.
RfC	Reference Concentration.
s	Value is based on use of a surrogate compound, as indicated.
WB	Whole body (includes increased mortality and changes to body weight).
x	The uncertainty factor for subchronic to chronic extrapolation was removed.

[a]	Toxicity values were obtained following USEPA recommended hierarchy (USEPA 2003).
[b]	1,2-Dichlorobenzene is used as a surrogate.

Table 10. Carcinogenic Toxicity Values for Oral and Dermal Exposure, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Constituents	Oral CSF [a] (mg/kg/day)$^{-1}$	[ref]	Adjustment Factor [b]	Dermal CSF [b] (mg/kg/day)$^{-1}$	Tumor Site	Weight of Evidence Classification [c]
Pesticides						
Alpha-BHC	6.3E+00	I	1	6.3E+00	liver	B2
Gamma-BHC (Lindane)	1.1E+00	C	1	1.1E+00	liver	B2-C
Herbicides						
2,4-D	NA		1	NA	–	NA
Volatile Organic Compounds						
Acetone	NA		1	NA	–	D
Benzene	5.5E-02	I	1	5.5E-02	leukemia	A
Bromobenzene	NA		1	NA	–	NA
Bromodichloromethane	6.2E-02	I	1	6.2E-02	kidney	B2
Bromoform	7.9E-03	I	1	7.9E-03	intestine	B2
Bromomethane	NA		1	NA	–	D
Carbon Disulfide	NA		1	NA	–	NA
Carbon Tetrachloride	7.0E-02	I	1	7.0E-02	liver	B2
Chlorobenzene	NA		1	NA	–	D
Chloroethane	NA		1	NA	–	C
Chloroform	3.1E-02	C	1	3.1E-02	–	B2
Chloromethane	NA		1	NA	–	D
2-Chlorotoluene	NA		1	NA	–	NA
4-Chlorotoluene	NA		1	NA	–	NA
Dibromochloromethane	8.4E-02	I	1	8.4E-02	liver	C
1,2-Dichlorobenzene	NA		1	NA	–	D
1,3-Dichlorobenzene	NA		1	NA	–	D
1,4-Dichlorobenzene	5.4E-03	C	1	5.4E-03	liver	C
1,1-Dichloroethene	NA		1	NA	–	C
cis-1,2-Dichloroethene	NA		1	NA	–	D
1,2-Dichloroethane	9.1E-02	I	1	9.1E-02	circulatory system	B2
1,2-Dichloropropane	3.6E-02	C	1	3.6E-02	liver	B2
Ethylbenzene	1.1E-02	C	1	1.1E-02	–	D
Isopropylbenzene	NA		1	NA	–	D
Methyl ethyl ketone	NA		1	NA	–	D
4-Methyl-2-pentanone	NA		1	NA	–	NA
Methylene Chloride	7.5E-03	I	1	7.5E-03	liver	B2
Naphthalene	NA		1	NA	–	C
Styrene	NA		1	NA	–	NA
Tetrachloroethene	2.1E-03	I	1	2.1E-03	bladder, blood	Likely to be carcinogenic in humans by all routes of exposure
Toluene	NA		1	NA	–	D
1,2,3-Trichlorobenzene	NA		1	NA	–	NA
1,2,4-Trichlorobenzene	2.9E-02	P	1	2.9E-02	–	D
Trichloroethene	4.6E-02	I	1	4.6E-02	liver, kidney, lymphoma	carcinogenic to humans
1,2,4-Trimethylbenzene	NA		1	NA	–	NA
1,3,5-Trimethylbenzene	NA		1	NA	–	NA
Vinyl Chloride	7.2E-01	I	1	7.2E-01	liver	A
Semi-Volatile Organic Compounds						
1,1'-Biphenyl	8.0E-03		1	8.0E-03	–	D
1,4-Dioxane	1.0E-01	I	1	1.0E-01	nasal cavity	B2
3 & 4 Methylphenol	NA		1	NA	–	C
o,o,o-Triethylphosphorothioate	NA		1	NA	–	NA
Phenol	NA		1	NA	–	D

Table 10. Carcinogenic Toxicity Values for Oral and Dermal Exposure, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Constituents	Oral CSF [a] (mg/kg/day)$^{-1}$	[ref]	Adjustment Factor [b]	Dermal CSF [b] (mg/kg/day)$^{-1}$	Tumor Site	Weight of Evidence Classification [c]
Inorganics						
Arsenic	1.5E+00	I	1	1.5E+00	skin	A
Barium	NA		0.07	NA	–	D
Beryllium	NA		0.007	NA	–	B1
Chromium	5.0E-01	J	0.25	2.0E+00	–	A
Cobalt	NA		1	NA	–	NA
Nickel	NA		0.04	NA	–	NA
Sulfide	NA		1	NA	–	NA
Vanadium	NA		1	NA	–	NA
Zinc	NA		1	NA	–	D

References [ref]:

C	CalEPA, Toxicity Criteria database (CalEPA 2012).
I	USEPA, Integrated Risk Information System (IRIS) (USEPA 2012a).
J	New Jersey Department of Environmental Protection (NJDEP 2009).
P	Provisional Peer Reviewed Toxicity Values (PPRTV) (USEPA 2012b).

– Not applicable.

(mg/kg/day)-1 Inverse milligrams per kilogram per day (risk per unit dose).

[a] Toxicity values were obtained following USEPA recommended hierarchy (USEPA 2003).

[b] The oral-to-dermal adjustment factor (oral absorption efficiency) as used to calculate the dermal CSFd values (USEPA 2004a).
CSF (dermal) = CSF (oral) / Adjustment Factor (oral absorption efficiency)

[c] USEPA cancer weight-of-evidence categories are as follows:
- Group A: Human Carcinogen (sufficient evidence of carcinogenicity in humans).
- Group B: Probable Human Carcinogen .
  - B1 - limited evidence of carcinogenicity in humans
  - B2 - sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans
- Group C: Possible Human Carcinogen (limited evidence of carcinogenicity in animals and inadequate or lack of human data).
- Group D: Not Classifiable as to Human Carcinogenicity (inadequate or no evidence).
- Group E: Evidence of Noncarcinogenicity for Humans (no evidence of carcinogenicity in adequate studies).

Table 11. Carcinogenic Toxicity Values for Inhalation Exposure, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Constituents	Inhalation Unit Risk (IUR) [a] $(mg/m^3)^{-1}$	[ref]	Tumor Site	Weight of Evidence Classification [b]
Pesticides				
Alpha-BHC	1.8E+00	I	liver	B2
Gamma-BHC (Lindane)	3.1E-01	C	–	B2-C
Herbicides				
2,4-D	NA		–	NA
Volatile Organic Compounds				
Acetone	NA		–	D
Benzene	7.8E-03	I	leukemia	A
Bromobenzene	NA		–	NA
Bromodichloromethane	3.7E-02	C	–	B2
Bromoform	1.1E-03	I	intestine	B2
Bromomethane	NA		–	D
Carbon Disulfide	NA		–	NA
Carbon Tetrachloride	6.0E-03	I	liver	B2
Chlorobenzene	NA		–	D
Chloroethane	NA		–	C
Chloroform	2.3E-02	I	liver	B2
Chloromethane	NA		–	D
2-Chlorotoluene	NA		–	NA
4-Chlorotoluene	NA		–	NA
Dibromochloromethane	2.7E-02	C	liver	C
1,2-Dichlorobenzene	NA		–	D
1,3-Dichlorobenzene	NA		–	D
1,4-Dichlorobenzene	1.1E-02	C	–	C
1,1-Dichloroethene	NA		–	C
cis-1,2-Dichloroethene	NA		–	D
1,2-Dichloroethane	2.6E-02	I	circulatory system	B2
1,2-Dichloropropane	1.0E-02	C	–	B2
Ethylbenzene	NA		–	D
Isopropylbenzene	NA		–	D
Methyl ethyl ketone	NA		–	D
4-Methyl-2-pentanone	NA		–	NA
Methylene Chloride	4.7E-04	I	lung, liver	B2
Naphthalene	NA		respiratory	C
Styrene	NA		–	NA
Tetrachloroethene	2.6E-04	I	bladder, blood	Likely to be carcinogenic in humans by all routes of exposure
Toluene	NA		–	D
1,2,3-Trichlorobenzene	NA		–	NA
1,2,4-Trichlorobenzene	NA		–	D
Trichloroethene	4.1E-03	I	liver, kidney, lymphoma	carcinogenic to humans
1,2,4-Trimethylbenzene	NA		–	NA
1,3,5-Trimethylbenzene	NA		–	NA
Vinyl Chloride	4.4E-03	I	liver	A
Semi-Volatile Organic Compounds				
1,1'-Biphenyl	NA		–	D
1,4-Dioxane	7.7E-03	C	–	B2
3 & 4 Methylphenol	NA		–	C
o,o,o-Triethylphosphorothioate	NA		–	NA
Phenol	NA		–	D

Table 11. Carcinogenic Toxicity Values for Inhalation Exposure, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Constituents	Inhalation Unit Risk (IUR) [a] $(mg/m^3)^{-1}$	[ref]	Tumor Site	Weight of Evidence Classification [b]
Inorganics				
Arsenic	4.3E+00	I	lung	A
Barium	NA		–	D
Beryllium	2.4E+00	I	lung	B1
Chromium	8.4E+01	I	lung	A
Cobalt	9.0E+00	P	lung	NA
Nickel	2.6E-01	C	–	NA
Sulfide	NA		–	NA
Vanadium	NA		–	NA
Zinc	NA		–	D

References [ref]:

C CalEPA, Toxicity Criteria database (CalEPA 2012).

I USEPA, Integrated Risk Information System (IRIS) (USEPA 2012a).

P Provisional Peer Reviewed Toxicity Values (PPRTV; USEPA 2012b).

– Not applicable.

$(mg/m^3)^{-1}$ Inverse milligrams per cubic meter.

[a] Toxicity values were obtained following USEPA recommended hierarchy (USEPA 2003).

[b] USEPA cancer weight-of-evidence categories are as follows:

Group A: Human Carcinogen (sufficient evidence of carcinogenicity in humans).
Group B: Probable Human Carcinogen.
  B1 - limited evidence of carcinogenicity in humans.
  B2 - sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans.
Group C: Possible Human Carcinogen (limited evidence of carcinogenicity in animals and inadequate or lack of human data).
Group D: Not Classifiable as to Human Carcinogenicity (inadequate or no evidence).
Group E: Evidence of Noncarcinogenicity for Humans (no evidence of carcinogenicity in adequate studies).

Table 12. Dermal Absorption Parameters, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Constituents	ABSd [a]	Permeability Constant Kp (cm/hour) [b]		Non-Steady State Dermal Absorption Parameters [c]					DA_2hr [d] (mg/cm²/event)
		Value	[Ref]	FA (unitless)	τ (hour)	t* (hour)	B (unitless)	Source	
Pesticides									
Alpha-BHC	0	1.6E-02	EPI	0.9	4.46	10.70	0.105	calc	1.19E-04
Gamma-BHC (Lindane)	0.04	1.1E-02	DRA	0.9	4.57	10.97	0.0722	DRA	8.27E-05
Herbicides									
2,4-D	0.05	6.6E-03	calc	1.0	1.80	4.40	0.04	calc	3.48E-05
Volatile Organic Compounds									
Acetone	0	5.1E-04	calc	1.0	0.22	0.53	0.0015	calc	1.25E-06
Benzene	0	1.5E-02	DRA	1.0	0.29	0.70	0.0501	DRA	3.75E-05
Bromobenzene	0	2.0E-02	calc	1.0	0.80	1.90	0.095	calc	7.15E-05
Bromodichloromethane	0	4.0E-03	DRA	1.0	0.88	2.12	0.0229	DRA	1.47E-05
Bromoform	0.1	2.4E-03	DRA	1.0	2.79	6.70	0.0132	DRA	1.53E-05
Bromomethane	0	2.8E-03	DRA	1.0	0.36	0.87	0.0107	DRA	7.69E-06
Carbon Disulfide	0	1.1E-02	DRA	1.0	0.30	0.72	0.06	DRA	2.88E-05
Carbon Tetrachloride	0	1.6E-02	DRA	1.0	0.78	1.86	0.0767	DRA	5.76E-05
Chlorobenzene	0	2.8E-02	DRA	1.0	0.46	1.09	0.1169	DRA	7.94E-05
Chloroethane	0	6.1E-03	DRA	1.0	0.24	0.59	0.0187	DRA	1.49E-05
Chloroform	0	6.8E-03	DRA	1.0	0.50	1.19	0.0285	DRA	2.03E-05
Chloromethane	0	3.3E-03	DRA	1.0	0.20	0.49	0.009	DRA	7.83E-06
2-Chlorotoluene	0	8.6E-02	EPI	1.0	0.54	1.30	0.373	calc	2.51E-04
4-Chlorotoluene	0	5.3E-02	calc	1.0	0.54	1.30	0.23	calc	1.56E-04
Dibromochloromethane	0.1	2.9E-03	DRA	1.0	1.57	3.77	0.0178	DRA	1.42E-05
1,2-Dichlorobenzene	0	4.1E-02	DRA	1.0	0.71	1.71	0.1912	DRA	1.38E-04
1,3-Dichlorobenzene	0	5.8E-02	DRA	1.0	0.71	1.71	0.2705	DRA	1.95E-04
1,4-Dichlorobenzene	0	4.2E-02	DRA	1.0	0.71	1.71	0.1959	DRA	1.41E-04
1,1-Dichloroethene	0	1.2E-02	DRA	1.0	0.37	0.89	0.0438	DRA	3.23E-05
cis-1,2-Dichloroethene	0	7.7E-03	calc	1.0	0.37	0.89	0.029	calc	2.08E-05
1,2-Dichloroethane	0	4.2E-03	DRA	1.0	0.38	0.92	0.0158	DRA	1.15E-05
1,2-Dichloropropane	0	7.8E-03	DRA	1.0	0.46	1.10	0.0319	DRA	2.25E-05
Ethylbenzene	0	4.9E-02	DRA	1.0	0.42	1.01	0.192	DRA	1.32E-04
Isopropylbenzene	0	9.0E-02	EPI	1.0	0.49	1.18	0.59	calc	2.45E-04
Methyl ethyl ketone	0	9.6E-04	DRA	1.0	0.27	0.65	0.0031	DRA	2.43E-06
4-Methyl-2-pentanone	0	2.7E-03	DRA	1.0	0.39	0.93	0.0102	DRA	7.47E-06
Methylene Chloride	0	3.5E-03	DRA	1.0	0.32	0.76	0.0126	DRA	9.29E-06
Naphthalene	0.13	4.7E-02	DRA	1.0	0.56	1.34	0.205	DRA	1.41E-04
Styrene	0	3.7E-02	DRA	1.0	0.41	0.98	0.145	DRA	9.98E-05
Tetrachloroethene	0	3.3E-02	DRA	1.0	0.91	2.18	0.163	DRA	1.25E-04
Toluene	0	3.1E-02	DRA	1.0	0.35	0.84	0.113	DRA	8.01E-05
1,2,3-Trichlorobenzene	0	1.1E-01	EPI	1.0	1.09	2.62	0.58	calc	4.57E-04
1,2,4-Trichlorobenzene	0	6.6E-02	DRA	1.0	1.11	2.66	0.335	DRA	2.72E-04
Trichloroethene	0	1.2E-02	DRA	1.0	0.58	1.39	0.0529	DRA	3.62E-05
1,2,4-Trimethylbenzene	0	1.3E-01	EPI	1.0	0.49	1.18	0.561	calc	3.64E-04
1,3,5-Trimethylbenzene	0	9.4E-02	EPI	1.0	0.49	1.18	0.398	calc	2.61E-04

Table 12. Dermal Absorption Parameters, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Constituents	ABSd [a]	Permeability Constant Kp (cm/hour) [b]		Non-Steady State Dermal Absorption Parameters [c]					DA_2hr [d] (mg/cm^2/event)
		Value	[Ref]	FA (unitless)	τ (hour)	t* (hour)	B (unitless)	Source	
Vinyl Chloride	0	8.4E-03	DRA	1.0	0.24	0.57	0.017	DRA	2.06E-05
Semi-Volatile Organic Compounds									
1,1'-Biphenyl	0	1.5E-01	EPI	1.0	0.76	6.30	0.7164	calc	5.11E-04
1,4-Dioxane	0.1	3.3E-04	DRA	1.0	0.33	0.80	0.0012	DRA	8.77E-07
3 & 4 Methylphenol	0.1	7.8E-03	DRA	1.0	0.43	1.03	0.0314	DRA	2.20E-05
o,o,o-Triethylphosphorothioate	0.1	8.8E-03	RAIS	—	—	—	—	—	1.75E-05
Phenol	0.1	4.3E-03	DRA	1.0	0.36	0.86	0.016	DRA	1.17E-05
Inorganics									
Arsenic	0.03	1.0E-03	DRA	—	—	—	—	—	2.00E-06
Barium	0	1.0E-03	DRA	—	—	—	—	—	2.00E-06
Beryllium	0	1.0E-03	DRA	—	—	—	—	—	2.00E-06
Chromium	0	2.0E-03	DRA	—	—	—	—	—	4.00E-06
Cobalt	0	4.0E-04	DRA	—	—	—	—	—	8.00E-07
Nickel	0	2.0E-04	DRA	—	—	—	—	—	4.00E-07
Sulfide	0	1.0E-03	DRA	—	—	—	—	—	2.00E-06
Vanadium	0	1.0E-03	DRA	—	—	—	—	—	2.00E-06
Zinc	0	6.0E-04	DRA	—	—	—	—	—	1.20E-06

References [ref]:

calc	Calculated value (USEPA 2004a).
cm	Centimeter.
DRA	Dermal Risk Assessment Guidance (USEPA 2004a). The B values are calculated but are consistent with values presented in the guidance manual.
EPI	USEPA 2011d.
RAIS	Oak Ridge National Laboratory (ORNL), Risk Assessment Information System (RAIS) (ORNL 2012).

[a] Dermal absorption efficiency for uptake of constituents from a soil matrix (unitless) (USEPA 2004a).

[b] Permeability coefficient for dermal contact with constituents in water (centimeters per hour).

[c] Absorption parameters for use in the non-steady state model for dermal contact with constituents in water.
τ = Lag time for dermal absorption through the skin.
t* = Time required to reach steady state.
B = Ratio of the permeability coefficient through the stratus corneum relative to the permeability coefficient across the viable epidermis.
FA = Fraction of absorbed water.

[d] DA calculated according to equations presented in USEPA 2004a (using Equation [0], [1], or [2] as indicated in Tables 17 and 18 based on exposure time (ET) = 2 hour.

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Table 13. Receptor Exposure Parameters, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Parameter	**Symbol**	**Units**	**Outdoor Site Worker**	[ref]	**Construction Worker**	[ref]	**Adolescent Trespasser (6-16 years)**	[ref]
General Factors								
Averaging Time (cancer)	ATc	days	25,550	[1,2,a]	25,550	[1,2,a]	25,550	[1,2,a]
Averaging Time (noncancer)	ATnc	days	9,125	[1,2,a]	182	[1,2,a]	3,650	[1,2,a]
Body Weight	BW	kg	70	[1,2]	70	[1,2]	44	[6]
Exposure Frequency	EF	days/year	225	[3]	130	PJ	52	PJ [b]
Exposure Duration	ED	years	25	[1,2]	1	PJ	10	PJ
Age-Dependent Adjustment Factor	ADAF	unitless	NA		NA		3	[5]
Inhalation								
Exposure Time	ET	hour/day	8	PJ	8	PJ	1	PJ
Conversion Factor	CF	day/hour	0.042		0.042		0.042	
Groundwater - Ingestion (Oral)								
Groundwater Ingestion Rate	IRgw	L/day	–		0.005	PJ	–	
Groundwater - Dermal Contact								
Exposed Skin Surface Area	SSAgw	cm^2	–		3,300	[3]	–	
Exposure Time; groundwater contact	ETgw	hours/day	–		2	PJ	–	
Soil - Ingestion (Oral)								
Incidental Soil Ingestion Rate	IRs	mg/day	100	[3]	330	[3]	50	[6]
Fraction Ingested from Souce	FI	unitless	1		1		1	
Soil - Dermal Contact								
Exposed Skin Surface Area	SSAs	cm^2	3,300	[3]	3,300	[3]	3,054	[6,f]
Soil-to-Skin Adherence Rate	SAR	mg/cm^2/day	0.2	[4,c]	0.3	[4,d]	0.07	[4,e]
Sediment - Ingestion (Oral)								
Incidental Sediment Ingestion Rate	IRsed	mg/day	–		–		25	PJ [g]
Sediment - Dermal Contact								
Exposed Skin Surface Area	SSAsed	cm^2	–		–		3,054	[6,f]
Exposure Frequency	EFsed	days/year	–		–		52	PJ [b]
Sediment-to-Skin Adherence Rate	SedAR	mg/cm^2/day	–		–		0.07	[4,e]
Surface Water - Ingestion (Oral) and Dermal Contact								
Surface Water Ingestion Rate	IRsw	L/hour	–		–		0.005	PJ [h]
Exposed Skin Surface Area	SSAsw	cm^2	–		–		3,054	[6,f]
Exposure Frequency	EFsw	days/year	–		–		52	PJ [b]
Exposure Time	ETsw	hours/day	–		–		1	PJ

References:

[1]	USEPA 1989	[4]	USEPA 2004a
[2]	USEPA 1991	[5]	USEPA 2005
[3]	USEPA 2002	[6]	USEPA 2011b

[a] The averaging time for cancer risk is the expected lifespan of 70 years expressed in days.
The averaging time for non-cancer hazard is the total exposure duration (ED) expressed in days.

[b] The exposure frequency for the adolescent trespasser is assumed to be 1 day a week for a year.

[c] The skin adherence rate for the outdoor site worker is based on the 50th percentile weighted adherence factor for utility workers (USEPA 2004a).

[d] The skin adherence rate for the construction worker is based on the 95th percentile weighted adherence factor for construction workers (USEPA 2004a).

[e] The skin adherence rate for the adolescent trespasser is based on the geometric mean adherence factor for gardeners (USEPA 2004a).

[f] The skin surface area (SSA) for the adolescent trespasser assumes that a receptor is wearing a short-sleeved shirt, shorts, and shoes; therefore, the SSA is the age-weighted average of the surface area for the hands, forarms, and lower legs for the 6 to 16 years old.

[g] The incidental sediment ingestion rate for the adolescent trespasser is based upon one half the incidential soil ingestion rate for the adolescent trespasser.

[h] The surface water ingestion rate for an adolescent trespasser that is wading is assumed to be 1/10th the ingestion rate of a swimmer scenario (0.05 L/hour).

cm^2	Centimeter squared.	L	Liter.	NA	Not applicable.
kg	Kilogram.	mg	Milligram.		

Table 14. Receptor Exposure Parameters - Mutagenic Mode of Action, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Parameter	Symbol	Units	Off-Site Resident							
			0-2 Years		2-6 Years		6-16 Years		16-30 Years	
General Factors										
Averaging Time (cancer)	ATc	days	25,550	[1,2,a]	25,550	[1,2,a]	25,550	[1,2,a]	25,550	[1,2,a]
Averaging Time (noncancer)	ATnc	days	730	[1,2,a]	1,460	[1,2,a]	3,650	[1,2,a]	5,110	[1,2,a]
Body Weight	BW	kg	8	[4]	17	[4]	44	[4]	72	[4]
Exposure Frequency	EF	days/year	350	[1,2]	350	[1,2]	350	[1,2]	350	[1,2]
Exposure Duration	ED	years	2		4		10		14	
Age-Dependent Adjustment Factor	ADAF	unitless	10	[3]	3	[3]	3	[3]	1	[3]
Inhalation										
Exposure Time	ET	hour/day	24	PJ	24	PJ	24	PJ	24	PJ
Conversion Factor		day/hour	0.042		0.042		0.042		0.042	
Soil - Ingestion (Oral)										
Incidental Soil Ingestion Rate	IRs	mg/day	200	[5]	200	[5]	100	[5]	100	[5]
Fraction Ingested from Souce	FI	unitless	1		1		1		1	
Soil - Dermal Contact										
Exposed Skin Surface Area	SSAs	cm^2	1,133	[4]	1,543	[4]	3,054	[4]	4,213	[4]
Soil-to-Skin Adherence Rate	SAR	mg/cm^2/day	0.2	[5]	0.07	[5]	0.07	[5]	0.07	[5]
Sediment - Ingestion (Oral)										
Incidental Sediment Ingestion Rate	IRsed	mg/day	100	PJ [b]	100	PJ [b]	50	PJ [b]	50	PJ [b]
Sediment - Dermal Contact										
Exposed Skin Surface Area	SSAsed	cm^2	1,133	[4]	1,543	[4]	3,054	[4]	4,213	[4]
Exposure Frequency	EFsed	days/year	26	PJ [d]	26	PJ [d]	26	PJ [d]	26	PJ [d]
Sediment-to-Skin Adherence Rate	SedAR	mg/cm^2/day	0.2	[5]	0.07	[5]	0.07	[5]	0.07	[5]
Surface Water - Ingestion (Oral) and Dermal Contact										
Surface water Ingestion Rate	IRsw	L/hour	0.005	PJ [c]	0.005	PJ [c]	0.005	PJ [c]	0.005	PJ [c]
Exposed Skin Surface Area	SSAsw	cm^2	1,133	[4]	1,543	[4]	3,054	[4]	4,213	[4]
Exposure Frequency	EFsw	days/year	26	PJ [d]	26	PJ [d]	26	PJ [d]	26	PJ [d]
Exposure Time	ETsw	hours/day	2	PJ	2	PJ	2	PJ	2	PJ
Ingestion of Fish										
Fish Ingestion Rate	IRfish	kg/day	0.0012	[4]	0.0026	[4]	0.0017	[4]	0.0017	[4]

References:

[1]	USEPA 1989	[4]	USEPA 2011b
[2]	USEPA 1991	[5]	USEPA 2011c
[3]	USEPA 2005		

[a] The averaging time for cancer risk is the expected lifespan of 70 years expressed in days.
The averaging time for non-cancer hazard is the total exposure duration (ED) expressed in days.

[b] The incidental sediment ingestion rate is based upon one half the incidential soil ingestion rate.

[c] The surface water ingestion rate for the off-site resident that is wading is assumed to be 1/10th the ingestion rate of a swimmer scenario (0.05 L/hour).

[d] The exposure frequency to sediment and surface water is assumed to be 1 day a week for 6 months a year during the summer months.

cm^2	Centimeter squared.	L	Liter.	PJ	Professional judgment.
kg	Kilogram.	mg	Milligram.	–	Not applicable.

Table 15. Physical and Chemical Properties, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Constituents	**Molecular Weight (MW) (g/mol)**	[ref]	**Water Solubility (S) (mg/L 25 °C)**	[ref]	**Henry's Law Constant at 25 °C (atm-m^3/mol)**	**Henry's Law Constant at 25 °C (unitless)**	[ref]	**Diffusivity in Air (cm^2/sec)**	[ref]	**Diffusivity in Water (cm^2/sec)**	[ref]	**Kd (L/kg)**	[ref]	**Enthalpy of Vaporization at Boiling Point (DHv,b) (cal/mol)**	[ref]	**Normal Boiling point (Tb) (K)**		**Critical Temperature (Tc) (K)**	
Pesticides																			
Alpha-BHC	290.83	RSL	2.00E+00	RSL	5.14E-06	2.10E-04	RSL	4.33E-02	RSL	5.06E-06	RSL	2.81E+03	RSL	1.50E+04	J&E	5.97E+02	HSDB	8.39E+02	J&E
Gamma-BHC (Lindane)	290.83	RSL	7.30E+00	RSL	5.14E-06	2.10E-04	RSL	4.33E-02	RSL	5.06E-06	RSL	2.81E+03	RSL	1.26E+04	calc	5.97E+02	SCDM	8.39E+02	J&E
Herbicides																			
2,4-D	221.04	RSL	6.77E+02	RSL	3.54E-08	1.45E-06	RSL	5.20E-02	RSL	6.07E-06	RSL	2.96E+01	RSL	—	—	4.33E+02	SCDM	6.50E+02	calc
Volatile Organic Compounds																			
Acetone	58.08	RSL	1.00E+06	RSL	3.50E-05	1.43E-03	RSL	1.06E-01	RSL	1.15E-05	RSL	2.36E+00	RSL	6.96E+03	J&E	3.29E+02	SCDM	5.08E+02	J&E
Benzene	78.11	RSL	1.79E+03	RSL	5.55E-03	2.27E-01	RSL	8.95E-02	RSL	1.03E-05	RSL	1.46E+02	RSL	7.34E+03	J&E	3.53E+02	SCDM	5.62E+02	J&E
Bromobenzene	157.01	RSL	4.46E+02	RSL	2.47E-03	1.01E-01	RSL	5.37E-02	RSL	9.30E-06	RSL	2.34E+02	RSL	8.82E+03	calc	4.29E+02	HSDB	6.44E+02	calc
Bromodichloromethane	163.83	RSL	3.03E+03	RSL	2.12E-03	8.66E-02	RSL	5.63E-02	RSL	1.07E-05	RSL	3.18E+01	RSL	7.80E+03	J&E	3.63E+02	SCDM	5.86E+02	J&E
Bromoform	252.73	RSL	3.10E+03	RSL	5.35E-04	2.19E-02	RSL	3.57E-02	RSL	1.04E-05	RSL	3.18E+01	RSL	9.48E+03	J&E	4.22E+02	SCDM	6.96E+02	J&E
Bromomethane	94.94	RSL	1.52E+04	RSL	7.34E-03	3.00E-01	RSL	1.00E-01	RSL	1.35E-05	RSL	1.32E+01	RSL	5.71E+03	J&E	2.77E+02	SCDM	4.67E+02	J&E
Carbon Disulfide	76.13	RSL	2.16E+03	RSL	1.44E-02	5.88E-01	RSL	1.06E-01	RSL	1.30E-05	RSL	2.17E+01	RSL	6.39E+03	J&E	3.19E+02	SCDM	5.52E+02	J&E
Carbon Tetrachloride	153.82	RSL	7.93E+02	RSL	2.76E-02	1.13E+00	RSL	5.71E-02	RSL	9.78E-06	RSL	4.39E+01	RSL	2.76E+04	calc	3.50E+02	SCDM	5.57E+02	J&E
Chlorobenzene	112.56	RSL	4.98E+02	RSL	3.11E-03	1.27E-01	RSL	7.21E-02	RSL	9.48E-06	RSL	2.34E+02	RSL	8.41E+03	J&E	4.05E+02	SCDM	6.32E+02	J&E
Chloroethane	64.52	RSL	6.71E+03	RSL	1.11E-02	4.54E-01	RSL	1.04E-01	RSL	1.16E-05	RSL	2.17E+01	RSL	5.88E+03	J&E	2.85E+02	SCDM	4.60E+02	J&E
Chloroform	119.38	RSL	7.95E+03	RSL	3.67E-03	1.50E-01	RSL	7.69E-02	RSL	1.09E-05	RSL	3.18E+01	RSL	6.99E+03	J&E	3.34E+02	SCDM	5.36E+02	J&E
Chloromethane	50.49	RSL	5.32E+03	RSL	8.82E-03	3.60E-01	RSL	1.24E-01	RSL	1.36E-05	RSL	1.32E+01	RSL	5.11E+03	J&E	2.49E+02	SCDM	4.16E+02	J&E
2-Chlorotoluene	126.59	RSL	3.74E+02	RSL	3.57E-03	1.46E-01	RSL	6.29E-02	RSL	8.72E-06	RSL	3.83E+02	RSL	1.03E+03	HSDB	4.32E+02	HSDB	3.81E+02	HSDB
4-Chlorotoluene	126.59	RSL	1.06E+02	RSL	4.38E-03	1.79E-01	RSL	6.26E-02	RSL	8.66E-06	RSL	3.75E+02	RSL	1.02E+04	HSDB	4.36E+02	HSDB	3.86E+02	HSDB
Dibromochloromethane	208.28	RSL	2.70E+03	RSL	7.83E-04	3.20E-02	RSL	3.66E-02	RSL	1.06E-05	RSL	3.18E+01	RSL	5.90E+03	J&E	4.16E+02	SCDM	6.78E+02	J&E
1,2-Dichlorobenzene	147	RSL	1.56E+02	RSL	1.92E-03	7.85E-02	RSL	5.62E-02	RSL	8.92E-06	RSL	3.83E+02	RSL	9.70E+03	J&E	4.54E+02	SCDM	7.05E+02	J&E
1,3-Dichlorobenzene	147	SCDM	1.34E+02	J&E	3.09E-03	1.26E-01	J&E	6.92E-02	J&E	7.86E-06	J&E	1.98E+03	J&E	9.23E+03	J&E	4.46E+02	SCDM	6.84E+02	J&E
1,4-Dichlorobenzene	147	RSL	8.13E+01	RSL	2.41E-03	9.85E-02	RSL	5.50E-02	RSL	8.68E-06	RSL	3.75E+02	RSL	9.27E+03	J&E	4.47E+02	SCDM	6.85E+02	J&E
1,1-Dichloroethene	96.94	RSL	2.42E+03	RSL	2.61E-02	1.07E+00	RSL	8.63E-02	RSL	1.10E-05	RSL	3.18E+01	RSL	6.25E+03	J&E	3.05E+02	SCDM	5.76E+02	J&E
cis-1,2-Dichloroethene	96.94	RSL	6.41E+03	RSL	4.08E-03	1.67E-01	RSL	8.84E-02	RSL	1.13E-05	RSL	3.96E+01	RSL	7.19E+03	J&E	3.34E+02	SCDM	5.44E+02	J&E
1,2-Dichloroethane	98.96	RSL	8.60E+03	RSL	1.18E-03	4.82E-02	RSL	8.57E-02	RSL	1.10E-05	RSL	3.96E+01	RSL	7.64E+03	J&E	3.57E+02	SCDM	5.61E+02	J&E
1,2-Dichloropropane	112.99	RSL	2.80E+03	RSL	2.82E-03	1.15E-01	RSL	7.33E-02	RSL	9.73E-06	RSL	6.07E+01	RSL	7.59E+03	J&E	3.70E+02	SCDM	5.72E+02	J&E
Ethylbenzene	106.17	RSL	1.69E+02	RSL	7.88E-03	3.22E-01	RSL	6.85E-02	RSL	8.46E-06	RSL	4.46E+02	RSL	8.50E+03	J&E	4.09E+02	SCDM	6.17E+02	J&E
Isopropylbenzene	120.2	RSL	6.13E+01	RSL	1.15E-02	4.70E-01	RSL	6.03E-02	RSL	7.86E-06	RSL	6.98E+02	RSL	1.03E+04	J&E	4.26E+02	SCDM	6.31E+02	J&E
Methyl ethyl ketone	72.11	RSL	2.23E+05	RSL	5.69E-05	2.33E-03	RSL	9.14E-02	RSL	1.02E-05	RSL	4.51E+00	RSL	7.48E+03	J&E	3.53E+02	SCDM	5.37E+02	J&E
4-Methyl-2-pentanone	100.16	RSL	1.90E+04	RSL	1.38E-04	5.64E-03	RSL	6.98E-02	RSL	8.35E-06	RSL	1.26E+01	RSL	8.24E+03	J&E	3.90E+02	SCDM	5.71E+02	J&E
Methylene Chloride	84.93	RSL	1.30E+04	RSL	3.25E-03	1.33E-01	RSL	9.99E-02	RSL	1.25E-05	RSL	2.17E+01	RSL	6.71E+03	J&E	3.13E+02	SCDM	5.10E+02	J&E
Naphthalene	128.18	RSL	3.10E+01	RSL	4.40E-04	1.80E-02	RSL	6.05E-02	RSL	8.38E-06	RSL	1.54E+03	RSL	1.04E+04	J&E	4.91E+02	SCDM	7.48E+02	J&E
Styrene	104.15	RSL	3.10E+02	RSL	2.75E-03	1.12E-01	RSL	7.11E-02	RSL	8.78E-06	RSL	4.46E+02	RSL	8.74E+03	J&E	4.18E+02	SCDM	6.36E+02	J&E
Sulfide [a]	34.08	RSL	4.37E+06	RSL	1.58E-06	6.45E-05	EPI	—	—	—	—	—	—	3.36E+03	HSDB	2.12E+02	HSDB	3.74E+02	HSDB
Tetrachloroethene	165.83	RSL	2.06E+02	RSL	1.77E-02	7.23E-01	RSL	5.05E-02	RSL	9.46E-06	RSL	9.49E+01	RSL	8.29E+03	J&E	3.94E+02	SCDM	6.20E+02	J&E
Toluene	92.14	RSL	5.26E+02	RSL	6.64E-03	2.71E-01	RSL	7.78E-02	RSL	9.20E-06	RSL	2.34E+02	RSL	7.93E+03	J&E	3.84E+02	SCDM	5.92E+02	J&E
1,2,3-Trichlorobenzene	181.45	RSL	1.80E+01	RSL	1.25E-03	5.11E-02	RSL	3.95E-02	RSL	8.38E-06	RSL	1.38E+03	RSL	9.47E+03	calc	4.94E+02	CFATE	7.41E+02	calc
1,2,4-Trichlorobenzene	181.45	RSL	4.90E+01	RSL	1.42E-03	5.80E-02	RSL	3.96E-02	RSL	8.40E-06	RSL	1.36E+03	RSL	1.05E+04	J&E	4.86E+02	SCDM	7.25E+02	J&E
Trichloroethene	131.39	RSL	1.28E+03	RSL	9.85E-03	4.03E-01	RSL	6.87E-02	RSL	1.02E-05	RSL	6.07E+01	RSL	7.51E+03	J&E	3.60E+02	SCDM	5.44E+02	J&E
1,2,4-Trimethylbenzene	120.2	RSL	5.70E+01	RSL	6.16E-03	2.52E-01	RSL	6.07E-02	RSL	7.92E-06	RSL	6.14E+02	RSL	9.37E+03	J&E	4.42E+02	RAIS	6.49E+02	J&E
1,3,5-Trimethylbenzene	120.2	RSL	4.82E+01	RSL	8.77E-03	3.58E-01	RSL	6.02E-02	RSL	7.84E-06	RSL	6.02E+02	RSL	9.32E+03	J&E	4.38E+02	RAIS	6.37E+02	J&E
Vinyl Chloride	62.5	RSL	8.80E+03	RSL	2.78E-02	1.14E+00	RSL	1.07E-01	RSL	1.20E-05	RSL	2.17E+01	RSL	5.25E+03	J&E	2.59E+02	SCDM	4.32E+02	J&E
Semi-Volatile Organic Compounds																			
1,1'-Biphenyl	154.21	RSL	6.94E+00	RSL	3.08E-04	1.26E-02	RSL	4.71E-02	RSL	7.56E-06	RSL	5.13E+03	RSL	1.09E+04	J&E	5.29E+02	SCDM	7.89E+02	J&E
1,4-Dioxane	88.11	RSL	1.00E+06	RSL	4.80E-06	1.96E-04	RSL	8.74E-02	RSL	1.05E-05	RSL	2.63E+00	RSL	—	—	3.75E+02	SCDM	5.62E+02	calc
3 & 4 Methylphenol [b]	108.14	RSL	2.59E+04	RSL	1.20E-06	4.90E-05	SCDM	8.37E-02	RSL	9.78E-06	RSL	3.07E+02	RSL	1.19E+04	HSDB	464-476	HSDB	—	calc
o,o,o-Triethylphosphorothioate	198	RAIS	2.50E+02	RAIS	2.62E-04	1.07E-02	RAIS	2.67E-02	RAIS	6.64E-06	RAIS	1.31E+02	RAIS	—	—	5.01E+02	RAIS	7.52E+02	calc
Phenol	94.11	RSL	8.28E+04	RSL	3.33E-07	1.36E-05	RSL	8.34E-02	RSL	1.03E-05	RSL	1.87E+02	RSL	—	—	4.55E+02	SCDM	6.82E+02	calc

Table 15. Physical and Chemical Properties, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

Constituents	**Molecular Weight (MW) (g/mol)**	[ref]	**Water Solubility (S) (mg/L 25 °C)**	[ref]	**Henry's Law Constant at 25 °C (atm-m^3/mol)**	**Henry's Law Constant at 25 °C (unitless)**	[ref]	**Diffusivity in Air (cm^2/sec)**	[ref]	**Diffusivity in Water (cm^2/sec)**	[ref]	**Kd (L/kg)**	[ref]	**Enthalpy of Vaporization at Boiling Point (DHv,b) (cal/mol)**	[ref]	**Normal Boiling point (Tb) (K)**		**Critical Temperature (Tc) (K)**	
Inorganics																			
Arsenic	74.9216	*RSL*	insoluble	*HSDB*	—	—	—	—	—	—	—	2.90E+01	*Kd-SCDM*	—	—	7.47E+02	*EPI*	1.12E+03	*calc*
Barium	137.33	*RSL*	insoluble	*SCDM*	—	—	—	—	—	—	—	4.10E+01	*Kd-SCDM*	—	—	1.91E+03	*SCDM*	2.87E+03	*calc*
Beryllium	9.01	*RSL*	insoluble	*SCDM*	—	—	—	—	—	—	—	7.90E+02	*Kd-SCDM*	—	—	3.24E+03	*SCDM*	4.86E+03	*calc*
Chromium	52	*RSL*	1.69E+06	*RSL*	—	—	—	—	—	—	—	1.90E+01	*Kd-SCDM*	—	—	2.92E+03	*SCDM*	4.37E+03	*calc*
Cobalt	58.93	*RSL*	insoluble	*SCDM*	—	—	—	—	—	—	—	4.50E+01	*Kd-SCDM*	—	—	3.37E+03	*SCDM*	5.06E+03	*calc*
Nickel	58.69	*RSL*	insoluble	*SCDM*	—	—	—	—	—	—	—	6.50E+01	*Kd-SCDM*	—	—	3.00E+03	*SCDM*	4.50E+03	*calc*
Vanadium	50.94	*RSL*	0.00E+00	*RSL*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Zinc	65.38	*RSL*	insoluble	*SCDM*	—	—	—	—	—	—	—	6.20E+01	*Kd-SCDM*	—	—	1.18E+03	*SCDM*	1.77E+03	*calc*

References [ref]:
Parameters were obtained from USEPA Regional Screening Level (RSL) Table (USEPA 2011a) where available, otherwise, they were obtained from literature sources cited as follows:
CFATE (SRC 2012); HSDB (NLM 2012); EPISuite (USEPA 2011d); J&E (USEPA 2004b); RAIS (ORNL 2012); SCDM (USEPA 2012d).

[a]	Hydrogen sulfide physical and chemical properties are displayed.
[b]	Cresols (CAS No. 1319-77-3) physical and chemical properties are displayed.

–	Not applicable.
atm-m^3/mol	Atmospheres × cubic meters per mole.
°C	Degrees Celsius.
CAS No.	Chemical Number
cal/mol	Calorie per mole.
cm^2/sec	Square centimeters per second.
calc	Calculated.
g/mol	Grams per mole.
K	Kalvin.
Kd	Soil-water distribution coefficient (inorganics).
L/kg	Liters per kilogram.
mg/L	Milligrams per liter.

Table 16. Risk and Hazard Equations for Exposure to Soil, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

ROUTE-SPECIFIC RISK/HAZARD:

Oral:

$$ELCR_o \ \textit{or}\ HQ_o = \frac{EPCs \times FI \times IRs \times EF \times ED \times ADAF}{(10^6\ mg/kg) \times BW \times (\ AT_C\ \textit{or}\ AT_{NC}\ ) \times (\ [1/CSF_o]\ \textit{or}\ RfD_o\ )}$$

Dermal:

$$ELCR_d \ \textit{or}\ HQ_d = \frac{EPCs \times SSAs \times SAR \times ABSd \times EF \times ED \times ADAF}{(10^6\ mg/kg) \times BW \times (\ AT_C\ \textit{or}\ AT_{NC}\ ) \times (\ [1/CSF_a]\ \textit{or}\ RfD_a\ )}$$

Inhalation:

$$ELCR_i \ \textit{or}\ HQ_i = \frac{EPC_i \times ET \times CF \times EF \times ED \times ADAF}{(VF\ \text{or}\ PEF) \times (\ AT_C\ \textit{or}\ AT_{NC}\ ) \times (\ [1/IUR]\ \textit{or}\ RfC\ )}$$

$$VF = \frac{Q/C_{vol} \times [\ 3.14 \times D_A \times T\ ]^{1/2}}{2 \times \rho_b \times D_A \times (10{,}000\ cm^2/m^2)}$$

used for volatiles

$$PEF = \frac{Q/C_{wind} \times (3{,}600\ sec/hr)}{RPF \times (1\text{-}V) \times (Um/Ut)^3 \times Fx}$$

used for non-volatiles

$$D_A = \frac{[\ (\ \theta_{as}^{10/3} \times D_{air} \times H_o\ ) + (\ \theta_{ws}^{10/3} \times D_{wat}\ )\ ] / \theta_T^2}{(\ \rho_b \times Kd\ ) + \theta_{ws} + (\ \theta_{as} \times H_o)}$$

EPC_i = MINIMUM [EPCs, C_{sat}] OR = EPCs when C_{sat} is not relevant

$$C_{sat} = \frac{S}{\rho_b} \times [\ (Koc \times Foc \times \rho_b) + \theta_{ws} + (H_o \times \theta_{as})\ ]$$

C_{sat} is relevant only for organic constituents with melting point below 30ºC.

TOTAL CANCER RISK: $ELCR = ELCR_o + ELCR_d + ELCR_i$

TOTAL NON-CANCER HAZARD: $HI = HQ_o + HQ_d + HQ_i$

Variable Definitions:

θ_{as}	Air-filled porosity of the soil (unitless).
θ_T	Total soil porosity (unitless).
θ_{ws}	Water-filled porosity of the soil (unitless).
ρ_b	Dry soil bulk density (g/cm³).
ABSd	Dermal absorption efficiency (unitless) (Table 12).
ADAF	Age-Dependent Adjustment Factor for evaluation of risk from constituents with a mutagenicity mode of action.
AT_C	Averaging time for cancer effects (days) (Table 13 and Table 14).
AT_{NC}	Averaging time for noncancer effects (days) (Table 13 and Table 14).
BW	Body weight (kg) (Table 13 and Table 14).
CF	Conversion Factor 0.042 day/hour.
C_{sat}	Constituent saturation limit in soil (mg/kg).
CSF	Cancer slope factor for oral (CSFo) or dermal (adjusted to an absorbed dose, CSFa) exposure (kg-day/mg [inverse mg/kg/day]) (Table 10).
D_A	Apparent diffusivity in soil (cm²/sec).
D_{air}	Constituent diffusivity in air (cm²/sec) (Table 15).
D_{wat}	Constituent diffusivity in water (cm²/sec) (Table 15).
ED	Exposure duration (years) (Table 13 and Table 14).
EF	Exposure frequency (days/year) (Table 13 and Table 14).
ELCR	Excess lifetime cancer risk (unitless).

Table 16. Risk and Hazard Equations for Exposure to Soil, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

EPCs	Exposure point concentration in soil (mg/kg).
EPC_i	Exposure point concentration relevant to inhalation (mg/kg) (minimum of EPCs and C_{sat}).
ET	Exposure time (hrs/day) (Table 13 and Table 14).
FI	Fraction ingested from area of concern (unitless) (Table 13 and Table 14).
Foc	Fraction organic carbon in the soil (unitless).
Fx	Function of Ut/Um (unitless); $Fx = 0.18 \times (8x^3 + 12x) \times \exp[-(x^2)]$, where $x = 0.886 \times (Ut/Um)$.
H	Henry's law constant ($atm\text{-}m^3/mol$) (Table 15).
HI	Hazard index for non-cancer effects (unitless); sum of the HQs.
H_o	Dimensionless Henry's law constant (unitless); calculated as $H_o = H / RT$.
HQ	Hazard quotient for non-cancer effects (unitless).
IRs	Ingestion rate of soil (mg/day) (Table 13 and Table 14).
IUR	Inhalation Unit Risk (m^3/mg) (Table 11).
Kd	Soil-water distribution coefficient.
PEF	Particulate emission factor (m^3/kg).
Q/C_{vol}	Volatile emission flux per unit concentration [$(g/m^2/sec)/(kg/m^3)$].
Q/C_{wind}	Particulate emission flux per unit concentration [$(g/m^2/sec)/(kg/m^3)$].
RfC	Reference concentration (mg/m^3) (Table 9).
RfD	Reference dose for oral (RfDo) and dermal (adjusted to an absorbed dose, RfDa), exposure (mg/kg/day) (Table 8).
RPF	Respirable particle fraction (0.036 $g/m^2/hr$).
RT	Product of the universal gas constant ($R = 8.206 \times 10^{-5}$ $atm\text{-}m^3/mol/K$) and the relevant Kelvin temperature (T = 298.15 K); RT = 0.02447 $atm\text{-}m^3/mol$.
S	Constituent solubility limit in water (mg/L).
SAR	Soil-to-skin adherence rate ($mg/cm^2/day$) (Table 13 and Table 14).
SSAs	Exposed skin surface area for soil contact (cm^2) (Table 13 and Table 14).
T	Exposure interval (sec).
Um	Mean annual wind speed (m/sec).
Ut	Equivalent threshold value of windspeed at 7 meters (11.32 m/sec).
V	Fraction of vegetative cover (unitless).
VF	Volatilization factor (m^3/kg).
x	Intermediate value in the calculation of PEF; $x = 0.886 \times (Ut/Um)$.

Table 17. Risk and Hazard Equations for Exposure to Groundwater, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

ROUTE-SPECIFIC RISK/HAZARD:

Oral:

$$ELCR_o \text{ or } HQ_o = \frac{EPCgw \times IRgw \times EF \times ED}{BW \times (AT_C \text{ or } AT_{NC}) \times ([1/CSF_o] \text{ or } RfD_o)}$$

Dermal:

$$ELCR_d \text{ or } HQ_d = \frac{EPCgw \times DA \times SSAgw \times EF \times ED}{BW \times (AT_C \text{ or } AT_{NC}) \times ([1/CSF_a] \text{ or } RfD_a)}$$

Inorganics:

$$DA\,[0] = \frac{K_p \times ETgw}{1000\ cm^3/L}$$

Organics:

$$DA\,[1] = \frac{2\,FA \times K_p}{1000\ cm^3/L} \times \sqrt{(6\,\tau \times ETgw)/\pi} \quad \text{if } ETgw \le t^*$$

or

$$DA\,[2] = \frac{FA \times K_p}{1000\ cm^3/L} \times \left(\frac{ETgw}{1 + B} + \frac{2\,\tau\,(1 + 3\,B + 3\,B^2)}{(1 + B)^2} \right) \quad \text{if } ETgw > t^*$$

Inhalation:

$$ELCR_i \text{ or } HQ_i = \frac{EPC_i \times ET \times CF \times EF \times ED}{(VF) \times (AT_C \text{ or } AT_{NC}) \times ([1/IUR] \text{ or } RfC)}$$

TOTAL CANCER RISK: $ELCR = ELCR_o + ELCR_d + ELCR_i$

TOTAL NON-CANCER HAZARD: $HI = HQ_o + HQ_d + HQ_i$

Variable Definitions:

τ	Lag time for dermal absorption through the skin (hour) (Table 12).
AT_C	Averaging time for cancer effects (days) (Table 13 and Table 14).
AT_{NC}	Averaging time for non-cancer effects (days) (Table 13 and Table 14).
B	Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (unitless) (Table 12).
BW	Body weight (kg) (Table 13 and Table 14).
CF	Conversion Factor 0.042 day/hour.
CSF	Cancer slope factor for oral (CSFo) or dermal (adjusted to an absorbed dose, CSFa) exposure (kg-day/mg [inverse mg/kg/day]) (Table 10).
DA	Dermal absorption factor (L/cm²/day), calculated using Equation [0], [1], or [2], as appropriate.
ED	Exposure duration (years) (Table 13 and Table 14).
EF	Exposure frequency (days/year) (Table 13 and Table 14).
ELCR	Excess lifetime cancer risk (unitless).
EPCgw	Exposure point concentration in groundwater (mg/L)
ETgw	Exposure time for groundwater contact (hours/day) (Table 13 and Table 14).
FA	Fraction of absorbed water (unitless) (Table 12).
HI	Hazard index for non-cancer effects (unitless); sum of the HQs.
HQ	Hazard quotient for non-cancer effects (unitless).
IRgw	Ingestion rate of groundwater (L/day) (Table 13 and Table 14).
IUR	Inhalation Unit Risk (m³/mg) (Table 11).
Kp	Permeability coefficient (cm/hour) (Table 12).
RfC	Reference concentration (mg/m³) (Table 9).
RfD	Reference dose for oral (RfDo) and dermal (adjusted to an absorbed dose, RfDa), exposure (mg/kg/day).
SSAgw	Exposed skin surface area for groundwater contact (cm²) (Table 13 and Table 14).
t*	Time required to reach steady state (hour) (Table 12).
VF	Volatilization factor.

Table 18. Risk and Hazard Equations for Wadding Exposure to Surface Water, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

ROUTE-SPECIFIC RISK/HAZARD:

Oral:

$$ELCR_o \text{ or } HQ_o = \frac{EPCsw \times IRsw \times ETsw \times EF \times ED \times ADAF}{BW \times (AT_C \text{ or } AT_{NC}) \times ([1/CSF_o] \text{ or } RfD_o)}$$

Dermal:

$$ELCR_d \text{ or } HQ_d = \frac{EPCsw \times DA \times SSAsw \times EF \times ED \times ADAF}{BW \times (AT_C \text{ or } AT_{NC}) \times ([1/CSF_a] \text{ or } RfD_a)}$$

Inorganics:

$$DA\ [0] = \frac{K_p \times ETsw}{1000\ cm^3/L}$$

Organics:

$$DA\ [1] = \frac{2\ FA \times K_p}{1000\ cm^3/L} \times \sqrt{(6\ \tau \times ETsw) / \pi} \qquad \text{if } ETsw \leq t^*$$

or

$$DA\ [2] = \frac{FA \times K_p}{1000\ cm^3/L} \times \left(\frac{ETsw}{1 + B} + \frac{2\ \tau\ (1 + 3\ B + 3\ B^2)}{(1 + B)^2} \right) \qquad \text{if } ETsw > t^*$$

Inhalation:

$$ELCR_i \text{ or } HQ_i = \frac{EPCsw \times VFsw \times ETsw \times CF \times EF \times ED \times ADAF}{(AT_C \text{ or } AT_{NC}) \times ([1/IUR] \text{ or } RfC)}$$

where:

$$VFsw = \frac{(1000\ L/m^3)}{(1/k_l) + [1/(H_o \times k_g)]} \times \frac{SA}{Hb \times Wb \times Um}$$

(USEPA 1988)

TOTAL CANCER RISK: $ELCR = ELCR_o + ELCR_d + ELCR_i$

TOTAL NON-CANCER HAZARD: $HI = HQ_o + HQ_d + HQ_i$

Variable Definitions:

τ	(tau) Lag time for dermal absorption through the skin (hour) (Table 12).
ADAF	Age-Dependent Adjustment Factor for evaluation of risk from constituents with a mutagenicity mode of action.
AT_C	Averaging time for cancer effects (days) (Table 13 and Table 14).
AT_{NC}	Averaging time for non-cancer effects (days) (Table 13 and Table 14).
B	Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (unitless) (Table 12).
BW	Body weight (kg) (Table 13 and Table 14).
CF	Conversion Factor 0.042 day/hour.
CSF	Cancer slope factor for oral (CSFo) or dermal (adjusted to an absorbed dose, CSFa) exposure (kg-day/mg [inverse mg/kg/day]) (Table 10).
DA	Dermal absorption factor (L/cm²/day), calculated using Equation [0], [1], or [2], as appropriate.
ED	Exposure duration (years) (Table 13 and Table 14).
EF	Exposure frequency (days/year) (Table 13 and Table 14).
ELCR	Excess lifetime cancer risk (unitless).
EPCsw	Exposure point concentration in surface water (mg/L).
ETsw	Exposure time for surface water (hours/day) (Table 13 and Table 14).
FA	Fraction of absorbed water (unitless) (Table 12).
H	Henry's law constant (atm-m³/mol) (Table 15).
Hb	Height of mixing zone (2 m).
HI	Hazard index for non-cancer effects (unitless); sum of the HQs.

Table 18. Risk and Hazard Equations for Wadding Exposure to Surface Water, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

H_o	Dimensionless Henry's law constant (unitless); calculated as $H_o = H/RT$.
HQ	Hazard quotient for non-cancer effects (unitless).
IRsw	Incidental ingestion rate of surface water (L/day) (Table 13 and Table 14).
IUR	Inhalation Unit Risk (m^3/mg) (Table 11).
k_g	Gas-phase mass transfer coefficient (m/sec) ≈ $(8.3 \times 10^{-3}$ m/sec$) \times [(18$ g/mol$)/MW]^{0.335} \times (T/298)^{1.005}$.
k_l	Liquid-phase mass transfer coefficient (m/sec) ≈ $(2.0 \times 10^{-5}$ m/sec$) \times (T/298) \times [(32$ g/mol$)/MW]^{1/2}$.
K_p	Permeability coefficient (cm/hour) (Table 12).
MW	Molecular weight (g/mol) (Table 15).
RfC	Reference concentration (mg/m^3) (Table 9).
RfD	Reference dose for oral (RfDo) and dermal (adjusted to an absorbed dose, RfDa), exposure (mg/kg/day) (Table 8).
RT	Product of the universal gas constant ($R = 8.206 \times 10^{-5}$ atm-m^3/mol/K) and the relevant Kelvin temperature (T = 298.15 K); RT = 0.02447 atm-m^3/mol.
SA	Source area (1 m^2).
SSAgw	Exposed skin surface area for surface water contact (cm^2) (Table 13 and Table 14).
t*	Time required to reach steady state (hour) (Table 12).
Um	Mean wind speed (m/sec).
VFsw	Volatilization factor from surface water (L/m^3).
Wb	Width of mixing zone (1 m).

Table 19. Risk and Hazard Equations for Exposure to Sediment, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

ROUTE-SPECIFIC RISK/HAZARD:

Oral:

$$ELCR_o \text{ or } HQ_o = \frac{EPCsed \times IRsed \times EF \times ED \times ADAF}{(10^6 \text{ mg/kg}) \times BW \times (AT_C \text{ or } AT_{NC}) \times ([1/CSF_o] \text{ or } RfD_o)}$$

Dermal:

$$ELCR_d \text{ or } HQ_d = \frac{EPCsed \times SSAsed \times SedAR \times ABSd \times EF \times ED \times ADAF}{(10^6 \text{ mg/kg}) \times BW \times (AT_C \text{ or } AT_{NC}) \times ([1/CSF_a] \text{ or } RfD_a)}$$

TOTAL CANCER RISK: $ELCR = ELCR_o + ELCR_d$

TOTAL NON-CANCER HAZARD: $HI = HQ_o + HQ_d$

Variable Definitions:

ABSd	Dermal absorption efficiency (unitless) (Table 12).
ADAF	Age-Dependent Adjustment Factor for evaluation of risk from constituents with a mutagenicity mode of action.
AT_C	Averaging time for cancer effects (days) (Table 13 and Table 14).
AT_{NC}	Averaging time for non-cancer effects (days) (Table 13 and Table 14).
BW	Body weight (kg) (Table 13 and Table 14).
CSF	Cancer slope factor for oral (CSFo) or dermal (adjusted to an absorbed dose, CSFa) exposure (kg-day/mg [inverse mg/kg/day]) (Table 10).
ED	Exposure duration (years) (Table 13 and Table 14).
EF	Exposure frequency (days/year) (Table 13 and Table 14).
ELCR	Excess lifetime cancer risk (unitless).
EPCsed	Exposure point concentration in sediment (mg/kg).
HI	Hazard index for non-cancer effects (unitless); sum of the HQs.
HQ	Hazard quotient for non-cancer effects (unitless).
IRsed	Ingestion rate of sediment (mg/day) (Table 13 and Table 14).
RfD	Reference dose for oral (RfDo) and dermal (adjusted to an absorbed dose, RfDa), exposure (mg/kg/day) (Table 8).
SedAR	Sediment-to-skin adherence rate ($mg/cm^2/day$) (Table 13 and Table 14).
SSAsed	Exposed skin surface area for sediment contact (cm^2) (Table 13 and Table 14).

Table 20. Risk and Hazard Equations for Exposure through Fish Ingestion, Revised Phase II Sampling and Analysis Work Plan, Hercules Incorporated, Hattiesburg, Forrest County, Mississippi.

CANCER RISK:

$$\mathrm{ELCR} = \frac{\mathrm{EPCsw} \times \mathrm{BCF} \times \mathrm{IRfish} \times \mathrm{EF} \times \mathrm{ED} \times \mathrm{CSF_o} \times \mathrm{ADAF}}{\mathrm{BW} \times \mathrm{AT_C}}$$

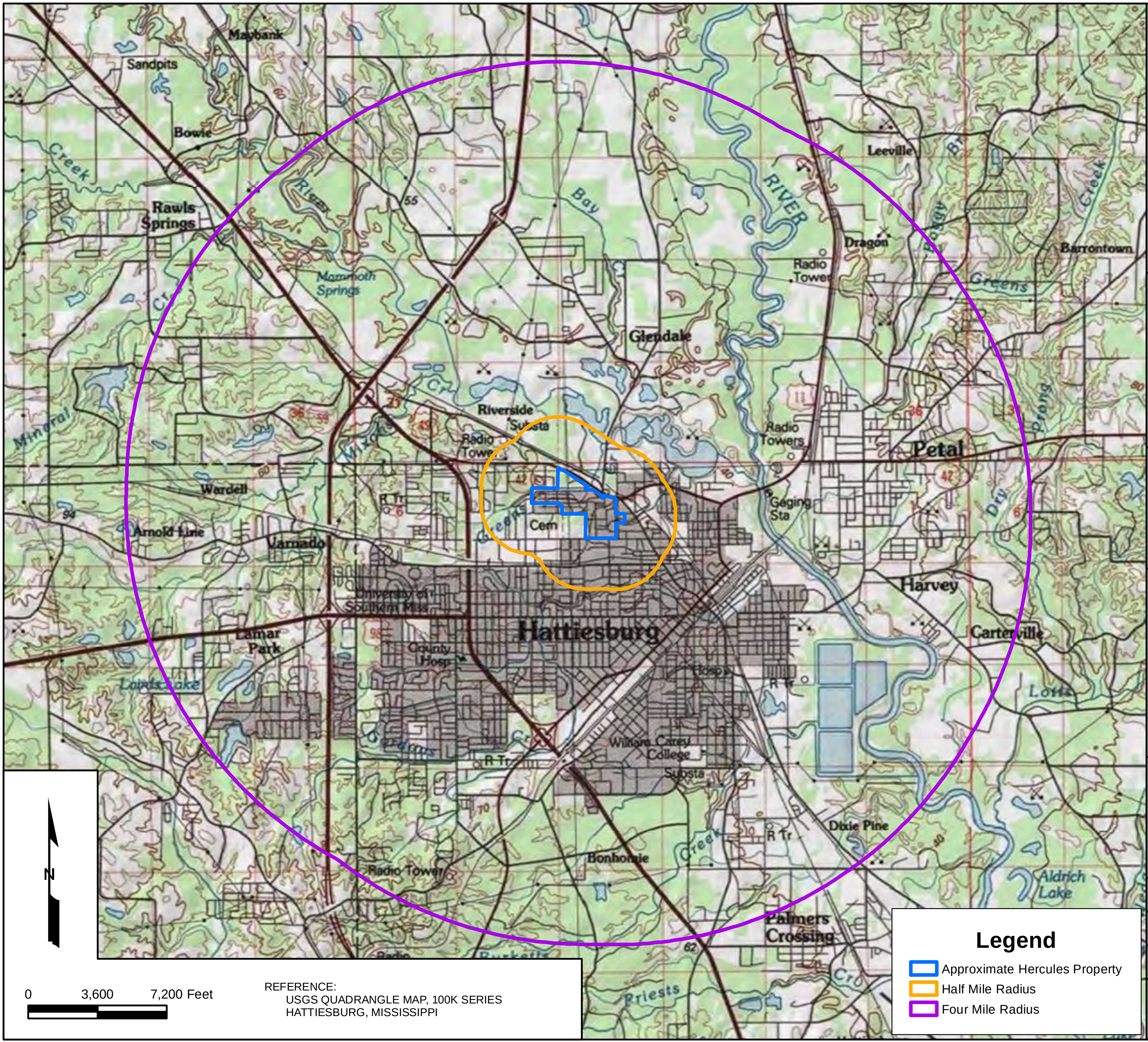
NON-CANCER HAZARD:

$$\mathrm{HQ} = \frac{\mathrm{EPCsw} \times \mathrm{BCF} \times \mathrm{IRfish} \times \mathrm{EF} \times \mathrm{ED} \times \mathrm{ADAF}}{\mathrm{BW} \times \mathrm{AT_{NC}} \times \mathrm{RfD_o}}$$

Variable Definitions:

ADAF	Age-Dependent Adjustment Factor for evaluation of risk from constituents with a mutagenicity mode of action.
AT_C	Averaging time for cancer effects (days) (Table 14).
AT_{NC}	Averaging time for non-cancer effects (days) (Table 14).
BCF	Fish bioconcentration factor (L/kg)
BW	Body weight (kg) (Table 13 and Table 14).
CSF_o	Cancer slope factor for oral exposure (kg-day/mg [inverse mg/kg/day]) (Table 10).
ED	Exposure duration (years) (Table 14).
EF	Exposure frequency (days/year) (Table 14).
ELCR	Excess lifetime cancer risk (unitless).
EPCsw	Exposure point concentration in surface water (mg/L).
HQ	Hazard quotient for non-cancer hazard (unitless).
IRfish	Ingestion rate of fish (kg/day).
RfD_o	Reference dose for oral exposure (mg/kg/day).

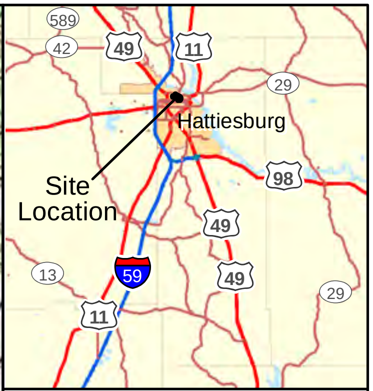
Figures



Legend

- 🟦 Approximate Hercules Property
- 🟧 Half Mile Radius
- 🟪 Four Mile Radius

REFERENCE:
USGS QUADRANGLE MAP, 100K SERIES
HATTIESBURG, MISSISSIPPI



SITE LOCATION MAP

Revised Phase II Sampling and Analysis Work Plan

HERCULES INCORPORATED
Hattiesburg, Mississippi

ARCADIS
10352 PLAZA AMERICANA DRIVE
BATON ROUGE, LA 70816
TEL: 225-292-1004
FAX: 225-218-9677
WWW.ARCADIS-US.COM

PROJECT MANAGER: JE	CHECKED BY: CD
DRAWING FILE:	GIS FILE:
DRAWING BY: SDR	DATE: 04/26/2012
PROJECT NUMBER: LA002999.0006	FIGURE NUMBER: 1

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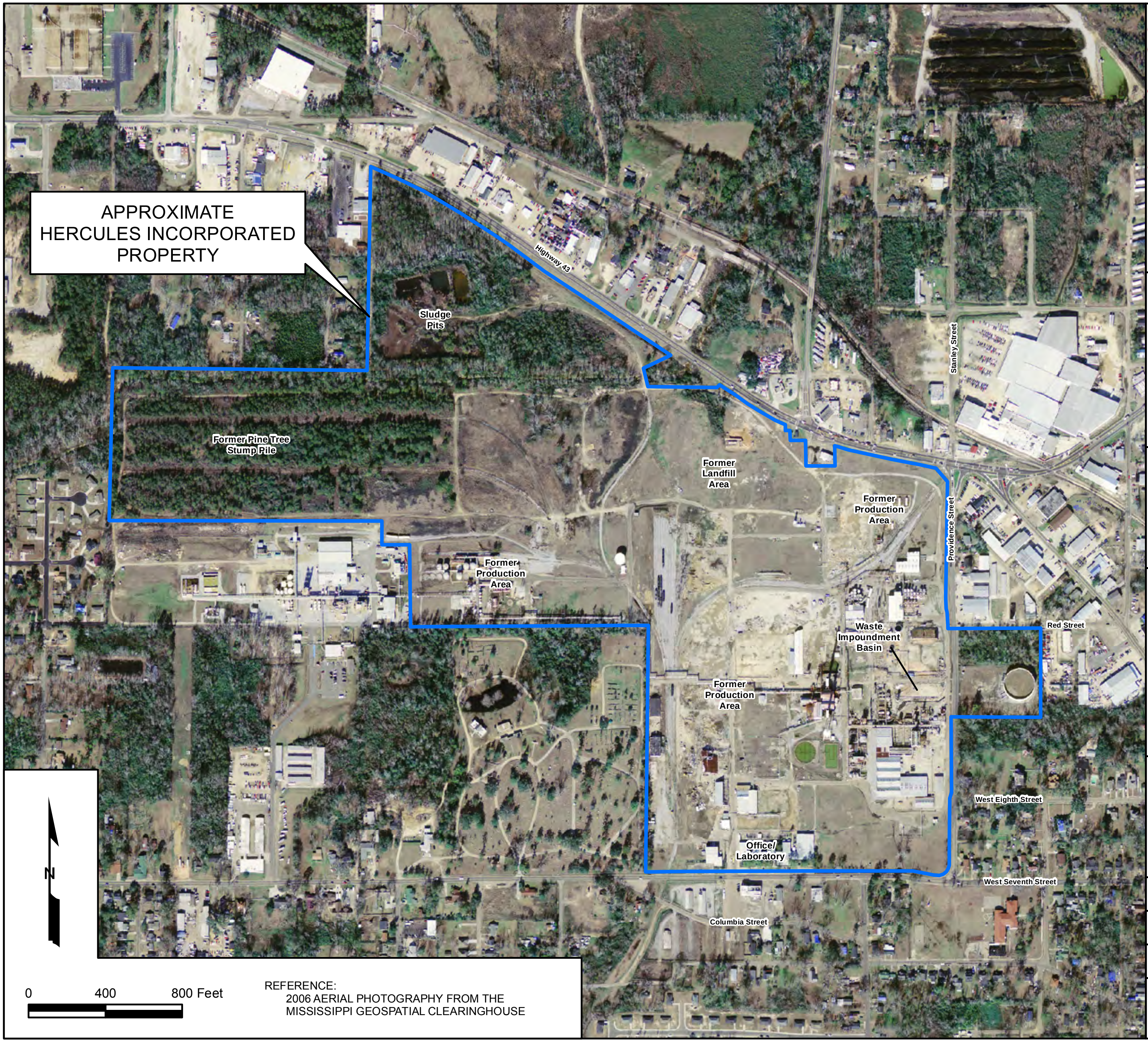
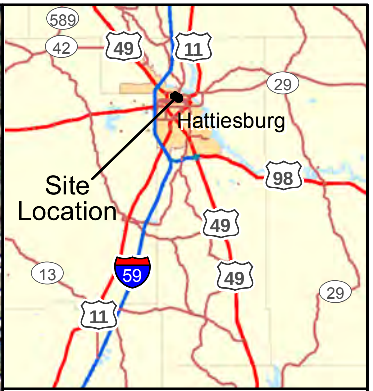


REFERENCE:
2006 AERIAL PHOTOGRAPHY FROM THE
MISSISSIPPI GEOSPATIAL CLEARINGHOUSE



SITE AERIAL MAP

Revised Phase II Sampling and Analysis Work Plan

HERCULES INCORPORATED
613 W. 7th Street
Hattiesburg, Mississippi

ARCADIS
10352 PLAZA AMERICANA DRIVE
BATON ROUGE, LA 70816
TEL: 225-292-1004
FAX: 225-218-9677
WWW.ARCADIS-US.COM

PROJECT MANAGER: GHC	CHECKED BY: CD
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DRAWING BY: SDR	DATE: 04/26/2012
PROJECT NUMBER: LA002999.0006	FIGURE NUMBER: 2

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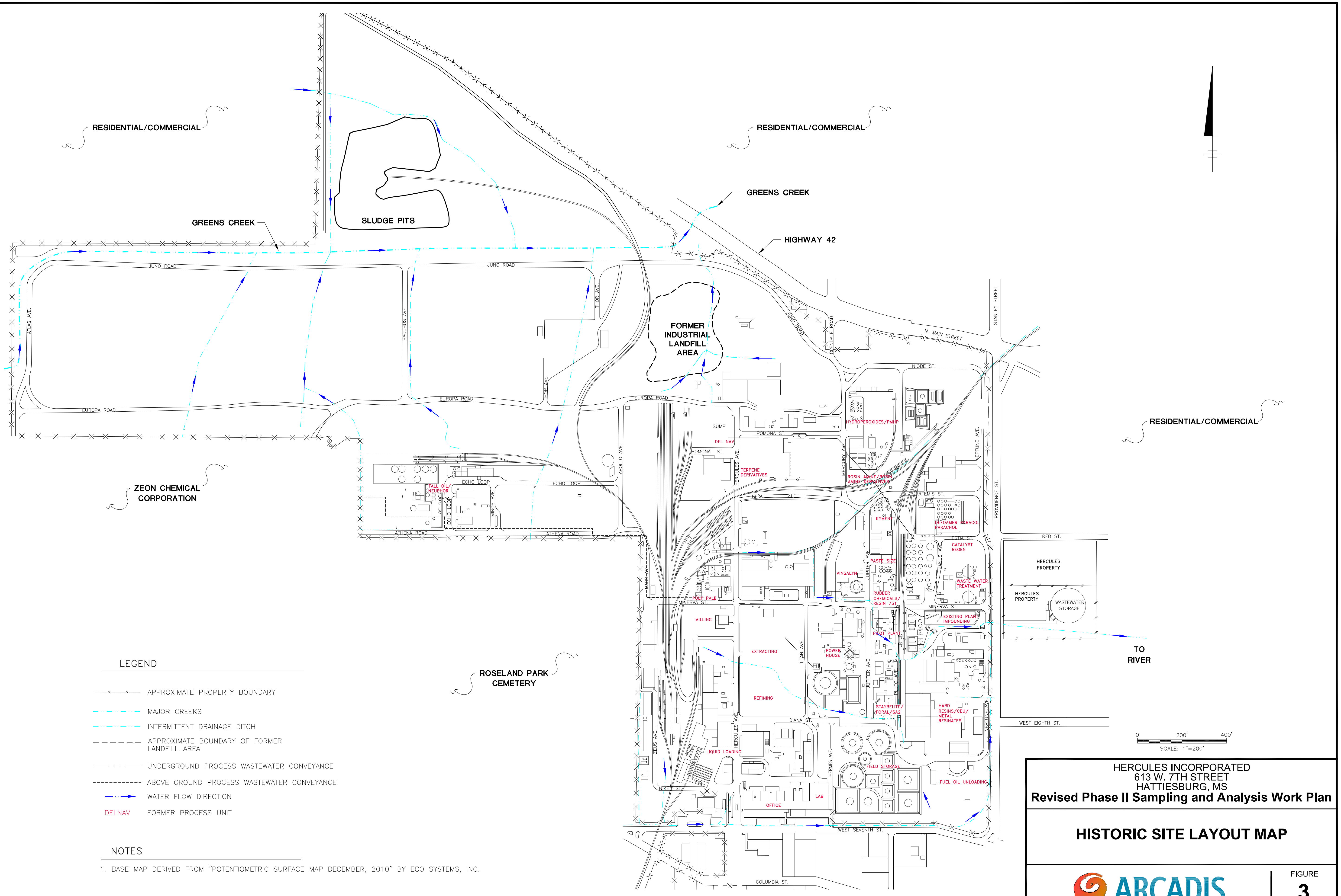

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- MAJOR CREEKS
- INTERMITTENT DRAINAGE DITCH
- APPROXIMATE BOUNDARY OF FORMER LANDFILL AREA
- UNDERGROUND PROCESS WASTEWATER CONVEYANCE
- ABOVE GROUND PROCESS WASTEWATER CONVEYANCE
- WATER FLOW DIRECTION
- DELNAV FORMER PROCESS UNIT

NOTES

1. BASE MAP DERIVED FROM "POTENTIOMETRIC SURFACE MAP DECEMBER, 2010" BY ECO SYSTEMS, INC.

HERCULES INCORPORATED
613 W. 7TH STREET
HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

HISTORIC SITE LAYOUT MAP

ARCADIS

FIGURE
3

DB: R. PETRIE S. BELL LD: SOTHON MEN PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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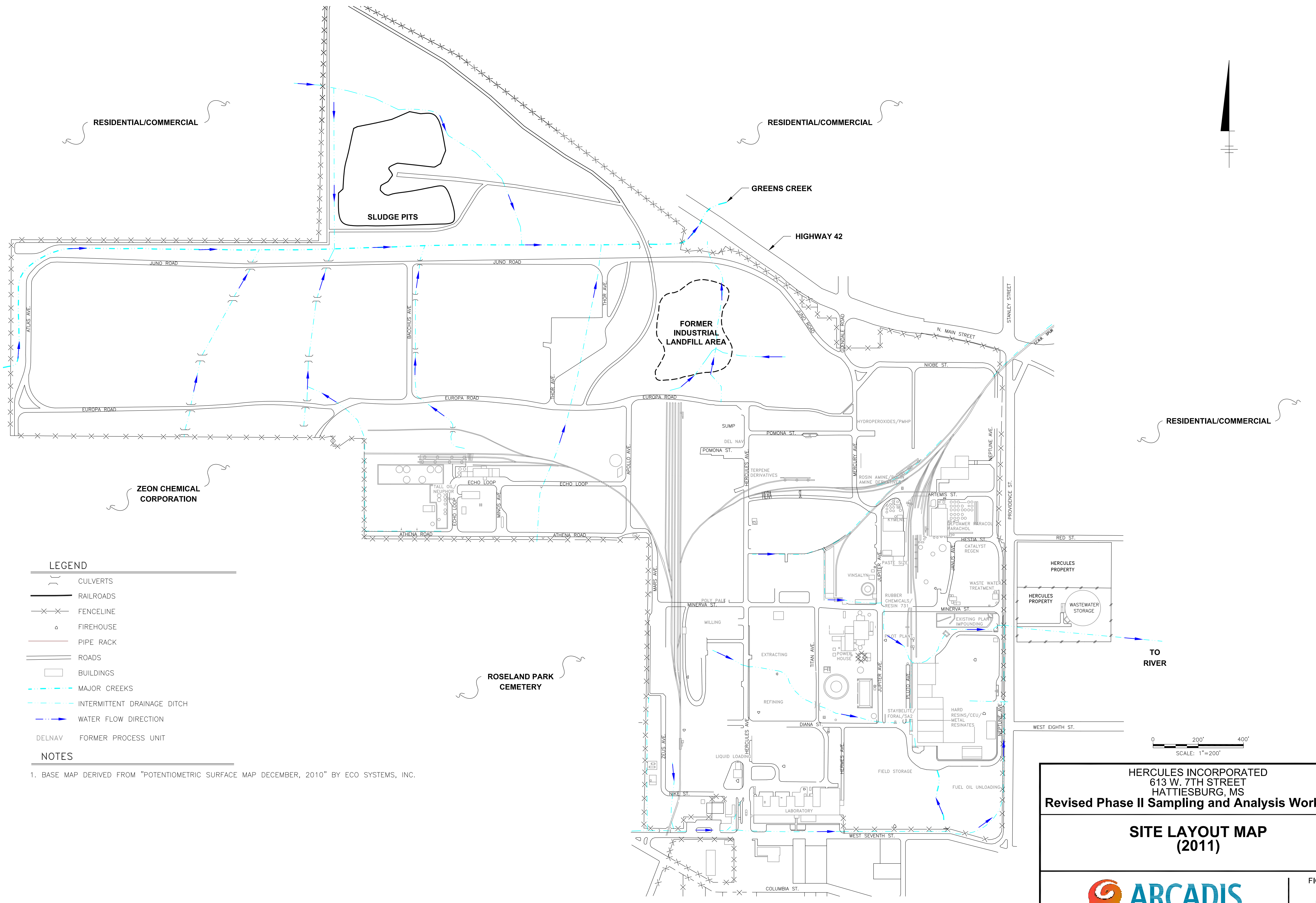

LEGEND

⌒	CULVERTS
━	RAILROADS
—×—×—	FENCELINE
⌂	FIREHOUSE
—	PIPE RACK
═	ROADS
▭	BUILDINGS
-·-·-	MAJOR CREEKS
- - -	INTERMITTENT DRAINAGE DITCH
-·→	WATER FLOW DIRECTION
DELNAV	FORMER PROCESS UNIT

NOTES

1. BASE MAP DERIVED FROM "POTENTIOMETRIC SURFACE MAP DECEMBER, 2010" BY ECO SYSTEMS, INC.

HERCULES INCORPORATED
613 W. 7TH STREET
HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

SITE LAYOUT MAP (2011)

ARCADIS

FIGURE
4

DB: R. PETRIE S. BELL LD: SOTHON MEN PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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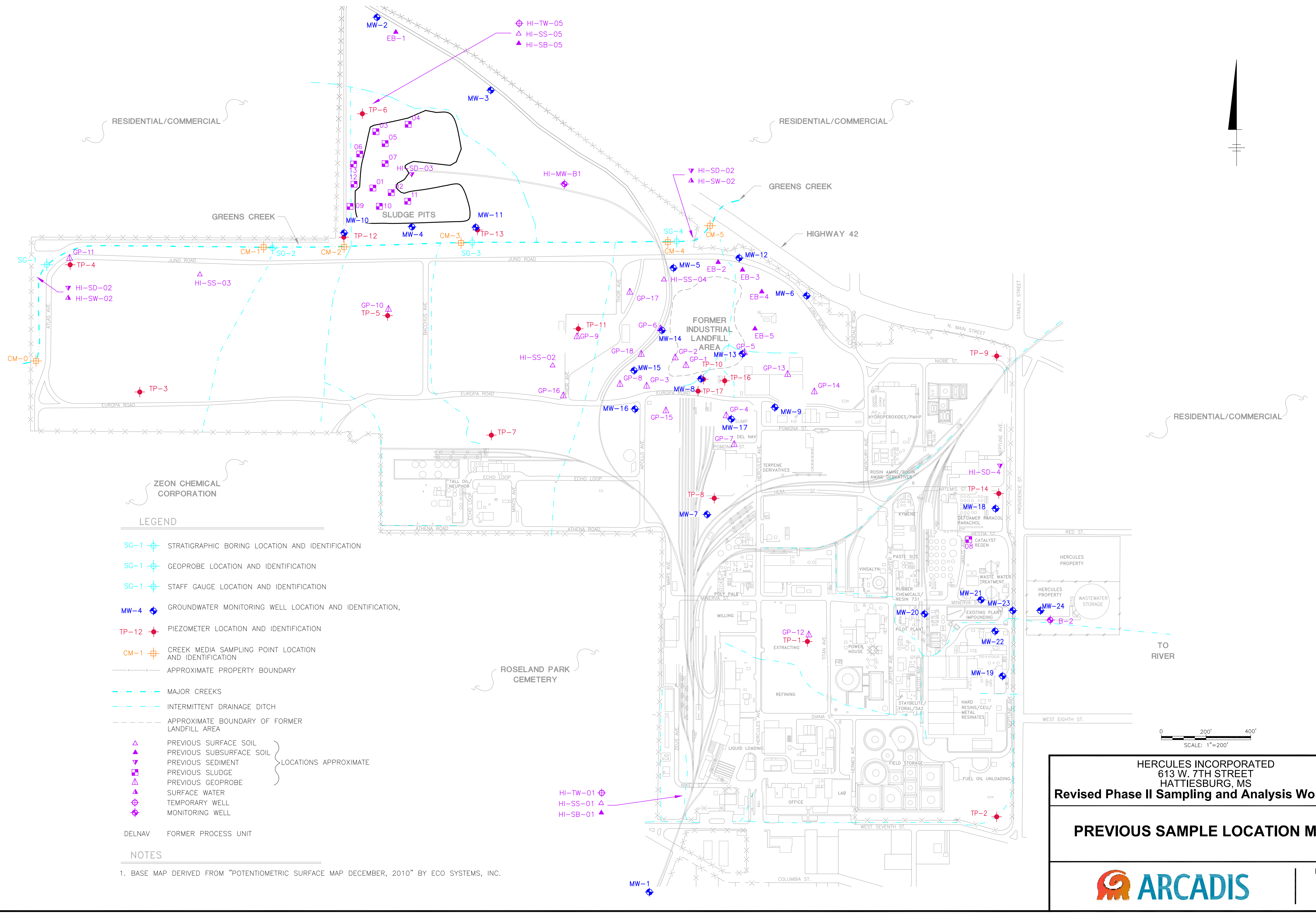

LEGEND

SG-1 ⌖ STRATIGRAPHIC BORING LOCATION AND IDENTIFICATION

SG-1 ⌖ GEOPROBE LOCATION AND IDENTIFICATION

SG-1 ⌖ STAFF GAUGE LOCATION AND IDENTIFICATION

MW-4 ⌖ GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION,

TP-12 ⌖ PIEZOMETER LOCATION AND IDENTIFICATION

CM-1 ⌖ CREEK MEDIA SAMPLING POINT LOCATION AND IDENTIFICATION

APPROXIMATE PROPERTY BOUNDARY

MAJOR CREEKS

INTERMITTENT DRAINAGE DITCH

APPROXIMATE BOUNDARY OF FORMER LANDFILL AREA

△ PREVIOUS SURFACE SOIL
▲ PREVIOUS SUBSURFACE SOIL
▼ PREVIOUS SEDIMENT
▚ PREVIOUS SLUDGE
⚠ PREVIOUS GEOPROBE
LOCATIONS APPROXIMATE
▲ SURFACE WATER
⊕ TEMPORARY WELL
⊕ MONITORING WELL

DELNAV FORMER PROCESS UNIT

NOTES

1. BASE MAP DERIVED FROM "POTENTIOMETRIC SURFACE MAP DECEMBER, 2010" BY ECO SYSTEMS, INC.

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Revised Phase II Sampling and Analysis Work Plan

PREVIOUS SAMPLE LOCATION MAP

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FIGURE
5

DB: R. PETRIE S. BELL LD: SOTHON MEN PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF* G:\ENVCAD\SYRACUSE\ACT\LA002999\0006\0302A\DWG\02999B05.dwg LAYOUT: 5 SAVED: 4/26/2012 11:15 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 4/26/2012 11:25 AM BY: PETRIE, RICH
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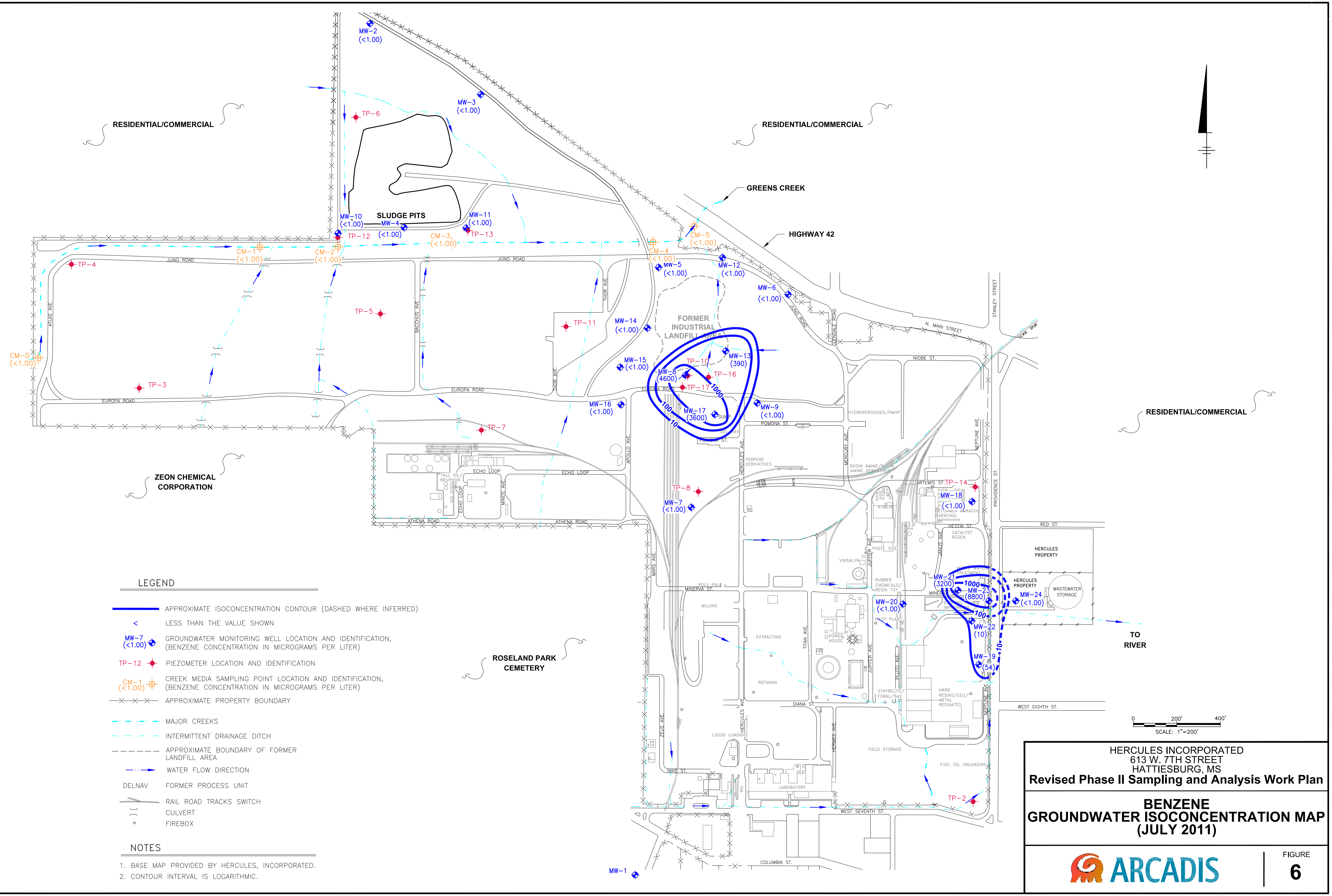

LEGEND

▬	APPROXIMATE ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)
<	LESS THAN THE VALUE SHOWN
MW-7 (<1.00) ⊕	GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION. (BENZENE CONCENTRATION IN MICROGRAMS PER LITER)
TP-12 ⊕	PIEZOMETER LOCATION AND IDENTIFICATION
CM-1 (<1.00) ⊕	CREEK MEDIA SAMPLING POINT LOCATION AND IDENTIFICATION. (BENZENE CONCENTRATION IN MICROGRAMS PER LITER)
—×—×—	APPROXIMATE PROPERTY BOUNDARY
—·—·—	MAJOR CREEKS
— — —	INTERMITTENT DRAINAGE DITCH
— — —	APPROXIMATE BOUNDARY OF FORMER LANDFILL AREA
·—→	WATER FLOW DIRECTION
DELNAV	FORMER PROCESS UNIT
⟋	RAIL ROAD TRACKS SWITCH
⟆	CULVERT
○	FIREBOX

NOTES

1. BASE MAP PROVIDED BY HERCULES, INCORPORATED.
2. CONTOUR INTERVAL IS LOGARITHMIC.

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613 W. 7TH STREET
HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

BENZENE GROUNDWATER ISOCONCENTRATION MAP (JULY 2011)

ARCADIS

FIGURE
6

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: R. PETRIE S. BELL LD: S. MEN PIC: J. REID PM: J. ELLIS TM: H. ENGLISH LYR:(Opt)ON=*;OFF=*REF*
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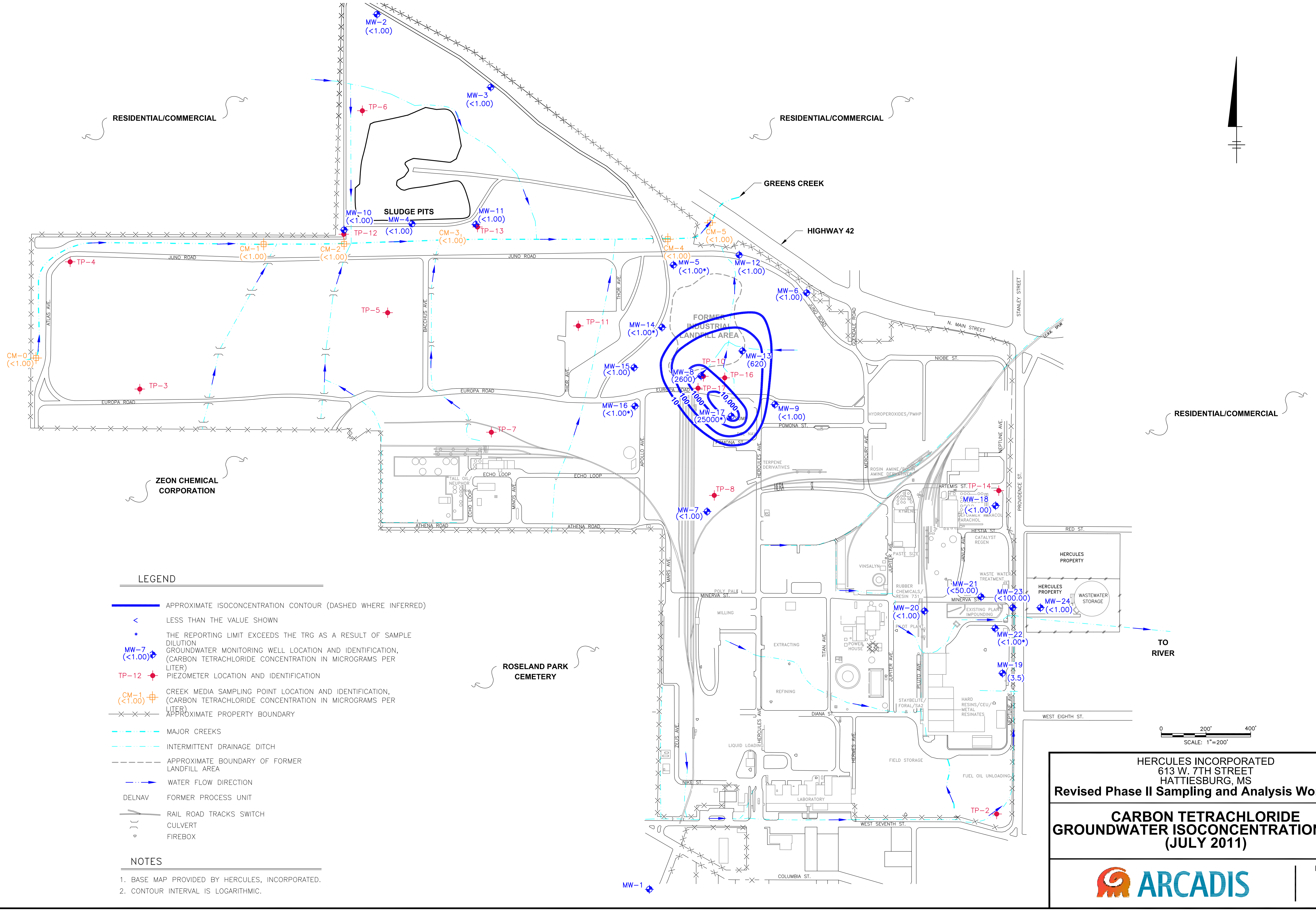

LEGEND

▬	APPROXIMATE ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)
<	LESS THAN THE VALUE SHOWN
*	THE REPORTING LIMIT EXCEEDS THE TRG AS A RESULT OF SAMPLE DILUTION
MW-7 (<1.00)	GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION, (CARBON TETRACHLORIDE CONCENTRATION IN MICROGRAMS PER LITER)
TP-12	PIEZOMETER LOCATION AND IDENTIFICATION
CM-1 (<1.00)	CREEK MEDIA SAMPLING POINT LOCATION AND IDENTIFICATION, (CARBON TETRACHLORIDE CONCENTRATION IN MICROGRAMS PER LITER)
—X—X—	APPROXIMATE PROPERTY BOUNDARY
— · —	MAJOR CREEKS
— — —	INTERMITTENT DRAINAGE DITCH
- - - -	APPROXIMATE BOUNDARY OF FORMER LANDFILL AREA
→	WATER FLOW DIRECTION
DELNAV	FORMER PROCESS UNIT
	RAIL ROAD TRACKS SWITCH
) (	CULVERT
○	FIREBOX

NOTES

1. BASE MAP PROVIDED BY HERCULES, INCORPORATED.
2. CONTOUR INTERVAL IS LOGARITHMIC.

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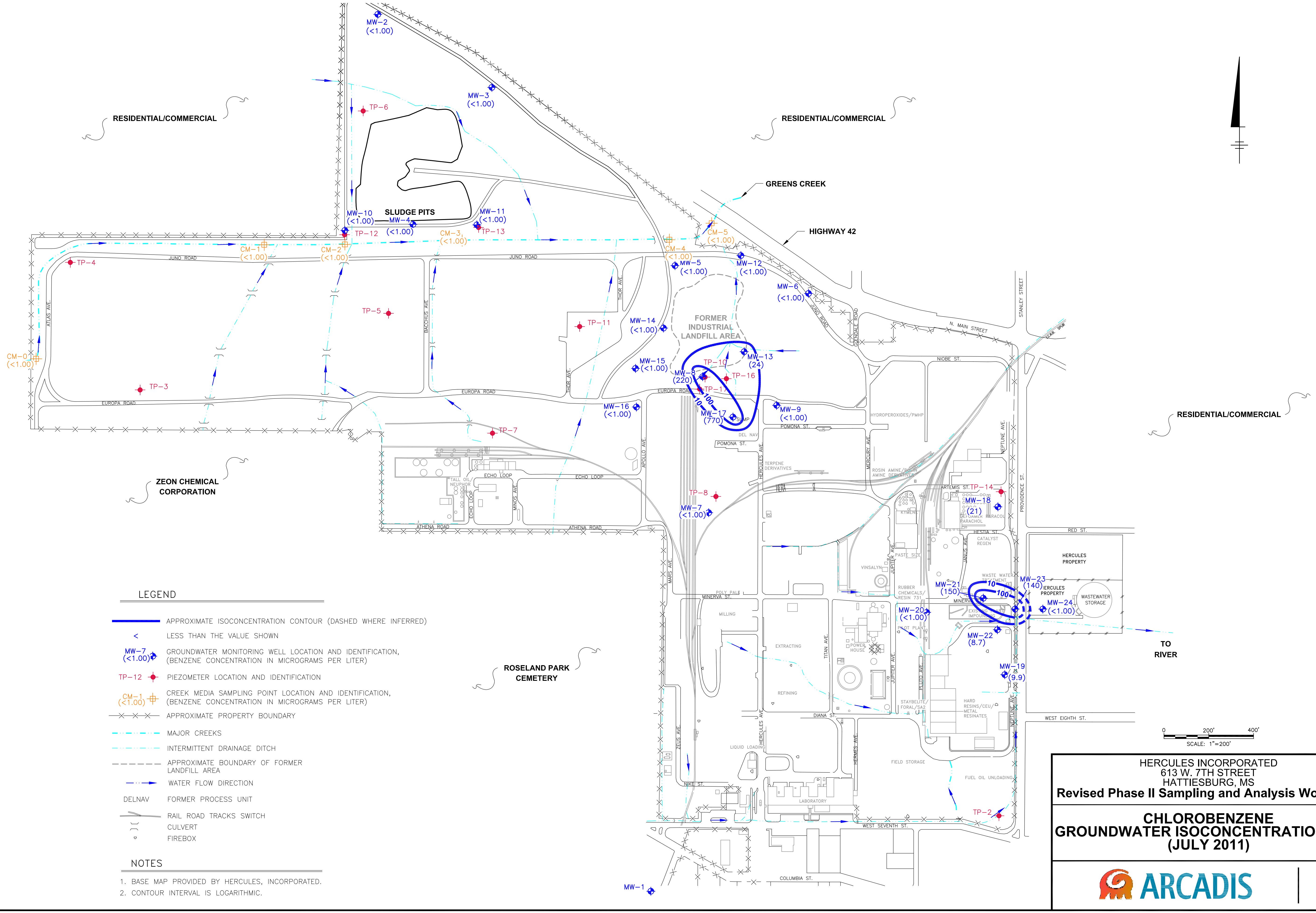
HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

CARBON TETRACHLORIDE GROUNDWATER ISOCONCENTRATION MAP (JULY 2011)

ARCADIS

FIGURE
7



LEGEND

━━━	APPROXIMATE ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)
<	LESS THAN THE VALUE SHOWN
MW–7 (<1.00) ⊕	GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION, (BENZENE CONCENTRATION IN MICROGRAMS PER LITER)
TP–12 ●	PIEZOMETER LOCATION AND IDENTIFICATION
CM–1 (<1.00) ⊞	CREEK MEDIA SAMPLING POINT LOCATION AND IDENTIFICATION, (BENZENE CONCENTRATION IN MICROGRAMS PER LITER)
—×—×—	APPROXIMATE PROPERTY BOUNDARY
—·—·—	MAJOR CREEKS
—··—··—	INTERMITTENT DRAINAGE DITCH
– – – –	APPROXIMATE BOUNDARY OF FORMER LANDFILL AREA
—·—→	WATER FLOW DIRECTION
DELNAV	FORMER PROCESS UNIT
═╱	RAIL ROAD TRACKS SWITCH
)(	CULVERT
◦	FIREBOX

NOTES

1. BASE MAP PROVIDED BY HERCULES, INCORPORATED.
2. CONTOUR INTERVAL IS LOGARITHMIC.

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HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

CHLOROBENZENE GROUNDWATER ISOCONCENTRATION MAP (JULY 2011)

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FIGURE
8

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: R. PETRIE S. BELL LD: S. MEN PIC: J. REID PM: J. ELLIS TM: H. ENGLISH LYR:(Opt)ON=*;OFF=*REF*
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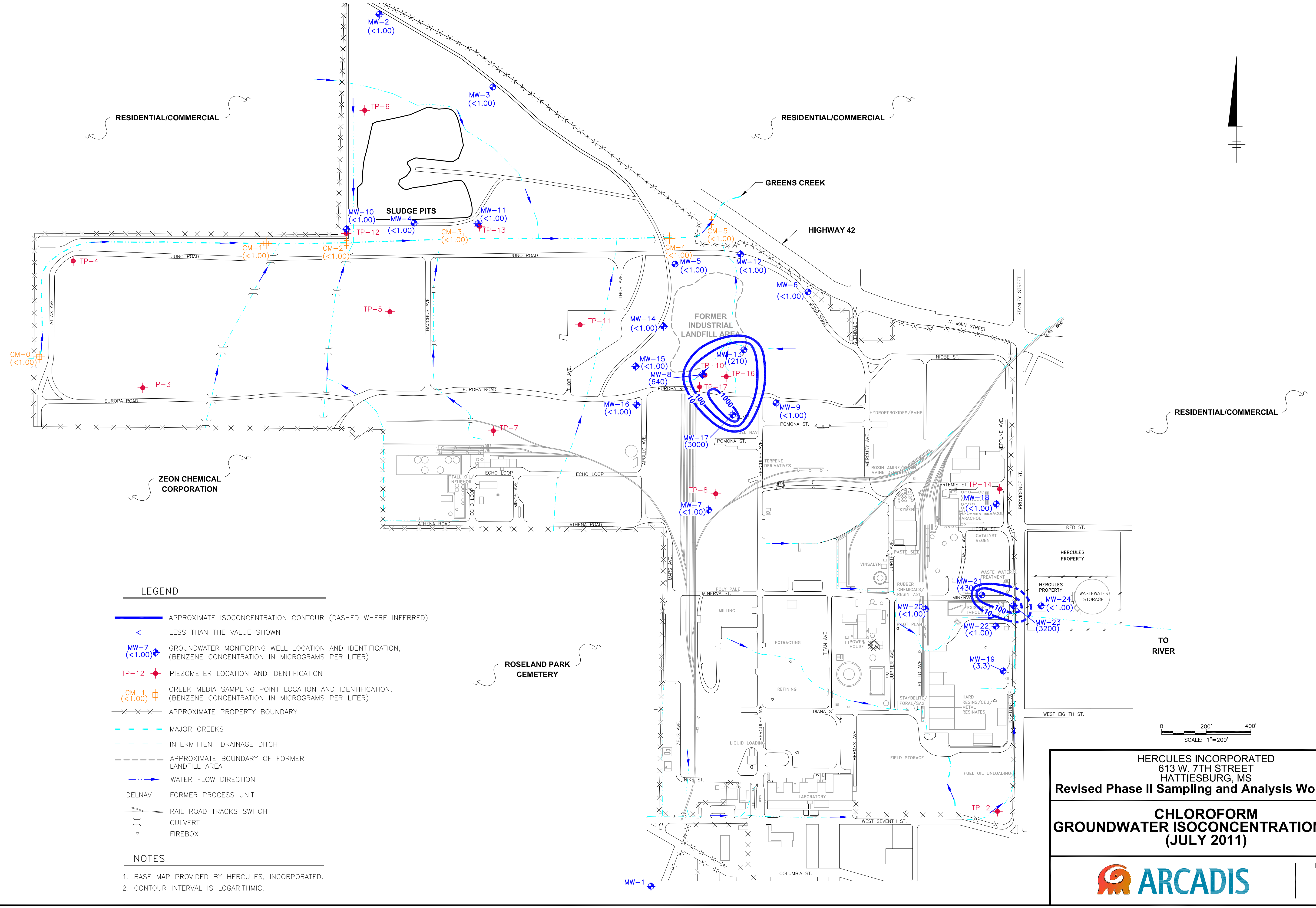

LEGEND

▬	APPROXIMATE ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)
<	LESS THAN THE VALUE SHOWN
MW-7 (<1.00) ⊕	GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION, (BENZENE CONCENTRATION IN MICROGRAMS PER LITER)
TP-12 ⊕	PIEZOMETER LOCATION AND IDENTIFICATION
CM-1 (<1.00) ⊕	CREEK MEDIA SAMPLING POINT LOCATION AND IDENTIFICATION, (BENZENE CONCENTRATION IN MICROGRAMS PER LITER)
—X—X—	APPROXIMATE PROPERTY BOUNDARY
- - -	MAJOR CREEKS
- · -	INTERMITTENT DRAINAGE DITCH
— — —	APPROXIMATE BOUNDARY OF FORMER LANDFILL AREA
- · →	WATER FLOW DIRECTION
DELNAV	FORMER PROCESS UNIT
⟋	RAIL ROAD TRACKS SWITCH
⌣⌢	CULVERT
○	FIREBOX

NOTES

1. BASE MAP PROVIDED BY HERCULES, INCORPORATED.
2. CONTOUR INTERVAL IS LOGARITHMIC.

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613 W. 7TH STREET
HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

CHLOROFORM GROUNDWATER ISOCONCENTRATION MAP (JULY 2011)

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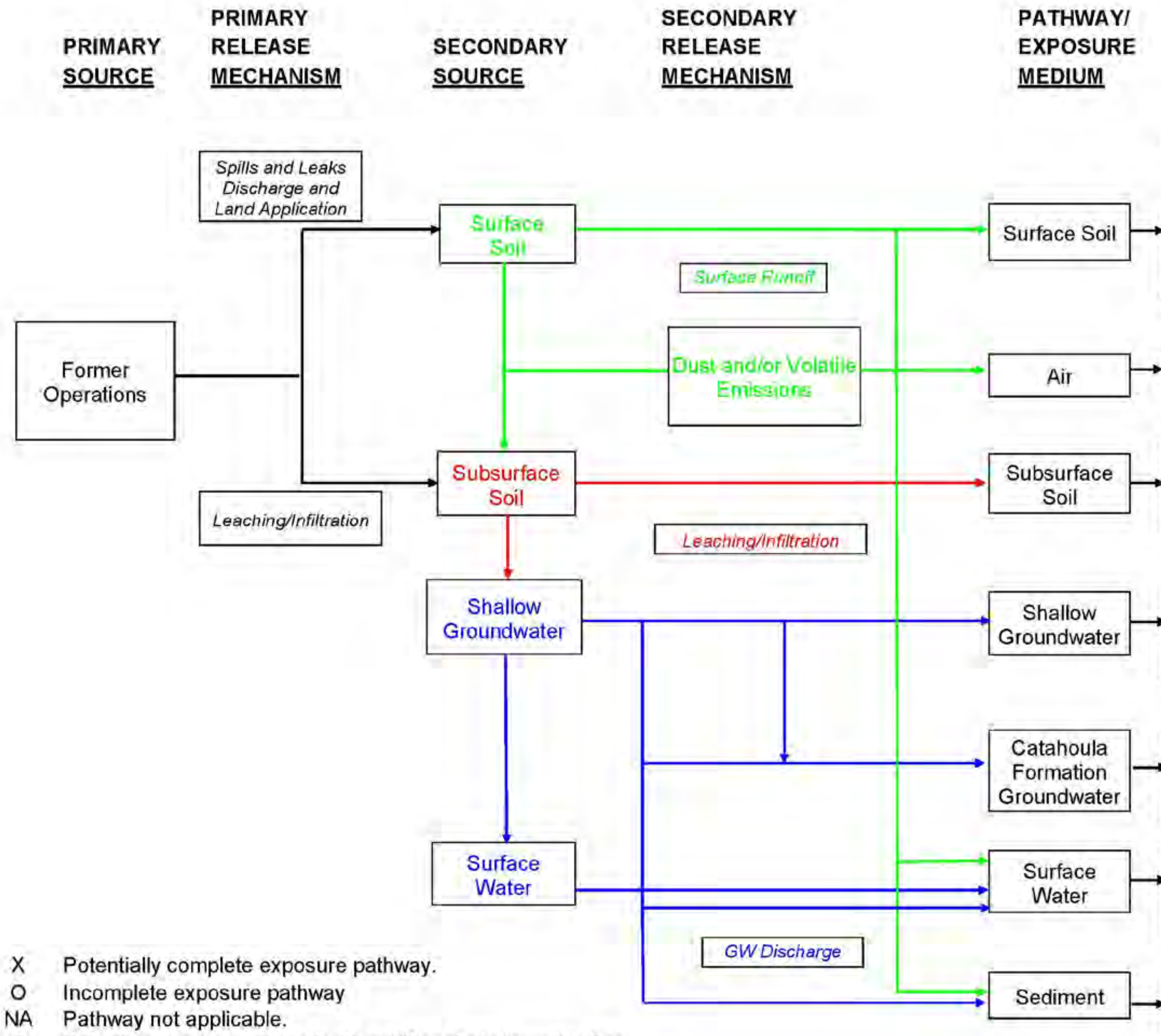
FIGURE
9



PATHWAY/ EXPOSURE MEDIUM	EXPOSURE ROUTE	Current				Hypothetical Future				Biota	
		Site Worker	Tresspasser	Off-site Resident	Utility Worker	Site Worker	Utility Worker	Construction Worker	Off-site Resident	Terrestrial	Aquatic
Surface Soil	Ingestion	X	X	NA	NA	X	NA	NA	NA	X	NA
	Dermal	X	X	NA	NA	X	NA	NA	NA	X	NA
	Inhalation	X	X	NA	NA	X	NA	NA	NA	X	NA
Air	Inhalation	X	X	?	?	X	?	?	?	NA	NA
Subsurface Soil	Ingestion	NA	NA	NA	X	NA	X	X	NA	NA	NA
	Dermal	NA	NA	NA	X	NA	X	X	NA	NA	NA
	Inhalation	NA	NA	NA	X	NA	X	X	NA	NA	NA
Shallow Groundwater	Ingestion	NA	NA	?	NA	NA	NA	NA	?	NA	NA
	Dermal	NA	NA	?	?	NA	?	NA	?	NA	NA
	Inhalation*	NA	NA	?	?	NA	?	NA	?	NA	NA
Catahoula Formation Groundwater	Ingestion	NA	NA	?	NA	NA	NA	NA	?	NA	NA
	Dermal	NA	NA	?	NA	NA	NA	NA	?	NA	NA
	Inhalation	NA	NA	?	NA	NA	NA	NA	?	NA	NA
Surface Water	Ingestion	NA	X	X	NA	X	NA	NA	X	X	X
	Dermal	NA	X	X	NA	X	NA	NA	X	X	X
	Inhalation	NA	X	X	NA	X	NA	NA	X	X	X
Sediment	Ingestion	NA	X	X	NA	X	NA	NA	X	X	X
	Dermal	NA	X	X	NA	X	NA	NA	X	X	X

X	Potentially complete exposure pathway.
O	Incomplete exposure pathway
NA	Pathway not applicable.
?	Data Gap - to be evaluated with additional site investigation.
*	Inhalation of vapors during domestic use and/or via vapor migration

HERCULES INCORPORATED
613 W. 7TH STREET
HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

PRELIMINARY CONCEPTUAL SITE MODEL FOR POTENTIAL EXPOSURE PATHWAYS

ARCADIS

FIGURE
10

DB: R. PETRIE S. BELL LD: SOTHON MEN PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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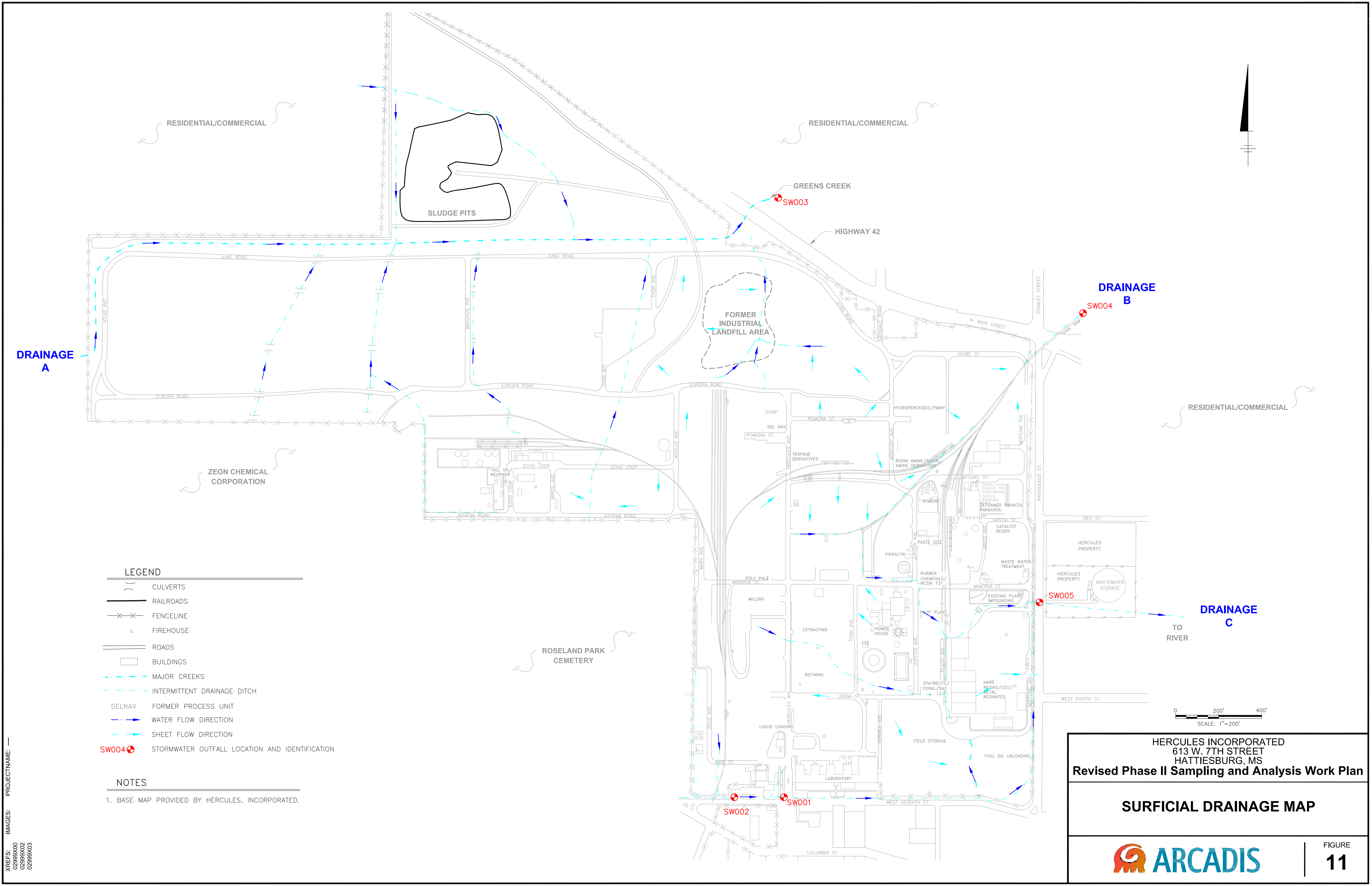

LEGEND

⌒	CULVERTS
━	RAILROADS
—×—×—	FENCELINE
○	FIREHOUSE
═	ROADS
▭	BUILDINGS
-·-·-	MAJOR CREEKS
— — —	INTERMITTENT DRAINAGE DITCH
DELNAV	FORMER PROCESS UNIT
-·-→	WATER FLOW DIRECTION
——→	SHEET FLOW DIRECTION
SW004 ●	STORMWATER OUTFALL LOCATION AND IDENTIFICATION

NOTES

1. BASE MAP PROVIDED BY HERCULES, INCORPORATED.

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Revised Phase II Sampling and Analysis Work Plan

SURFICIAL DRAINAGE MAP

ARCADIS

FIGURE
11

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: R. PETRIE S. BELL LD: S. MEN PIC: J. REID PM: J. ELLIS TM: H. ENGLISH LYR:(Opt)ON=*;OFF=*REF*
G:\APROJECT\Ashland\LA002999.0006\Figures\Revised Phase II\2999-REV-phase2-12.dwg LAYOUT: 3SAVED: 4/27/2012 3:22 PM ACADVER: 17.0S (LMS TECH) PAGESETUP: ----PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 4/27/2012 3:56 PM BY: MEN, SOTHON
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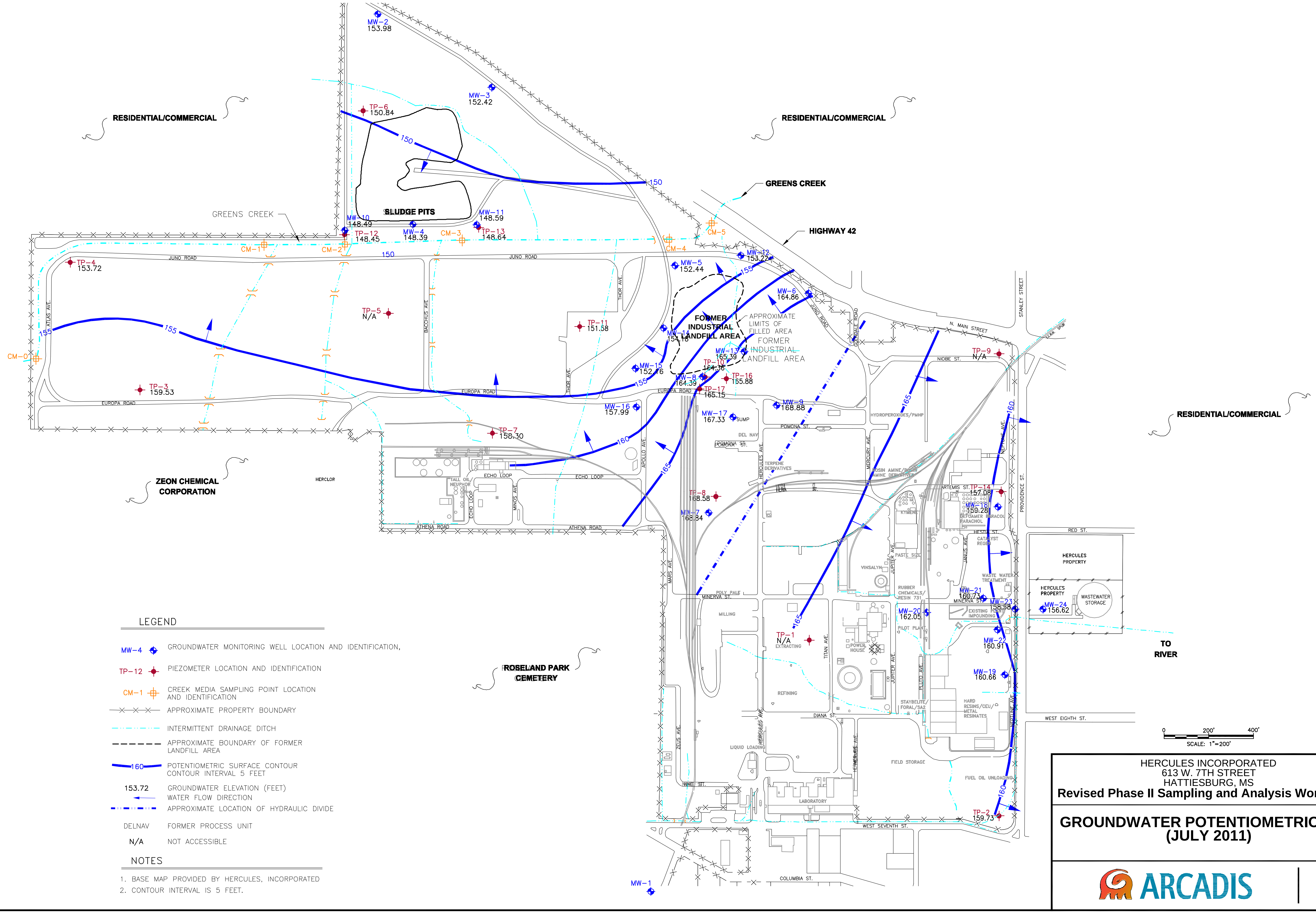

LEGEND

MW−4 ◆	GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION.
TP−12 ✦	PIEZOMETER LOCATION AND IDENTIFICATION
CM−1 ⊕	CREEK MEDIA SAMPLING POINT LOCATION AND IDENTIFICATION
—x—x—	APPROXIMATE PROPERTY BOUNDARY
- - - -	INTERMITTENT DRAINAGE DITCH
— — —	APPROXIMATE BOUNDARY OF FORMER LANDFILL AREA
—160—	POTENTIOMETRIC SURFACE CONTOUR CONTOUR INTERVAL 5 FEET
153.72	GROUNDWATER ELEVATION (FEET)
←	WATER FLOW DIRECTION
−·−·−	APPROXIMATE LOCATION OF HYDRAULIC DIVIDE
DELNAV	FORMER PROCESS UNIT
N/A	NOT ACCESSIBLE

NOTES

1. BASE MAP PROVIDED BY HERCULES, INCORPORATED
2. CONTOUR INTERVAL IS 5 FEET.

HERCULES INCORPORATED
613 W. 7TH STREET
HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

GROUNDWATER POTENTIOMETRIC MAP (JULY 2011)

ARCADIS

FIGURE
12

DB: R. PETRIE S. BELL LD: SOTHON MEN PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\APROJECT\Ashland\LA002999.0006\Figures\Revised Phase II\2999-REV-phase2-13.dwg LAYOUT: 10SAVED: 5/3/2012 9:35 AM ACADVER: 17.0S (LMS TECH) PAGESETUP: ----PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 5/3/2012 9:35 AM BY: MEN, SOTHON
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01-TitleREVp2
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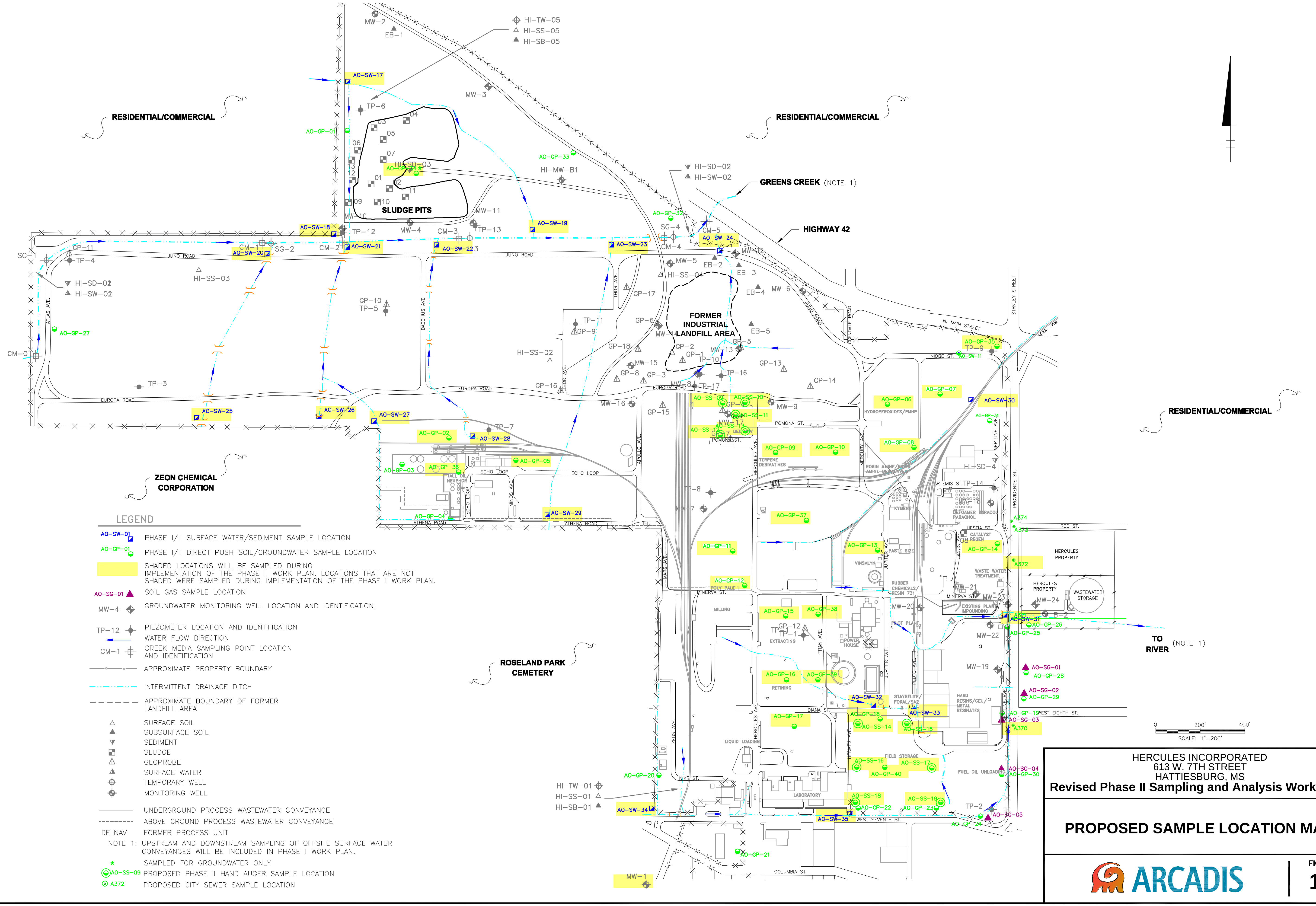


LEGEND

AO-SW-01	PHASE I/II SURFACE WATER/SEDIMENT SAMPLE LOCATION
AO-GP-01	PHASE I/II DIRECT PUSH SOIL/GROUNDWATER SAMPLE LOCATION
🟨	SHADED LOCATIONS WILL BE SAMPLED DURING IMPLEMENTATION OF THE PHASE II WORK PLAN. LOCATIONS THAT ARE NOT SHADED WERE SAMPLED DURING IMPLEMENTATION OF THE PHASE I WORK PLAN.
AO-SG-01 ▲	SOIL GAS SAMPLE LOCATION
MW-4	GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION,
TP-12	PIEZOMETER LOCATION AND IDENTIFICATION
←	WATER FLOW DIRECTION
CM-1	CREEK MEDIA SAMPLING POINT LOCATION AND IDENTIFICATION
—×—×—	APPROXIMATE PROPERTY BOUNDARY
—··—··—	INTERMITTENT DRAINAGE DITCH
— — — —	APPROXIMATE BOUNDARY OF FORMER LANDFILL AREA
△	SURFACE SOIL
▲	SUBSURFACE SOIL
▼	SEDIMENT
▨	SLUDGE
△	GEOPROBE
▲	SURFACE WATER
⊕	TEMPORARY WELL
⊕	MONITORING WELL
———	UNDERGROUND PROCESS WASTEWATER CONVEYANCE
---------	ABOVE GROUND PROCESS WASTEWATER CONVEYANCE
DELNAV	FORMER PROCESS UNIT

NOTE 1: UPSTREAM AND DOWNSTREAM SAMPLING OF OFFSITE SURFACE WATER CONVEYANCES WILL BE INCLUDED IN PHASE I WORK PLAN.

*	SAMPLED FOR GROUNDWATER ONLY
AO-SS-09	PROPOSED PHASE II HAND AUGER SAMPLE LOCATION
⊙ A372	PROPOSED CITY SEWER SAMPLE LOCATION

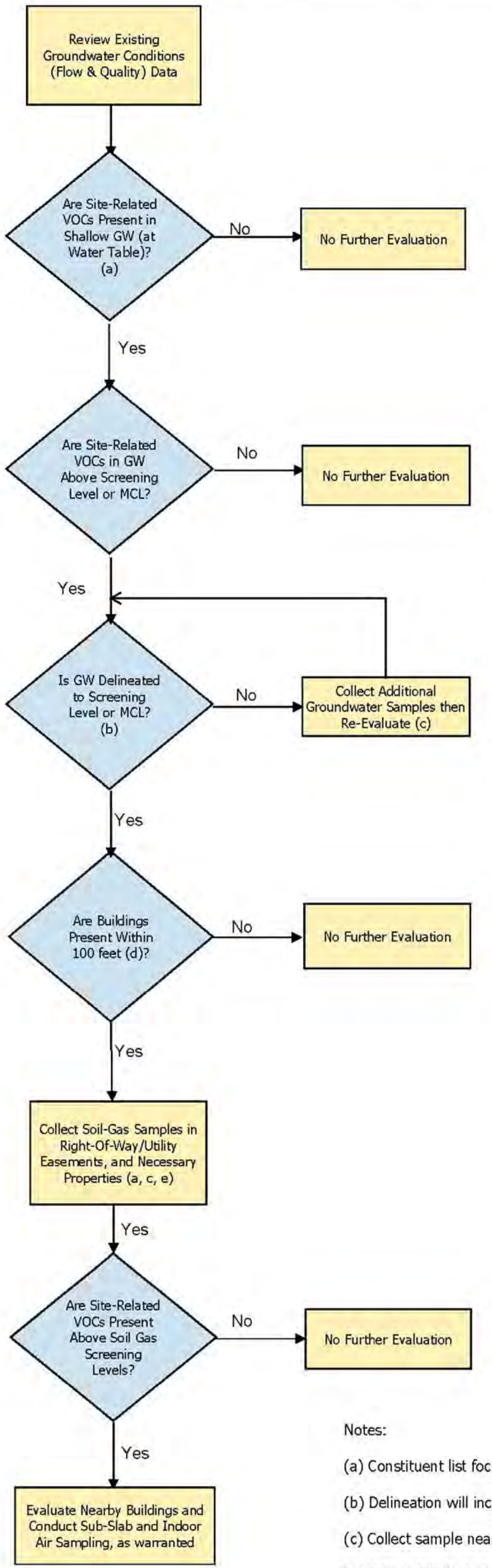
HERCULES INCORPORATED
613 W. 7TH STREET
HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

PROPOSED SAMPLE LOCATION MAP

ARCADIS

FIGURE
13

Decision Flow Chart for Soil Gas and Vapor Intrusion Within and Beyond Half-Mile Radius of Site



Notes:

(a) Constituent list focused on site-related chemicals as approved by USEPA and MEDQ.

(b) Delineation will include evaluation of utility corridors as they may effect COC migration.

(c) Collect sample near the water table.

(d) Within 100 feet of delineated screening level line.

(e) Collect samples in areas of potential concern (right of ways, easements, other properties, etc.).

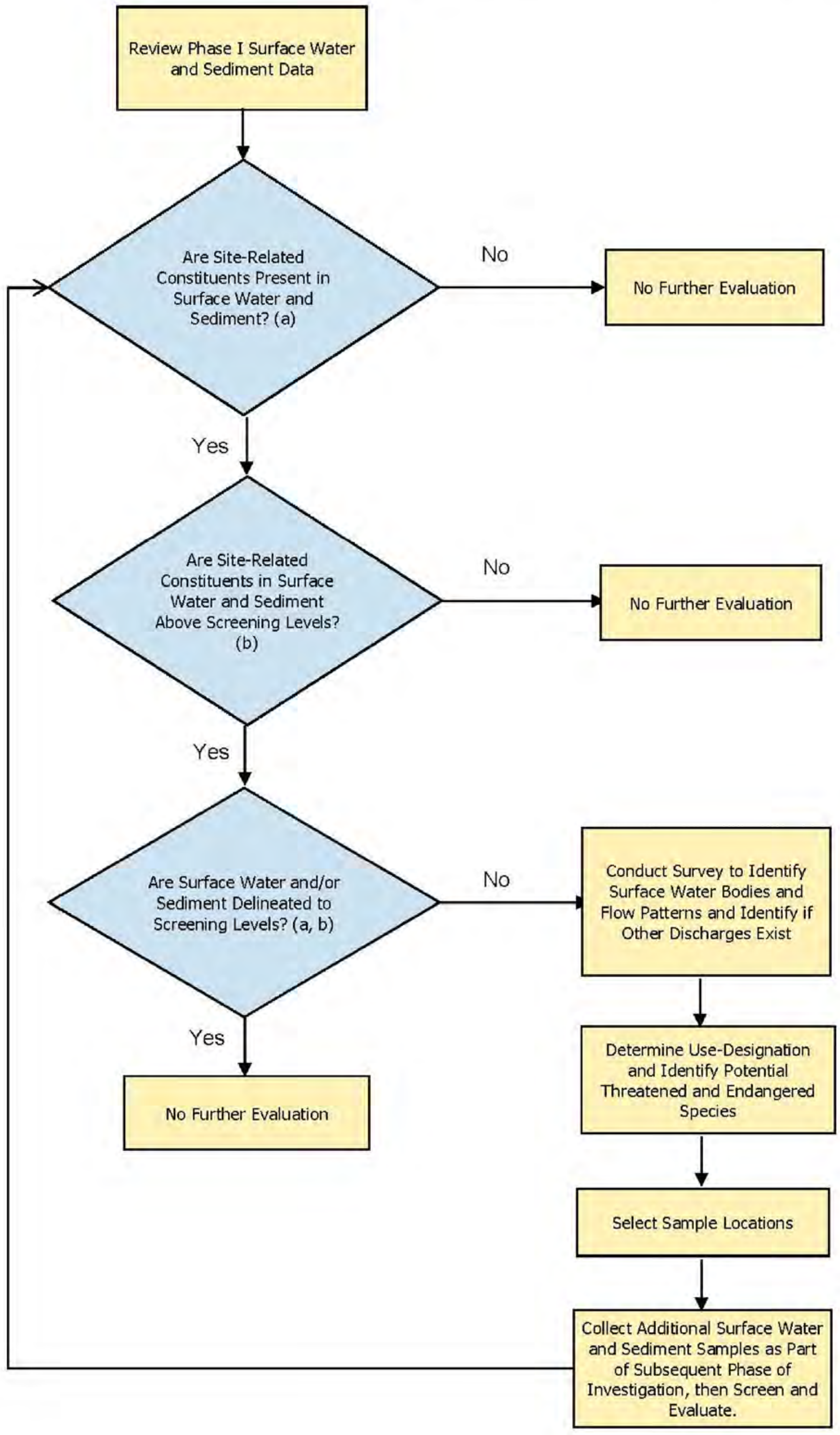
HERCULES INCORPORATED
613 W. 7TH STREET
HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

DECISION FLOW CHART FOR SOIL GAS AND VAPOR INTRUSION

ARCADIS

FIGURE
14

Decision Flow Chart for Surface Water and Sediment for Areas Outside the Half-Mile Radius



Notes:

(a) Constituent list will be approved by EPA and MDEQ prior to sampling and will be focused to site-related chemicals.

(b) Human health and ecological screening levels.

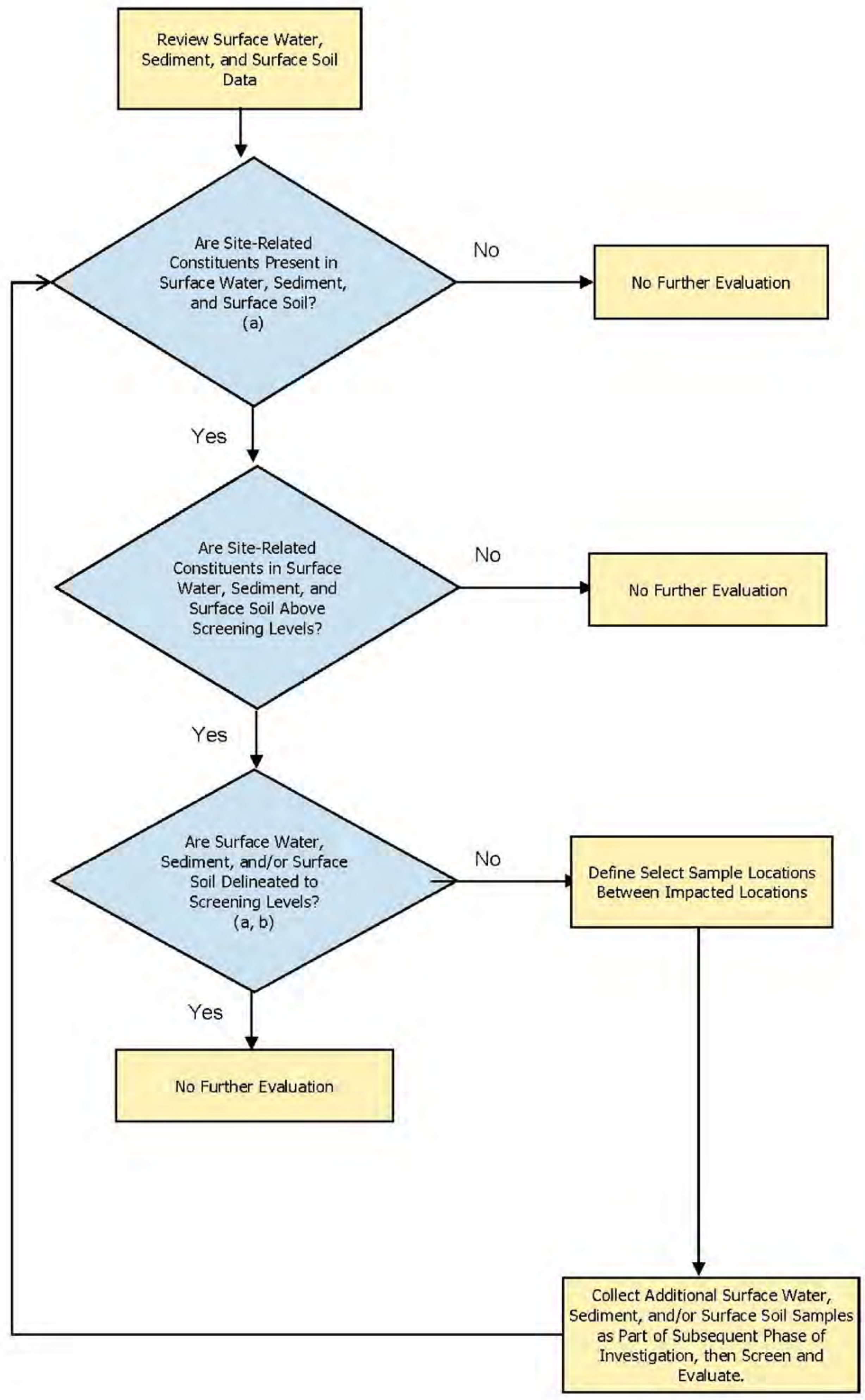
HERCULES INCORPORATED
613 W. 7TH STREET
HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

DECISION FLOW CHART FOR SURFACE WATER, SEDIMENT, AND SURFACE SOIL

ARCADIS

FIGURE
15A

Decision Flow Chart for Surface Water, Sediment, and Surface Soil for On-site Areas



Notes:

(a) Constituent list will be approved by EPA and MDEQ prior to sampling and will be focused to site-related chemicals.

(b) Human health and ecological screening levels for surface water and seidment. EPA Regional Screening Levels and MDEQ Tier 1 TRGs for surface soil.

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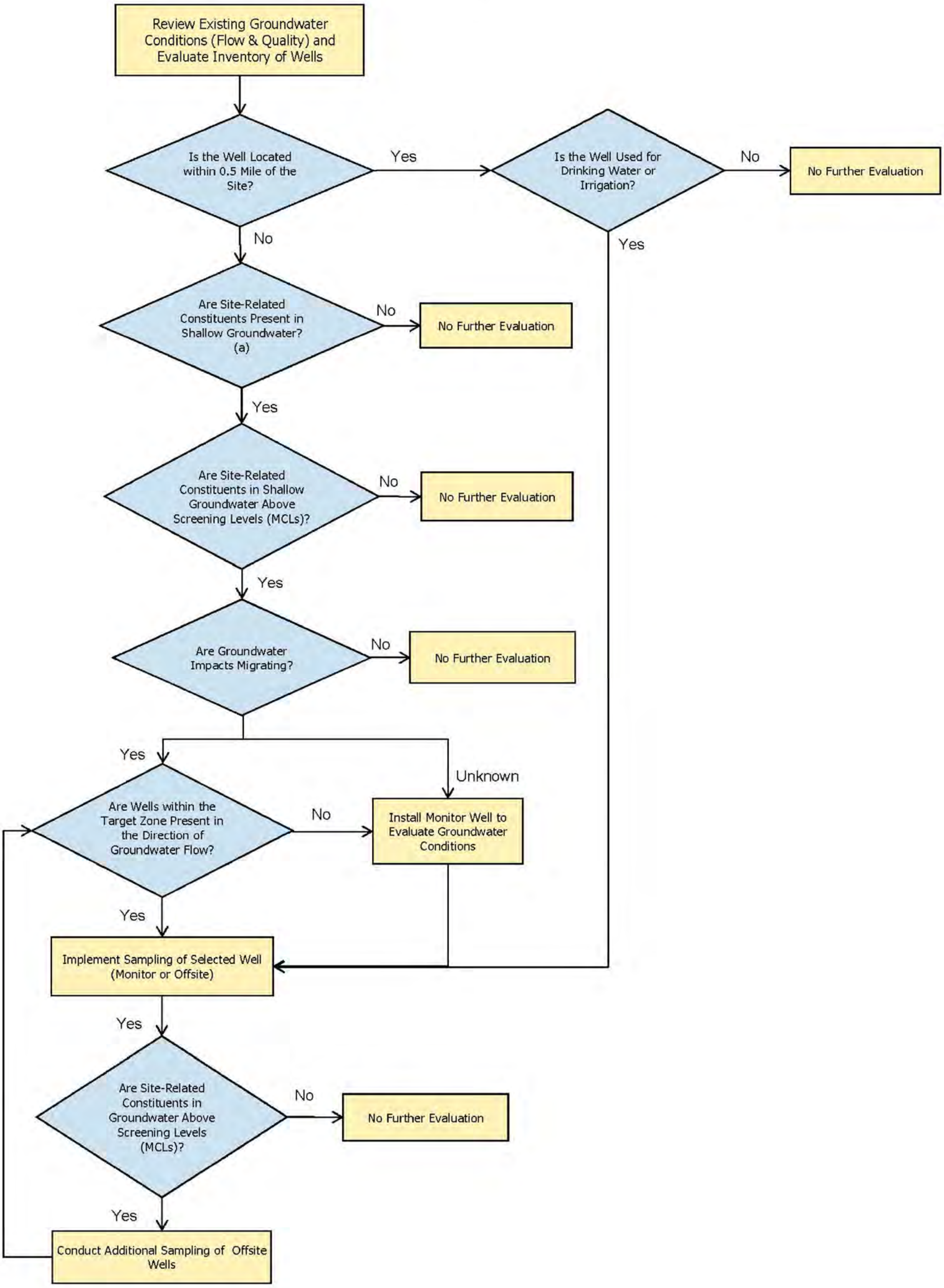
HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

DECISION FLOW CHART FOR SURFACE WATER, SEDIMENT, AND SURFACE SOIL

ARCADIS

FIGURE
15B

Decision Flow Chart for Drinking Water and Groundwater



Notes:

(a) Constituent list should be focused to site-related chemicals.

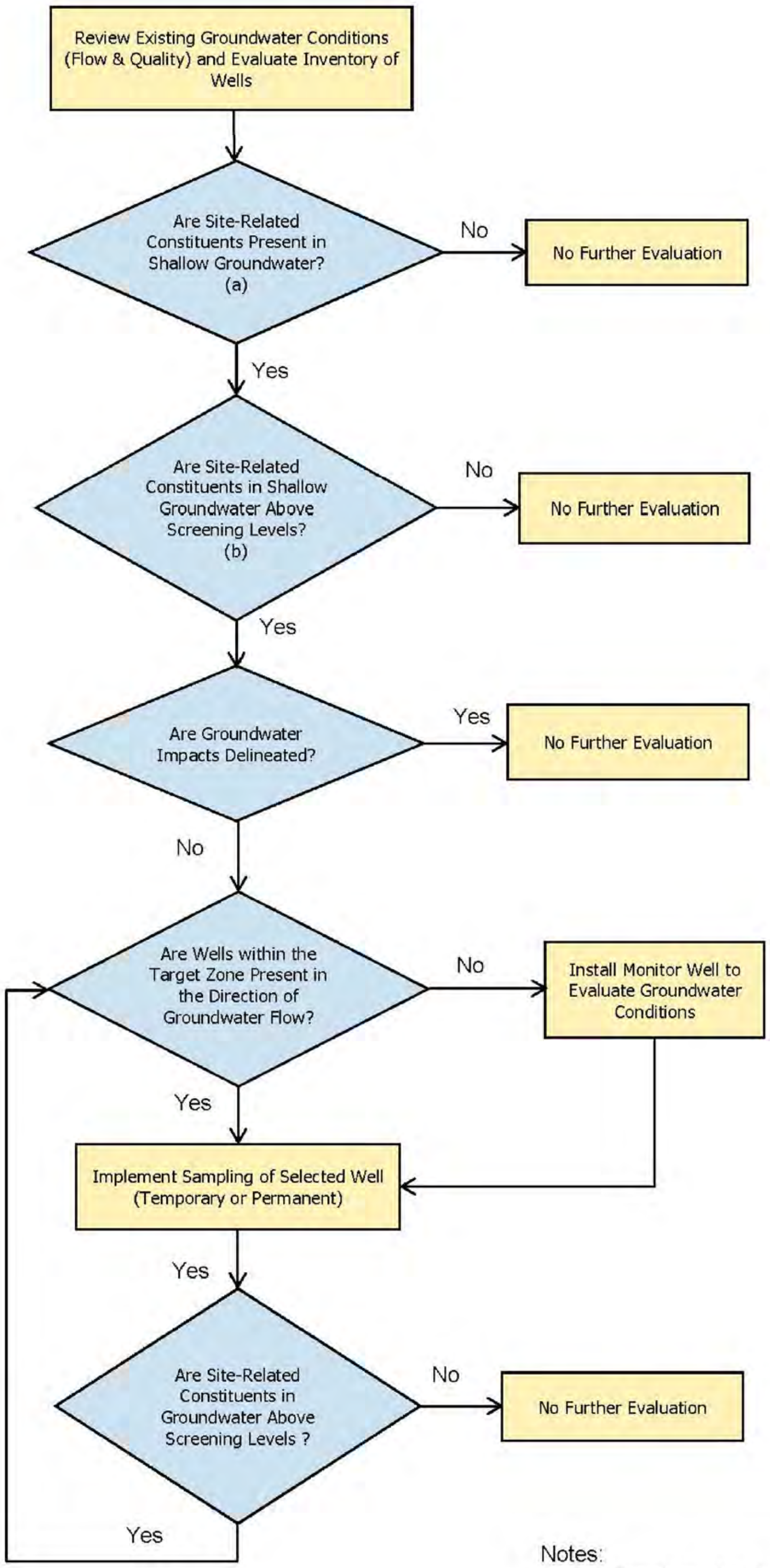
HERCULES INCORPORATED
613 W. 7TH STREET
HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

DECISION FLOW CHART FOR GROUNDWATER

ARCADIS

FIGURE
16A

Decision Flow Chart for On-site Groundwater



Notes:

(a) Constituent list should be focused to site-related chemicals.

(b) EPA Regional Screening Levels and MDEQ Tier 1 TRGs for groundwater.

HERCULES INCORPORATED
613 W. 7TH STREET
HATTIESBURG, MS
Revised Phase II Sampling and Analysis Work Plan

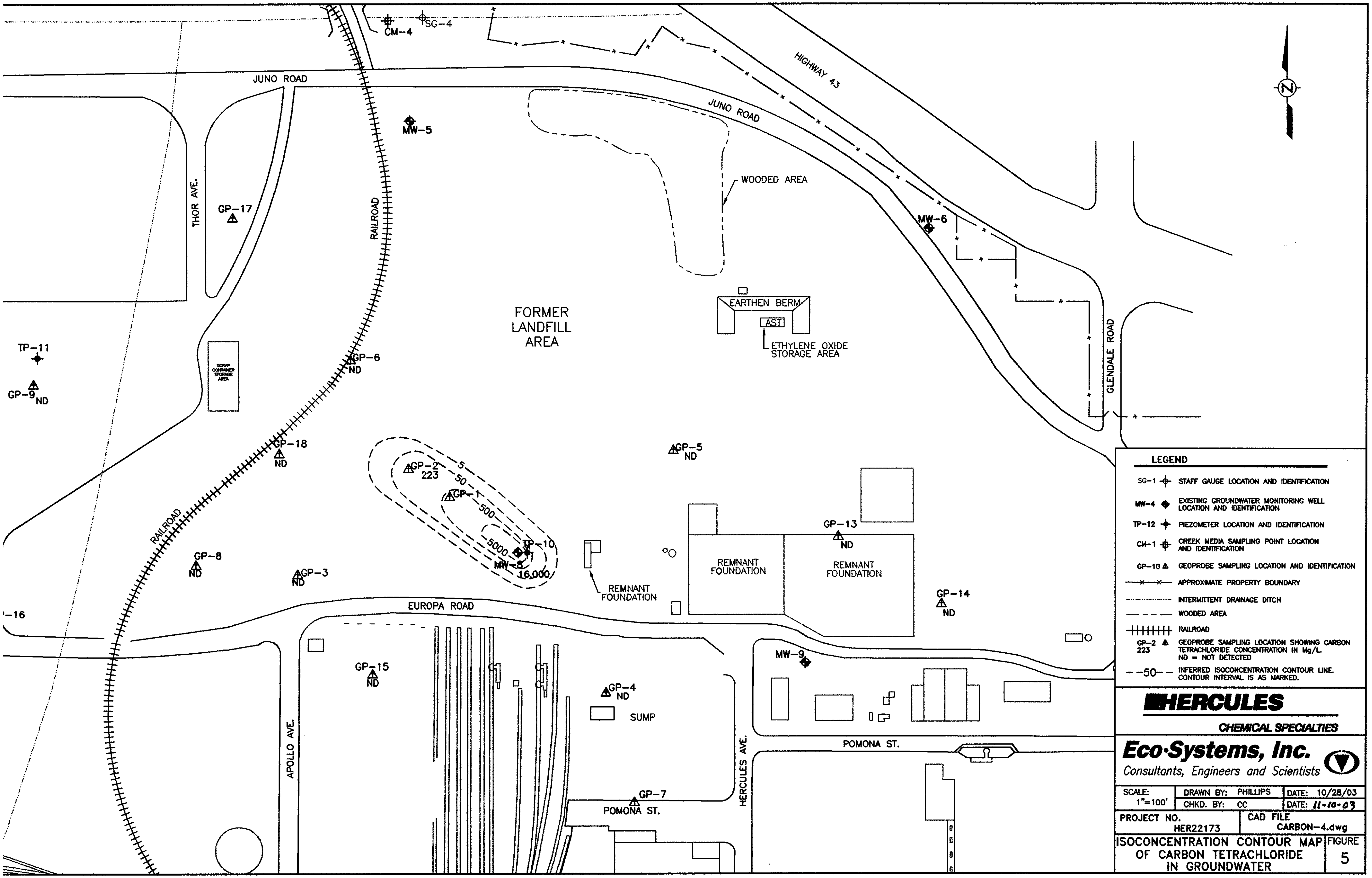
DECISION FLOW CHART FOR GROUNDWATER

ARCADIS

FIGURE
16B

Appendix A

Historical Isoconcentration Maps



HERCULES
CHEMICAL SPECIALTIES

Eco·Systems, Inc.
Consultants, Engineers and Scientists

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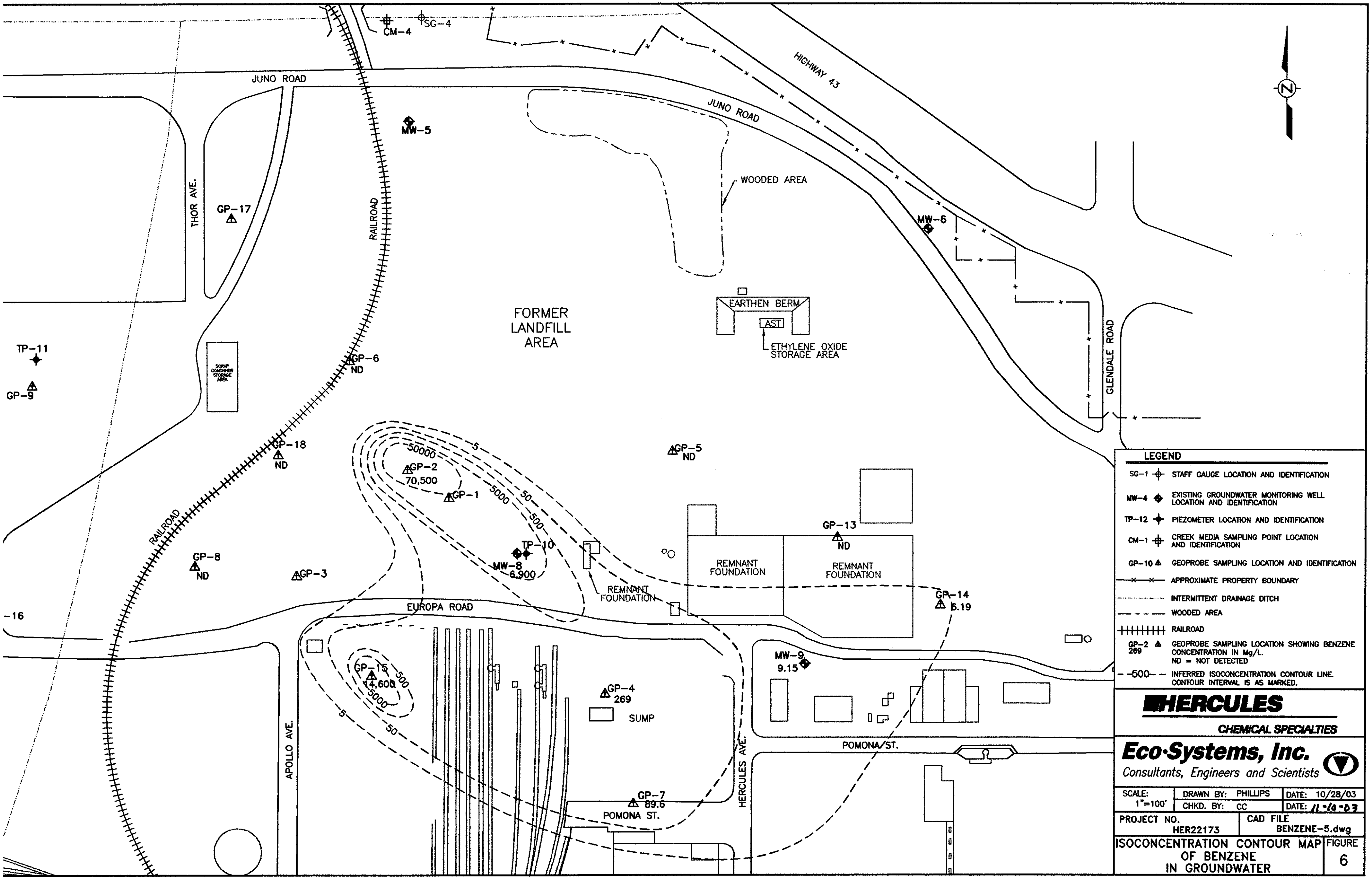
	CHKD. BY: CC	DATE: 11-10-03
PROJECT NO. HER22173	CAD FILE CARBON-4.dwg	

ISOCONCENTRATION CONTOUR MAP OF CARBON TETRACHLORIDE IN GROUNDWATER

FIGURE 5



HERCULES
CHEMICAL SPECIALTIES

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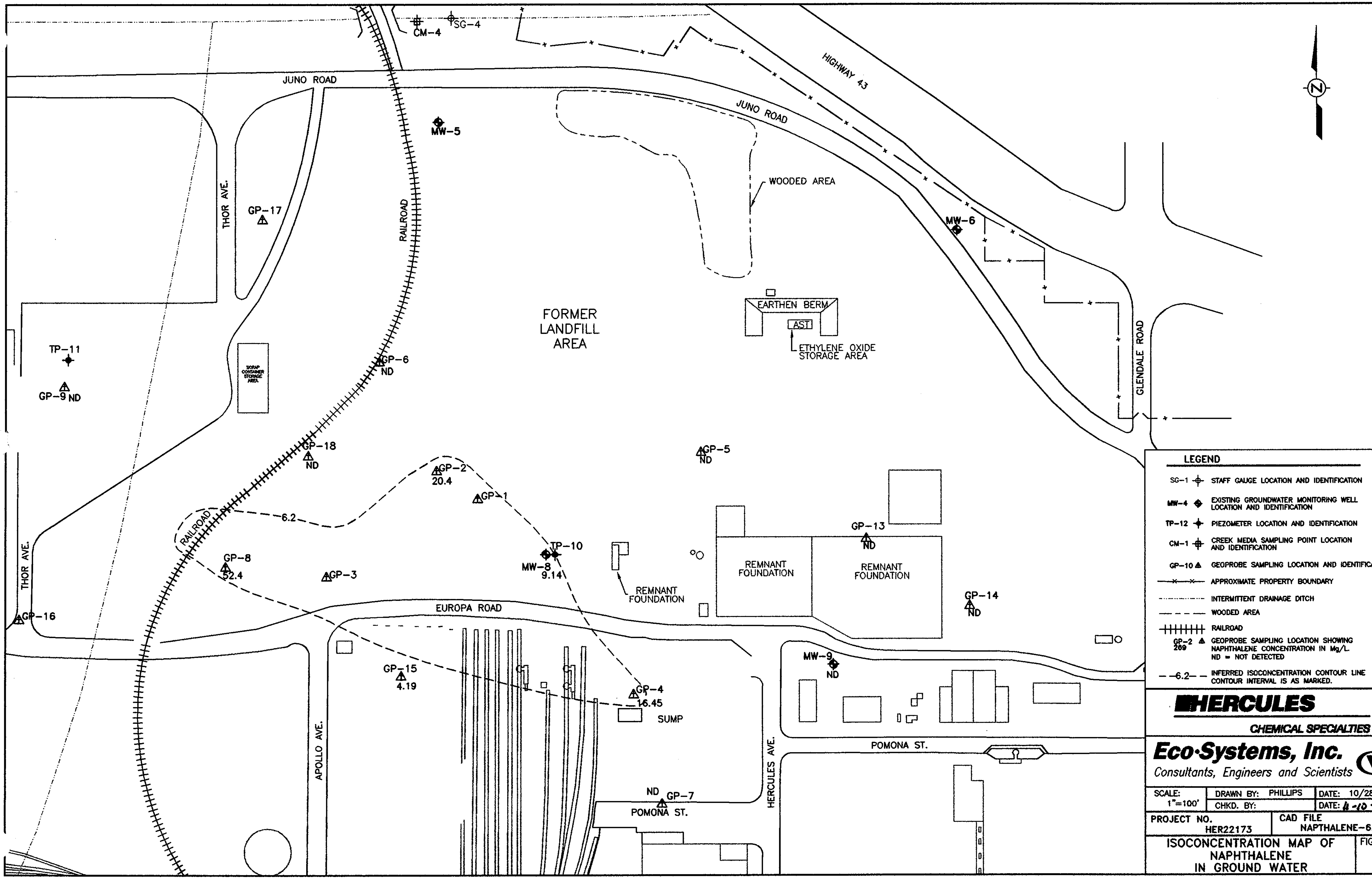
SCALE: 1"=100'	DRAWN BY: PHILLIPS	DATE: 10/28/03
	CHKD. BY: CC	DATE: 11-10-03

PROJECT NO. HER22173
CAD FILE BENZENE-5.dwg

ISOCONCENTRATION CONTOUR MAP
OF BENZENE
IN GROUNDWATER

FIGURE 6



SCALE: 1"=100'
DRAWN BY: PHILLIPS
DATE: 10/28
CHKD. BY:
DATE: 4-10
PROJECT NO. HER22173
CAD FILE NAPTHALENE-6
FIG

ISOCONCENTRATION MAP OF NAPHTHALENE IN GROUND WATER

Appendix B

Boring Logs and Well Construction Diagrams

Appendix B
Well Construction Table
Hercules Incorporated
Hattiesburg, Mississippi

Well No.	Year Installed	Screen Interval (ft. bgs)	Total Depth of Well (ft. bgs)	Casing Diameter (in.)	Construction Material	Total Depth of Borehole (ft. bgs)	Well Completion (FM/AG)	TOC Elevation (ft.)[1]
Permanent Monitoring Wells								
MW-1	1997	--	--	--	--	--	--	174.12
MW-2	1997	5 - 15 [2]	152	2	PVC	--	AG	160.07
MW-3	1997	8 - 18	18	2	PVC	--	AG	160.03
MW-4	1997	8.74 - 18.74	18.74	2	PVC	--	AG	159.75
MW-5	1997	8.5 - 18.5	18.5	2	PVC	--	AG	160.99
MW-6	1997	13.25 - 23.25	23.25	2	PVC	--	AG	174.05
MW-7	2000	10.4 - 20.4	20.4	2	PVC	20.8	FM	183.96
MW-8	2000	6 - 16	16	2	PVC	16.3	AG	179.99
MW-9	2000	7.2 - 17.2	17.2	2	PVC	17.5	AG	181.97
MW-10	2000	6.7 - 14.7	14.7	2	PVC	14.7	AG	159.88
MW-11	2000	6.7 - 14	14	2	PVC	14	FM	157.18
MW-12	2005	2-12	12	2	PVC	10	AG	162.17
MW-13	2005	8.5 - 18.5	18.5	2	PVC	16	AG	175.23
MW-14	2005	14.3 - 24.3	24.3	2	PVC	22	AG	169.23
MW-15	2005	16.5 - 26.5	26.5	2	PVC	24	AG	172.21
MW-16	2005	18.5-28.5	28.5	2	PVC	26	AG	175.62
MW-17	2005	12.7 - 22.7	22.7	2	PVC	22	AG	186.13
MW-18	2005	7.3 - 17.3	17.3	2	PVC	14	AG	165.31
MW-19	2005	11.1 - 21.1	21.1	2	PVC	22	AG	172.25
MW-20	2009	4 - 14	14	2	PVC	15	AG	168.62
MW-21	2009	6 - 16	16	2	PVC	16	FM	163.66
MW-22	2009	5 - 15	15	2	PVC	17	AG	167.62
MW-23	2009	4 - 14	14	2	PVC	15	FM	162.38
MW-24	2009	3 - 13	13	2	PVC	14	AG	164.98
Piezometers								
TP-1	1999	6.8 - 16.8	16.8	1	PVC	17	AG	Destroyed
TP-2	1999	6.8 - 16.8	16.8	1	PVC	17	AG	171.72
TP-3	1999	9.6 - 14.6	14.6	1	PVC	16	AG	169.74
TP-4	1999	5 - 10	10	1	PVC	14	AG	163.64
TP-5	1999	9 - 14	14	1	PVC	15	AG	160.54
TP-6	1999	10 - 15	15	1	PVC	17	FM [2]	158.63
TP-7	1999	5.3 - 10.3	10.3	1	PVC	12	FM [2]	167.17
TP-8	1999	12.5 - 17.5	17.5	1	PVC	18.5	FM [2]	183.79
TP-9	1999	4 - 9	9	1	PVC	10	FM	Destroyed
TP-10	1999	8 - 14.5	14.5	1	PVC	17	AG	179.69
TP-11	1999	8 - 13	15	1	PVC	15	FM [2]	162.26
TP-12	1999	5 - 13	13	1	PVC	17	AG	159.95
TP-13	1999	4 - 11	11	1	PVC	14	AG	156.99
TP-14	1999	7.6 - 12.6	12.6	1	PVC	14	AG	162.59
TP-16								179.72
TP-17								182.71

NOTES:

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

2 - Estimate based on limited data

-- Data not available

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BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-1**
Project No.: HER22173
Date(s): 11-Aug-03
Logged By: CVC
Well/Boring Location:
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater:
Date:
Reference:
Elevation - Top of Casing:
Inner Casing:
Outer Casing:
Water Table:
Date:
Reference:
Remarks: Groundwater was not encountered during drilling.

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs Strata	Graphical Logs Well Construction	Organic Vapor Headspace Analysis (ppm)
	1	n/a	dark brown, silty-sand (ML)			
5	2		as above; slight odor			
10	3		as above; slow probing from 9 -10			
	4		no recovery except small amount of wood			
15			Probe refusal at 15.0 feet below ground surface			
20						

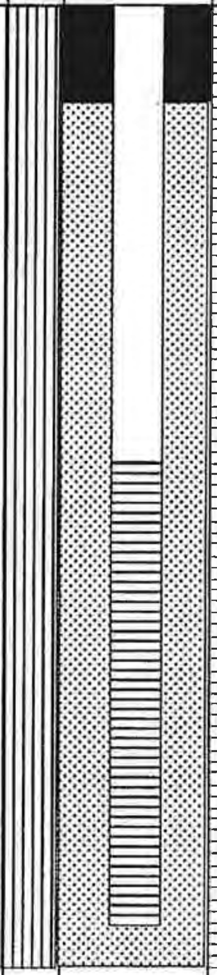
Note: Not all portions of this form are applicable to all projects

Eco-Systems, Inc.
Consultants, Engineers and Scientists

BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: GP-2
Project No.: HER22173
Date(s): 11-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner.
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 10.2
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 172.99
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 162.79
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ well sock, filter sand, & granular bentonite seal



Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs: Strata	Graphical Logs: Well Construction	Organic Vapor Headspace Analysis (ppm)
	1	n/a	dark brown and black, friable, silty-sand (ML)			3.5
5	2		as above; some wood fragments			
10	3		as above; wet at 10.5 feet			
15	4		as above; saturated			
			as above;			
20			Probe refusal at 21feet below ground surface			

Note: Not all portions of this form are applicable to all projects

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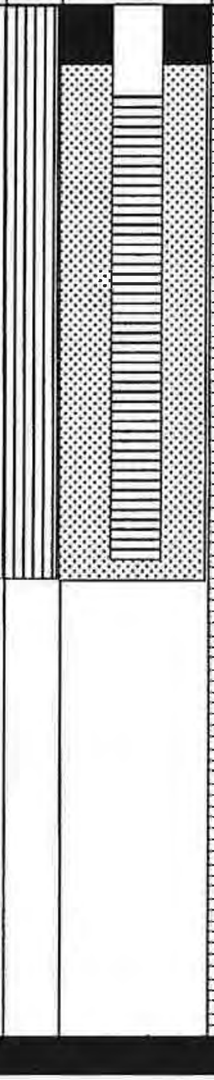
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-3**
Project No.: HER22173
Date(s): 11-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner.
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 11.83
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 172.73
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 160.9
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ well sock, filter sand, & granular bentonite seal



Depth, Sample Pt.	**Sample Location**	**Blows**	**Lithologic Description**	**Graphical Logs** Strata	**Graphical Logs** Well Construction	**Organic Vapor Headspace Analysis (ppm)**
	1	n/a	dark brown and black, friable, silty-sand (ML)			
5	2		as above;			
10	3		as above; wood fragments and resinous material			
15	4		Probe refusal at 12.5 feet below ground surface			
20						

Note: Not all portions of this form are applicable to all projects

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Consultants, Engineers and Scientists

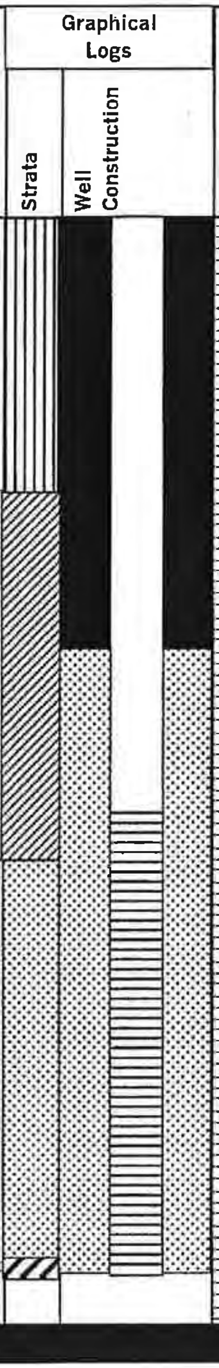
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-4**
Project No.: HER22173
Date(s): 11-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner.
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 17.3
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 185.35
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 168.05
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ well sock, filter sand, & bentonite seal

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Organic Vapor Headspace Analysis (ppm)
	1	n/a	dark brown and black, silty-sand (ML)	
5	2		as above brown, silty clay (CL); strong odor	565
10	3		No lithology - sample tube crushed	851
	4		No lithology - sample tube crushed	1817
15	5		tan, gray & black, fine sand (SM), some crossbedding; strong odor	242
	6		as above; some sub-rounded - rounded, chert gravel; strong odor	243
20	7		as above; abundant pea gravel and coarse sand; strong odor tan, soft, plastic, clay (CH)	464
			Probe refusal at 23.2 feet below ground surface	

Graphical Logs



Note: Not all portions of this form are applicable to all projects

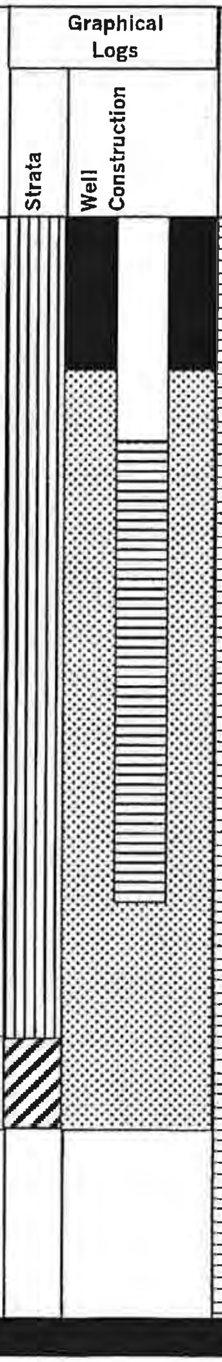
Eco-Systems, Inc.
Consultants, Engineers and Scientists

BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-5**
Project No.: HER22173
Date(s): 11-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 7.29
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 170.11
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 162.82
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ well sock, filter sand, & bentonite seal

Depth, Sample Pt.	**Sample Location**	**Blows**	**Lithologic Description**	**Organic Vapor Headspace Analysis (ppm)**
	1	n/a	dark brown and black, friable, v-silty-sand (ML)	
5	2		as above; saturated below 5 ft	0
10	3		as above	0
			as above; abundant wood chips	
	4			
15				
	5		as above;	
			gray, soft-firm, plastic, clay (CH)	
20			Boring terminated at 20 feet below ground surface	



Note: Not all portions of this form are applicable to all projects

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Consultants, Engineers and Scientists

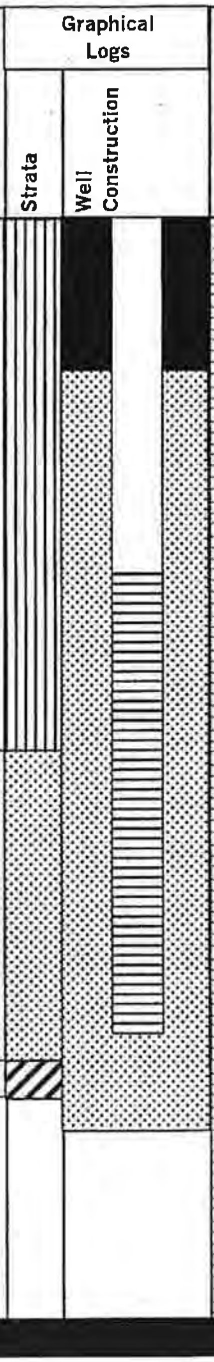
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-6**
Project No.: HER22173
Date(s): 11-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 14.29
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 166.54
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 152.25
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ well sock, filter sand, & bentonite seal

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Organic Vapor Headspace Analysis (ppm)
	1	n/a	dark brown and black; fine, sand (ML); some wood chips	0
5	2		as above	0
10	3		as above; damp	
	4		tan and gray, fine sand (SM)	
15	5		as above;	
			gray, soft-firm, plastic, clay (CH)	
20			Boring terminated at 19 feet below ground surface	

Graphical Logs



Note: Not all portions of this form are applicable to all projects

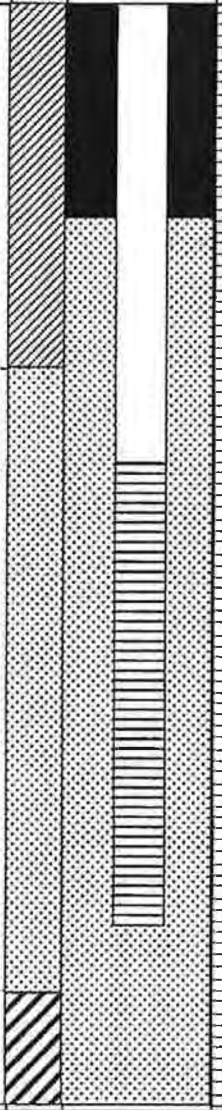
Eco-Systems, Inc.
Consultants, Engineers and Scientists

BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: GP-7
Project No.: HER22173
Date(s): 11-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 14.78
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 183.8
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 169.02
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ well sock, filter sand, & bentonite seal

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs		Organic Vapor Headspace Analysis (ppm)
				Strata	Well Construction	
	1	n/a	tan and orange brown, silty, clay (CL)			
5	2		as above			67
10	3		orange-brown and white, fine, silty sand (SM)			140
15	4		as above; saturated below 13 ft			52
	5		as above; mild odor			0
20	6		tan, soft, plastic, clay (CH) Boring terminate at 24 ft below ground surface			0



Note: Not all portions of this form are applicable to all projects

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Consultants, Engineers and Scientists

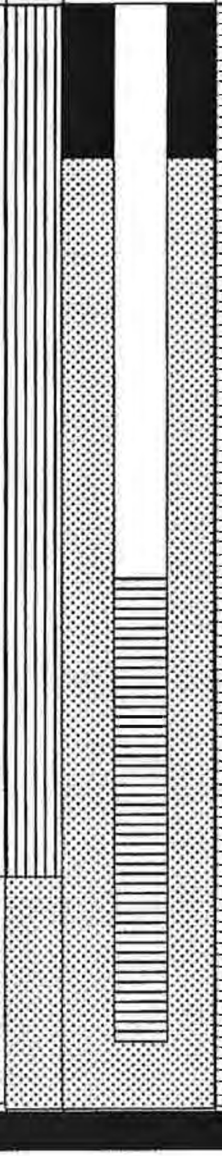
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-8**
Project No.: HER22173
Date(s): 11-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 12.89
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 171.46
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 158.57
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ filter sand, & bentonite seal

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Organic Vapor Headspace Analysis (ppm)
	1	n/a	black and gray, fine, sand (ML);	17.5
5	2		as above; some wood fragments	52
10	3		as above;	29
15	4		as above; abundant wood fragments, saturated below 14 ft	5
	5		as above;	
20			gray, fine, sand (SM)	0
			Boring terminated at 24ft below ground surf.	

Graphical Logs



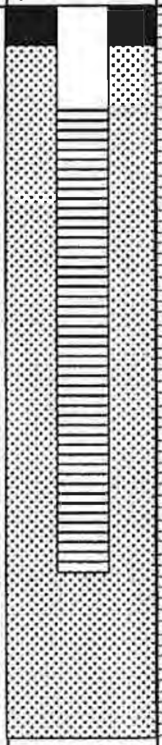
Note: Not all portions of this form are applicable to all projects

Eco-Systems, Inc.
Consultants, Engineers and Scientists

BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-9**
Project No.: HER22173
Date(s): 12-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner.
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 9.88
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 161.84
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 151.96
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ filter sand, & bentonite seal

Depth, Sample Pt.	**Sample Location**	**Blows**	**Lithologic Description**	**Graphical Logs**		**Organic Vapor Headspace Analysis (ppm)**
				Strata	**Well Construction**	
	1	n/a	See Boring Log for TP-11 for lithology			
5	2					
10	3					
15	4					
			Boring terminated at 16 feet below ground surface			
20						

Note: Not all portions of this form are applicable to all projects

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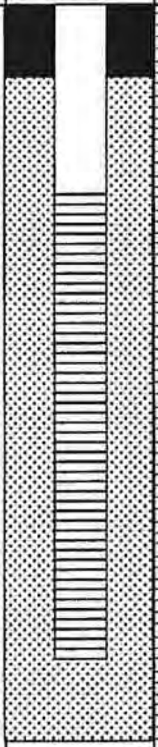
Consultants, Engineers and Scientists

BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-10**
Project No.: HER22173
Date(s): 12-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner.
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 7.99
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing:
Inner Casing: 1 inch
Outer Casing: NA
Water Table:
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ filter sand, & bentonite seal

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs		Organic Vapor Headspace Analysis (ppm)
				Strata	Well Construction	
	1	n/a	See Boring Log for TP-5 for lithology			
5	2					
10	3					
15	4					
			Boring terminated at 16 feet below ground surface			
20						



Note: Not all portions of this form are applicable to all projects

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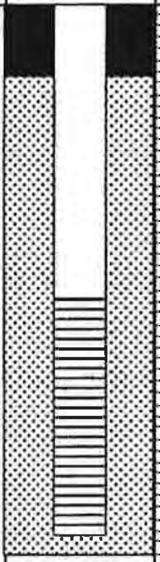
Consultants, Engineers and Scientists

BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-11**
Project No.: HER22173
Date(s): 12-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 8.94
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing:
Inner Casing: 1 inch
Outer Casing: NA
Water Table:
Date:
Reference: TOC
Remarks:
Temporary well installed with 5 ft of 0.01 slot, PVC screen w/ filter sand, & bentonite seal

Depth, Sample Pt.	**Sample Location**	**Blows**	**Lithologic Description**	**Graphical Logs**		**Organic Vapor Headspace Analysis (ppm)**
				Strata	**Well Construction**	
	1		See Boring Log for TP-4 for lithology			
5	2	n/a				
10	3					
			Boring terminated at 12 feet below ground surface			
15						
20						

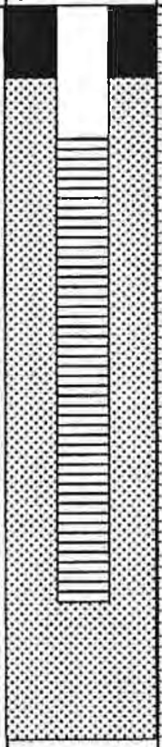
Note: Not all portions of this form are applicable to all projects

Eco-Systems, Inc.
Consultants, Engineers and Scientists

BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: GP-12
Project No.: HER22173
Date(s): 12-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner.
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 5.27
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing:
Inner Casing: 1 inch
Outer Casing: NA
Water Table:
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ filter sand, & bentonite seal

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs: Strata	Graphical Logs: Well Construction	Organic Vapor Headspace Analysis (ppm)
	1	n/a	See Boring Log for TP-1 for lithology			
5	2					
10	3					
15	4		Boring terminated at 16 feet below ground surface			
20						

Note: Not all portions of this form are applicable to all projects

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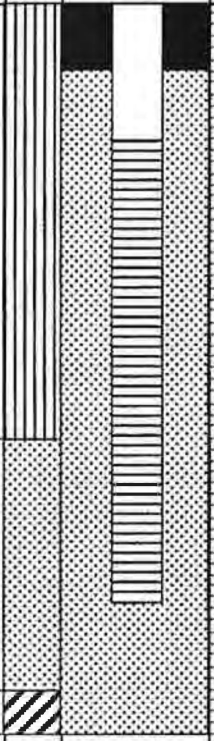
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-13**
Project No.: HER22173
Date(s): 12-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner.
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 8.51
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 175.67
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 167.16
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ filter sand, & bentonite seal

Depth, Sample Pt.	**Sample Location**	**Blows**	**Lithologic Description**	**Organic Vapor Headspace Analysis (ppm)**
	1	n/a	dark brown and black, friable, sandy, silt (ML)	
5	2		as above; saturated below 5 ft	
			as above	
10	3		gray, fine, sand (SM); saturated	
	4		as above;	
15			gray, plastic, clay (CH)	
			Boring terminated at 16 feet below ground surface	
20				

Graphical Logs



Note: Not all portions of this form are applicable to all projects

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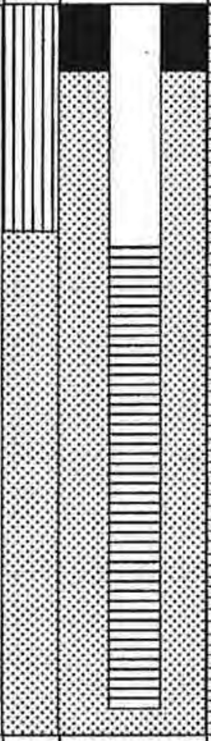
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-14**
Project No.: HER22173
Date(s): 12-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 4.81
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 174.51
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 169.7
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ filter sand, & bentonite seal

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs: Strata	Graphical Logs: Well Construction	Organic Vapor Headspace Analysis (ppm)
	1	n/a	dark brown and black, friable, sandy, silt (ML)			
5	2		as above gray, fine, sand (SM); some clayey zones			
10	3		as above; saturated			
15	4		as above;			
			Boring terminated at 16 feet below ground surface			
20						



Note: Not all portions of this form are applicable to all projects

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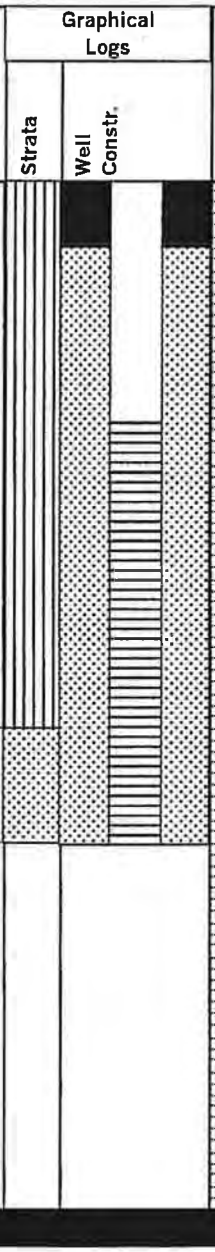
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-15**
Project No.: HER22173
Date(s): 12-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 19.92
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 179.73
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 159.81
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ filter sand, & bentonite seal

Depth	Sample		Lithologic Description	Organic Vapor Headspace Analysis (ppm)
	1	n/a	dark brown and black, friable, sandy, silt (ML); some cinders	
5	2		as above	
10	3		as above; thin layer of resin at 9.5 ft	
15	4		as above; 2 inches of resin at 15.5 ft	
	5		as above; wood fragments, concrete fragments, resin	
20	6		as above; charred wood, brick fragments, resin	
25	7		gray, med-coarse, micaceous, sand (SM)	
30			Boring terminated at 29 feet below ground surface	
35				
40				



Note: Not all portions of this form are applicable to all projects

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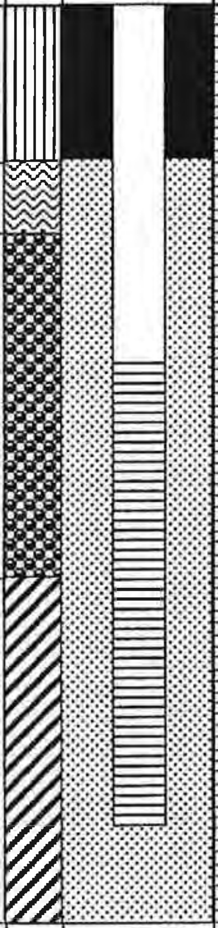
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-16**
Project No.: HER22173
Date(s): 13-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner.
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 10.88
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 164.9
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 154.02
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ well sock, filter sand, & bentonite seal

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Organic Vapor Headspace Analysis (ppm)
	1		dark brown and black, fine, sand (ML); some wood chips; brick fragments, concrete fragments, resin	0
			yellow-brown and white resin	
5	2	n/a		0
10	3		no recovery	
			sandy, gravel (GM); (fill)	
	4		gray, soft, plastic, sandy, clay (CH)	
15				
	5		as above; firm to hard	
20			Boring terminated at 20 feet below ground surface	

Graphical Logs



Note: Not all portions of this form are applicable to all projects

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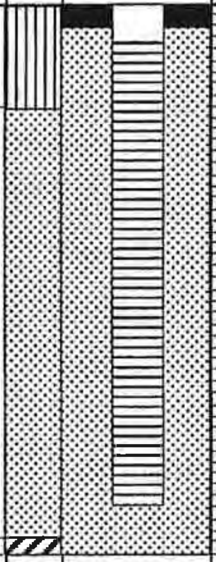
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-17**
Project No.: HER22173
Date(s): 13-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner.
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 6.14
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 157.79
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 151.65
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ well sock, filter sand, & bentonite seal

Depth, Sample Pt.	**Sample Location**	**Blows**	**Lithologic Description**	**Graphical Logs** (Strata, Well Construction)	**Organic Vapor Headspace Analysis (ppm)**
	1	n/a	brown, fine, silty, sand (ML);		
			tan and gray fine sand (SM)		
5	2		as above		
10	3		as above		
			gray, stiff, sandy, clay (CH)		
	4		Boring terminated at 12 feet below ground surface		
15					
	5				
20					



Note: Not all portions of this form are applicable to all projects

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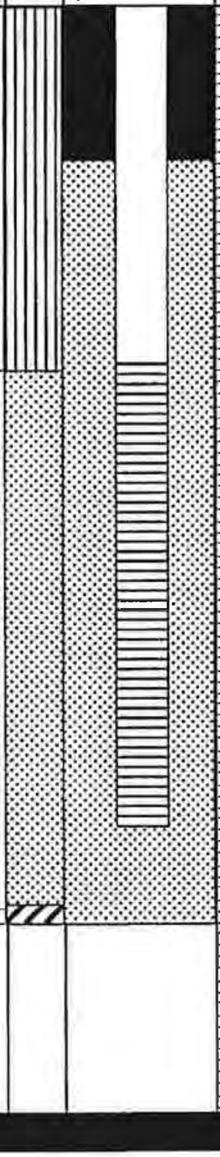
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **GP-18**
Project No.: HER22173
Date(s): 11-Aug-03
Logged By: CVC
Well/Boring Location: East of the northeast fence corner.
Drilling Method: Geoprobe
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 15.73
Date: 31-Oct-03
Reference: TOC
Elevation - Top of Casing: 167.77
Inner Casing: 1 inch
Outer Casing: NA
Water Table: 152.04
Date:
Reference: TOC
Remarks:
Temporary well installed with 10 ft of 0.01 slot, PVC screen w/ well sock, filter sand, & bentonite seal

Depth, Sample Pt.	**Sample Location**	**Blows**	**Lithologic Description**	**Graphical Logs** Strata Well Construction	**Organic Vapor Headspace Analysis (ppm)**
	1	n/a	dark brown and black, fine, sand (ML);		
5	2		as above		
10	3		lt gray, fine, sand (SM)		
	4		as above		
15	5		as above;		
			gray, hard, silty, clay (CH)		
20			Boring terminated at 20 feet below ground surface		

Note: Not all portions of this form are applicable to all projects

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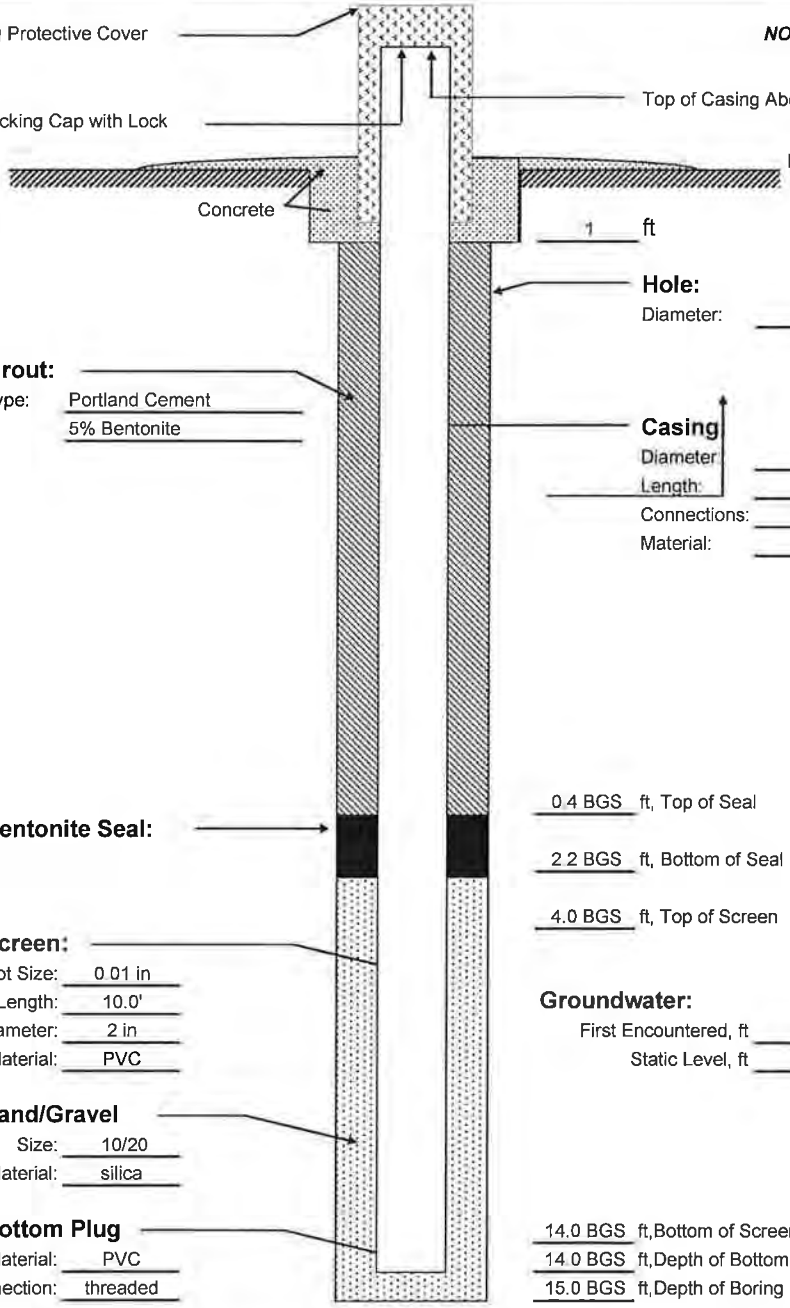
Consultants, Engineers and Scientists

Monitoring Well Schematic

Project: Hercules Chemical Impoundment Basin
Well/Boring No.: B-20 / MW-20
Project No : HER 42029205
Drilling Supervisor: C. Brent Eanes
Boring Location: West side of I.B. between rail road tracks
Date(s): 15-Sep-09
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental

NOT TO SCALE



1 ft

Hole:
Diameter: 6.25" I.D.

Grout:
Type: Portland Cement
5% Bentonite

Casing
Diameter: 2 inch
Length: 8.8'
Connections: threaded
Material: PVC sch. 40

Bentonite Seal:

0.4 BGS ft, Top of Seal
2.2 BGS ft, Bottom of Seal
4.0 BGS ft, Top of Screen

Screen:
Slot Size: 0.01 in
Length: 10.0'
Diameter: 2 in
Material: PVC

Groundwater:
First Encountered, ft 5' BGS
Static Level, ft 5.95' BTOC

Sand/Gravel
Size: 10/20
Material: silica

Bottom Plug
Material: PVC
Connection: threaded

14.0 BGS ft, Bottom of Screen
14.0 BGS ft, Depth of Bottom Plug
15.0 BGS ft, Depth of Boring
Depth from Surface

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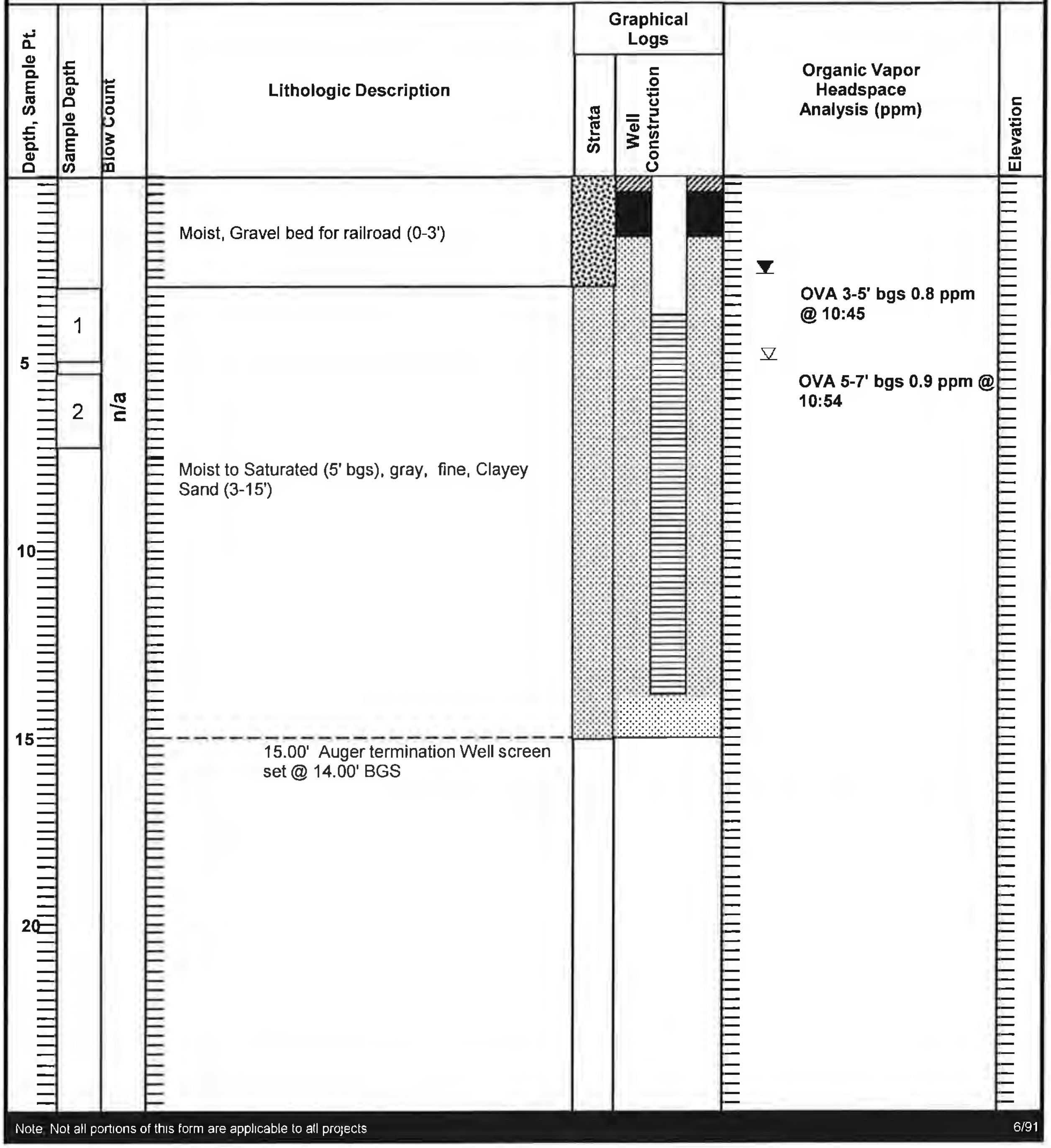
Boring Log

Sheet: 1 of 1

Project: Hercules Chemical
Well/Boring No.: B-20 / MW-20
Project No.: HER 42029205
Date(s): 9/15/2009
Logged By: Brent Eanes
Well/Boring Location: West side of Impountment basin between rail road tracks
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental
Depth to Groundwater: 5.95
Date: 9/28/2009
Reference: Below Top-of-casing
Elevations - Ground Surface: 168.62
Inner Casing: NA
Reference: Top-of-casing
Water Table: 162.67
Date: 9/28/2009
Reference: Above MSL
Remarks: Stick up surface completions
Mean Sea Level (MSL)



Moist, Gravel bed for railroad (0-3')

Moist to Saturated (5' bgs), gray, fine, Clayey Sand (3-15')

15.00' Auger termination Well screen set @ 14.00' BGS

OVA 3-5' bgs 0.8 ppm @ 10:45

OVA 5-7' bgs 0.9 ppm @ 10:54

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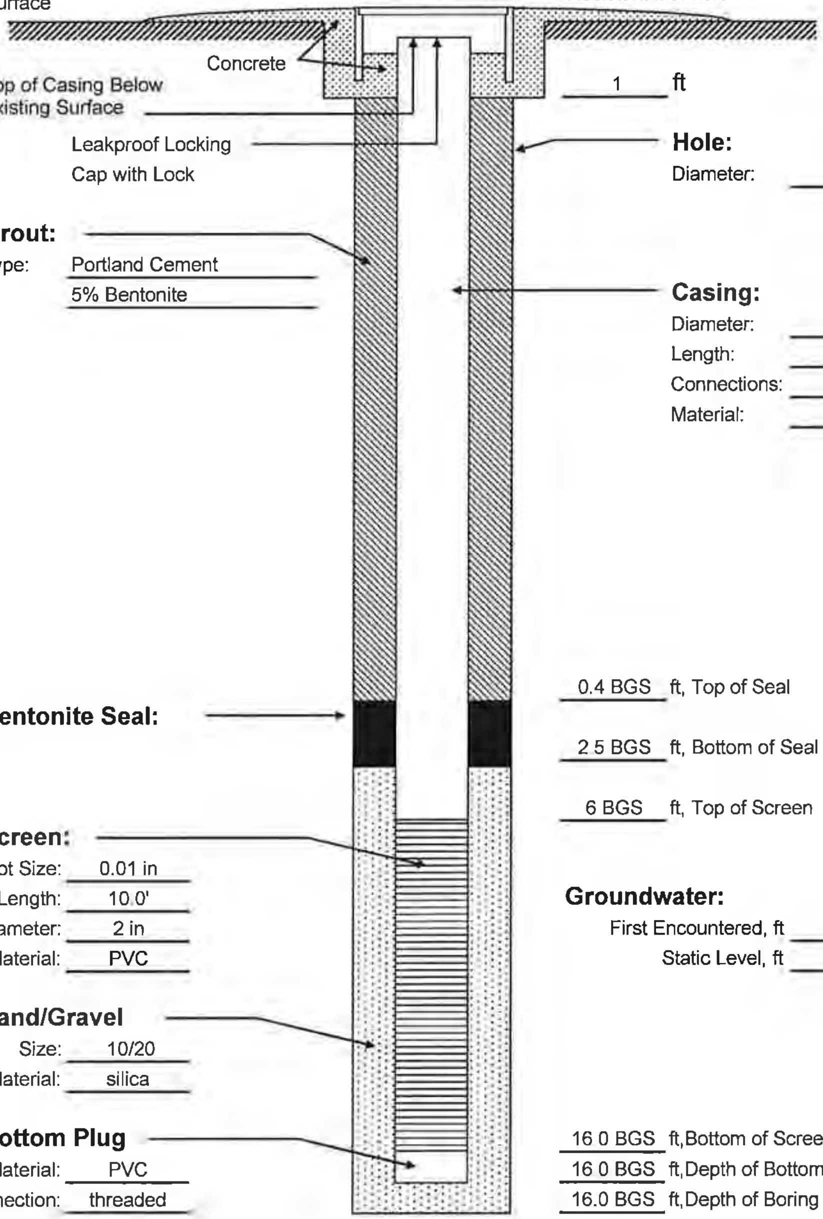
Monitoring Well Schematic

Project: Hercules Chemical Impoundment Basin
Well/Boring No.: B-21 / MW-21
Project No. HER 42029205
Drilling Supervisor: C. Brent Eanes
Boring Location: North side of I.B. on side of Minerva St under pipes
Date(s): 15-Sep-09
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental

8 in Leak Resistant Manhole

NOT TO SCALE



Top of Casing Below Existing Surface 1 ft

Leakproof Locking Cap with Lock

Hole:
Diameter: 6.25" I.D.

Grout:
Type: Portland Cement
5% Bentonite

Casing:
Diameter: 2 inch
Length: 5.7'
Connections: threaded
Material: PVC sch. 40

0.4 BGS ft, Top of Seal

Bentonite Seal:

2 5 BGS ft, Bottom of Seal

6 BGS ft, Top of Screen

Screen:
Slot Size: 0.01 in
Length: 10.0'
Diameter: 2 in
Material: PVC

Groundwater:
First Encountered, ft 9' BGS
Static Level, ft 2.28' BTOC

Sand/Gravel
Size: 10/20
Material: silica

Bottom Plug
Material: PVC
Connection: threaded

16 0 BGS ft,Bottom of Screen
16 0 BGS ft,Depth of Bottom Plug
16.0 BGS ft,Depth of Boring
Depth from Surface

Comments:

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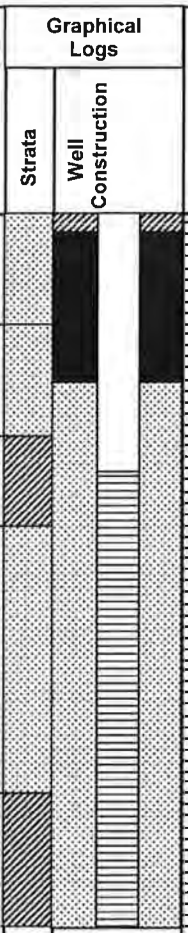
Boring Log

Sheet: 1 of 1

Project: Hercules Chemical
Well/Boring No.: B-21 / MW-21
Project No.: HER 42029205
Date(s): 9/15/2009
Logged By: Brent Eanes
Well/Boring Location: North side of impoundment basin between Minerva St and raised pipes.
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental
Depth to Groundwater: 2.28
Date: 9/28/2009
Reference: Below Top-of-casing
Elevations - Ground Surface: 163.66
Inner Casing: NA
Reference: Top-of-casing
Water Table: 161.38
Date: 9/28/2009
Reference: Above MSL
Remarks: Flush mount surface completions
Mean Sea Level (MSL)



Depth, Sample Pt.	Sample Depth	Blow Count	Lithologic Description	Organic Vapor Headspace Analysis (ppm)	Elevation
			Asphalt / Gravel mixed with dry, medium, Sand (0-2.5')	▼	
	1		Dry to moist, gray and black, medium, Sand Inclusions of amber resin concretions (2.5-5')	OVA 3-5' bgs 2.9 ppm @ 13:25	
5	2	n/a	Moist, gray and orange, firm, Sandy Clay ('5-7')	OVA 5-7' bgs 9.6 ppm @ 13:31	
10	3 4		Dy to saturated (9.0' bgs), fine, Sand ('7-13')	OVA 7-9' bgs 28.0 ppm @ 13:34 ▽ OVA 9-11' bgs 16.4 ppm @ 13:37	
15			Moist, gray, dense, very stiff, Sandy Clay ('13-16')		
			16.00' Auger termination		
20					

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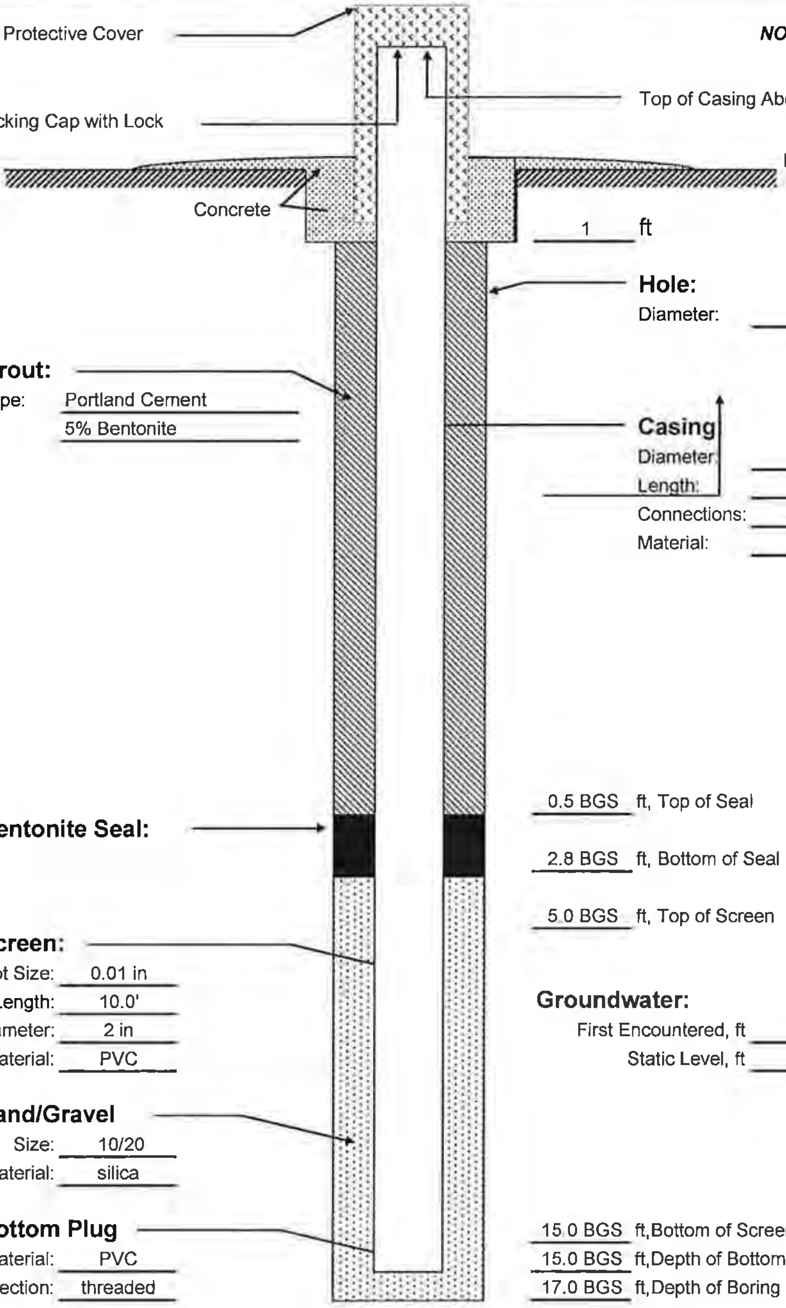
Monitoring Well Schematic

Project: Hercules Chemical Impoundment Basin
Well/Boring No.: B-22 / MW-22
Project No.: HER 42029205
Drilling Supervisor: C Brent Eanes
Boring Location: South side of I.B. and south edge of pavement
Date(s): 15-Sep-09
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental

NOT TO SCALE



1 ft

Hole:
Diameter: 6.25" I.D.

Grout:
Type: Portland Cement
5% Bentonite

Casing
Diameter: 2 inch
Length: 7.8'
Connections: threaded
Material: PVC sch. 40

Bentonite Seal:

0.5 BGS ft, Top of Seal
2.8 BGS ft, Bottom of Seal
5.0 BGS ft, Top of Screen

Screen:
Slot Size: 0.01 in
Length: 10.0'
Diameter: 2 in
Material: PVC

Groundwater:
First Encountered, ft 6.0' BGS
Static Level, ft 6.08' BTOC

Sand/Gravel
Size: 10/20
Material: silica

Bottom Plug
Material: PVC
Connection: threaded

15.0 BGS ft, Bottom of Screen
15.0 BGS ft, Depth of Bottom Plug
17.0 BGS ft, Depth of Boring

Depth from Surface

6/91

Eco-Systems, Inc.
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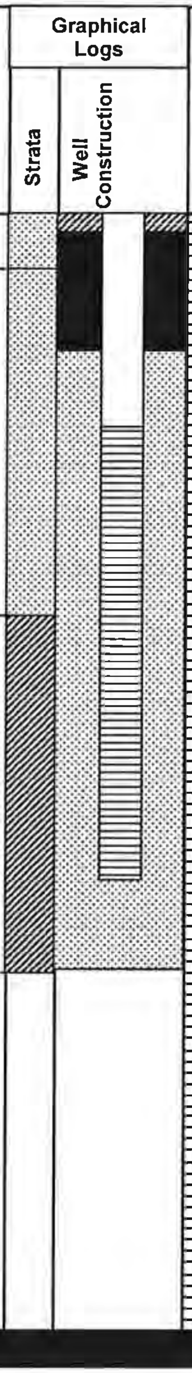
Boring Log

Sheet: 1 of 1

Project: Hercules Chemical
Well/Boring No.: B-22 / MW-22
Project No.: HER 42029205
Date(s): 9/15/2009
Logged By: Brent Eanes
Well/Boring Location: South side of impoundment basin and south edge of pavement
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental
Depth to Groundwater: 6.08
Date: 9/28/2009
Reference: Below Top-of-casing
Elevations - Ground Surface: 167.62
Inner Casing: NA
Reference: Top-of-casing
Water Table: 161.54
Date: 9/28/2009
Reference: Above MSL
Remarks: Stick up surface completions
Mean Sea Level (MSL)

Depth, Sample Pt.	Sample Depth	Blow Count	Lithologic Description	Organic Vapor Headspace Analysis (ppm)	Elevation
			Dry, gray, fine, Sand and some gravel (0-1')		
5	1 2 3	n/a	Dry to saturated(6' bgs), brown/gray and black staining, fine to medium, Sand -Grain size increasing with depth (1-9')	**OVA 3-5' bgs 0.4 ppm @ 15:30** ▼ ▽ **OVA 5-7' bgs 0.8 ppm @ 15:37** **OVA 7-9' bgs 1.0 ppm @ 13:40**	
10 15	4		Moist, gray, very stiff/dense/plastic, Clay -poorly sorted with some medium to coarse grain Sand (9-17')	**OVA 9-11' bgs 0.6 ppm @ 13:43**	
20			17.00' Auger termination		

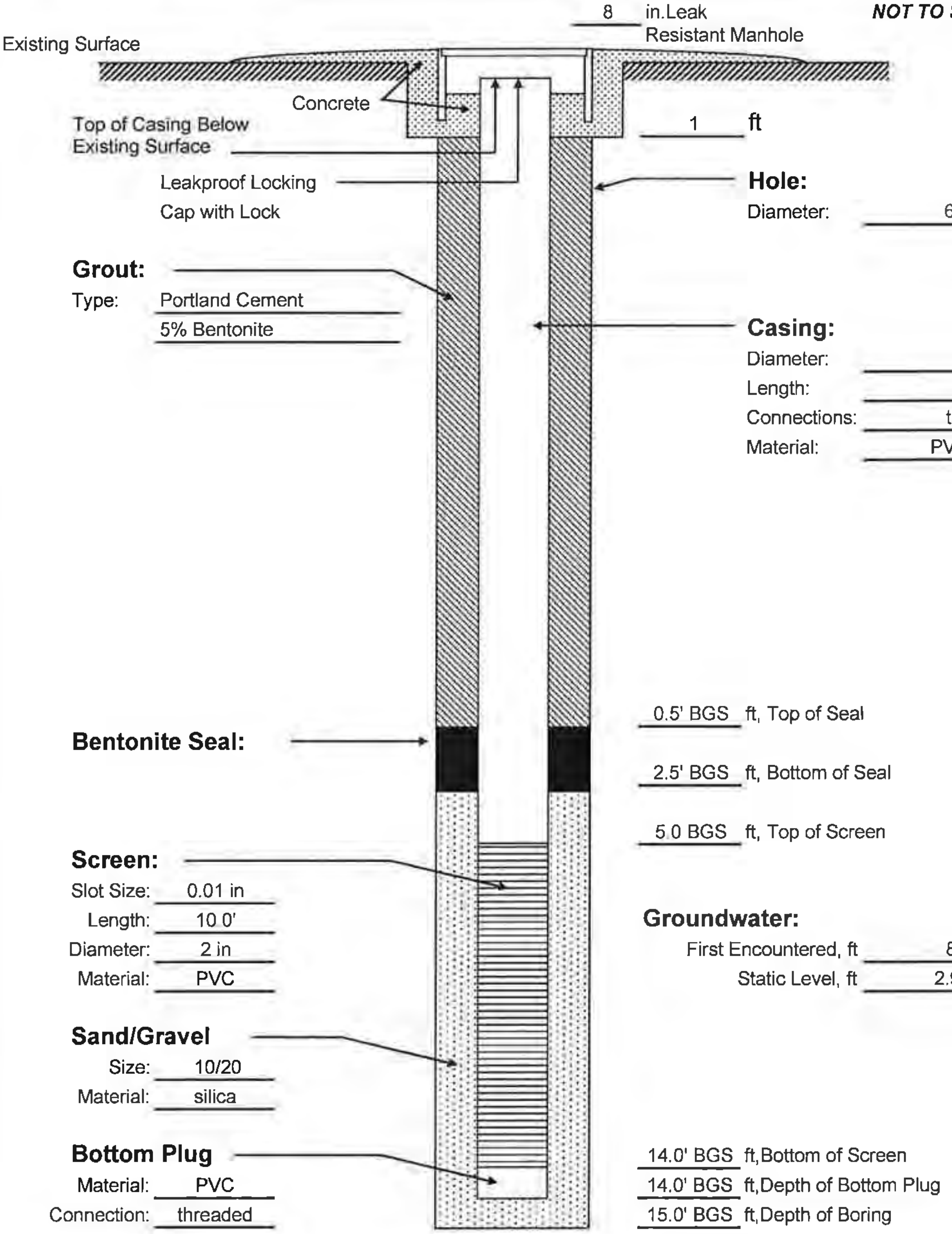


Eco-Systems, Inc.
Consultants, Engineers and Scientists

Monitoring Well Schematic

Project: Hercules Chemical Impoundment Basin
Well/Boring No.: B-23 / MW-23
Project No.: HER 42029205
Drilling Supervisor: C. Brent Eanes
Boring Location: East side of I.B. between fence and IB
Date(s): 15-Sep-09
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental

NOT TO SCALE



Hole:
Diameter: 6.25" I.D.

Grout:
Type: Portland Cement
5% Bentonite

Casing:
Diameter: 2 inch
Length: 3.8'
Connections: threaded
Material: PVC sch. 40

Bentonite Seal:
0.5' BGS ft, Top of Seal
2.5' BGS ft, Bottom of Seal
5.0 BGS ft, Top of Screen

Screen:
Slot Size: 0.01 in
Length: 10.0'
Diameter: 2 in
Material: PVC

Groundwater:
First Encountered, ft 8.0 BGS
Static Level, ft 2.96 BTOC

Sand/Gravel
Size: 10/20
Material: silica

Bottom Plug
Material: PVC
Connection: threaded

14.0' BGS ft, Bottom of Screen
14.0' BGS ft, Depth of Bottom Plug
15.0' BGS ft, Depth of Boring
Depth from Surface

Comments:

6/91

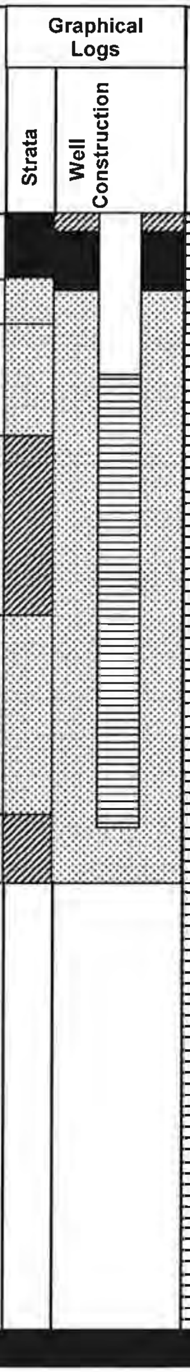
Eco-Systems, Inc.
Consultants, Engineers and Scientists

Boring Log

Sheet: 1 of 1

Project: Hercules Chemical
Well/Boring No.: B-23 / MW-23
Project No.: HER 42029205
Date(s): 9/16/2009
Logged By: Brent Eanes
Well/Boring Location: East side of impoundment basin between fence and IB but east of pavement
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental
Depth to Groundwater: 2.96
Date: 9/28/2009
Reference: Below Top-of-casing
Elevations - Ground Surface: 162.68
Inner Casing: NA
Reference: Top-of-casing
Water Table: 159.42
Date: 9/28/2009
Reference: Above MSL
Remarks: Flush mount surface completions
Mean Sea Level (MSL)

Graphical Logs



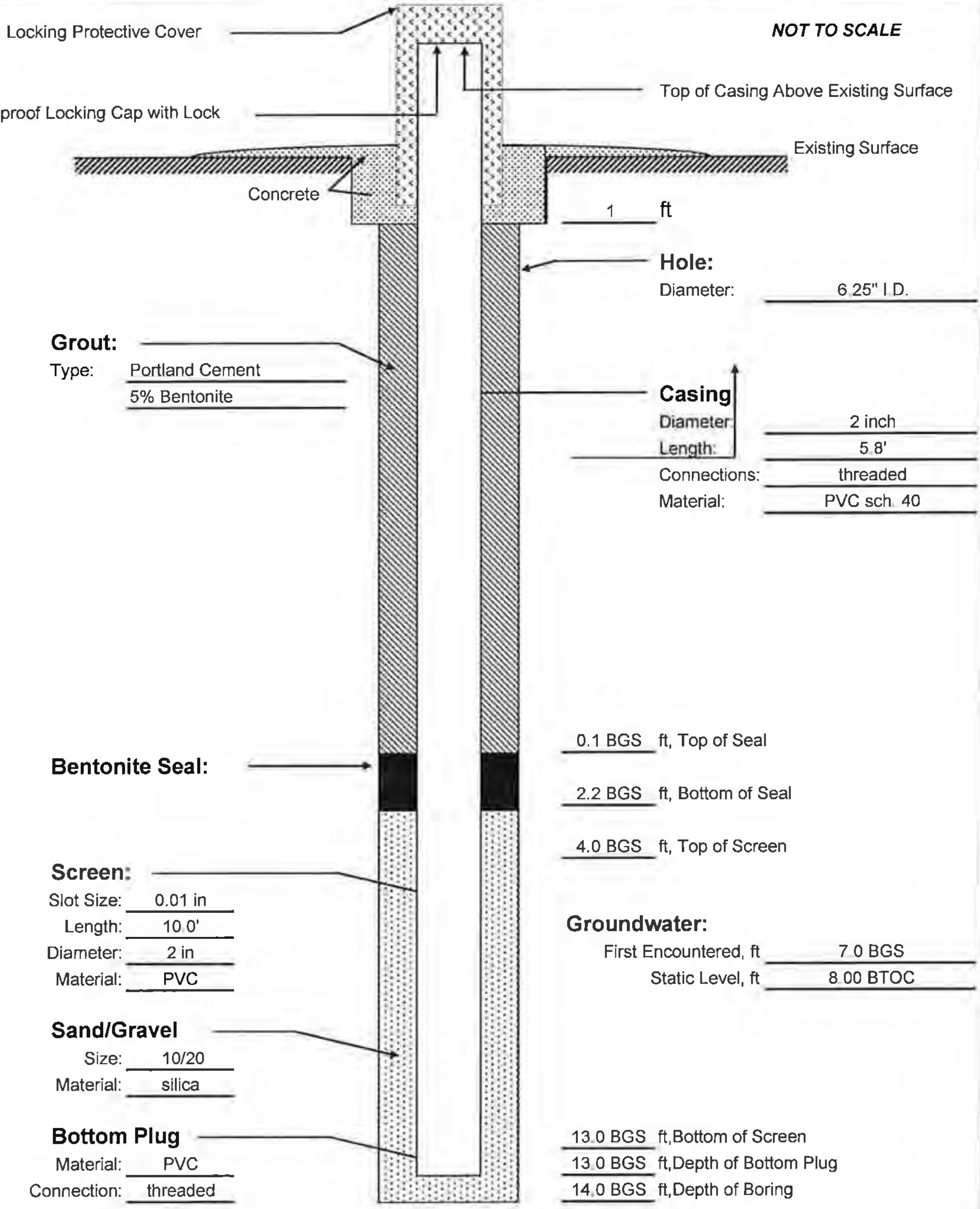
Depth, Sample Pt.	Sample Depth	Blow Count	Lithologic Description	Organic Vapor Headspace Analysis (ppm)	Elevation
			Asphalt (0-1')		
	1		Dry, gray, Silty Sand with some gravel (1.5-2.5')	▼ **OVA 1-3' bgs 8.5 ppm @ 07:45**	
	2		Dry, gray, coarse, Sand (2.5-5')	**OVA 3-5' bgs 4.7 ppm @ 07:50**	
5	3	n/a	Moist, gray/orange, soft, Clay poorly sorted with some coarse grain sand (5-9')	**OVA 5-7' bgs 3.1 ppm @ 07:53**	
	4			**OVA 7-9' bgs 24.8 ppm @ 07:58**	
10	5		Damp to saturated (8' bgs), gray, fine, Clayey Sand - increasing grain size with depth (9-13.5')	▽ **OVA 9-11' bgs 73.8 ppm @ 08:03**	
	6		Moist, gray, very stiff/dense/plastic, Clay poorly sorted with some coarse grain Sand (13.5-15')	**OVA 13-15' bgs 13.2 ppm @ 08:09**	
15			15.00' Auger termination / Well set at 14.0' BGS		
20					

Eco-Systems, Inc.
Consultants, Engineers and Scientists

Monitoring Well Schematic

Project: Hercules Chemical Impoundment Basin
Well/Boring No.: B-24 / MW-24
Project No.: HER 42029205
Drilling Supervisor: C. Brent Eanes
Boring Location: Across Providence Street in AST Fenced in Property
Date(s): 16-Sep-09
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental

NOT TO SCALE



1 ft

Hole:
Diameter: 6.25" I.D.

Grout:
Type: Portland Cement
5% Bentonite

Casing
Diameter: 2 inch
Length: 5.8'
Connections: threaded
Material: PVC sch. 40

Bentonite Seal:

0.1 BGS ft, Top of Seal
2.2 BGS ft, Bottom of Seal
4.0 BGS ft, Top of Screen

Screen:
Slot Size: 0.01 in
Length: 10.0'
Diameter: 2 in
Material: PVC

Groundwater:
First Encountered, ft 7.0 BGS
Static Level, ft 8.00 BTOC

Sand/Gravel
Size: 10/20
Material: silica

Bottom Plug
Material: PVC
Connection: threaded

13.0 BGS ft, Bottom of Screen
13.0 BGS ft, Depth of Bottom Plug
14.0 BGS ft, Depth of Boring

Depth from Surface

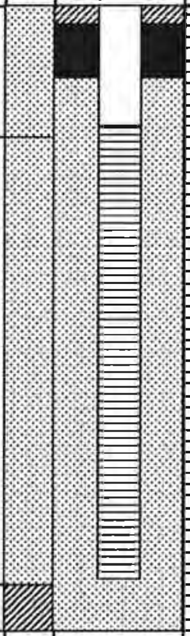
6/91

Eco-Systems, Inc.
Consultants, Engineers and Scientists

Boring Log

Sheet: 1 of 1

Project: Hercules Chemical
Well/Boring No.: B-24 / MW-24
Project No.: HER 42029205
Date(s): 9/16/2009
Logged By: Brent Eanes
Well/Boring Location: Across Providence Street in AST Fenced in Property
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental
Depth to Groundwater: 8.00
Date: 9/28/2009
Reference: Below Top-of-casing
Elevations - Ground Surface: 164.98
Inner Casing: NA
Reference: Top-of-casing
Water Table: 156.98
Date: 9/28/2009
Reference: Above MSL
Remarks: Stick up surface completions
Mean Sea Level (MSL)

Depth, Sample Pt.	Sample Depth	Blow Count	Lithologic Description	Graphical Logs Strata / Well Construction	Organic Vapor Headspace Analysis (ppm)	Elevation
		n/a	Dry to moist, green/orange, fine to medium, Sand (0-3')			
	1		Moist to saturated (7' bgs), gray, medium, Sand(3-13')		OVA 3-5' bgs 0.6 ppm @ 09:40	
5	2				▼ OVA 5-7' bgs 0.5 ppm @ 09:46 ▽	
	3				OVA 7-9' bgs 0.8 ppm @ 09:51	
10	4				OVA 9-11' bgs 0.7 ppm @ 09:58	
			Moist, gray, very stiff/dense, Clay (13-14')			
15			14.00' Auger termination / Well screen set @ 13.0' BGS			
20						

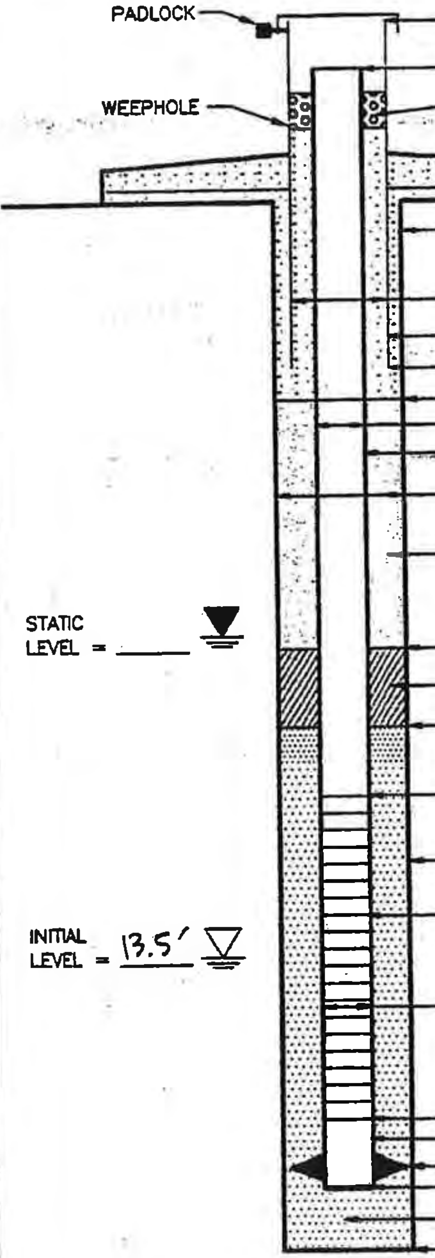
Note Not all portions of this form are applicable to all projects

6/91

MONITORING WELL COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 2/22/00
DRILLER G + E Services
GEOLOGIST Ryan

PAGE 1 OF 1
WELL NO. MW-7
DRILLING METHOD HSA
METHOD OF DEVELOPMENT



STATIC LEVEL =
INITIAL LEVEL = 13.5'

HEIGHT OF TOP OF SURFACE CASING ABOVE GROUND SURFACE
ELEVATION/HEIGHT OF TOP OF RISER PIPE
FILLER MATERIAL
SIZE AND TYPE OF APRON
PAD ELEVATION
GROUND SURFACE ELEVATION
TYPE OF SURFACE SEAL Portland Cement with Sand
INSIDE DIAMETER OF SURFACE CASING 4"
TYPE OF SURFACE CASING 4" x 4" x 5' Hinged Metal Shroud
DEPTH OF SURFACE CASING BELOW GROUND 2.4'
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE 1'
INSIDE DIAMETER OF RISER PIPE 2"
TYPE OF RISER PIPE PVC
DIAMETER OF BOREHOLE 6 3/4"
TYPE OF BACKFILL Pure Gold Bentonite Gel
DEPTH OF TOP OF SEAL (PRE/POST HYDRATION) 6'
TYPE OF SEAL Bentonite Chips
DEPTH OF TOP OF SAND PACK (INITIAL/POST SURGE/FINAL) 8'
DEPTH OF TOP OF SCREENED SECTION 10.4'
TYPE OF SAND PACK 20/40 Filter Pack
TYPE OF SCREENED SECTION PVC Factory Slotted Pipe
OPENING SPACING 10 Slot
OPENING SIZE 0.01"
INSIDE DIAMETER OF SCREENED SECTION 2"
DEPTH OF BOTTOM OF SCREENED SECTION 20.4'
LENGTH OF BLANK SECTION N/A
CENTRALIZER
DEPTH OF BOTTOM OF PLUGGED BLANK SECTION 20.4'
TYPE OF BACKFILL BELOW OBSERVATION PIPE N/A
DEPTH OF BOREHOLE 20.8'

Eco•Systems, Inc.
Environmental Engineers and Scientists

SHEET 1 OF ___

BORING LOG

PROJECT NAME Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER
GEOLOGIST J Ryan
CLASSIFICATION SCHEME
DRILLER G+E Services
DRILL METHOD HSA
WEATHER Sunny & WARM (62°)

BORING IDENTIFICATION MW-7
BORE HOLE DIAMETER 8"
BORING START TIME 1045 DATE 2-22-00
BORING COMPLETED TIME 1159 DATE 2-22-00
FINAL BORING DEPTH 20'

GROUNDWATER
INITIAL DEPTH
DEPTH AFTER ___ MINUTES ___

FREE PRODUCT
THICKNESS
VOLUME

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL PID/blows/6	LITHOLOGY	
	2			No Sampling 0-10' (see TP-8 Log)
	4			
	6			
	8			
	10			
10"	~~13.9~~	3/15 50/6"	SP	DAMP, med-dense, tAN-brown, ~~f.~~ f-Med fgRN, ~~Si~~ Sa w/Si; poorly sorted w/gravel moist No odor
13"	12 ~~10.8~~	14/30 37/30	SP	wet-sat, Dense, tan-H brn, f-med
19"	14 ~~5.7~~	6/12 18/16	SM	SAT, med-dense, (Salmon tint), v.f-med, SiSa (14'-17.5');
13"	16 ~~20.2~~	3/3 10/28	SM	coarsens Med-crs, ~~Sand~~ trace Gravel Gravelly Sa (17.5'-18.9')
Full	18 ~~0.1~~ 20	8/3 6/10	2.25' 3.25' 3.75'	18.9' DRY, stiff, tan w/gray mottling, clay w/Si 18.9

TD = 20'

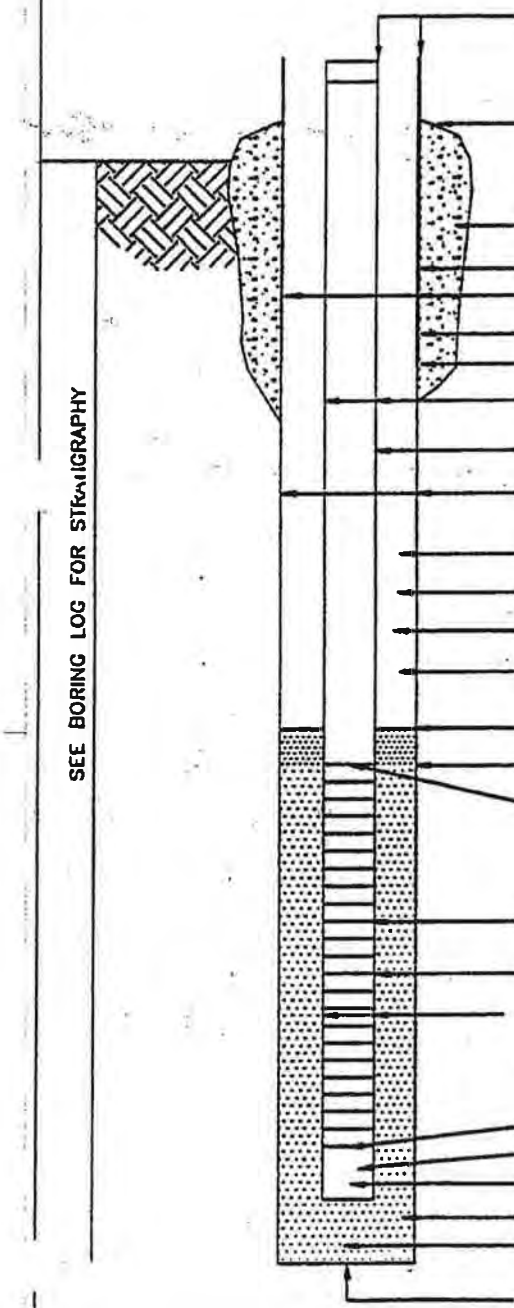
—15—

Eco-Systems, Inc.
Environmental Engineers and Scientists

MONITORING WELL COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 2/22 ORIGINAL DEPTH
DRILLER G+E Services DRILL METHOD HSA
GEOLOGIST J Ryan DATE 2/22/00

PAGE 1 OF 1
WELL NO. MW-8
ORIGINAL WATER LEVEL
DEPTH INTERVAL



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE 4.0'
HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE — NA
TYPE OF SURFACE SEAL Portland Cement w/ Sand
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE 2½"
INSIDE DIAMETER OF SURFACE CASING 4"
TYPE OF SURFACE CASING 4"x4"x5' Hinged Metal Shroud
DEPTH OF SURFACE CASING BELOW GROUND 2.4"
INSIDE DIAMETER OF RISER PIPE 2.0"
TYPE OF RISER PIPE PVC
DIAMETER OF BOREHOLE 6 3/4"
TYPE OF BACKFILL Pure Gold Bentonite Grout
ELEVATION / DEPTH TOP OF SEAL
TYPE OF SEAL Bentonite Chips
ELEVATION / DEPTH BOTTOM OF SEAL - 8.½"
DEPTH OF TOP OF SAND PACK 4.0"
TYPE OF SAND PACK 20/40 Filter Pack
ELEVATION / DEPTH TOP OF SCREENED SECTION 6.0"
TYPE OF SCREENED SECTION PVC slotted Pipe
DESCRIBE OPENINGS 10 slot
INSIDE DIAMETER OF SCREENED SECTION 0.01
ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 16.0"
LENGTH OF BLANK SECTION 0.3"
ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 16.3"
ELEVATION/DEPTH BOTTOM OF SAND COLUMN —
TYPE OF BACKFILL BELOW OBSERVATION PIPE —
ELEVATION/DEPTH OF HOLE 16.3"

FRM005.DWG

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Environmental Engineers and Scientists

SHEET 1 OF __

BORING LOG

PROJECT NAME Hercules

PROJECT LOCATION Hattiesburg, MS

PROJECT NUMBER

GEOLOGIST J. Ryan

CLASSIFICATION SCHEME

DRILLER CLE Services

DRILL METHOD HSA

WEATHER Warm, Sunny, Windy

BORING IDENTIFICATION MW-8

BORE HOLE DIAMETER 6"

BORING START TIME 16:10 DATE 2/22/00

BORING COMPLETED TIME 1635 DATE 2-22-00

FINAL BORING DEPTH 16.3'

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY
	5		
	10		
	15		

GROUNDWATER

INITIAL DEPTH

DEPTH AFTER ___ MINUTES ___

FREE PRODUCT

THICKNESS

VOLUME

NO Sampling
(See TP-10 Log)
• Installed ~7' west of TP-10

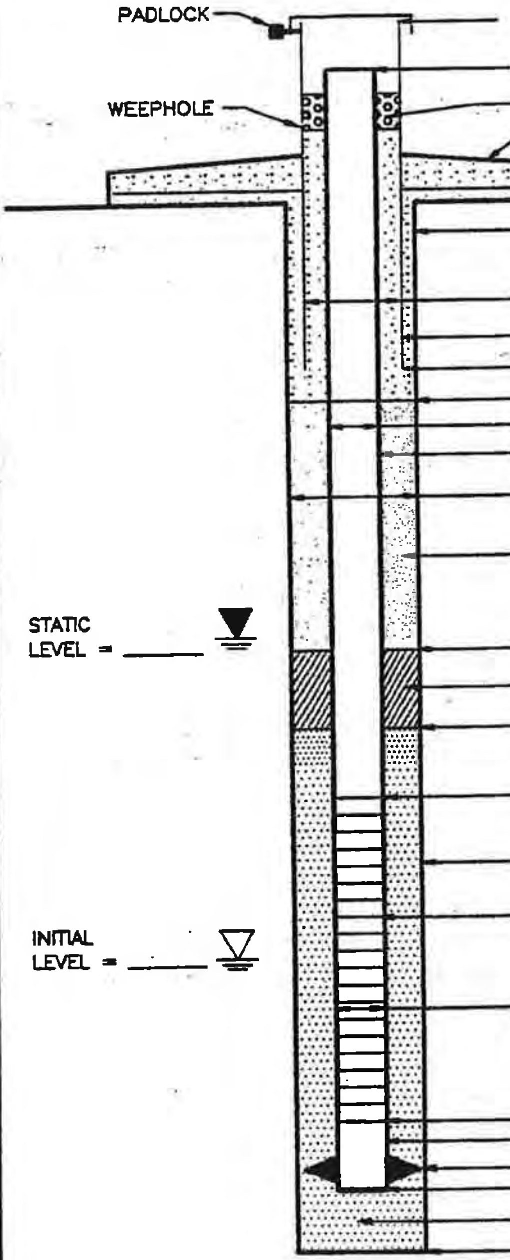
– Set MW-8 ~6-16'

Eco-Systems, Inc.
Environmental Engineers and Scientists

MONITORING WELL COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 2/28/00
DRILLER G + E Services
GEOLOGIST

PAGE ______ OF ______
WELL NO. MW-9
DRILLING METHOD HSA
METHOD OF DEVELOPMENT



HEIGHT OF TOP OF SURFACE CASING ABOVE GROUND SURFACE
ELEVATION/HEIGHT OF TOP OF RISER PIPE 2.8'
FILLER MATERIAL NA
SIZE AND TYPE OF APRON NA
PAD ELEVATION NA
GROUND SURFACE ELEVATION
TYPE OF SURFACE SEAL Portland Cement w/ sand
INSIDE DIAMETER OF SURFACE CASING 4"
TYPE OF SURFACE CASING 4" x 4" x 5' Hinged Metal Shroud
DEPTH OF SURFACE CASING BELOW GROUND 2.4'
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE 1'
INSIDE DIAMETER OF RISER PIPE 2"
TYPE OF RISER PIPE PVC
DIAMETER OF BOREHOLE 6 3/4"
TYPE OF BACKFILL Pure Gold Bentonite Gel
DEPTH OF TOP OF SEAL (PRE/POST HYDRATION) 3'
TYPE OF SEAL Bentonite Chips
DEPTH OF TOP OF SAND PACK (INITIAL/POST SURGE/FINAL) 5.0'
DEPTH OF TOP OF SCREENED SECTION 7.2'
TYPE OF SAND PACK 20/40 Filter Pack
TYPE OF SCREENED SECTION PVC Factory Slotted Pipe
OPENING SPACING 10 Slot
OPENING SIZE 0.01"
INSIDE DIAMETER OF SCREENED SECTION 2"
DEPTH OF BOTTOM OF SCREENED SECTION 17.2'
LENGTH OF BLANK SECTION 0.3'
CENTRALIZER
DEPTH OF BOTTOM OF PLUGGED BLANK SECTION 17.5'
TYPE OF BACKFILL BELOW OBSERVATION PIPE N/A
DEPTH OF BOREHOLE 17.5'

Eco•Systems, Inc.
Environmental Engineers and Scientists

BORING LOG

SHEET 1 OF

PROJECT NAME Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER
GEOLOGIST J. Ryan
CLASSIFICATION SCHEME
DRILLER G+E Services
DRILL METHOD HSA
WEATHER Sunny, Warm (70°), Windy

BORING IDENTIFICATION MW-9
BORE HOLE DIAMETER 8"
BORING START TIME 1445 DATE 2/22/00
BORING COMPLETED TIME 1518 DATE 2-22-00
FINAL BORING DEPTH 17.5'

GROUNDWATER
INITIAL DEPTH
DEPTH AFTER ____ MINUTES ____

FREE PRODUCT
THICKNESS
VOLUME

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY	
	2 4			No Sampling (0-5')
2' (full)	6 6.4 8	3/6 7/14		Sandy-Clay, med-stiff to stiff, mottled colouring (brown, red, grey), sand content increases w/ depth, no odor, damp
14"	10 2.9 12	2/2 4/8		mst ~~to wet~~, firm, gray-tan w/ orange laminae; SaSi (10-11.6') w/ vf. Sa; wet, Loose, VfSa Si; grade
20"	14 16 17.5 18	7/13 13/7	SP CH	SAT, Med-dense, white-tan, Grav, Sand (f-crs) 16.6' 16.6' DRY, stiff, brn-tan, CL w/ Si (trace Si stringers)
	20			Set MW-9 (10' Screen) TD=17.5'
	15			

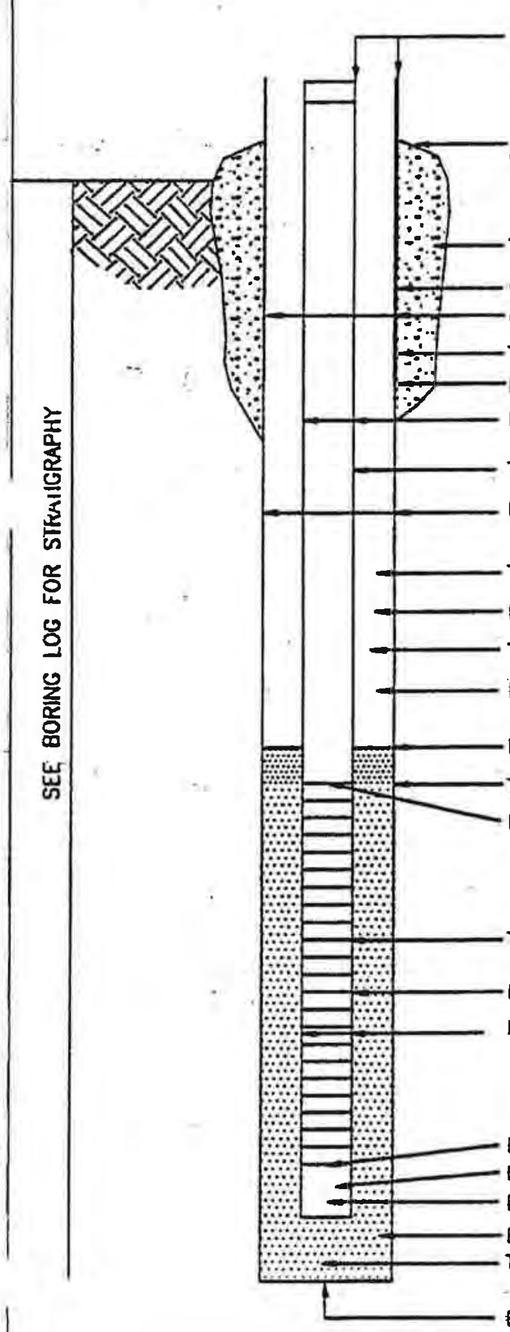
Eco-Systems, Inc.
Environmental Engineers and Scientists

MONITORING WELL COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 2/23
ORIGINAL DEPTH
DRILLER G+E Services
DRILL METHOD HSA
GEOLOGIST J Ryan
DATE 2/23/00

PAGE 1 OF 1
WELL NO. MW-10
ORIGINAL WATER LEVEL

DEPTH INTERVAL



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE 3.3'
HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE NA
TYPE OF SURFACE SEAL Portland Cement w/ Sand
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE 1'
INSIDE DIAMETER OF SURFACE CASING 4"
TYPE OF SURFACE CASING 4" x 4' x 5' Hinged Metal Shovel
DEPTH OF SURFACE CASING BELOW GROUND 2.4"
INSIDE DIAMETER OF RISER PIPE 2"
TYPE OF RISER PIPE PVC
DIAMETER OF BOREHOLE 6 3/4"
TYPE OF BACKFILL Pure Gold Bentonite Gel
ELEVATION / DEPTH TOP OF SEAL
TYPE OF SEAL Bentonite Chips
ELEVATION / DEPTH BOTTOM OF SEAL 2.0"
DEPTH OF TOP OF SAND PACK 4.0"
TYPE OF SAND PACK 20/40 Filter Pack
ELEVATION / DEPTH TOP OF SCREENED SECTION 6.7"
TYPE OF SCREENED SECTION PVC Slotted Pipe
DESCRIBE OPENINGS 10 slot
INSIDE DIAMETER OF SCREENED SECTION 0.01"
ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 14.7"
LENGTH OF BLANK SECTION
ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 14.7"
ELEVATION/DEPTH BOTTOM OF SAND COLUMN
TYPE OF BACKFILL BELOW OBSERVATION PIPE N/A
ELEVATION/DEPTH OF HOLE 14.7"

Eco-Systems
Environmental Engineers and Scientists

FRM005.DWG

SHEET 1 OF

BORING LOG

PROJECT NAME Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER
GEOLOGIST J Ryan
CLASSIFICATION SCHEME
DRILLER G+E Services
DRILL METHOD HSA
WEATHER

BORING IDENTIFICATION MW-10
BORE HOLE DIAMETER 8"
BORING START TIME 9:55 DATE 2/23/00
BORING COMPLETED TIME 10:07 DATE 2/23/00
FINAL BORING DEPTH 14'

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY
	5		
	10		
	15		

GROUNDWATER

INITIAL DEPTH
DEPTH AFTER MINUTES

FREE PRODUCT

THICKNESS
VOLUME

No Sampling (refer to TP-12)

Eco-Systems, Inc.
Environmental Engineers and Scientists

MONITORING WELL COMPLETION FORM

PROJECT NAME Hercules

LOCATION Hattiesburg, MS

DATE COMPLETED 2/23

ORIGINAL DEPTH

DRILLER J Ryan G+E

DRILL METHOD HSA

GEOLOGIST J Ryan

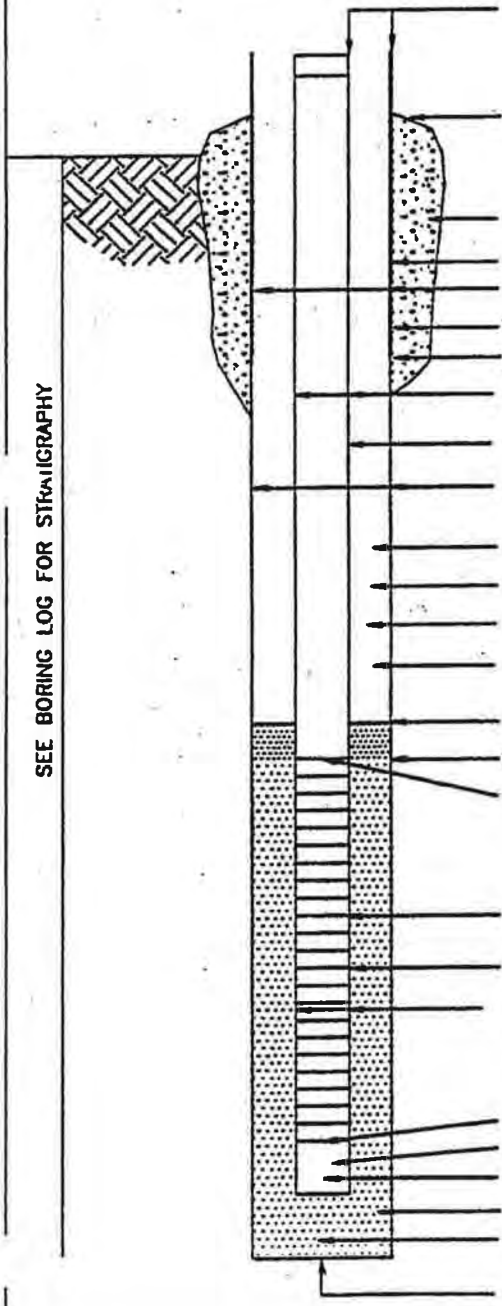
DATE 2/23/00

PAGE 1 OF 1

WELL NO. MW-11

ORIGINAL WATER LEVEL

DEPTH INTERVAL



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE

HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE

TYPE OF SURFACE SEAL Portland Cement w/ Sand

DEPTH OF SURFACE SEAL BELOW GROUND SURFACE 1'

INSIDE DIAMETER OF SURFACE CASING 4"

TYPE OF SURFACE CASING 4" x 4" x 5' Hinged Metal Shovel

DEPTH OF SURFACE CASING BELOW GROUND 2.4'

INSIDE DIAMETER OF RISER PIPE 2"

TYPE OF RISER PIPE PVC

DIAMETER OF BOREHOLE 6 3/4"

TYPE OF BACKFILL Pure Gold Bentonite Gel

ELEVATION / DEPTH TOP OF SEAL

TYPE OF SEAL Bentonite Chips

ELEVATION / DEPTH BOTTOM OF SEAL 1.0"

DEPTH OF TOP OF SAND PACK 3.0"

TYPE OF SAND PACK 20/40 Filter Pack

ELEVATION / DEPTH TOP OF SCREENED SECTION 6.7"

TYPE OF SCREENED SECTION PVC Slotted Pipe

DESCRIBE OPENINGS 10 slot

INSIDE DIAMETER OF SCREENED SECTION 0.01

ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 14"

LENGTH OF BLANK SECTION

ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 14"

ELEVATION/DEPTH BOTTOM OF SAND COLUMN

TYPE OF BACKFILL BELOW OBSERVATION PIPE

ELEVATION/DEPTH OF HOLE 14"

Eco-Systems
Environmental Engineers and Scientists

FRM005.DWG

SHEET 1 OF ___

BORING LOG

PROJECT NAME Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER ___
GEOLOGIST J Ryan
CLASSIFICATION SCHEME ___
DRILLER G+E Services
DRILL METHOD HSA
WEATHER Cloudy and Mild

BORING IDENTIFICATION MW-11
BORE HOLE DIAMETER 8"
BORING START TIME AM [illegible] 8:05 DATE 2/23/00
BORING COMPLETED TIME 8:15 DATE 2/23/00
FINAL BORING DEPTH 14'

GROUNDWATER

INITIAL DEPTH [illegible]
DEPTH AFTER ___ MINUTES ___

FREE PRODUCT

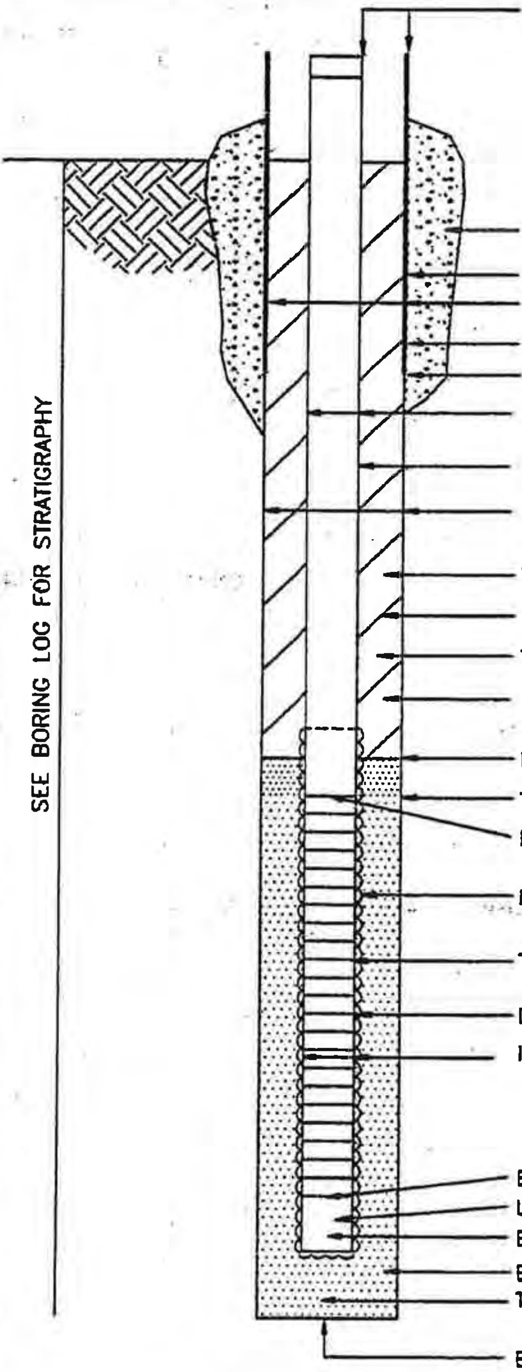
THICKNESS ___
VOLUME ___

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY	
				No Sampling (refer to TP-13)
	5			
	10			
	15			

Eco-Systems, Inc.
Environmental Engineers and Scientists

TEMPORARY MONITORING POINT COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 4/28/99
DRILLER G+E Services
GEOLOGIST J Ryan
INSPECTED BY
BOREHOLE DEPTH
DRILL METHOD HSA
DATE
PAGE 1 OF 1
WELL NO. TP-1
BOREHOLE WATER LEVEL ~6'
STATIC WATER LEVEL ~6.3' bls.
SCREEN INTERVAL 6.8-16.8'



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE /3.2' 172.18
HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE NA/3.2'
TYPE OF SURFACE SEAL NA
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE NA
INSIDE DIAMETER OF SURFACE CASING NA
TYPE OF PROTECTIVE CASING NA
DEPTH OF PROTECTIVE CASING BELOW GROUND NA
INSIDE DIAMETER OF RISER PIPE
TYPE OF RISER PIPE 1" PVC
DIAMETER OF BOREHOLE 6"
TYPE OF BACKFILL High-Solid Bentonite Grout
ELEVATION / DEPTH TOP OF SEAL 3'
TYPE OF SEAL Bent. Chips
ELEVATION / DEPTH BOTTOM OF SEAL 5'
DEPTH OF TOP OF SAND PACK 5'
TYPE OF SAND PACK 20/40 Silica Sand Native 12-17' 20/40 4.5-12'
ELEVATION / DEPTH TOP OF SCREENED SECTION 6.8'
FILTER SOCK No!
TYPE OF SCREENED SECTION 1" PVC
DESCRIBE OPENINGS 10-Slot
INSIDE DIAMETER OF SCREENED SECTION 1"
ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 16.8'
LENGTH OF BLANK SECTION 2"
ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 17'
ELEVATION/DEPTH BOTTOM OF SAND COLUMN 17'
TYPE OF BACKFILL BELOW OBSERVATION PIPE Native
ELEVATION/DEPTH OF HOLE 17.0'

Eco-Systems, Inc.
Environmental Engineers and Scientists

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BORING LOG

SHEET 1 OF 1

PROJECT NAME Task 2 - RI Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER HER-99
GEOLOGIST Ryan
CLASSIFICATION SCHEME USCS
DRILLER G+E Services
DRILL METHOD HSA w/ S-spoon
WEATHER Sunny + Hot (88°)

BORING IDENTIFICATION TP-1
BORE HOLE DIAMETER 6"
BORING START TIME 1355 DATE 4-28-99
BORING COMPLETED TIME 1418 DATE 4-28-99
FINAL BORING DEPTH 17'

GROUNDWATER

INITIAL DEPTH
DEPTH AFTER MINUTES

FREE PRODUCT

THICKNESS
VOLUME

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY
NS	2	Fill	~~NS~~
	4		
21"	~~0.0~~	1/2 3/4	
	6		
18"		WH/3 7/13	
	8		
15"		WH/4 5/7	
	10		
23"		3/13 23/32	
	12		
NS	14	NJ	NS
18"	16	8/6 8/12	
	18		
	20		
	15		

~~DAMP, firm, med-gray, fill (0-3')~~ Auger to 4' for obstruction (cuttings) ClSi w/vf. Sa gravel

DAMP, med-stiff gray w/ blue-green mottling, SaSiCL (vf.-f).

SAT, Loose, tan, 7' SiSa (vf)

med-Dense

V.Si

dense

trace Gravel (f-med)

(No Sampling 12-15)

SAT, Loose-Med,

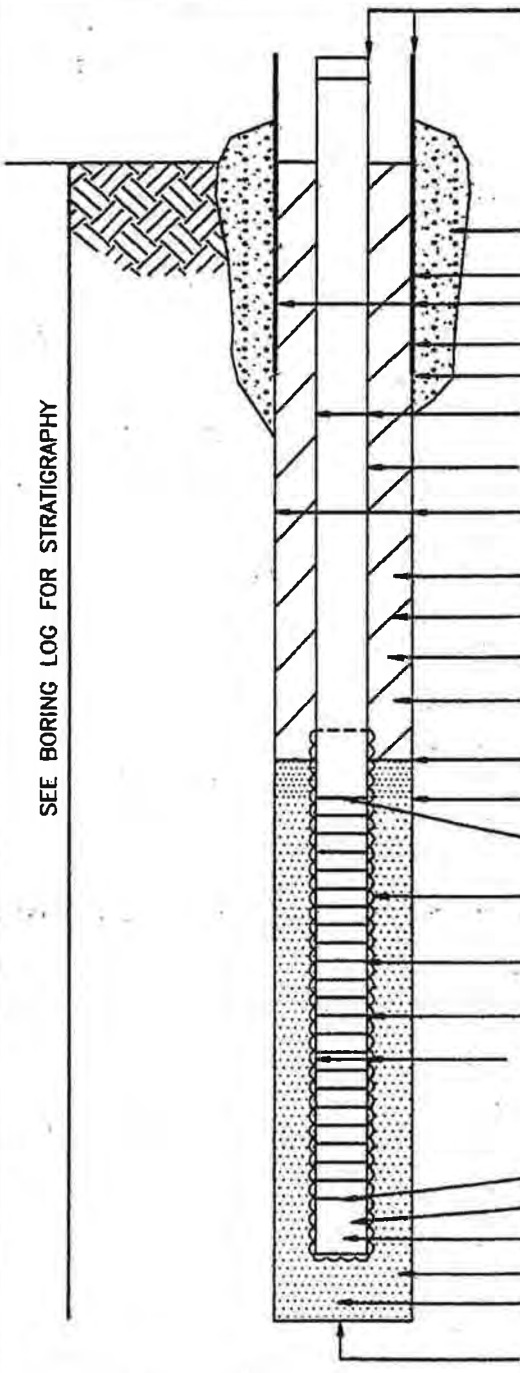
DRY, V. Stiff, greenish gray, Cl ~~ts~~ Si 17.2'

- Set TP-2 TD = 17.0'
- CAVE to 12' b/s.
- 20/40 to 9.0'
- Seal to 3.0' (Hydrate).

Eco-Systems, Inc.
Environmental Engineers and Scientists

TEMPORARY MONITORING POINT COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED
DRILLER G&E
GEOLOGIST Ryan
INSPECTED BY
BOREHOLE DEPTH 17.0'
DRILL METHOD HSA
DATE 4-28-99
PAGE 1 OF 1
WELL NO. TP-2
BOREHOLE WATER LEVEL 8'
STATIC WATER LEVEL
SCREEN INTERVAL 7-17'



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE ~~3.0'~~ 171.72
HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE NA /3.0'
TYPE OF SURFACE SEAL NA
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE NA
INSIDE DIAMETER OF SURFACE CASING NA
TYPE OF PROTECTIVE CASING NA
DEPTH OF PROTECTIVE CASING BELOW GROUND NA
INSIDE DIAMETER OF RISER PIPE 1"
TYPE OF RISER PIPE 1" PVC
DIAMETER OF BOREHOLE 6"
TYPE OF BACKFILL High-Solids Slurry- Bentonite ~~Chips~~- Hydrated
ELEVATION / DEPTH TOP OF SEAL 3'
TYPE OF SEAL Bentonite Chips
ELEVATION / DEPTH BOTTOM OF SEAL 4.5'
DEPTH OF TOP OF SAND PACK 4.5'
TYPE OF SAND PACK 20/40 Sand (to 13'), Native 13-17'
ELEVATION / DEPTH TOP OF SCREENED SECTION ~~16.8'~~ 6.8'
FILTER SOCK No
TYPE OF SCREENED SECTION 10 Slot PVC
DESCRIBE OPENINGS 10 Slot
INSIDE DIAMETER OF SCREENED SECTION 1"
ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 16.8'
LENGTH OF BLANK SECTION 2"
ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 17.0'
ELEVATION/DEPTH BOTTOM OF SAND COLUMN 17.0
TYPE OF BACKFILL BELOW OBSERVATION PIPE Native Sand
ELEVATION/DEPTH OF HOLE 17.0'

Eco-Systems, Inc.
Environmental Engineers and Scientists

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SHEET 1 OF __

BORING LOG

PROJECT NAME Task 2 – RI Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER HER-99
GEOLOGIST Ryan
CLASSIFICATION SCHEME USCS
DRILLER G&E Services, Inc.
DRILL METHOD HSA w/ S. Spoons
WEATHER Sunny, Hot (80s)

BORING IDENTIFICATION TP-2
BORE HOLE DIAMETER 2" → 6"
BORING START TIME 1135 DATE 4-28-99
BORING COMPLETED TIME 1212 DATE 4-28-99
FINAL BORING DEPTH 17.0'

GROUNDWATER
INITIAL DEPTH ~8'
DEPTH AFTER ______ MINUTES ______

FREE PRODUCT
THICKNESS ______
VOLUME ______

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY
20"	~~0.0~~	2/3 3/3	
	2		
22"	~~0.0~~	6/9 13/15	SM
	4		
21"	~~0.0~~	21/10 9/12	SM
	6		
23"	~~0.0~~	13/15 17/18	SM
	8		
22"	~~0.0~~	18/14 14/15	SM
	10		
21"		12/14 16/18	SM
	12		
NS		NS	NS
	14		
20"	16	3/12 10/10	SP
	18		
	20		
	15		

DAMP-DRY, LOOSE, BROWN, organics w/ sand, V.f. SaCL (6"–
Med-dense, Lt. Brn, V. SiSa (vf-f.
MOIST
w/ gray mottling, v.f. SiSa tr. cl
tan laminae @6.5' SiSa (vf)
WET
SAT
trace gravel
f-med
w/ gravel

No Sampling (12-15')
Drill out w/ HSA (heaving)

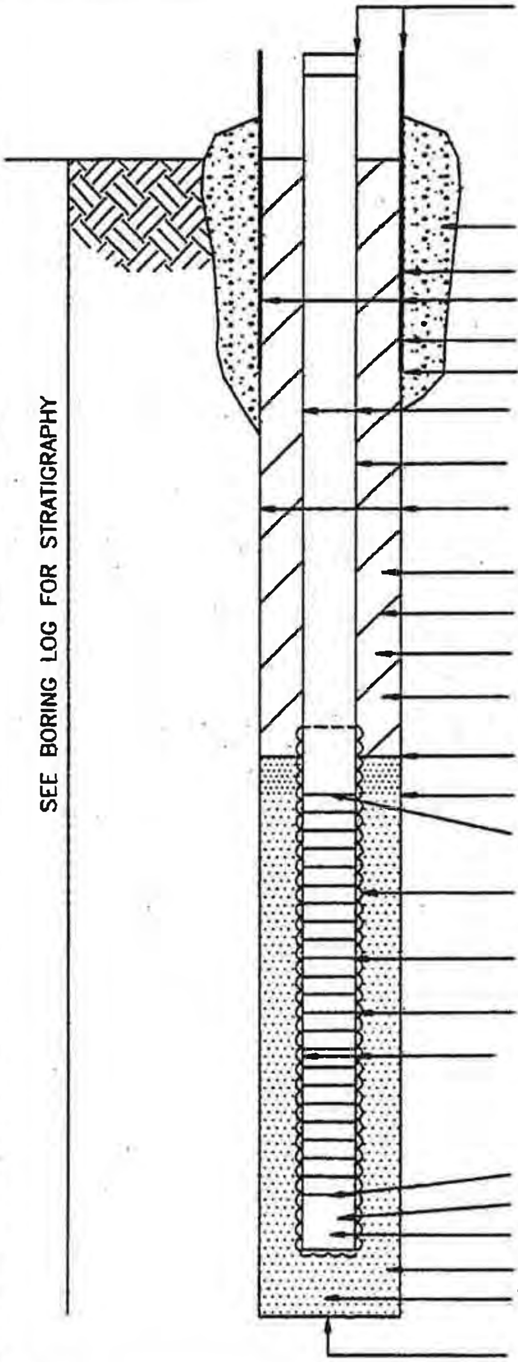
15' SAT, Loose, tan-white, Gravelly Sa w/ Si
17'

- Set TP-2 from ~6.5-16.5' TD=17.0'
- Backfill w/ Native Sand to ~13'
- 20/40 Sand to ~4.5'
- Pellets to ~0.5'

Eco-Systems, Inc.
Environmental Engineers and Scientists

TEMPORARY MONITORING POINT COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 4/28/99
DRILLER ERES Services
GEOLOGIST J Ryan
INSPECTED BY
BOREHOLE DEPTH
DRILL METHOD HSA
DATE
PAGE 1 OF 1
WELL NO. TP-3
BOREHOLE WATER LEVEL ~8'
STATIC WATER LEVEL
SCREEN INTERVAL 9.6-14.6'



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE 169.74
HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE NA / 2.5'
TYPE OF SURFACE SEAL NA
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE NA
INSIDE DIAMETER OF SURFACE CASING NA
TYPE OF PROTECTIVE CASING NA
DEPTH OF PROTECTIVE CASING BELOW GROUND NA
INSIDE DIAMETER OF RISER PIPE
TYPE OF RISER PIPE 1" PVC
DIAMETER OF BOREHOLE 6"
TYPE OF BACKFILL High Solids Bentonite Grout
ELEVATION / DEPTH TOP OF SEAL 3.0'
TYPE OF SEAL Bentonite Chips
ELEVATION / DEPTH BOTTOM OF SEAL 8.0'
DEPTH OF TOP OF SAND PACK 8.0'
TYPE OF SAND PACK 20/40 Sand (no native)
ELEVATION / DEPTH TOP OF SCREENED SECTION 9.6'
FILTER SOCK No!
TYPE OF SCREENED SECTION 10 slot 1" PVC
DESCRIBE OPENINGS 10 slot
INSIDE DIAMETER OF SCREENED SECTION 1"
ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 14.6'
LENGTH OF BLANK SECTION Flush
ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 14.6'
ELEVATION/DEPTH BOTTOM OF SAND COLUMN 16.0'
TYPE OF BACKFILL BELOW OBSERVATION PIPE SAnd 20/40
ELEVATION/DEPTH OF HOLE 16.0'

Eco-Systems, Inc.
Environmental Engineers and Scientists

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BORING LOG

SHEET 1 OF

PROJECT NAME Task 2- RI Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER HER-99
GEOLOGIST Ryan
CLASSIFICATION SCHEME USCS
DRILLER G+E Services
DRILL METHOD HSA w/ s-spoons
WEATHER Sunny Hot (88°)

BORING IDENTIFICATION TP-3
BORE HOLE DIAMETER 6"
BORING START TIME 1500 DATE 4-28-99
BORING COMPLETED TIME 1527 DATE 4-28-99
FINAL BORING DEPTH 16'

GROUNDWATER
INITIAL DEPTH
DEPTH AFTER ______ MINUTES ______

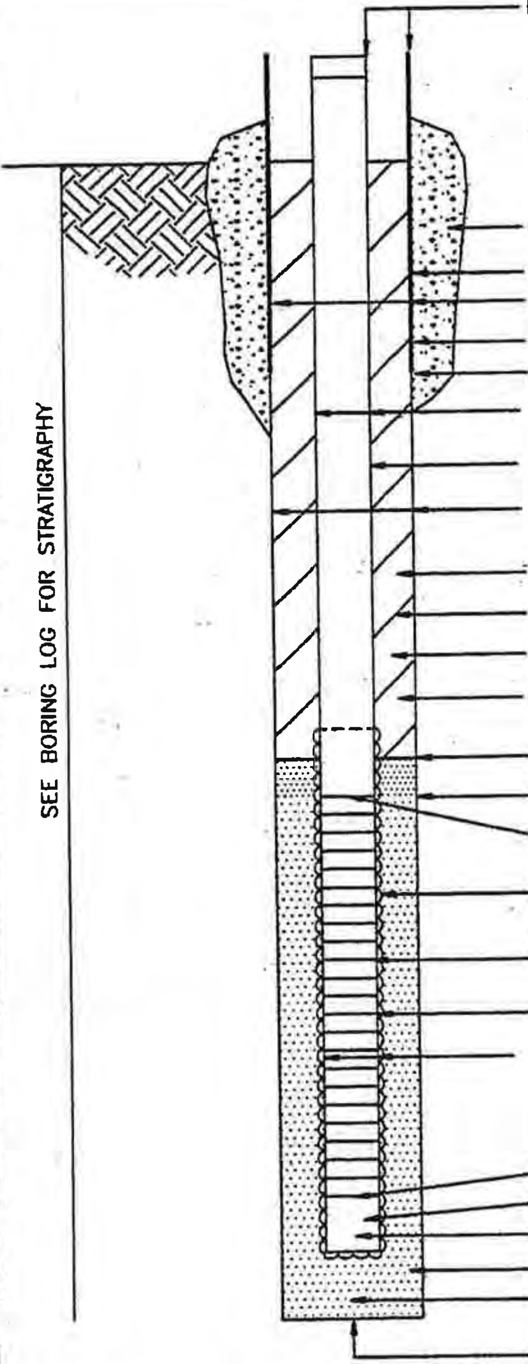
FREE PRODUCT
THICKNESS
VOLUME

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY	
NS	2		NS	NO Sampling 0-4'
	4			
Full	0.0	2/4 4/12		DAMP, Med, lt-gray+brn V.CLSa 4-5.1' Loose, tan, SiSa (5.1')
	6			
	8			NO Sampling (6-9')
22"	10	12/15 19/5	SM	SAT, Med-dense; tan w/white, Sa w/fi (f-med) tr. gravel
	12			NO Sampling
	14			SAT, as above (14-14.5'); SiSa tr gravel
18"		3/4 5/5		DRY; Med-St - Stiff, buff-tan, SiCl tr. lignite
	16			Set TP-3 to ~~10-15~~ 9.6'-14.6' TD=16.0'
	18			
	20			
	35			

Eco-Systems, Inc.
Environmental Engineers and Scientists

TEMPORARY MONITORING POINT COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg MS
DATE COMPLETED 4/23/99
DRILLER G+E Services
GEOLOGIST RyAN
INSPECTED BY
BOREHOLE DEPTH
DRILL METHOD HSA
DATE
PAGE 1 OF 1
WELL NO. TP-4
BOREHOLE WATER LEVEL ~4'
STATIC WATER LEVEL
SCREEN INTERVAL 5-10'



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE 163.64
HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE 2.5'
TYPE OF SURFACE SEAL NA
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE NA
INSIDE DIAMETER OF SURFACE CASING NA
TYPE OF PROTECTIVE CASING NA
DEPTH OF PROTECTIVE CASING BELOW GROUND NA
INSIDE DIAMETER OF RISER PIPE
TYPE OF RISER PIPE 1" PVC
DIAMETER OF BOREHOLE 6"
TYPE OF BACKFILL High Solid Bentonite Grout
ELEVATION / DEPTH TOP OF SEAL 1.6'
TYPE OF SEAL Bentonite Chips
ELEVATION / DEPTH BOTTOM OF SEAL 4'
DEPTH OF TOP OF SAND PACK 4'
TYPE OF SAND PACK 20/40 Sand (No Native)
ELEVATION / DEPTH TOP OF SCREENED SECTION 5'
FILTER SOCK NO!
TYPE OF SCREENED SECTION 10-Slot 1" PVC
DESCRIBE OPENINGS 10-Slot
INSIDE DIAMETER OF SCREENED SECTION 1"
ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 10'
LENGTH OF BLANK SECTION 2" Flush
ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 10'
ELEVATION/DEPTH BOTTOM OF SAND COLUMN 14'
TYPE OF BACKFILL BELOW OBSERVATION PIPE SAND 20/40
ELEVATION/DEPTH OF HOLE 14'

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Environmental Engineers and Scientists

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BORING LOG

SHEET 1 OF ___

PROJECT NAME Task 2 - RI Hercules

PROJECT LOCATION Hattiesburg, MS

PROJECT NUMBER HER-99

GEOLOGIST Ryan

CLASSIFICATION SCHEME USCS

DRILLER G+E Services

DRILL METHOD HSA w/ s-spoons

WEATHER Sunny + hot (88°)

BORING IDENTIFICATION TP-4

BORE HOLE DIAMETER 6"

BORING START TIME 1602 DATE 4-28-99

BORING COMPLETED TIME 1620 DATE 4-28-99

FINAL BORING DEPTH 14'

GROUNDWATER

INITIAL DEPTH ______

DEPTH AFTER ______ MINUTES ______

FREE PRODUCT

THICKNESS ______

VOLUME ______

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY	
NS	2		NS	Damp, firm, brown, No Sampling (observe cuttings) (0-5') V-CL Sa (Vf Sn v. Damp, Loose, tan, Sila ~4'
17"	5 6	6/7 7/6		moist, firm, gray-tan, V-Sila V-SaCL w/ Si (vf Sn).
	8	NS	NS	No Sampling 7-10'
22"	10 12	7/7 7/7 -/4 7/10	CL	DRY, stiff (crumbly), green-gray, Calcareous Clay br Silt. v. stiff, w/ brn mottling
	14			TD = 14.0'
	16 17			~~TD = 17.0'~~
	10			
	15			

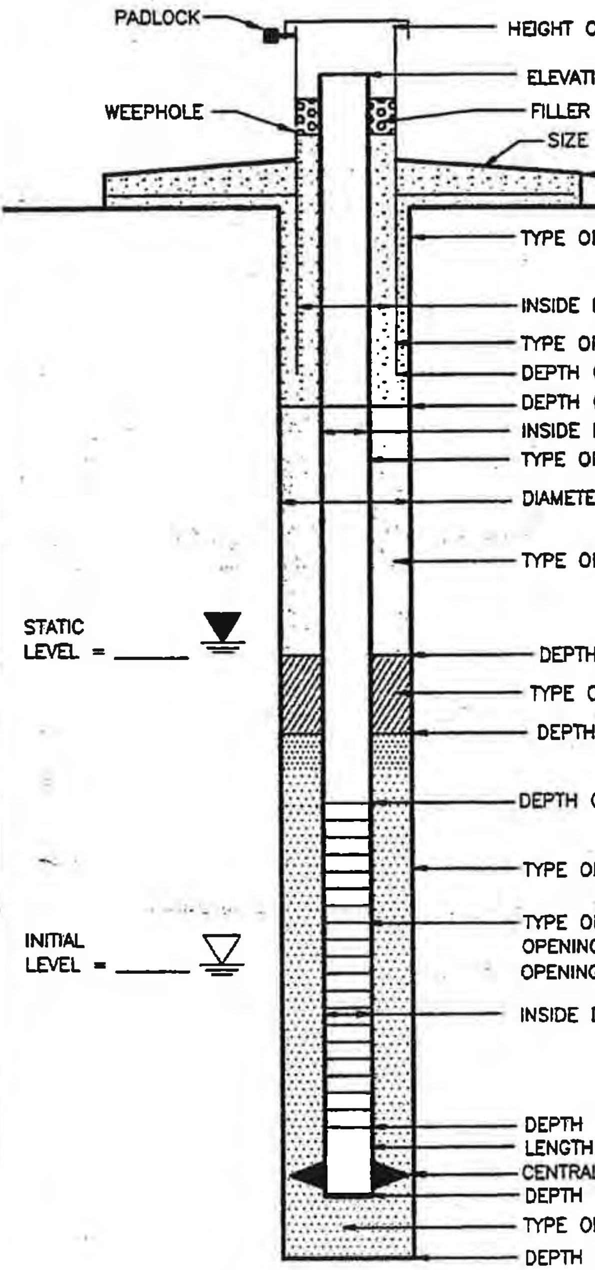
- Sand zone has pinched in this direction.
- Set 5' screen 5-10' b/s.

Eco-Systems, Inc.
Environmental Engineers and Scientists

·MONITORING WELL COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 4/29/99
DRILLER G&F Services
GEOLOGIST R Sartor

PAGE 1 OF 1
WELL NO. TP-5
DRILLING METHOD
METHOD OF DEVELOPMENT



HEIGHT OF TOP OF SURFACE CASING ABOVE GROUND SURFACE .460.54
ELEVATION/HEIGHT OF TOP OF RISER PIPE NA/2.6'
FILLER MATERIAL NA
SIZE AND TYPE OF APRON NA
PAD ELEVATION NA
GROUND SURFACE ELEVATION NA
TYPE OF SURFACE SEAL NA
INSIDE DIAMETER OF SURFACE CASING NA
TYPE OF SURFACE CASING NA
DEPTH OF SURFACE CASING BELOW GROUND NA
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE NA
INSIDE DIAMETER OF RISER PIPE 1'
TYPE OF RISER PIPE 1" PVC
DIAMETER OF BOREHOLE 6"
TYPE OF BACKFILL High Solids Bentonite Grout
DEPTH OF TOP OF SEAL (PRE/POST HYDRATION) 6'
TYPE OF SEAL Bentonite Chips
DEPTH OF TOP OF SAND PACK (INITIAL/POST SURGE/FINAL) 7'
DEPTH OF TOP OF SCREENED SECTION 9'
TYPE OF SAND PACK 20/40 Sand (1' of native)
TYPE OF SCREENED SECTION 10-slot screen
OPENING SPACING 10-slot
OPENING SIZE
INSIDE DIAMETER OF SCREENED SECTION 1"
DEPTH OF BOTTOM OF SCREENED SECTION 14'
LENGTH OF BLANK SECTION Flush
CENTRALIZER
DEPTH OF BOTTOM OF PLUGGED BLANK SECTION 14'
TYPE OF BACKFILL BELOW OBSERVATION PIPE Native
DEPTH OF BOREHOLE 15

Eco-Systems, Inc.
Environmental Engineers and Scientists

SHEET 1 OF __

BORING LOG

PROJECT NAME Task 2-RI Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER HER-99
GEOLOGIST Ryan
CLASSIFICATION SCHEME USCS
DRILLER G+E Services
DRILL METHOD HSA w/ s-spoons
WEATHER Sunny + hot

BORING IDENTIFICATION TP-5
BORE HOLE DIAMETER 6"
BORING START TIME 1700 DATE 4/29/99
BORING COMPLETED TIME 1715 DATE 4/29/99
FINAL BORING DEPTH 15

GROUNDWATER
INITIAL DEPTH 9'
DEPTH AFTER ____ MINUTES ____

FREE PRODUCT
THICKNESS ____
VOLUME ____

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY	moisture density odor color description
18"	2	3/3 4/4		damp loose no Black Si SA w/coarse sand glass
			NS	no samp 2-5
20"	5 7	2/7 4/6		damp stiff no gray & orange mottling Si Cl
			NS	no sampling 7-10 water @ ~9'
18'	10 12	7/11 11/12		saturated loose no tan C/SA w/Si
			NS	no sampling 12-13 ~~no sampling 12-15~~ KS
20"	13 15	2/7 7/18		saturated loose no tan Si Sa (9-14') ~~Fe~~ Si Cl (14'-15')
	10			
	15			

3-15

- TD @ 15'
- Set T.P-5 screen @ 9-14'
- Cave in to 13'
- 20/40 to 7'
- Seal to 6'

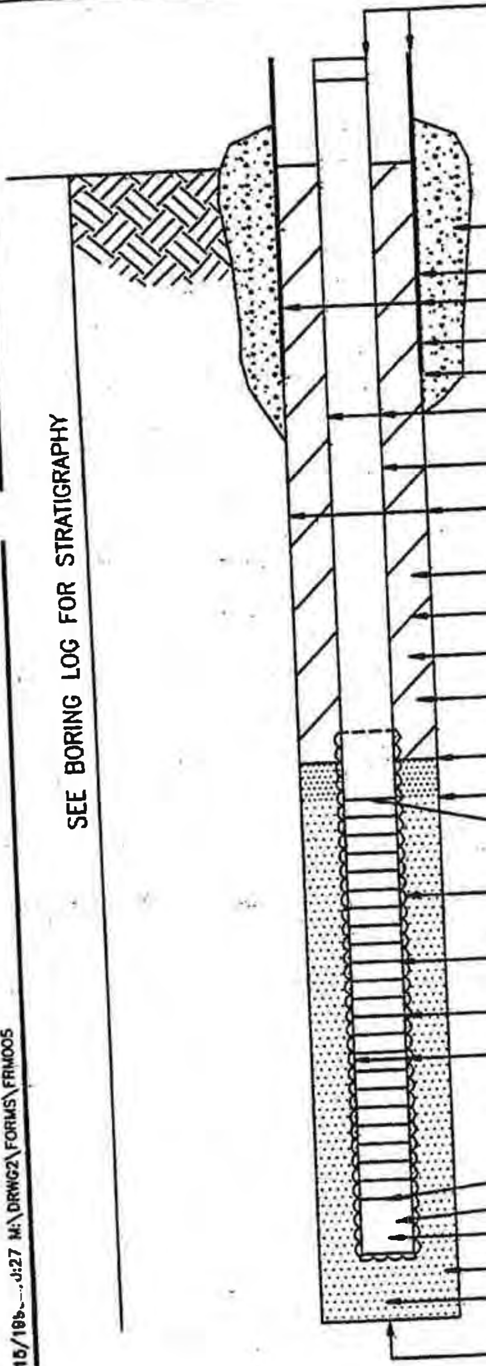
Eco-Systems, Inc.
Environmental Engineers and Scientists

TEMPORARY MONITORING POINT COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 4/28/95
DRILLER C&E Services
GEOLOGIST Ryan
INSPECTED BY

BOREHOLE DEPTH
DRILL METHOD HSA
DATE

PAGE 1 OF 1
WELL NO. TP-6
BOREHOLE WATER LEVEL
STATIC WATER LEVEL
SCREEN INTERVAL



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE 158.63
HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE NA/
TYPE OF SURFACE SEAL NA
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE NA
INSIDE DIAMETER OF SURFACE CASING NA
TYPE OF PROTECTIVE CASING NA
DEPTH OF PROTECTIVE CASING BELOW GROUND NA
INSIDE DIAMETER OF RISER PIPE 1"
TYPE OF RISER PIPE 1" PVC
DIAMETER OF BOREHOLE 6"
TYPE OF BACKFILL High-Solid Bentonite Grout
ELEVATION / DEPTH TOP OF SEAL 2'
TYPE OF SEAL Bentonite Chips
ELEVATION / DEPTH BOTTOM OF SEAL 7.0
DEPTH OF TOP OF SAND PACK 7.0'
TYPE OF SAND PACK 20/40 Sand
ELEVATION / DEPTH TOP OF SCREENED SECTION 10'
FILTER SOCK NO!
TYPE OF SCREENED SECTION 10-slot Screen
DESCRIBE OPENINGS 10-slot
INSIDE DIAMETER OF SCREENED SECTION 1"
ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 15'
LENGTH OF BLANK SECTION NA
ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION Flush
ELEVATION/DEPTH BOTTOM OF SAND COLUMN 15'
TYPE OF BACKFILL BELOW OBSERVATION PIPE 20/40 Sand
ELEVATION/DEPTH OF HOLE 17'

Eco-Systems, Inc.
Environmental Engineers and Scientists

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SHEET 1 OF ___

BORING LOG

PROJECT NAME Task 2 - RI Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER HER-99
GEOLOGIST Ryan
CLASSIFICATION SCHEME USCS
DRILLER G+E Services
DRILL METHOD HSA w/ S-spoons
WEATHER sunny+hot (88°)

BORING IDENTIFICATION TP-6
BORE HOLE DIAMETER 6"
BORING START TIME 1655 DATE 4-28-99
BORING COMPLETED TIME 1725 DATE 4-28-99
FINAL BORING DEPTH 17'

GROUNDWATER
INITIAL DEPTH ______
DEPTH AFTER ______ MINUTES ______

FREE PRODUCT
THICKNESS ______
VOLUME ______

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY
14"	2	1/3 5/6	
18"	4	3/4 4/4	
22"	6	5/7 7/7	
22"	8	10/11 27/22	
20"	10	10/14 14/14	
	12		
	14		
10"	16	2/6 10/17	
	18		
	20		
	15		

DRY, soft, dk brw, Silt w/ CL

DAMP, stiff-v.st, lt brw w/ mottlings, SiCL tr. gravel

v. damp, med, olive-brw, SaCL tr-gravel

wet-~~[illegible]~~ SAT, ~~loose~~ ~~med~~ med-dense olive-brw tan-white (Sa) (f-med. grained) @ SaCL tr. gravel SiSd tr. gravel w/ gravel

No Sampling 10-15'

v. DAMP, Med-stiff, gray-green V. SaCL w/ Si

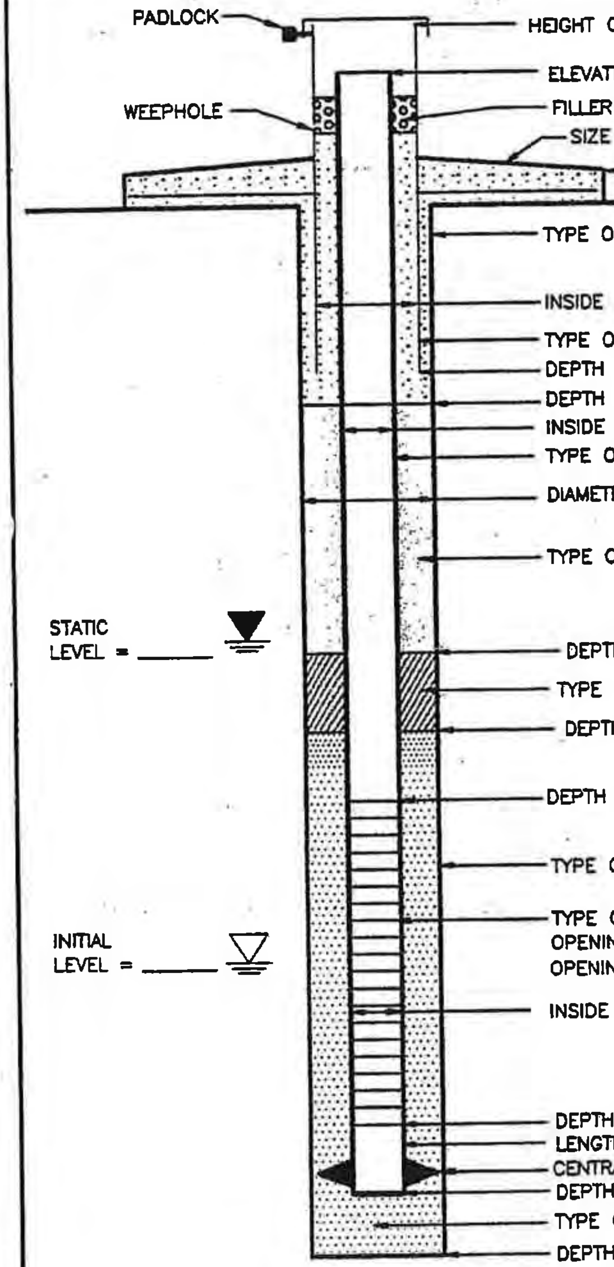
TD = 17'

Eco-Systems, Inc.
Environmental Engineers and Scientists

MONITORING WELL COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 4/28/99
DRILLER G&E Services
GEOLOGIST J Ryan

PAGE 1 OF 1
WELL NO. TP-7
DRILLING METHOD
METHOD OF DEVELOPMENT



HEIGHT OF TOP OF SURFACE CASING ABOVE GROUND SURFACE 167.17
ELEVATION/HEIGHT OF TOP OF RISER PIPE
FILLER MATERIAL NA
SIZE AND TYPE OF APRON NA
PAD ELEVATION NA
GROUND SURFACE ELEVATION NA
TYPE OF SURFACE SEAL NA
INSIDE DIAMETER OF SURFACE CASING NA
TYPE OF SURFACE CASING NA
DEPTH OF SURFACE CASING BELOW GROUND NA
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE 1'
INSIDE DIAMETER OF RISER PIPE 1"
TYPE OF RISER PIPE 1" PVC
DIAMETER OF BOREHOLE 6"
TYPE OF BACKFILL High-Solid Bentonite Grout
DEPTH OF TOP OF SEAL (PRE/POST HYDRATION) 3'
TYPE OF SEAL Bentonite Chips
DEPTH OF TOP OF SAND PACK (INITIAL/POST SURGE/FINAL) 4.8'
DEPTH OF TOP OF SCREENED SECTION 5'3"
TYPE OF SAND PACK 20/40 Sand (bottom 1' native)
TYPE OF SCREENED SECTION 10-slot screen
OPENING SPACING 10-slot
OPENING SIZE
INSIDE DIAMETER OF SCREENED SECTION 1"
DEPTH OF BOTTOM OF SCREENED SECTION ~10.3'
LENGTH OF BLANK SECTION ~~10.3~~ Flush
CENTRALIZER
DEPTH OF BOTTOM OF PLUGGED BLANK SECTION 10'3"
TYPE OF BACKFILL BELOW OBSERVATION PIPE Native Sands
DEPTH OF BOREHOLE 12'

Eco•Systems, Inc.
Environmental Engineers and Scientists

SHEET 1 OF __

BORING LOG

PROJECT NAME Task 2 - RI Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER HER-99
GEOLOGIST Ryan/Sartor
CLASSIFICATION SCHEME USCS
DRILLER G+E Services
DRILL METHOD HSA w/ S-Spoons
WEATHER Sunny hot

BORING IDENTIFICATION TP-7
BORE HOLE DIAMETER 6"
BORING START TIME 1605 DATE 4-29-99
BORING COMPLETED TIME 1620 DATE 4-29-99
FINAL BORING DEPTH 12'

GROUNDWATER
INITIAL DEPTH 6'
DEPTH AFTER ___ MINUTES ___

FREE PRODUCT
THICKNESS ___
VOLUME ___

	RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY	
					moisture density odor color dry
0-2	12	12 2	2/2 5/5		Damp loose no brown C/S, w/peat deposits
					no sample 2-5
5-7	16"	5 2 7	2/6 9/11		Damp loose no gray (vf-f) SaS, w/brmottle w/CL
					No sample 7-10 (from) SiSa@10' water@6'
	22"	18 12	4/4 4/8		Damp med stiff color insand gray brown S,Cl@11" w/peat
		10			
		15			

- TD@12'
- Convert to TP-7
- Cave in to 9'
- 20/40 to 4.0'
- Seal to 3.0'

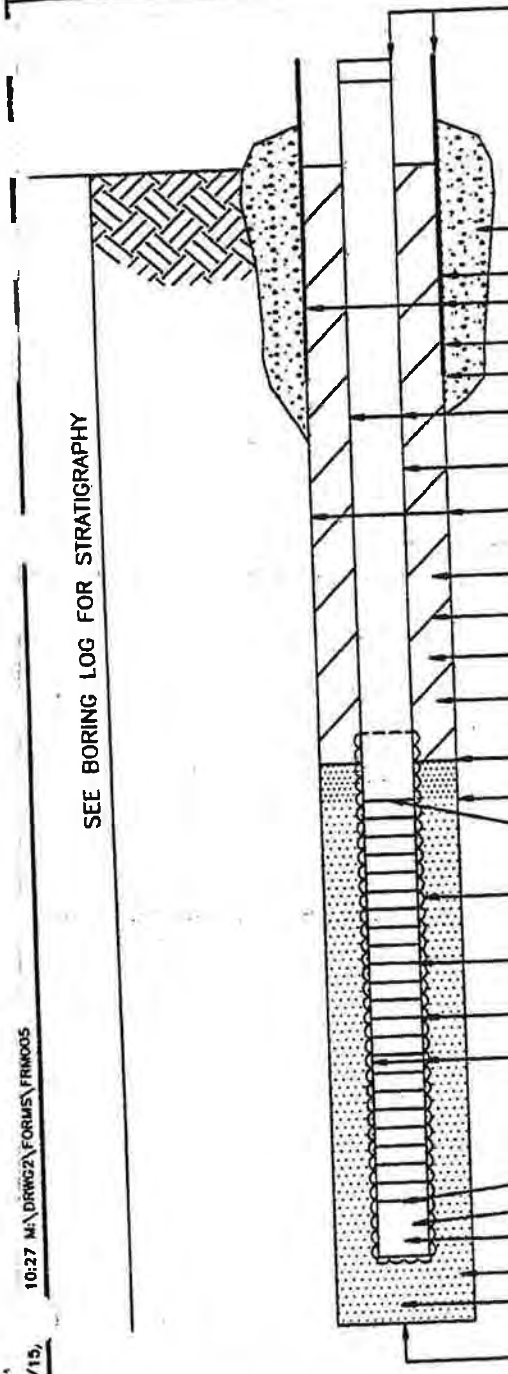
Eco-Systems, Inc.
Environmental Engineers and Scientists

TEMPORARY MONITORING POINT COMPLETION FORM

DJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 4/29/95
DRILLER G+E Service's
GEOLOGIST R Sartor
INSPECTED BY

BOREHOLE DEPTH
DRILL METHOD HSA
DATE

PAGE 1 OF 1
WELL NO. TP-8
BOREHOLE WATER LEVEL
STATIC WATER LEVEL
SCREEN INTERVAL 12.5-17.5



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE 183.75
HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE NA
TYPE OF SURFACE SEAL NA
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE NA
INSIDE DIAMETER OF SURFACE CASING NA
TYPE OF PROTECTIVE CASING NA
DEPTH OF PROTECTIVE CASING BELOW GROUND NA
INSIDE DIAMETER OF RISER PIPE 1"
TYPE OF RISER PIPE 1" PVC
DIAMETER OF BOREHOLE 6"
TYPE OF BACKFILL High solids Bentonite Grout
ELEVATION / DEPTH TOP OF SEAL 9'
TYPE OF SEAL Bentonite Chips
ELEVATION / DEPTH BOTTOM OF SEAL 10'
DEPTH OF TOP OF SAND PACK 10'
TYPE OF SAND PACK 20/40 Sand [illegible] little native
ELEVATION / DEPTH TOP OF SCREENED SECTION 12'5"
FILTER SOCK no!
TYPE OF SCREENED SECTION 10-slot screen
DESCRIBE OPENINGS 10-slot
INSIDE DIAMETER OF SCREENED SECTION 1"
ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 17.5
LENGTH OF BLANK SECTION Flush
ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 17.5
ELEVATION/DEPTH BOTTOM OF SAND COLUMN 18.5
TYPE OF BACKFILL BELOW OBSERVATION PIPE 20/40 Sand
ELEVATION/DEPTH OF HOLE 18.5

Geo-Systems, Inc.
Environmental Engineers and Scientists

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SHEET 1 OF

BORING LOG

PROJECT NAME Task 2-RI Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER HER-99
GEOLOGIST Ryan/Sartor
CLASSIFICATION SCHEME USCS
DRILLER G+E Services
DRILL METHOD HSA w/ S-spoons
WEATHER Sunny/Hot

BORING IDENTIFICATION TP-8
BORE HOLE DIAMETER 6"
BORING START TIME 1450 DATE 4/29/99
BORING COMPLETED TIME 1521 DATE 4/29/99
FINAL BORING DEPTH 18.5'

GROUNDWATER
INITIAL DEPTH 13'
DEPTH AFTER ______ MINUTES ______

FREE PRODUCT
THICKNESS ______
VOLUME ______

	RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY	
					moisture density odor color Description
-2	18"	0 2	4/7 6/4		Damp medstiff no odor orang ~~brown~~ Fill-6" CL/S, -lt
		4		NS	no sampling 2-5
5-7	18"	6	2/3 7/11		Damp medstiff no odor gray w/redmottling S.Cl
		8		~~NS~~	no sampling 7-10
10-12 (1ft)	10"	11 12	44/50		moist Med-dense ~~loose~~ no odor orange brown (f-m) g. Sa/gravel
		14		NS	no sample 11-15 water @ 13
15-17	18"	16	13/17 24/17		Saturated Med-dense ~~loose~~ no odor tan-lt brown (f-m) g. Sand/ c/d gravel
		18½		NS	no sampling 17-18.5
18.5-20.5		10	5/5 9/12		Damp, ~~dense~~ Stiff, no odor gray S.Cl

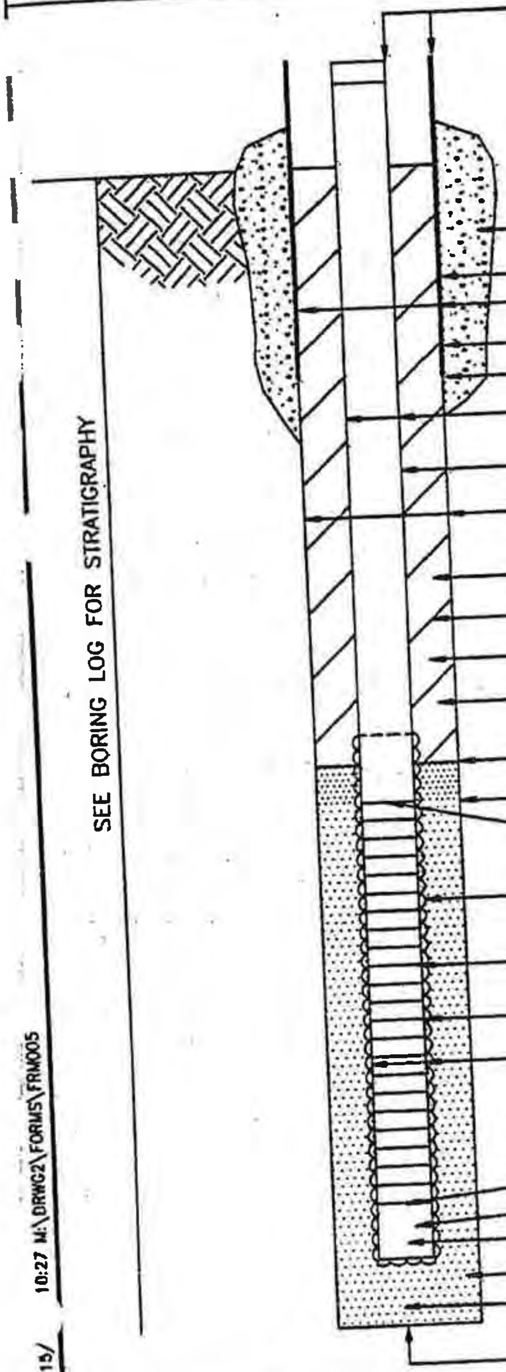
- Completed @ 15.2 @ 18.5'
- Convert to TP-8, screen @ 12.5-17.5'
- Cave in to 18'
- 20/40 to 10'
- Seal to 9'

— 15 —

Eco-Systems, Inc.
Environmental Engineers and Scientists

TEMPORARY MONITORING POINT COMPLETION FORM

JECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 4/29/99
DRILLER G+E Services
GEOLOGIST RSartor
INSPECTED BY
BOREHOLE DEPTH
DRILL METHOD HSA
DATE
PAGE 1 OF 1
WELL NO. TP-9
BOREHOLE WATER LEVEL
STATIC WATER LEVEL
SCREEN INTERVAL 4-9'



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE 163.44
HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE NA
TYPE OF SURFACE SEAL NA
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE NA
INSIDE DIAMETER OF SURFACE CASING NA
TYPE OF PROTECTIVE CASING NA
DEPTH OF PROTECTIVE CASING BELOW GROUND NA
INSIDE DIAMETER OF RISER PIPE 1"
TYPE OF RISER PIPE 1" PVC
DIAMETER OF BOREHOLE 6"
TYPE OF BACKFILL High Solids Bentonite Grout
ELEVATION / DEPTH TOP OF SEAL 2'
TYPE OF SEAL Ben Chips
ELEVATION / DEPTH BOTTOM OF SEAL 3'
DEPTH OF TOP OF SAND PACK 3'
TYPE OF SAND PACK 20/40 (native)
ELEVATION / DEPTH TOP OF SCREENED SECTION
FILTER SOCK No.
TYPE OF SCREENED SECTION 10-slot
DESCRIBE OPENINGS 10-slot
INSIDE DIAMETER OF SCREENED SECTION 1"
ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 9'
LENGTH OF BLANK SECTION Flush
ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 9'
ELEVATION/DEPTH BOTTOM OF SAND COLUMN 10'
TYPE OF BACKFILL BELOW OBSERVATION PIPE Native
ELEVATION/DEPTH OF HOLE 10'

Eco-Systems, Inc.
Environmental Engineers and Scientists

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SHEET 1 OF

BORING LOG

PROJECT NAME Task 2-RI Hercules

PROJECT LOCATION Hattiesburg, MS

PROJECT NUMBER AER-99

GEOLOGIST Ryan/Sartor

CLASSIFICATION SCHEME USCS

DRILLER G+E Services

DRILL METHOD HSA w/ s-spoons

WEATHER Sunny/Hot

BORING IDENTIFICATION TP-9

BORE HOLE DIAMETER 6"

BORING START TIME 1815 DATE 4/29/95

BORING COMPLETED TIME DATE

FINAL BORING DEPTH

GROUNDWATER

INITIAL DEPTH ~4

DEPTH AFTER MINUTES

FREE PRODUCT

THICKNESS

VOLUME

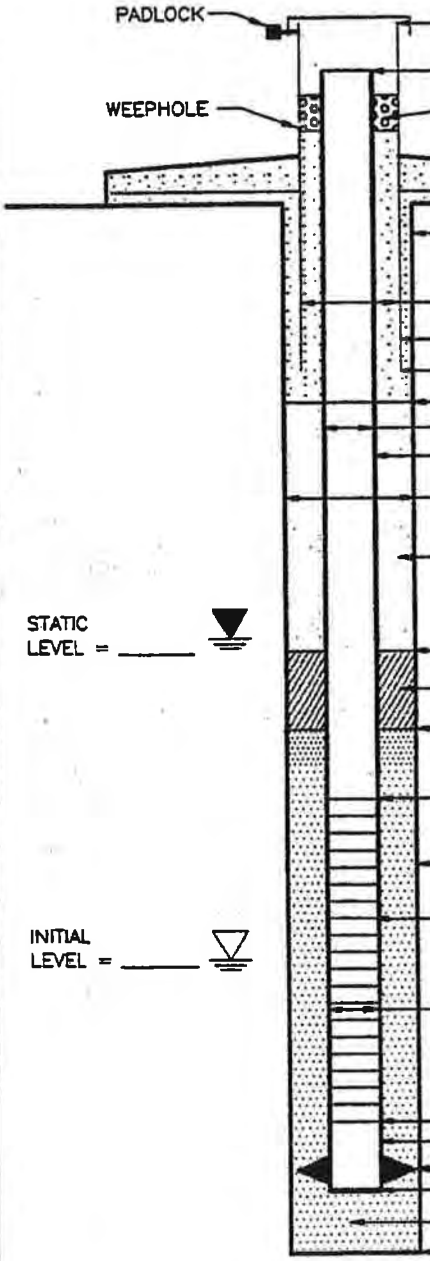
RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY	
18"	2	2/2 2/2		damp loos noodor Black w/gray S.Sa/gravl
				no sampling 2-5 water@4'
10"	5 7	1/1 1/1		damp to moist stiff no odor gray w/mottling S.Cl
				No Sample 7-10
20"	10 12	2/3 4/6		damp stiff no gray/gre S.Cl
	13 14 15			no sampling 12-15
20	17	2/3 10/11		damp stiff no graygreen S.Cl
	18 19			no sampling 17-20
20	10	4/9 12/14		damp dense no grey Cl w/silt
				+ Drill new boring to 10 ft bgs screen @ 4-9'
	15			• Set TP-9 • Cave in to 8' • 20/40 to 3' • Seal to 2'

Eco-Systems, Inc.
Environmental Engineers and Scientists

MONITORING WELL COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 4/29/99
DRILLER G & E Services
GEOLOGIST R Sartor

PAGE 1 OF 1
WELL NO. T1-10
DRILLING METHOD
METHOD OF DEVELOPMENT
8-14.5'



HEIGHT OF TOP OF SURFACE CASING ABOVE GROUND SURFACE
ELEVATION/HEIGHT OF TOP OF RISER PIPE 179.69/2"
FILLER MATERIAL NA
SIZE AND TYPE OF APRON NA
PAD ELEVATION NA
GROUND SURFACE ELEVATION NA
TYPE OF SURFACE SEAL NA
INSIDE DIAMETER OF SURFACE CASING NA
TYPE OF SURFACE CASING NA
DEPTH OF SURFACE CASING BELOW GROUND NA
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE 4½'
INSIDE DIAMETER OF RISER PIPE 1"
TYPE OF RISER PIPE 1" PVC
DIAMETER OF BOREHOLE 6"
TYPE OF BACKFILL
DEPTH OF TOP OF SEAL (PRE/POST HYDRATION)
TYPE OF SEAL Bentonite Chips
DEPTH OF TOP OF SAND PACK (INITIAL/POST SURGE/FINAL) 5½"
DEPTH OF TOP OF SCREENED SECTION 8'
TYPE OF SAND PACK 20/40 Sand Pack (Native)
TYPE OF SCREENED SECTION 10-Slot PVC
OPENING SPACING 10-Slot
OPENING SIZE
INSIDE DIAMETER OF SCREENED SECTION 1"
DEPTH OF BOTTOM OF SCREENED SECTION 14.5'
LENGTH OF BLANK SECTION Flush
CENTRALIZER
DEPTH OF BOTTOM OF PLUGGED BLANK SECTION 14.5'
TYPE OF BACKFILL BELOW OBSERVATION PIPE Native
DEPTH OF BOREHOLE 17

Eco-Systems, Inc.
Environmental Engineers and Scientists

BORING LOG

SHEET 1 OF __

PROJECT NAME Task 2 - RI Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER 4BR-95
GEOLOGIST Sartor
CLASSIFICATION SCHEME USCS
DRILLER G+E Services
DRILL METHOD HSA w/ S-spoons
WEATHER Sunny/Hot

BORING IDENTIFICATION TP-10
BORE HOLE DIAMETER 6"
BORING START TIME 1058 DATE 4-29-95
BORING COMPLETED TIME 1115 DATE 4-29-95
FINAL BORING DEPTH 17 ~~16.5'~~

GROUNDWATER

INITIAL DEPTH ~11'
DEPTH AFTER ____ MINUTES ____

FREE PRODUCT

THICKNESS ____
VOLUME ____

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY	
22"	0.0	3/4 6/5		Dry loose Brown/Black (vf-f) Si Sa (R,11)
	2			
12"	0.0	6/6 3/3		Damp / / / (f-m~~ed~~)
	4			
12"	4.0	3/3 6/3		Moist Firm -5' unnatural odor Gray Silt w/clay
	6			
14"	2.0	3/4 4/21		Moist Loose ↓ silt grayish (vf-f) Si Sa
	8			
12"	5.4	3/4 4/5		moist Loose / / /
	10			
10"	25	7/9 12/12		wet (saturated) medium dense tan (f-m) Si Sa ~~w/gravel~~ / RS
	12			
20"	138	10/10 14/17		saturated / ↓ / /
	14			
				no sample 14-14.5
20"	16	1/1 4/5		~~saturated~~ damp stiff ↓ gray w/ mottling ~~(f-m) Si Sa w/silt~~ Si Cl w/Gm
	18			
	—10—			
	—15—			

- Completed @ 1115 @ 16.5' TD (14.5-17')
- Convert to TP-10 (8-14.5')
- 20/40 to 5½'
- Seal to 4½'
- 1' of Cave in to 13.5'

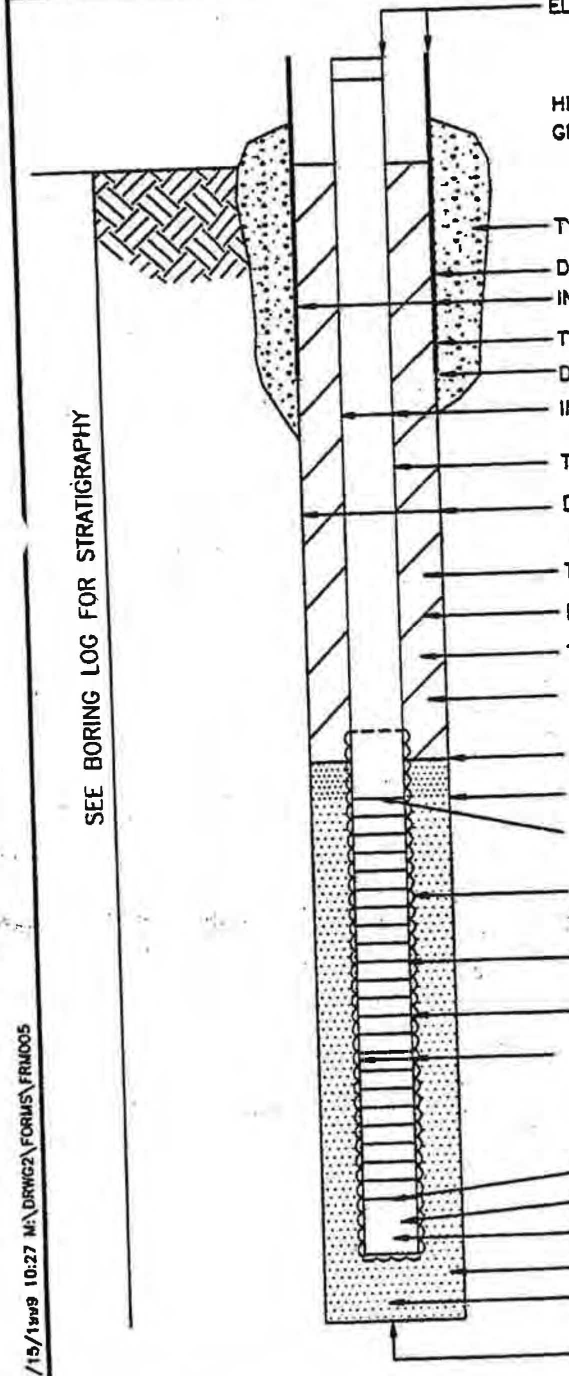
Eco-Systems, Inc.
Environmental Engineers and Scientists

TEMPORARY MONITORING POINT COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 4/29/99
DRILLER G+E Services
GEOLOGIST R Sartor
INSPECTED BY

BOREHOLE DEPTH
DRILL METHOD HSA
DATE

PAGE 1 OF 1
WELL NO. TP-11
BOREHOLE WATER LEVEL
STATIC WATER LEVEL
SCREEN INTERVAL 8-13



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE 162.26
HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE NA
TYPE OF SURFACE SEAL NA
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE NA
INSIDE DIAMETER OF SURFACE CASING NA
TYPE OF PROTECTIVE CASING NA
DEPTH OF PROTECTIVE CASING BELOW GROUND NA
INSIDE DIAMETER OF RISER PIPE 1"
TYPE OF RISER PIPE PVC
DIAMETER OF BOREHOLE 6"
TYPE OF BACKFILL High Solids Bentonite Grout
ELEVATION / DEPTH TOP OF SEAL 5.5
TYPE OF SEAL Bent Chips
ELEVATION / DEPTH BOTTOM OF SEAL 6.5
DEPTH OF TOP OF SAND PACK 6.5'
TYPE OF SAND PACK 20/40 Sand (4' of fallback)
ELEVATION / DEPTH TOP OF SCREENED SECTION 8'
FILTER SOCK No!
TYPE OF SCREENED SECTION 10slot
DESCRIBE OPENINGS 10 slot screen
INSIDE DIAMETER OF SCREENED SECTION 1"
ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 13'
LENGTH OF BLANK SECTION Flush
ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 13'
ELEVATION/DEPTH BOTTOM OF SAND COLUMN 15'
TYPE OF BACKFILL BELOW OBSERVATION PIPE Native
ELEVATION/DEPTH OF HOLE 15'

Eco-Systems, Inc.
Environmental Engineers and Scientists

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BORING LOG

SHEET 1 OF __

PROJECT NAME Task 2 - RI Hercules

PROJECT LOCATION Hattiesburg, MS

PROJECT NUMBER AER-95

GEOLOGIST Ryan

CLASSIFICATION SCHEME USCS

DRILLER G+E Services

DRILL METHOD HSA w/ S-spoons

WEATHER sunny/hot

BORING IDENTIFICATION TP-11

BORE HOLE DIAMETER 6"

BORING START TIME 1735 DATE 4/25/99

BORING COMPLETED TIME 1735 DATE 4/28/99

FINAL BORING DEPTH 15'

GROUNDWATER

INITIAL DEPTH 7.5'

DEPTH AFTER ____ MINUTES ____

FREE PRODUCT

THICKNESS ____

VOLUME ____

	RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY	
	20'		3/1 2/4		damp loose noodor Blck S.Sa/gravel
		2 3 4		NS	no sample 5-7
5-7	12"	5	2/2 4/5		moist loos noodr tan S.Sa/gravel water @8.5
		7 8 9		NS	no sampling 7-10
10-12	22"	10	3/3 5/9		saturated loose noodr gray/white S.SA/gravel
	20"	12 14	7/7 15/15		saturated fin noodor gray S.Cl.

—10—

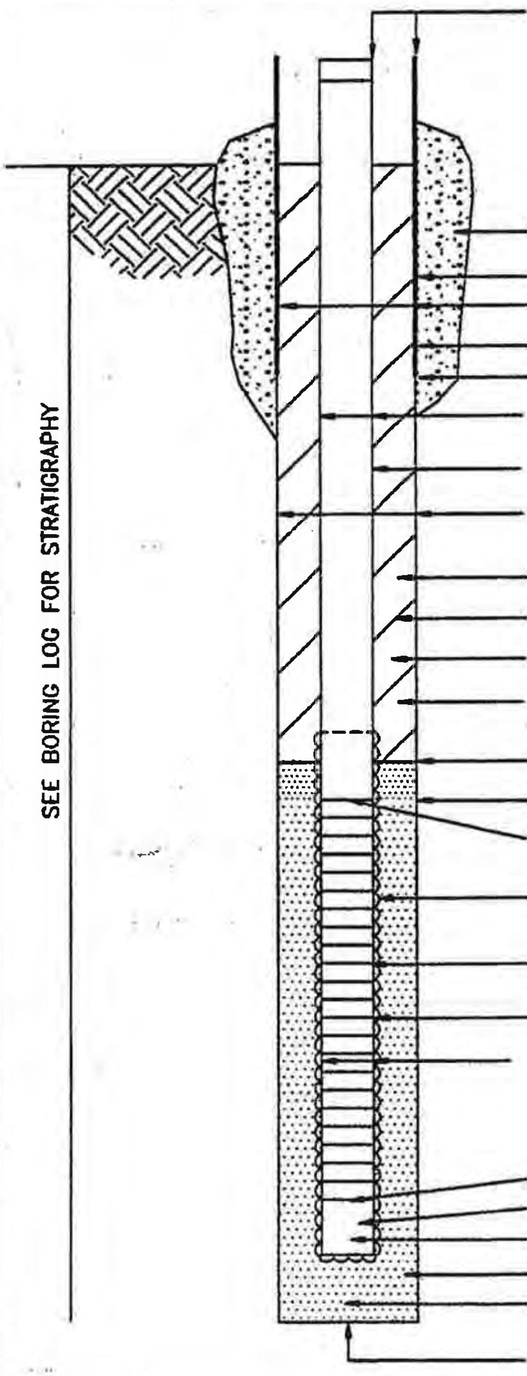
—15—

- Completed @ 15 ft bgs
- TP-11 screen @ 8-13'
- Cave in to 9'
- 20/40 to 6.5'
- Seal to 5.5'

Eco-Systems, Inc.
Environmental Engineers and Scientists

TEMPORARY MONITORING POINT COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 4/29/99
DRILLER G+E Services
GEOLOGIST R Sartor
INSPECTED BY
BOREHOLE DEPTH
DRILL METHOD HSA
DATE
PAGE 1 OF 1
WELL NO. TP-12
BOREHOLE WATER LEVEL ~7'
STATIC WATER LEVEL
SCREEN INTERVAL 5-13'



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE 159.95
HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE 2.5'
TYPE OF SURFACE SEAL NA
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE NA
INSIDE DIAMETER OF SURFACE CASING NA
TYPE OF PROTECTIVE CASING NA
DEPTH OF PROTECTIVE CASING BELOW GROUND NA
INSIDE DIAMETER OF RISER PIPE 1"
TYPE OF RISER PIPE 1" PVC
DIAMETER OF BOREHOLE 6"
TYPE OF BACKFILL High Solids Bentonite Grout
ELEVATION / DEPTH TOP OF SEAL 3'
TYPE OF SEAL Bentonite chips
ELEVATION / DEPTH BOTTOM OF SEAL
DEPTH OF TOP OF SAND PACK Native to 8' bgs, 20/40 Sand to
TYPE OF SAND PACK 20/40 Sand
ELEVATION / DEPTH TOP OF SCREENED SECTION 5'
FILTER SOCK Yes
TYPE OF SCREENED SECTION 10-slot 1" PVC
DESCRIBE OPENINGS 10-slot
INSIDE DIAMETER OF SCREENED SECTION 1"
ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 13'
LENGTH OF BLANK SECTION Flush
ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 13'
ELEVATION/DEPTH BOTTOM OF SAND COLUMN 17'
TYPE OF BACKFILL BELOW OBSERVATION PIPE Native
ELEVATION/DEPTH OF HOLE 17'

Eco-Systems, Inc.
Environmental Engineers and Scientists

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BORING LOG

SHEET 1 OF ___

PROJECT NAME Task 2 -RI Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER HER-99
GEOLOGIST Ryan / Sartor
CLASSIFICATION SCHEME USCS
DRILLER G+E Services
DRILL METHOD HSA w/ s-spoons
WEATHER sunny / hot

BORING IDENTIFICATION TP-12
BORE HOLE DIAMETER 6"
BORING START TIME 925 DATE 4-29-99
BORING COMPLETED TIME 0945 DATE 4-29-99
FINAL BORING DEPTH 17'

GROUNDWATER
INITIAL DEPTH ~7'
DEPTH AFTER ___ MINUTES ___

FREE PRODUCT
THICKNESS ___
VOLUME ___

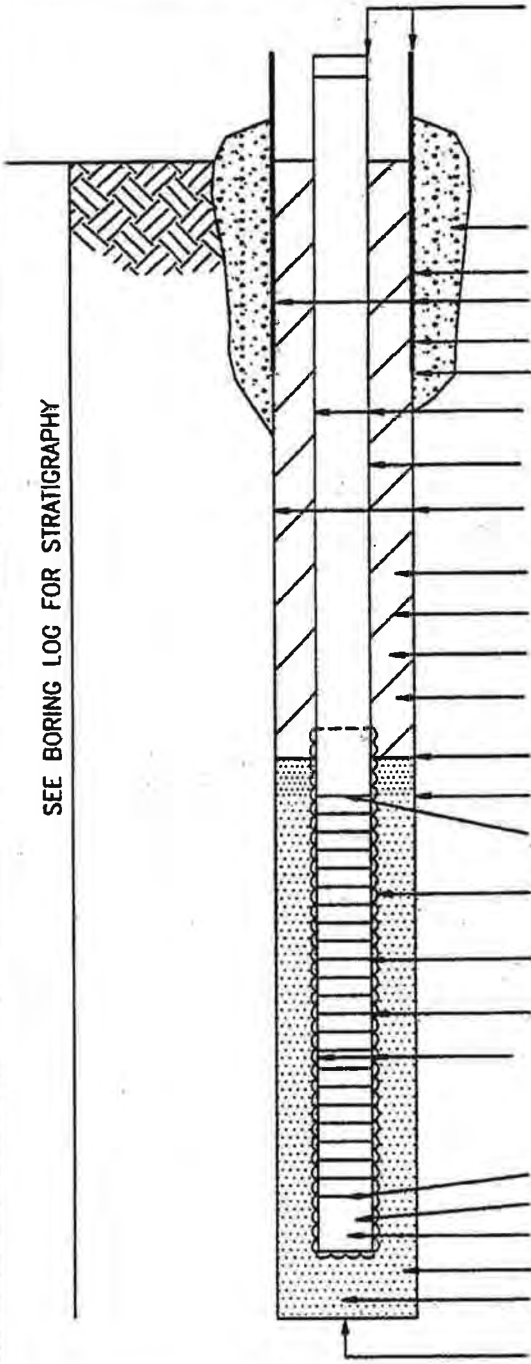
	RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY	
0-2	22"	~~2.7~~ 2	3/3 3/3		~~Damp~~ Loose brown/tob orange (f) S.Sa w/cl G/SA
2-4	~~20~~"	~~0.5~~ 4	2/3 3/4		No Sampling ~~orange~~ stiff Si Sand to tan
4-6	18"	6 6	3/6 6/6		tan w/ gry vf-ff S. Sa
	ns	8		NS	no sampling 6-10'
	22"	10 4 12	5/9 12/13		saturated loose ~~loose~~ tan (f-m) Si; Sand/gravel
		14		NS	no sampling 12-15 ~~Clo~~ 13' (Driller said Top clay). Si;Cl
	16"	16	6/7 8/10		Damp med stiff gray w/ orange Si;A
		18			TD=17'
		20			
		15			

- Convert to TP-12 f10 5'-15'
- Native to 8'
- 20/40 to 4'
- Seal to 3'

Eco-Systems, Inc.
Environmental Engineers and Scientists

TEMPORARY MONITORING POINT COMPLETION FORM

PROJECT NAME Hercules
LOCATION Hattiesburg, MS
DATE COMPLETED 4/29/99
DRILLER G+E Services
GEOLOGIST J Ryan
INSPECTED BY
BOREHOLE DEPTH
DRILL METHOD HSA
DATE
PAGE 1 OF 1
WELL NO. TP-13
BOREHOLE WATER LEVEL ~5'
STATIC WATER LEVEL
SCREEN INTERVAL 4-11'



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE 156.99
HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE 3'
TYPE OF SURFACE SEAL NA
DEPTH OF SURFACE SEAL BELOW GROUND SURFACE NA
INSIDE DIAMETER OF SURFACE CASING NA
TYPE OF PROTECTIVE CASING NA
DEPTH OF PROTECTIVE CASING BELOW GROUND NA
INSIDE DIAMETER OF RISER PIPE 1"
TYPE OF RISER PIPE 1" PVC
DIAMETER OF BOREHOLE 6"
TYPE OF BACKFILL High Solids Bentonite Grout
ELEVATION / DEPTH TOP OF SEAL 2'
TYPE OF SEAL Bentonite Chips
ELEVATION / DEPTH BOTTOM OF SEAL 3'
DEPTH OF TOP OF SAND PACK 3'
TYPE OF SAND PACK 20/40 Sand (No Native)
ELEVATION / DEPTH TOP OF SCREENED SECTION 4'
FILTER SOCK Yes
TYPE OF SCREENED SECTION 10-slot 1" PVC
DESCRIBE OPENINGS 10-slot
INSIDE DIAMETER OF SCREENED SECTION 1"
ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 11'
LENGTH OF BLANK SECTION Flush
ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 11'
ELEVATION/DEPTH BOTTOM OF SAND COLUMN 14'
TYPE OF BACKFILL BELOW OBSERVATION PIPE Sand 20/40
ELEVATION/DEPTH OF HOLE 14'

Eco-Systems, Inc.
Environmental Engineers and Scientists

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SHEET 1 OF __

BORING LOG

PROJECT NAME Task 2 - RI Hercules
PROJECT LOCATION Hattiesburg, MS
PROJECT NUMBER HER-95
GEOLOGIST Sartor
CLASSIFICATION SCHEME USCS
DRILLER G+E Services
DRILL METHOD HSA w/ S-spoons
WEATHER sunny/hot

BORING IDENTIFICATION TP-13
BORE HOLE DIAMETER 6"
BORING START TIME 810 DATE 4-29-99
BORING COMPLETED TIME 835 DATE 4-29-99
FINAL BORING DEPTH 14'

GROUNDWATER
INITIAL DEPTH ~5'
DEPTH AFTER ____ MINUTES ____

FREE PRODUCT
THICKNESS ____
VOLUME ____

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY	
18"	0.6 2	5/4 5/6	SC	DRY, Loose, brn-gray, CLSa (0-2')
19"	1.0 4	4/4 4/4	SC	V Damp, Loose, lght (brn/tan), CLSa w/gravel (2'-5')
8"	16.4 6	4/4 3/5	SM	Saturated (5') Med-dense (vf-f) Si Sa w/trace gravel (5'-7')
18"	0.4 8	6/17 16/18	SP	(f-med) Gravelly Sand w/Si (7-10.5)
12"	1.1 10	3/5 6/12	SP	Loose (f) VGravelly Sand w/Si & Cl (7-)
10"	0.1 12	3/2 4/7	CL	Damp stiff brown & gray mottling Si Cl ~~10-10.5~~ 10.5
14"	0.0 14	2/5 3/8	CL	
	16			
	18			
	20			
	15			

TD = 14'

- Convert to TP-13 from 4-11'.
- Add filter sock + 20/40 from TD.
-

Eco-Systems, Inc.
Environmental Engineers and Scientists

TEMPORARY MONITORING POINT COMPLETION FORM

PROJECT NAME Hercules

LOCATION Hattiesburg, MS

DATE COMPLETED 5/10/99

DRILLER G&E Services

GEOLOGIST J Ryan

INSPECTED BY

BOREHOLE DEPTH

DRILL METHOD HSA

DATE

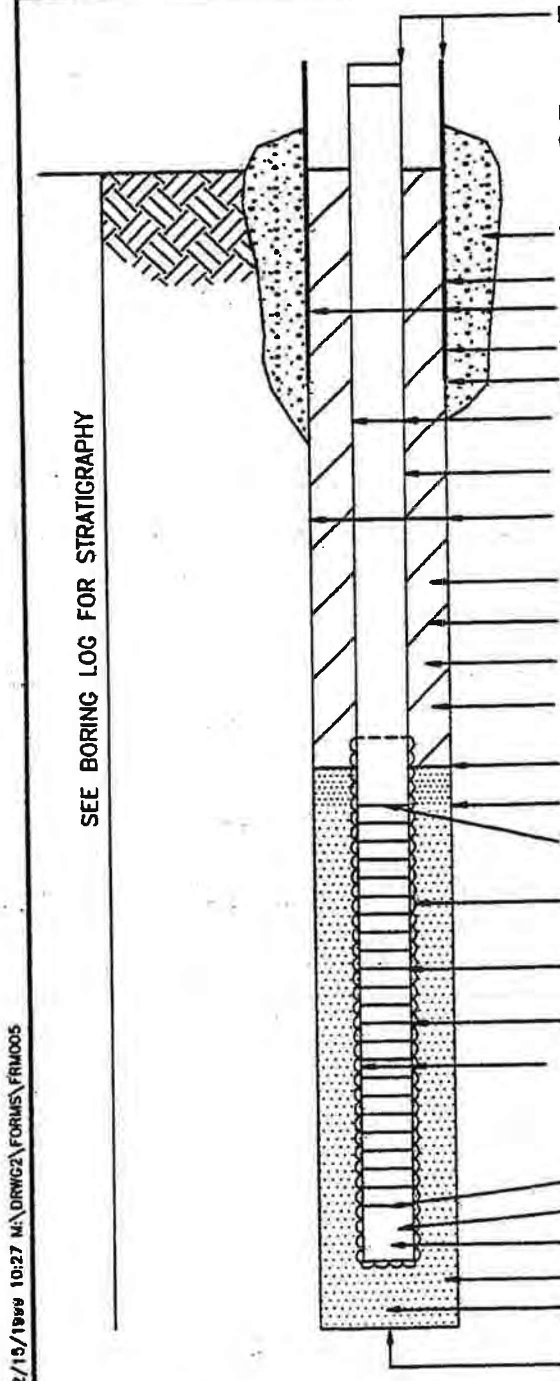
PAGE 1 OF 1

WELL NO. TP-14

BOREHOLE WATER LEVEL

STATIC WATER LEVEL

SCREEN INTERVAL



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE 164.84

HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE 2.6'

TYPE OF SURFACE SEAL NA

DEPTH OF SURFACE SEAL BELOW GROUND SURFACE NA

INSIDE DIAMETER OF SURFACE CASING NA

TYPE OF PROTECTIVE CASING NA

DEPTH OF PROTECTIVE CASING BELOW GROUND NA

INSIDE DIAMETER OF RISER PIPE 1"

TYPE OF RISER PIPE PVC

DIAMETER OF BOREHOLE 6"

TYPE OF BACKFILL High Solids Bentonite Grout

ELEVATION / DEPTH TOP OF SEAL 1'

TYPE OF SEAL Bentonite Pellets

ELEVATION / DEPTH BOTTOM OF SEAL 3'

DEPTH OF TOP OF SAND PACK 5.0'

TYPE OF SAND PACK 20/40 Sand

ELEVATION / DEPTH TOP OF SCREENED SECTION 7.6'

FILTER SOCK Yes

TYPE OF SCREENED SECTION 10-slot 1"PVC

DESCRIBE OPENINGS 10-slot

INSIDE DIAMETER OF SCREENED SECTION 1"

ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 12.6"

LENGTH OF BLANK SECTION Flush

ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 12.6"

ELEVATION/DEPTH BOTTOM OF SAND COLUMN 14'

TYPE OF BACKFILL BELOW OBSERVATION PIPE Native

ELEVATION/DEPTH OF HOLE 14"

Eco-Systems, Inc.
Environmental Engineers and Scientists

02/15/1999 10:27 M:\DRWG2\FORMS\FRM005

S.M.

SHEET 1 OF __

BORING LOG

PROJECT NAME Task 2 - RI Hercules

PROJECT LOCATION Hattiesburg, MS

PROJECT NUMBER HER-95

GEOLOGIST Ryan

CLASSIFICATION SCHEME USCS

DRILLER G+E Services

DRILL METHOD HSA w/ s-spoons

WEATHER

BORING IDENTIFICATION TP-14

BORE HOLE DIAMETER 3"

BORING START TIME 1630 DATE 5-10-99

BORING COMPLETED TIME 1650 DATE 5-10-99

FINAL BORING DEPTH

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL	LITHOLOGY

GROUNDWATER

INITIAL DEPTH ~7'

DEPTH AFTER ____ MINUTES ____

FREE PRODUCT

THICKNESS

VOLUME

DEPTH IN FEET: 2, 4, 6, 8, 10, 12, 14, 16

DAMP, firm, brown, CCSa

moist (@2'), black-stained - Fill ~~.oSa~~ (1.5'-3.1')

Damp (3.5) loose, lt. brn, SiSa tr. cL (3.1'-5')

moist (5'), firm, brown, SiSa (5'-7')

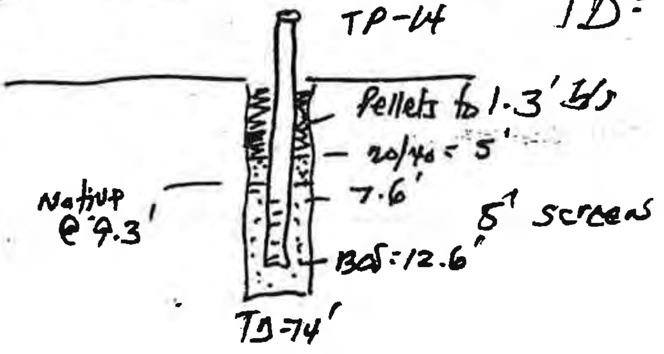
wet-sat, loose, Lt. brn, SiSa f-med (trace gravel) 7'-

Sat

tan

w/ gravel @10.5'

TD=14'



-10-

-15-

Eco-Systems, Inc.
Environmental Engineers and Scientists

Eco-Systems, Inc.
Consultants, Engineers and Scientists

BORING LOG

Sheet: 1 of 2

Project: Hercules - Hattiesburg
Well/Boring No.: EB-1
Project No.: HER24100
Date(s): 25-May-04
Logged By: CVC
Well/Boring Location: North of sludge pits
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 6
Date: 25-May-04
Reference: GS
Elevation - Top of Casing: na
Inner Casing: na
Outer Casing: na
Water Table: na
Date:
Reference: na
Remarks: TD = 32 feet b.g.s
No well installed

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs Strata	Graphical Logs Well Construction	Organic Vapor Headspace Analysis (ppm)
0			dark brown, fine, sand (SP);	░	NO WELL INSTALLED	
5	1	4-18-11-13	tan and gray, gravelly, fine, sand (SP), saturated;	░		
10	2	4-6-8-11	as above	░		
15	3	6-11-14-21	gray, firm-stiff, slightly sitly, sandy, clay (CH)	▨		
20	4	8-10-13-15	as above, stiff;	▨		

Note: Not all portions of this form are applicable to every project

Eco-Systems, Inc.
Consultants, Engineers and Scientists

BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: EB-2
Project No.: HER24100
Date(s): 25-May-04
Logged By: CVC
Well/Boring Location: North of landfill
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 6
Date: 25-May-04
Reference: GS
Elevation - Top of Casing: na
Inner Casing: na
Outer Casing: na
Water Table: na
Date:
Reference: na
Remarks: TD = 17 feet b.g.s
No well installed

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs: Strata	Graphical Logs: Well Construction	Organic Vapor Headspace Analysis (ppm)
			gravel (GW) (fill);			
			dark brown, sandy, clayey, silt (ML), (fill);		NO WELL INSTALLED	
5	1	4-4-4-4	as above			
			gray, v. silty, sand (SM);			
10	2	1-1-2-4	gray, soft, few pea gravel, sandy clay (CL)			
			gray, stiff-hard, slightly sandy, high plasticity,			
15	3	4-6-8-12	as above, some iron staining;			
			Boring terminated at 17 feet below ground surface			
20						

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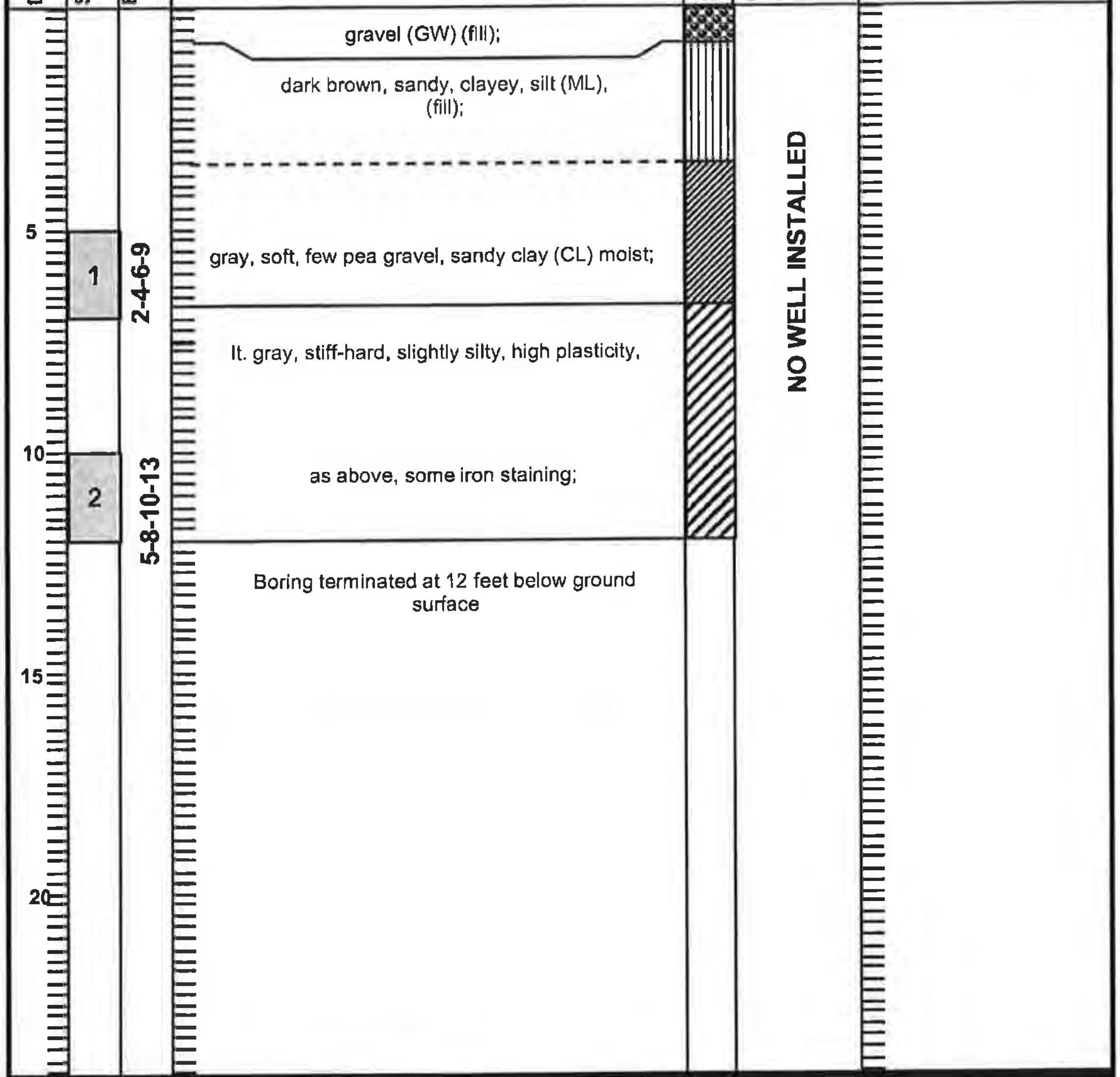
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: EB-3
Project No.: HER24100
Date(s): 25-May-04
Logged By: CVC
Well/Boring Location: Northeast of landfill
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 6
Date: 25-May-04
Reference: GS
Elevation - Top of Casing: na
Inner Casing: na
Outer Casing: na
Water Table: na
Date:
Reference: na
Remarks: TD = 12 feet b.g.s
No well installed

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs: Strata	Graphical Logs: Well Construction	Organic Vapor Headspace Analysis (ppm)



gravel (GW) (fill);

dark brown, sandy, clayey, silt (ML), (fill);

gray, soft, few pea gravel, sandy clay (CL) moist;

lt. gray, stiff-hard, slightly silty, high plasticity,

as above, some iron staining;

Boring terminated at 12 feet below ground surface

Note: Not all portions of this form are applicable to all projects.

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BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **EB-4**
Project No.: HER24100
Date(s): 25-May-04
Logged By: CVC
Well/Boring Location: East of landfill
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 6
Date: 25-May-04
Reference: GS
Elevation - Top of Casing: na
Inner Casing: na
Outer Casing: na
Water Table: na
Date:
Reference: na
Remarks: TD = 27 feet b.g.s
No well installed

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs: Strata	Graphical Logs: Well Construction	Organic Vapor Headspace Analysis (ppm)
			dark brown, sandy, clayey, silt (ML), (fill);	▥	NO WELL INSTALLED	
5	1	6-1-1-1	no recovery	▥		
10	2	1-1-2-4	dark brown, sandy, clayey, silt (ML), (fill), saturated;	▥		
15	3	4-6-8-12	as above, black;	▥		
			as above;	▥		
20	4		gray, soft, slightly sandy, clay (CH), wet;	▨		

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BORING LOG

Sheet: 2 of 2

Project: Hercules - Hattiesburg
Well/Boring No.: EB-4
Project No.: HER24100
Date(s): 25-May-04
Logged By CVC

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs		Organic Vapor Headspace Analysis (ppm)
				Strata	Well Construction	
25	5	Shelby Tube	as above, firm to stiff;	▨	NO WELL INSTALLED	
			Boring terminated at 27 feet below ground surface			
30						
35						
40						
45						

Note: Not all portions of this form are applicable to all projects

6/01

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BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **PB-1**
Project No.: HER24100
Date(s): 25-May-04
Logged By: CVC
Well/Boring Location: Central area of sludge pits
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 6
Date: 25-May-04
Reference: GS
Elevation - Top of Casing: na
Inner Casing: na
Outer Casing: na
Water Table: na
Date:
Reference: na
Remarks: TD = 12 feet b.g.s
No well installed

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs: Strata	Graphical Logs: Well Construction	Organic Vapor Headspace Analysis (ppm)
			black & orange, sludge.	▨	NO WELL INSTALLED	
5	1	Shelby Tube	as above, saturated.	▨		
			black & gray, few gravel, sand (SP), saturated.	░		
10	2	5-8-10-13	as above, gray.	░		
			Boring terminated at 12 feet below ground surface			
15						
20						

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BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **PB-2**
Project No.: HER24100
Date(s): 25-May-04
Logged By: CVC
Well/Boring Location: Central area of sludge pits
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 6
Date: 25-May-04
Reference: GS
Elevation - Top of Casing: na
Inner Casing: na
Outer Casing: na
Water Table: na
Date:
Reference: na
Remarks: TD = 7 feet b.g.s
No well installed

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs		Organic Vapor Headspace Analysis (ppm)
				Strata	Well Construction	
			black & orange, sludge	▨	NO WELL INSTALLED	
			as above, saturated.	▨		
5	1	Shelby Tube	tan, fine grained, sand (SP), saturated.	▒		
			Boring terminated at 7 feet below ground surface			
10						
15						
20						

Note: Not all portions of this form are applicable to all projects.

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BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **PB-3**
Project No.: HER24100
Date(s): 25-May-04
Logged By: CVC
Well/Boring Location: Central area of sludge pits
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 6
Date: 25-May-04
Reference: GS
Elevation - Top of Casing: na
Inner Casing: na
Outer Casing: na
Water Table: na
Date:
Reference: na
Remarks: TD = 7 feet b.g.s
No well installed

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs: Strata	Graphical Logs: Well Construction	Organic Vapor Headspace Analysis (ppm)
			black & orange, dry, sludge. as above, saturated	▩	NO WELL INSTALLED	
5	1	Shelby Tube	tan, fine grained, sand (SP), saturated.	▒		
			Boring terminated at 7 feet below ground surface			
10						
15						
20						

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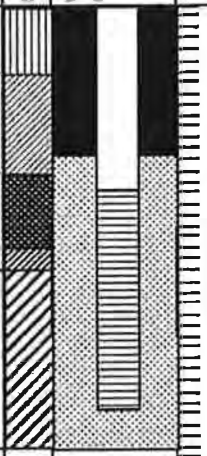
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **MW-12**
Project No.: HER25080
Date(s): 19-Apr-05
Logged By: CVC
Well/Boring Location: North of landfill
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 7.75
Date: 16-May-05
Reference: TOC
Elevation - Top of Casing: 162.17
Inner Casing: 2 inch
Outer Casing: NA
Water Table: 154.42
Date: 16-May-05
Reference: TOC
Remarks:

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description
	1	n/a	Clayey silt (ML): dark brown; some roots; some gravel (topsoil).
	2		Silty Clay (CL): gray; few sand; few gravel; saturated.
5	3		Clayey Sand (SC): dk gray; silty; saturated.
			Sandy Clay (CL): lt gray; soft.
	4		Clay (CH): blue-gray; firm; plastic; abundant iron staining.
	5		as above; firm-stiff; no staining.
10			Boring terminated at 10 feet bgs
15			
20			

Graphical Logs



Note: Not all portions of this form are applicable to all projects

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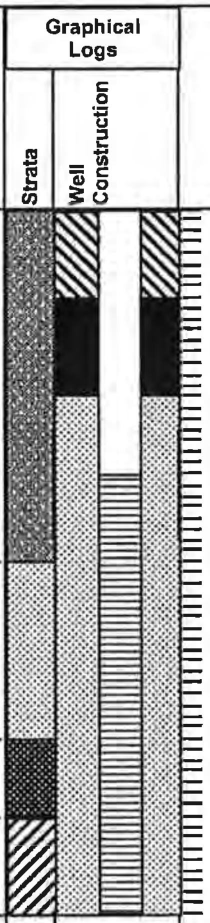
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **MW-13**
Project No.: HER25080
Date(s): 20-Apr-05
Logged By: CVC
Well/Boring Location: east side of landfill
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 7.76
Date: 16-May-05
Reference: TOC
Elevation - Top of Casing: 175.23
Inner Casing: 2 inch
Outer Casing: NA
Water Table: 167.47
Date: 16-May-05
Reference: TOC
Remarks:

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description
	1	n/a	Silty Sand (SM): dark br; loose; resin fragments; (stump dirt).
	2		as above.
5	3		as above: v silty; clayey; saturated.
	4		as above: abundant pea gravel; abundant resin fragments.
	5		Sand (SP): gray, med-coarse gr.
10	6		as above: fine-coarse gr; some wood fragments.
	7		Sandy Clay (SC): gray; hard.
15	8		Clay (CH): gray; sl silty; stiff.
			Boring terminated at 16 feet bgs
20			



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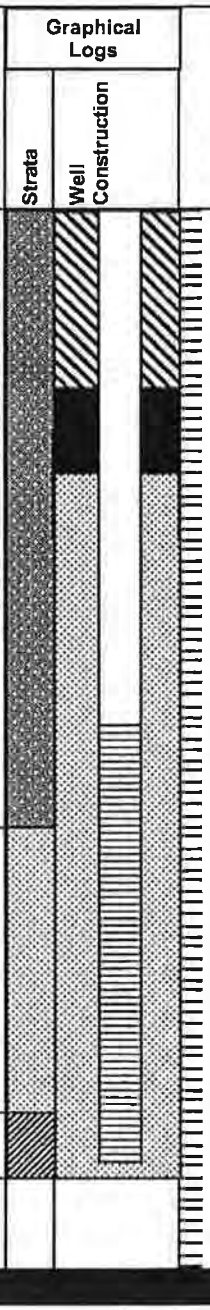
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **MW-14**
Project No.: HER25080
Date(s): 19-Apr-05
Logged By: CVC
Well/Boring Location: west side of landfill
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 15.00
Date: 16-May-05
Reference: TOC
Elevation - Top of Casing: 169.23
Inner Casing: 2 inch
Outer Casing: NA
Water Table: 154.23
Date: 16-May-05
Reference: TOC
Remarks:

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description
	1		Silty Sand (SM): dark br & black; some clay; loose (stump dirt).
	2		as above.
5	3		as above: very silty.
	4	n/a	no recovery.
	5		as above: wood fragments.
10	6		as above: some gravel.
	7		as above: some wood fragments; wet.
15	8		Sand (SP): tan; fine gr; saturated.
	9		as above
	10		as above.
20			as above.
	10		Clay (CH): blue-gray; hard.
			Boring terminated at 22 feet bgs

Graphical Logs



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BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **MW-15**
Project No.: HER25080
Date(s): 19-Apr-05
Logged By: CVC
Well/Boring Location: SW of landfill, near RR track.
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 18.50
Date: 16-May-05
Reference: TOC
Elevation - Top of Casing: 172.20
Inner Casing: 2 inch
Outer Casing: NA
Water Table: 153.70
Date: 16-May-05
Reference: TOC
Remarks:

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description
	1	n/a	Sandy silt (ML): dark brown; abundant roots; loose (stump dirt).
	2		as above: packed. Wood fragments.
5	3		as above.
	4		as above: damp.
	5		as above: wet.
10	6		Clay (CH): blue-gray; slightly sandy; firm; limonite
	7		as above: few gravel; some sand partings.
15	8		as above. Silty Sand (SM): fine gr; black; saturated; (stump dirt).
	9		Sandy Clay (CL): tan & lt gray; soft.
	10		as above: v sandy.
20	10		as above: coarsens downward. Clayey Sand (SC): tan & lt gray.
	11		Sand (SP): tan; loose.
			Boring terminated at 24 feet bgs

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BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **MW-16**
Project No.: HER25080
Date(s): 20-Apr-05
Logged By: CVC
Well/Boring Location: Corner of Appollo and Europa
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 16.45
Date: 16-May-05
Reference: TOC
Elevation - Top of Casing: 175.62
Inner Casing: 2 inch
Outer Casing: NA
Water Table: 159.17
Date: 16-May-05
Reference: TOC
Remarks:

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description
	1	n/a	Silty Sand (SM): black; clayey; resin fragments; (stump dirt).
	2		as above: rock fragment.
5	3		as above: wood fragments & fiber
	4		as above.
	5		as above.
10	6		as above: resin fragments & metal fragments.
	7		as above.
15	8		as above.
	9		as above.
	10		Clayey Sand (SC): gray & orange-brown; wood fragments; saturated.
20	11		no recovery.
	12		Sand (SP): blk; coarse gr; abundant pea gravel; wood fragments.

Graphical Logs

Eco-Systems, Inc.
Consultants, Engineers and Scientists

BORING LOG

Sheet: 2 of 2

Project: Hercules - Hattlesburg
Well/Boring No.: MW-16
Project No.: HER25080
Date(s): 20-Apr-05
Logged By: CVC

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description	Graphical Logs: Strata	Graphical Logs: Well Construction
25	13		as above: little wood; some resin fragments.		
		n/a	Boring terminated at 26 feet bgs		
30					
35					
40					
45					

Eco-Systems, Inc.
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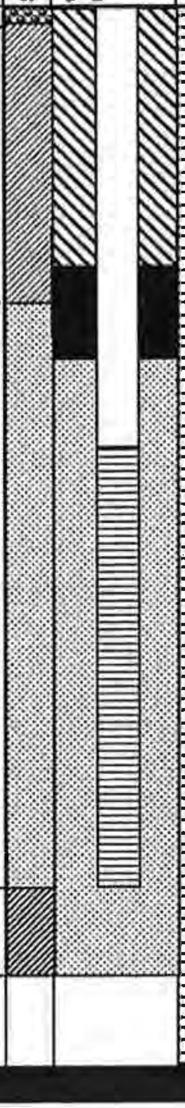
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **MW-17**
Project No.: HER25080
Date(s): 20-Apr-05
Logged By: CVC
Well/Boring Location: former Delnav production area
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 16.78
Date: 16-May-05
Reference: TOC
Elevation - Top of Casing: 186.13
Inner Casing: 2 inch
Outer Casing: NA
Water Table: 169.35
Date: 16-May-05
Reference: TOC
Remarks:

Depth, Sample Pt.	**Sample Location**	**Blows**	**Lithologic Description**
	1	n/a	Gravel (GW): abundant concrete fragments; some clay & sand.
	2		Silty Clay (CL): gr & tan; mottled.
5	3		as above: yellow-br.
	4		as above: sandy to v. sandy. Sand (SP): white; fine gr; damp.
	5		as above.
10	6		as above.
	7		as above: wet.
15	8		as above: black & gray; saturated.
	9		as above: dk gray; few fine gravel.
	10		as above: abundant pea gravel.
20	10		Clay (CH): lt gray; stiff-hard.
			Boring terminated at 22 feet bgs

Graphical Logs



Note: Not all portions of this form are applicable to all projects.

Eco-Systems, Inc.
Consultants, Engineers and Scientists

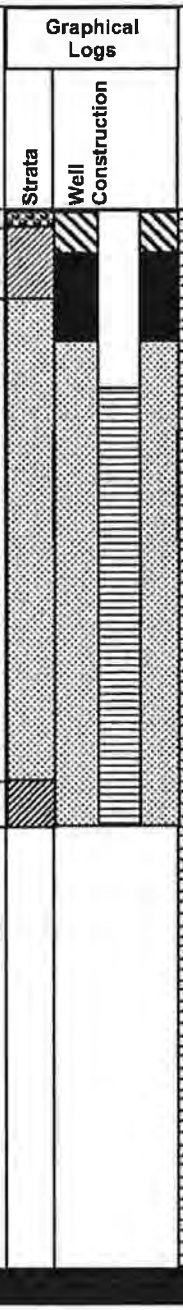
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **MW-18**
Project No.: HER25080
Date(s): 20-Apr-05
Logged By: CVC
Well/Boring Location: adjacent to Neptune Rd and east of AKD area
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 5.66
Date: 16-May-05
Reference: TOC
Elevation - Top of Casing: 163.53
Inner Casing: 2 inch
Outer Casing: NA
Water Table: 157.87
Date: 16-May-05
Reference: TOC
Remarks:

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description
	1	n/a	Gravel (GW): crushed limestone; hard packed. Sandy Clay (CL): black; silty.
	2		Sand (SP): grey; fine gr; some clay, some silt.
5	3		as above: little silt or clay; saturated.
	4		as above.
	5		as above: some pea gravel.
10	6		as above: abundant gravel.
	7		as above.
			Clay (CH): grey; firm-stiff.
15			Boring terminated at 14 feet bgs
20			

Graphical Logs



Note: Not all portions of this form are applicable to all projects.

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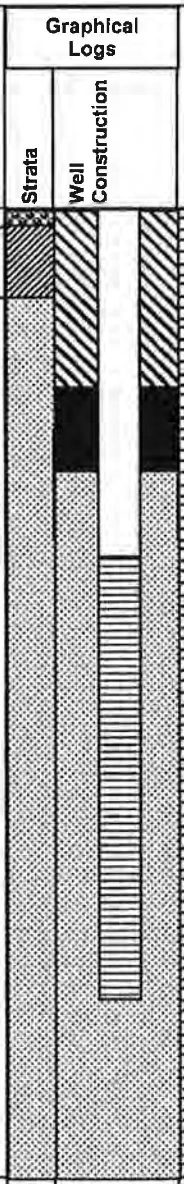
BORING LOG

Sheet: 1 of 1

Project: Hercules - Hattiesburg
Well/Boring No.: **MW-19**
Project No.: HER25080
Date(s): 21-Apr-05
Logged By: CVC
Well/Boring Location: adjacent to Neptune Ave between Minerva St and Diana St
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Construction Company
Depth to Groundwater: 10.30
Date: 16-May-05
Reference: TOC
Elevation - Top of Casing: 172.25
Inner Casing: 2 inch
Outer Casing: NA
Water Table: 161.95
Date: 16-May-05
Reference: TOC
Remarks:

Depth, Sample Pt.	Sample Location	Blows	Lithologic Description
	1		Gravel (GW): crushed limestone; hard packed. Sandy Clay (CL): dk gray; silty.
	2		Sand (SP): grey; fine gr; silty.
5	3		as above: some v. silty and v. clayey areas
	4	n/a	as above: gray; few fines, wet.
	5		as above: wet.
10	6		as above: saturated.
	7		as above: med-coarse gr; some gravel
15	8		as above.
	9		as above: abundant gravel.
	10		as above.
20	11		as above.
			Boring terminated at 22 feet bgs



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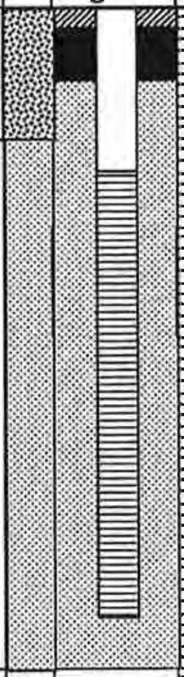
Boring Log

Sheet: 1 of 1

Project: Hercules Chemical
Well/Boring No.: B-20 / MW-20
Project No.: HER 42029205
Date(s): 9/15/2009
Logged By: Brent Eanes
Well/Boring Location: West side of Impountment basin between rail road tracks
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental
Depth to Groundwater: 5.95
Date: 9/28/2009
Reference: Below Top-of-casing
Elevations - Ground Surface: 168.62
Inner Casing: NA
Reference: Top-of-casing
Water Table: 162.67
Date: 9/28/2009
Reference: Above MSL
Remarks: Stick up surface completions
Mean Sea Level (MSL)

Depth, Sample Pt.	Sample Depth	Blow Count	Lithologic Description	Graphical Logs		Organic Vapor Headspace Analysis (ppm)	Elevation
				Strata	Well Construction		
			Moist, Gravel bed for railroad (0-3')				
	1					▼ OVA 3-5' bgs 0.8 ppm @ 10:45	
5	2	n/a				▽ OVA 5-7' bgs 0.9 ppm @ 10:54	
			Moist to Saturated (5' bgs), gray, fine, Clayey Sand (3-15')				
10							
15			15.00' Auger termination Well screen set @ 14.00' BGS				
20							



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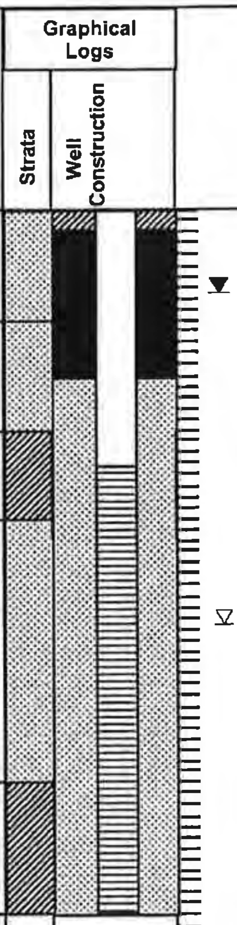
Boring Log

Sheet: 1 of 1

Project: Hercules Chemical
Well/Boring No.: B-21 / MW-21
Project No.: HER 42029205
Date(s): 9/15/2009
Logged By: Brent Eanes
Well/Boring Location: North side of impoundment basin between Minerva St and raised pipes.
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental
Depth to Groundwater: 2.28
Date: 9/28/2009
Reference: Below Top-of-casing
Elevations - Ground Surface: 163.66
Inner Casing: NA
Reference: Top-of-casing
Water Table: 161.38
Date: 9/28/2009
Reference: Above MSL
Remarks: Flush mount surface completions
Mean Sea Level (MSL)

Depth, Sample Pt.	Sample Depth	Blow Count	Lithologic Description	Organic Vapor Headspace Analysis (ppm)	Elevation
			Asphalt / Gravel mixed with dry, medium, Sand (0-2.5')		
	1		Dry to moist, gray and black, medium, Sand Inclusions of amber resin concretions (2.5-5')	OVA 3-5' bgs 2.9 ppm @ 13:25	
5	2	n/a	Moist, gray and orange, firm, Sandy Clay ('5-7')	OVA 5-7' bgs 9.6 ppm @ 13:31	
10	3 4		Dy to saturated (9.0' bgs), fine, Sand ('7-13')	OVA 7-9' bgs 28.0 ppm @ 13:34 OVA 9-11' bgs 16.4 ppm @ 13:37	
15			Moist, gray, dense, very stiff, Sandy Clay ('13-16')		
20			16.00' Auger termination		

Graphical Logs



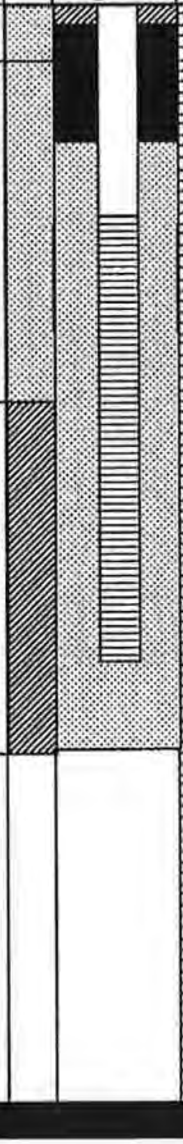
Eco-Systems, Inc.
Consultants, Engineers and Scientists

Boring Log

Sheet: 1 of 1

Project: Hercules Chemical
Well/Boring No.: B-22 / MW-22
Project No.: HER 42029205
Date(s): 9/15/2009
Logged By: Brent Eanes
Well/Boring Location: South side of impoundment basin and south edge of pavement
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental
Depth to Groundwater: 6.08
Date: 9/28/2009
Reference: Below Top-of-casing
Elevations - Ground Surface: 167.62
Inner Casing: NA
Reference: Top-of-casing
Water Table: 161.54
Date: 9/28/2009
Reference: Above MSL
Remarks: Stick up surface completions
Mean Sea Level (MSL)

Graphical Logs: Strata, Well Construction



Depth, Sample Pt.	Sample Depth	Blow Count	Lithologic Description	Organic Vapor Headspace Analysis (ppm)	Elevation
			Dry, gray, fine, Sand and some gravel (0-1')		
5	1 2 3	n/a	Dry to saturated(6' bgs), brown/gray and black staining, fine to medium, Sand -Grain size increasing with depth (1-9')	OVA 3-5' bgs 0.4 ppm @ 15:30 ▼ ▽ OVA 5-7' bgs 0.8 ppm @ 15:37 OVA 7-9' bgs 1.0 ppm @ 13:40	
10 15	4		Moist, gray, very stiff/dense/plastic, Clay -poorly sorted with some medium to coarse grain Sand (9-17')	OVA 9-11' bgs 0.6 ppm @ 13:43	
20			17.00' Auger termination		

Eco-Systems, Inc.
Consultants, Engineers and Scientists

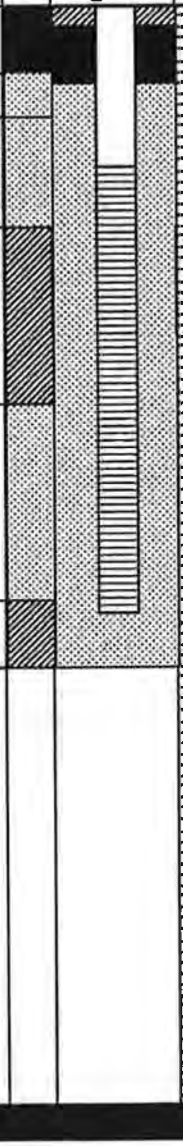
Boring Log

Sheet: 1 of 1

Project: Hercules Chemical
Well/Boring No.: B-23 / MW-23
Project No.: HER 42029205
Date(s): 9/16/2009
Logged By: Brent Eanes
Well/Boring Location: East side of impoundment basin between fence and IB but east of pavement
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental
Depth to Groundwater: 2.96
Date: 9/28/2009
Reference: Below Top-of-casing
Elevations - Ground Surface: 162.68
Inner Casing: NA
Reference: Top-of-casing
Water Table: 159.42
Date: 9/28/2009
Reference: Above MSL
Remarks: Flush mount surface completions
Mean Sea Level (MSL)

Depth, Sample Pt.	Sample Depth	Blow Count	Lithologic Description
		n/a	Asphalt (0-1')
	1		Dry, gray, Silty Sand with some gravel (1.5-2.5')
	2		Dry, gray, coarse, Sand (2.5-5')
5	3 4		Moist, gray/orange, soft, Clay poorly sorted with some coarse grain sand (5-9')
10	5		Damp to saturated (8' bgs), gray, fine, Clayey Sand - increasing grain size with depth (9-13.5')
	6		Moist, gray, very stiff/dense/plastic, Clay poorly sorted with some coarse grain Sand (13.5-15')
15			15.00' Auger termination / Well set at 14.0' BGS
20			

Graphical Logs



Organic Vapor Headspace Analysis (ppm)

OVA 1-3' bgs 8.5 ppm @ 07:45

OVA 3-5' bgs 4.7 ppm @ 07:50

OVA 5-7' bgs 3.1 ppm @ 07:53

OVA 7-9' bgs 24.8 ppm @ 07:58

OVA 9-11' bgs 73.8 ppm @ 08:03

OVA 13-15' bgs 13.2 ppm @ 08:09

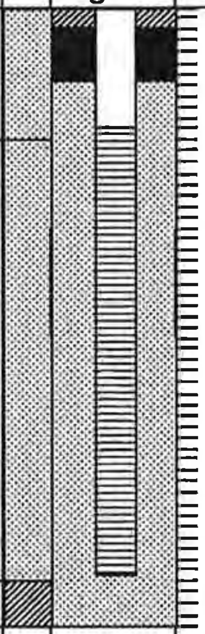
Elevation

Eco-Systems, Inc.
Consultants, Engineers and Scientists

Boring Log

Sheet: 1 of 1

Project: Hercules Chemical
Well/Boring No.: B-24 / MW-24
Project No.: HER 42029205
Date(s): 9/16/2009
Logged By: Brent Eanes
Well/Boring Location: Across Providence Street in AST Fenced in Property
Drilling Method: Hollow Stem Auger
Drilling Contractor: Singley Environmental
Depth to Groundwater: 8.00
Date: 9/28/2009
Reference: Below Top-of-casing
Elevations - Ground Surface: 164.98
Inner Casing: NA
Reference: Top-of-casing
Water Table: 156.98
Date: 9/28/2009
Reference: Above MSL
Remarks: Stick up surface completions
Mean Sea Level (MSL)

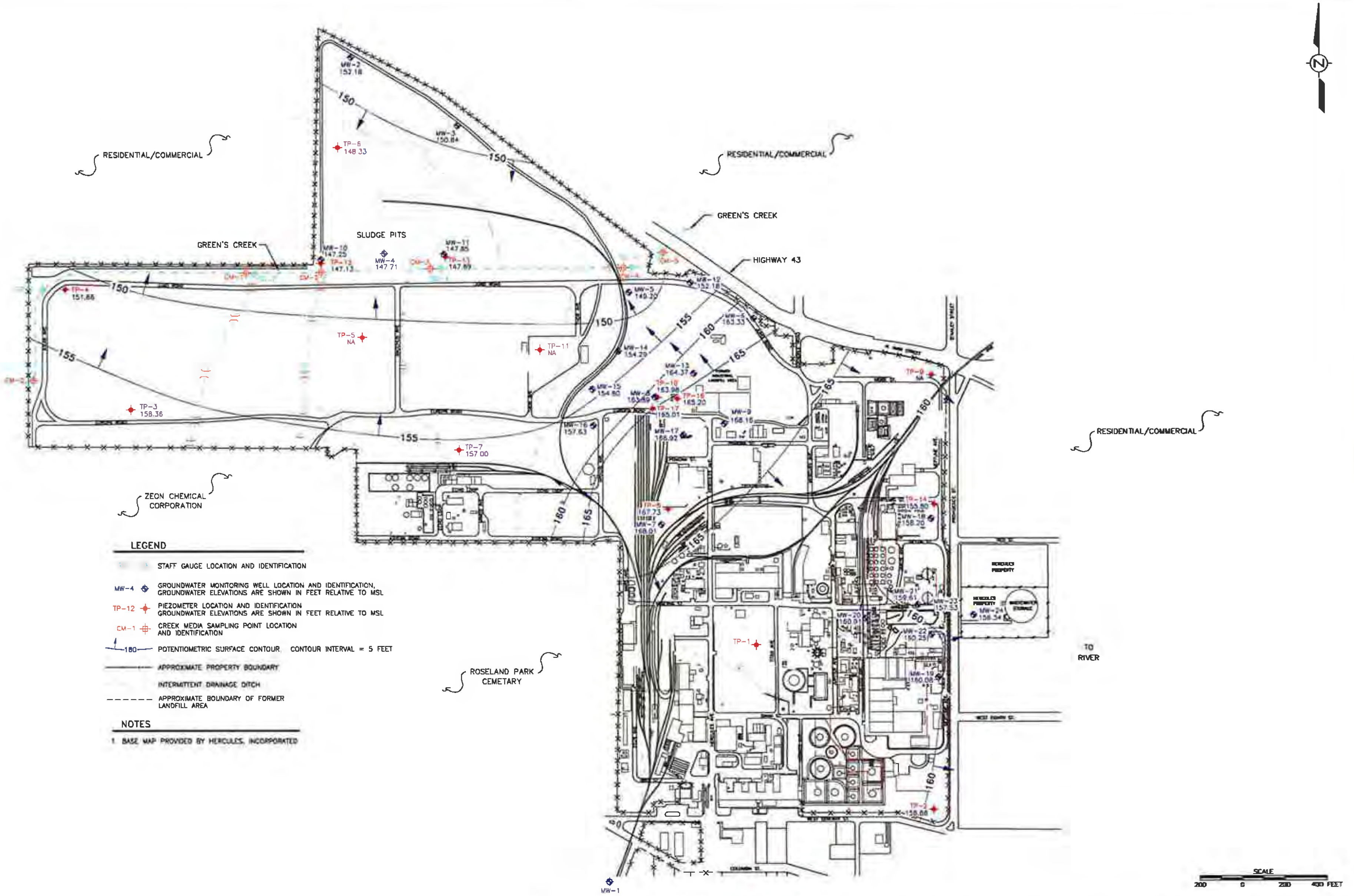


Depth, Sample Pt.	Sample Depth	Blow Count	Lithologic Description	Graphical Logs	Organic Vapor Headspace Analysis (ppm)	Elevation
			Dry to moist, green/orange, fine to medium, Sand (0-3')			
	1				OVA 3-5' bgs 0.6 ppm @ 09:40	
5	2	n/a			OVA 5-7' bgs 0.5 ppm @ 09:46	
	3		Moist to saturated (7' bgs), gray, medium, Sand(3-13')		OVA 7-9' bgs 0.8 ppm @ 09:51	
10	4				OVA 9-11' bgs 0.7 ppm @ 09:58	
			Moist, gray, very stiff/dense, Clay (13-14')			
			14.00' Auger termination / Well screen set @ 13.0' BGS			
15						
20						

ARCADIS

Appendix C

Historic Potentiometric Surface Maps



LEGEND

	STAFF GAUGE LOCATION AND IDENTIFICATION
MW-4 ◈	GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION, GROUNDWATER ELEVATIONS ARE SHOWN IN FEET RELATIVE TO MSL
TP-12 ✦	PIEZOMETER LOCATION AND IDENTIFICATION GROUNDWATER ELEVATIONS ARE SHOWN IN FEET RELATIVE TO MSL
CM-1 ⊕	CREEK MEDIA SAMPLING POINT LOCATION AND IDENTIFICATION
—180—	POTENTIOMETRIC SURFACE CONTOUR. CONTOUR INTERVAL = 5 FEET
———	APPROXIMATE PROPERTY BOUNDARY
	INTERMITTENT DRAINAGE DITCH
– – – – – –	APPROXIMATE BOUNDARY OF FORMER LANDFILL AREA

NOTES

1. BASE MAP PROVIDED BY HERCULES, INCORPORATED

REV.	DESCRIPTION OF REVISION	BY	CURRENT DATE
0	ISSUED FOR REVIEW	CC	1/14/11

HERCULES
CHEMICAL SPECIALTIES

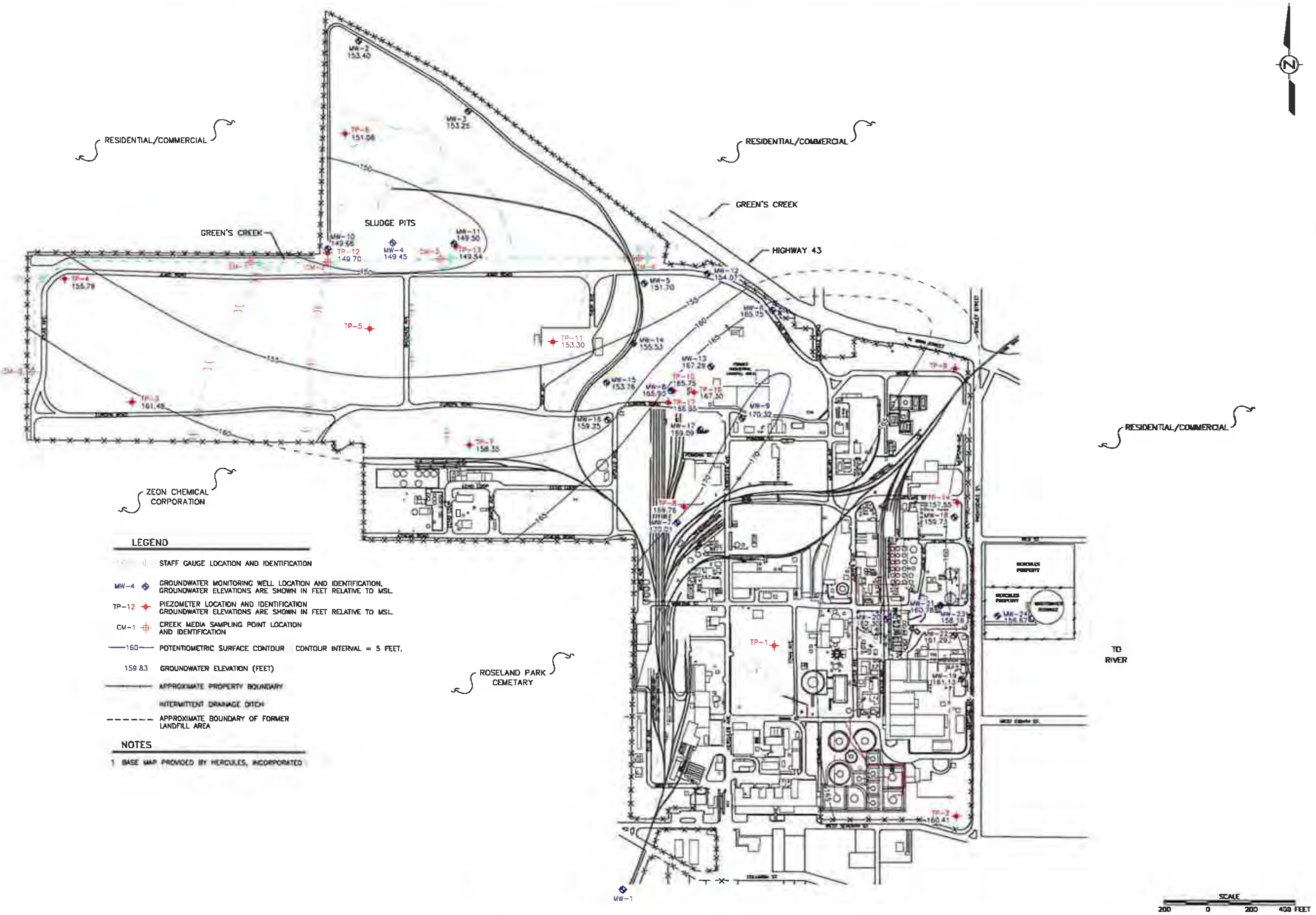
SCALE: 1"=200'
DRAWN: K. SISSON
CHECKED:
REVIEWED:
PROJECT MANAGER: C. WATERS
DATE: 1/14/11

Eco-Systems, Inc.
Consultants, Engineers and Scientists
Jackson, MS • Meridian, MS • Mobile, AL
Houston, TX • Nashville, TN • Atlanta, GA
Hattiesburg, MS • Gulfport, MS

HERCULES INCORPORATED
HATTIESBURG, MISSISSIPPI

POTENTIOMETRIC
SURFACE MAP
DECEMBER, 2010

PROJECT No. [illegible]
CAD FILE NAME [illegible]
FIGURE 3
REVISION 0



LEGEND

	STAFF GAUGE LOCATION AND IDENTIFICATION
MW-4 ◆	GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION. GROUNDWATER ELEVATIONS ARE SHOWN IN FEET RELATIVE TO MSL.
TP-12 ◆	PIEZOMETER LOCATION AND IDENTIFICATION GROUNDWATER ELEVATIONS ARE SHOWN IN FEET RELATIVE TO MSL.
CM-1 ⊕	CREEK MEDIA SAMPLING POINT LOCATION AND IDENTIFICATION
—160—	POTENTIOMETRIC SURFACE CONTOUR CONTOUR INTERVAL = 5 FEET.
159.83	GROUNDWATER ELEVATION (FEET)
——	APPROXIMATE PROPERTY BOUNDARY
	INTERMITTENT DRAINAGE DITCH
------	APPROXIMATE BOUNDARY OF FORMER LANDFILL AREA

NOTES

1. BASE MAP PROVIDED BY HERCULES, INCORPORATED

0	ISSUED FOR REVIEW	CC	5/27/10
REV.	DESCRIPTION OF REVISION	BY	CURRENT DATE

HERCULES
CHEMICAL SPECIALTIES

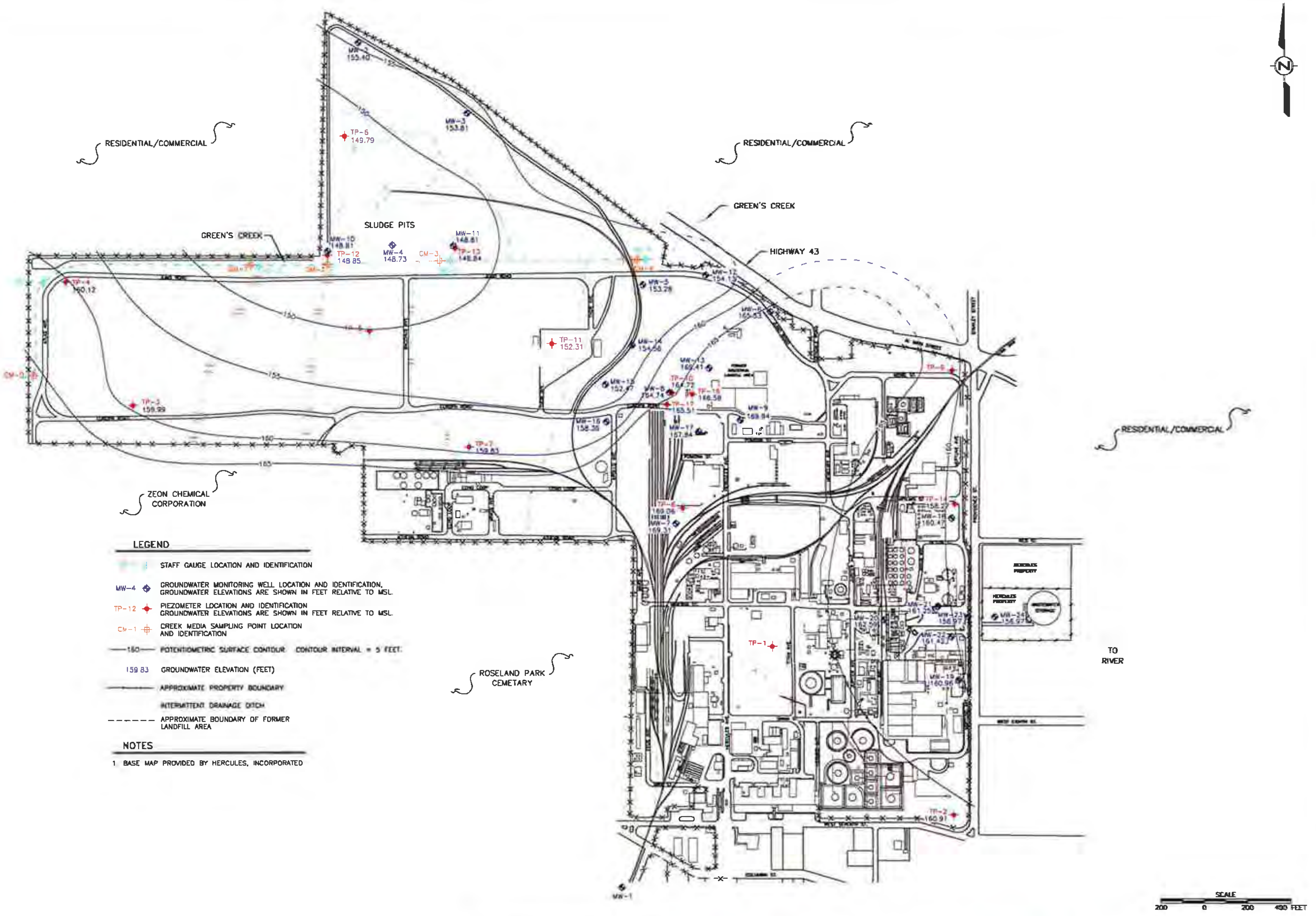
SCALE: 1"=200'
DRAWN: [illegible]
CHECKED:
REVIEWED: 5/27/10
PROJECT MANAGER: C. WATERS
DATE: 5/27/10

Eco-Systems, Inc.
Consultants, Engineers and Scientists
Jackson, MS • Meridian, MS • Mobile, AL
Houston, TX • Nashville, TN • Atlanta, GA
Hattiesburg, MS • Gulfport, MS

HERCULES INCORPORATED
HATTIESBURG, MISSISSIPPI

POTENTIOMETRIC SURFACE MAP
(MAY 10, 2010)

PROJECT No. [illegible]
CAD FILE NAME: [illegible]
FIGURE 3
REVISION 0



LEGEND

STAFF GAUGE LOCATION AND IDENTIFICATION

MW-4 ◆ GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION, GROUNDWATER ELEVATIONS ARE SHOWN IN FEET RELATIVE TO MSL.

TP-12 ✦ PIEZOMETER LOCATION AND IDENTIFICATION GROUNDWATER ELEVATIONS ARE SHOWN IN FEET RELATIVE TO MSL.

CM-1 ⊕ CREEK MEDIA SAMPLING POINT LOCATION AND IDENTIFICATION

—150— POTENTIOMETRIC SURFACE CONTOUR. CONTOUR INTERVAL = 5 FEET.

159.83 GROUNDWATER ELEVATION (FEET)

APPROXIMATE PROPERTY BOUNDARY

INTERMITTENT DRAINAGE DITCH

– – – – – – APPROXIMATE BOUNDARY OF FORMER LANDFILL AREA

NOTES

1 BASE MAP PROVIDED BY HERCULES, INCORPORATED

0	ISSUED FOR REVIEW	CC	12/22/09
REV.	DESCRIPTION OF REVISION	BY	CURRENT DATE

HERCULES
CHEMICAL SPECIALTIES

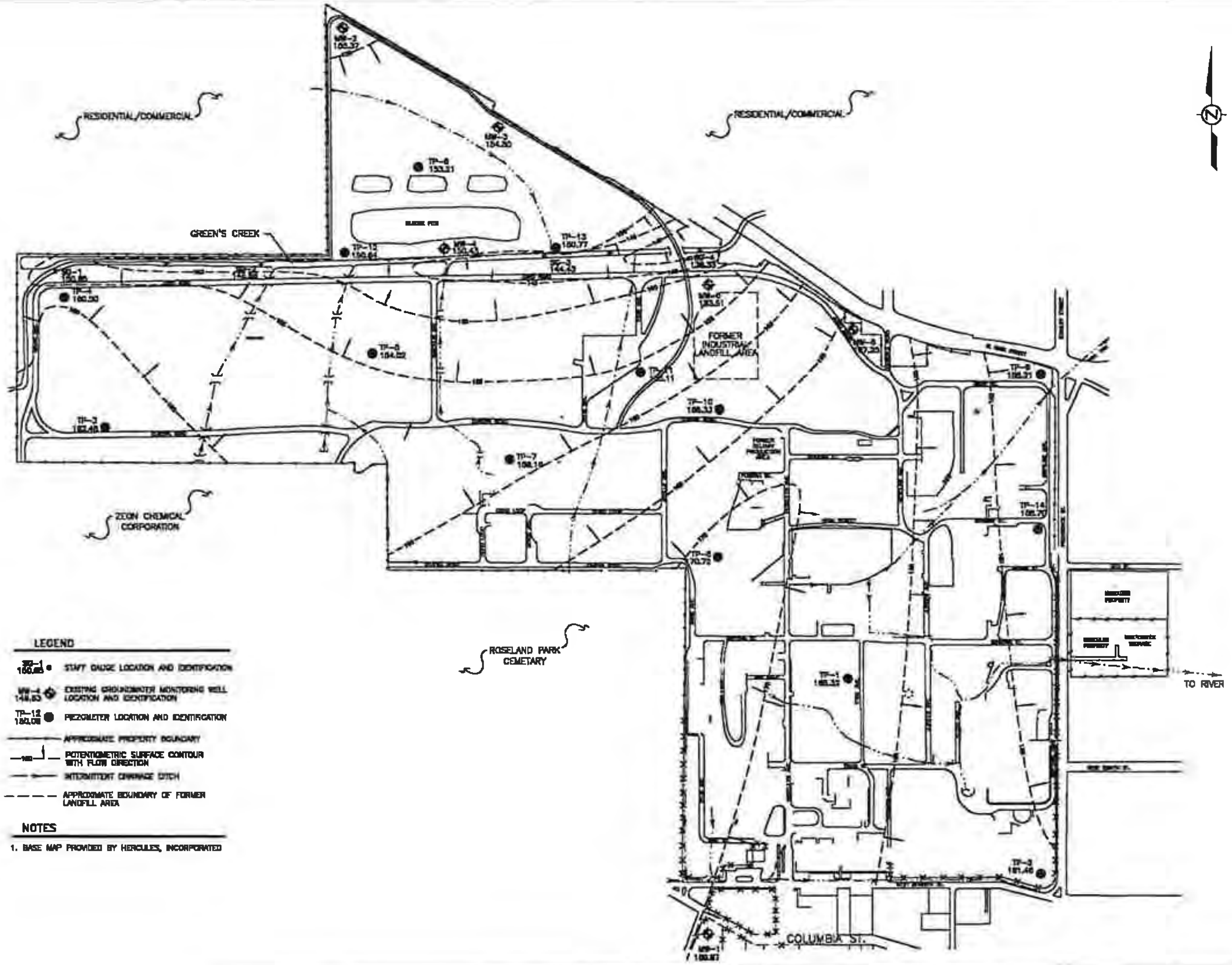
SCALE: 1"=200'
DRAWN: [illegible]
CHECKED:
REVIEWED: 12/22/09
PROJECT MANAGER: C. WATERS
DATE: 12/22/09

Eco-Systems, Inc.
Consultants, Engineers and Scientists
Jackson, MS • Meridian, MS • Mobile, AL
Houston, TX • Nashville, TN • Atlanta, GA
Hattiesburg, MS • Gulfport, MS

HERCULES INCORPORATED
HATTIESBURG, MISSISSIPPI

POTENTIOMETRIC SURFACE MAP
(DECEMBER 7, 2009)

PROJECT No. [illegible]
CAD FILE NAME [illegible]
FIGURE 3
REVISION 0



LEGEND

SG-1 ●	STAFF GAUGE LOCATION AND IDENTIFICATION
MW-4 148.83 ◈	EXISTING GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION
TP-12 150.06 ●	PIEZOMETER LOCATION AND IDENTIFICATION
——·——·——	APPROXIMATE PROPERTY BOUNDARY
—150—┘—	POTENTIOMETRIC SURFACE CONTOUR WITH FLOW DIRECTION
—— ➤——	INTERMITTENT DRAINAGE DITCH
— — — —	APPROXIMATE BOUNDARY OF FORMER LANDFILL AREA

NOTES

1. BASE MAP PROVIDED BY HERCULES, INCORPORATED

J.N.S. 03/17/03 S:\PROJECTS\HER22173\DWGS\HER22173-PSMap.dwg

HERCULES
CHEMICAL SPECIALTIES

DATE: 3/18/03
SCALE: 1"=450'
DRAWN: N. SISSON
CHECKED:
REVIEWED: 4-4-03
PROJECT MANAGER: CAD

Eco·Systems, Inc.
Consultants, Engineers and Scientists

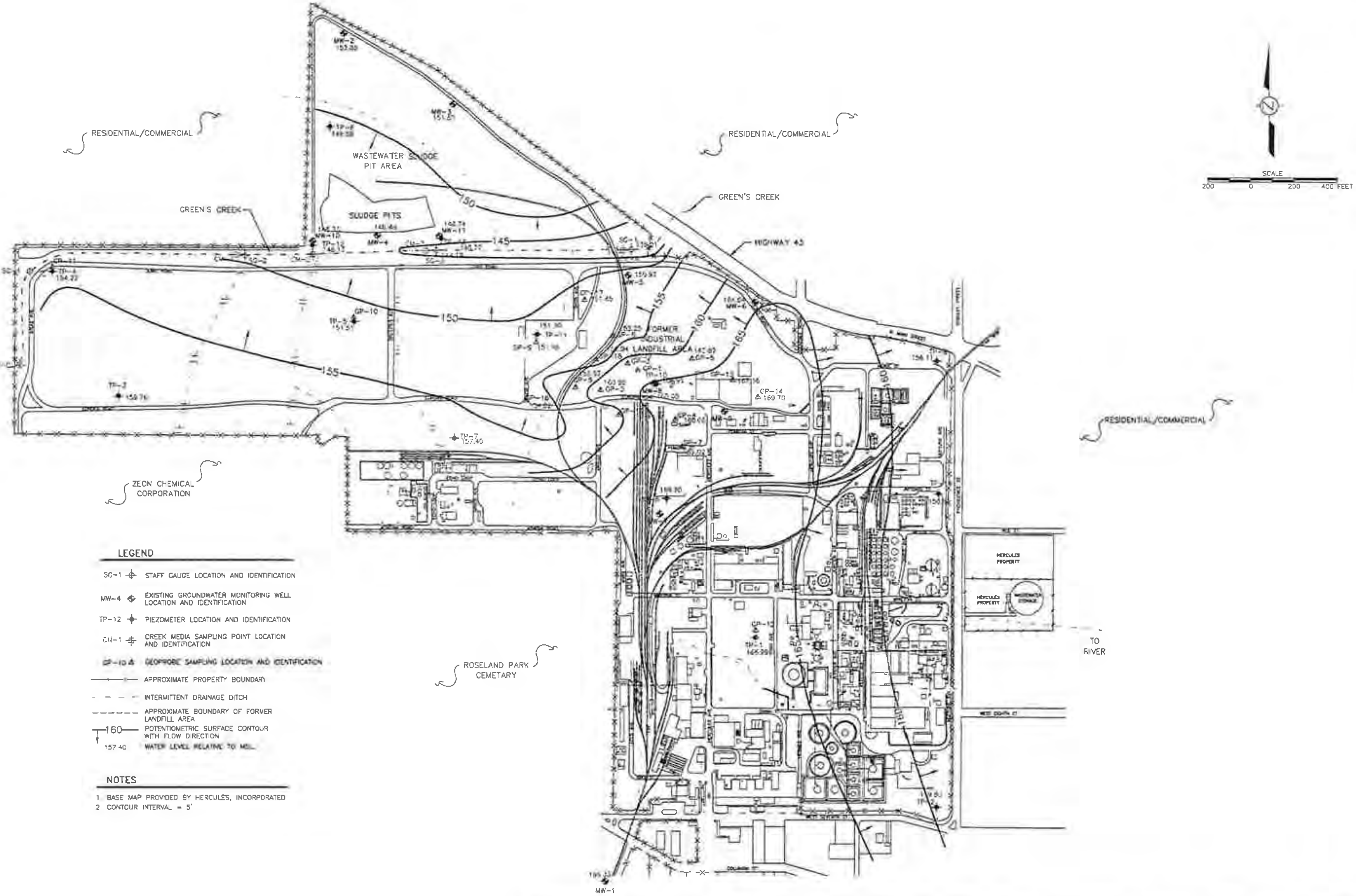
POTENTIOMETRIC
SURFACE MAP
MARCH 5, 2003

HERCULES CHEMICAL CO.
HATTIESBERG, MISSISSIPPI

PROJECT NO.
HER22173

CAD FILE
HER22173-PSMap.dwg

FIGURE
5



LEGEND

SC-1 ⌖	STAFF GAUGE LOCATION AND IDENTIFICATION
MW-4 ◈	EXISTING GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION
TP-12 ✦	PIEZOMETER LOCATION AND IDENTIFICATION
CM-1 ⌖	CREEK MEDIA SAMPLING POINT LOCATION AND IDENTIFICATION
GP-10 ▲	GEOPROBE SAMPLING LOCATION AND IDENTIFICATION
————	APPROXIMATE PROPERTY BOUNDARY
– – – –	INTERMITTENT DRAINAGE DITCH
— — — — — —	APPROXIMATE BOUNDARY OF FORMER LANDFILL AREA
—160—	POTENTIOMETRIC SURFACE CONTOUR WITH FLOW DIRECTION
157.40	WATER LEVEL RELATIVE TO MSL

NOTES

1. BASE MAP PROVIDED BY HERCULES, INCORPORATED
2. CONTOUR INTERVAL = 5'

0	ISSUED FOR REVIEW	CC	10/14/03
REV.	DESCRIPTION OF REVISION	BY	CURRENT DATE

HERCULES
CHEMICAL SPECIALTIES

SCALE: 1"=200'
DRAWN: PHILLIPS
CHECKED: CAB 11-2-03
REVIEWED: 10/14/03
PROJECT MANAGER: C. COVEY
DATE: 10/14/03

Eco·Systems, Inc.
Consultants, Engineers and Scientists
Jackson, MS • Mobile, AL • Houston, TX

POTENTIOMETRIC
SURFACE MAP
OCTOBER 31, 2003

HERCULES INCORPORATED
HATTIESBURG, MISSISSIPPI

PROJECT No.
CAD FILE NAME
FIGURE 4
REVISION 0

Appendix D

Notice of Land Use Restrictions

⑥

STATE OF MISSISSIPPI

COUNTY OF FORREST

Prepared By:
Mississippi Department of Environmental Quality
P.O. Box 20305
Jackson, MS 39289 (601)961-5171

Mississippi Department of Environmental Quality

NOTICE OF LAND USE RESTRICTIONS

COPY

A Restrictive Use Agreed Order has been developed with regard to property located at 613 West 7th Street, Hattiesburg, MS as shown as Parcel 1in the attached survey plat, Exhibit "A". This property, hereafter referred to as the "Site," is situated in Sections 4 and 5, Township 4, Range 13 West, Forrest County, Mississippi, and being more particularly described by metes and bounds as follows, to-wit:

> "A description for a parcel situated in Sections 4 and 5, Township 4 North, Range 13 West Forrest County, Mississippi; said parcel being illustrated as parcel 1 on survey plat for Hercules Incorporated by Land Management Services & Mapping, LLC and being more particularly described by metes and bounds as follows:
>
> Commencing at a Railroad Spike Found at the NW Corner of Said Section 4 said point having a Mississippi NAD 83 State Plane Coordinate of North: 671932.60' East: 834200.91' and thence run S01°48'08"W 243.97', to a metal pipe found on the south right-of way line of Mississippi Highway 42 for the Point of Beginning; thence leaving said south right of way line run S01°32'45"W 1,065.16', to a wood fence post found; thence run N88°48'08"W 1,318.98', to a wood fence post found; thence run S01°48'01"W 796.25', to a concrete monument found; thence run S89°40'54"E 1,422.86', to a concrete monument found; thence run S00°21'17"W 129.67', to a concrete monument found; thence run S89°39'18"E 144.76', to a concrete monument found; thence run S00°14'56"W 429.44', to a concrete monument found; thence run S89°52'14"E 1,237.65', to a metal fence post found; thence run S00°54'06"W 1,298.93', to an X-Cut set in concrete on the north right-of-way line of West 7th Street, said street having a 40' right-of-way as per the City of Hattiesburg; thence run along said north right-of-way N89°54'34"E 267.43', to a PK nail set, thence leaving said north right-of-way run; N00°03'00"E 190.92', to a PK nail set; thence run S89°02'44"E 189.42', to a PK nail set; N00°03'00"E 51.37', to a PK nail set; thence run S89°02'44"E 469.81', to an iron pin set; thence run S00°01'08"W 230.27', to an X-Cut set in concrete on the north right-of-way of said 7th street; thence run along said north right-of-way N89°54'34"E 654.88', to a PK nail set at the intersection of the said north right-of-way line and the west right-of-way line of Providence Street, said Providence Street having a 60' right-of-way as per the City of Hattiesburg; thence leaving said north right-of-way line run along said west right-of-way line N00°03'42"W 1,290.00', to an iron pin set; thence continue along said west right-of-way line N89°54'34"E 10.00', to an iron pin set; thence continue along said west right-of-way N00°04'39"W 817.15', to a PK nail set at the intersection of the west right-of-way of said Providence street and the south right-of-way line of Mississippi Highway 42 as per FAP U-008-2(1); thence leaving said west right-of-way line run along said south right-of-way N78°17'33"W 366.13', to an iron pin set; thence continue along said south right-of-way as per PWS Docket # 1043R-71A-EXT S11°42'03"W 10.00' to a concrete right-of-way marker marking the point of curve of a non tangent curve to the right, having a chord bearing of N74°51'58"W, 233.23', and a radius of 1947.42'; thence continue along said south right-of-way westerly along the arc, through a central angle of 06°51'58", a distance of 233.38, to an iron pin set; thence leaving said south right-of-way run S00°00'01"W 103.94', to a fence corner found; thence run West 100.00', to an iron pin set; thence run N00°31'30"W 113.09', to a metal pipe found; thence run East 74.46' to a PK nail set on the aforementioned south right-of way of Highway 42, said point marking the point of curve of a non tangent curve to the right, having a chord bearing of N68°09'32"W, 166.32', and a radius 1,947.42'; thence run along said south right-of-way westerly along the arc, through a central angle of 04°53'41", a distance of 166.37', to an iron pin set; thence leaving said south right-of-way run South 42.85', to an iron pin set; thence run West 50.00', to an iron pin set; thence run North 50.00', to an iron pin set; thence run West 75.00', to a concrete monument found; thence run North 54.74', to an iron pin set on the south right-of-way line of said Highway 42, said point marking the point of curve of a non tangent curve to the right having a chord bearing of N58°38'21"W, 201.65', and a radius of 1,947.42'; thence run along said south right-of-way northwesterly along the arc, through a central angle of 05°56'08", a distance of 201.74', to a right-of-way marker found; thence continue along said south right-of-way N55°42'47"W 145.58', to an iron pin set; thence continue along said south right-of-way S34°06'38"W 20.11', to an iron pin set; thence continue along said south right-of-way thence run N55°40'42"W 230.37'; thence continue along said south right-of-way S34°19'18"W 20.00', to an iron pin set; thence continue along said south right-of-way N55°40'37"W 570.29', to a right-of-way marker found; thence continue along said right-of-way N55°41'30"W 500.40', to a right-of-way marker found; thence continue along said north right-of-way N33°58'28"E 29.85', to a right-of-way marker found; thence continue along said north right-of-way N55°46'04"W 245.07', to a right-of-way marker found marking the point of curve of a non tangent curve to the left, having a chord bearing of N61°50'00"W, 603.00', and a radius of 2,808.94'; thence continue along said south right-of-way northwesterly along the arc, through a central angle of 12°19'25", a distance of 604.16' back to the Point of Beginning; containing 168.81 acres, more or less; all bearings, coordinates, and distances herein described are grid and are referenced to the west property line and are based on the Mississippi NAD 83 East Zone state plane coordinate system and are referenced to the national spatial reference system through the national geodetic survey's online positioning user service (opus) and are derived from a global positioning system observation, (combined grid factor: 0.99997116; convergence: -0°14'45")."

Indexing Instructions: NE, NW, SE, SW of Section 4 & NE of Section 5, Township 4 North, Range 13 West

STATE OF MISSISSIPPI

COUNTY OF FORREST

Soil and groundwater on the Site contains Benzene (CAS #71432), Chlorobenzene (CAS #108907), Carbon Tetrachloride (CAS #56235), Chloroform (CAS #67663), 1,2-Dichloroethane (CAS #107062) and Toluene (CAS #105553) at levels in excess of the Target Remediation Goals (TRGs) as established by the Mississippi Department of Environmental Quality (MDEQ). Other substances are present in the soil and groundwater that do not exceed TRGs have also been identified. In order to protect public health and the environment, certain restrictions are hereby placed on the Site.

The following is a listing of all restrictions for the Site:

1. There shall be no excavating, drilling or other activities to depths that could create exposure to contaminated media without approval from MDEQ;
2. The groundwater at the Site shall not be used, unless otherwise approved by MDEQ;
3. Monitoring wells shall be protected and maintained. In the event that a monitoring well is destroyed or damaged or is no longer needed, a plan for repair, reinstallation or abandonment of the well(s) must be submitted to MDEQ for approval; and
4. No wells shall be installed without prior approval from MDEQ.

Prior to executing any deed or other instrument conveying an interest in the Site, the following conditions must be met:

1. Any conveyance of the property, or any portion thereof, must contain as covenants the restrictions listed above with a statement that the covenants run with the land and continue into perpetuity unless otherwise ordered by the Mississippi Commission on Environmental Quality;
2. Notice must be provided to MDEQ at least 30 days prior to any property transaction involving the Site; and
3. Prior to any change in use of the Site or any portion thereof, notice shall be given to the MDEQ.

This Notice may be executed in counterparts.

The parties that have a legal or equitable surface interest in the Site follow:

1. Hercules Incorporated

STATE OF MISSISSIPPI
FORREST COUNTY
I CERTIFY THE INSTRUMENT
WAS FILED AND RECORDED
129454
2008 FEB 25 AM 10:24

WITNESS MY HAND AND SEAL
JIMMY C. HAVARD
CHANCERY CLERK

Executed, this the 10th day of December, 2007.

BY: Thomas H. Strang JMH 11/15/07 fw

TITLE: VP SHERA

PERSONALLY appeared before me, the undersigned authority in and for the jurisdiction aforesaid, on this the 10th day of December, 2007 within my jurisdiction, the within named Thomas H. Strang acknowledged that (he)(she) is VP SHERA of Hercules Incorporated, a Delaware corporation, and that for and on behalf of the said corporation, and as its act and deed (he)(she) executed the above and foregoing instrument, after first having been duly authorized by said corporation so to do.

SWORN TO AND SUBSCRIBED BEFORE ME, this the 10th day of December 2007.

NOTARY PUBLIC

RICHMOND L. WILLIAMS
Attorney At Law
Notary Public, State of Delaware
My Commission Has No Expiration Date
29 Del.C. § 4323(a)(3)

MY COMMISSION EXPIRES: No Expiration Date

Appendix E

Field Forms

ARCADIS

FIELD INSTRUMENT CALIBRATION LOG

Date: ______________________

ARCADIS Project Name: ______________________ Project Number: ______________________

Field Calibration by: ______________________ Instrument Source ______________________

Type of Instrument	Manufacturer	Model Number	Time	Standard Concentration	Calibrated Reading	Remarks
pH Meter				4.00 s.u.		
				7.00 s.u.		
				10.00 s.u.		
				4.00 s.u.		
				7.00 s.u.		
				10.00 s.u.		
				4.00 s.u.		
				7.00 s.u.		
				10.00 s.u.		
Conductivity Meter				3,000 µmhos/cm		
				5,000 µmhos/cm		
				30,000 µmhos/cm		
				3,000 µmhos/cm		
				5,000 umhos/cm		
				30,000 µmhos/cm		
				3,000 µmhos/cm		
				5,000 µmhos/cm		
				30,000 µmhos/cm		
Dissolved Oxygen Calibrate to Water-Saturated Air				mm Hg		
				mm Hg		
				mm Hg		
Turbidimeter				NTU		
				NTU		
				NTU		
ORP				150 MV		
				150 MV		
				150 MV		

ARCADIS

FIELD PARAMETER FORM

Well Identification Number:

Job Name/Number: Date:

Water Level (TOC): Total Depth:

OVM Reading: 3 Well Volumes:

Start Time: Total Volumes Removed:

Time	Water Level (ft gmp)	Temp (^{o}F)	Spc. Cond. (μmhos/cm)	Salinity (ppt)	DO (%)	DO (mg/L)	pH (s.u.)	REDOX/ORP (mv)

Observations/Comments:

Ferrous Iron: Sulfide:

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SOIL/SEDIMENT SAMPLING LOG

PROJECT NAME: ______________________________

PROJECT NUMBER: ______________ DATE: __________

SITE LOCATION: ______________________________

SAMPLE ID NUMBER: __________ CODED/REPLICATE NO.: NA

TIME SAMPLING BEGAN: ______ ENDING: ______

WEATHER: ______________________________

SITE DESCRIPTION: ______________________________

SAMPLING DATA

COLLECTION METHOD: ______________________________

DEPTH: ______________ MOISTURE CONTENT: __________

COLOR: ______________ ODOR: ______________

DESCRIPTION: ______________________________

ANALYSES REQUIRED	CONTAINER DESCRIPTION FROM LAB: X OR ARCADIS:

SAMPLING MONITORING (TIP, OVA, HNU, etc.) ______________

REMARKS: ______________________________

SAMPLING PERSONNEL: ______________________________

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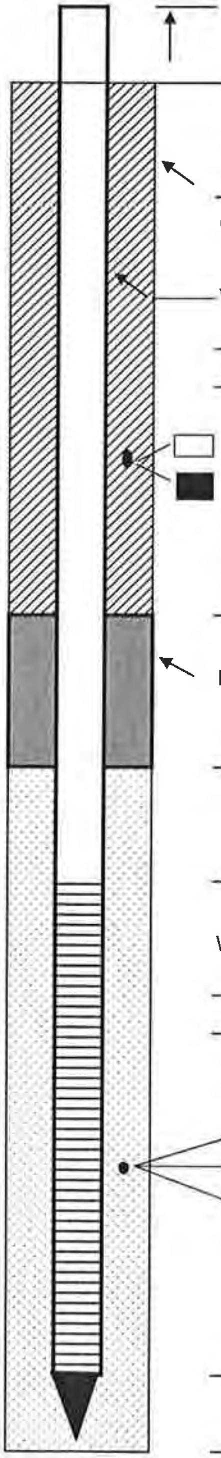
WELL CONSTRUCTION LOG



↑ ____ ft

Land Surface

____ inch diameter drilled hole

Well casing, ____ inch diameter, PVC

☐ Backfill

■ Grout cement

____ ft*

Bentonite

☐ slurry

■ pellets

____ ft*

____ ft*

Well Screen, ____ inch diameter

PVC, 0.010 slot

☐ Gravel Pack

■ Sand Pack

☐ Formation Collapse

____ ft*

____ ft*

Measuring Point is Top of Well Casing Unless Otherwise Noted.

* Depth Below Land Surface

Project ____ Well ____

Town/City ____

County/Parish ____ State ____

Permit Number ____

Land-Surface Elevation and Datum ____ feet X Surveyed

Estimated

Installation Date(s) ____

Drilling Method ____

Drilling Contractor ____

Drilling Fluid ____

Development Technique(s) and Date(s) ____

Fluid Loss During Drilling ____ gallons

Water Removed During Development ____ gallons

Static Depth to Water ____ feet below M.P.

Pumping Depth to Water ____ feet below M.P.

Pumping Duration ____ hours

Yield ____ gpm Date ____

Specific Capacity ____ gpm/ft

Well Purpose Monitor Well

Remarks ____

Prepared by ____

ARCADIS U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge, LA 70816

SAMPLE / CORE LOG

Boring/Well: ____________ **Project No.:** ______________________________ **Page 1 of 1**

Site Location: ______________________________ **Drilling Started:** ____________ **Drilling Completed:** ____________

Land-Surface Elev.: ________ **Surveyed:** _____ **Estimated:** _____ **Datum:** ____________

Drilling Fluid: ______________________________ **Drilling Method Used:** ____________

Drilling Contractor: ______________________________ **Driller:** ____________ **Helper:** ____________

Prepared By: ______________________________ **Hammer Weight:** ____________ **Hammer Drop (inches):** ____________

≈ Fill	▨ Silty Clay	‖ Silt	▥ Sandy Silt	⁞ Silty Sand	◨ Acetate Sleeve	▽ Water First Encountered
╱ Clay	▨ Sandy Clay	‖ Clayey Silt	⁙ Sand	▩ Clayey Sand	▩ Split Spoon	▼ Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H V	OVA (wo/F)(w/F) (ppm) (ppm)	REMARKS
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								

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WATER SAMPLING LOG

Project
Project No.
Site Location
Date:
Site/Well No.
Replicate No.
Code No.
Weather
Sampling Time: Begin
End

Evacuation Data

Measuring Point
MP Elevation (ft)
Land Surface Elevation (ft)
Sounded Well Depth (ft bmp)
Depth To Water (ft bmp)
Water Level Elevation (ft)
Water Column In Well (ft)
Casing Diameter/Type
Gallons In Well
Gallons Pumped/Bailed Prior To Sampling
Sample Pump Intake Setting (ft bmp)
Purge Time Begin: End
Pumping Rate (gpm)
Evacuation Method

Field Parameters

Color
Odor
Appearance
pH (s.u.)
Conductivity (mS/cm)
Conductivity (µmhos/cm)
Turbidity (NTU)
Temperature (°C/ °F)
Dissolved Oxygen
REDOX
Sampling Method
Remarks

Constituents Sampled	Container Description	Number	Preservative

Sampling Personnel

Well Casing Volumes

Gal./Ft.
1" = 0.04
1 - 1/4" = 0.06
1 - 1/2" = 0.09
2" = 0.16
2 - 1/2" = 0.26
3" = 0.37
3 - 1/2" = 0.50
4" = 0.65
6" = 1.47

bmp	Below measuring point	ml	Milliliter	NTU	Nephelometric Turbidity Units
°C/°F	Degrees Celsius/Fahrenheit	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	NA	Not Applicable	µmhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds
ppt	Parts per thousand	CS	Carbon steel	SS	Stainless steel

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Project Name / Number:

Sample ID:

Matrix:

Collection:

Preservative:

Date:

Analysis:

Time:

Sampler(s):

ARCADIS
Infrastructure Water Environment Buildings

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page ___ of ___

Lab Work Order #

Send Results to:

Contact & Company Name:	Telephone:
Address:	Fax:
City State Zip	E-mail Address:
Project Name/Location (City, State):	Project #:
Sampler's Printed Name:	Sampler's Signature:

Preservative							
Filtered (✓)							
# of Containers							
Container Information							

PARAMETER ANALYSIS & METHOD

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: ________
G. Other: ________
H. Other: ________

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: ________
10. Other: ________

Matrix Key:

SO - Soil	SE - Sediment	NL - NAPL/Oil
W - Water	SL - Sludge	SW - Sample Wipe
T - Tissue	A - Air	Other: ________

Sample ID	**Collection**		**Type (✓)**		**Matrix**								**REMARKS**
	Date	Time	Comp	Grab									

Special Instructions/Comments:

☐ **Special QA/QC Instructions(✓):**

Laboratory Information and Receipt		**Relinquished By**	**Received By**	**Relinquished By**	**Laboratory Received By**
Lab Name:	Cooler Custody Seal (✓)	Printed Name:	Printed Name:	Printed Name:	Printed Name:
☐ Cooler packed with ice (✓)	☐ Intact ☐ Not Intact	Signature:	Signature:	Signature:	Signature:
Specify Turnaround Requirements:	Sample Receipt:	Firm:	Firm/Courier:	Firm/Courier:	Firm:
Shipping Tracking #:	Condition/Cooler Temp: ________	Date/Time:	Date/Time:	Date/Time:	Date/Time:

20730826 CofC AR Form 01.12.2007

Distribution: **WHITE – Laboratory returns with results** **YELLOW – Lab copy** **PINK – Retained by ARCADIS**

CHAIN-OF-CUSTODY SEAL • CHAIN-OF-CUSTODY SEAL

ARCADIS

____

CHAIN-OF-CUSTODY SEAL • CHAIN-OF-CUSTODY SEAL