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Sludge Characterization and Bench Scale Treatability Report

Hattiesburg, Mississippi

20 August 2010

ARCADIS

Craig A. Derouen, P.E.
Senior Engineer

John Ellis, P.G.
Principal Scientist/Geologist

David R. Escudé, P.E.
Vice President/Principal Engineer

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Prepared for:
Hercules Incorporated

Prepared by:
ARCADIS U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge
Louisiana 70816
Tel 225 292 1004
Fax 225 218 9677

Our Ref.:
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Executive Summary

The purpose of the characterization and bench scale treatability project was to evaluate sludge within the impoundment basin (IB) at the Hercules Incorporated facility located at 613 West 7th Street in Hattiesburg, Mississippi. The primary objective was to identify an appropriate strategy for treatment and disposal of sludge within the IB. Based on the data collected during the April 2010 field effort and the subsequent laboratory analysis, an effective sludge management option has been identified.

The sludge sampling and analysis provides adequate characterization to support the project objectives. Using the characterization data, a statistical analysis was completed to determine if the IB sludge would be characteristically hazardous when managed. Based on this analysis, the sludge will be considered a nonhazardous waste for purposes of management and off-site disposal. Because the material is nonhazardous, Land Disposal Restrictions will not apply. Currently, off-site disposal at the Pine Belt Regional Landfill is anticipated.

The treatability work completed indicates the sludge readily dewaters under both passive and active treatment approaches. An evaluation of the technologies, using the criteria of effectiveness, implementability and cost, indicates that gravity dewatering in fabricated drying beds outside the IB is the most appropriate technology for dewatering the sludge prior to off-site disposal. Based on this analysis, an IB Decommissioning Work Plan has been developed. The Decommissioning Work Plan outlines the activities necessary to complete gravity dewatering of the sludge, management of the dewatering effluent through the current wastewater discharge permit, off-site disposal of the dewatered material at the Pine Belt Regional Landfill, backfilling of the IB, and reporting. Detailed plans and specifications will be developed for contractor bidding purposes. In the event another viable option is proposed by a contractor, Hercules will evaluate that option prior to decommissioning the IB.

Once the IB sludge has been effectively managed, monitoring of site-wide groundwater will continue under the Restricted Use Agreed Order (RUAO 5349 07). The purpose of the RUAO is to protect human health and the environment by restricting the use and activities on site while constituents in site-wide groundwater attenuate as described in the Corrective Action Plan Revision 01 (Groundwater & Environmental Services, Inc. dated January 20, 2005).

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1. Introduction

ARCADIS U.S., Inc. (ARCADIS), submitted the *Sludge Characterization and Bench Scale Treatability Work Plan* (Work Plan) to Hercules Incorporated (Hercules) on March 1, 2010. The Work Plan presented a strategy and procedures for evaluation of the current conditions of an on-site impoundment basin (IB) located at Hercules' 613 West 7th Street facility in Hattiesburg, Mississippi (Figures 1 and 2). The Work Plan was submitted to the Mississippi Department of Environmental Quality (MDEQ) for review prior to implementation. MDEQ approved the Work Plan in a letter dated March15, 2010. Field activities were initiated in April 2010. This report presents the results of the characterization and treatability activities conducted to support the selection of an effective remedy for properly managing the IB sludge and decommissioning the IB.

2. Objectives

The primary objective of the activities conducted was to gather data that can be used to determine the most cost-effective treatment and disposal option for the IB sludge. Data were collected to evaluate technologies that can be implemented to decommission the IB under one of two closure scenarios: 1) dewatering with off-site disposal; and 2) in-place closure. These data included information on the volume, physical characteristics, chemical, and treatability characteristics of the sludge. This objective was established as a result of Hercules' desire to manage the sludge appropriately and decommission the IB.

3. Regulatory History

In December 2007, Hercules entered into a "Restrictive Use Agreed Order" (RUAO 5349 07) with MDEQ. The purpose of the RUAO is to protect human health and the environment by restricting the use and activities on site while constituents in site-wide groundwater attenuate as described in the Corrective Action Plan Revision 01 (Groundwater & Environmental Services, Inc. dated January 20, 2005).

Permitted water discharge to the City of Hattiesburg Publicly Owned Treatment Works (POTW) has occurred since March 1999. The current State of Mississippi Water Pollution Control Permit number is MSP091286. Because the IB was no longer necessary, Hercules contracted for the removal and disposal of the IB sludge. Following removal of the sludge, the IB would be backfilled to grade and revegetated. Monitoring of site-wide groundwater would continue under the RUAO.

Hercules notified MDEQ of its intent to decommission the IB in a letter dated April 22, 2008. In response to the notification, MDEQ requested, in a letter dated June 8, 2008, additional information regarding the closure operations including a request for Hercules to characterize the sludge within the IB prior to removal from the units. MDEQ also sent a letter to Hercules dated August 25, 2009 (Appendix A), following several meetings and submittal of a draft closure plan. In the letter, MDEQ outlined additional closure procedures. Those closure procedures addressed particular analysis and characterization of the sludge in regard to the management and disposal of the water and sludge from within the IB. Hercules submitted the characterization and treatability Work Plan to MDEQ for review. Based on MDEQ's approval, Hercules implemented the Work Plan to gather the additional data needed to proceed with decommissioning the IB.

4. Rationale

In correspondence dated August 25, 2009, MDEQ outlined a general procedure for closure of the IB, which stated if the characterization indicates that the sludge is nonhazardous for benzene and other constituents, the Land Disposal Restrictions (LDR) in 40 Code of Federal Regulations (CFR) Part 268 would not apply.

An effort was undertaken in April 2010 as part of this characterization plan to preliminarily determine whether the LDR would apply to the IB sludge using the above procedure. The evaluation also gathered data to determine: 1) if the sludge can be dewatered or solidified/stabilized sufficiently to allow for transportation over public roadways to an off-site disposal facility; and 2) if sufficient strength can be imparted to the sludge to hold the weight of an engineered cap for on-site closure. The results of this evaluation are presented in the following sections.

5. Sludge Characterization

Sludge characterization consisted of surveying, sample collection, and laboratory analysis of the IB material. Figures 3 and 4 show the locations where samples were collected in April 2010. Figure 5 is a graphical depiction of the sampling protocol that was followed.

5.1 Mass and Volume Verification

A surveyor licensed by the State of Mississippi surveyed the areal extent of the IB. In addition, the elevations of the top of sludge at each of the locations sampled in the IB were surveyed. During collection of IB samples, the on-site geologist measured the depth of the sludge material to native soil within the core barrels. Native soil was not encountered in the IBS-1 location at a depth of 10.2 feet below the top of sludge. For boring locations IBS-2 through IBS-8 (Figure 3), native soil was encountered at depths ranging from 4.3 to 9.5 feet below the top of sludge. Sludge was observed in each boring. Distinct upper and lower sludge layers were observed in five of the borings. The layers were visually delineated by color and texture changes. Physical observations and the depths of each layer were noted on Sample/Core Logs (Appendix B). Using the surveyed elevations and the measurements made in the field, the volume of the upper and lower sludge layers encountered in the IB were determined using AutoCAD® software. The upper and lower sludge layers contained approximately 3,800 cubic yards (cy) and 900 cy of material, respectively, for a total of approximately 4,700 cy (in-place) of sludge in the IB.

5.2 Sample Collection

Sample collection activities were conducted from April 14, 2010, through April 16, 2010. MDEQ representatives observed the sample collection activities.

5.2.1 Analytical Sample Collection

Sludge and native soil samples were collected from the IB locations shown on Figure 3 using a flat-bottom boat, vibracoring equipment, and/or 1-gallon plastic buckets. The sludge samples collected using vibracoring equipment were brought to the surface and examined by a geologist. It was noted that sludge was present in distinct upper and lower layers. Upper layer sludge was black in color, while lower layer sludge was tan and had a firmer consistency. Only upper layer sludge was encountered at the IBS-3, IBS-4, and IBS-7 sample locations, and these locations terminated in native soil material. Analytical samples collected from the sludge material contain either "US" or "LS" in the sample identifier to indicate upper sludge or lower sludge, respectively. Three cross-sections (Figures 6 and 7) were developed that depict the approximate extent of the upper and lower sludge layers. Soil samples were collected from native materials beneath the lower sludge. The native soil was primarily sandy and/or silty clay material. Sand and silty clay were not observed in the sludge samples. The presence of a native soil layer containing these soil types beneath the IB is consistent with previous subsurface observations noted in this area. Copies of the forms used to log field observations are included in Appendix B.

Sludge samples were collected from the upper and lower half of the total sludge interval at eight IB sample locations and native soil samples were collected at seven sample locations (Figures 3 and 4). Each sample was analyzed for the following constituents:

- Volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (USEPA) Method 8260B;
- Semivolatile organic compounds (SVOCs) by USEPA Method 8270C; and
- Resource Conservation and Recovery Act (RCRA) 8 metals by USEPA Method 6010/7470.

In addition to the total analyte analyses listed above, the sludge samples were also analyzed for:

- Toxicity Characteristic Leaching Procedure (TCLP)-VOCs;
- TCLP-SVOCs;
- TCLP-Pesticides and Herbicides;
- TCLP-Metals; and
- Reactivity, Corrosivity, and Ignitability by USEPA Method 1311.

The results of the TCLP and total analyte testing are included on Tables 1 through 3. Figure 3 depicts the detected TCLP concentrations in the IB and Figure 4 depicts the detected total analyte concentrations. Copies of the laboratory reports are included in Appendix C.

Samples selected for submission to the laboratory, including quality assurance/quality control samples (trip, field, and equipment rinsate blanks), were placed into laboratory-provided sample containers containing the appropriate preservatives. The samples were packaged on ice and shipped to TestAmerica Laboratories, Inc.'s (TestAmerica's), analytical laboratory in Savannah, Georgia, under proper chain-of-custody procedures.

5.2.2 Treatability Sample Collection

During vibracoring operations to collect analytical sludge samples, it was observed that the majority of the depth of the IB above native soil contained a watery, black sludge in the upper layer (average thickness of 6.1 feet). This sludge appeared to be relatively uniform across the IB. Ten-gallon sludge samples of this material were collected from this layer at the locations shown on Figure 3. Each sludge sample was containerized in two new 5-gallon buckets with sealing lids.

The Work Plan called for the collection of upper and lower sludge samples for treatability testing. While two distinct layers were observed at most locations, the lower sludge layer (average thickness of 2.3 feet) appeared to be consolidated enough to pass the Paint Filter Liquids Test (USEPA Method 9095A) in the state it was observed in the vibracore sample tube. Because the purpose of the treatability sampling was to evaluate dewatering, it was determined that this testing was unnecessary for sludge from the lower layer. Therefore, treatability samples were not collected from the lower sludge layer.

Selected samples were submitted to geotechnical and treatability laboratories after the TCLP analytical results revealed that the sludge was nonhazardous (see Section 5.3.1). One of the sample buckets from each of the selected locations was submitted to Fugro Consultants, LLC (Fugro), in Baton Rouge, Louisiana, for the solidification study and the other buckets were submitted to TMA Environmental, Inc. (TMA), in Gonzales, Louisiana, for the dewatering study. Proper chain-of-custody procedures were followed during the transport and relinquishment of the samples.

5.3 Analytical Testing and Results

Sixteen sludge samples were collected and submitted to TestAmerica for TCLP and total analyte testing using the protocol depicted on Figure 5. Copies of the analytical reports are included in Appendix C.

5.3.1 Sludge Analytical Results

Results of the TCLP testing are included in Table 1. Detected TCLP concentrations are shown on Figure 3. The TCLP results were compared to the toxicity characteristic (TC) levels contained in 40 CFR 261.24. Of the sixteen samples submitted for TCLP analyses, three samples (IBS-1-US, IBS-3-LS, and IBS-7-LS) contained benzene concentrations above the TC levels. No other TCLP parameters were detected above regulatory levels.

It is not practicable to sample and test the entire volume of sludge in the IB to determine the TCLP-benzene results for all of the sludge in the IB. Additionally, mixing within the sludge will occur during removal, dewatering, solidification, and/or loading for off-site transport during closure of the IB. Therefore, it is appropriate to determine the 95% Upper Confidence Limit (UCL) value (as allowed under SW-846 Chapter 9) of the TCLP-benzene results as a means for assessing the characteristics of the sludge as it is being managed. The 95% UCL is a calculated statistical value used to represent the true mean of a set of data with 95% confidence. A 95% UCL analysis was performed on the TCLP-benzene concentrations. The analysis determined that the 95% UCL TCLP-benzene concentration in the IB is 0.159 milligram per liter (mg/L), well below the 0.5 mg/L benzene TC standard. This result indicates that with 95% confidence, the true mean of the TCLP-benzene concentrations of the entire volume of sludge in the IB is less than the TC standard for benzene. The options presented in this report are based on the non-hazardous characterization of the sludge using the 95% UCL concentration for benzene of 0.159 mg/L. The 95% UCL analysis is described in Appendix D.

Results of the total analyte testing of IB sludge are included in Table 2. All of the detected total analyte concentrations are shown on Figure 4.

5.3.2 Native Soil Analytical Results

Native soil samples were collected from beneath seven of the sludge locations (IBS-2-NS through IBS-8-NS). The native soil layer was not reached at the IBS-1-NS sample location at a depth of 11.5 feet below the water surface (10.2 feet below top of sludge) due to reaching the limit of the sampling device. The samples were submitted to TestAmerica for total analyte testing. The results of the testing are included in Table 2. Detected total analyte concentrations are shown on Figure 4.

The total analyte results for native soil beneath the IB were compared to the MDEQ Tier 1 TRGs for restricted soil use. 2-Nitroaniline, benzene, carbon tetrachloride, chloroform, dibenz(a,h)anthracene, and toluene were detected at concentrations exceeding their respective Tier 1 TRGs. It should be noted that these native soil samples were collected below the water table and, therefore, impacts present in these samples may be representative of groundwater conditions in the vicinity of the IB.

5.3.3 Investigation-Derived Waste (IDW)

IDW, including personal protective equipment, disposable sampling equipment, packaging, etc., was disposed of in a municipal waste landfill. Sludge samples whose TCLP results were within TC limits were returned to the IB. IDW sludge samples from the individual sampling locations that failed the TC testing criteria were disposed of in July 2010 as hazardous waste. The disposal effort was contracted through Ashland Distribution Environmental Services.

5.3.4 Dewatered Solids Effluent Analysis

The Work Plan called for collection and sampling of the centrifuge, filter press, and gravity dewatering effluent water that came out of the IB sludge during treatability testing so a determination of how to manage this waste stream during IB sludge management could be completed. Effluent generated during the dewatering study was containerized. The analytical testing required by the POTW permit includes the following: VOCs, pH, SVOCs, biochemical oxygen demand (BOD), and oil and grease. Due to the limited volume of effluent generated during treatability testing, not all of the proposed testing was completed. Enough sample volume of the treatability effluent was available to conduct the VOC, pH, and SVOC analyses. There was insufficient volume to analyze the treatability laboratory effluent for BOD and oil and grease.

The results of the treatability effluent water analysis were within the limits set by the current POTW discharge permit, except for the following: IBS-8 Filter Press Filtrate sample had of pH of 11.5 standard units (s.u.), which slightly exceeded the limiting pH effluent range of 5.0 to 11.0 s.u.; benzene was detected at a concentration of 0.0013 mg/L in the IBS-8 Filter Press Filtrate sample; toluene was detected in the IBS-4 Centrifuge Centrate (250 parts per million [ppm] Cation Polymer), IBS-4 Filter Press Filtrate, and IBS-8 Filter Press Filtrate samples at concentrations of 0.00052J mg/L, 0.280J mg/L and 0.100 mg/L, respectively. The effluent water results are listed in Table 4.

The current IB discharge system has pH adjustment capabilities which can ensure that the pH of effluent discharged from the IB is within the limiting pH range.

The POTW permit is based on pounds per day of each parameter discharged to the POTW. The calculations in Appendix E show the limiting permit parameter and the volume of water that can be discharged per day from the IB during closure activities.

These calculations apply only to the water entrained in the sludge, not the water that is currently discharged from the surface of the IB as a result of rain events.

The calculations in Appendix E were made assuming that there are 856,290 gallons of water contained in the sludge in the IB, based on the lowest in-situ solids content value reported of 10%. The potentially limiting parameter that will govern the pumping of effluent to the POTW is toluene. Using the maximum toluene effluent concentration of 0.280 mg/L as a conservative estimate, a total of 92,764 gallons per day of effluent can be discharged to the POTW during sludge dewatering activities. It should be noted that while the highest toluene value reported by the lab was used in this analysis, there were additional data that indicate lower toluene values. The actual toluene concentrations in water discharged to the POTW will be monitored at the interval specified by MDEQ in the POTW permit to ensure permit limits are met during dewatering activities associated with the IB decommissioning.

6. Sludge Treatability Determination

6.1 Overview

The bench scale treatability testing consisted of determining the amenability of the sludge to dewatering and solidification processes. Both determinations consisted of testing limited quantities of sludge material. While efforts were made to collect representative sludge samples, the treatability of the sludge during field implementation of any of the evaluated technologies may differ from the observations made during bench scale testing.

Due to the observed uniformity of the upper sludge material and in-situ consolidation of the lower sludge material during characterization sampling activities, only upper sludge material samples were collected for bench scale testing purposes.

6.2 Dewatering Study

Three samples (IBS-2, IBS-4, and IBS-8) were containerized and submitted to TMA for dewatering analysis. TMA tested the sludge material before and after dewatering simulations were performed. The dewatering simulations consisted of:

- Centrifuge simulation;
- Baroid screening;

- Filter press simulation; and
- Gravity dewatering simulation.

The sludge material was analyzed for total solids prior to conducting the simulations. The solids percentage of the raw material (i.e., prior to dewatering) ranged from 12% to 20% by weight.

6.2.1 Criteria

The dewatering study focused on determining the following:

- If dewatered material will pass the Paint Filter Liquids Test (USEPA Method 9095A), indicating a material is dry enough for transportation over public roadways and disposal in a permitted landfill without violating LDRs;
- The percent solids remaining in the samples that pass the Paint Filter Liquids Test (higher solids contents indicate more effective dewatering); and
- The quality of the effluent as related to the limitations of Hercules' POTW discharge permit (see Section 5.3.4 and Appendix E).

6.2.2 Centrifuge

Centrifuge technology was used to induce phase separation of the sample solids contained in a raw material sample from the liquid. The gravitational force of the laboratory centrifuge is a close approximation of the 3,000 times the force of gravity that can be expected for a typical full-scale centrifuge unit.

An initial centrifuge simulation was run on the raw sludge sample collected from IBS-2 without chemical addition and produced a filter cake with 47% solids, although the effluent was not clean. This material passed the Paint Filter Liquids Test. Two additional centrifuge simulations were performed on each of the IBS-2, IBS-4, and IBS-8 samples, one with the addition of 250 ppm cationic polymer, the other with 250 ppm anionic polymer. The simulations were each performed for 2 minutes. Both simulations produced filter cake that passed the Paint Filter Liquids Test for all samples. The resulting centrifuge filter cake solids ranged from 28% to 34%. The effluent had good clarity and light solids; however, the percent solids is less than the initial simulation.

6.2.3 Baroid Screening

Baroid testing on various filter media and chemical treatments was conducted as a screening tool prior to conducting a recessed chamber filter press simulation. The recessed chamber simulation takes approximately 12 times the sample volume as a Baroid unit. All of the Baroid scenarios were conducted at 80 pounds per square inch (psi) and produced filter cake that passed the Paint Filter Liquids Test. The duration of the applied pressure lasted between 3 and 6 minutes. The first scenario was run without the use of a chemical reagent. The resultant filter cake had a solids content of 40 to 42%. While this represents a favorable increase in the percent solids as compared to the in-situ value, the filter cake was described as soft and sticky. The stickiness of the filter cake could pose machine-fouling problems during full-scale operations. Because of this potential problem, the second through seventh Baroid simulations tested the effectiveness of reagent additions to produce a more favorable filter cake.

The second and third Baroid scenarios tested the addition of 0.5% and 1.0% of diatomaceous earth to the sludge. The 0.5% diatomaceous earth addition yielded a good quality filter cake with 47% to 49% solids. The 1.0% diatomaceous earth addition resulted in 50% to 56% solids with a good quality filter cake.

The fourth and fifth Baroid scenarios consisted of adding 0.5% and 1.0% of hydrated lime to the sludge. The 0.5% and 1.0% hydrated lime additions resulted in percent solids ranging from 49% to 62% and 51% to 61% by weight, respectively, with good quality filter cake. The 62% solid content was the highest percent solids measured during Baroid testing.

The sixth and seventh Baroid simulations were conducted with the addition of 0.5% hydrated lime plus 0.5% ferric sulfate and 1.0% hydrated lime plus 0.5% ferric sulfate. The 0.5% hydrated lime plus 0.5% ferric sulfate resulted in fair quality filter cake with percent solids ranging from 45% to 55%. The 1.0% hydrated lime plus 0.5% ferric sulfate yielded a fair quality filter cake with 51% to 56% solids. When compared to the reagent addition with only hydrated lime testing, the ferric sulfate addition did not raise the percent solids content.

6.2.4 Filter Press

Based on the results of the Baroid testing, the 0.5% hydrated lime addition was tested in the recessed chamber filter press simulation unit. This simulation was conducted for

5.5 minutes at 120 psi. After the run, the filter cake solids were determined to pass the Paint Filter Liquids Test, be of good quality, and ranged from 55 to 62% solids. These results are the highest percent solids range measured during the dewatering portion of the treatability study.

6.2.5 Gravity Dewatering

A gravity dewatering simulation was conducted by TMA allowing three 1-gallon samples of sludge material to sit in aluminum pans with 1/16th-inch holes drilled in the bottom and spaced 2 inches apart. After 4.5 days, the filter cake from all three samples passed the Paint Filter Liquids Test conducted by TMA (Appendix F). The dewatered TMA samples were submitted to Fugro for additional testing. Two of the dewatered samples were analyzed as received and had total solids contents of 33.5% and 41.0%. Both of these samples passed the Paint Filter Liquids Test. Fugro re-mixed free liquid contained in the third sample and calculated a solids content of 16.1%. Fugro also conducted a Paint Filter Liquids Test on the TMA sample and this re-mixed material did not pass.

6.3 Solidification Study

A sludge solidification study was conducted to determine if desired characteristics can be imparted to the sludge through reagent amendments. The solidification study consisted of mixing raw sludge samples with Portland cement, quick lime, fly ash, and Calciment® in different percentages. The resultant mixtures were tested for paint filter liquids and unconfined compressive strength. The test results are included in Appendix G.

6.3.1 Criteria

The criteria for the solidification study are two-fold because solidified material may be disposed of off site or decommissioned in-place:

- Solidified material must pass the Paint Filter Liquids Test (USEPA Method 9095A), if this material will be disposed of off site, indicating the material is dry enough to transport over public roadways and for disposal in a permitted landfill; or

- The solidified sludge material must have an unconfined compressive strength (UCS) of 8 psi after 3 days, which will ensure that the solidified material can support the weight of an engineered cap if on-site closure is selected as a final remedy.

6.3.2 Methodology

Three 5-gallon samples of sludge material were submitted to Fugro for the solidification study. The raw sludge material (i.e., without the addition of any reagent) was subjected to moisture content, specific gravity, dry bulk density, percent solids, and the Paint Filter Liquids Test. Because all of the untreated material samples failed the Paint Filter Liquids Test, reagents were added to these samples and additional testing was completed. Two sets of sample molds were made of the mixed material, one for strength testing after 3 days and one for strength testing after 7 days.

6.3.3 Results

Portland cement, quick lime, fly ash, and Calciment® (a proprietary blend of solidification reagents) were added to the raw sludge in the following percentages: 5% Portland cement, 10% Portland cement, 5% quick lime, 10% quick lime, 15% fly ash, 25% fly ash, 25% quick lime, 10% Calciment®, and 20% Calciment®. Sample containers were molded and allowed to cure for 3 days. After 3 days, the molds were tested for bulk density (to determine weight of the final mixture), for UCS (to determine if the final mixture met the 8 psi criterion), and by the Paint Filter Liquids Test (to determine if the material is suitable for transport over public roadways).

After 3 days, the bulk density of both Portland cement and the 5% and 10% quick lime samples was less than the raw material. This indicates that enough of the water content was driven off by the reaction of the reagent to reduce the overall unit weight of the resultant mixture. The bulk density of the 15% fly ash, 25% fly ash, 25% quick lime 10% Calciment®, and 20% Calciment® samples were 0.3 pound per cubic foot (pcf), 7.7 pcf, 5.9 pcf, 3.1 pcf, and 9.1 pcf greater than the bulk density of the raw sample. This indicates that the reagent additions at these percentages increase the overall weight of the resultant mixture.

None of the reagent additions resulted in a sample that met the 8 psi after 3 day criterion established as the minimum strength required to support the weight of an engineered cap. The 25% addition of quick lime as a reagent mixture was added as a mixture to determine if a reagent addition of this magnitude, although likely economically unfeasible, would impart the required strength to the sludge. Because this mixture only achieved a UCS of 6.5 psi, the 25% quick lime addition was unsuccessful.

In addition to the 3-day strengths, the remaining molded samples were tested after allowing 7 days for reaction to take place. Only the 25% addition of quick lime yielded a strength (13.6 psi) greater than the required strength of 8 psi.

7. Feasibility Evaluation

This feasibility evaluation was conducted in a manner to explore the merits of applying each of the closure technologies evaluated as the final remedy for the IB sludge. The technologies were evaluated on the following two criteria:

- Effectiveness – The ability of the technology to be used to efficaciously decommission the IB; and
- Implementability – The ability of the closure technology to be employed within site-specific constraints.

The merits of each technology were evaluated as discussed below. A matrix summarizing the results of the evaluation is included in Appendix H.

7.1 Centrifuge Dewatering with Off-Site Disposal

Centrifuge dewatering would be employed to dewater the IB sludge. The effluent from the centrifuge would be routed back to the IB and discharged under Hercules' POTW permit. The resultant solidified material would be tested for passage of the Paint Filter Liquids Test. Once passage of the Paint Filter Liquids Test was verified, the material would be loaded and transported for disposal at the Pine Belt Regional Landfill (Appendix A).

7.1.1 Effectiveness

Centrifuge technology is capable of dewatering the solidified material to the extent needed to pass the Paint Filter Liquids Test. The resultant effluent can be physically routed for disposal through Hercules' POTW permit. Disposal of the resultant solids can be achieved by transporting the solidified sludge to the Pine Belt Regional Landfill. This technology can be employed effectively at this site.

implementation. Use of a filter press is susceptible to mechanical failures which could adversely affect the schedule. This technology is considered implementable.

7.3 Gravity Dewatering with Off-Site Disposal

Gravity dewatering would be employed by constructing dewatering cells in the vicinity of the IB to passively dewater the sludge material to the extent that the dewatered material would pass the Paint Filter Liquids Test. Once passage of the Paint Filter Liquids Test was verified, the material would be loaded and transported to Pine Belt Regional Landfill.

7.3.1 Effectiveness

Gravity dewatering technology is capable of dewatering the solidified material in the dewatering cells. Further, dewatered material could be augmented with reagent addition (5% Portland cement or 10% quick lime), if required to pass the Paint Filter Liquids Test. The resultant liquid effluent can be physically routed for disposal through Hercules' POTW permit. Disposal of the resultant solids can be achieved by transporting the solidified sludge to the Pine Belt Regional Landfill. This technology can be employed effectively at this site.

7.3.2 Implementability

Gravity dewatering can be accomplished with self-powered equipment. This technology would be implemented by initially stacking the sludge on the west end of the IB, while discharging water through the permitted POTW discharge. If the sludge can be dewatered in the IB, dewatering will take place in the IB. If the sludge cannot be sufficiently dewatered due to groundwater infiltration, a dewatering area(s) located near the site would be constructed as dewatering cells. Potential dewatering sites are shown on Figure 8. The sludge would be excavated and/or pumped to the cell(s). Water discharged from the cell adjacent to the western IB boundary would be drained directly into the IB. The potential dewatering area located south of the IB has a drainage pipe that gravity discharges to the IB. The eastern boundary of the potential dewatering cells located north of the IB is adjacent to a concrete-lined ditch that gravity drains to the industrial sewer system. The concrete-lined ditch gravity discharges to the POTW through Hercules' POTW permit. Because passive dewatering is weather dependent, the duration of active implementation of this technology may be among the longest of the evaluated technologies. This technology is conducted in an open atmosphere; therefore, control of nuisance odors may become necessary during implementation. Gravity dewatering is not as susceptible to mechanical failures causing project delays as the centrifuge and filter press options. This technology is considered implementable.

7.4 Solidification with Off-Site Disposal

Under this scenario, reagent would be added to the IB sludge for the purpose of passing the Paint Filter Liquids Test. Because groundwater levels in the vicinity of the IB are above the level of the sludge, solidification may be conducted after the sludge is removed from the IB. Once passage of the Paint Filter Liquids Test was verified, the material would be loaded and transported for disposal at the Pine Belt Regional Landfill.

7.4.1 Effectiveness

Solidification is capable of dewatering the solidified material to the extent needed to pass the Paint Filter Liquids Test. The resultant effluent can be physically routed for disposal through Hercules' POTW permit. Disposal of the resultant solids can be achieved by transporting the solidified sludge to the Pine Belt Regional Landfill. This technology can be employed effectively at this site.

7.4.2 Implementability

Solidification can be accomplished with self-powered equipment. This technology would be implemented by discharging water through the permitted POTW discharge. If the sludge can be sufficiently dewatered in the IB, dewatering will take place in the IB. If the sludge cannot be sufficiently dewatered in the IB due to infiltration of groundwater, a mixing area(s) located near the IB will be constructed to facilitate reagent mixing. At the point in which the material is dewatered to the highest extent practicable, the most cost-effective reagent at the time of implementation would be added to the ex-situ sludge. Once an area was mixed, reagent would be added to an adjacent area. A long-reach excavator would be necessary to accomplish the mixing due to the limited access for equipment on the south side of the IB. Once sufficient time has passed for the reagent to react with the sludge, a Paint Filter Liquids Test would be conducted to determine the endpoint of reagent addition. Because reagent additions would occur in the mixing area, this technology is weather dependent. However, by using a reagent with a quick reaction time (3 days), the amount of material that might have to be reworked due to an unexpected rain event would be minimized. Because this technology is conducted in an open atmosphere, control of nuisance odors may become necessary during implementation. This technology is considered implementable.

7.5 Solidification with On-Site Capping

Solidification with on-site capping was evaluated. Under this scenario, reagent would be added to the IB sludge to yield a compressive strength of 8 psi after 3 days. The solidified material would then be suitable for the installation of an engineered cap.

7.5.1 Effectiveness

The required strength could not be achieved in 3 days. This option is not effective.

7.5.2 Implementability

While waiting 7 days for the 25% quick lime reagent addition to achieve the required strength is technically feasible, this reagent addition is eliminated from consideration due to the amount of reagent and time required to achieve this strength. In addition, mixing under field conditions is not as controlled as during a laboratory simulation and field conditions may require more reagent than the laboratory setting. Further mixing of sludge below the groundwater level within the IB is unlikely to achieve the necessary strength. This technology is not implementable.

7.6 Selected Technology

Based on the above evaluation, the application of centrifuge, filter press, gravity dewatering, and solidification dewatering with off-site disposal are viable options. Because all of these technologies are effective and implementable, cost becomes a differentiating factor. It is recommended to select gravity dewatering with off-site disposal due to the fact it is the simplest, effective, and implementable option among the evaluated technologies. Appendix I contains a work plan that describes how gravity dewatering would be implemented at this site. Detailed plans and specification will be developed for contractor bidding purposes. In the event another viable option is proposed by a contractor, Hercules will evaluate that option prior to decommissioning the IB.

Table 1. Summary of Toxicity Characteristic Leaching Procedure (TCLP) Data, Sludge Characteriztion and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: / Sample Date: / Unit:	RCRA TCLP Limit	IBS-1-LS 4/14/2010	IBS-1-US 4/15/2010	IBS-2-LS 4/16/2010	IBS-2-US 4/16/2010	IBS-3-LS 4/14/2010	IBS-3-US 4/15/2010	IBS-4-LS 4/14/2010	IBS-4-US 4/15/2010
General Chemistry										
Cyanide - Total	mg/kg	NA	1.7J	1.3J	6.4J	1.2J	6.8J	< 20	1.6J	< 22
Sulfide	mg/kg	NA	340	3100	350	3400	480	610	790	1900
Ignitability	mm/sec	<60°C	NB	NB	NB	NB	NB	NB	NB	NB
pH	S.U.	<2 or >12.5	3.27	6.64	3.26	6.25	3.58	6.4	5	6.36
Metals - TCLP										
Arsenic	mg/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Barium	mg/L	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chromium	mg/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Lead	mg/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Mercury	mg/L	0.2	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Selenium	mg/L	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Silver	mg/L	5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Organochlorine Pesticides & PCBs (GC)-TCLP										
Chlordane	mg/L	0.03	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Endrin	mg/L	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Gamma-Bhc (Lindane)	mg/L	0.4	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Heptachlor	mg/L	0.008	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Heptachlor Epoxide	mg/L	0.008	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Methoxychlor	mg/L	10	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Toxaphene	mg/L	0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Herbicides (GC)-TCLP										
2,4-D	mg/L	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Silvex (2,4,5-TP)	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
VOCs - TCLP										
1,1-Dichloroethylene	mg/L	0.7	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
1,2-Dichloroethane	mg/L	0.5	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
2-Butanone (Mek)	mg/L	200	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Benzene	mg/L	0.5	0.21	**0.65**	0.13	0.058	**0.96**	0.12	0.052	0.038
Carbon Tetrachloride	mg/L	0.5	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Chlorobenzene	mg/L	100	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Chloroform	mg/L	6	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Tetrachloroethene	mg/L	0.7	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Trichloroethylene	mg/L	0.5	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Vinyl Chloride	mg/L	0.2	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02

Table 1. Summary of Toxicity Characteristic Leaching Procedure (TCLP) Data, Sludge Characteriztion and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: Sample Date: Unit:	RCRA TCLP Limit	IBS-1-LS 4/14/2010	IBS-1-US 4/15/2010	IBS-2-LS 4/16/2010	IBS-2-US 4/16/2010	IBS-3-LS 4/14/2010	IBS-3-US 4/15/2010	IBS-4-LS 4/14/2010	IBS-4-US 4/15/2010
SVOCs - TCLP										
1,4-Dichlorobenzene	mg/L	7.5	< 0.25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.05
2,4,5-Trichlorophenol	mg/L	400	< 0.25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.05
2,4,6-Trichlorophenol	mg/L	2	< 0.25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.05
2,4-Dinitrotoluene	mg/L	0.13	< 0.25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.05
Hexachloro-1,3-Butadiene	mg/L	0.5	< 0.25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.05
Hexachlorobenzene	mg/L	0.13	< 0.25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.05
Hexachloroethane	mg/L	3	< 0.25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.05
Methyl Phenols,Total	mg/L	200	**1.4**	**0.5**	**0.88**	**0.15**	**0.65**	**0.4**	**1.7**	**0.23**
Nitrobenzene	mg/L	2	< 0.25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.05
Pentachlorophenol	mg/L	100	< 1.2	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 1.2	< 0.25
Pyridine	mg/L	5	< 1.2	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 1.2	< 0.25

mg/kg	Milligram per kilogram.
mg/L	Milligram per liter.
mm/sec	Millimeter per second.
NA	Not applicable.
NB	No burn. Material did not burn during ignitability test.
RCRA	Resource Conservation and Recovery Act.
S.U.	Standard unit.
SVOCs	Semivolatile Organic Compounds.
TCLP	Toxicity Characteristic Leaching Procedure.
VOCs	Volatile Organic Compounds.

Table 1. Summary of Toxicity Characteristic Leaching Procedure (TCLP) Data, Sludge Characteriztion and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: Sample Date: Unit:	RCRA TCLP Limit	IBS-5-LS 4/15/2010	IBS-5-US 4/15/2010	IBS-6-LS 4/15/2010	IBS-6-US 4/15/2010	IBS-7-LS 4/15/2010	IBS-7-US 4/15/2010	IBS-8-LS 4/15/2010	IBS-8-US 4/15/2010
General Chemistry										
Cyanide - Total	mg/kg	NA	< 15	4.1J	1.0J	< 28	5.4J	3.5J	< 20	< 37
Sulfide	mg/kg	NA	710	4500	1500	3600	1300	1900	1800	3700
Ignitability	mm/sec	<60°C	NB	NB	NB	NB	NB	NB	NB	NB
pH	S.U.	<2 or >12.5	3.88	6.22	3.67	6.57	6.15	6.55	3.54	6.49
Metals - TCLP										
Arsenic	mg/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Barium	mg/L	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chromium	mg/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Lead	mg/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Mercury	mg/L	0.2	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Selenium	mg/L	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Silver	mg/L	5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Organochlorine Pesticides & PCBs (GC)-TCLP										
Chlordane	mg/L	0.03	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Endrin	mg/L	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Gamma-Bhc (Lindane)	mg/L	0.4	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Heptachlor	mg/L	0.008	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Heptachlor Epoxide	mg/L	0.008	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Methoxychlor	mg/L	10	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Toxaphene	mg/L	0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Herbicides (GC)-TCLP										
2,4-D	mg/L	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Silvex (2,4,5-TP)	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
VOCs - TCLP										
1,1-Dichloroethylene	mg/L	0.7	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
1,2-Dichloroethane	mg/L	0.5	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
2-Butanone (Mek)	mg/L	200	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Benzene	mg/L	0.5	0.043	0.025	0.14	< 0.02	1.3	< 0.02	0.1	< 0.02
Carbon Tetrachloride	mg/L	0.5	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Chlorobenzene	mg/L	100	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Chloroform	mg/L	6	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Tetrachloroethene	mg/L	0.7	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Trichloroethylene	mg/L	0.5	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Vinyl Chloride	mg/L	0.2	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02

Table 1. Summary of Toxicity Characteristic Leaching Procedure (TCLP) Data, Sludge Characteriztion and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: Sample Date: Unit:	RCRA TCLP Limit	IBS-5-LS 4/15/2010	IBS-5-US 4/15/2010	IBS-6-LS 4/15/2010	IBS-6-US 4/15/2010	IBS-7-LS 4/15/2010	IBS-7-US 4/15/2010	IBS-8-LS 4/15/2010	IBS-8-US 4/15/2010
SVOCs - TCLP										
1,4-Dichlorobenzene	mg/L	7.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.25	< 0.05	< 0.05
2,4,5-Trichlorophenol	mg/L	400	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.25	< 0.05	< 0.05
2,4,6-Trichlorophenol	mg/L	2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.25	< 0.05	< 0.05
2,4-Dinitrotoluene	mg/L	0.13	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.25	< 0.05	< 0.05
Hexachloro-1,3-Butadiene	mg/L	0.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.25	< 0.05	< 0.05
Hexachlorobenzene	mg/L	0.13	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.25	< 0.05	< 0.05
Hexachloroethane	mg/L	3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.25	< 0.05	< 0.05
Methyl Phenols,Total	mg/L	200	**0.96**	**0.21**	**1.4**	**0.33**	**1.8**	**1.7**	**0.53**	**0.14**
Nitrobenzene	mg/L	2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.25	< 0.05	< 0.05
Pentachlorophenol	mg/L	100	< 0.25	< 0.25	< 0.25	< 0.25	< 1.2	< 1.2	< 0.25	< 0.25
Pyridine	mg/L	5	< 0.25	< 0.25	< 0.25	< 0.25	< 1.2	< 1.2	< 0.25	< 0.25

mg/kg	Milligram per kilogram.
mg/L	Milligram per liter.
mm/sec	Millimeter per second.
NA	Not applicable.
NB	No burn. Material did not burn during ignitability test.
RCRA	Resource Conservation and Recovery Act.
S.U.	Standard unit.
SVOCs	Semivolatile Organic Compounds.
TCLP	Toxicity Characteristic Leaching Procedure.
VOCs	Volatile Organic Compounds.

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Table 2. Summary of Total Analyte Data, Sludge Characterization and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: / Sample Date: / Unit:	MDEQ Tier 1 TRG	IBS-1-LS 4/14/2010	IBS-1-US 4/15/2010	IBS-2-LS 4/16/2010	IBS-2-NS 4/16/2010	IBS-2-US 4/16/2010	IBS-3-LS 4/14/2010	IBS-3-NS 4/14/2010	IBS-3-US 4/15/2010	IBS-4-LS 4/14/2010	IBS-4-NS 4/14/2010	IBS-4-US 4/15/2010	IBS-5-LS 4/15/2010
VOCs														
1,1,1,2-Tetrachloroethane	µg/kg	220000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
1,1,1-Trichloroethane	µg/kg	1190000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
1,1,2,2-Tetrachloroethane	µg/kg	1000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
1,1,2-Trichloroethane	µg/kg	1670	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
1,1-Dichloroethane	µg/kg	116000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
1,1-Dichloroethene	µg/kg	118	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
1,2,3-Trichloropropane	µg/kg	818	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
1,2-Dibromo-3-Chloropropane (Dbcp)	µg/kg	99.9	< 38000000	< 79000	< 2300000	< 19000	< 73000	< 610000	< 11000	< 320000	< 2000000	< 11000	< 62000	< 1000000
1,2-Dichloroethane	µg/kg	621	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
1,2-Dichloropropane	µg/kg	445	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
2-Butanone (Mek)	µg/kg	84500	< 96000000	< 200000	< 5700000	< 46000	< 180000	**180000J**	< 28000	< 800000	**480000J**	< 27000	< 160000	< 2600000
2-Chloro-1,3-butadiene	µg/kg	4080000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
3-Chloro-1-Propene	µg/kg	NS	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
2-Hexanone	µg/kg	81800000	< 96000000	< 200000	< 5700000	< 46000	< 180000	< 1500000	< 28000	< 800000	< 4900000	< 27000	< 160000	< 2600000
4-Methyl-2-Pentanone (MIBK)	µg/kg	163000000	< 96000000	< 200000	< 5700000	< 46000	< 180000	< 1500000	< 28000	< 800000	< 4900000	< 27000	< 160000	< 2600000
Acetone	µg/kg	104000000	< 190000000	< 390000	< 11000000	< 93000	< 370000	< 3100000	< 58000	< 1800000	< 9900000	< 55000	< 310000	< 5200000
Acetonitrile	µg/kg	111000	< 770000000	< 1600000	< 48000000	< 370000	< 1500000	< 12000000	< 220000	< 6400000	< 40000000	< 220000	< 1200000	< 21000000
Acrolein	µg/kg	40900000	< 380000000	< 790000	< 23000000	< 190000	< 730000	< 6100000	< 110000	< 3200000	< 20000000	< 110000	< 620000	< 10000000
Acrylonitrile	µg/kg	10600	< 380000000	< 790000	< 23000000	< 190000	< 730000	< 6100000	< 110000	< 3200000	< 20000000	< 110000	< 620000	< 10000000
Benzene	µg/kg	1360	< 19000000	**55000**	< 1100000	**17000**	**12000J**	**55000J**	**2500J**	< 160000	< 990000	**37000**	< 31000	< 520000
Bromoform	µg/kg	90100	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Bromomethane	µg/kg	2970	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5800	< 160000	< 990000	< 5500	< 31000	< 520000
Carbon Disulfide	µg/kg	7970	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Carbon Tetrachloride	µg/kg	589	< 19000000	< 39000	< 1100000	**14000**	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Dichlorodifluoromethane	µg/kg	409000000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Chlorobenzene	µg/kg	1190	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Chlorodibromomethane	µg/kg	68100	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Chloroethane	µg/kg	1970000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Chloroform	µg/kg	478	< 19000000	< 39000	< 1100000	**2100J**	< 37000	< 310000	< 5600	< 180000	< 990000	< 5500	< 31000	< 520000
Chloromethane	µg/kg	440000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Cis-1,3-Dichloropropene	µg/kg	352	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Dibromomethane	µg/kg	20400000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Dichlorobromomethane	µg/kg	1890	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 180000	< 990000	< 5500	< 31000	< 520000
Ethyl Methacrylate	µg/kg	18400000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Ethylbenzene	µg/kg	395000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Ethylene Dibromide	µg/kg	67.3	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Iodomethane	µg/kg	NS	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Isobutyl alcohol	µg/kg	613000000	< 770000000	< 1600000	< 46000000	< 370000	< 1500000	< 12000000	< 220000	< 6400000	< 40000000	< 220000	< 1200000	< 21000000

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Table 2. Summary of Total Analyte Data, Sludge Characterization and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: / Sample Date: / Unit:	MDEQ Tier 1 TRG	IBS-1-LS 4/14/2010	IBS-1-US 4/15/2010	IBS-2-LS 4/16/2010	IBS-2-NS 4/16/2010	IBS-2-US 4/16/2010	IBS-3-LS 4/14/2010	IBS-3-NS 4/14/2010	IBS-3-US 4/15/2010	IBS-4-LS 4/14/2010	IBS-4-NS 4/14/2010	IBS-4-US 4/15/2010	IBS-5-LS 4/15/2010
VOCs (Continued)														
Methyl Methacrylate	µg/kg	16300000	< 38000000	< 79000	< 2300000	< 19000	< 73000	< 610000	< 11000	< 320000	< 2000000	< 11000	< 62000	< 1000000
Methylacrylonitrile	µg/kg	204000	< 380000000	< 790000	< 23000000	< 190000	< 730000	< 6100000	< 110000	< 3200000	< 20000000	< 110000	< 620000	< 10000000
Methylene Chloride	µg/kg	21900	< 19000000	< 39000	< 1100000	< 9300	< 37000	530000	< 5600	< 160000	740000J	< 5500	< 31000	< 520000
Pentachloroethane	µg/kg	NS	< 96000000	< 200000	< 5700000	< 46000	< 180000	< 1500000	< 28000	< 800000	< 4900000	< 27000	< 160000	< 2600000
Propionitrile	µg/kg	NS	< 380000000	< 790000	< 23000000	< 190000	< 730000	< 6100000	< 110000	< 3200000	< 20000000	< 110000	< 620000	< 10000000
Styrene	µg/kg	384000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Tetrachloroethene	µg/kg	18200	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 180000	< 990000	< 5500	< 31000	< 520000
Toluene	µg/kg	38000	**160000000**	**820000**	**9400000**	**290000**	**640000**	**6800000**	**190000**	**2000000**	**13000000**	**150000**	**1100000**	**9800000**
Trans-1,2-Dichloroethene	µg/kg	3070000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 980000	< 5500	< 31000	< 520000
Trans-1,3-Dichloropropene	µg/kg	352	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Trans-1,4-Dichlorobutene	µg/kg	NS	< 38000000	< 79000	< 2300000	< 19000	< 73000	< 610000	< 11000	< 320000	< 2000000	< 11000	< 62000	< 1000000
Trichloroethene	µg/kg	7920	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Trichlorofluoromethane	µg/kg	143000000	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5600	< 160000	< 990000	< 5500	< 31000	< 520000
Vinyl Acetate	µg/kg	9130	< 38000000	< 79000	< 2300000	< 19000	< 73000	< 610000	< 11000	< 320000	< 2000000	< 11000	< 62000	< 1000000
Vinyl Chloride	µg/kg	939	< 19000000	< 39000	< 1100000	< 9300	< 37000	< 310000	< 5800	< 160000	< 990000	< 5500	< 31000	< 520000
Xylenes, Total	µg/kg	318000	< 38000000	< 79000	< 2300000	< 19000	< 73000	< 610000	< 11000	< 320000	< 2000000	< 11000	< 62000	< 1000000
SVOCs														
1,1'-Biphenyl	µg/kg	10200000	**1100000**	**230000**	**470000**	**33000**	**55000**	**1000000**	**51000**	**340000**	**1600000**	**360000**	**180000**	**940000**
1,2,4,5-Tetrachlorobenzene	µg/kg	613000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
1,2,4-Trichlorobenzene	µg/kg	824000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
1,2-Dichlorobenzene	µg/kg	279000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
1,3-Dichlorobenzene	µg/kg	1840000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
1,3-Dinitrobenzene	µg/kg	204000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
1,3,5-Trinitrobenzene	µg/kg	102000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
1,4-Dichlorobenzene	µg/kg	817000	< 140000	< 180000	< 400000	< 38000	< 62000	< 140000	< 8400	< 410000	< 330000	< 75000	< 150000	< 210000
1,4-Dioxane	µg/kg	520000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
1,4-Naphthoquinone	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
1-Naphthylamine	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2,3,4,6-Tetrachlorophenol	µg/kg	61300000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2,4,5-Trichlorophenol	µg/kg	204000000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2,4,6-Trichlorophenol	µg/kg	314000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2,4-Dichlorophenol	µg/kg	613000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2,4-Dimethylphenol	µg/kg	40800000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2,4-Dinitrophenol	µg/kg	408000	< 380000	< 450000	< 1000000	< 99000	< 160000	< 360000	< 22000	< 1000000	< 860000	< 190000	< 380000	< 530000
2,4-Dinitrotoluene	µg/kg	408000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2,6-Dichlorophenol	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2,6-Dinitrotoluene	µg/kg	2040000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000

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Chemical Name	Location ID: Sample Date: Unit:	MDEQ Tier 1 TRG	IBS-1-LS 4/14/2010	IBS-1-US 4/15/2010	IBS-2-LS 4/16/2010	IBS-2-NS 4/16/2010	IBS-2-US 4/16/2010	IBS-3-LS 4/14/2010	IBS-3-NS 4/14/2010	IBS-3-US 4/15/2010	IBS-4-LS 4/14/2010	IBS-4-NS 4/14/2010	IBS-4-US 4/15/2010	IBS-5-LS 4/15/2010
SVOCs (Continued)														
2-Chloronaphthalene	µg/kg	164000000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2-Chlorophenol	µg/kg	10200000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2-Methylnaphthalene	µg/kg	40900000	21000J	15000J	< 200000	< 19000	< 31000	9800J	680J	< 200000	< 170000	< 38000	< 74000	< 100000
2-Methylphenol	µg/kg	102000000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2-Naphthylamine	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2-Nitroaniline	µg/kg	492	< 360000	< 450000	< 1000000	< 99000	< 160000	< 360000	< 22000	< 1000000	< 860000	< 190000	< 380000	< 530000
2-Nitrophenol	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2-Picoline	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2-Acetylaminofluorene	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
2-Toluidine	µg/kg	23800	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
3 & 4 Methylphenol	µg/kg	10200000	12000J	< 88000	< 200000	< 19000	< 31000	< 71000	1600J	< 200000	< 170000	< 38000	< 74000	< 100000
3,3'-Dichlorobenzidine	µg/kg	12700	< 140000	< 180000	< 400000	< 38000	< 62000	< 140000	< 8400	< 410000	< 330000	< 75000	< 150000	< 210000
3,3'-Dimethylbenzidine	µg/kg	622	< 360000	< 450000	< 1000000	< 99000	< 160000	< 360000	< 22000	< 1000000	< 860000	< 190000	< 380000	< 530000
3-Methylchloranthrene	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
3-Nitroaniline	µg/kg	NS	< 360000	< 450000	< 1000000	< 99000	< 160000	< 360000	< 22000	< 1000000	< 860000	< 190000	< 380000	< 530000
4,6-Dinitro-2-Methylphenol	µg/kg	204000	< 360000	< 450000	< 1000000	< 99000	< 180000	< 360000	< 22000	< 1000000	< 860000	< 190000	< 380000	< 530000
4-Aminobiphenyl	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
4-Bromophenyl Phenyl Ether	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
4-Chloro-3-Methylphenol	µg/kg	408000000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
4-Chlorophenyl Phenyl Ether	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
4-Chloroaniline	µg/kg	238000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
4-Nitroaniline	µg/kg	NS	< 360000	< 450000	< 1000000	< 99000	< 160000	< 360000	< 22000	< 1000000	< 860000	< 190000	< 380000	< 530000
4-Nitrophenol	µg/kg	16400000	< 380000	< 450000	< 1000000	< 99000	< 180000	< 360000	< 22000	< 1000000	< 860000	< 190000	< 380000	< 530000
4-Nitroquinoline-N-Oxide	µg/kg	NS	< 710000	< 880000	< 2000000	< 190000	< 310000	< 710000	< 42000	< 2000000	< 1700000	< 380000	< 740000	< 1000000
7,12-Dimethylbenz(a)anthracene	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Acenaphthene	µg/kg	123000000	< 71000	< 88000	< 200000	< 19000	< 31000	10000J	770J	< 200000	< 170000	< 38000	< 74000	< 100000
Acenaphthylene	µg/kg	123000000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Acetophenone	µg/kg	2630000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Alpha,Alpha-Dimethyl Phenethylamine	µg/kg	NS	< 14000000	< 18000000	< 40000000	< 3900000	< 6300000	< 14000000	< 850000	< 41000000	< 34000000	< 7600000	< 15000000	< 21000000
Aniline	µg/kg	1000000	< 140000	< 180000	< 400000	< 38000	< 62000	< 140000	< 8400	< 410000	< 330000	< 75000	< 150000	< 210000
Anthracene	µg/kg	613000000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Aramite, Total	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Benzo(a)anthracene	µg/kg	7840	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Benzo(a)pyrene	µg/kg	784	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Benzo(b)fluoranthene	µg/kg	7840	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Benzo(g,h,i)perylene	µg/kg	61300000	32000J	< 88000	< 200000	< 19000	< 31000	< 71000	910J	< 200000	< 170000	< 38000	< 74000	< 100000
Benzo(k)fluoranthene	µg/kg	78400	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Benzyl Alcohol	µg/kg	204000000	< 71000	< 88000	< 200000	5900J	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Bis(2-Chloroethoxy)Methane	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Bis(2-Chloroethyl)Ether	µg/kg	419	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Bis(2-Ethylhexyl) Phthalate	µg/kg	409000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Bis(Chloroisopropyl) Ether	µg/kg	9080	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Butyl benzyl phthalate	µg/kg	928000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Chrysene	µg/kg	784000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000

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Chemical Name	Location ID: Sample Date: Unit:	MDEQ Tier 1 TRG	IBS-1-LS 4/14/2010	IBS-1-US 4/15/2010	IBS-2-LS 4/16/2010	IBS-2-NS 4/16/2010	IBS-2-US 4/16/2010	IBS-3-LS 4/14/2010	IBS-3-NS 4/14/2010	IBS-3-US 4/15/2010	IBS-4-LS 4/14/2010	IBS-4-NS 4/14/2010	IBS-4-US 4/15/2010	IBS-5-LS 4/15/2010
SVOCs (Continued)														
Diallate	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Dibenz(a,h)anthracene	µg/kg	784	**34000J**	< 88000	< 200000	< 19000	< 31000	< 71000	**800J**	< 200000	< 170000	< 38000	< 74000	< 100000
Dibenzofuran	µg/kg	8180000	< 71000	< 88000	< 200000	< 19000	< 31000	**7900J**	**510J**	< 200000	< 170000	< 38000	< 74000	< 100000
Diethyl Phthalate	µg/kg	1970000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	**470J**	< 200000	< 170000	< 38000	< 74000	< 100000
Dimethoate	µg/kg	NS	**27000J**	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Dimethyl Phthalate	µg/kg	2.04E+10	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Di-N-Butyl Phthalate	µg/kg	2280000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Di-N-Octyl Phthalate	µg/kg	4080000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Dinoseb	µg/kg	204000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Diphenyl Ether	µg/kg	NS	**2500000**	**780000**	**1400000**	**120000**	**160000**	**2400000**	**140000**	**1100000**	**5200000**	**1200000**	**570000**	**2800000**
Disulfoton	µg/kg	8170	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Ethyl Methanesulfonate	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Ethyl Parathion	µg/kg	1230000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Famphur	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Fluoranthene	µg/kg	81700000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Fluorene	µg/kg	81700000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	**500J**	< 200000	< 170000	< 38000	< 74000	< 100000
Hexachlorobutadiene	µg/kg	135	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Hexachlorobenzene	µg/kg	1650	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Hexachlorocyclopentadiene	µg/kg	951	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Hexachloroethane	µg/kg	93300	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Hexachlorophene (Hcp)	µg/kg	613000	< 36000000	< 45000000	< 100000000	< 9900000	< 16000000	< 36000000	< 2200000	< 100000000	< 86000000	< 19000000	< 38000000	< 53000000
Hexachloropropene	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Indeno[(1,2,3-Cd)Pyrene	µg/kg	7840	**32000J**	< 88000	< 200000	< 19000	< 31000	< 71000	**720J**	< 200000	< 170000	< 38000	< 74000	< 100000
Isophorone	µg/kg	4570000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Isosafrole	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Methapyrilene	µg/kg	NS	< 14000000	< 18000000	< 40000000	< 3900000	< 6300000	< 14000000	< 850000	< 41000000	< 34000000	< 7600000	< 15000000	< 21000000
Methyl Methanesulfonate	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Methyl Parathion	µg/kg	408000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Naphthalene	µg/kg	247000	**8000J**	< 88000	< 200000	< 19000	< 31000	**35000J**	**2000J**	< 200000	< 170000	< 38000	< 74000	< 100000
Nitrobenzene	µg/kg	8410	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
N-Nitro-o-toluidine	µg/kg	173000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
N-Nitrosodiethylamine	µg/kg	38.2	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
N-Nitrosodimethylamine	µg/kg	112	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
N-Nitrosodi-n-butylamine	µg/kg	1060	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
N-Nitrosodi-n-propylamine	µg/kg	818	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
N-Nitrosodiphenylamine	µg/kg	1170000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
N-Nitrosomethylethylamine	µg/kg	260	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
N-Nitrosomorpholine	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
N-Nitrosopiperidine	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
N-Nitrosopyrrolidine	µg/kg	2730	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
o,o',o''-Triethylphosphorothioate	µg/kg	NS	**20000J**	< 88000	< 200000	**8600J**	< 31000	< 71000	**1200J**	< 200000	< 170000	< 38000	< 74000	< 100000
p-Dimethylamino azobenzene	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000

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Table 2. Summary of Total Analyte Data, Sludge Characterization and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: Sample Date: Unit:	MDEQ Tier 1 TRG	IBS-1-LS 4/14/2010	IBS-1-US 4/15/2010	IBS-2-LS 4/16/2010	IBS-2-NS 4/16/2010	IBS-2-US 4/16/2010	IBS-3-LS 4/14/2010	IBS-3-NS 4/14/2010	IBS-3-US 4/15/2010	IBS-4-LS 4/14/2010	IBS-4-NS 4/14/2010	IBS-4-US 4/15/2010	IBS-5-LS 4/15/2010
SVOCs (Continued)														
Pentachlorobenzene	µg/kg	1630000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Pentachloronitrobenzene	µg/kg	22000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Pentachlorophenol	µg/kg	23800	< 360000	< 450000	< 1000000	< 99000	< 160000	< 360000	< 22000	< 1000000	< 860000	< 190000	< 380000	< 530000
Phenacetin	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Phenanthrene	µg/kg	61300000	**6800J**	< 88000	< 200000	< 19000	< 31000	**11000J**	**1100J**	< 200000	< 170000	< 38000	< 74000	< 100000
Phenol	µg/kg	123000000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Phorate	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
p-Phenylene diamine	µg/kg	388000000	< 360000	< 450000	< 1000000	< 99000	< 160000	< 360000	< 22000	< 1000000	< 860000	< 190000	< 380000	< 530000
Pronamide	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Pyrene	µg/kg	81300000	< 71000	< 88000	< 200000	< 19000	**5000J**	< 71000	< 4200	**22000J**	< 170000	< 38000	< 74000	< 100000
Pyridine	µg/kg	2040000	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Safrole, Total	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Sulfotep	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Thionazin	µg/kg	NS	< 71000	< 88000	< 200000	< 19000	< 31000	< 71000	< 4200	< 200000	< 170000	< 38000	< 74000	< 100000
Metals														
Arsenic	mg/kg	3.82	**1.5**	**3**	**3.4**	< 2.1	**2.5**	**2.5**	< 2.1	**2.8**	**2.1**	< 2	**3.3**	**2.5**
Barium	mg/kg	14300	**37**	**28**	**39**	**4.2**	**23**	**22**	**4**	**13**	**16**	**3.5**	**27**	**23**
Cadmium	mg/kg	1020	**0.24**	**0.33**	**0.46**	< 0.53	**0.51**	**0.27**	< 0.53	**0.38**	**0.4**	< 0.51	**0.77**	**0.55**
Chromium	mg/kg	3070000	**13**	**22**	**23**	< 1.1	**19**	**16**	**1.6**	**11**	**13**	**1.5**	**23**	**24**
Lead	mg/kg	1700	**120**	**24**	**41**	**1.7**	**36**	**41**	**2.9**	**40**	**59**	**0.95**	**49**	**75**
Mercury	mg/kg	61.3	**3.8**	**0.72**	**1.1**	**0.012**	**1.1**	**0.66**	**0.012**	**0.24**	**0.26**	< 0.02	**1.1**	**0.4**
Selenium	mg/kg	1020	< 4.9	< 5.8	< 8.7	< 2.7	< 10	< 4.5	< 2.6	< 9.6	< 5.9	< 2.5	< 10	< 6.6
Silver	mg/kg	1020	**0.3**	**0.24**	**0.88**	< 1.1	< 4.2	**0.62**	< 1.1	< 3.8	**0.41**	**0.1**	**0.42**	**0.42**

Bolded	Constituent has been detected
J	Estimated concentration.
MDEQ	Mississippi Department of Environmental Quality.
mg/kg	Milligram per kilogram.
NS	No Standard.
SVOCs	Semivolatile Organic Compounds.
TRG	Target Remediation Goal for soil under a restricted use scenario.
µg/kg	Microgram per kilogram.
VOCs	Volatile Organic Compounds.

Table 2. Summary of Total Analyte Data, Sludge Characterization and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: / Sample Date: / Unit:	MDEQ Tier 1 TRG	IBS-5-NS 4/15/2010	IBS-5-US 4/15/2010	IBS-6-LS 4/15/2010	IBS-6-NS 4/15/2010	IBS-6-US 4/15/2010	IBS-7-LS 4/15/2010	IBS-7-NS 4/15/2010	IBS-7-US 4/15/2010	IBS-8-LS 4/15/2010	IBS-8-NS 4/15/2010	IBS-8-US 4/15/2010
VOCs													
1,1,1,2-Tetrachloroethane	µg/kg	220000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
1,1,1-Trichloroethane	µg/kg	1190000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
1,1,2,2-Tetrachloroethane	µg/kg	1000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
1,1,2-Trichloroethane	µg/kg	1670	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
1,1-Dichloroethane	µg/kg	116000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
1,1-Dichloroethene	µg/kg	118	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
1,2,3-Trichloropropane	µg/kg	818	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
1,2-Dibromo-3-Chloropropane (Dbcp)	µg/kg	99.9	< 510	< 180000	< 750000	< 4800	< 170000	< 1000000	< 19000	< 580000	< 1300000	< 2700	< 110000
1,2-Dichloroethane	µg/kg	621	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
1,2-Dichloropropane	µg/kg	445	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
2-Butanone (Mek)	µg/kg	84500	< 1300	< 450000	< 1900000	< 12000	< 410000	< 2500000	< 49000	< 1400000	< 3300000	840J	< 290000
2-Chloro-1,3-butadiene	µg/kg	4080000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
3-Chloro-1-Propene	µg/kg	NS	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
2-Hexanone	µg/kg	81800000	< 1300	< 450000	< 1900000	< 12000	< 410000	< 2500000	< 49000	< 1400000	< 3300000	< 8600	< 290000
4-Methyl-2-Pentanone (MIBK)	µg/kg	163000000	< 1300	< 450000	< 1900000	< 12000	< 410000	< 2500000	< 49000	< 1400000	< 3300000	< 6600	< 290000
Acetone	µg/kg	104000000	2100J	< 910000	< 3700000	< 24000	< 830000	< 5000000	< 97000	< 2900000	< 6600000	< 13000	< 570000
Acetonitrile	µg/kg	111000	< 10000	< 3600000	< 15000000	< 97000	< 3300000	< 20000000	< 390000	< 12000000	< 26000000	< 53000	< 2300000
Acrolein	µg/kg	40900000	< 5100	< 1800000	< 7500000	< 48000	< 1700000	< 10000000	< 190000	< 5800000	< 13000000	< 27000	< 1100000
Acrylonitrile	µg/kg	10600	< 5100	< 1800000	< 7500000	< 48000	< 1700000	< 10000000	< 190000	< 5800000	< 13000000	< 27000	< 1100000
Benzene	µg/kg	1360	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	110000	< 290000	< 660000	390J	< 57000
Bromoform	µg/kg	90100	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Bromomethane	µg/kg	2970	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Carbon Disulfide	µg/kg	7970	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Carbon Tetrachloride	µg/kg	569	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Dichlorodifluoromethane	µg/kg	409000000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Chlorobenzene	µg/kg	1190	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Chlorodibromomethane	µg/kg	68100	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Chloroethane	µg/kg	1970000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Chloroform	µg/kg	478	< 280	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Chloromethane	µg/kg	440000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Cis-1,3-Dichloropropene	µg/kg	352	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Dibromomethane	µg/kg	20400000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Dichlorobromomethane	µg/kg	1890	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 680000	< 1300	< 57000
Ethyl Methacrylate	µg/kg	18400000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Ethylbenzene	µg/kg	395000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Ethylene Dibromide	µg/kg	67.3	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 860000	< 1300	< 57000
Iodomethane	µg/kg	NS	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Isobutyl alcohol	µg/kg	613000000	< 10000	< 3600000	< 15000000	< 97000	< 3300000	< 20000000	< 390000	< 12000000	< 26000000	< 53000	< 2300000

Table 2. Summary of Total Analyte Data, Sludge Characterization and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: Sample Date: Unit:	MDEQ Tier 1 TRG	IBS-5-NS 4/15/2010	IBS-5-US 4/15/2010	IBS-6-LS 4/15/2010	IBS-6-NS 4/15/2010	IBS-6-US 4/15/2010	IBS-7-LS 4/15/2010	IBS-7-NS 4/15/2010	IBS-7-US 4/15/2010	IBS-8-LS 4/15/2010	IBS-8-NS 4/15/2010	IBS-8-US 4/15/2010
VOCs (Continued)													
Methyl Methacrylate	µg/kg	16300000	< 510	< 180000	< 750000	< 4800	< 170000	< 1000000	< 19000	< 580000	< 1300000	< 2700	< 110000
Methylacrylonitrile	µg/kg	204000	< 5100	< 1800000	< 7500000	< 48000	< 1700000	< 10000000	< 190000	< 5800000	< 13000000	< 27000	< 1100000
Methylene Chloride	µg/kg	21900	< 260	< 91000	**420000**	< 2400	< 83000	< 500000	< 9700	< 290000	**610000J**	**1600**	< 57000
Pentachloroethane	µg/kg	NS	< 1300	< 450000	< 1900000	< 12000	< 410000	< 2500000	< 49000	< 1400000	< 3300000	< 6600	< 290000
Propionitrile	µg/kg	NS	< 5100	< 1800000	< 7500000	< 48000	< 1700000	< 10000000	< 190000	< 5800000	< 13000000	< 27000	< 1100000
Styrene	µg/kg	384000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Tetrachloroethene	µg/kg	18200	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Toluene	µg/kg	38000	**1100**	**980000**	**14000000**	**33000**	**1800000**	**5900000**	**70000**	**2800000**	**14000000**	**17000**	**810000**
Trans-1,2-Dichloroethene	µg/kg	3070000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Trans-1,3-Dichloropropene	µg/kg	352	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Trans-1,4-Dichlorobutene	µg/kg	NS	< 510	< 180000	< 750000	< 4800	< 170000	< 1000000	< 19000	< 580000	< 1300000	< 2700	< 110000
Trichloroethene	µg/kg	7920	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 860000	< 1300	< 57000
Trichlorofluoromethane	µg/kg	143000000	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Vinyl Acetate	µg/kg	9130	< 510	< 180000	< 750000	< 4800	< 170000	< 1000000	< 19000	< 580000	< 1300000	< 2700	< 110000
Vinyl Chloride	µg/kg	939	< 260	< 91000	< 370000	< 2400	< 83000	< 500000	< 9700	< 290000	< 660000	< 1300	< 57000
Xylenes, Total	µg/kg	318000	< 510	< 180000	< 750000	< 4800	< 170000	< 1000000	< 19000	< 580000	< 1300000	< 2700	< 110000
SVOCs													
1,1'-Biphenyl	µg/kg	10200000	< 4300	**160000J**	**800000**	**290000**	**140000J**	**620000**	**18000**	**230000**	**760000**	< 4600	**33000J**
1,2,4,5-Tetrachlorobenzene	µg/kg	613000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
1,2,4-Trichlorobenzene	µg/kg	824000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
1,2-Dichlorobenzene	µg/kg	279000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
1,3-Dichlorobenzene	µg/kg	1840000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
1,3-Dinitrobenzene	µg/kg	204000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
1,3,5-Trinitrobenzene	µg/kg	102000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
1,4-Dichlorobenzene	µg/kg	817000	< 8600	< 380000	< 320000	< 41000	< 380000	< 220000	< 7900	< 380000	< 270000	< 9100	< 480000
1,4-Dioxane	µg/kg	520000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
1,4-Naphthoquinone	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
1-Naphthylamine	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2,3,4,6-Tetrachlorophenol	µg/kg	61300000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2,4,5-Trichlorophenol	µg/kg	204000000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2,4,6-Trichlorophenol	µg/kg	314000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2,4-Dichlorophenol	µg/kg	613000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2,4-Dimethylphenol	µg/kg	40800000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2,4-Dinitrophenol	µg/kg	408000	< 22000	< 980000	< 840000	< 110000	< 980000	< 580000	< 20000	< 970000	< 690000	< 23000	< 1200000
2,4-Dinitrotoluene	µg/kg	408000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2,6-Dichlorophenol	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2,6-Dinitrotoluene	µg/kg	2040000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000

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Table 2. Summary of Total Analyte Data, Sludge Characterization and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: / Sample Date: / Unit:	MDEQ Tier 1 TRG	IBS-5-NS 4/15/2010	IBS-5-US 4/15/2010	IBS-6-LS 4/15/2010	IBS-6-NS 4/15/2010	IBS-6-US 4/15/2010	IBS-7-LS 4/15/2010	IBS-7-NS 4/15/2010	IBS-7-US 4/15/2010	IBS-8-LS 4/15/2010	IBS-8-NS 4/15/2010	IBS-8-US 4/15/2010
SVOCs (Continued)													
2-Chloronaphthalene	µg/kg	164000000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2-Chlorophenol	µg/kg	10200000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2-Methylnaphthalene	µg/kg	40900000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2-Methylphenol	µg/kg	102000000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2-Naphthylamine	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2-Nitroaniline	µg/kg	492	3500J	< 980000	< 840000	< 110000	< 980000	< 580000	< 20000	< 970000	< 690000	< 23000	< 1200000
2-Nitrophenol	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2-Picoline	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2-Acetylaminofluorene	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
2-Toluidine	µg/kg	23800	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
3 & 4 Methylphenol	µg/kg	10200000	630J	< 190000	< 160000	< 21000	< 190000	25000J	530J	< 190000	< 130000	< 4600	< 240000
3,3'-Dichlorobenzidine	µg/kg	12700	< 8600	< 380000	< 320000	< 41000	< 380000	< 220000	< 7900	< 380000	< 270000	< 9100	< 480000
3,3'-Dimethylbenzidine	µg/kg	622	< 22000	< 980000	< 840000	< 110000	< 980000	< 580000	< 20000	< 970000	< 690000	< 23000	< 1200000
3-Methylchloranthrene	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
3-Nitroaniline	µg/kg	NS	< 22000	< 980000	< 840000	< 110000	< 980000	< 580000	< 20000	< 970000	< 690000	< 23000	< 1200000
4,6-Dinitro-2-Methylphenol	µg/kg	204000	< 22000	< 980000	< 840000	< 110000	< 980000	< 580000	< 20000	< 970000	< 890000	< 23000	< 1200000
4-Aminobiphenyl	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
4-Bromophenyl Phenyl Ether	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
4-Chloro-3-Methylphenol	µg/kg	408000000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
4-Chlorophenyl Phenyl Ether	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
4-Chloroaniline	µg/kg	238000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
4-Nitroaniline	µg/kg	NS	< 22000	< 980000	< 840000	< 110000	< 980000	< 580000	< 20000	< 970000	< 690000	< 23000	< 1200000
4-Nitrophenol	µg/kg	16400000	< 22000	< 980000	< 840000	< 110000	< 980000	< 580000	< 20000	< 970000	< 690000	< 23000	< 1200000
4-Nitroquinoline-N-Oxide	µg/kg	NS	< 43000	< 1900000	< 1600000	< 210000	< 1900000	< 1100000	< 40000	< 1900000	< 1300000	< 46000	< 2400000
7,12-Dimethylbenz(a)anthracene	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Acenaphthene	µg/kg	123000000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Acenaphthylene	µg/kg	123000000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Acetophenone	µg/kg	2630000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Alpha,Alpha-Dimethyl Phenethylamine	µg/kg	NS	< 880000	< 39000000	< 33000000	< 4200000	< 39000000	< 23000000	< 810000	< 38000000	< 27000000	< 930000	< 49000000
Aniline	µg/kg	1000000	< 8600	< 380000	< 320000	< 41000	< 380000	< 220000	< 7900	< 380000	< 270000	< 9100	< 480000
Anthracene	µg/kg	613000000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Aramite, Total	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Benzo(a)anthracene	µg/kg	7840	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Benzo(a)pyrene	µg/kg	784	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Benzo(b)fluoranthene	µg/kg	7840	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Benzo(g,h,i)perylene	µg/kg	61300000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Benzo(k)fluoranthene	µg/kg	78400	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Benzyl Alcohol	µg/kg	204000000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Bis(2-Chloroethoxy)Methane	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Bis(2-Chloroethyl)Ether	µg/kg	419	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Bis(2-Ethylhexyl) Phthalate	µg/kg	409000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Bis(Chloroisopropyl) Ether	µg/kg	9080	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Butyl benzyl phthalate	µg/kg	928000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Chrysene	µg/kg	784000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000

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Table 2. Summary of Total Analyte Data, Sludge Characterization and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: Sample Date: Unit:	MDEQ Tier 1 TRG	IBS-5-NS 4/15/2010	IBS-5-US 4/15/2010	IBS-6-LS 4/15/2010	IBS-6-NS 4/15/2010	IBS-6-US 4/15/2010	IBS-7-LS 4/15/2010	IBS-7-NS 4/15/2010	IBS-7-US 4/15/2010	IBS-8-LS 4/15/2010	IBS-8-NS 4/15/2010	IBS-8-US 4/15/2010
SVOCs (Continued)													
Diallate	μg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Dibenz(a,h)anthracene	μg/kg	784	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Dibenzofuran	μg/kg	8180000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Diethyl Phthalate	μg/kg	1970000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Dimethoate	μg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Dimethyl Phthalate	μg/kg	2.04E+10	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Di-N-Butyl Phthalate	μg/kg	2280000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Di-N-Octyl Phthalate	μg/kg	4080000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Dinoseb	μg/kg	204000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Diphenyl Ether	μg/kg	NS	**12000**	**530000**	**2500000**	**830000**	**400000**	**2100000**	**59000**	**680000**	**2500000**	**700J**	**110000J**
Disulfoton	μg/kg	8170	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	**410J**	< 190000	< 130000	< 4600	< 240000
Ethyl Methanesulfonate	μg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Ethyl Parathion	μg/kg	1230000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Famphur	μg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Fluoranthene	μg/kg	81700000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Fluorene	μg/kg	81700000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Hexachlorobutadiene	μg/kg	135	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Hexachlorobenzene	μg/kg	1850	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Hexachlorocyclopentadiene	μg/kg	951	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Hexachloroethane	μg/kg	93300	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Hexachlorophene (Hcp)	μg/kg	613000	< 2200000	< 98000000	< 84000000	< 11000000	< 98000000	< 58000000	< 2000000	< 97000000	< 69000000	< 2300000	< 120000000
Hexachloropropene	μg/kg	NS	< 4300	< 190000	< 180000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Indeno[(1,2,3-Cd)Pyrene	μg/kg	7840	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Isophorone	μg/kg	4570000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Isosafrole	μg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Methapyrilene	μg/kg	NS	< 880000	< 39000000	< 33000000	< 4200000	< 39000000	< 23000000	< 810000	< 38000000	< 27000000	< 930000	< 49000000
Methyl Methanesulfonate	μg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Methyl Parathion	μg/kg	408000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Naphthalene	μg/kg	247000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Nitrobenzene	μg/kg	8410	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
N-Nitro-o-toluidine	μg/kg	173000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
N-Nitrosodiethylamine	μg/kg	38.2	< 4300	< 190000	< 180000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
N-Nitrosodimethylamine	μg/kg	112	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
N-Nitrosodi-n-butylamine	μg/kg	1060	< 4300	< 190000	< 180000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
N-Nitrosodi-n-propylamine	μg/kg	818	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
N-Nitrosodiphenylamine	μg/kg	1170000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
N-Nitrosomethylethylamine	μg/kg	260	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
N-Nitrosomorpholine	μg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
N-Nitrosopiperidine	μg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
N-Nitrosopyrrolidine	μg/kg	2730	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
o,o',o"-Triethylphosphorothioate	μg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
p-Dimethylamino azobenzene	μg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000

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Table 2. Summary of Total Analyte Data, Sludge Characterization and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: / Sample Date: / Unit:	MDEQ Tier 1 TRG	IBS-5-NS 4/15/2010	IBS-5-US 4/15/2010	IBS-6-LS 4/15/2010	IBS-6-NS 4/15/2010	IBS-6-US 4/15/2010	IBS-7-LS 4/15/2010	IBS-7-NS 4/15/2010	IBS-7-US 4/15/2010	IBS-8-LS 4/15/2010	IBS-8-NS 4/15/2010	IBS-8-US 4/15/2010
SVOCs (Continued)													
Pentachlorobenzene	µg/kg	1630000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Pentachloronitrobenzene	µg/kg	22000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Pentachlorophenol	µg/kg	23800	< 22000	< 980000	< 840000	< 110000	< 980000	< 580000	< 20000	< 970000	< 690000	< 23000	< 1200000
Phenacetin	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Phenanthrene	µg/kg	61300000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Phenol	µg/kg	123000000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Phorate	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
p-Phenylene diamine	µg/kg	388000000	< 22000	< 980000	< 840000	< 110000	< 980000	< 580000	< 20000	< 970000	< 690000	< 23000	< 1200000
Pronamide	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Pyrene	µg/kg	61300000	< 4300	< 190000	< 180000	< 21000	< 190000	< 110000	**490J**	< 190000	**15000J**	< 4600	< 240000
Pyridine	µg/kg	2040000	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Safrole, Total	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Sulfotep	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Thionazin	µg/kg	NS	< 4300	< 190000	< 160000	< 21000	< 190000	< 110000	< 4000	< 190000	< 130000	< 4600	< 240000
Metals													
Arsenic	mg/kg	3.82	**2**	**3.6**	**1.3**	**2**	**3.4**	**3.1**	< 2.1	**2.6**	**3.3**	**1.1**	< 14
Barium	mg/kg	14300	**120**	**18**	**16**	**150**	**18**	**18**	**18**	**12**	**37**	**120**	**15**
Cadmium	mg/kg	1020	**0.18**	**0.52**	**0.31**	< 0.59	**0.61**	**0.47**	< 0.52	**0.48**	**0.67**	< 0.61	< 3.6
Chromium	mg/kg	3070000	**18**	**27**	**17**	**13**	**15**	**31**	**7.3**	**24**	**54**	**15**	**23**
Lead	mg/kg	1700	**12**	**28**	**51**	**7.6**	**43**	**27**	**2.6**	**32**	**100**	**13**	**38**
Mercury	mg/kg	61.3	< 0.024	**0.25**	**0.43**	< 0.021	**0.33**	**0.52**	< 0.023	**0.59**	**0.86**	< 0.022	**0.48**
Selenium	mg/kg	1020	< 3	< 13	< 5.3	< 3	< 14	< 7.5	< 2.6	< 8.9	< 9.8	< 3.1	< 18
Silver	mg/kg	1020	**0.15**	< 5.2	**0.53**	< 1.2	**0.52**	**0.3**	< 1	< 3.6	**0.51**	< 1.2	< 7.2

Bolded	Constituent has been detected
J	Estimated concentration.
MDEQ	Mississippi Department of Environmental Quality.
mg/kg	Milligram per kilogram.
NS	No Standard.
SVOCs	Semivolatile Organic Compounds.
TRG	Target Remediation Goal for soil under a restricted use scenario.
µg/kg	Microgram per kilogram.
VOCs	Volatile Organic Compounds.

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Table 3. Summary of Quality Assurance/Quality Control Data, Sludge Characterization and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: Sample Date: Unit	Field Blank 4/15/2010	Field Blank 4/16/2010	Rinsate Blank 4/16/2010	Trip Blank 4/14/2010	Trip Blank 4/15/2010
Metals						
Arsenic	µg/L	NA	NA	< 20	NA	NA
Barium	µg/L	NA	NA	**2.8**	NA	NA
Cadmium	µg/L	NA	NA	< 5	NA	NA
Chromium	µg/L	NA	NA	< 10	NA	NA
Lead	µg/L	NA	NA	< 10	NA	NA
Mercury	µg/L	NA	NA	< 0.2	NA	NA
Selenium	µg/L	NA	NA	< 20	NA	NA
Silver	µg/L	NA	NA	< 10	NA	NA
VOCs						
1,1,1,2-Tetrachloroethane	µg/L	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	µg/L	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	µg/L	< 1	< 1	< 1	< 1	< 1
1,1,2-Trichloroethane	µg/L	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	µg/L	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethene	µg/L	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	µg/L	< 1	< 1	< 1	< 1	< 1
1,2-Dibromo-3-Chloropropane	µg/L	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	µg/L	< 1	< 1	< 1	< 1	< 1
1,2-Dichloropropane	µg/L	< 1	< 1	< 1	< 1	< 1
2-Butanone (MEK)	µg/L	**1.5J**	**1.7J**	**1.2J**	< 10	< 10
2-Chloro-1,3-butadiene	µg/L	< 1	< 1	< 1	< 1	< 1
2-Hexanone	µg/L	< 10	< 10	< 10	< 10	< 10
3-Chloro-1-propene	µg/L	< 1	< 1	< 1	< 1	< 1
4-Methyl-2-pentanone (MIBK)	µg/L	< 10	< 10	< 10	< 10	< 10
Acetone	µg/L	**8.4J**	**7.7J**	**9.5J**	**5.0J**	< 25
Acetonitrile	µg/L	< 40	< 40	< 40	< 40	< 40
Acrolein	µg/L	< 20	< 20	< 20	< 20	< 20
Acrylonitrile	µg/L	< 20	< 20	< 20	< 20	< 20
Benzene	µg/L	< 1	< 1	< 1	< 1	< 1
Bromoform	µg/L	< 1	< 1	< 1	< 1	< 1
Bromomethane	µg/L	< 1	< 1	< 1	< 1	< 1
Carbon disulfide	µg/L	< 2	< 2	< 2	< 2	< 2
Carbon tetrachloride	µg/L	< 1	< 1	< 1	< 1	< 1
Chlorobenzene	µg/L	< 1	< 1	< 1	< 1	< 1
Chlorodibromomethane	µg/L	< 1	< 1	< 1	< 1	< 1
Chloroethane	µg/L	< 1	< 1	< 1	< 1	< 1
Chloroform	µg/L	< 1	< 1	< 1	< 1	< 1
Chloromethane	µg/L	< 1	< 1	< 1	< 1	< 1
cis-1,3-Dichloropropene	µg/L	< 1	< 1	< 1	< 1	< 1
Dibromomethane	µg/L	< 1	< 1	< 1	< 1	< 1
Dichlorobromomethane	µg/L	< 1	< 1	< 1	< 1	< 1
Dichlorodifluoromethane	µg/L	< 1	< 1	< 1	< 1	< 1
Ethyl methacrylate	µg/L	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	µg/L	**0.18J**	**0.14J**	< 1	< 1	< 1
Ethylene Dibromide	µg/L	< 1	< 1	< 1	< 1	< 1
Iodomethane	µg/L	< 5	< 5	< 5	< 5	< 5
Isobutyl alcohol	µg/L	< 40	< 40	< 40	< 40	< 40
Methacrylonitrile	µg/L	< 20	< 20	< 20	< 20	< 20
Methyl methacrylate	µg/L	< 1	< 1	< 1	< 1	< 1
Methylene Chloride	µg/L	< 5	< 5	< 5	< 5	< 5
Pentachloroethane	µg/L	< 5	< 5	< 5	< 5	< 5
Propionitrile	µg/L	< 20	< 20	< 20	< 20	< 20
Styrene	µg/L	< 1	< 1	< 1	< 1	< 1
Tetrachloroethene	µg/L	< 1	< 1	< 1	< 1	< 1
Toluene	µg/L	**2.7**	**2.5**	**1.3**	< 1	< 1
trans-1,2-Dichloroethene	µg/L	< 1	< 1	< 1	< 1	< 1
trans-1,3-Dichloropropene	µg/L	< 1	< 1	< 1	< 1	< 1
trans-1,4-Dichloro-2-butene	µg/L	< 2	< 2	< 2	< 2	< 2
Trichloroethene	µg/L	< 1	< 1	< 1	< 1	< 1

Table 3. Summary of Quality Assurance/Quality Control Data, Sludge Characterization and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: Sample Date: Unit	Field Blank 4/15/2010	Field Blank 4/16/2010	Rinsate Blank 4/16/2010	Trip Blank 4/14/2010	Trip Blank 4/15/2010
VOCs (Continued)						
Trichlorofluoromethane	µg/L	< 1	< 1	< 1	< 1	< 1
Vinyl acetate	µg/L	< 2	< 2	< 2	< 2	< 2
Vinyl chloride	µg/L	< 1	< 1	< 1	< 1	< 1
Xylenes, Total	µg/L	0.39J	0.40J	< 2	< 2	< 2
SVOCs						
1,1'-Biphenyl	µg/L	NA	NA	< 9.4	NA	NA
1,2,4,5-Tetrachlorobenzene	µg/L	NA	NA	< 9.4	NA	NA
1,2,4-Trichlorobenzene	µg/L	NA	NA	< 9.4	NA	NA
1,2-Dichlorobenzene	µg/L	NA	NA	< 9.4	NA	NA
1,3,5-Trinitrobenzene	µg/L	NA	NA	< 9.4	NA	NA
1,3-Dichlorobenzene	µg/L	NA	NA	< 9.4	NA	NA
1,3-Dinitrobenzene	µg/L	NA	NA	< 9.4	NA	NA
1,4-Dichlorobenzene	µg/L	NA	NA	< 9.4	NA	NA
1,4-Dioxane	µg/L	NA	NA	< 9.4	NA	NA
1,4-Naphthoquinone	µg/L	NA	NA	< 9.4	NA	NA
1-Naphthylamine	µg/L	NA	NA	< 9.4	NA	NA
2,3,4,6-Tetrachlorophenol	µg/L	NA	NA	< 9.4	NA	NA
2,4,5-Trichlorophenol	µg/L	NA	NA	< 9.4	NA	NA
2,4,6-Trichlorophenol	µg/L	NA	NA	< 9.4	NA	NA
2,4-Dichlorophenol	µg/L	NA	NA	< 9.4	NA	NA
2,4-Dimethylphenol	µg/L	NA	NA	< 9.4	NA	NA
2,4-Dinitrophenol	µg/L	NA	NA	< 47	NA	NA
2,4-Dinitrotoluene	µg/L	NA	NA	< 9.4	NA	NA
2,6-Dichlorophenol	µg/L	NA	NA	< 9.4	NA	NA
2,6-Dinitrotoluene	µg/L	NA	NA	< 9.4	NA	NA
2-Acetylaminofluorene	µg/L	NA	NA	< 9.4	NA	NA
2-Chloronaphthalene	µg/L	NA	NA	< 9.4	NA	NA
2-Chlorophenol	µg/L	NA	NA	< 9.4	NA	NA
2-Methylnaphthalene	µg/L	NA	NA	< 9.4	NA	NA
2-Methylphenol	µg/L	NA	NA	< 9.4	NA	NA
2-Naphthylamine	µg/L	NA	NA	< 9.4	NA	NA
2-Nitroaniline	µg/L	NA	NA	< 47	NA	NA
2-Nitrophenol	µg/L	NA	NA	< 9.4	NA	NA
2-Picoline	µg/L	NA	NA	< 9.4	NA	NA
2-Toluidine	µg/L	NA	NA	< 9.4	NA	NA
3 & 4 Methylphenol	µg/L	NA	NA	< 9.4	NA	NA
3,3'-Dichlorobenzidine	µg/L	NA	NA	< 57	NA	NA
3,3'-Dimethylbenzidine	µg/L	NA	NA	< 19	NA	NA
3-Methylcholanthrene	µg/L	NA	NA	< 9.4	NA	NA
3-Nitroaniline	µg/L	NA	NA	< 47	NA	NA
4,6-Dinitro-2-methylphenol	µg/L	NA	NA	< 47	NA	NA
4-Aminobiphenyl	µg/L	NA	NA	< 9.4	NA	NA
4-Bromophenyl phenyl ether	µg/L	NA	NA	< 9.4	NA	NA
4-Chloro-3-methylphenol	µg/L	NA	NA	< 9.4	NA	NA
4-Chloroaniline	µg/L	NA	NA	< 19	NA	NA
4-Chlorophenyl phenyl ether	µg/L	NA	NA	< 9.4	NA	NA
4-Nitroaniline	µg/L	NA	NA	< 47	NA	NA
4-Nitrophenol	µg/L	NA	NA	< 47	NA	NA
4-Nitroquinoline-1-oxide	µg/L	NA	NA	< 19	NA	NA
7,12-Dimethylbenz(a)anthracene	µg/L	NA	NA	< 9.4	NA	NA
Acenaphthene	µg/L	NA	NA	< 9.4	NA	NA
Acenaphthylene	µg/L	NA	NA	< 9.4	NA	NA
Acetophenone	µg/L	NA	NA	< 9.4	NA	NA
alpha,alpha-Dimethyl phenethylamine	µg/L	NA	NA	< 1900	NA	NA
Aniline	µg/L	NA	NA	< 19	NA	NA
Anthracene	µg/L	NA	NA	< 9.4	NA	NA
Aramite, Total	µg/L	NA	NA	< 9.4	NA	NA
Benzo[a]anthracene	µg/L	NA	NA	< 9.4	NA	NA
Benzo[a]pyrene	µg/L	NA	NA	< 9.4	NA	NA

Table 3. Summary of Quality Assurance/Quality Control Data, Sludge Characterization and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: Sample Date: Unit	Field Blank 4/15/2010	Field Blank 4/16/2010	Rinsate Blank 4/16/2010	Trip Blank 4/14/2010	Trip Blank 4/15/2010
SVOCs (Continued)						
Benzo[b]fluoranthene	µg/L	NA	NA	< 9.4	NA	NA
Benzo[g,h,i]perylene	µg/L	NA	NA	< 9.4	NA	NA
Benzo[k]fluoranthene	µg/L	NA	NA	< 9.4	NA	NA
Benzyl alcohol	µg/L	NA	NA	< 9.4	NA	NA
Bis(2-chloroethoxy)methane	µg/L	NA	NA	< 9.4	NA	NA
Bis(2-chloroethyl)ether	µg/L	NA	NA	< 9.4	NA	NA
Bis(2-ethylhexyl) phthalate	µg/L	NA	NA	< 9.4	NA	NA
bis(chloroisopropyl) ether	µg/L	NA	NA	< 9.4	NA	NA
Butyl benzyl phthalate	µg/L	NA	NA	< 9.4	NA	NA
Chrysene	µg/L	NA	NA	< 9.4	NA	NA
Diallate	µg/L	NA	NA	< 9.4	NA	NA
Dibenz(a,h)anthracene	µg/L	NA	NA	< 9.4	NA	NA
Dibenzofuran	µg/L	NA	NA	< 9.4	NA	NA
Diethyl phthalate	µg/L	NA	NA	< 9.4	NA	NA
Dimethoate	µg/L	NA	NA	< 9.4	NA	NA
Dimethyl phthalate	µg/L	NA	NA	< 9.4	NA	NA
Di-n-butyl phthalate	µg/L	NA	NA	< 9.4	NA	NA
Di-n-octyl phthalate	µg/L	NA	NA	< 9.4	NA	NA
Dinoseb	µg/L	NA	NA	< 9.4	NA	NA
Disulfoton	µg/L	NA	NA	< 9.4	NA	NA
Ethyl methanesulfonate	µg/L	NA	NA	< 9.4	NA	NA
Ethyl Parathion	µg/L	NA	NA	< 9.4	NA	NA
Famphur	µg/L	NA	NA	< 9.4	NA	NA
Fluoranthene	µg/L	NA	NA	< 9.4	NA	NA
Fluorene	µg/L	NA	NA	< 9.4	NA	NA
Hexachlorobenzene	µg/L	NA	NA	< 9.4	NA	NA
Hexachlorobutadiene	µg/L	NA	NA	< 9.4	NA	NA
Hexachlorocyclopentadiene	µg/L	NA	NA	< 9.4	NA	NA
Hexachloroethane	µg/L	NA	NA	< 9.4	NA	NA
Hexachlorophene	µg/L	NA	NA	< 4700	NA	NA
Hexachloropropene	µg/L	NA	NA	< 9.4	NA	NA
Indeno[1,2,3-cd]pyrene	µg/L	NA	NA	< 9.4	NA	NA
Isophorone	µg/L	NA	NA	< 9.4	NA	NA
Isosafrole	µg/L	NA	NA	< 9.4	NA	NA
Methapyrilene	µg/L	NA	NA	< 1900	NA	NA
Methyl methanesulfonate	µg/L	NA	NA	< 9.4	NA	NA
Methyl Parathion	µg/L	NA	NA	< 9.4	NA	NA
Naphthalene	µg/L	NA	NA	< 9.4	NA	NA
Nitrobenzene	µg/L	NA	NA	< 9.4	NA	NA
N-Nitro-o-toluidine	µg/L	NA	NA	< 9.4	NA	NA
N-Nitrosodiethylamine	µg/L	NA	NA	< 9.4	NA	NA
N-Nitrosodimethylamine	µg/L	NA	NA	< 9.4	NA	NA
N-Nitrosodi-n-butylamine	µg/L	NA	NA	< 9.4	NA	NA
N-Nitrosodi-n-propylamine	µg/L	NA	NA	< 9.4	NA	NA
N-Nitrosodiphenylamine	µg/L	NA	NA	< 9.4	NA	NA
N-Nitrosomethylethylamine	µg/L	NA	NA	< 9.4	NA	NA
N-Nitrosomorpholine	µg/L	NA	NA	< 9.4	NA	NA
N-Nitrosopiperidine	µg/L	NA	NA	< 9.4	NA	NA
N-Nitrosopyrrolidine	µg/L	NA	NA	< 9.4	NA	NA
o,o',o"-Triethylphosphorothioate	µg/L	NA	NA	< 9.4	NA	NA
p-Dimethylamino azobenzene	µg/L	NA	NA	< 9.4	NA	NA
Pentachlorobenzene	µg/L	NA	NA	< 9.4	NA	NA
Pentachloronitrobenzene	µg/L	NA	NA	< 9.4	NA	NA
Pentachlorophenol	µg/L	NA	NA	< 47	NA	NA
Phenacetin	µg/L	NA	NA	< 9.4	NA	NA
Phenanthrene	µg/L	NA	NA	< 9.4	NA	NA
Phenol	µg/L	NA	NA	< 9.4	NA	NA
Phorate	µg/L	NA	NA	< 9.4	NA	NA
p-Phenylene diamine	µg/L	NA	NA	< 1900	NA	NA
Pronamide	µg/L	NA	NA	< 9.4	NA	NA

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Table 3. Summary of Quality Assurance/Quality Control Data, Sludge Characterization and Bench Scale Treatability Report, Hercules Incorporated, Hattiesburg, Mississippi.

Chemical Name	Location ID: Sample Date: Unit	Field Blank 4/15/2010	Field Blank 4/16/2010	Rinsate Blank 4/16/2010	Trip Blank 4/14/2010	Trip Blank 4/15/2010
SVOCs (Continued)						
Pyrene	µg/L	NA	NA	< 9.4	NA	NA
Pyridine	µg/L	NA	NA	< 47	NA	NA
Safrole, Total	µg/L	NA	NA	< 9.4	NA	NA
Sulfotepp	µg/L	NA	NA	< 9.4	NA	NA
Thionazin	µg/L	NA	NA	< 9.4	NA	NA

SVOCs Semivolatile Organic Compounds.
µg/L Microgram per liter.
VOCs Volatile Organic Compounds.

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Table 4. Summary of Treatability Test Effluent Analytical Data, Hercules Incorporated, Hattiesburg, Mississippi.

POTW Discharge Permit Parameter	Units	IBS-4 Centrifuge Centrate (250 ppm Anion Polymer)	IBS-4 Centrifuge Centrate (250 ppm Cation Polymer)	IBS-4 Centrifuge Centrate (No Polymer)	IBS-4 Filter Press Filtrate	IBS-4 Gravity Dewatering Liquid	IBS-8 Filter Press Filtrate
		Sample Results					
		6/23/2010	6/23/2010	6/23/2010	6/23/2010	6/23/2010	6/23/2010
Flow Effluent	******	NA	NA	NA	NA	NA	NA
Oil and Grease Effluent	mg/L	IV	IV	IV	IV	IV	IV
Oxygen Demand, Biochemical, 5-day (20 degrees Celsius) Effluent	mg/L	IV	IV	IV	IV	IV	IV
pH Effluent	SU	6	6.5	6	9.5	6	11.5
Solids (Total Suspended) Effluent	mg/L	IV	IV	IV	IV	IV	IV
1,1,1-Trichloroethane Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
1,1,2-Trichloroethane Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
1,1-Dichloroethane Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
1,1-Dichloroethylene Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
1,2,4-Trichlorobenzene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
1,2-Dichlorobenzene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
1,2-Dichloroethane Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
1,2-Dichloropropane Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
1,2-Transdichloroethylene Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
1,3-Dichlorobenzene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
1,3-Dichloropropylene, cis Effluent[(1)]	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
1,3-Dichloropropylene, trans Effluent[(1)]	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
1,4-Dichlorobenzene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
2-Nitrophenol Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
4,6-Dinitro-o-cresol Effluent	mg/L	< 0.330	< 0.330	< 0.250	< 0.170	< 0.050	< 0.140
4-Nitrophenol Effluent	mg/L	< 0.330	< 0.330	< 0.250	< 0.170	< 0.050	< 0.140
Acenaphthene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Anthracene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Benzene Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	0.0013
Bis(2-ethylhexyl)phthalate Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Carbon tetrachloride Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
Chlorobenzene Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
Chloroethane Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
Chloroform Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
Diethyl phthalate Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Dimethyl phthalate Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Di-N-Butyl Phthalate Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Ethyl benzene Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
Fluoranthene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Fluorene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029

Table 4. Summary of Treatability Test Effluent Analytical Data,
Hercules Incorporated, Hattiesburg, Mississippi.

POTW Discharge Permit Parameter	Units	Sample Results					
		IBS-4 Centrifuge Centrate (250 ppm Anion Polymer)	IBS-4 Centrifuge Centrate (250 ppm Cation Polymer)	IBS-4 Centrifuge Centrate (No Polymer)	IBS-4 Filter Press Filtrate	IBS-4 Gravity Dewatering Liquid	IBS-8 Filter Press Filtrate
		6/23/2010	6/23/2010	6/23/2010	6/23/2010	6/23/2010	6/23/2010
Hexachlorobenzene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Hexachlorobutadiene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Hexachloroethane Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Methyl Chloride (Chloromethane) Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
Methylene Chloride Effluent	mg/L	< 0.005	< 0.005	< 0.005	< 2.500	< 0.005	< 0.005
Naphthalene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Nitro-Benzene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Phenanthrene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Pyrene Effluent	mg/L	< 0.067	< 0.067	< 0.050	< 0.330	< 0.010	< 0.029
Tetrachloroethylene Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
Toluene Effluent	mg/L	< 0.001	0.00052J	< 0.001	0.280J	< 0.001	0.100
Trichloroethylene Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001
Vinyl chloride Effluent	mg/L	< 0.001	< 0.001	< 0.001	< 0.500	< 0.001	< 0.001

(1) The MDEQ POTW Discharge Permit lists a discharge limit for 1,3-Dichloropropylene. This limit was used for the cis- or trans- isomer listed.
IV Insufficient sample volume to run this test.
J Estimated concentration.
mg/L Milligrams per liter.
NA Not applicable.
POTW Publicly Owned Treatment Works.
SU Standard units.