ARCADIS Design & Consultancy for natural and built assets

Ms. Carolyn Daniels, PG
Response and Remediation Program
Georgia Environmental Protection Division (EPD)
2 Martin Luther King, Jr., Drive, SE
Suite 1054, East Tower
Atlanta, GA 30334

Arcadis U.S., Inc.
1000 Cobb Place Blvd.
Bldg. 500-A
Kennesaw
Georgia 30144
Tel 770 428 9009
Fax 770 428 4004
www.arcadis.com

ENVIRONMENTAL

Subject:
Voluntary Investigation and Remediation Plan, Semiannual Progress Report #7
Hercules Savannah Facility, HSI Site No. 10696
3000 Louisville Road
Savannah, Chatham Co., Georgia

Date:
October 5, 2016

Contact:
David Wilderman

Phone:
404.952.1635

Email:
david.wilderman@arcadis.com

Our ref:
OH009000.GA61

Dear Ms. Daniels:

ARCADIS U.S., Inc. (ARCADIS), on behalf of Hercules LLC (Hercules), is pleased to submit the enclosed Voluntary Investigation and Remediation Plan, Semiannual Progress Report #7 for your review. The enclosed document has been prepared in accordance with the Voluntary Remediation Program Act (O.C.G.A. Section 12-8-101) and associated guidance documents. One paper copy and two electronic copies on compact disc are enclosed.

Thank you in advance for your review of the enclosed document. Please contact Tim Hassett at (302) 995-3456 or me with any questions or comments that you have regarding this report or project site.

Sincerely,

Arcadis U.S., Inc.

David Wilderman, PG
Principal Hydrogeologist, Project Manager

Copies:

Mr. Tim Hassett, Hercules LLC (electronic only)

Johnnie Quiller, Solenis, LLC (electronic only)

Enclosures

Georgia Environmental Protection Division
Land Protection Branch
Response and Remediation Program
Response Development Units 1 – 3

2 Martin Luther King Jr. Dr. SE
Suite 1054 East Tower
Atlanta, Georgia 30334
Phone: 404-657-8600

Document Submittal Form

Instructions: This form should be completed and included with any document submitted to the Response and Remediation Program, Response Development Units 1 – 3, that is greater than 25 pages in length or that contains paper sizes larger than 11"x17". This includes Release Notifications and documents related to Hazardous Site Inventory and Voluntary Remediation Program sites. Contact Brownfield Unit staff for Brownfield submittal guidelines. Your cooperation helps to ensure that documents are filed correctly, completely, and efficiently.

Name of Document:	VIRP Semiannual Progress Report #7
Date of Document:	September 30, 2016
Site Name:	Solenis International, L.P., 3000 Louisville Rd., Savannah, GA
Site ID Number:	HSI No. 10696

Document Submittal Checklist. Please certify that the submittal includes the following by checking each box as appropriate. Items 1 – 3 should be checked / included / certified for each submittal:

☒ 1. One paper copy of the document (double-sided is preferred)

☒ 2. Two compact discs (CDs), each containing an electronic copy of the document as a single, searchable, Portable Document Format (PDF) file. Only one CD is needed for Release Notifications. CDs should be labeled at a minimum with the following: 1) Name of Document, 2) Date of Document, 3) Site Name, and 4) Site Number. Any scanned images should have a resolution of at least 300 dpi and should be in color if applicable.

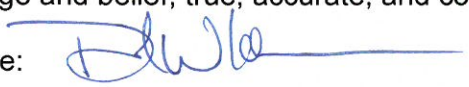
☒ 3. The electronic copies are complete, virus free, and identical to the paper copy except as described in Item 4 below.

☐ 4. (Optional) To reduce the size of the paper copy, certain voluminous information has been omitted from the paper copy and is included only with the electronic copies:

☐ laboratory data sheets ☐ manifests

☐ other: Click here to enter text. Enter "NA" if not applicable.

I certify that the information I am submitting is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: 

Name (printed): David Wilderman

Date: 10/4/2016

Organization: Arcadis U.S., Inc.

Phone: 770.384.6532

Email: David.Wilderman@arcadis.com

Receipt Date
(for EPD use only)

ARCADIS Design & Consultancy for natural and built assets

HERCULES

VOLUNTARY INVESTIGATION AND REMEDIATION PLAN – SEMIANNUAL PROGRESS REPORT #7

Hercules LLC
3000 Louisville Road
Savannah, Georgia

September 30, 2016

VOLUNTARY INVESTIGATION AND REMEDIATION PLAN – SEMIANNUAL PROGRESS REPORT #7

Hercules LLC
3000 Louisville Road
Savannah, Georgia

John V. Hanna

Staff Geologist

David Wilderman, PG

Project Manager

Prepared for:

Hercules LLC

Prepared by:

Arcadis U.S., Inc.
1000 Cobb Place Blvd.
Bldg. 500-A
Kennesaw
Georgia 30144
Tel 770 428 9009
Fax 770 428 4004

Our Ref.:

OH009000.GA60

Date:

September 30, 2016

ARCADIS Design & Consultancy for natural and built assets

Professional Engineer/Geologist Certification

I certify that I am a qualified groundwater scientist who has received a baccalaureate or postgraduate degree in the natural sciences or engineering, and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, that enable me to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that this report was prepared by me or by a subordinate working under my direction.

David M. Wilderman, PG
Georgia Registration No. 978

10/3/2016
Date

Ashland Inc. Environmental Remediation – Hercules Inc. (Savannah) Georgia
Facility Name

Voluntary Investigation and Remediation Plan Semiannual Progress Report #7
Document Title

Georgia EPD HSI Site #10696

CONTENTS

TABLES

FIGURES

APPENDICES

1 INTRODUCTION

This Voluntary Investigation and Remediation Plan (VIRP) Semiannual Progress Report (Progress Report) has been prepared to meet requirements outlined in the Georgia Voluntary Remediation Program Act (VRPA). Information and data contained in this Progress Report are provided in a streamlined format and additional information, if required, can be provided to the Georgia Environmental Protection Division (GAEPD) upon request.

Hercules Incorporated (Hercules), a wholly owned subsidiary of Ashland Inc., sold its water technologies business and its associated assets to Solenis International, L.P. (Solenis) on July 31, 2014. Accordingly, Solenis is now the owner and operator of the facility located at 3000 Louisville Road, Savannah, Georgia. Hercules, retains responsibility for the identified remediation activities at the site relating to matters that occurred prior to the sale date. On September 27, 2016 Hercules Incorporated changed to Hercules LLC. Official notice of the name change will be provided to the GAEPD in the coming weeks. The Solenis facility is comprised of 14 separately deeded parcels of land (approximately 32.5 acres) bordered by railroad tracks, wetlands, and industrial and residential properties. Two of the 14 property parcels (Parcel ID No. 2 0734 01 001 and Parcel ID No. 2 0734 03 001), comprising 29.09 acres, are on the Hazardous Site Inventory (HSI) and are approved properties in the Voluntary Remediation Program (VRP). They are currently included on the Hazardous Site Inventory (HSI) as ID No. 10696. Hercules has evaluated the ownership of land within the boundaries of the facility where right-of-ways, easements, and/or reconfiguration of properties have occurred since the original deed was filed. Data obtained during this review confirm that Hercules retains ownership of the remediation efforts for the two parcels as shown on **Figure 1**, which depicts the location of the Hercules land tracts superimposed on a topographic map of the area. The term “site” is used throughout this report to refer to the two tracts that comprise HSI ID No. 10696 that are owned by Solenis but whose current environmental remediation requirements are managed by Hercules. **Figure 2** provides an aerial view of the VRP properties, the qualifying property boundaries, and abutting properties. **Figure 3** illustrates the layout of the VRP properties and monitoring well locations. A tax parcel map illustrating specific information on land tracks and ownership is provided in **Appendix A** along with the Connor Survey that was provided by Hercules to more accurately illustrate on maps provided in this report the extent of the property they sold to Solenis in 2014.

2 SITE HISTORY

The site was first developed in 1922 by Paper Makers Chemical Corporation for pulp and paper chemical manufacturing and was purchased by Hercules in 1931. Historical site operations have included distillation of crude tall oil (CTO) and production of sizing, release agents, emulsifiers, coating agents, defoamers, fatty acid esters, disproportionated rosin, and polyamides. The tall oil distillation and rosin production operations have ceased and the plant currently only produces chemicals used in the paper processing industry. The following list outlines release, response, and remedial action history.

- GAEPD determined on March 9, 2001 a release occurred at the facility. This determination was based upon information provided within release notifications dated June 15, 2000 (caustic release in the Size Tank Farm Area), July 13, 2000 (asbestos and benzene in the 50s Tank Area), and August

11, 2000 (acrolein release in the Hard Resins Area), and subsequently the plant was placed on the Georgia HSI.

- Hercules submitted an amended release notification on March 9, 2001, documenting removal actions completed in the Hard Resins Area for acrolein-contaminated soil and providing additional analytical data gathered during the 2001 Phase II investigation.
- Multiple Compliance Status Report (CSR) documents have been submitted between 2002 and 2009.
- A Corrective Action Plan (CAP) was submitted in 2008.
- A response to EPD's comments on the March 2009 CSR was submitted in February 2011 (Arcadis, 2011).
- A VIRP was submitted in lieu of a Revised CAP on April 9, 2012 (Arcadis, 2012).
- The VIRP application was approved by EPD on March 15, 2013.
- The First Progress Report was submitted via email on December 10, 2013.
- The Second Progress Report was submitted on March 15, 2014.
- The Third Progress Report was submitted on September 15, 2014.
- The Fourth Progress Report was submitted on March 30, 2015.
- The Fifth Progress Report was submitted on October 6, 2015.
- The Sixth Progress Report was submitted on April 6, 2016.
-

During the various subsurface investigations, regulated substances have been detected in site groundwater and soil. In addition, trace concentrations of regulated substances have been detected in surface water and sediment samples collected from Dundee Canal located downstream from the site. A list of regulated substances detected at the site along with the applicable delineation standards was provided in the VIRP. The EPD provided revised Risk Reduction Standards (RRSs) to Hercules following the submittal of the VIRP in a letter dated January 10, 2014. Hercules intends to use these RRSs for the VRP properties for delineation standards. Theses delineation standards are provided in **Table 1a** (Soil and Groundwater Delineation Standards), **Table 1B** (Groundwater Risk Reduction Standards), and **Table 1c** (Soil Risk Reduction Standards).

3 SUMMARY OF WORK COMPLETED THIS PERIOD

The work performed at the site during this period involved the following actions:

1. Collected water-level measurements from 36 wells.
2. Collected groundwater samples from six wells for laboratory analysis of volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260B and semivolatile organic compounds (SVOCs) by USEPA Method 8270D.
3. Collected groundwater samples from one well for polychlorinated biphenyls (PCBs) by USEPA Method 8082A (including 1262 and 1268) and USEPA Method 1668B.
4. Collected groundwater sample from one well for asbestos-containing material (ACM) by USEPA Method 100.2.

3.1 Hydraulic Gradient

The static depth to water was measured in all accessible site wells on May 2, 2016. These measurements were used to develop a potentiometric surface contour map for the shallow water unit and to calculate a hydraulic gradient. The general groundwater flow direction based on these measurements was convergent toward Dundee Canal, which is consistent with historical data. The hydraulic gradient was calculated from potentiometric surface elevations of wells located perpendicular to groundwater flow from both sides of Dundee Canal. The average hydraulic gradient is 0.008 ft/ft, which is typical of shallow aquifers in the Coastal Plain depositional environment. The hydraulic gradient was calculated to be 0.008 ft/ft on the west side of Dundee Canal based on water level measurements from MW-F13 and MW-F17. On the east side of Dundee Canal, the hydraulic gradient is 0.007 ft/ft as calculated from monitoring wells MW-F9 and MW-F5. Well construction details are provided in **Table 2** and a summary of water level elevations are provided in **Table 3**. A potentiometric surface contour map is provided as **Figure 4**.

3.2 Groundwater Sample Data Summary

Semiannual groundwater sampling was conducted in May 2016 and semiannual sampling will continue until compliance with final cleanup standards is demonstrated for two years or until the director of the VRPA and to Hercules agree to terminate the monitoring program. The semiannual monitoring program includes collecting water-level measurements from 36 onsite wells and collecting groundwater samples from the following monitoring wells: MW-F3R, MW-F5, MW-F7, MW-F15, MW-F21, MW-27, MW-29, and MWD-30.

3.2.1 Groundwater Sample Methodology

Well purging and sampling methods utilized a peristaltic pump and low-flow, low-purge volume sampling methodologies following the USEPA Region 4 Science and Ecosystem Support Division (SESD) operating procedures, dated March 6, 2013, for groundwater sampling to ensure a representative sample is collected and to minimize the quantity of well purge water generated during sampling. Prior to initiating pumping, a properly decontaminated water level was lowered into the well to monitor static water level prior to and during the purging process.

During purging and sampling, the Teflon® tubing intake was placed at the mid-portion of the screened interval of the well. Flow rates did not exceed the recharge rate of the aquifers monitored by measuring the top of the water column with a water-level indicator while purging. With respect to the groundwater chemistry, an adequate purge was achieved when the pH, specific conductance, and temperature of the groundwater had stabilized and the turbidity had either stabilized or was below 10 Nephelometric Turbidity Units (NTUs) (twice the Primary Drinking Water Standard of 5 NTUs).

Stabilization occurred when pH measurements remained constant within 0.1 Standard Unit (S.U.), specific conductance varies no more than 5 percent, and the temperature was constant to within 1 degree Celsius (°C) for at least three consecutive readings. Groundwater samples were collected following the USEPA-accepted "soda straw" sampling method when water quality parameters had been reached. Field readings of pH were taken from each monitoring well prior to sampling and the readings range from 4.39 to 7.27 S.U. Well purging and sampling logs from the May 2016 monitoring event are provided as **Appendix B**.

The groundwater samples collected in May 2016 were analyzed for VOCs by USEPA Method 8260B and SVOCs by USEPA Method 8270D in monitoring wells MW-F5, MW-F7, MW-F21, MW-27, MW-29, and MWD-30. Monitoring well MW-F3R was sampled for PCBs analysis by USEPA Methods 8082A (including Aroclor 1262 and 1268) and biphenyl congeners analysis using USEPA Method 1668B. Monitoring well MW-F15 was sampled for ACM by USEPA Method 100.2 during the November 2015 monitoring event in lieu of well MW-F8 to better reflect groundwater conditions downgradient of the ACM area. **Table 4** provides a summary of laboratory analyses performed on groundwater samples.

3.2.2 Groundwater Sampling Results

Analytical results from the May 2016 groundwater sampling event indicate a very limited distribution of COCs at the site. A summary of groundwater results from the May 2016 semi-annual monitoring event for the shallow and deep aquifers is illustrated on **Figures 5a** and **5b**, respectively. Analytical summary tables are provided in **Table 5a** (VOCs and SVOCs), **Table 5b** (PCBs), and **Table 5c** (Asbestos), and laboratory analytical reports are included in **Appendix C**.

Laboratory analyses indicate that trace concentrations of VOC and SVOC compounds were present in several groundwater samples but all, except naphthalene at one location, were below the Type 1/3 RRS. Naphthalene was detected at 66 micrograms per liter (µg/L) in the sample collected from MW-F21; exceeding the Type 1/3 RRS of 20 µg/L and increasing slightly compared to the 38 µg/L result from November 2015. Deep aquifer monitoring well MWD-30 is below detection limits for all analysed constituents.

3.3 Delineation Status

3.3.1 Groundwater

Groundwater data from the May 2016 monitoring event were compared to the Type 1/3 RRS, and only one well, MW-F21, has concentrations greater than the Type 1/3 RRS (see **Figure 5a**). This well is located in the proximity of the ASTs 30s area and is delineated by downgradient monitoring well MW-F5, upgradient wells MW-F7, MW-27, and MW-29, and by historical groundwater analytical results from

upgradient wells MW-8 and MW-9. Groundwater is vertically delineated by MWD-30. Additionally, PCBs and ACM were below laboratory detection limits in MW-F3R and MW-F15, respectively. Therefore, groundwater delineation is complete for all site COCs.

3.3.2 Soil

No soil sampling was completed during this reporting period; however, soil samples were collected during the 2015 investigation to complete delineation of 1,1'-biphenyl, PCBs, and aniline concentrations above Type 1 and Type 4 RRSs. The results of that soil investigation, presented in Progress Report #6, indicated that additional soil borings will be needed to completely delineate the horizontal and vertical extent of 1,1'-biphenyl and PCBs in soil at several areas of the site. These final soil confirmation samples will be collected as an initial step in the planned soil remedial action discussed in Section 5 of this report.

4 UPDATED CONCEPTUAL SITE MODEL

Site investigations of soil and groundwater have been conducted at the site since 2000 to identify potential source areas of regulated constituents and to provide horizontal and vertical delineation of constituents in affected media at the site. As indicated in Section 3.3.1, regulated constituents in groundwater are delineated horizontally and vertically and are confined to the site. Delineation of regulated constituents in soil is not yet fully complete but available data indicate that concentrations greater than RRSs are confined to isolated areas of the site. The general lack of source-areas combined with the low hydraulic conductivity typical of the shallow saturated zone have resulted in minimal vertical and lateral migration of regulated constituents. Geologic cross sections have been prepared to illustrate the current subsurface conditions at the site and transect locations are provided on **Figure 6**. The cross-sectional geologic interpretations of subsurface conditions provided on **Figure 6a** (along the groundwater flow direction), **Figure 6b** (perpendicular to site-wide groundwater flow), and **Figure 6c** (along the groundwater flow direction on the eastern side of the site) include the May 2016 groundwater analytical results, August 2015 soil analytical results, and historical soil analytical results.

The A-A' transect is oriented parallel to Dundee Canal and passes through the ASTs 30's area and the Former CTO tank area. This cross-section illustrates a lack Type 1/2 RRSs exceedances in soil and Type 1/3 RRSs in groundwater. Cross-section B-B' is oriented northwest to southeast and represents site conditions at several potential source areas. The only groundwater Type 1/4 RRS exceedance (MW-F21) is shown and its limited extent and proximity to other site features is illustrated. The limited extent off 1,1'-biphenyl detections in soil above the Type 1/2 RRS is illustrated on the northwest portion of the figure. Cross-section C-C' was prepared to illustrate additional potential source areas as requested by EPD in their letter dated January 10, 2014. The locations of the Former CTO ASTs 60's area, the Former Tall Oil Plant, the Former Dowtherm Unit, and the Primary Oil/Water Separator are represented in this cross-section. This figures illustrates how limited positive detections of regulated constituents are along this transect and that none of the results are above delineation standards.

A comprehensive human health risk assessment was performed and presented in the March 27, 2015 Progress Report #4. The risk assessment concluded that no COPCs were not identified for further evaluation in groundwater, sediment, or surface water for the exposure scenarios considered. The only COPCs identified for human health were aniline, 1,1'-biphenyl, and Aroclor 1254 in soil. Potential cancer

risk and non-cancer hazard were estimated for those COPCs for the receptors identified at the site using USEPA recommended methods. Potential risk to both an industrial worker and a construction worker were within or below the USEPA target risk range of 1×10^{-4} to 1×10^{-6} as well as the Georgia EPD decision point of $1x10^{-5}$, and the non-cancer hazard was well below the target HI of 1. In conclusion, risk to an industrial worker and a construction worker was below acceptable levels. The findings presented in Progress Report #4 are unchanged and delineation of aniline was completed as described in Progress Report #6. Delineation of 1,1'-biphenyl and Aroclor 1254 will be completed as a component of the remedial implementation phase of this project.

A screening-level ecological risk assessment was also completed and presented in the March 27, 2015 Progress Report #4. Risks were characterized for aquatic wildlife receptors at the site based on comparisons to ESVs, with emphasis on the weight-of-evidence, such as conservatism of the ESVs and the quality of the available habitat. None of the constituents detected in sediment or surface water were identified as refined COPECs and no further evaluation of sediment or surface water was proposed. Based on the overall analysis of surface water and sediment exposures, adverse impacts were considered unlikely for any aquatic wildlife and sediment dwelling organisms that might occur in the reaches of Dundee Canal within the boundaries of the site.

The following three regulated constituents in soil, 1,1'-biphenyl, Total PCBs, and Aroclor 1254, are confirmed COPCs detected at concentrations above the Type 1 – 4 RRSs where full horizontal and vertical delineation is not yet complete. Several other regulated constituents are present in soil above residential and/or non-residential RRSs; however, the extent of their impact in soil has been delineated on-site to concentrations below RRSs. Naphthalene is the only regulated constituent in groundwater detected at concentrations above applicable RRSs and is delineated on-site; occurring in only one groundwater monitoring well, MW-F21.

Overall site conditions at the facility have changed little since the approval of the VIRP on March 15, 2013. Groundwater flow directions and gradients have remained constant over the years and are consistent with what is illustrated in Figure 4 in this report. There are no known new receptor populations or potentially completed exposures pathways at the facility as of the date of this report beyond those evaluated in the risk assessment presented in Progress Report #4. The facility is now owned by Solenis; however, operations continue to be consistent with industrial site use and that is anticipated to continue into the future.

5 PROPOSED FUTURE DELINEATION AND REMEDIATION

Hercules has completed a comprehensive review of laboratory analytical data from samples collected during a number of phased environmental investigations at this site and has determined that remedial action is needed prior to certifying compliance with applicable RRSs in a Compliance Status Report. A review of laboratory data and risk assessment conclusions indicate that no remediation is needed to certify compliance with RRS for surface water, sediment, or groundwater. Remedial action, which may include soil removal, engineering and/or administrative controls, will be needed for soil in several areas of the site where concentrations of regulated constituents exceed RRSs or proposed Remedial Goals (RGs) and plans for those areas are presented in this section.

5.1 Groundwater Delineation and Modeling

The delineation of regulated constituents in groundwater is complete as presented in Section 3.3 and no groundwater remediation is needed to be protective of human health or the environment. Naphthalene is the only constituent that exceeded the residential Type 1/3 RRS of 20 µg/L. However, naphthalene is delineated both horizontally and vertically on site and it is not expected to migrate beyond site boundaries. Naphthalene concentrations in groundwater samples from MW-F21 over the most recent six semiannual events ranged from 150 µg/L in November 2014 to a low of 38 µg/L in November 2015 with no significant trend observable in the data. Analytical results from the nine sampling events that preceded the site's entry into the VRP ranged from 3.6 µg/L in November 2008 to 430 µg/L in July 2011; also showing no significant trend in concentration. Recent naphthalene concentrations are considerably lower than their peak concentration measured in 2011.

Hercules proposes to enter into a Uniform Environmental Covenant (UEC) with the property owner that will eliminate the potential for use of shallow groundwater for potable purposes, prohibit redevelopment of the facility as residential property, and establish controls to restrict exposure to soil containing hazardous constituents at concentrations above Type 4 RRS. This restriction will eliminate the potentially completed exposure pathway to groundwater containing naphthalene above RRSs and allow Hercules to certify compliance with a Type 4 RRS. Groundwater monitoring will be required until such time as concentrations of naphthalene decrease to below Type 4 RRSs. There is no present need to utilize numerical groundwater modeling to demonstrate compliance with Type 4 RRSs. A suitable groundwater model may be used, if needed, to demonstrate compliance at the downgradient point of exposure as allowed in Section 12-8-108 of the VRPA if future groundwater sampling results indicate constituents in groundwater may migrate off-site.

5.2 Groundwater Monitoring

Groundwater analytical data collected from seven of the eight wells sampled semiannually since 2013 have shown that regulated constituents are either absent or are detected at concentrations below the applicable RRSs listed in Table 1c. Concentrations of only one constituent, naphthalene, exceeds the Type 1 – 4 RRS at one monitoring well, MW-F21. Sufficient groundwater data is available from these sampling events to request that the sampling frequency be extended to annual groundwater sampling only. If approved by the EPD, the annual program will continue until compliance with final cleanup standards is demonstrated for a period of one year or for a period to be determined by the director of the VRP. The annual monitoring program will consist of collecting water-level measurements from up to 36 on-site wells and collecting groundwater samples from the following eight monitoring wells: MW-F21, MW-F3R, MW F5, MW-F7, MW-F15, MW-27, MW-29, and MWD-30.

5.3 Proposed Soil Remediation Goals

An initial step in the remediation process includes developing proposed remedial goals (RGs) for regulated constituents present in soil at concentrations which may result in unacceptable human health risks, ecological risk, or pose a potential threat to groundwater resources through leaching from soil. Details of the derivation of proposed RGs are provided in this Section.

The GAEPD provided “approved RRS without further discussion” criteria to certify compliance with and for delineation of impacts at the site. These were proposed by GAEPD following the submittal of risk reduction standards (RRS) developed in the VIRP. One of the differences between the two lists of RRS were that the approach used to derive RRS was used for constituents regulated under the Hazardous Site Response Act (HSRA) and those that were either proposed or not regulated under HSRA. For the non-HSRA constituents, the GAEPD proposed using detection limits as the basis for cleanup or remedial goals (RGs) and delineation. Under the voluntary program, RGs can be proposed that are based on alternative criteria. The purpose of this section is to identify the approach used to derive RGs for several constituents. The constituents discussed below are 1,1’-biphenyl; Aroclor 1254; total polychlorinated biphenyls (PCBs).

The site is an active industrial facility. There are no plans to close the facility or to redevelop it for a residential or non-industrial use. Therefore, the following discussion only focuses on industrial exposures to these three constituents in soil.

5.3.1 1,1’-Biphenyl

1,1’-Biphenyl is not currently regulated under HSRA. The GAEPD proposed an RG of 1 milligram per kilogram (mg/kg) as a delineation RRS and an RG. The United States Environmental Protection Agency (USEPA) industrial soil regional screening levels (RSLs) are 420 mg/kg based on a target cancer risk of 1×10^{-6} and 200 mg/kg based on a target hazard quotient (HQ) of 1. Hercules proposes to set the RG at 200 mg/kg for 1,1’-biphenyl. The difference between the RG based on the RSL approach and the RG based on the Type 4 RRS is due to the method used to calculate the contribution of the inhalation portion of the calculation. The RSL is based on a more current evaluation for the inhalation contribution to the calculation.

5.3.2 Aroclor 1254 and the PCBs

The GAEPD delineation concentration for PCB is 1.55 mg/kg which is the Type 1 and Type 3 RRS. In looking at the USEPA RSLs, the RSL based on a target cancer risk of 1×10^{-6} is 0.97 mg/kg and the RSL based on a target HQ of 1 is 15 mg/kg. Exposure of a site worker to the RSL concentration of 15 mg/kg corresponds to an excess lifetime cancer risk of 1.5×10^{-5}. This risk is within the USEPA target risk of 1×10^{-6} to 1×10^{-4}.

Under HSRA, a Type 4 RRS can be calculated for the PCBs. The Type 4 RRS are 29 mg/kg based on a target risk of 1×10^{-5} and 41 mg/kg based on a target HQ of 1. The HSRA Type 4 RRS for the PCBs based on the non-cancer endpoint corresponds to a target risk of 1.4×10^{-5} which when taken to one significant figure is 1×10^{-5}. Thus, this concentration is also within the USEPA target risk range and is equal to the target risk under HSRA. Therefore, using the Type 4 RRS, an RG of 41 mg/kg is proposed for the PCBs.

5.4 Soil Remediation and Confirmation Sampling

The analytical results of the August 2015 soil investigation were sufficient to complete the delineation of regulated constituents at a number of areas of the site. Additional soil sampling efforts will be needed to fully delineation PCBs and 1,1’-biphenyl in a few areas of the facility and that sampling can be performed as part of remedial efforts scheduled to be completed prior to submitting the CSR. Proposed delineation

sample locations and the rationale for the required additional sampling are discussed in more detail in Figures 7, 7a, 7b, 7c for PCB constituents and Figures 8, 8a, 8b, 8c for 1,1'-biphenyl. Additional soil confirmation sampling will be combined with proposed soil remedial actions that will be designed to enable Hercules to certify compliance with appropriate RRSs.

The proposed remedial action discussed in this section focus on reducing or eliminating the potential for exposure to soil containing regulated constituents at concentrations above acceptable RRSs and proposed remedial goals (RGs). Remediation (soil excavation with off-site disposal combined with administrative controls) is proposed for two areas where soil containing 1,1'-biphenyl above proposed RG as illustrated on Figures 8a and 8c. Removal of this soil will allow Hercules to certify compliance with Type 4RRS with controls in these areas. These areas may also combine a removal remedy with engineering (capping, fencing) or administrative controls (Uniform Environmental Covenant, land use controls, soils management plan, dig permits, deed restrictions, signage) to reduce or eliminate the potential for exposure to soil containing regulated constituents in concentrations above Type 4 RRS. Engineering and administrative controls are most applicable in areas where subsurface disturbance is technically impracticable or cannot be safely performed because of existing surface structures (i.e., buildings or storage tank secondary containment features), subsurface utility conflicts or buried production piping, or where overhead obstructions like product piping racks or power lines limit access to an area.

Figure 7 shows three areas of the site where concentrations of PCB constituents; either Aroclor 1254, total PCBs, or 2,3,7,8-TCDD Toxic Equivalents (TEQ), exceed Type 4 RRSs and require delineation. The Type 1, 2, 3, and 4 RRS for PCBs is 1.55 mg/kg. Details of PCB concentrations in soil samples are provided in Figures 7a, 7b, and 7c. PCBs have been identified in soil samples collected from other areas of the site at concentrations below RRSs and no further delineation is needed in those areas. Figures 7a, 7b, and 7c illustrate areas of the site where proposed addition sampling will be performed and also show the proposed RGs for PCBs. No remediation is planned for the areas shown on these figures because none of the sample results presented exceed both the RRSs and the proposed RGs. Therefore, the focus for future investigation in these areas will be to collect the soil samples needed to successfully delineate the extent of PCB impact to concentrations below RRSs.

Figure 8 illustrates three areas of the site where concentrations of 1,1'-biphenyl exceed the Type 1, 2, 3, and 4 RRS of 1 mg/kg. Details of 1,1'-biphenyl concentrations in soil samples are provided in Figures 8a, 8b, and 8c along with areas where active remediation is proposed to remove soil containing this constituent at concentrations that exceed proposed RGs. 1,1'-Biphenyl has been identified in soil samples collected from other areas of the site at concentrations below RRSs and no further delineation is needed in those areas.

Details of planned remedial actions for the two areas where excavation is proposed for 1,1'-biphenyl will be provided in a Work Plan once the EPD approves of the proposed RGs. The Work Plan will estimate the volume and depth of the excavation, outline soil management practices, and identify the disposal facility where soil will be taken following the completion of waste characterization activities. Plans to restore the area and any proposed engineering or administrative controls combined with the active remedy will also be discussed in detail within the forthcoming Work Plan.

6 SCHEDULE

An updated project schedule for work elements outlined in the VIRP is provided on **Figure 9**.

7 REPORTING

The proposed change to annual sampling, if approved by the EPD, will also support a change from semiannual to annual progress reporting. Annual Progress Reports will be submitted to provide updates of the progress and implementation of the VIRP throughout the program. Additionally, the projected milestone schedule will be updated to show progress on VIRP objectives (**Figure 9**). Figure 9 will be updated to reflect the proposed annual sampling reporting schedule once the EPD approves of the change. Until that time, the milestone schedule will reflect the semiannual program as currently approved.

A CSR will be prepared for submittal to EPD following the conclusion of active remediation activities proposed in this Progress Reports and the conclusion of data collection to delineate the extent of regulated constituents in soil above Type 4 RRSs. The CSR will confirm the completion of the corrective action specified in the VIRP and will certify compliance of the site with the applicable, approved cleanup standards.

8 REFERENCES

ARCADIS U.S., Inc. (ARCADIS). 2011. Response to Georgia EPD Comments, EPD Comment Letter Dated October 25, 2010. February.

ARCADIS U.S., Inc. (ARCADIS). 2012. Voluntary Investigation and Remediation Plan, April 9.

TABLES

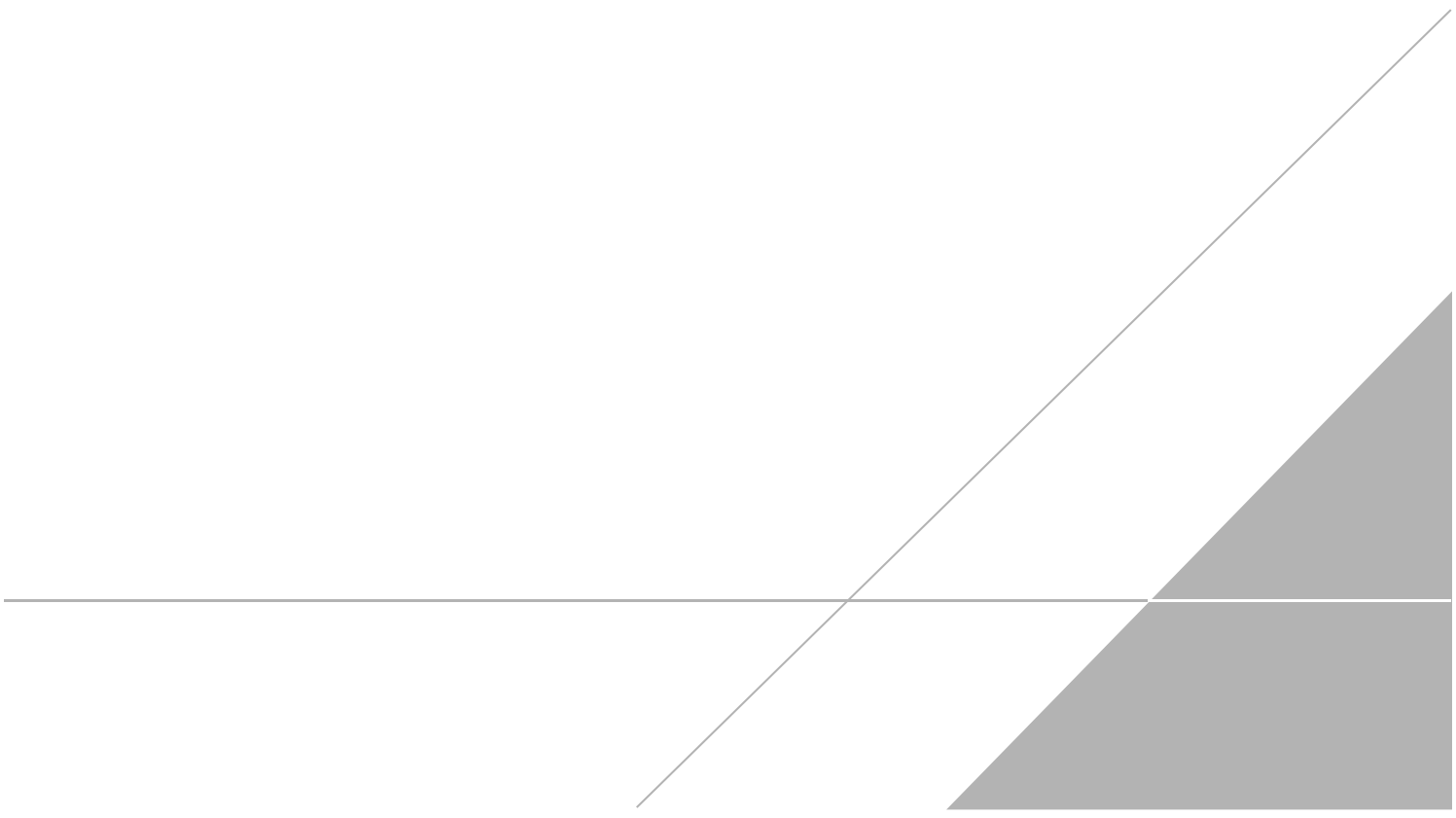


Table 1a
Soil and Groundwater Delineation Standards
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, GA

Constituent	CAS #	Units	Soil Delineation Criteria Applicable to entire vadose zone [Higher Value of Type 1 and 2 RRS]	Units	GW Delineation Criteria (Type 1 RRS)
Volatile Organic Compounds					
Acetone	67-64-1	mg/kg	400	mg/L	4
Acetonitrile	75-05-8	mg/kg	20	mg/L	0.2
Acetophenone	98-86-2	mg/kg	400	mg/L	4
Acrolein	107-02-8	mg/kg	0.1	mg/L	0.7
Benzene	71-43-2	mg/kg	0.5	mg/L	0.005
1,1'-Biphenyl	92-52-4	mg/kg	1	mg/L	0.01
Carbon Disulfide	75-15-0	mg/kg	400	mg/L	4
Chlorobenzene	108-90-7	mg/kg	10	mg/L	0.1
1,4-Dichloro-2-butene	764-41-0	mg/kg	0.11	mg/L	0.001
trans-1,4-Dichloro-2-butene	110-57-6	mg/kg	0.11	mg/L	0.002
1,2-Dichloropropane	78-87-5	mg/kg	0.5	mg/L	0.005
Ethylbenzene	100-41-4	mg/kg	70	mg/L	0.7
Ethyl Methacrylate	97-63-2	mg/kg	300	mg/L	3
Isobutyl Alcohol	78-83-1	mg/kg	1000	mg/L	10
Methyl Ethyl Ketone	78-93-3	mg/kg	200	mg/L	2
Methyl Isobutyl Ketone	108-10-1	mg/kg	200	mg/L	2
Styrene	100-42-5	mg/kg	14	mg/L	0.1
Tetrachloroethene	127-18-4	mg/kg	0.5	mg/L	0.005
Toluene	108-88-3	mg/kg	100	mg/L	1
Total Xylenes[1]	1330-20-7	mg/kg	1000	mg/L	10
m-Xylene [1]	108-38-3	mg/kg	20	mg/L	0.001 (0.002)
o-Xylene[1]	95-47-6	mg/kg	20	mg/L	0.001
p-Xylene [1]	106-42-3	mg/kg	20	mg/L	0.001 (0.002)
Semi-Volatile Organic Compounds (excluding Polynuclear Aromatic Hydrocarbons)					
Aniline	62-53-3	mg/kg	2	mg/L	0.02
Bis(2-ethylhexyl)phathalate	117-81-7	mg/kg	50	mg/L	0.01
Bis(2-chloroethyl) ether	111-44-4	mg/kg	0.60	mg/L	Detection Limit
Butyl Benzyl Phthlate	85-68-7	mg/kg	50	mg/L	0.1
Total Cresols	1319-77-3	mg/kg	3.8	mg/L	0.01
m-Cresol	108-39-4	mg/kg	3.8	mg/L	0.01
o-Cresol	95-48-7	mg/kg	3.8	mg/L	0.01
p-Creso	106-44-5	mg/kg	3.8	mg/L	0.01
Dibenzofuran	132-64-9	mg/kg	1	mg/L	0.01
2,4-Dimethylphenol	105-67-9	mg/kg	70	mg/L	0.7
m-Dinitrobenzene	99-65-0	mg/kg	1.05	mg/L	0.01
Di-n-octyl Phthalate	117-84-0	mg/kg	70	mg/L	0.7
1,4-Dioxane	123-91-1	mg/kg	7	mg/L	0.07
Formaldehyde	50-00-0	mg/kg	100	mg/L	1
Ni-Nitroso-di-N-butylamine	924-16-3	mg/kg	1	mg/L	0.01
N-Nitrosomethylethylamine	10595-95-6	mg/kg	0.68	mg/L	0.01
Semi-Volatile Organic Compounds (Polynuclear/Polycyclic Aromatic Hydrocarbons)					
Acenaphthene	83-32-9	mg/kg	300	mg/L	2
Acenaphthylene	208-96-8	mg/kg	130	mg/L	0.01
Anthracene	120-12-7	mg/kg	500	mg/L	0.01
Benz[a]anthacene	56-55-3	mg/kg	5	mg/L	0.01
Benzo[a]pyrene	50-32-8	mg/kg	1.64	mg/L	0.01
Benzo[b]fluoranthene	205-99-2	mg/kg	5	mg/L	0.01
Benzo[g,h,i]perylene	191-24-2	mg/kg	500	mg/L	0.01
Benzo(k)fluoranthene	207-08-9	mg/kg	13.7	mg/L	0.01
Chrysene	218-01-9	mg/kg	43	mg/L	0.01
Dibenz[a,h]anthracene	53-70-3	mg/kg	2	mg/L	0.01
Fluoranthene	206-44-0	mg/kg	500	mg/L	1
Fluorene	86-73-7	mg/kg	360	mg/L	1
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	5	mg/L	0.01
Naphthalene	91-20-3	mg/kg	100	mg/L	0.02
Phenanthrene	85-01-8	mg/kg	110	mg/L	0.01
Phenol	108-95-2	mg/kg	50	mg/L	4
Pyrene	129-00-0	mg/kg	500	mg/L	1

Table 1a
Soil and Groundwater Delineation Standards
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, GA

Constituent	CAS #	Units	Soil Delineation Criteria Applicable to entire vadose zone [Higher Value of Type 1 and 2 RRS]	Units	GW Delineation Criteria (Type 1 RRS)
Dioxins, Chlorinated Dibenzofurans, and Dioxin-Like PCBs					
2,3,7,8-TCDD [2]		mg/kg	1.15E-04	mg/L	0.00001
Pesticides					
Endrin	72-20-8	mg/kg	10	mg/L	0.002
Endrin aldehyde	7421-93-4	mg/kg	10	mg/L	0.0001
DDT	50-29-3	mg/kg	0.84	mg/L	0.0001
Methoxychlor	72-43-5	mg/kg	10	mg/L	0.04
Parathion	56-38-2	mg/kg	20	mg/L	0.2
Polychlorinated Biphenyls (PCBs)					
Total PCBs[3,4]	1336-36-3	mg/kg	1.55	mg/L	0.0005
Aroclor 1254	11097-69-1	mg/kg	1.55	mg/L	0.0005
Aroclor 1260	11096-82-5	mg/kg	1.55	mg/L	0.0005
Inorganics and Hazardous Waste Characteristics					
Ammonia	7664-41-7	mg/kg	3000	mg/L	30
Asbestos	1332-21-4	% or ppm	1 or10,000	(MFL)	7 million
Fluoride	16984-48-8	mg/kg	NA	mg/L	4
pH	NA	s.u.	>2 and <12.5	s.u.	>2 and <12.5

NOTES:

NA - Not applicable

mg/kg - milligrams per kilogram

mg/L - millograms per liter

MFL - million fibers per liter

ppm - parts per million

RRS - Risk Reduction Standard

s.u. - Standard unit

1 The applicable groundwater delineation standard for this individual isomer is 0.001 if analytical results are reported as the individual isomers. If m- and p- isomer concentrations are only reported as combined isomer concentrations, the delineation standard defaults to the detection limit/PQL of 0.002 as proposed on revised Table 8 (second revision of the VIRP).

2 Summed TEF-adjusted concentrations for detected polychlorinated dioxin, furans, and dioxin-like PCBs in a single sample to be compared to these media standards.

3 PCBs are regulated as Aroclors (mixtures of various PCB homologues/congeners), total PCBs (summation of the concentrations the 197 individual non-dioxin-like PCB congeners), and the individual regulated 12 dioxin-like PCB congeners. Detected concentrations of the dioxin-like PCB congeners should be addressed using the TEF method along with the detected dioxins and chlorinated dibenzofurans.

4 Values shown are consistent with Georgia Hazardous Site Response Rules. However, detections of PCBs in soil or groundwater may be subject to the Federal Toxic Substance Control Act (TSCA) and cleanup standards set forth within it. Participant should contact EPA regarding the applicability of TSCA at this site.

Table 1b
Groundwater Risk Reduction Standards
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, GA

Constituent	CAS #	Units	Residential RRS Type 1 and 2 [Higher Value of Type 1 and 2 RRS]	Non-Residential RRS Type 3 and Type 4 [Higher Value of Type 3 and 4 RRS]
Volatile Organic Compounds				
Acetone	67-64-1	mg/L	8	46
Acetonitrile	75-05-8	mg/L	0.2	0.2
Acetophenone	98-86-2	mg/L	4	10
Acrolein	107-02-8	mg/L	0.7	0.7
Benzene	71-43-2	mg/L	0.0054	0.0087
1,1'-Biphenyl	92-52-4	mg/L	0.01	0.01
Carbon Disulfide	75-15-0	mg/L	4	4
Chlorobenzene	108-90-7	mg/L	0.1	0.14
1,4-Dichloro-2-butene	764-41-0	mg/L	0.001	0.001
trans-1,4-Dichloro-2-butene	110-57-6	mg/L	0.002	0.002
1,2-Dichloropropane	78-87-5	mg/L	0.005	0.0074
Ethylbenzene	100-41-4	mg/L	0.7	0.7
Ethyl Methacrylate	97-63-2	mg/L	3	3
Isobutyl Alcohol	78-83-1	mg/L	10	31
Methyl Ethyl Ketone	78-93-3	mg/L	2.3	12
Methyl Isobutyl Ketone	108-10-1	mg/L	2	4.2
Styrene	100-42-5	mg/L	0.5	2.6
Tetrachloroethene	127-18-4	mg/L	0.019	0.098
Toluene	108-88-3	mg/L	1	5.2
Total Xylenes[1]	1330-20-7	mg/L	10	10
m-Xylene[1]	108-38-3	mg/L	0.058	0.29
o-Xylene[1]	95-47-6	mg/L	0.058	0.29
p-Xylene[1]	106-42-3	mg/L	0.058	0.29
Semi-Volatile Organic Compounds (excluding Polynuclear Aromatic Hydrocarbons)				
Aniline	62-53-3	mg/L	0.11	0.5
Bis(2-ethylhexyl)phathalate	117-81-7	mg/L	0.061	0.2
Butyl Benzyl Phthlate	85-68-7	mg/L	3.129	15.061
Total Cresols	1319-77-3	mg/L	1.6	10
m-Cresol	108-39-4	mg/L	0.78	5.1
o-Cresol	95-48-7	mg/L	0.78	5.1
p-Creso	106-44-5	mg/L	1.560	10
Dibenzofuran	132-64-9	mg/L	0.016	0.01
2,4-Dimethylphenol	105-67-9	mg/L	0.7	2
m-Dinitrobenzene	99-65-0	mg/L	0.01	0.01
Di-n-octyl Phthalate	117-84-0	mg/L	0.7	0.7
1,4-Dioxane	123-91-1	mg/L	0.07	0.07
Formaldehyde	50-00-0	mg/L	1	20
Ni-Nitroso-di-N-butylamine	924-16-3	mg/L	0.01	0.01
N-Nitrosomethylethylamine	10595-95-6	mg/L	0.01	0.01
Semi-Volatile Organic Compounds (Polynuclear/Polycyclic Aromatic Hydrocarbons)				
Acenaphthene	83-32-9	mg/L	2	6.1
Acenaphthylene	208-96-8	mg/L	0.01	0.01
Anthracene	120-12-7	mg/L	4.7	31
Benz[a]anthacene	56-55-3	mg/L	0.01	0.01
Benzo[a]pyrene	50-32-8	mg/L	0.01	0.01
Benzo[b]fluoranthene	205-99-2	mg/L	0.01	0.01
Benzo[g,h,i]perylene	191-24-2	mg/L	0.01	0.01
Benzo(k)fluoranthene	207-08-9	mg/L	0.012	0.039
Chrysene	218-01-9	mg/L	0.12	0.04
Dibenz[a,h]anthracene	53-70-3	mg/L	0.01	0.01
Fluoranthene	206-44-0	mg/L	1	4.1
Fluorene	86-73-7	mg/L	1	4.1
Indeno(1,2,3-cd)pyrene	193-39-5	mg/L	0.01	0.01
Naphthalene	91-20-3	mg/L	0.02	0.02
Phenanthrene	85-01-8	mg/L	0.01	0.01
Pyrene	129-00-0	mg/L	1	3.1

Table 1b
Groundwater Risk Reduction Standards
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, GA

Constituent	CAS #	Units	Residential RRS Type 1 and 2 [Higher Value of Type 1 and 2 RRS]	Non-Residential RRS Type 3 and Type 4 [Higher Value of Type 3 and 4 RRS]
Dioxins, Chlorinated Dibenzofurans, and Dioxin-Like PCBs				
2,3,7,8-TCDD [2]		mg/L	0.00001	0.00001
Pesticides				
Endrin	72-20-8	mg/L	0.0047	0.031
Endrin aldehyde	7421-93-4	mg/L	0.0001	0.0001
DDT	50-29-3	mg/L	0.0025	0.0084
Methoxychlor	72-43-5	mg/L	0.078	0.51
Parathion	56-38-2	mg/L	0.2	0.61
Polychlorinated Biphenyls				
Total PCBs [3,4]	1336-36-3	mg/L	0.0005	0.0014
Aroclor 1254	11097-69-1	mg/L	0.0005	0.0014
Aroclor 1260	11096-82-5	mg/L	0.0005	0.0014
Inorganics				
Ammonia	7664-41-7	mg/L	30	30
Asbestos	1332-21-4	(MFL)	7	7
Fluoride	16984-48-8	mg/L	4	4.1
pH	NA	s.u.	>2 and <12.5	>2 and <12.5

NOTES:

NA - Not applicable

mg/kg - milligrams per kilogram

mg/L - millograms per liter

MFL - million fibers per liter

ppm - parts per million

RRS - Risk Reduction Standard

s.u. - Standard unit

1 The applicable groundwater delineation standard for this individual isomer is 0.001 if analytical results are reported as the individual isomers. If m- and p- isomer concentrations are only reported as combined isomer concentrations, the delineation standard defaults to the detection limit/PQL of 0.002 as proposed on revised Table 8 (second revision of the VIRP).

2 Summed TEF-adjusted concentrations for detected polychlorinated dioxin, furans, and dioxin-like PCBs in a single sample to be compared to these media standards.

3 PCBs are regulated as Aroclors (mixtures of various PCB homologues/congeners), total PCBs (summation of the concentrations the 197 individual non-dioxin-like PCB congeners), and the individual regulated 12 dioxin-like PCB congeners. Detected concentrations of the dioxin-like PCB congeners should be addressed using the TEF method along with the detected dioxins and chlorinated dibenzofurans.

4 Values shown are consistent with Georgia Hazardous Site Response Rules. However, detections of PCBs in soil or groundwater may be subject to the Federal Toxic Substance Control Act (TSCA) and cleanup standards set forth within it. Participant should contact EPA regarding the applicability of TSCA at this site.

Table 1c
Soil Cleanup Standards
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, GA

Constituent	CAS #	Units	Residential RRS Type 1 and 2 [Higher Value of Type 1 and 2 RRS]	Non-Residential RRS Type 3 and Type 4 [Higher Value of Type 3 and 4 RRS]
Volatile Organic Compounds				
Acetone	67-64-1	mg/kg	400	400
Acetonitrile	75-05-8	mg/kg	20	20
Acetophenone	98-86-2	mg/kg	400	400
Acrolein	107-02-8	mg/kg	0.1	0.1
Benzene	71-43-2	mg/kg	0.5	0.5
1,1'-Biphenyl	92-52-4	mg/kg	1	1
Carbon Disulfide	75-15-0	mg/kg	400	400
Chlorobenzene	108-90-7	mg/kg	10	10
1,4-Dichloro-2-butene	764-41-0	mg/kg	0.110	0.100
trans-1,4-Dichloro-2-butene	110-57-6	mg/kg	0.113	0.140
1,2-Dichloropropane	78-87-5	mg/kg	0.5	0.5
Ethylbenzene	100-41-4	mg/kg	70	70
Ethyl Methacrylate	97-63-2	mg/kg	300	300
Isobutyl Alcohol	78-83-1	mg/kg	1000	1000
Methyl Ethyl Ketone	78-93-3	mg/kg	200	200
Methyl Isobutyl Ketone	108-10-1	mg/kg	200	200
Styrene	100-42-5	mg/kg	14	14
Tetrachloroethene	127-18-4	mg/kg	0.5	0.5
Toluene	108-88-3	mg/kg	100	100
Total Xylenes[1]	1330-20-7	mg/kg	1000	1000
m-Xylene[1]	108-38-3	mg/kg	20	20
o-Xylene[1]	95-47-6	mg/kg	20	20
p-Xylene[1]	106-42-3	mg/kg	20	20
Semi-Volatile Organic Compounds (excluding Polynuclear Aromatic Hydrocarbons)				
Aniline	62-53-3	mg/kg	2	2
Bis(2-ethylhexyl)phathalate	117-81-7	mg/kg	50	50
Butyl Benzyl Phthlate	85-68-7	mg/kg	50	218.540
Total Cresols	1319-77-3	mg/kg	3.8	8
m-Cresol	108-39-4	mg/kg	3.80	4.1
o-Cresol	95-48-7	mg/kg	3.80	4.1
p-Creso	106-44-5	mg/kg	3.800	8
Dibenzofuran	132-64-9	mg/kg	1	1.90
2,4-Dimethylphenol	105-67-9	mg/kg	70.0	70
m-Dinitrobenzene	99-65-0	mg/kg	1.05	1.05
Di-n-octyl Phthalate	117-84-0	mg/kg	70	70
1,4-Dioxane	123-91-1	mg/kg	7	7
Formaldehyde	50-00-0	mg/kg	100	100
Ni-Nitroso-di-N-butylamine	924-16-3	mg/kg	1	1
N-Nitrosomethylethylamine	10595-95-6	mg/kg	0.68	1
Semi-Volatile Organic Compounds (Polynuclear/Polycyclic Aromatic Hydrocarbons)				
Acenaphthene	83-32-9	mg/kg	300	300
Acenaphthylene	208-96-8	mg/kg	130	130
Anthracene	120-12-7	mg/kg	500	1009
Benz[a]anthacene	56-55-3	mg/kg	5	5
Benzo[a]pyrene	50-32-8	mg/kg	1.64	1.64
Benzo[b]fluoranthene	205-99-2	mg/kg	5	5
Benzo[g,h,i]perylene	191-24-2	mg/kg	500	500
Benzo(k)fluoranthene	207-08-9	mg/kg	5	46
Chrysene	218-01-9	mg/kg	5	141
Dibenz[a,h]anthracene	53-70-3	mg/kg	2	5
Fluoranthene	206-44-0	mg/kg	500	500
Fluorene	86-73-7	mg/kg	360	360
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	5	15
Naphthalene	91-20-3	mg/kg	100	100
Phenanthrene	85-01-8	mg/kg	110	110
Pyrene	129-00-0	mg/kg	500	500
Dioxins, Chlorinated Dibenzofurans, and Dioxin-Like PCBs				

Table 1c
Soil Cleanup Standards
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, GA

Constituent	CAS #	Units	Residential RRS Type 1 and 2 [Higher Value of Type 1 and 2 RRS]	Non-Residential RRS Type 3 and Type 4 [Higher Value of Type 3 and 4 RRS]
2,3,7,8-TCDD [2]		mg/kg	0.00012	4.40E-04
Pesticides				
Endrin	72-20-8	mg/kg	10	10
Endrin aldehyde	7421-93-4	mg/kg	10	10
DDT	50-29-3	mg/kg	0.66	2.80
Methoxychlor	72-43-5	mg/kg	10	28
Parathion	56-38-2	mg/kg	20	20
Polychlorinated Biphenyls				
Total PCBs [3,4]	1336-36-3	mg/kg	1.55	1.55
Aroclor 1254	11097-69-1	mg/kg	1.55	1.55
Aroclor 1260	11096-82-5	mg/kg	1.55	1.55
Inorganics				
Ammonia	7664-41-7	mg/kg	3000	3000
Asbestos	1332-21-4	% or ppm	1 or 10,000 ppm	1 or 10,000 ppm
Fluoride	16984-48-8	mg/kg	NA	NA
pH	NA	s.u.	>2 and <12.5	>2 and <12.5

NOTES:

NA - Not applicable

mg/kg - milligrams per kilogram

mg/L - millograms per liter

MFL - million fibers per liter

ppm - parts per million

RRS - Risk Reduction Standard

s.u. - Standard unit

1 The applicable groundwater delineation standard for this individual isomer is 0.001 if analytical results are reported as the individual isomers. If m- and p- isomer concentrations are only reported as combined isomer concentrations, the delineation standard defaults to the detection limit/PQL of 0.002 as proposed on revised Table 8 (second revision of the VIRP).

2 Summed TEF-adjusted concentrations for detected polychlorinated dioxin, furans, and dioxin-like PCBs in a single sample to be compared to these media standards.

3 PCBs are regulated as Aroclors (mixtures of various PCB homologues/congeners), total PCBs (summation of the concentrations the 197 individual non-dioxin-like PCB congeners), and the individual regulated 12 dioxin-like PCB congeners. Detected concentrations of the dioxin-like PCB congeners should be addressed using the TEF method along with the detected dioxins and chlorinated dibenzofurans.

4 Values shown are consistent with Georgia Hazardous Site Response Rules. However, detections of PCBs in soil or groundwater may be subject tc the Federal Toxic Substance Control Act (TSCA) and cleanup standards set forth within it. Participant should contact EPA regarding the applicability of TSCA at this site.

Table 2
Well Construction
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, GA

Well Id	Install Date	Total Depth (ft. btoc)	Approximate Total Depth (ft. bgs)	Casing Length (ft. bgs)	Screen Interval (ft. bgs) (top)	(bottom)	Well Completion	Site Area	Ground Elevation (ft. amsl)	Top of Casing Elevation (ft. amsl)	Well Diameter (inches)	Construction Material
Shallow Monitoring Wells												
MWA	--	--	10.4	--	--	10.4	--	Resin Areas	--	--	--	--
MWB	--	--	10.2	--	--	10.2	--	Resin Areas	--	--	--	--
MWC	--	--	10.2	--	--	10.2	--	Resin Areas	--	--	--	--
MWD	--	--	8.8	--	--	8.8	--	Resin Areas	--	--	--	--
MW-F1	10/19/2000	22.58	20	10	10	20	Stick-up	Resin Areas	7.13	9.55	2	PVC
MW-F2	10/24/2000	11.82	10	5	5	10	--	Resin Areas	7.70	7.51	2	PVC
MW-F3	10/19/2000	--	20	10	10	20	--	Resin Areas	--	--	2	PVC
MW-F3R	11/6/2008	22.90	20	10	10	20	Stick-up	Resin Areas	8.32	12.53	2	PVC
MW-F4	10/18/2000	--	20	10	10	20	--	Resin Areas	--	--	2	PVC
MW-F5	10/18/2000	22.26	20	10	10	20	Stick-up	Resin Areas	9.07	11.49	2	PVC
MW-F6	10/19/2000	19.73	20	10	10	20	Flush mount	Resin Areas	8.97	8.59	2	PVC
MW-F7	10/18/2000	23.14	20	10	10	20	Stick-up	Resin Areas	10.70	13.23	2	PVC
MW-F8	10/20/2000	20.60	20	10	10	20	Stick-up	Resin Areas	11.22	12.59	2	PVC
MW-F9	10/17/2000	NM	20	10	10	20	--	Resin Areas	12.00	11.78	2	PVC
MW-F10	10/17/2000	NM	20	10	10	20	--	Resin Areas	--	--	2	PVC
MW-F11	10/18/2000	19.66	20	10	10	20	Flush mount	Resin Areas	8.80	8.58	2	PVC
MW-F12	10/18/2000	20.47	20	10	10	20	Flush mount	Resin Areas	9.47	9.34	2	PVC
MW-F13	10/17/2000	23.32	20	10	10	20	Stick-up	Resin Areas	15.66	18.47	2	PVC
MW-F14	10/16/2000	22.52	20	10	10	20	Stick-up	Resin Areas	6.05	8.38	2	PVC
MW-F15	10/19/2000	19.98	20	10	10	20	Flush mount	Resin Areas	9.87	9.79	2	PVC
MW-F16	10/16/2000	22.42	20	10	10	20	Stick-up	Resin Areas	6.03	8.51	2	PVC
MW-F17	10/17/2000	22.83	20	10	10	20	Stick-up	Resin Areas	8.93	11.36	2	PVC
MW-F19	10/16/2000	22.84	20	10	10	20	Stick-up	Resin Areas	7.68	10.47	2	PVC
MW-F20	10/23/2000	--	13	3	3	13	--	Resin Areas	--	--	2	PVC
MW-F21	10/23/2000	23.33	20	10	10	20	Stick-up	Resin Areas	9.96	12.46	2	PVC
MW-22	10/29/2002	21.39	20	10	10	20	Stick-up	Shallow Background Well	7.36	10.06	2	PVC
MW-23	10/28/2002	23.41	20	10	10	20	Stick-up	Resin Areas	7.08	9.4	2	PVC
MW-24	10/28/2002	22.95	20	10	10	20	Stick-up	Resin Areas	7.71	10.23	2	PVC
MW-25	10/29/2002	21.34	20	10	10	20	Stick-up	Shallow Background Well	10.32	12.72	2	PVC
MW-26	10/30/2002	24.01	20	10	10	20	Stick-up	Size Tank Farm	13.69	15.69	2	PVC

Table 2
Well Construction
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, GA

Well Id	Install Date	Total Depth (ft. btoc)	Approximate Total Depth (ft. bgs)	Casing Length (ft. bgs)	Screen Interval (ft. bgs) (top)	(bottom)	Well Completion	Site Area	Ground Elevation (ft. amsl)	Top of Casing Elevation (ft. amsl)	Well Diameter (inches)	Construction Material
MW-27	12/17/2002	19.99	20	10	10	20	Flush mount	Resin Areas	10.36	10.23	2	PVC
MW-28	12/17/2002	24.54	20	10	10	20	Stick-up	Shallow Background Well	7.60	10.5	2	PVC
MW-29	11/6/2008	22.50	20	10	10	20	Stick-up	Resin Areas	9.58	12.8	2	PVC
MW-32	11/18/2008	21.98	20	10	10	20	Stick-up	Shallow Background Well	5.30	7.05	2	PVC
Deep Monitoring Wells												
MWD-22	10/29/2002	42.61	50	40	40	50	Stick-up	Resin Areas	7.71	10.05	2	PVC
MWD-23	11/1/2002	48.98	50	40	40	50	Stick-up	Resin Areas	6.83	9.27	2	PVC
MWD-24	10/29/2002	47.43	50	40	40	50	Stick-up	Deep Background Well	7.67	10.34	2	PVC
MWD-25	10/30/2002	48.07	50	40	40	50	Stick-up	Deep Background Well	10.26	12.58	2	PVC
MWD-27	12/17/2002	45.02	50	40	40	50	Flush mount	Resin Areas	10.25	10.09	2	PVC
MWD-28	12/17/2002	49.05	50	40	40	50	Stick-up	Deep Background Well	7.27	10.66	2	PVC
MWD-29	11/10/2008	51.10	50	40	40	50	Stick-up	Resin Areas	9.51	13.56	2	PVC
MWD-30	11/11/2008	52.78	50	40	40	50	Stick-up	Resin Areas	10.06	13.41	2	PVC
MWD-F1	10/17/2000	103.30	100	80	80	100	Stick-up	Resin Areas	6.92	9.25	2	PVC
MWD-F2	10/17/2000	103.25	100	80	80	100	Stick-up	Resin Areas	7.80	10.52	2	PVC
MWD-F3	10/18/2000	90.22	87	67	67	87	Stick-up	Resin Areas	8.77	11.23	2	PVC
Temporary Wells												
Well-1	1/7/1998	--	19	--	--	19	--	Size Tank Farm			--	--
Well-2	1/7/1998	--	17	--	--	17	--	Size Tank Farm			--	--
Well-3	1/7/1998	--	17	--	--	17	--	Size Tank Farm			--	--
TMW-5	7/6/2000	--	~12-16	--	--	~12-16	--	50s Tank and Hard Resin Area			--	--
TMW-6	7/6/2000	--	~12-16	--	--	~12-16	--	50s Tank and Hard Resin Area			--	--
TMW-7	7/6/2000	--	~12-16	--	--	~12-16	--	50s Tank and Hard Resin Area			--	--
TMW-10	7/6/2000	--	~12-16	--	--	~12-16	--	50s Tank and Hard Resin Area			--	--
TMW-11	7/6/2000	--	~12-16	--	--	~12-16	--	50s Tank and Hard Resin Area			--	--
TMW-12	7/6/2000	--	~12-16	--	--	~12-16	--	50s Tank and Hard Resin Area			--	--
TMW-13	7/6/2000	--	~12-16	--	--	~12-16	--	50s Tank and Hard Resin Area			--	--
TMW-14	7/6/2000	--	~12-16	--	--	~12-16	--	50s Tank and Hard Resin Area			--	--
TMW-15	7/6/2000	--	~12-16	--	--	~12-16	--	50s Tank and Hard Resin Area			--	--
TMW-16	7/6/2000	--	~12-16	--	--	~12-16	--	50s Tank and Hard Resin Area			--	--
TMW-17	6/6/2000	--	~12-16	--	--	~12-16	--	50s Tank and Hard Resin Area			--	--

Table 2
Well Construction
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, GA

Well Id	Install Date	Total Depth (ft. btoc)	Approximate Total Depth (ft. bgs)	Casing Length (ft. bgs)	Screen Interval (ft. bgs) (top)	(bottom)	Well Completion	Site Area	Ground Elevation (ft. amsl)	Top of Casing Elevation (ft. amsl)	Well Diameter (inches)	Construction Material
Onsite Production Wells												
Well 1 (12")	~1955	--	1000	270	open borehole		--	--			12	--
Well 2 (10")	~1950	--	750	250	open borehole		--	--			10	--
Well 3 (8")	Before January 195	--	--	--	--	--	--	--			8	--

Notes:
ft. btoc = feet below top of casing
ft. bgs = feet below ground surface
ft. amsl = feet above mean seal level
-- unknown or not applicable
grey shading = well abandoned or destroyed

Table 3
Groundwater Elevation Data
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, Georgia

		November 2, 2015		May 2, 2016	
Well Number	Top of Casing Elevation (feet msl)	Depth to Water (feet)	Groundwater Elevation (feet msl)	Depth to Water (feet)	Groundwater Elevation (feet msl)
MW-F1	9.55	4.45	5.10	4.29	5.26
MW-F2	7.51	5.56	1.95	4.95	2.56
MW-F3R	12.53	6.99	5.54	6.96	5.57
MW-F5	11.49	6.10	5.39	6.18	5.31
MW-F6	8.59	3.90	4.69	3.23	5.36
MW-F7	13.23	5.48	7.75	5.45	7.78
MW-F8	12.59	5.14	7.45	4.97	7.62
MW-F9	11.78	3.64	8.14	3.13	8.65
MW-F11	8.58	2.00	6.58	2.08	6.50
MW-F12	9.34	2.97	6.37	2.55	6.79
MW-F13	18.47	10.31	8.16	9.38	9.09
MW-F14	8.38	2.4	5.98	2.81	5.57
MW-F15	9.79	4.32	5.47	4.66	5.13
MW-F16	8.51	2.52	5.99	2.85	5.66
MW-F17	11.36	5.72	5.64	5.77	5.59
MW-F19	10.47	5.05	5.42	4.42	6.05
MW-F21	12.46	6.89	5.57	5.98	6.48
MW-22	10.06	3.10	6.96	5.21	4.85
MW-23	9.4	5.66	3.74	5.62	3.78
MW-24	10.23	4.69	5.54	4.80	5.43
MW-25	12.72	5.62	7.10	5.56	7.16
MW-26	15.69	8.57	7.12	8.17	7.52
MW-27	10.23	2.34	7.89	2.36	7.87
MW-28	10.5	6.84	3.66	6.23	4.27
MW-29	12.8	5.09	7.71	5.14	7.66
MW-32	7.05	3.45	3.60	3.64	3.41
Deep Monitoring Wells					0.00
MWD-22	10.05	4.3	5.75	3.51	6.54
MWD-23	9.27	7.29	1.98	7.13	2.14
MWD-24	10.34	4.53	5.81	4.56	5.78
MWD-25	12.58	6.09	6.49	6.26	6.32
MWD-27	10.09	3.22	6.87	3.21	6.88
MWD-28	10.66	Destroyed		Destroyed	
MWD-29	13.56	6.92	6.64	6.92	6.64
MWD-30	13.41	8.34	5.07	8.29	5.12
MWD-F1	9.25	30.11	-20.86	29.72	-20.47
MWD-F2	10.52	21.11	-10.59	20.80	-10.28
MWD-F3	11.23	16.95	-5.72	17.06	-5.83

Table 4
Groundwater Analytical Summary
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, Georgia

Sample Info		Analyses			
Well ID	**Sample ID**	**VOCs**	**SVOCs**	**Aroclors and congeners**	**ACM (asbestos)**
	Sample Container	40mL VOA glass	1L Amber glass	2 - 1L Amber	2 - 1L Plastic
	Preservative	HCl	None	None	None
	Analytical Method	8260B	8270C	8082A (include 1262 and 1268), 1668B	600-R-93-116
MW-F21	MW-F21 (MMDDYY)	X	X		
MW-F3R	MW-F3R (MMDDYY)			X	
MW-F5	MW-F5 (MMDDYY)	X	X		
MW-F7	MW-F7 (MMDDYY)	X	X		
MW-F15*	MW-F15 (MMDDYY)	benzene			X
MW-27	MW-27 (MMDDYY)	X	X		
MW-29	MW-29 (MMDDYY)	X	X		
MWD-30	MWD-30 (MMDDYY)	X	X		
DUP-01	DUP-01 (MMDDYY)	X			
Trip Blank	Trip Blank (MMDDYY)	X			
	Totals	8	6	1	1

REVISED March 2016
MW-F15* is analyzed for benzene and ACM only.

Table 5a
Groundwater Analytical Data, VOCs and SVOCs, May 2016
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, GA

				Well	MW-27	MW-29	MWD-30	MW-F15	MW-F21	MW-F5	MW-F5	MW-F7
				Sample Matrix	GW	GW	GW	GW	GW	GW	GW	GW
				Date	5/3/2016	5/3/2016	5/3/2016	5/3/2016	5/3/2016	5/3/2016	5/3/2016	5/3/2016
				Sample Depth (ft bgs)	10-20	10-20	10-20	10-20	10-20	10-20	10-20	10-20
				Sample Type	N	N	N	N	N	N	FD	N
Constituent	**CAS**	**Units**	**Type 1 RRS**	**Type 3/4 RRS**								
VOCs												
1,2-Dichloropropane	78-87-5	ug/l	5	7.4	< 5.0 U	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	< 1.0 U	< 5.0 U
2-Butanone (MEK)	78-93-3	ug/l	2000	12000	< 250 U	< 250 U	< 250 U	NA	< 250 U	< 250 U	< 50 U	< 250 U
2-Methyl-1-propanol	78-83-1	ug/l	10000	31000	< 250 U	< 250 U	< 250 U	NA	< 250 U	< 250 U	< 50 U	< 250 U
4-Methyl-2-Pentanone	108-10-1	ug/l	2000	4200	< 50 U	< 50 U	< 50 U	NA	< 50 U	< 50 U	< 10 U	< 50 U
Acetone	67-64-1	ug/l	4000	46000	< 130 U	< 130 U	< 130 U	NA	60 J	25 J	< 25 U	< 130 U
Acetonitrile	75-05-8	ug/l	200	200	< 100 U	< 100 U	< 100 U	NA	< 100 U	< 100 U	< 20 U	< 100 U
Acrolein	107-02-8	ug/l	700	700	< 250 U	< 250 U	< 250 U	NA	< 250 U	< 250 U	< 50 U	< 250 U
Benzene	71-43-2	ug/l	5	8.7	< 5.0 U	< 5.0 U	< 5.0 U	< 1.0 U	1.5 J	< 5.0 U	< 1.0 U	< 5.0 U
Carbon Disulfide	75-15-0	ug/l	4000	4000	< 5.0 U	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	< 1.0 U	< 5.0 U
Chlorobenzene	108-90-7	ug/l	100	140	< 5.0 U	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	< 1.0 U	< 5.0 U
Ethyl Methacrylate	97-63-2	ug/l	3000	3000	< 50 U	< 50 U	< 50 U	NA	< 50 U	< 50 U	< 10 U	< 50 U
Ethylbenzene	100-41-4	ug/l	700	700	< 5.0 U	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	< 1.0 U	< 5.0 U
o,p-Xylene	136777-61-2	ug/l			< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U	< 2.0 U	< 10 U
o-Xylene	95-47-6	ug/l			< 5.0 U	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	< 1.0 U	< 5.0 U
Styrene (Monomer)	100-42-5	ug/l	100	2600	< 5.0 U	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	< 1.0 U	< 5.0 U
Tetrachloroethene	127-18-4	ug/l	5	98	0.92 J	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	< 1.0 U	2.0 J
Toluene	108-88-3	ug/l	1000	5200	< 5.0 U	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	< 1.0 U	< 5.0 U
Total Xylenes	1330-20-7	ug/l	2	10000	< 15 U	< 15 U	< 15 U	NA	< 15 U	< 15 U	< 3.0 U	< 15 U
trans-1,4-Dichloro-2-butene	110-57-6	ug/l	2	2	< 25 U	< 25 U	< 25 U	NA	< 25 U	< 25 U	< 5.0 U	< 25 U
SVOCs												
1,1-Biphenyl	92-52-4	ug/l	10	10	< 1.2 U	< 1.2 U	< 1.1 U	NA	< 0.99 UF2	< 1.2 U	NA	< 1.2 U
1,4-Dioxane	123-91-1	ug/l	70	70	< 2.4 U	< 2.4 U	< 2.3 U	NA	13	< 2.4 U	NA	< 2.3 U
2,4-Dimethylphenol	105-67-9	ug/l	700	2000	< 2.4 U	< 2.4 U	< 2.3 U	NA	< 2.0 U	< 2.4 U	NA	< 2.3 U
2-Methylphenol	95-48-7	ug/l	10	5100	< 2.4 U	< 2.4 U	< 2.3 U	NA	< 2.0 UF1F2	< 2.4 U	NA	< 2.3 U
4-Methylphenol	106-44-5	ug/l	10	10000	< 2.4 U	< 2.4 U	< 2.3 U	NA	< 2.0 U	< 2.4 U	NA	< 2.3 U
Acenaphthene	83-32-9	ug/l	2000	6100	< 0.24 U	< 0.24 U	< 0.23 U	NA	2.2	9.6	NA	< 0.23 U
Acenaphthylene	208-96-8	ug/l	10	10	< 0.24 U	< 0.24 U	< 0.23 U	NA	< 0.20 U	< 0.24 U	NA	< 0.23 U
Acetophenone	98-86-2	ug/l	4000	10000	< 1.2 U	< 1.2 U	< 1.1 U	NA	< 0.99 U	< 1.2 U	NA	< 1.2 U
Aniline	62-53-3	ug/l	20	500	< 2.4 U	< 2.4 U	< 2.3 U	NA	< 2.0 UF1	< 2.4 U	NA	< 2.3 U
Anthracene	120-12-7	ug/l	10	31000	< 0.24 U	< 0.24 U	< 0.23 U	NA	< 0.20 UF1	< 0.24 U	NA	< 0.23 U
Benzo(a)anthracene	56-55-3	ug/l	10	10	< 0.24 U	< 0.24 U	< 0.23 U	NA	< 0.20 U	< 0.24 U	NA	< 0.23 U
Benzo(a)pyrene	50-32-8	ug/l	10	10	< 0.24 U	< 0.24 U	< 0.23 U	NA	< 0.20 U	< 0.24 U	NA	< 0.23 U
Benzo(b)fluoranthene	205-99-2	ug/l	10	10	< 0.24 U	< 0.24 U	< 0.23 U	NA	< 0.20 U	< 0.24 U	NA	< 0.23 U
Benzo(g,h,i)perylene	191-24-2	ug/l	10	10	< 0.24 U	< 0.24 U	< 0.23 U	NA	< 0.20 UF1	< 0.24 U	NA	< 0.23 U
Benzo(k)fluoranthene	207-08-9	ug/l	10	39	< 0.24 U	< 0.24 U	< 0.23 U	NA	< 0.20 UF1	< 0.24 U	NA	< 0.23 U
bis(2-Ethylhexyl)phthalate	117-81-7	ug/l	10	200	< 6.0 U	< 6.0 U	< 5.6 U	NA	< 4.9 U	< 6.1 U	NA	< 5.8 U
Butyl benzyl phthalate	85-68-7	ug/l	100	15061	< 1.2 U	< 1.2 U	< 1.1 U	NA	< 0.99 U	< 1.2 U	NA	< 1.2 U
Chrysene	218-01-9	ug/l	10	40	< 0.24 U	< 0.24 U	< 0.23 U	NA	< 0.20 U	< 0.24 U	NA	< 0.23 U
Dibenzo(a,h)anthracene	53-70-3	ug/l	10	10	< 0.24 U	< 0.24 U	< 0.23 U	NA	< 0.20 UF1	0.16 J	NA	< 0.23 U
Dibenzofuran	132-64-9	ug/l	10	10	< 1.2 U	< 1.2 U	0.15 J	NA	< 0.99 U	< 1.2 U	NA	< 1.2 U
Di-n-octyl phthalate	117-84-0	ug/l	700	700	< 1.2 U	< 1.2 U	< 1.1 U	NA	< 0.99 U	< 1.2 U	NA	< 1.2 U
Fluoranthene	206-44-0	ug/l	1000	4100	< 0.24 U	< 0.24 U	< 0.23 U	NA	< 0.20 U	< 0.24 U	NA	< 0.23 U
Fluorene	86-73-7	ug/l	1000	4100	< 0.24 U	< 0.24 U	0.13 J	NA	0.42	< 0.24 U	NA	< 0.23 U
Indeno(1,2,3-cd)pyrene	193-39-5	ug/l	10	10	< 0.24 U	< 0.24 U	< 0.23 U	NA	< 0.20 U	< 0.24 U	NA	< 0.23 U
Methylphenol	1319-77-3	ug/l			< 4.8 U	< 4.8 U	< 4.5 U	NA	< 4.0 U	< 4.9 U	NA	< 4.6 U
Naphthalene	91-20-3	ug/l	**20**	20	< 0.24 U	< 0.24 U	< 0.23 U	NA	**66**	< 0.24 U	NA	< 0.23 U
n-Nitrosodi-n-butylamine	924-16-3	ug/l	10	10	< 1.2 U	< 1.2 U	< 1.1 U	NA	< 0.99 U	< 1.2 U	NA	< 1.2 U
N-Nitroso-N-methylethylamine	10595-95-6	ug/l	10	10	< 2.4 U	< 2.4 U	< 2.3 U	NA	< 2.0 U	< 2.4 U	NA	< 2.3 U
Parathion	56-38-2	ug/l	200	610	< 2.4 U	< 2.4 U	< 2.3 U	NA	< 2.0 U	< 2.4 U	NA	< 2.3 U
Phenanthrene	85-01-8	ug/l	10	10	< 0.24 U	< 0.24 U	< 0.23 U	NA	< 0.20 U	< 0.24 U	NA	< 0.23 U
Pyrene	129-00-0	ug/l	1000	3100	< 0.24 U	< 0.24 U	< 0.23 U	NA	< 0.20 U	< 0.24 U	NA	< 0.23 U
pH	---	s.u.	≥2 and ≤12.5	≥2 and ≤12.5	4.39	4.78	7.27	6.6	5.64	6.79	6.79	4.6

Notes:

1. Highlighted values indicated concentrations above Type 1 RRS
2. Bolded values indicated concentrations above Type 3/4 RRS
3. pH values were recorded in the field.
4. Type 1 RRS is used for delineation and the higher of the Type 3 and Type 4 RRS is used for the cleanup standard.

U = Not detected above reporting limit
< = Concentration is less than the reporting limit
* LCS or LCSD exceeds the control limits
-- Not Analyzed
FD = Field Duplicate
ft bgs = feet below ground surface
GW = Groundwater
N = Normal Sample
RRS = Risk Reduction Standard
s.u. = Standard Unit
SVOC = Semivolatile organic compound
µg/L = micrograms per liter
VOC = Volatile organic compounds

Table 5b
Groundwater Analytical Data, PCBs, May 2016
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, GA

				Well	**MW-F3R**
				Sample Matrix	**GW**
				Date	**5/3/2016**
				Sample Depth (ft bgs)	**10-20**
				Sample Type	**N**
Constituent	**CAS**	**Units**	**Type 1 RRS**	**Type 3/4 RRS**	
PCBs					
Aroclor Mixtures					
Aroclor 1254	11097-69-1	ug/l	0.5	1.4	< 1.1 U
Aroclor 1260	11096-82-5	ug/l	0.5	1.4	< 1.1 U
Aroclor 1262	37324-23-5	ug/l			< 1.1 U
Aroclor 1268	11100-14-4	ug/l			< 1.1 U
Dioxin-like PCB Congeners					
PCB-105	32598-14-4	pg/l			< 20 U
PCB-114	74472-37-0	pg/l			< 20 U
PCB-118	31508-00-6	pg/l			3.7 J
PCB-126	57465-28-8	pg/l			< 20 U
PCB-156	38380-08-4	pg/l			< 41 U
PCB-167	52663-72-6	pg/l			< 20 U
PCB-169	32774-16-6	pg/l			< 20 U
PCB-189	39635-31-9	pg/l			< 20 U
PCB-77	32598-13-3	pg/l			< 20 U
PCB-81	70362-50-4	pg/l			< 20 U
Non-Dioxin-like PCB Congeners					
PCB-1	2051-60-7	pg/l			6.1 J
PCB-10	33146-45-1	pg/l			< 200 U
PCB-103	60145-21-3	pg/l			< 200 U
PCB-104	56558-16-8	pg/l			< 200 U
PCB-106	70424-69-0	pg/l			< 200 U
PCB-107/124	107-124	pg/l			< 410 U
PCB-109	74472-35-8	pg/l			< 200 U
PCB-11	2050-67-1	pg/l			< 200 U
PCB-110/115	110-115	pg/l			4.2 JB
PCB-111	39635-32-0	pg/l			< 200 U
PCB-112	74472-36-9	pg/l			< 200 U
PCB-12/13	12-13	pg/l			< 410 U
PCB-120	68194-12-7	pg/l			< 200 U
PCB-121	56558-18-0	pg/l			< 200 U
PCB-122	76842-07-4	pg/l			< 200 U
PCB-123	65510-44-3	pg/l			< 20 U
PCB-127	39635-33-1	pg/l			< 200 U
PCB-128/166	128-166	pg/l			< 410 U
PCB-129/138/163	129-138-163	pg/l			4.8 JB
PCB-130	52663-66-8	pg/l			< 200 U
PCB-131	61798-70-7	pg/l			< 200 U
PCB-132	38380-05-1	pg/l			< 200 U
PCB-133	35694-04-3	pg/l			< 200 U
PCB-134/143	134-143	pg/l			< 410 U
PCB-135/151	135-151	pg/l			< 410 U
PCB-136	38411-22-2	pg/l			< 200 U
PCB-137	35694-06-5	pg/l			< 200 U
PCB-139/140	139-140	pg/l			< 410 U
PCB-14	34883-41-5	pg/l			< 200 U
PCB-141	52712-04-6	pg/l			< 200 U
PCB-142	41411-61-4	pg/l			< 200 U
PCB-144	68194-14-9	pg/l			< 200 U
PCB-145	74472-40-5	pg/l			< 200 U
PCB-146	51908-16-8	pg/l			< 200 U
PCB-147/149	147-149	pg/l			3.1 JB
PCB-148	74472-41-6	pg/l			< 200 U
PCB-15	2050-68-2	pg/l			< 200 U
PCB-150	68194-08-1	pg/l			< 200 U
PCB-152	68194-09-2	pg/l			< 200 U
PCB-153/168	153-168	pg/l			2.8 JB
PCB-154	60145-22-4	pg/l			< 200 U
PCB-155	33979-03-2	pg/l			< 200 U
PCB-158	74472-42-7	pg/l			< 200 U
PCB-159	39635-35-3	pg/l			< 200 U
PCB-16	38444-78-9	pg/l			< 200 U
PCB-160	41411-62-5	pg/l			< 200 U
PCB-161	74472-43-8	pg/l			< 200 U
PCB-162	39635-34-2	pg/l			< 200 U
PCB-164	74472-45-0	pg/l			< 200 U
PCB-165	74472-46-1	pg/l			< 200 U
PCB-17	37680-66-3	pg/l			< 200 U
PCB-170	35065-30-6	pg/l			< 200 U
PCB-171/173	171-173	pg/l			< 410 U
PCB-172	52663-74-8	pg/l			< 200 U
PCB-174	38411-25-5	pg/l			< 200 U
PCB-175	40186-70-7	pg/l			< 200 U
PCB-176	52663-65-7	pg/l			< 200 U
PCB-177	52663-70-4	pg/l			< 200 U
PCB-178	52663-67-9	pg/l			< 200 U
PCB-179	52663-64-6	pg/l			< 200 U
PCB-18/30	18-30	pg/l			< 410 U
PCB-180/193	180-193	pg/l			2.0 J
PCB-181	74472-47-2	pg/l			< 200 U
PCB-182	60145-23-5	pg/l			< 200 U
PCB-183	52663-69-1	pg/l			1.8 JB
PCB-184	74472-48-3	pg/l			< 200 U
PCB-185	52712-05-7	pg/l			< 200 U
PCB-186	74472-49-4	pg/l			< 200 U
PCB-187	52663-68-0	pg/l			< 200 U
PCB-188	74487-85-7	pg/l			< 200 U
PCB-19	38444-73-4	pg/l			< 200 U
PCB-190	41411-64-7	pg/l			< 200 U
PCB-191	74472-50-7	pg/l			< 200 U
PCB-192	74472-51-8	pg/l			< 200 U
PCB-194	35694-08-7	pg/l			< 200 U
PCB-195	52663-78-2	pg/l			< 200 U
PCB-196	42740-50-1	pg/l			< 200 U
PCB-197	33091-17-7	pg/l			< 200 U
PCB-198/199	198-199	pg/l			< 410 U
PCB-2	2051-61-8	pg/l			< 200 U
PCB-20/28	20-28	pg/l			< 410 U
PCB-200	52663-73-7	pg/l			< 200 U
PCB-201	40186-71-8	pg/l			< 200 U
PCB-202	2136-99-4	pg/l			< 200 U
PCB-203	52663-76-0	pg/l			< 200 U
PCB-204	74472-52-9	pg/l			< 200 U
PCB-205	74472-53-0	pg/l			< 200 U
PCB-206	40186-72-9	pg/l			< 200 U
PCB-207	52663-79-3	pg/l			< 200 U
PCB-208	52663-77-1	pg/l			< 200 U
PCB-21/33	21-33	pg/l			< 410 U
PCB-22	38444-85-8	pg/l			< 200 U
PCB-23	55720-44-0	pg/l			< 200 U
PCB-24	55702-45-9	pg/l			< 200 U
PCB-25	55712-37-3	pg/l			< 200 U

Table 5b
Groundwater Analytical Data, PCBs, May 2016
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, GA

				Well	**MW-F3R**
				Sample Matrix	**GW**
				Date	**5/3/2016**
				Sample Depth (ft bgs)	**10-20**
				Sample Type	**N**
Constituent	**CAS**	**Units**	**Type 1 RRS**	**Type 3/4 RRS**	
PCB-26/29	26-29	pg/l			< 410 U
PCB-27	38444-76-7	pg/l			< 200 U
PCB-3	2051-62-9	pg/l			< 200 U
PCB-31	16606-02-3	pg/l			< 200 U
PCB-32	38444-77-8	pg/l			< 200 U
PCB-34	37680-68-5	pg/l			< 200 U
PCB-35	37680-69-6	pg/l			< 200 U
PCB-36	38444-87-0	pg/l			< 200 U
PCB-37	38444-90-5	pg/l			< 200 U
PCB-38	53555-66-1	pg/l			< 200 U
PCB-39	38444-88-1	pg/l			< 200 U
PCB-4	13029-08-8	pg/l			< 200 U
PCB-40/71	40-71	pg/l			< 410 U
PCB-41	52663-59-9	pg/l			< 200 U
PCB-42	36559-22-5	pg/l			< 200 U
PCB-43	70362-46-8	pg/l			< 200 U
PCB-44/47/65	44-57-65	pg/l			< 610 U
PCB-45	70362-45-7	pg/l			< 200 U
PCB-46	41464-47-5	pg/l			< 200 U
PCB-48	70362-47-9	pg/l			< 200 U
PCB-49/69	49-69	pg/l			< 410 U
PCB-5	16605-91-7	pg/l			< 200 U
PCB-50/53	50-53	pg/l			< 410 U
PCB-51	68194-04-7	pg/l			< 200 U
PCB-52	35693-99-3	pg/l			4.7 JB
PCB-54	15968-05-5	pg/l			< 200 U
PCB-55	74338-24-2	pg/l			< 200 U
PCB-56	41464-43-1	pg/l			< 200 U
PCB-57	70424-67-8	pg/l			< 200 U
PCB-58	41464-49-7	pg/l			< 200 U
PCB-59/62/75	59-62-75	pg/l			< 610 U
PCB-6	25569-80-6	pg/l			< 200 U
PCB-60	33025-41-1	pg/l			< 200 U
PCB-61/70/74/76	61-70-74-76	pg/l			3.9 JB
PCB-63	74472-34-7	pg/l			< 200 U
PCB-64	52663-58-8	pg/l			< 200 U
PCB-66	32598-10-0	pg/l			< 200 U
PCB-67	73575-53-8	pg/l			< 200 U
PCB-68	73575-52-7	pg/l			< 200 U
PCB-7	33284-50-3	pg/l			< 200 U
PCB-72	41464-42-0	pg/l			< 200 U
PCB-73	74338-23-1	pg/l			< 200 U
PCB-78	70362-49-1	pg/l			< 200 U
PCB-79	41464-48-6	pg/l			< 200 U
PCB-8	34883-43-7	pg/l			< 200 U
PCB-80	33284-52-5	pg/l			< 200 U
PCB-82	52663-62-4	pg/l			< 200 U
PCB-83	60145-20-2	pg/l			< 200 U
PCB-84	52663-60-2	pg/l			< 200 U
PCB-85/116/117	85-116-117	pg/l			< 610 U
PCB-86/87/97/108/119/125	868797108119125	pg/l			< 1200 U
PCB-88/91	88-91	pg/l			< 410 U
PCB-89	73575-57-2	pg/l			< 200 U
PCB-9	34883-39-1	pg/l			< 200 U
PCB-90/101/113	90-101-113	pg/l			4.6 J
PCB-92	52663-61-3	pg/l			< 200 U
PCB-93/100	93-100	pg/l			< 410 U
PCB-94	73575-55-0	pg/l			< 200 U
PCB-95	38379-99-6	pg/l			< 200 U
PCB-96	73575-54-9	pg/l			< 200 U
PCB-98/102	98-102	pg/l			< 410 U
PCB-99	38380-01-7	pg/l			< 200 U
Total PCBs					
Polychlorinated biphenyls	1336-36-3	pg/l	500000	1400000	44 J
pH	---	s.u.	≥2 and ≤12.5	≥2 and ≤12.5	6.79

Notes:

Type 1 RRS is used for delineation and the higher of the Type 3 and Type 4 RRS is used for the cleanup standard.

pH values were recorded in the field.

-- Not Analyzed/No standard

< = Concentration is less than the reporting limit

U = Not detected above reporting limit

ft bgs = feet below ground surface

GW = Groundwater

N = Normal Sample

pg/L = picograms per liter

RRS = Risk Reduction Standard

s.u. = Standard Unit

Table 5c
Groundwater Analytical Data, Asbestos, May 2016
VIRP Semiannual Progress Report
Solenis International, L.P. - Savannah, GA

				Well	**MW-F15**
				Sample Matrix	**GW**
				Date	**5/5/2016**
				Sample Depth (ft bgs)	**10-20**
				Sample Type	**N**
Constituent	**CAS**	**Units**	**Type 1 RRS**	**Type 3/4 RRS**	
Asbestos	1332-21-4	MFL	7	7	<0.19 U
pH	---	s.u.	≥2 and ≤12.5	≥2 and ≤12.5	6.6

Notes:

Type 1 RRS is used for delineation and the higher of the Type 3 and Type 4 RRS is used for the cleanup standard.

pH values were recorded in the field.

U = Not detected above reporting limit

< = Concentration is less than the reporting limit

ft bgs = feet below ground surface

GW = Groundwater

MFL = million fibers per liter

N = Normal Sample

RRS = Risk Reduction Standard

s.u. = Standard Unit

FIGURES

LEGEND

HSI 10696 Site Boundary (SAGIS)

PROJECTION: NAD83 State Plane Georgia East Feet

SOURCES:
1) ESRI Online Services (USA Topo Maps).
2) Parcels: SAGIS (2008).

REFERENCE:
U.S.G.S. 7.5 Minute Series Topographic Quadrangles:
Garden City, Georgia 1981,
Savannah, Georgia 1979.
CONTOUR INTERVAL: 20 foot.

0 1,500 3,000

SCALE IN FEET

HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA

VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

Site Location Map

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

CITY: KNOXVILLE DIV/GROUP: ENV/GIS LD: B.ALTOM PIC: J.REID PM: D.WILDERMAN TM: J.HANNA DBASE: T.WALL BY: BALTOM
PROJECT: OH008000.GA61 PATH: G:\GIS\ASHLAND_HERCULES\GA_SAVANNAH\MAPDOCS\2016\SA PROGRESS NO7\F1 GA60_VRPSAPR7 REG.MXD SAVED: 9/8/2016

BASE REFERENCE:
1) Ashland (baseplot.dwg and toplot.dwg).
2) SAGIS parcels (2008).
3) Ashland Savannahbase.dwg (March 2014).
PROJECTION: NAD83 State Plane Georgia East Feet
AERIAL SOURCE: ESRI Online Imagery (NAIP, August 2013)

LEGEND

- Hercules Property (Conner 2001)
- HSI 10696 Site Boundary (SAGIS)
- Surrounding Property (SAGIS)
- Dundee Canal (culverted section)
- Dundee Canal (open section)
- Canal Flow Direction

* As defined by the Connor and Associates, March 16, 2001, Boundary Survey of the Hercules Property for Parcels 2-0734-01-001 and 2-0734-03-001.

0 240 480
SCALE IN FEET

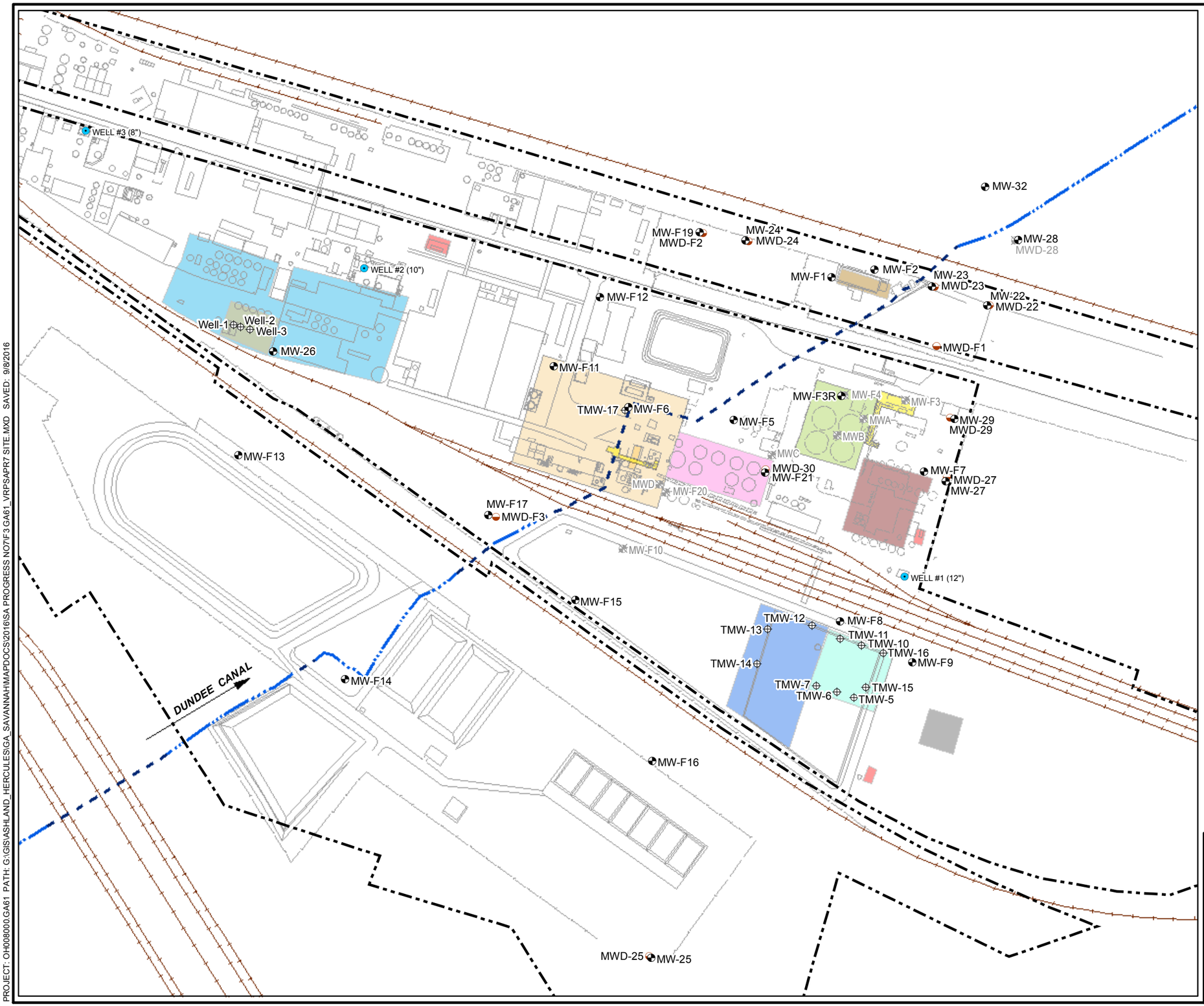
HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA

VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

Site Layout – Aerial View

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2



LEGEND

- Hercules Property (Conner 2001)
- Monitoring Well (shallow)
- Monitoring Well (deep)
- Temporary Monitoring Well (shallow)
- Production Well
- Monitoring Well (abandoned/destroyed)
- Contractor Yard
- Former CTO ASTs 60's
- ASTs 30's
- Former Fatty Acid ASTs 50's
- Hard Resins Area
- Primary Oil/Water Separator
- Former Tall Oil Plant
- Former CTO Tank Area (Tall Oil Release)
- Dowtherm Release
- Former Dowtherm Unit
- Electrical Substation
- Former Dry Size Area
- Former Size Tank Area
- Dundee Canal (culverted section)
- Dundee Canal (open section)
- Canal Flow Direction

* As defined by the Connor and Associates, March 16, 2001, Boundary Survey of the Hercules Property for Parcels 2-0734-01-001 and 2-0734-03-001.

0 160 320

SCALE IN FEET

BASE REFERENCE:
1) Ashland (baseplot.dwg and toplot.dwg).
2) Ashland Savannabase.dwg (March 2014).
PROJECTION: NAD83 State Plane Georgia East Feet

HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA

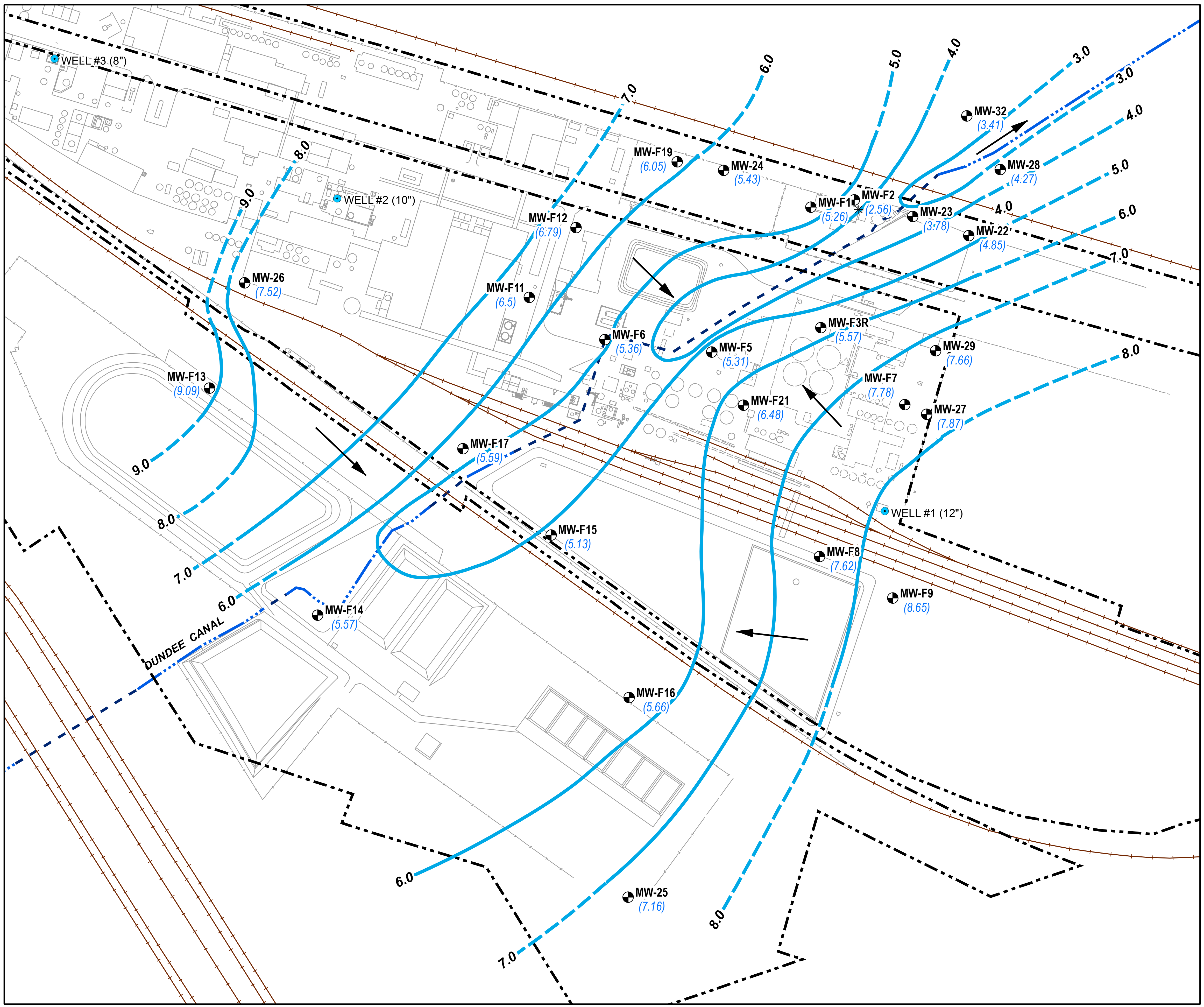
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

Site Layout with Monitoring Well Locations

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3

CITY: KNOXVILLE DIV/GROUP: ENV/GIS LD: B.ALTOM PIC: J.REID PM: D.WILDERMAN TM: J.HANNA DBASE: T.WALL BY: BALTOM
PROJECT: OH008000.GA61 PATH: G:\GIS\ASHLAND_HERCULES\GA_SAVANNAH\MAPDOCS\2016\SA PROGRESS NO7\F3 GA61_VRPSAPR7 SITE.MXD SAVED: 9/8/2016



LEGEND

- Hercules Property (Conner 2001)
- Monitoring Well (shallow)
- Production Well
- Dundee Canal (culverted section)
- Dundee Canal (open section)
- Groundwater Contour Line (ft amsl)
- (inferred where dashed)
- Groundwater Flow Direction
- (7.66) Groundwater Elevation (ft amsl) Measured May 2, 2016
- ✳ Not Used to Construct Contours

0 160 320

SCALE IN FEET

BASE REFERENCE:
1) Ashland (baseplot.dwg and toplot.dwg).
2) Conner and Associates Survey (March 2001).
3) Ashland Savannabase.dwg (March 2014).
PROJECTION: NAD83 State Plane Georgia East Feet

HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA

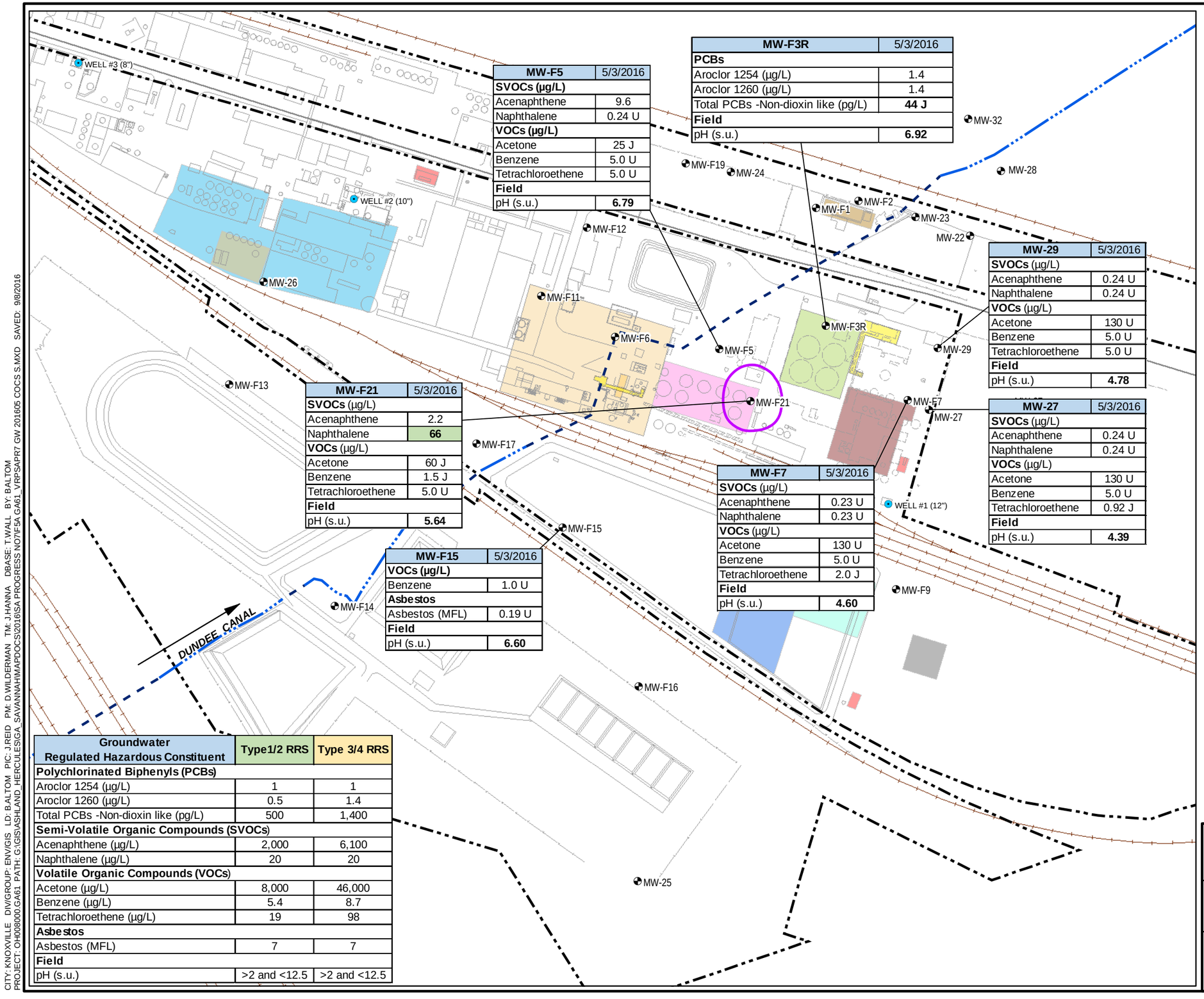
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN SEMIANNUAL PROGRESS REPORT #7

Shallow Potentiometric Surface Map
May 2, 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE 4

CITY: KNOXVILLE DIV/GROUP: ENV/GIS LD: B.ALTOM PIC: J.REID PM: D.WILDERMAN TM: J.HANNA DBASE: T.WALL BY: BALTOM SAVED: 9/8/2016
PROJECT: OH008000.GA61 PATH: G:\GIS\ASHLAND_HERCULES\GA_SAVANNAH\MAPDOCS\2016\SA PROGRESS NO7\F4 GA61_VRPSAPR7 201605 POT.MXD



MW-F5	5/3/2016
SVOCs (µg/L)	
Acenaphthene	9.6
Naphthalene	0.24 U
VOCs (µg/L)	
Acetone	25 J
Benzene	5.0 U
Tetrachloroethene	5.0 U
Field	
pH (s.u.)	**6.79**

MW-F3R	5/3/2016
PCBs	
Aroclor 1254 (µg/L)	1.4
Aroclor 1260 (µg/L)	1.4
Total PCBs -Non-dioxin like (pg/L)	**44 J**
Field	
pH (s.u.)	**6.92**

MW-29	5/3/2016
SVOCs (µg/L)	
Acenaphthene	0.24 U
Naphthalene	0.24 U
VOCs (µg/L)	
Acetone	130 U
Benzene	5.0 U
Tetrachloroethene	5.0 U
Field	
pH (s.u.)	**4.78**

MW-F21	5/3/2016
SVOCs (µg/L)	
Acenaphthene	2.2
Naphthalene	**66**
VOCs (µg/L)	
Acetone	60 J
Benzene	1.5 J
Tetrachloroethene	5.0 U
Field	
pH (s.u.)	**5.64**

MW-F7	5/3/2016
SVOCs (µg/L)	
Acenaphthene	0.23 U
Naphthalene	0.23 U
VOCs (µg/L)	
Acetone	130 U
Benzene	5.0 U
Tetrachloroethene	2.0 J
Field	
pH (s.u.)	**4.60**

MW-27	5/3/2016
SVOCs (µg/L)	
Acenaphthene	0.24 U
Naphthalene	0.24 U
VOCs (µg/L)	
Acetone	130 U
Benzene	5.0 U
Tetrachloroethene	0.92 J
Field	
pH (s.u.)	**4.39**

MW-F15	5/3/2016
VOCs (µg/L)	
Benzene	1.0 U
Asbestos	
Asbestos (MFL)	0.19 U
Field	
pH (s.u.)	**6.60**

Groundwater Regulated Hazardous Constituent	Type1/2 RRS	Type 3/4 RRS
Polychlorinated Biphenyls (PCBs)		
Aroclor 1254 (µg/L)	1	1
Aroclor 1260 (µg/L)	0.5	1.4
Total PCBs -Non-dioxin like (pg/L)	500	1,400
Semi-Volatile Organic Compounds (SVOCs)		
Acenaphthene (µg/L)	2,000	6,100
Naphthalene (µg/L)	20	20
Volatile Organic Compounds (VOCs)		
Acetone (µg/L)	8,000	46,000
Benzene (µg/L)	5.4	8.7
Tetrachloroethene (µg/L)	19	98
Asbestos		
Asbestos (MFL)	7	7
Field		
pH (s.u.)	>2 and <12.5	>2 and <12.5

LEGEND

- Hercules Property (Conner 2001)
- Monitoring Well (shallow)
- Production Well
- Contractor Yard
- Former CTO ASTs 60's
- ASTs 30's
- Former Fatty Acid ASTs 50's
- Hard Resins Area
- Primary Oil/Water Separator
- Former Tall Oil Plant
- Former CTO Tank Area (Tall Oil Release)
- Dowtherm Release
- Former Dowtherm Unit
- Electrical Substation
- Former Dry Size Area
- Former Size Tank Area
- Dundee Canal (culverted section)
- Dundee Canal (open section)
- Canal Flow Direction
- Type 1/2 RRS Isocontour

NOTES:
1) Analytical results represent data from May 2-3, 2016, sampling event.
2) All concentrations reported in micrograms per liter (µg/L) unless otherwise shown.
3) Only constituents with historical detections above Type 1 Risk Reduction Standards (RRS) are shown.
4) **BOLD** - Concentration exceeds Type I/2 RRS.

J - Result is less than the RL but greater than or equal to the minimum detection limit (MDL) and the concentration is an approximate value.
U - Indicates the analyte was analyzed for but not detected.
pg/L - picograms per liter
s.u. - Standard unit

0 160 320

SCALE IN FEET

BASE REFERENCE:
1) Ashland (baseplot.dwg and toplot.dwg).
2) Conner and Associates Survey (March 2001).
3) Ashland Savannabase.dwg (March 2014).
PROJECTION: NAD83 State Plane Georgia East Feet

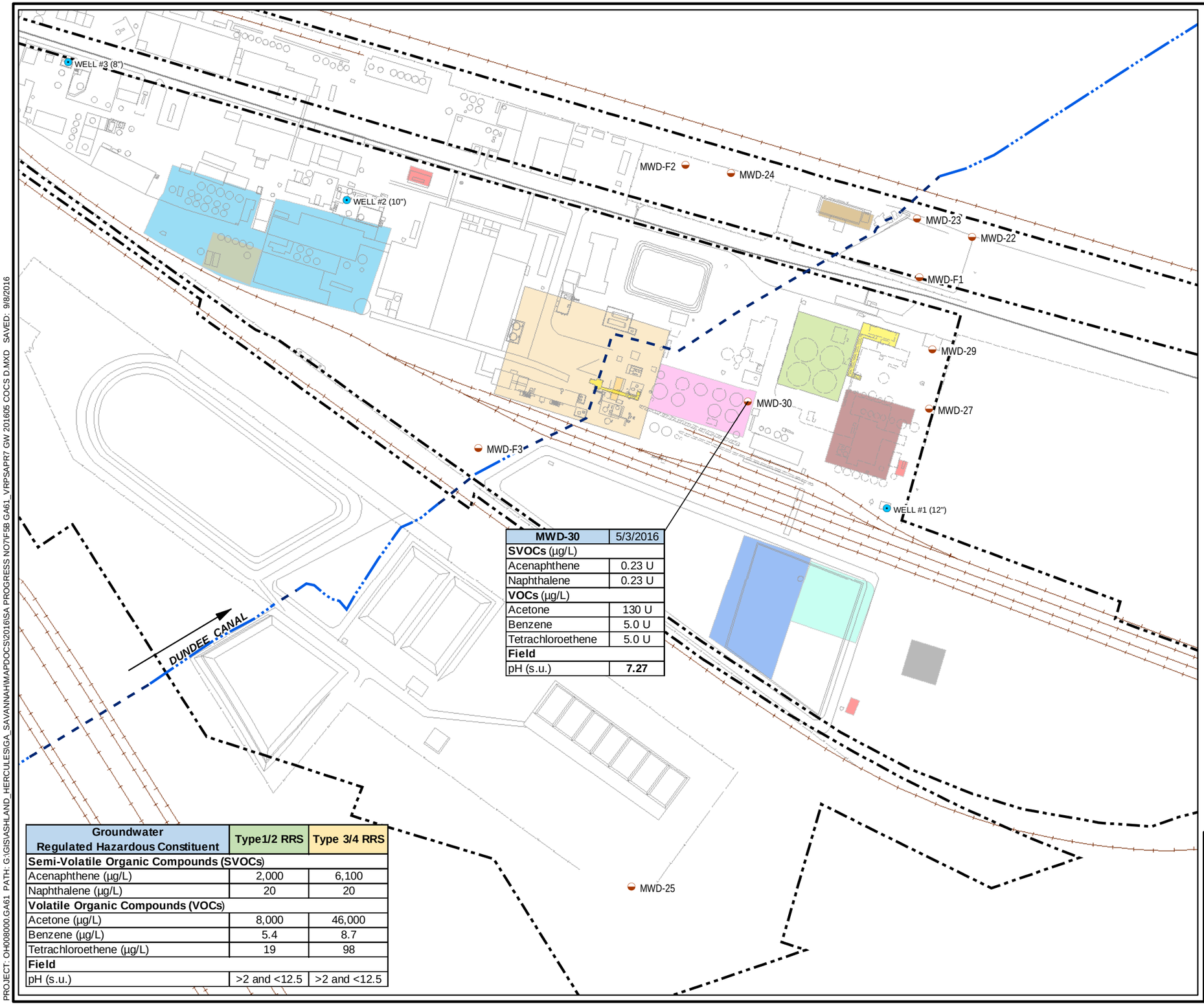
HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

Regulated Constituents in Shallow Groundwater, May 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE **5a**

CITY: KNOXVILLE DIV/GROUP: ENV/GIS LD: B.ALTOM PIC: J.REID PM: D.WILDERMAN TM: J.HANNA DBASE: T.WALL BY: B.ALTOM
PROJECT: OH008000.GA61 PATH: G:\GIS\ASHLAND_HERCULES\GA_SAVANNAH\MAPDOCS\2016\SA PROGRESS NO7\F5A GA61_VRPSAPR7 GW 201605 COCS S.MXD SAVED: 9/8/2016



MWD-30	5/3/2016
SVOCs (µg/L)	
Acenaphthene	0.23 U
Naphthalene	0.23 U
VOCs (µg/L)	
Acetone	130 U
Benzene	5.0 U
Tetrachloroethene	5.0 U
Field	
pH (s.u.)	**7.27**

Groundwater Regulated Hazardous Constituent	Type1/2 RRS	Type 3/4 RRS
Semi-Volatile Organic Compounds (SVOCs)		
Acenaphthene (µg/L)	2,000	6,100
Naphthalene (µg/L)	20	20
Volatile Organic Compounds (VOCs)		
Acetone (µg/L)	8,000	46,000
Benzene (µg/L)	5.4	8.7
Tetrachloroethene (µg/L)	19	98
Field		
pH (s.u.)	>2 and <12.5	>2 and <12.5

LEGEND

- Hercules Property (Conner 2001)
- Monitoring Well (deep)
- Production Well
- Contractor Yard
- Former CTO ASTs 60's
- ASTs 30's
- Former Fatty Acid ASTs 50's
- Hard Resins Area
- Primary Oil/Water Separator
- Former Tall Oil Plant
- Former CTO Tank Area (Tall Oil Release)
- Dowtherm Release
- Former Dowtherm Unit
- Electrical Substation
- Former Dry Size Area
- Former Size Tank Area
- Dundee Canal (culverted section)
- Dundee Canal (open section)
- Canal Flow Direction

NOTES:
1) Analytical results represent data from May 3, 2016, sampling event.
2) All concentrations reported in micrograms per liter (µg/L) unless otherwise shown.
3) Only constituents with historical detections above Type 1 Risk Reduction Standards (RRS) are shown.

U - Indicates the analyte was analyzed for but not detected.
s.u. - Standard unit

0 160 320

SCALE IN FEET

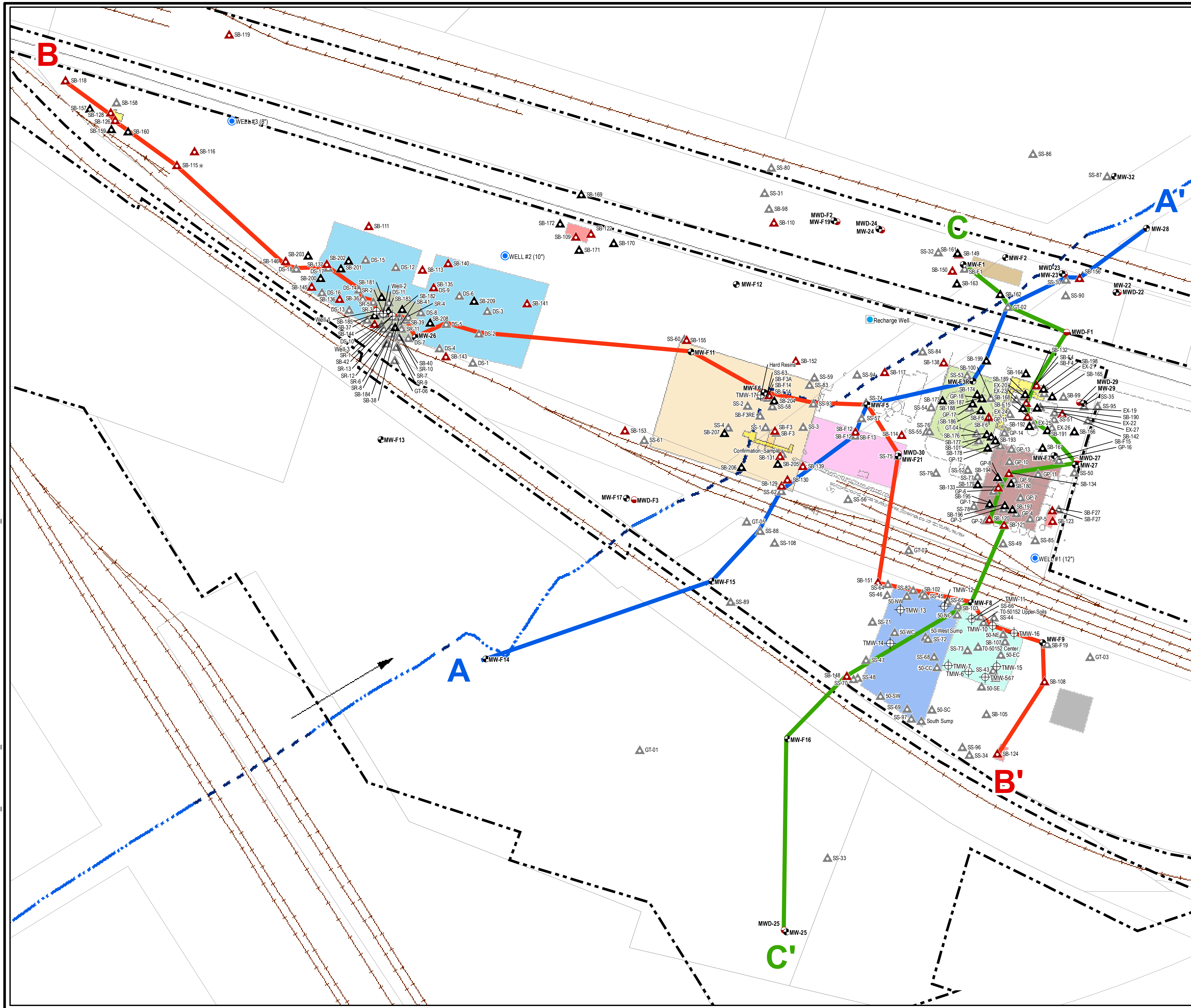
BASE REFERENCE:
1) Ashland (baseplot.dwg and toplot.dwg).
2) Conner and Associates Survey (March 2001).
3) Ashland Savannabase.dwg (March 2014).
PROJECTION: NAD83 State Plane Georgia East Feet

HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

Regulated Constituents in Deep Groundwater, May 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE **5b**



LEGEND

- Hercules Property (Conner 2001)
- Contractor Yard
- Former CTO ASTs 60's
- ASTs 30's
- Former Fatty Acid ASTs 50's
- Hard Resins Area
- Primary Oil/Water Separator
- Former Tall Oil Plant
- Former CTO Tank Area (Tall Oil Release)
- Dowtherm Release
- Former Dowtherm Unit
- Electrical Substation
- Former Dry Size Area
- Former Size Tank Area
- Dundee Canal (culverted section)
- Dundee Canal (open section)
- Canal Flow Direction
- Monitoring Well (shallow)
- Monitoring Well (deep)
- Temporary Monitoring Well (shallow)
- Production Well
- Recharge Well
- Soil Boring (Historical)
- Soil Boring (2014)
- Soil Boring (2015)

NOTE: *SB-115 was not collected due to obstruction.

0 160 320
SCALE IN FEET

BASE REFERENCE:
1) Ashland (baseplot.dwg and toplot.dwg).
2) SAGIS (2008).
3) Conner and Associates Survey (March 2001).
4) Ashland Savannabase.dwg (March 2014).
PROJECTION: NAD83 State Plane Georgia East Feet

HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

Geologic Cross-Section Locations

ARCADIS Design & Consultancy for natural and built assets

FIGURE
6

A
SOUTHWEST

A'
NORTHEAST

SB-129	8/21/2014	(0-1 ft)	(1-3 ft)
PCBs			
Aroclor 1254		0.037 U	0.036 U
Aroclor 1260		0.037 U	0.036 U
Total PCBs (pg/g)		**0.00192**	**399**
TEQ (pg/g)		**0.37**	**0.0013**
SVOCs			
1,1-Biphenyl		8.2 U	8 U
Aniline		7.3 U	7.1 U
VOCs			
Acrolein		0.1 U	0.1 U

SB-130	8/21/2014	(0-1 ft)
PCBs		
Aroclor 1254		**0.21**
Aroclor 1260		0.036 U
Total PCBs (pg/g)		**226,578**
TEQ (pg/g)		**35**
SVOCs		
1,1-Biphenyl		8.1 U
Aniline		7.2 U
VOCs		
Acrolein		0.1 U

SB-F12	8/21/2014	10/20/2000
	(0-1 ft)	(1-3 ft)
PCBs		
Aroclor 1254	0.036 U	NA
Aroclor 1260	0.036 U	NA
Total PCBs (pg/g)	**5,512**	NA
TEQ (pg/g)	**0.022**	NA
SVOCs		
1,1-Biphenyl	NA	0.72 U
Aniline	NA	0.36 U
VOCs		
Acrolein	NA	0.11 U

SS-57	12/19/2002	(1-2 ft)
PCBs		NA
SVOCs		
1,1-Biphenyl		0.78 U
Aniline		0.39 U
VOCs		NA

SB-199	8/13/2015	(0-2 ft)
PCBs		NA
SVOCs		
1,1-Biphenyl		0.012 J
VOCs		NA

SS-30	11/8/2002	(0-2 ft)
PCBs		NA
SVOCs		
1,1-Biphenyl		0.86 U
Aniline		0.43 U
VOCs		NA

SB-156	8/22/2014	(0-1 ft)
PCBs		NA
SVOCs		
1,1-Biphenyl		8.1 U
VOCs		NA

SS-62	12/19/2002	(1-2 ft)
PCBs		NA
SVOCs		
1,1-Biphenyl		0.78 U
Aniline		0.39 U
VOCs		NA

SS-88	11-6-2008	(0-2 ft)
PCBs		
Aroclor 1254		**0.78**
Aroclor 1260		**0.25**
SVOCs		NA
VOCs		NA

SB-139	8/21/2014	(0-1 ft)
PCBs		NA
SVOCs		NA
VOCs		
Acrolein		0.094 U

PARCEL 2-0734 -03-001

PARCEL 2-0734 -01-001

DUNDEE CANAL

MW-F14 | MW-15 | SS-88 | GT-05 | MW-F10 | SS-62 | SB-129 | SB-130 | MW-F20 | SB-139 | SB-F13 | SB-F12 | SS-57 | SS-74 | MW-F5 | MW-F3R | SB-199 | GT-02 | SS-30 | SS-156 | MWD-28

MW-F5	5/3/2016
SVOCs (µg/L)	
Acenaphthene	9.6
Naphthalene	0.24 U
VOCs (µg/L)	
Acetone	25 J
Benzene	5.0 U
Tetrachloroethene	5.0 U
Field	
pH (s.u.)	**6.79**

MW-F3R	5/3/2016
PCBs	
Aroclor 1254 (µg/L)	1.4
Aroclor 1260 (µg/L)	1.4
Total PCBs -Non-dioxin like (pg/L)	**44 J**
Field	
pH (s.u.)	**6.92**

ELEVATION (ft amsl)

25 | 0 | -25 | -50 | -100

LEGEND

- Water-Table (May 2, 2016) (inferred where dashed)
- Soil Boring
- Monitoring Well Screened Interval
- Railroad Easement
- Concrete/Asphalt
- Grass
- ASTs 30's
- Former CTO Tank Area (Tall Oil Release)
- FILL MATERIAL, gravel, silty, sandy
- SAND, fine-grained, silty, clayey
- CLAY, high-plasticity (inferred where dashed)
- SAND, clayey, silty; with shell fragments (inferred where dashed)
- SILT, sandy (inferred where dashed)
- AQUITARD

Soil Regulated Hazardous Constituent	Type1/2 RRS	Type 3/4 RRS
Polychlorinated Biphenyls (PCBs)		
Aroclor 1254 (mg/kg)	1.55	1.55
Aroclor 1260 (mg/kg)	1.55	1.55
Total PCBs (pg/g)	1,550,000	1,550,000
TEQ (pg/g)	115	440
Semi-Volatile Organic Compounds (SVOCs)		
1,1-Biphenyl (mg/kg)	1	1
Aniline (mg/kg)	2	2
Volatile Organic Compounds (VOCs)		
Acrolein (mg/kg)	0.1	0.1

Groundwater Regulated Hazardous Constituent	Type1/2 RRS	Type 3/4 RRS
Polychlorinated Biphenyls (PCBs)		
Aroclor 1254 (µg/L)	0.5	1.4
Aroclor 1260 (µg/L)	0.5	1.4
Total PCBs -Non-dioxin like (pg/L)	500	1,400
Semi-Volatile Organic Compounds (SVOCs)		
Acenaphthene (µg/L)	2,000	6,100
Naphthalene (µg/L)	20	20
Volatile Organic Compounds (VOCs)		
Acetone (µg/L)	8,000	46,000
Benzene (µg/L)	5.4	8.7
Tetrachloroethene (µg/L)	19	98
Field		
pH (s.u.)	>2 and <12.5	>2 and <12.5

NOTES:
1) Groundwater analytical results represent data from May 2-3, 2016, sampling event.
2) All soil concentrations reported in milligrams per kilogram (mg/kg) except Toxic Equivalency (TEQ) and theTotal PCBs that are the sum of all Total Non-Dioxin-like PCBs which have been calculated in picograms per gram (pg/g).
3) All groundwater concentrations reported in micrograms per liter (µg/L) unless otherwise shown.
4) Only constituents with historical detections above Type 1-4 Risk Reduction Standards (RRS) are shown.

NA - Not analyzed
ND - Not detected
J - Result is less than the RL but greater than or equal to the minimum detection limit (MDL) and the concentration is an approximate value.
U - Indicates the analyte was analyzed for but not detected.
pg/L - picograms per liter
s.u. - Standard unit

0 | 125' | 250'

HORIZONTAL SCALE

VERTICAL EXAGGERATION: 5X

HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA

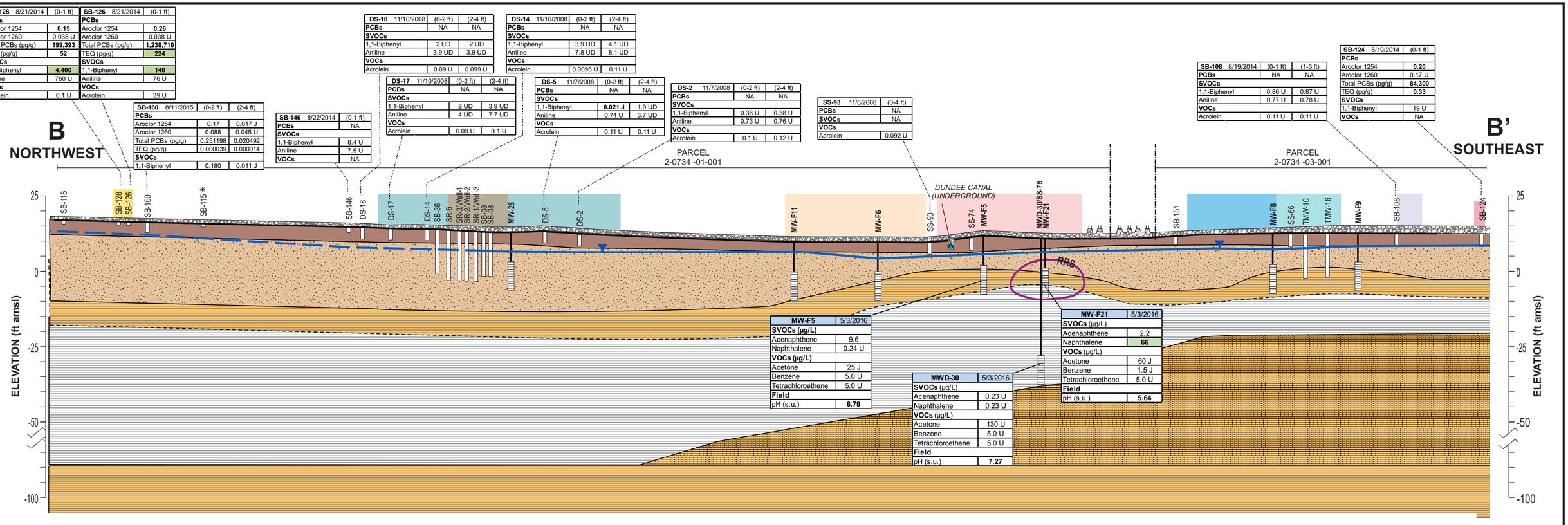
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN SEMIANNUAL PROGRESS REPORT #7

Distribution of Select Constituents along Geologic Cross-Section A-A'

ARCADIS Design & Consultancy for natural and built assets

FIGURE **6a**

CITY: KNOXVILLE DIV/GROUP: ENV/GIS LD: B.ALTOM PIC: J.REID PM: D.WILDERMAN TM: J.HANNA DBASE: TWALL BY: B.ALTOM
PROJECT: OH009000.GA61 PATH: G:\GIS\ASH-LAND_HERCULES\GA_SAVANNAH\MAPDOCS\2016\SA PROGRESS NO7\F6a GA61_VRPSAPR7 XSEC AA.cdr SAVED: 21SEP2016



SB-128 8/21/2014	(0-1 ft)
PCBs	
Aroclor 1254	**0.15**
Aroclor 1260	0.038 U
Total PCBs (pg/g)	**199,393**
TEQ (pg/g)	**52**
SVOCs	
1,1-Biphenyl	**4,400**
Aniline	760 U
VOCs	
Acrolein	0.1 U

SB-126 8/21/2014	(0-1 ft)
PCBs	
Aroclor 1254	**0.26**
Aroclor 1260	0.038 U
Total PCBs (pg/g)	**1,238,710**
TEQ (pg/g)	**224**
SVOCs	
1,1-Biphenyl	**140**
Aniline	76 U
VOCs	
Acrolein	39 U

SB-160 8/11/2015	(0-2 ft)	(2-4 ft)
PCBs		
Aroclor 1254	0.17	0.017 J
Aroclor 1260	0.088	0.045 U
Total PCBs (pg/g)	0.251198	0.020492
TEQ (pg/g)	0.000039	0.000014
SVOCs		
1,1-Biphenyl	0.180	0.011 J

SB-146 8/22/2014	(0-1 ft)
PCBs	NA
SVOCs	
1,1-Biphenyl	8.4 U
Aniline	7.5 U
VOCs	NA

DS-18 11/10/2008	(0-2 ft)	(2-4 ft)
PCBs	NA	NA
SVOCs		
1,1-Biphenyl	2 UD	2 UD
Aniline	3.9 UD	3.9 UD
VOCs		
Acrolein	0.09 U	0.099 U

DS-17 11/10/2008	(0-2 ft)	(2-4 ft)
PCBs	NA	NA
SVOCs		
1,1-Biphenyl	2 UD	3.9 UD
Aniline	4 UD	7.7 UD
VOCs		
Acrolein	0.09 U	0.1 U

DS-14 11/10/2008	(0-2 ft)	(2-4 ft)
PCBs	NA	NA
SVOCs		
1,1-Biphenyl	3.9 UD	4.1 UD
Aniline	7.8 UD	8.1 UD
VOCs		
Acrolein	0.0096 U	0.11 U

DS-5 11/7/2008	(0-2 ft)	(2-4 ft)
PCBs	NA	NA
SVOCs		
1,1-Biphenyl	**0.021 J**	1.9 UD
Aniline	0.74 U	3.7 UD
VOCs		
Acrolein	0.11 U	0.11 U

DS-2 11/7/2008	(0-2 ft)	(2-4 ft)
PCBs	NA	NA
SVOCs		
1,1-Biphenyl	0.36 U	0.38 U
Aniline	0.73 U	0.76 U
VOCs		
Acrolein	0.1 U	0.12 U

SS-93 11/6/2008	(0-4 ft)
PCBs	NA
SVOCs	NA
VOCs	
Acrolein	0.092 U

SB-108 8/19/2014	(0-1 ft)	(1-3 ft)
PCBs	NA	NA
SVOCs		
1,1-Biphenyl	0.86 U	0.87 U
Aniline	0.77 U	0.78 U
VOCs		
Acrolein	0.11 U	0.11 U

SB-124 8/19/2014	(0-1 ft)
PCBs	
Aroclor 1254	**0.20**
Aroclor 1260	0.17 U
Total PCBs (pg/g)	**84,300**
TEQ (pg/g)	**0.33**
SVOCs	
1,1-Biphenyl	19 U
VOCs	NA

MW-F5	5/3/2016
SVOCs (µg/L)	
Acenaphthene	9.6
Naphthalene	0.24 U
VOCs (µg/L)	
Acetone	25 J
Benzene	5.0 U
Tetrachloroethene	5.0 U
Field	
pH (s.u.)	**6.79**

MWD-30	5/3/2016
SVOCs (µg/L)	
Acenaphthene	0.23 U
Naphthalene	0.23 U
VOCs (µg/L)	
Acetone	130 U
Benzene	5.0 U
Tetrachloroethene	5.0 U
Field	
pH (s.u.)	**7.27**

MW-F21	5/3/2016
SVOCs (µg/L)	
Acenaphthene	2.2
Naphthalene	**66**
VOCs (µg/L)	
Acetone	60 J
Benzene	1.5 J
Tetrachloroethene	5.0 U
Field	
pH (s.u.)	**5.64**

LEGEND

- Water-Table (May 2, 2016) (inferred where dashed)
- Soil Boring
- Monitoring Well Screened Interval
- Railroad Easement
- Concrete/Asphalt
- Grass
- Concentrations Exceed Type 1 (RRS)

- FILL MATERIAL, gravel, silty, sandy
- SAND, fine-grained, silty, clayey
- CLAY, high-plasticity (inferred where dashed)
- SAND, clayey, silty; with shell fragments (inferred where dashed)
- SILT, sandy (inferred where dashed)
- AQUITARD

- Former Dry Size Area
- Tank Area
- Hard Resins Area
- Former Fatty Acid ASTs 50's
- Former CTO ASTs 60's
- ASTs 30's
- Former Dowtherm Unit
- Contractor Yard
- Electrical Substation

Soil Regulated Hazardous Constituent	Type1/2 RRS	Type 3/4 RRS
Polychlorinated Biphenyls (PCBs)		
Aroclor 1254 (mg/kg)	1.55	1.55
Aroclor 1260 (mg/kg)	1.55	1.55
Total PCBs (pg/g)	1,550,000	1,550,000
TEQ (pg/g)	115	440
Semi-Volatile Organic Compounds (SVOCs)		
1,1-Biphenyl (mg/kg)	1	1
Aniline (mg/kg)	2	2
Volatile Organic Compounds (VOCs)		
Acrolein (mg/kg)	0.1	0.1

Groundwater Regulated Hazardous Constituent	Type1/2 RRS	Type 3/4 RRS
Semi-Volatile Organic Compounds (SVOCs)		
Acenaphthene (µg/L)	2,000	6,100
Naphthalene (µg/L)	20	20
Volatile Organic Compounds (VOCs)		
Acetone (µg/L)	8,000	46,000
Benzene (µg/L)	5.4	8.7
Tetrachloroethene (µg/L)	19	98
Field		
pH (s.u.)	>2 and <12.5	>2 and <12.5

0 125' 250'

HORIZONTAL SCALE

VERTICAL EXAGGERATION: 5X

NOTES:
1) Groundwater analytical results represent data from May 2-3, 2016, sampling event.
2) All soil concentrations reported in milligrams per kilogram (mg/kg) except Toxic Equivalency (TEQ) and theTotal PCBs that are the sum of all Total Non-Dioxin-like PCBs which have been calculated in picograms per gram (pg/g).
3) All groundwater concentrations reported in micrograms per liter (µg/L) unless otherwise shown.
4) Only constituents with historical detections above Type 1 Risk Reduction Standards (RRS) are shown.
5) **BOLD** - Concentration exceeds Type I-4 RRS.
6) SB-115* was not collected due to obstruction.

NA - Not analyzed
ND - Not detected
D - Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution.
J - Result is less than the RL but greater than or equal to the minimum detection limit (MDL) and the concentration is an approximate value.
U - Indicates the analyte was analyzed for but not detected.
pg/L - picograms per liter
s.u. - Standard unit

HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

Distribution of Select Constituents along Geologic Cross-Section B-B'

ARCADIS Design & Consultancy for natural and built assets

FIGURE **6b**

C
NORTH

C'
SOUTH

SB-162	8/13/2015	(0-2 ft)
PCBs		NA
SVOCs		
1,1-Biphenyl		0.10 J
VOCs		NA

SB-132	8/21/2014	(0-1 ft)
PCBs		
Aroclor 1254		**0.34**
Aroclor 1260		0.038 U
Total PCBs (pg/g)		**162,340**
TEQ (pg/g)		**18**
SVOCs		ND
VOCs		ND

SB-191	8/12/2015	(0-2 ft)
PCBs		NA
SVOCs		
1,1-Biphenyl		0.017 J
VOCs		NA

SB-134	8/19/2014	(0-1 ft)
PCBs		
Aroclor 1254		**0.094**
Aroclor 1260		0.038 U
Total PCBs (pg/g)		**128,015**
TEQ (pg/g)		**0.44**
SVOCs		ND
VOCs		ND

SB-133	8/19/2014	(0-1 ft)
PCBs		
Aroclor 1254		**0.21**
Aroclor 1260		0.041 U
Total PCBs (pg/g)		**71,521**
TEQ (pg/g)		**11**
SVOCs		ND
VOCs		ND

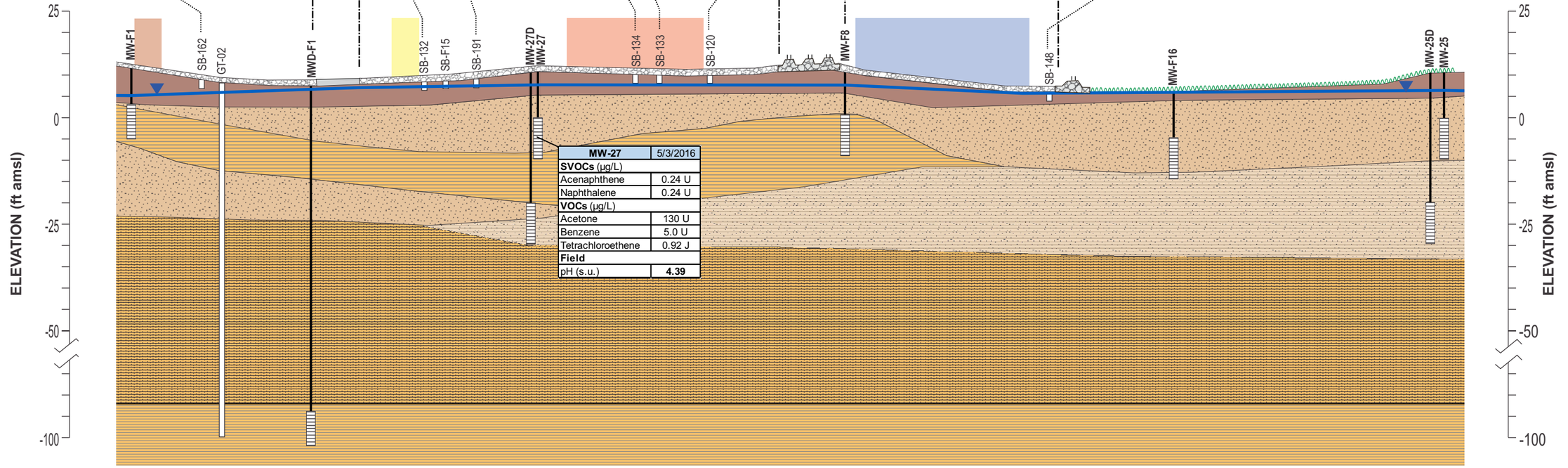
SB-120	8/20/2014	(0-1 ft)	(0-1 ft)*
PCBs		NA	NA
SVOCs		ND	ND
VOCs		NA	NA

SB-148	8/22/2014	(0-1 ft)
PCBs		NA
SVOCs		ND
VOCs		NA

PARCEL 2-0734-01-001

PARCEL 2-0734-01-001

PARCEL 2-0734-03-001



MW-27	5/3/2016
SVOCs (µg/L)	
Acenaphthene	0.24 U
Naphthalene	0.24 U
VOCs (µg/L)	
Acetone	130 U
Benzene	5.0 U
Tetrachloroethene	0.92 J
Field	
pH (s.u.)	**4.39**

LEGEND

- Water-Table (May 2, 2016) (inferred where dashed)
- Soil Boring
- Monitoring Well Screened Interval
- Railroad Easement
- Concrete/Asphalt
- Grass
- Former CTO ASTs 60's
- Former Tall Oil Plant
- FILL MATERIAL, gravel, silty, sandy
- SAND, fine-grained, silty, clayey
- CLAY, high-plasticity (inferred where dashed)
- SAND, clayey, silty; with shell fragments (inferred where dashed)
- SILT, sandy (inferred where dashed)
- AQUITARD
- Former Dowtherm Unit
- Primary Oil/Water Separator

Soil Regulated Hazardous Constituent	Type1/2 RRS	Type 3/4 RRS
Polychlorinated Biphenyls (PCBs)		
Aroclor 1254 (mg/kg)	1.55	1.55
Aroclor 1260 (mg/kg)	1.55	1.55
Total PCBs (pg/g)	1,550,000	1,550,000
TEQ (pg/g)	115	440
Semi-Volatile Organic Compounds (SVOCs)		
1,1-Biphenyl (mg/kg)	1	1
Aniline (mg/kg)	2	2
Volatile Organic Compounds (VOCs)		
Acrolein (mg/kg)	0.1	0.1

Groundwater Regulated Hazardous Constituent	Type1/2 RRS	Type 3/4 RRS
Semi-Volatile Organic Compounds (SVOCs)		
Acenaphthene (µg/L)	2,000	6,100
Naphthalene (µg/L)	20	20
Volatile Organic Compounds (VOCs)		
Acetone (µg/L)	8,000	46,000
Benzene (µg/L)	5.4	8.7
Tetrachloroethene (µg/L)	19	98
Field		
pH (s.u.)	>2 and <12.5	>2 and <12.5

NOTES:
1) Groundwater analytical results represent data from May 2-3, 2016, sampling event.
2) All soil concentrations reported in milligrams per kilogram (mg/kg) except Toxic Equivalency (TEQ) and theTotal PCBs that are the sum of all Total Non-Dioxin-like PCBs which have been calculated in picograms per gram (pg/g).
3) * Duplicate performed on this sample.
4) All groundwater concentrations reported in micrograms per liter (µg/L) unless otherwise shown.
5) Only constituents with historical detections above Type 1-4 Risk Reduction Standards (RRS) are shown.

NA - Not analyzed
ND - Not detected
J - Result is less than the RL but greater than or equal to the minimum detection limit (MDL) and the concentration is an approximate value.
U - Indicates the analyte was analyzed for but not detected.
pg/g - picograms per gram
s.u. - Standard unit

0 125' 250'
HORIZONTAL SCALE

VERTICAL EXAGGERATION: 5X

HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA

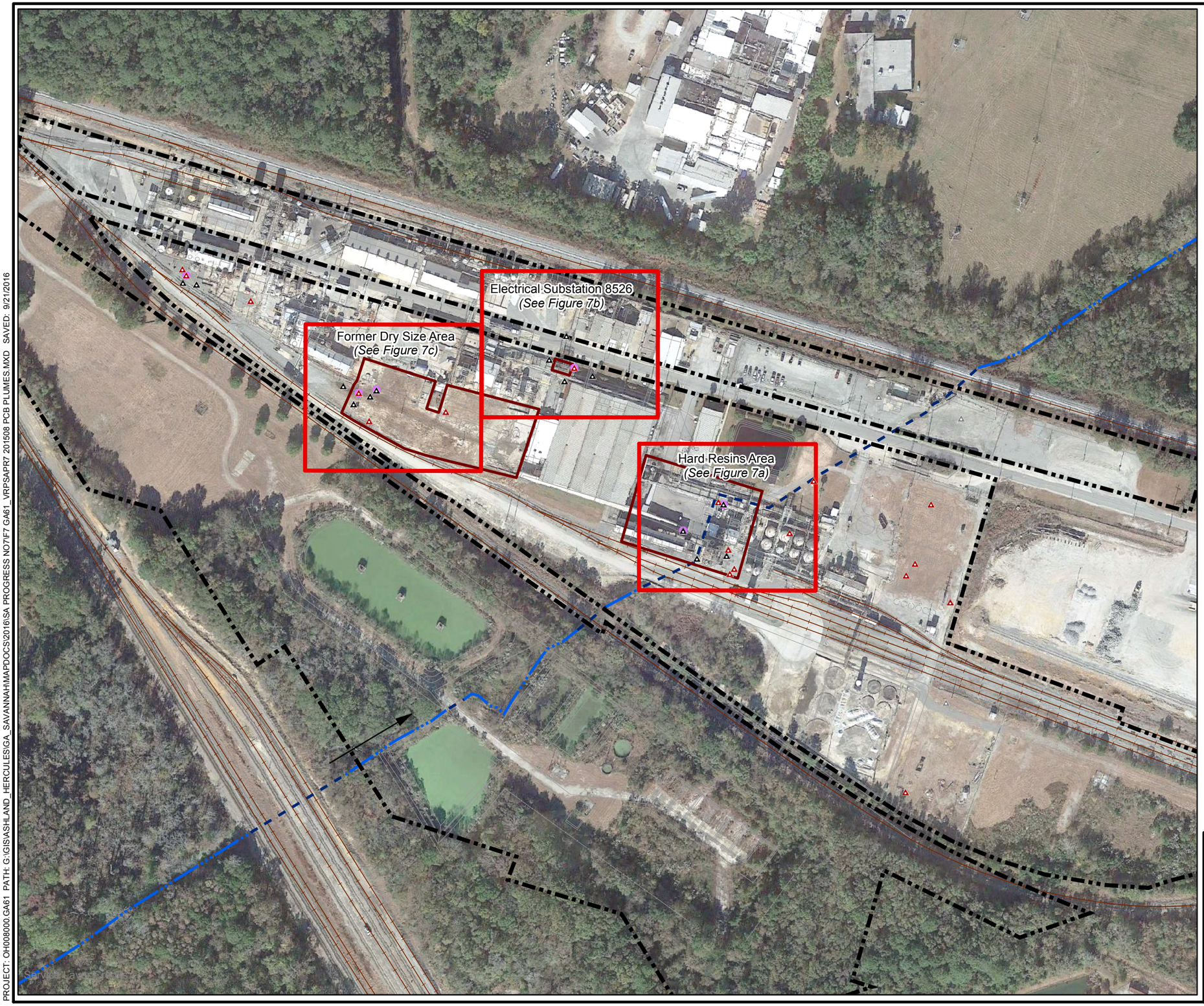
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN SEMIANNUAL PROGRESS REPORT #7

Distribution of Select Constituents along Geologic Cross-Section C-C'

ARCADIS Design & Consultancy for natural and built assets

FIGURE **6c**

CITY: KNOXVILLE DIV/GROUP: ENV/GIS LD: B.ALTOM PIC: J.REID PM: D.WILDERMAN TM: J.HANNA DBASE: T:\WALL BY: B.ALTOM
PROJECT: OH009000.GA61 PATH: G:\GIS\ASHLAND_HERCULES\GA_SAVANNAH\MAPDOCS\2016\SA PROGRESS NO7\F6c GA61_VRPSAPR7 XSEC CC.cdr SAVED: 21SEP2016



LEGEND

- Hercules Property (Conner 2001)
- Site Area
- Dundee Canal (culverted section)
- Dundee Canal (open section)
- Canal Flow Direction
- Soil Boring (2000-2008)
- Soil Boring (August 2014)
- Soil Boring (August/September 2015)
- Laboratory Reporting Limit above Type 1-4 RRS

NOTES:
1) All locations are approximate.
2) The highest of the Type 1/2 RRS was used for delineation purposes.

PCB - Polychlorinated Biphenyl
RRS - Risk Reduction Standard

BASE REFERENCES:
1) Ashland (baseplot.dwg and toplot.dwg).
2) SAGIS (2008).
3) Conner and Associates Survey (March 2001).
4) Ashland Savannabase.dwg (March 2014).
AERIAL SOURCE: GEP (November 2014).
PROJECTION: NAD83 State Plane Georgia East Feet

0 200 400
SCALE IN FEET

HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

PCB Delineation in Soil

ARCADIS Design & Consultancy for natural and built assets

FIGURE
7

CITY: KNOXVILLE DIV/GROUP: ENV/GIS LD: B.ALTOM PIC: J.REID PM: D.WILDERMAN TM: J.HANNA DBASE: T.WALL BY: CCSMITH
PROJECT: OH008000.GA61 PATH: G:\GIS\ASHLAND_HERCULES\GA_SAVANNAH\MAPDOCS\2016\SA PROGRESS NO7\F7 GA61_VRPSAPR7 201508 PCB PLUMES.MXD SAVED: 9/21/2016

SB-F14 8/20/2014	(0-1 ft)
Aroclor 1254	0.56
Aroclor 1260	0.038 U
Total PCBs	0.930551
TEQ Partial	0.000113663

SB-204 8/13/2015	(0-2 ft)
Aroclor 1254	4.6
Aroclor 1260	0.56
Total PCBs	3.427947
TEQ	0.00037

SB-117 8/20/2014	(0-1 ft)
Aroclor 1254	0.1
Aroclor 1260	0.038 U
Total PCBs	0.034085
TEQ Partial	1.3872E-07

Soil sampling proposed to complete delineation. No remediation planned as proposed Remedial Goals are not exceeded. LUCs may be used within a UEC to restrict access to this area.

SB-207 8/13/2015	(0-2 ft)
Aroclor 1254	1.1
Aroclor 1260	0.5
Total PCBs	1.841858
TEQ	0.00016

SB-206 8/13/2015	(0-2 ft)
Aroclor 1254	0.015 J
Aroclor 1260	0.038 U
Total PCBs	0.11368253
TEQ	0.000043

SB-F12 8/21/2014	(0-1 ft)
Aroclor 1254	0.036 U
Aroclor 1260	0.036 U
Total PCBs	0.005512
TEQ Partial	2.1573E-08

SB-131 8/21/2014	(0-1 ft)
Aroclor 1254	0.29
Aroclor 1260	0.038 U
Total PCBs	0.130681
TEQ Partial	1.6473E-05

SB-205 8/13/2015	(0-2 ft)
Aroclor 1254	0.12
Aroclor 1260	0.021 JP
Total PCBs	0.17976589
TEQ	0.000021

Soil sampling proposed to complete delineation. No remediation planned as proposed Remedial Goals are not exceeded. LUCs may be used within a UEC to restrict access to this area.

Service Layer Credits:

LEGEND

- Hard Resins Area
- Dundee Canal (culverted section)
- Dundee Canal (open section)
- Canal Flow Direction
- Soil Boring (2000-2008)
- Soil Boring (August 2014)
- Soil Boring (August/September 2015)
- Laboratory Reporting Limit above Type 1-4 RRS
- PCB Isopleth above Type 1-4 RRS (1.55 mg/kg)
- Proposed Confirmation Soil Sample

Constituent	Type 1-4 RRS
Aroclor 1254 (mg/kg)	1.55
Aroclor 1260 (mg/kg)	1.55
Total PCBs (mg/kg)	1.55
TEQ Partial (mg/kg)	---
TEQ (mg/kg)	0.000115

Proposed PCB Remedial Goals:
Aroclor 1254 - 41 mg/kg
(Type 4, direct contact - noncancer endpoint, oral and inhalation exposure, THQ=1)

NOTES:
1) All locations are approximate.
2) Location IDs and data boxes are provided only for soil sample locations where the target constituent was analyzed.
3) If a duplicate was taken, the highest value is shown.
4) Composite samples were not included in the analytical data shown.
5) All concentrations reported in milligrams per kilogram (mg/kg).
6) The highest of the Type 1-4 RRS was used for delineation purposes.
7) Shaded represent results from historical sampling events before 2014.
8) Shaded represent results are from August 2014 sampling result.
9) Shaded represent results are from August 2015 sampling result.
10) Shaded represent results above the Type 2 RRS.

NA - Not Analyzed
ND - Not Detected
E - Analyte exceeds the calibration range of equipment.
J - Result is less than the reporting limit but greater than or equal to the detection limit and the concentration is an approximate value.
P - The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
U - Indicates the analyte was analyzed for but not detected.
RRS - Risk Reduction Standard
TEQ - Toxic Equivalency
TEF - Toxic Equivalency Factor
TEQ Partial - The summed TEF adjusted concentration of detected dioxin-like PCBs.

BASE REFERENCES:
1) Ashland (baseplot.dwg and toplot.dwg).
2) SAGIS (2008).
3) Conner and Associates Survey (March 2001).
4) Ashland Savannabase.dwg (March 2014).
5) AERIAL SOURCE: GEP (November 2014).
PROJECTION: NAD83 State Plane Georgia East Feet

0 30 60
SCALE IN FEET

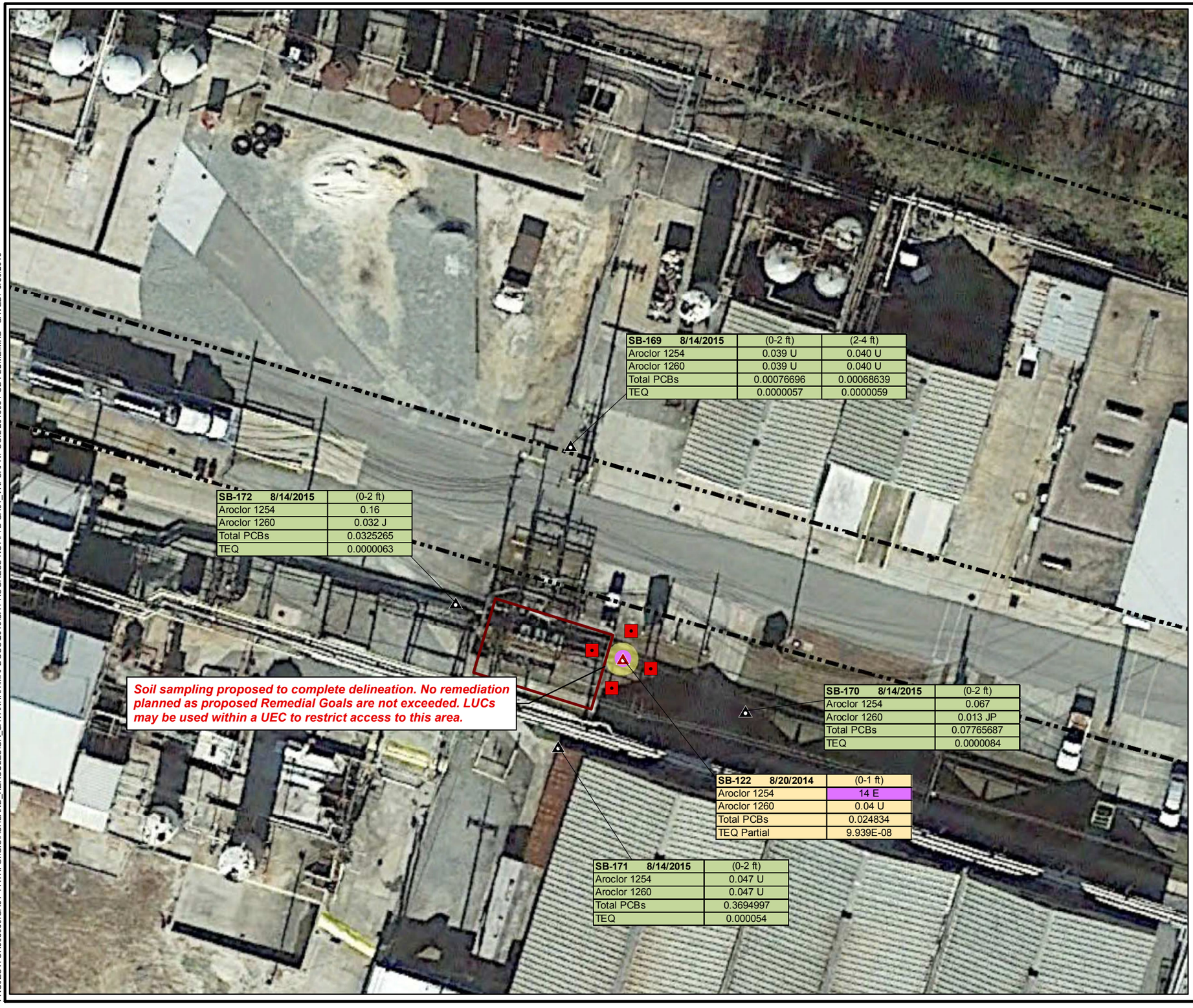
HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

PCB Delineation in Soil in the Vicinity of the Hard Resins Area

ARCADIS Design & Consultancy for natural and built assets

FIGURE
7a

CITY: KNOXVILLE DIV/GROUP: ENV/GIS LD: B.ALTOM PIC: J.REID PM: D.WILDERMAN TM: J.HANNA DBASE: T.WALL BY: BALTOM
PROJECT: OH008000.GA61 PATH: G:\GIS\ASHLAND_HERCULES\GA_SAVANNAH\MAPDOCS\2016\SA PROGRESS NO7\F7A GA61_VRPSAPR7 SOIL 201508 PCB PLUME.MXD SAVED: 9/30/2016



LEGEND

- Hercules Property (Conner 2001)
- Electrical Substation 8526
- Soil Boring (2000-2008)
- Soil Boring (August 2014)
- Soil Boring (August/September 2015)
- Laboratory Reporting Limit above Type 1-4 RRS
- PCB Isopleth above Type 1-4 RRS (1.55 mg/kg)
- Proposed Confirmation Soil Sample

Constituent	Type 1-4 RRS
Aroclor 1254 (mg/kg)	1.55
Aroclor 1260 (mg/kg)	1.55
Total PCBs (mg/kg)	1.55
TEQ Partial (mg/kg)	---
TEQ (mg/kg)	0.000115

Proposed PCB Remedial Goals:
Aroclor 1254 - 41 mg/kg
(Type 4, direct contact - noncancer endpoint, oral and inhalation exposure, THQ=1)

NOTES:
1) All locations are approximate.
2) Location IDs and data boxes are provided only for soil sample locations where the target constituent was analyzed.
3) If a duplicate was taken, the highest value is shown.
4) Composite samples were not included in the analytical data shown.
5) All concentrations reported in milligrams per kilogram (mg/kg).
6) The highest of the Type 1-4 RRS was used for delineation purposes.
7) Shaded represent results from historical sampling events before 2014.
8) Shaded represent results are from August 2014 sampling result.
9) Shaded represent results are from August 2015 sampling result.
10) Shaded represent results above the Type 2 RRS.

NA - Not Analyzed
ND - Not Detected
E - Analyte exceeds the calibration range of equipment.
J - Result is less than the reporting limit but greater than or equal to the detection limit and the concentration is an approximate value.
P - The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
U - Indicates the analyte was analyzed for but not detected.
RRS - Risk Reduction Standard
TEQ - Toxic Equivalency
TEF - Toxic Equivalency Factor
TEQ Partial - The summed TEF adjusted concentration of detected dioxin-like PCBs.

BASE REFERENCES:
1) Ashland (baseplot.dwg and toplot.dwg).
2) SAGIS (2008).
3) Conner and Associates Survey (March 2001).
4) Ashland Savannabase.dwg (March 2014).
5) AERIAL SOURCE: GEP (November 2014).
PROJECTION: NAD83 State Plane Georgia East Feet

0 30 60
SCALE IN FEET

HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

PCB Delineation in Soil in the Vicinity of the Electrical Substation 8526

ARCADIS Design & Consultancy for natural and built assets

FIGURE
7b

CITY: KNOXVILLE DIV/GROUP: ENV/GIS LD: B.ALTOM PIC: J.REID PM: D.WILDERMAN TM: J.HANNA DBASE: T.WALL BY: BALTOM
PROJECT: OH008000.GA61 PATH: G:\GIS\ASHLAND_HERCULES\GA_SAVANNAH\MAPDOCS\2016\SA PROGRESS NO7\F7B GA61_VRPSAPR7 SOIL 201508 PCB PLUME.MXD SAVED: 9/30/2016

LEGEND

- Hercules Property (Conner 2001)
- Former Dry Size Area
- Soil Boring (2000-2008)
- Soil Boring (August 2014)
- Soil Boring (August/September 2015)
- Laboratory Reporting Limit above Type 1-4 RRS
- PCB Isopleth above Type 1-4 RRS (1.55 mg/kg)
- Proposed Confirmation Soil Sample

Constituent	Type 1-4 RRS
Aroclor 1254 (mg/kg)	1.55
Aroclor 1260 (mg/kg)	1.55
Total PCBs (mg/kg)	1.55
TEQ Partial (mg/kg)	---
TEQ (mg/kg)	0.000115

Proposed PCB Remedial Goals:
Aroclor 1254 - 41 mg/kg
(Type 4, direct contact - noncancer endpoint, oral and inhalation exposure, THQ=1)

NOTES:
1) All locations are approximate.
2) Location IDs and data boxes are provided only for soil sample locations where the target constituent was analyzed.
3) If a duplicate was taken, the highest value is shown.
4) Composite samples were not included in the analytical data shown.
5) All concentrations reported in milligrams per kilogram (mg/kg).
6) The highest of the Type 1-4 RRS was used for delineation purposes.
7) Shaded represent results from historical sampling events before 2014.
8) Shaded represent results are from August 2014 sampling result.
9) Shaded represent results are from August 2015 sampling result.
10) Shaded represent results above the Type 2 RRS.

NA - Not Analyzed
ND - Not Detected
E - Analyte exceeds the calibration range of equipment.
J - Result is less than the reporting limit but greater than or equal to the detection limit and the concentration is an approximate value.
P - The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
U - Indicates the analyte was analyzed for but not detected.
RRS - Risk Reduction Standard
TEQ - Toxic Equivalency
TEF - Toxic Equivalency Factor
TEQ Partial - The summed TEF adjusted concentration of detected dioxin-like PCBs.

BASE REFERENCES:
1) Ashland (baseplot.dwg and toplot.dwg).
2) SAGIS (2008).
3) Conner and Associates Survey (March 2001).
4) Ashland Savannabase.dwg (March 2014).
5) AERIAL SOURCE: GEP (November 2014).
PROJECTION: NAD83 State Plane Georgia East Feet

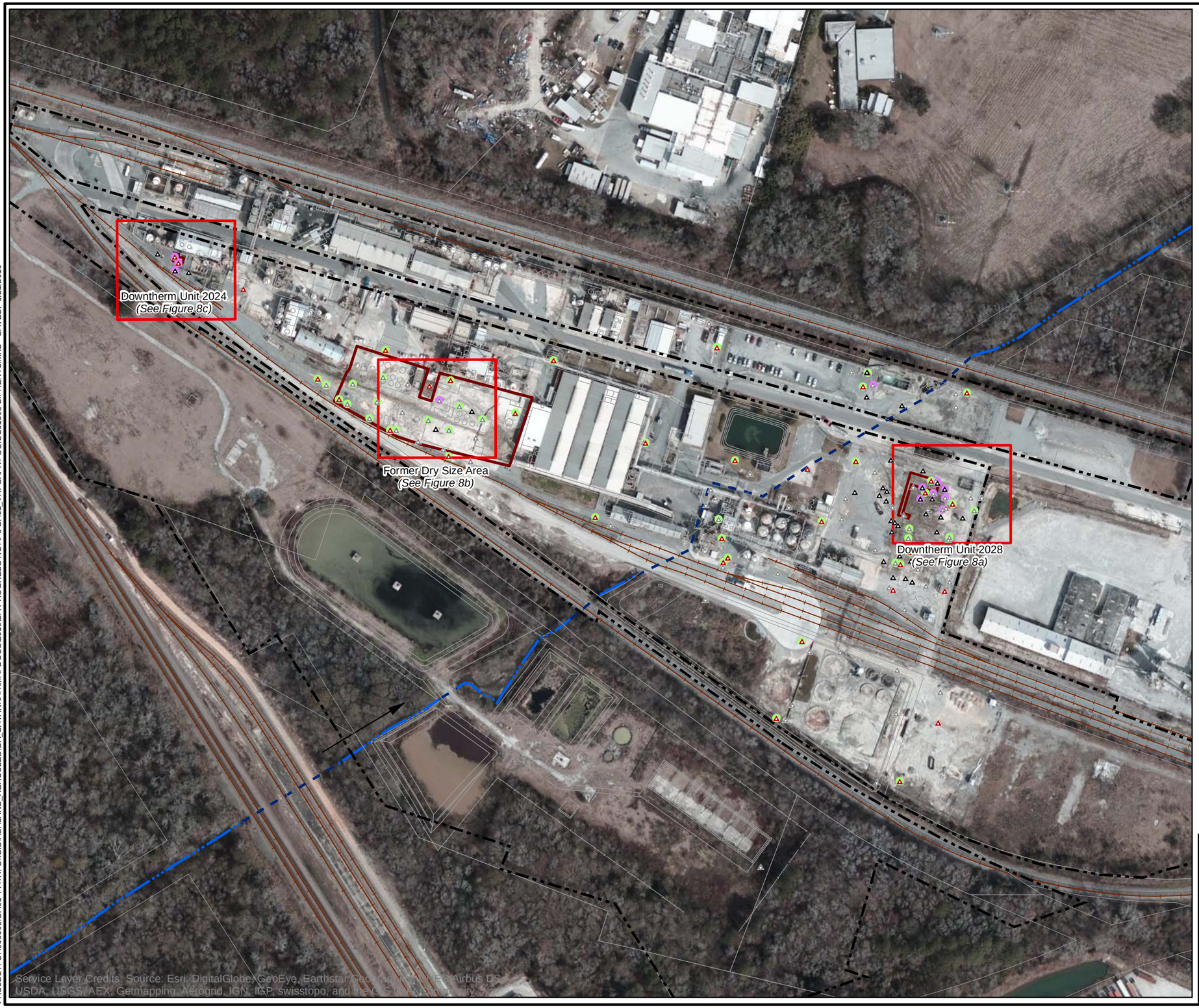
0 30 60
SCALE IN FEET

HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

PCB Delineation in Soil in the Vicinity of the Former Dry Size Area

ARCADIS Design & Consultancy for natural and built assets

FIGURE
7c



LEGEND

- Hercules Property (Conner 2001)
- Site Area
- Dundee Canal (culverted section)
- Dundee Canal (open section)
- Canal Flow Direction
- Soil Boring (2000-2008)
- Soil Boring (August 2014)
- Soil Boring (August 2015)
- Laboratory Reporting Limit above Type 1-4 RRS
- Result above Type 1-4 RRS (1.0 mg/kg)

NOTES:
1) Location IDs and data boxes are provided only for soil sample locations where the target constituent was analyzed.
2) All concentrations reported in milligrams per kilogram (mg/kg).
3) If a duplicate was taken, the highest value is shown.

RRS - Risk Reduction Standard

BASE REFERENCES:
1) Ashland (baseplot.dwg and toplot.dwg).
2) SAGIS (2008).
3) Conner and Associates Survey (March 2001).
4) Ashland Savannabase.dwg (March 2014).
PROJECTION: NAD83 State Plane Georgia East Feet
AERIAL SOURCE: ESRI Online Imagery (NAIP, October 2015)

0 200 400
SCALE IN FEET

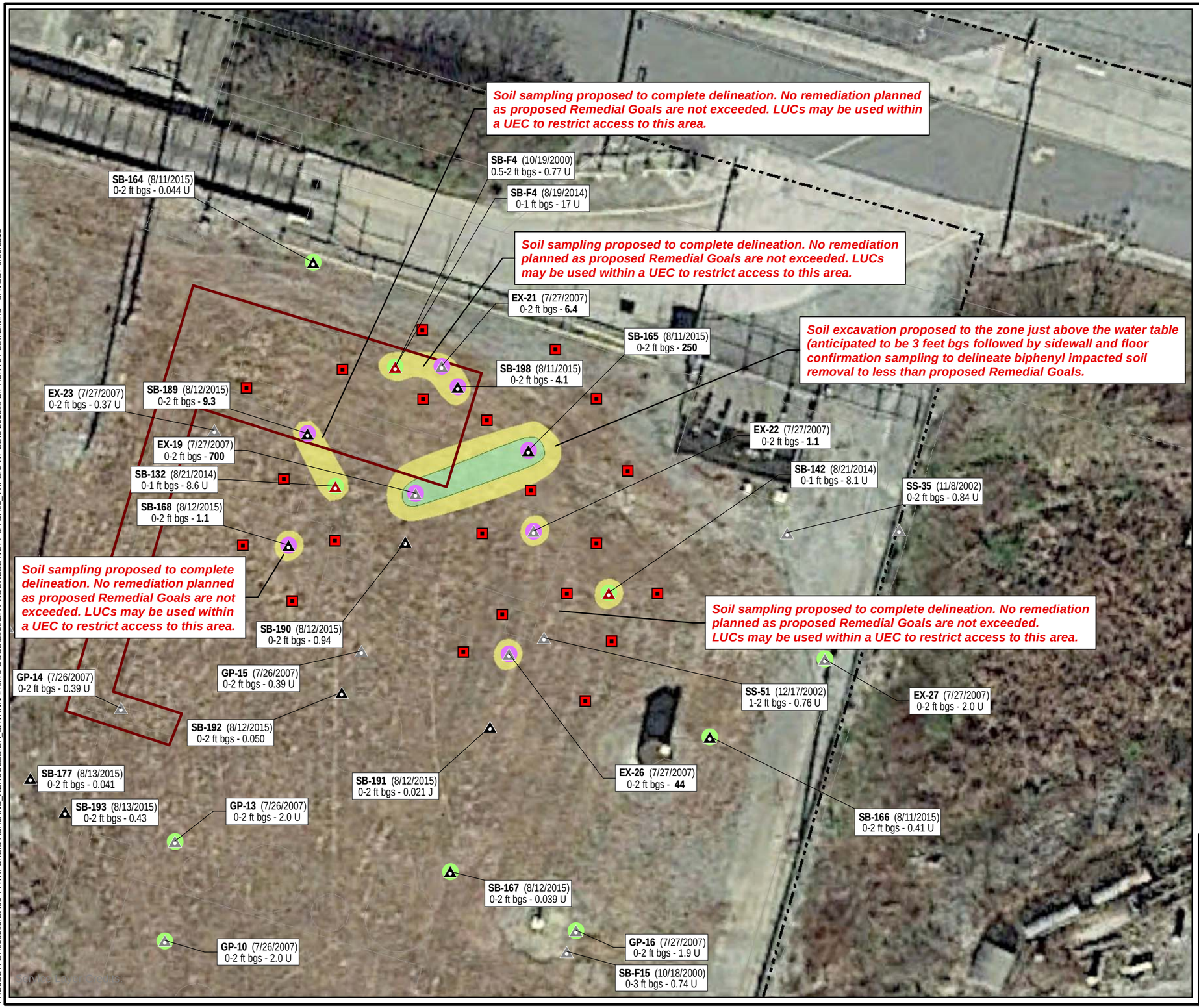
HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

1,1-Biphenyl Delineation in Soil

ARCADIS Design & Consultancy for natural and built assets

FIGURE
8

CITY: KNOXVILLE DIV/GROUP: ENV/GIS LD: B.ALTOM PIC: J.REID PM: D.WILDERMAN TM: J.HANNA DBASE: T.WALL BY: CC.SMITH
PROJECT: OH008000.GA61 PATH: G:\GIS\ASHLAND_HERCULES\GA_SAVANNAH\MAPDOCS\2016\SA PROGRESS NO7\FIG GA61_VRPSAPR7 SOIL 201508 BIPHENYL.MXD SAVED: 9/21/2016



LEGEND

- Hercules Property (Conner 2001)
- Downtherm Unit 2028
- Soil Boring (2000-2008)
- Soil Boring (August 2014)
- Soil Boring (August 2015)
- Laboratory Reporting Limit above Type 1-4 RRS
- Result above Type 1-4 RRS (1.0 mg/kg)
- 1,1-Biphenyl Isopleth above Type 1-4 RRS (1.0 mg/kg)

Proposed 1,1-Biphenyl Remedial Goals:

- 1,1-Biphenyl Isopleth above USEPA RSL Industrial (200 mg/kg)
- Proposed Confirmation Soil Sample

NOTES:
1) All locations are approximate.
2) Location IDs and data boxes are provided only for soil sample locations where the target constituent was analyzed.
3) If a duplicate was taken, the highest value is shown.
4) Composite samples were not included in the analytical data shown.
5) All concentrations reported in milligrams per kilogram (mg/kg).
6) The highest of the Type 1-4 RRS was used for delineation purposes.

J - Result is less than the reporting limit but greater than or equal to the detection limit and the concentration is an approximate value.
U - Indicates the analyte was analyzed for but not detected.
RRS - Risk Reduction Standard
RSL - Regional Screening Levels
USEPA - United States Environmental Protection Agency

BASE REFERENCES:
1) Ashland (baseplot.dwg and toplot.dwg).
2) SAGIS (2008).
3) Conner and Associates Survey (March 2001).
4) Ashland Savannabase.dwg (March 2014).
PROJECTION: NAD83 State Plane Georgia East Feet
AERIAL SOURCE: GEP (November 2014)

0 20 40
SCALE IN FEET

HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

1,1-Biphenyl Delineation in Soil in the Vicinity of the Downterm Unit 2028

ARCADIS Design & Consultancy for natural and built assets

FIGURE
8a

CITY: KNOXVILLE DIV/GROUP: ENV/GIS LD: B.ALTOM PIC: J.REID PM: D.WILDERMAN TM: J.HANNA DBASE: T.WALL BY: BALTOM
PROJECT: OH008000.GA61 PATH: G:\GIS\ASHLAND_HERCULES\GA_SAVANNAH\MAPDOCS\2016\SA PROGRESS NO7\F8A GA61_VRPSAPR7 SOIL 201508 BIPHENYL PLUME.MXD SAVED: 9/30/2016

LEGEND

- Hercules Property (Conner 2001)
- Former Dry Size Area
- Dundee Canal (culverted section)
- Dundee Canal (open section)
- Canal Flow Direction
- Soil Boring (2000-2008)
- Soil Boring (August 2014)
- Soil Boring (August 2015)
- Laboratory Reporting Limit above Type 1-4 RRS
- Result above Type 1-4 RRS (1.0 mg/kg)
- 1,1-Biphenyl Isopleth above Type 1-4 RRS (1.0 mg/kg)
- Proposed Confirmation Soil Sample

NOTES:
1) All locations are approximate.
2) Location IDs and data boxes are provided only for soil sample locations where the target constituent was analyzed.
3) If a duplicate was taken, the highest value is shown.
4) Composite samples were not included in the analytical data shown.
5) All concentrations reported in milligrams per kilogram (mg/kg).
6) The highest of the Type 1-4 RRS was used for delineation purposes.

J - Result is less than the reporting limit but greater than or equal to the detection limit and the concentration is an approximate value.
U - Indicates the analyte was analyzed for but not detected.
RRS - Risk Reduction Standard
RSL - Regional Screening Levels
USEPA - United States Environmental Protection Agency

BASE REFERENCES:
1) Ashland (baseplot.dwg and toplot.dwg).
2) SAGIS (2008).
3) Conner and Associates Survey (March 2001).
4) Ashland Savannabase.dwg (March 2014).
PROJECTION: NAD83 State Plane Georgia East Feet
AERIAL SOURCE: GEP (November 2014).

0 20 40
SCALE IN FEET

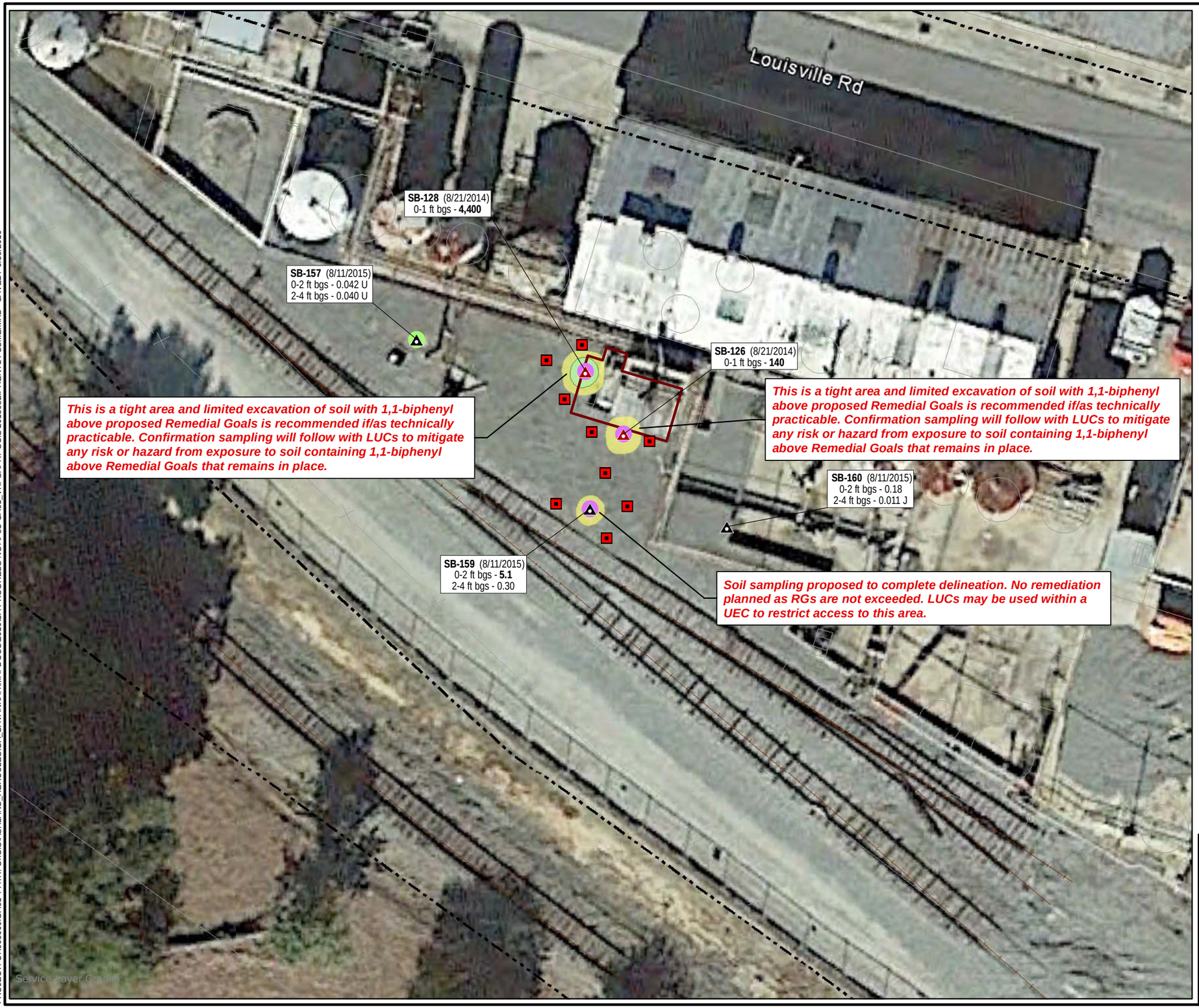
HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

1,1-Biphenyl Delineation in Soil in the Vicinity of the Former Dry Size Area

ARCADIS Design & Consultancy for natural and built assets

FIGURE
8b

CITY: KNOXVILLE DIV/GROUP: ENV/GIS LD: B.ALTOM PIC: J.REID PM: D.WILDERMAN TM: J.HANNA DBASE: T.WALL BY: CC.SMITH
PROJECT: OH008000.GA61 PATH: G:\GIS\ASHLAND_HERCULESGA_SAVANNAH\MAPDOCS\2016\SA PROGRESS NO7\F8B GA61_VRPSAPR7 SOIL 201508 BIPHENYL PLUME.MXD SAVED: 9/21/2016



LEGEND

- Hercules Property (Conner 2001)
- Downtherm Unit 2024
- Soil Boring (2000-2008)
- Soil Boring (August 2014)
- Soil Boring (August 2015)
- Laboratory Reporting Limit above Type 1-4 RRS
- Result above Type 1-4 RRS (1.0 mg/kg)
- 1,1-Biphenyl Isopleth above Type 1-4 RRS (1.0 mg/kg)

Proposed 1,1-Biphenyl Remedial Goals:

- 1,1-Biphenyl Isopleth above USEPA RSL Industrial (200 mg/kg)
- Proposed Confirmation Soil Sample

NOTES:
1) All locations are approximate.
2) Location IDs and data boxes are provided only for soil sample locations where the target constituent was analyzed.
3) If a duplicate was taken, the highest value is shown.
4) Composite samples were not included in the analytical data shown.
5) All concentrations reported in milligrams per kilogram (mg/kg).
6) The highest of the Type 1-4 RRS was used for delineation purposes.

J - Result is less than the reporting limit but greater than or equal to the detection limit and the concentration is an approximate value.
U - Indicates the analyte was analyzed for but not detected.
RRS - Risk Reduction Standard
RSL - Regional Screening Levels
USEPA - United States Environmental Protection Agency

BASE REFERENCES:
1) Ashland (baseplot.dwg and toplot.dwg).
2) SAGIS (2008).
3) Conner and Associates Survey (March 2001).
4) Ashland Savannabase.dwg (March 2014).
PROJECTION: NAD83 State Plane Georgia East Feet
AERIAL SOURCE: GEP (November 2014).

0 20 40
SCALE IN FEET

HERCULES LLC - SAVANNAH PLANT (HSI #10696)
SAVANNAH, GEORGIA
VOLUNTARY INVESTIGATION AND REMEDIATION PLAN
SEMIANNUAL PROGRESS REPORT #7

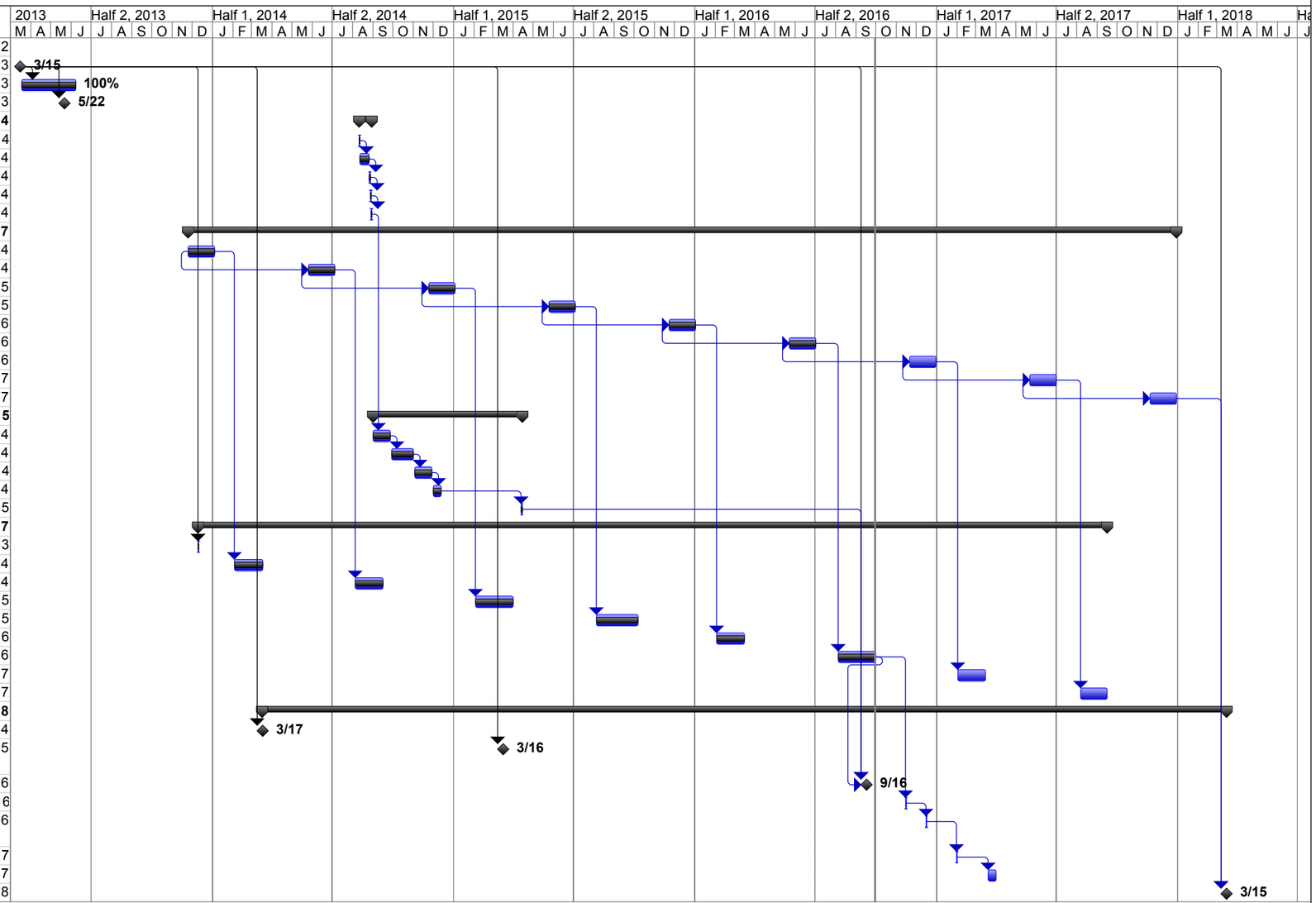
1,1-Biphenyl Delineation in Soil in the Vicinity of the Downterm Unit 2024

ARCADIS Design & Consultancy for natural and built assets

FIGURE
8c

Figure 9
Hercules Incorporated
3000 Louisville Road, Savannah, Georgia
Updated Voluntary Remediation Program Milestone Schedule

ID	Task Name	Duration	Start	Finish
1	Submit VRP Application	1 day	Mon 4/9/12	Mon 4/9/12
2	EPD Approval of VRP Application	1 day	Fri 3/15/13	Fri 3/15/13
3	Prepare Investigation Work Plan	60 days	Mon 3/18/13	Fri 6/7/13
4	Record deed notice	0 days	Wed 5/22/13	Wed 5/22/13
5	**Field Activities**	**15 days**	**Mon 8/11/14**	**Fri 8/29/14**
6	Mobilize for data collection	1 day	Mon 8/11/14	Mon 8/11/14
7	Confirmatory soil sampling	10 days	Tue 8/12/14	Mon 8/25/14
8	Slug testing	2 days	Tue 8/26/14	Wed 8/27/14
9	Well gauging	1 day	Thu 8/28/14	Thu 8/28/14
10	Surface water/ sediment sampling	1 day	Fri 8/29/14	Fri 8/29/14
11	**Semiannual groundwater sampling**	**1070 days**	**Mon 11/25/13**	**Fri 12/29/17**
12	Sampling and analysis event	30 days	Mon 11/25/13	Fri 1/3/14
13	Sampling and analysis event	30 days	Mon 5/26/14	Fri 7/4/14
14	Sampling and analysis event	30 days	Mon 11/24/14	Fri 1/2/15
15	Sampling and analysis event	30 days	Mon 5/25/15	Fri 7/3/15
16	Sampling and analysis event	30 days	Mon 11/23/15	Fri 1/1/16
17	Sampling and analysis event	30 days	Mon 5/23/16	Fri 7/1/16
18	Sampling and analysis event	30 days	Mon 11/21/16	Fri 12/30/16
19	Sampling and analysis event	30 days	Mon 5/22/17	Fri 6/30/17
20	Sampling and analysis event	30 days	Mon 11/20/17	Fri 12/29/17
21	**Data analysis**	**162 days**	**Mon 9/1/14**	**Tue 4/14/15**
22	Delineation assessment	20 days	Mon 9/1/14	Fri 9/26/14
23	Human health risk assessment	25 days	Mon 9/29/14	Fri 10/31/14
24	Ecological risk assessment	20 days	Mon 11/3/14	Fri 11/28/14
25	CSM update	10 days	Mon 12/1/14	Fri 12/12/14
26	Delineation assessment phase 2	2 days	Mon 4/13/15	Tue 4/14/15
27	**Reporting**	**984 days**	**Tue 12/10/13**	**Fri 9/15/17**
28	Semiannual Progress Update #1	1 day	Tue 12/10/13	Tue 12/10/13
29	Semiannual Progress Report #2	31 days	Mon 2/3/14	Mon 3/17/14
30	Semiannual Progress Report #3	30 days	Tue 8/5/14	Mon 9/15/14
31	Semiannual Progress Report #4	41 days	Tue 2/3/15	Tue 3/31/15
32	Semiannual Progress Report #5	45 days	Wed 8/5/15	Tue 10/6/15
33	Semiannual Progress Report #6	30 days	Wed 2/3/16	Tue 3/15/16
34	Semiannual Progress Report #7	41 days	Fri 8/5/16	Fri 9/30/16
35	Semiannual Progress Report #8	30 days	Thu 2/2/17	Wed 3/15/17
36	Semiannual Progress Report #9	30 days	Mon 8/7/17	Fri 9/15/17
37	**Required Performance Milestones**	**1044 days**	**Mon 3/17/14**	**Thu 3/15/18**
38	Horizontal delineation complete (onsite)	1 day	Mon 3/17/14	Mon 3/17/14
39	Horizontal delineation complete (off-site)	1 day	Mon 3/16/15	Mon 3/16/15
40	Submit updated CSM	1 day	Fri 9/16/16	Fri 9/16/16
41	RGs evaluated and approved	1 day	Tue 11/15/16	Tue 11/15/16
42	Remediation Work Plan submitted, site visit	1 day	Fri 12/16/16	Fri 12/16/16
43	Remediation Work Plan approved	1 day	Tue 1/31/17	Tue 1/31/17
44	Remedy complete	10 days	Mon 3/20/17	Fri 3/31/17
45	CSR submittal	1 day	Thu 3/15/18	Thu 3/15/18



Project: 2016_09_30_Savannah Herc
Date: Fri 9/30/16

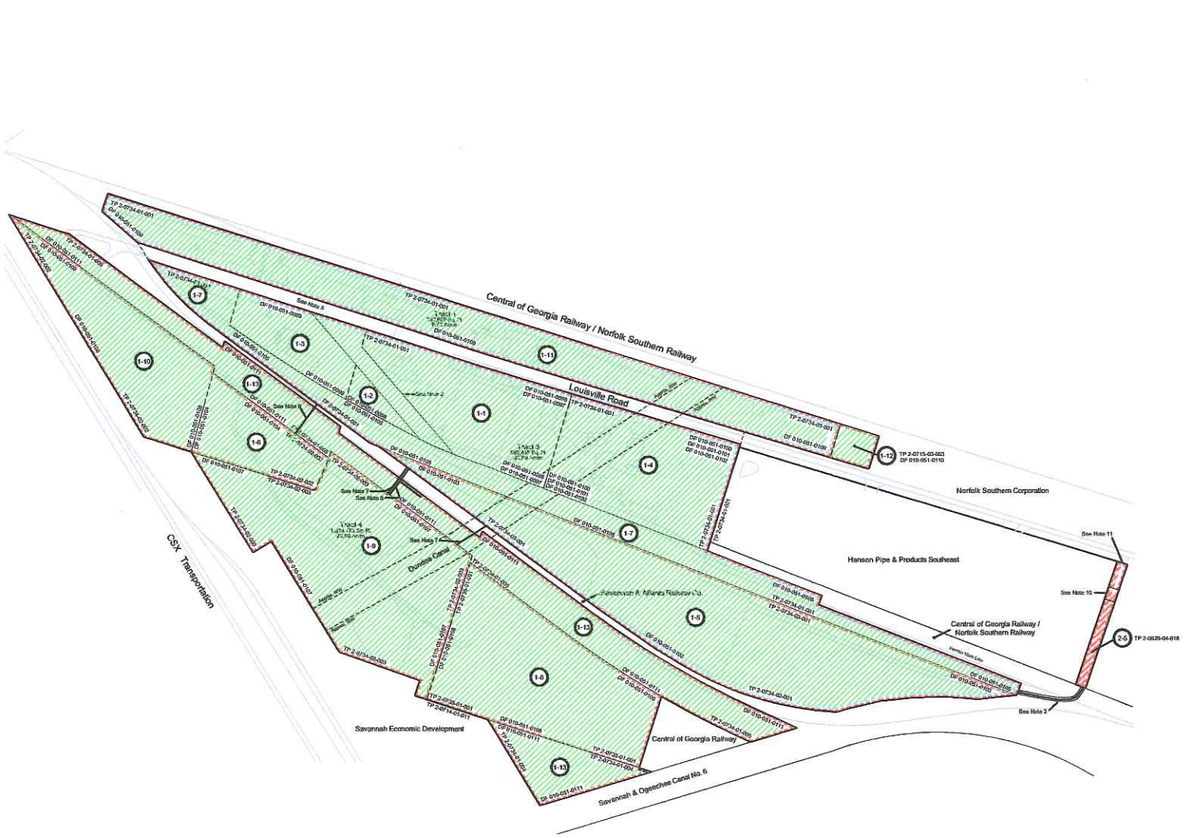
Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Progress
Split	External Tasks	Inactive Summary	Manual Summary	Deadline
Milestone	External Milestone	Manual Task	Start-only	
Summary	Inactive Task	Duration-only	Finish-only	

APPENDIX A

Tax Parcel Map & Hercules Survey
(Connor and Associates (March 2001)

HERCULES INCORPORATED

3000 LOUISVILLE ROAD, SAVANNAH, CHATHAM COUNTY, GEORGIA



Parcels Currently Owned by Hercules Incorporated
Approximately 53.27 Acres

Parcel	Deed File	Grantor	Deed Source	Area	Comments
1-1	010-051-0096	Western Paper Makers Chemical	Deed Book 31-Z, Folio 193	3.49 Acres	A part of Tract 3 on the Boundary Survey by Conner & Associates dated March 16, 2001.
	010-051-0097	Paper Makers Chemical Corp.	Deed Book 31-X, Folio 353		A part of Tract 3 on the Boundary Survey by Conner & Associates dated March 16, 2001.
1-2	010-051-0098	Paper Makers Chemical Corp.	Deed Book 31-Y, Folio 032	0.33 Acres	A part of Tract 3 on the Boundary Survey by Conner & Associates dated March 16, 2001.
1-3	010-051-0099	Paper Makers Chemical Corp.	Deed Book 31-X, Folio 354	1.42 Acres	A part of Tract 3 on the Boundary Survey by Conner & Associates dated March 16, 2001.
1-4	010-051-0100	James R. Sheldon, Executor	Deed Book 41-X, Folio 197	4.08 Acres	A part of Tract 3 on the Boundary Survey by Conner & Associates dated March 16, 2001.
	010-051-0101	Emma W. Morellas	Deed Book 41-Y, Folio 086		
	010-051-0102	James R. Sheldon	Deed Book 41-X, Folio 214		
1-5	*010-051-0103	Savannah & Atlanta Railway Co.	Deed Book 65-Q, Folio 441	8.47 Acres	A part of Tract 3 on the Boundary Survey by Conner & Associates dated March 16, 2001.
1-6	010-051-0104	R.F. Simmons	Deed Book 66-B, Folio 355	1.73 Acres	A part of Tract 4 on the Boundary Survey by Conner & Associates dated March 16, 2001.
1-7	010-051-0105	Savannah & Atlanta Railway Co.	Deed Book 97-D, Folio 645	4.22 Acres	A part of Tract 3 on the Boundary Survey by Conner & Associates dated March 16, 2001.
1-8	010-051-0106	Sidney L. Raskin, et.al	Deed Book 99-A, Folio 253	5.33 Acres	A part of Tract 4 on the Boundary Survey by Conner & Associates dated March 16, 2001.
1-9	010-051-0107	Jack W. Shearouse	Deed Book 99-O, Folio 017	7.02 Acres	A part of Parcel 1 as shown on the Boundary and Site Survey for the Bank of America of
1-10	010-051-0108	Jewel Tuten Hoggan	Deed Book 118-Y, Folio 842	3.31 Acres	A part of Tract 4 on the Boundary Survey by Conner & Associates dated March 16, 2001.
1-11	010-051-0109	Central of Georgia Railroad Co.	Deed Book 121-C, Folio 218	6.41 Acres	A part of Tract 1 on the Boundary Survey by Conner & Associates dated March 16, 2001.
1-12	010-051-0110	Central of Georgia Railroad Co.	Deed Book 126-T, Folio 474	0.31 Acres	A part of Tract 1 on the Boundary Survey by Conner & Associates dated March 16, 2001.
1-13	010-051-0111	CSX Transportation Inc.	Deed Book 135-B, Folio 113	5.21 Acres	A part of Tract 4 on the Boundary Survey by Conner & Associates dated March 16, 2001.
	010-051-0111			1.26 Acres	A part of Tract 4 on the Boundary Survey by Conner & Associates dated March 16, 2001.
N/A				0.68 Acres	A part of Tract 3 on the Boundary Survey by Conner & Associates dated March 16, 2001.
Total				53.27 Acres	

Parcels Formerly Owned by Hercules Incorporated

Parcel	Deed File	Grantor	Deed Source	Area	Comments
2-5	*010-051-0103	Savannah & Atlanta Railway Co.	Deed Book 65-Q, Folio 441	0.31 Acres	Acreage shown is calculated from the deed plot.

Tax Parcel Summary

Parcel	Tax Parcel	Deed Reference	Assessor Area	Survey/Calc. Area	Comments
1-1	2-0734-01-001	All of Deed Book 31-Z, Folio 193	14.43 Acres	3.49 Acres	
		All of Deed Book 31-X, Folio 353			
1-2		All of Deed Book 31-Y, Folio 032		0.33 Acres	
1-3		All of Deed Book 31-X, Folio 354		1.42 Acres	
1-4		All of Deed Book 41-X, Folio 197		4.08 Acres	
		All of Deed Book 41-Y, Folio 086			
		All of Deed Book 41-X, Folio 214			
1-7		All of Deed Book 97-D, Folio 645		4.22 Acres	
1-11		All of Deed Book 121-C, Folio 218		6.41 Acres	
N/A		N/A		0.68 Acres	
1-5	2-0734-03-001	Part of Deed Book 65-Q, Folio 441	7.86 Acres	8.47 Acres	
1-6	2-0734-02-002	All of Deed Book 66-B, Folio 355	6.24 Acres	1.73 Acres	
1-10		All of Deed Book 118-Y, Folio 842		3.31 Acres	
1-8	2-0735-01-001	All of Deed Book 99-A, Folio 253	7.85 Acres	5.33 Acres	
1-9	2-0734-02-003	All of Deed Book 99-O, Folio 017	7.19 Acres	7.02 Acres	
1-12	2-0715-03-003	All of Deed Book 126-T, Folio 474	0.31 Acres	0.31 Acres	
1-13	2-0734-01-004	Part of Deed Book 135-B, Folio 113	1.08 Acres	1.26 Acres	
1-13	2-0734-01-005	Part of Deed Book 135-B, Folio 113	8.11 Acres	5.21 Acres	
Total			53.07 Acres	53.27 Acres	

Notes

1. Property lines shown are take from survey plats by Conner and Associates dated March 16, 2001.
2. A deed of correction by and between Charles Lamas to Western Paper Makers Chemical dated August 1, 1922 of record in Deed Book 17-K, Page 249 states "This error in description was due to the fact that the surveyor did not show the right-of way of the Midland Railroad which crosses Patterson's four acres in a curve near the northwestern boundary. This was due to the fact that the Midland Railroad has been abandoned and its tracks taken up. All of this right-of-way we understand is now under fence by the Paper Makers Chemical Corporation."
3. On October 7, 1976, the Central of Georgia Railroad Company granted unto Hercules, Incorporated, a license to construct, maintain and use as a private access road upon and along, and across at grade, the right-of-way or property of the Railroad. Please note Item 4 of this agreement states "This license is a personal privilege to Licensee hereunder, and shall not be transferred or assigned without the written consent of Railroad."
4. All of Tract 1 with the exception of Parcel 1-12, and all of Tract 3 are subject to an Affidavit Pursuant to the Voluntary Remediation Program Act - Officer's Affidavit, Hercules Incorporated dated May 1, 2013.
5. On March 11, 1966, the Board of County Commissioners granted to Hercules Powder Company a perpetual right-of-way and easement to construct and maintain a sanitary sewer, storm sewer and industrial sewer over and along this portion of Louisville Road. This record is found in Minute Book A-7.
6. Approximate location of a pipe bridge and gravel walkway crossing as shown on the Hercules Facilities map dated September 28, 1982 and referenced as an agreement acquired on June 8, 1959 from the Savannah and Atlanta Railway Company.
7. Approximate location of a pipe crossing as shown on the Hercules Facilities map dated September 28, 1982 and referenced as an agreement acquired on February 14, 1972 from the Seaboard Coast Line Railroad and Central of Georgia Railway Company.
8. Approximate location of a wire crossing as shown on the Hercules Facilities map dated September 28, 1982 and referenced as an agreement acquired on March 19, 1973 from the Central of Georgia Railway Company.
9. The Dundee Canal is shown in its approximate location based on surveys by Conner and Associates dated Match 16, 2001 for Hercules Incorporated and a survey by Kern-Coleman & Company dated May 29, 2008 for the Seaboard System Railroad.
10. 40 Ft. Access Easement per agreement dated November 24, 1998 by and between Hercules Incorporated and Sherman International Corp. as shown on attached plat by Barrett Land Surveying, Inc., dated November 18, 1997
11. See letter agreement dated May 23, 1967 by and between Hercules Incorporated and Ken-Block Company granting permission to maintain a fence over and across the property of Hercules Incorporated.

Legend

- Property currently owned by Hercules Incorporated
- Boundary line per deed record.
- Surveyed tract boundary line.
- Tax Parcel Boundary.
- Area subject to Voluntary Remediation Program Act.
- TP — Tax Parcel Number.
- DF — Ashland Inc. Deed File Reference.

Graphic Scale

0 200 400 800

Scale: 1 inch = 200 feet

Parcel Map

Revised	
Date	By
Mar. 5, 2014	BCP

Site: Hercules Incorporated
3000 Louisville Road
Savannah, GA 31410

ASHLAND
Ashland Inc.
Corporate Real Estate
Lexington, Kentucky

Drawn: Sep. 17, 2013	By: Barry Peters	Revised: As Shown
Master File No.: MF-GA-H	Scale: 1 Inch = 200 Feet	Drawing No.: SAVANNAHBASE

SURVEYOR'S NOTES

1. THE FOLLOWING DEEDS, PLATS AND DRAWINGS WERE USED IN PREPARING THIS SURVEY:
   - A. WARRANTY DEED BY AND BETWEEN EMMA W. MOREL AND HERCULES POWDER COMPANY DATED NOVEMBER 24, 1945, RECORDED IN DEED BOOK 41Y, PAGE 86, CHATHAM COUNTY, GEORGIA RECORDS.
   - B. EXECUTOR'S DEED BY AND BETWEEN JAMES R. SHELDON, EXECUTOR OF THE LAST WILL AND TESTAMENT OF BESSIE R. SHELDON AND HERCULES POWDER COMPANY DATED NOVEMBER 14, 1945, RECORDED IN DEED BOOK 41X, FOLIO 197, CHATHAM COUNTY, GEORGIA RECORDS.
   - C. WARRANTY DEED BY AND BETWEEN JAMES R. SHELDON AND HERCULES POWDER COMPANY DATED NOVEMBER 14, 1945, RECORDED IN DEED BOOK 41X, FOLIO 214, CHATHAM COUNTY, GEORGIA RECORDS.
   - D. WARRANTY DEED BY AND BETWEEN PAPER MAKERS CHEMICAL CORPORATION AND HERCULES POWDER COMPANY DATED NOVEMBER 2, 1936, RECORDED IN DEED BOOK 31Z, FOLIO 193, CHATHAM COUNTY, GEORGIA RECORDS.
   - E. WARRANTY DEED BY AND BETWEEN CENTRAL OF GEORGIA RAILROAD COMPANY AND HERCULES INCORPORATED DATED FEBRUARY 23, 1983, RECORDED IN DEED BOOK 121C, FOLIO 218, CHATHAM COUNTY, GEORGIA RECORDS.
   - F. WARRANTY DEED BY AND BETWEEN SAVANNAH & ATLANTA RAILWAY COMPANY AND HERCULES POWDER COMPANY DATED SEPTEMBER 29, 1956, RECORDED IN DEED BOOK 65Q, FOLIO 441, CHATHAM COUNTY, GEORGIA RECORDS.
   - G. WARRANTY DEED BY AND BETWEEN HERCULES INCORPORATED AND SAVANNAH & ATLANTA RAILWAY COMPANY DATED MARCH 12, 1969, RECORDED IN DEED BOOK 96K, FOLIO 549, CHATHAM COUNTY, GEORGIA RECORDS.
   - H. WARRANTY DEED BY AND BETWEEN SCOTT CONCRETE PIPE COMPANY AND SHERMAN INTERNATIONAL DATED OCTOBER 8, 1987, RECORDED IN DEED BOOK 136B, FOLIO 708, CHATHAM COUNTY, GEORGIA RECORDS.
   - I. SUBDIVISION MAP OF THE J.H. ROBERTS ESTATE BY W.F. BROWN DATED JULY 1915.
   - J. PLAT OF 1.22 ACRES OF LAND FOR THE WESTERN PAPER MAKERS CHEMICAL COMPANY BY PERCY SUGDEN, C.E. DATED MARCH 25, 1925, RECORDED IN MAP BOOK 2, PAGE 35, CHATHAM COUNTY, GEORGIA RECORDS.
   - K. SOUTHERN RAILWAY SYSTEM PLAT BY JOSEPH D. SIMS, R.L.S. OF 6.412 ACRES OF PROPERTY RECORDED IN PLAT BOOK 4P, PAGE 189, CHATHAM COUNTY, GEORGIA RECORDS.
   - L. SAVANNAH & ATLANTA RAILWAY COMPANY PLAN A-19-S DATED NOVEMBER 1955, RECORDED IN PLAT BOOK H, PAGE 137, CHATHAM COUNTY, GEORGIA RECORDS.
   - M. SAVANNAH & ATLANTA RAILWAY COMPANY MAP OF 4.144 ACRES OF PROPERTY TO BE CONVEYED TO HERCULES POWDER COMPANY INC. DRAWING NO. 11-80 DATED MARCH 15, 1967.
   - N. SAVANNAH & ATLANTA RAILWAY COMPANY MAP SHOWING PROPERTY TO BE ACQUIRED FROM HERCULES POWDER COMPANY DRAWING NO. 4-292 DATED AUGUST 8, 1967, RECORDED IN PLAT BOOK T, PAGES 170 & 171, CHATHAM COUNTY, GEORGIA RECORDS.
   - O. WARRANTY DEED BETWEEN JACK W. SHEARHOUSE AND HERCULES INCORPORATED DATED AUGUST 24, 1971, RECORDED IN DEED BOOK 99O, FOLIO 17, CHATHAM COUNTY, GEORGIA RECORDS.
   - P. DEED BETWEEN SIDNEY L. RASKIN AND SAVANNAH JEWISH COUNCIL, INC. AND HERCULES INCORPORATED DATED 1971, RECORDED IN DEED BOOK 99A, FOLIO 253, CHATHAM COUNTY, GEORGIA RECORDS.
   - Q. DEED BETWEEN SAVANNAH & ATLANTA RAILWAY COMPANY AND HERCULES, INCORPORATED DATED AUGUST 29, 1969, RECORDED IN DEED BOOK 97D, FOLIO 645, CHATHAM COUNTY, GEORGIA RECORDS.
   - R. DEED BETWEEN R.F. SIMMONS AND HERCULES POWDER COMPANY DATED DECEMBER 14, 1956, RECORDED IN DEED BOOK 66B, FOLIO 355, CHATHAM COUNTY, GEORGIA RECORDS.
   - S. WARRANTY DEED BETWEEN JEWELL TUTEN HOGGAN AND HERCULES INCORPORATED DATED JULY 29, 1982, RECORDED IN DEED BOOK 118Y, FOLIO 842, CHATHAM COUNTY, GEORGIA RECORDS.
   - T. DEED BETWEEN CENTRAL OF GEORGIA RAILROAD COMPANY AND HERCULES INCORPORATED DATED DECEMBER 26, 1984, RECORDED IN DEED BOOK 126T, FOLIO 474, CHATHAM COUNTY, GEORGIA RECORDS.
   - U. DEED BETWEEN CSX TRANSPORTATION, INC. AND HERCULES INCORPORATED DATED JUNE 17, 1987, RECORDED IN DEED BOOK 135B, FOLIO 113, CHATHAM COUNTY, GEORGIA RECORDS.
   - V. EASEMENT DEED BETWEEN SEABOARD AIRLINE RAILROAD AND SAVANNAH & ATLANTA RAILWAY COMPANY DATED SEPTEMBER 22, 1961.
2. THE FIELD DATA UPON WHICH THIS PLAT IS BASED HAS A CLOSURE PRECISION OF ONE FOOT IN 106,634, AND AN ANGULAR ERROR OF LESS THAN A SECOND PER ANGLE POINT, AND WAS ADJUSTED USING LEAST SQUARES.
3. THIS PLAT HAS BEEN CALCULATED FOR CLOSURE AND IS FOUND TO BE ACCURATE WITHIN ONE FOOT IN 187,706 FEET.
4. PER CLIENT REQUEST, IMPROVEMENTS ON THE PROPERTY HAVE NOT BEEN LOCATED.
5. HORIZONTAL AND ANGULAR MEASUREMENTS FOR THIS SURVEY WERE MADE WITH A SOKKIA POWERSET TOTAL STATION.
6. FIELD WORK FOR THIS SURVEY WAS PERFORMED ON JANUARY 14, 15, FEBRUARY 8 – 28 AND MARCH 13, 2001.
7. FLOOD ZONE LINES PLOTTED ACCORDING TO FIRM PANEL NO. 130030 0080C, DATED MAY 19, 1987 AND ARE APPROXIMATE.
8. 'o' ARE 1/2" RE-BAR SET AT CORNER SHOWN EXCEPT AS NOTED.
9. THE BASIS FOR THE BEARINGS SHOWN ON THIS SURVEY PLAT IS THE MAP IN NOTE 11.
10. THIS SITE IS ZONED I-H, INDUSTRIAL – HEAVY, PER CHATHAM COUNTY ZONING.

SURVEYOR'S CERTIFICATION

THE UNDERSIGNED HEREBY CERTIFIES TO EASTMAN CHEMICAL RESINS, INC., HERCULES INCORPORATED, AND LAWYERS TITLE INSURANCE CORPORATION AS FOLLOWS:

1. THE UNDERSIGNED IS A DULY LICENSED AND REGISTERED LAND SURVEYOR FOR THE STATE OF GEORGIA.
2. THE UNDERSIGNED PREPARED THE PLAT OF SURVEY ENTITLED "BOUNDARY SURVEY OF THE HERCULES INCORPORATED PROPERTY, SAVANNAH GEORGIA PLANT", DATED MARCH 16, 2001. THE SURVEY DEPICTS: (A) THE POINT OF REFERENCE FROM WHICH THE SURVEY WAS PREPARED, (B) THE BOUNDARIES OF THE SUBJECT PROPERTY, AND THE COURSES AND DISTANCES OF SUCH BOUNDARIES; (C) THE AREA OF THE PROPERTY IN ACRES; (D) THE LOCATION OF RIGHTS-OF-WAY, EASEMENTS AND OTHER MATTERS OF RECORD AS CONTAINED IN THAT CERTAIN LAWYERS TITLE INSURANCE CORPORATION TITLE COMMITMENT CASE NO. 378-34/LMD AFFECTING THE PROPERTY, NOTE: SCHEDULE B-SECTION 2 EXCEPTIONS 7-11 WERE NOT SUPPLIED TO THE UNDERSIGNED AND ARE NOT DEPICTED ON THE SURVEY. THE UNDERSIGNED IS ALSO UNABLE TO DETERMINE THE LOCATION OF THE FORMER RIGHTS OF WAY OF THE MIDLAND RAILWAY COMPANY. (E) DEDICATED PUBLIC RIGHTS-OF-WAY ABUTTING THE PROPERTY, TOGETHER WITH THE WIDTH OF THE RIGHTS-OF-WAY AND NAMES THEREOF; (F) LOCATION OF THE DUNDEE CANAL AND WATER WELLS LOCATED UPON OR ABUTTING THE PROPERTY
3. EXCEPT AS SHOWN ON THE SURVEY, THERE ARE NO VISIBLE: (A) ENCROACHMENTS UPON THE PROPERTY BY IMPROVEMENTS ON ADJACENT PROPERTY; OR (B) ENCROACHMENTS ON ADJACENT PROPERTY, PUBLIC OR PRIVATE RIGHTS-OF-WAY, OR EASEMENTS BY IMPROVEMENTS ON THE PROPERTY.
4. LOUISVILLE ROAD IS A PAVED, DEDICATED PUBLIC RIGHT-OF-WAY BUT DOES NOT APPEAR TO BE MAINTAINED BY GOVERNMENTAL AUTHORITY WITHIN THE PLANT BOUNDARY.
5. THE UNDERSIGNED HAS REVIEWED FIRM PANEL NO. 130030 0080C, DATED MAY 19, 1987 AND HAS DETERMINED THAT PORTIONS OF THE PROPERTY DEPICTED ON THE SURVEY ARE LOCATED IN A SPECIAL FLOOD HAZARD AREA, AS DEFINED UNDER THE NATIONAL FLOOD INSURANCE PROGRAM ADMINISTERED BY THE FEDERAL INSURANCE ADMINISTRATION OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

THE UNDERSIGNED MAKES THE FORGOING CERTIFICATION KNOWING THAT EASTMAN CHEMICAL RESINS, INC., HERCULES INCORPORATED, AND LAWYERS TITLE INSURANCE CORPORATION WILL RELY THEREON. THIS CERTIFICATION IS MADE AS OF MARCH 16, 2001.

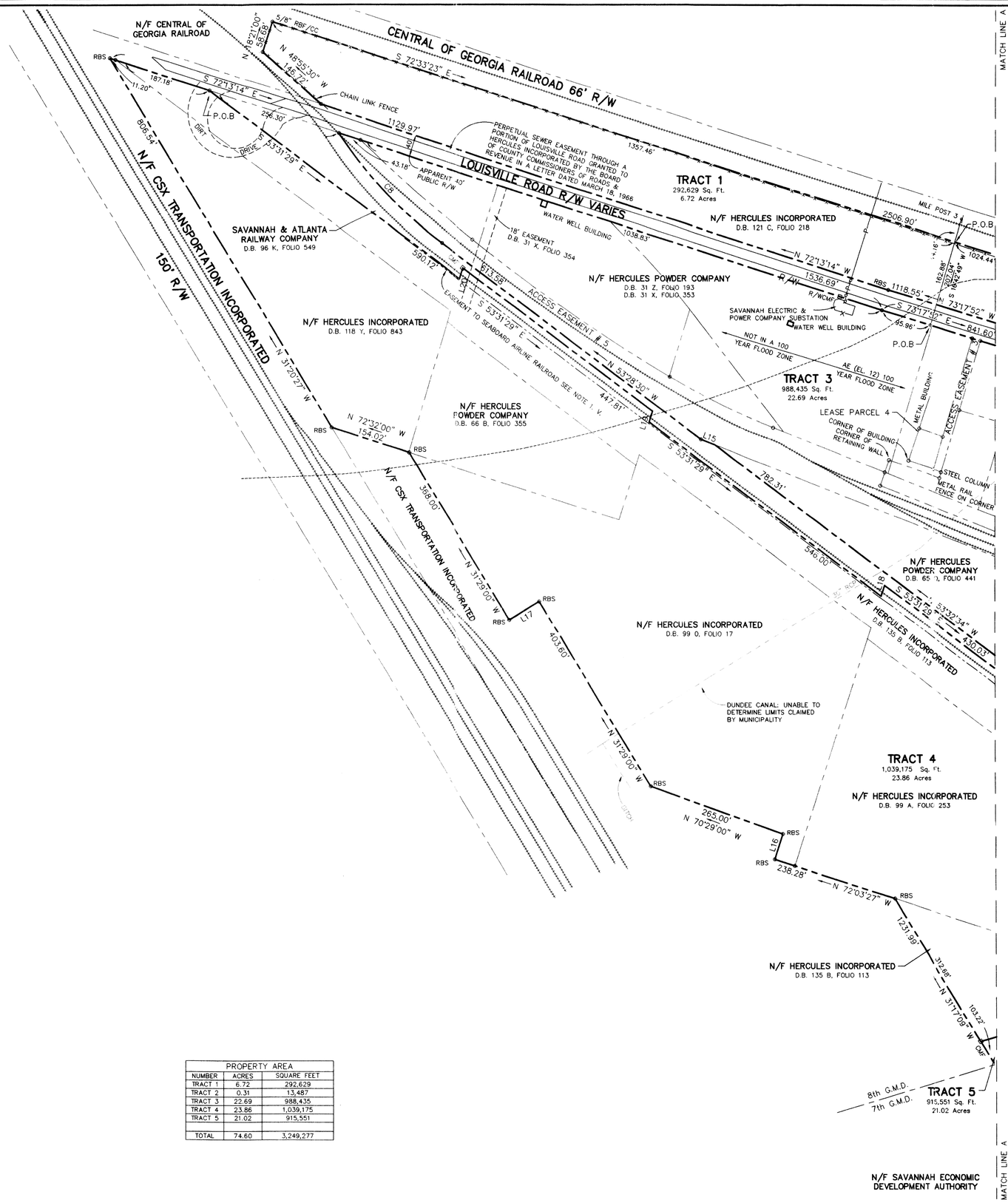
3-16-01

WRIGHT C. POWERS, JR., GA RLS 2612

PROPERTY AREA		
NUMBER	ACRES	SQUARE FEET
TRACT 1	6.72	292,629
TRACT 2	0.31	13,487
TRACT 3	22.69	988,435
TRACT 4	23.86	1,039,175
TRACT 5	21.02	915,551
TOTAL	74.60	3,249,277

100 50 0 100 200

GRAPHIC SCALE



CONNOR AND ASSOCIATES, INC.
engineers • planners • surveyors
P.O. BOX 10091
SAVANNAH, GEORGIA 31412
PH (912) 897-5460 / FAX (912) 897-6131

BOUNDARY SURVEY OF HERCULES INCORPORATED PROPERTY
SAVANNAH GEORGIA PLANT
LOCATED NEAR CENTRAL JUNCTION

3000 LOUISVILLE ROAD

7th & 8th G.M.D., SAVANNAH, CHATHAM COUNTY, GEORGIA

RECORDED IN:
PLAT BK:_____
PAGE_____
DATE_____

GEORGIA REGISTERED WRIGHT C. POWERS, JR. NO. 2612 LAND SURVEYOR 3-16-01

REVISIONS:

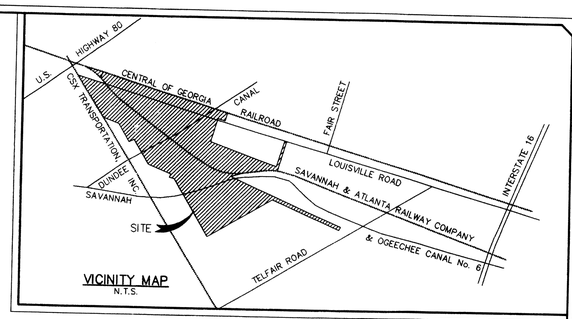
FIELD CHECK:	CMP
OFFICE CHECK:	WCP
DRAWN BY:	DJP
DATE:	MARCH 16, 2001
SCALE:	1"=100'
PROJECT No.:	00147
FILE:	00147A

SHEET 1 OF 3

F.B. (495-50)

LINE TABLE		
LINE	LENGTH	BEARING
L1	33.33	S 72°42'56" E
L2	33.33	N 68°37'56" W
L3	40.91	S 72°22'30" E
L4	30.00	S 21°20'15" W
L5	40.00	S 21°20'15" W
L6	121.27	S 84°17'03" W
L7	100.00	N 85°45'20" W
L8	100.00	S 88°56'20" W
L9	100.00	S 84°13'20" W
L10	100.00	S 76°41'40" W
L11	41.14	S 73°48'20" W
L12	23.52	N 65°30'49" W
L13	130.04	S 56°39'59" E
L14	60.00	S 24°29'11" W
L15	28.44	N 68°39'45" W
L16	50.00	N 18°01'00" E
L17	66.37	S 58°31'00" W
L18	21.08	N 18°03'31" E
L19	21.17	S 17°22'31" W
L20	21.22	N 16°55'01" E
L21	67.51	N 53°43'22" W
L22	136.88	S 65°30'49" E

CURVE TABLE					
CURVE	LENGTH	RADIUS	TANGENT	CHORD BEARING	CHORD DISTANCE
C1	286.19	2914.93	143.21	N 62°42'03" W	286.08
C3	206.76	4599.02	103.40	N 55°01'30" W	206.74
C4	106.27	2626.01	53.14	N 58°10'55" W	106.27
C5	89.43	1040.48	44.74	N 61°48'13" W	89.40
C6	413.81	1040.48	209.68	N 75°39'34" W	411.09
C7	589.01	2814.93	295.58	S 59°31'09" E	587.93
C8	284.89	822.26	143.89	N 43°32'57" W	283.47



VICINITY MAP
N.T.S.

LEGEND

CMF	=	CONC. MONUMENT FOUND
D.B.	=	DEED BOOK
R/WCMF	=	RIGHT-OF-WAY MONUMENT FOUND
P.O.C.	=	POINT OF COMMENCEMENT
P.O.B.	=	POINT OF BEGINNING
——P——	=	OVERHEAD POWER
——G——	=	UNDERGROUND GAS LINE
RBF/CC	=	RE-BAR FOUND IN CONCRETE
RBS	=	RE-BAR SET

CONNOR AND ASSOCIATES, INC.
engineers • planners • surveyors
P.O. BOX 10091
SAVANNAH, GEORGIA 31412
PH (912) 897-5460 / FAX (912) 897-6131

BOUNDARY SURVEY OF HERCULES INCORPORATED PROPERTY
SAVANNAH GEORGIA PLANT
LOCATED NEAR CENTRAL JUNCTION

3000 LOUISVILLE ROAD

7th & 8th G.M.D., SAVANNAH, CHATHAM COUNTY, GEORGIA

RECORDED IN:
PLAT BK.
PAGE
DATE

REVISIONS:

FIELD CHECK:	CMP
OFFICE CHECK:	WCP
DRAWN BY:	DJP
DATE:	MARCH 16, 2001
SCALE:	1"=100'
PROJECT No.:	00147
FILE:	00147A

SHEET 2 OF 3

F.B. (495-50)

100 50 0 100 200
GRAPHIC SCALE

PROPERTY DESCRIPTION TRACT 1

ALL THAT CERTAIN TRACT OR PARCEL OF LAND LYING AND BEING IN THE 8th G.M.D., CHATHAM COUNTY, GEORGIA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TO FIND THE TRUE POINT OF BEGINNING, COMMENCE AT MILE POST 3 ALONG THE CENTRAL OF GEORGIA RAILROAD FROM THE STATION IN SAVANNAH; THENCE SOUTH 16°42'49" WEST, 44.16 FEET TO A POINT ON THE SOUTHERN RIGHT-OF-WAY LINE OF THE CENTRAL OF GEORGIA RAILROAD, SAID POINT BEING THE POINT OF BEGINNING; THENCE, LEAVING THE AFORESAID POINT OF BEGINNING AND CONTINUING ALONG THE AFORESAID SOUTHERN RIGHT-OF-WAY LINE OF THE CENTRAL OF GEORGIA RAILROAD

SOUTH 72°33'23" EAST, 1,149.44 FEET TO A 5/8" RE-BAR IN CONCRETE; THENCE, LEAVING THE SOUTHERN RIGHT-OF-WAY LINE OF THE CENTRAL OF GEORGIA RAILROAD

SOUTH 17°26'42" WEST, 108.02 FEET TO A 5/8" RE-BAR IN CONCRETE ON THE NORTHERN RIGHT-OF-WAY LINE OF LOUISVILLE ROAD (VARIABLE R/W); THENCE, CONTINUING ALONG THE AFORESAID NORTHERN RIGHT-OF-WAY LINE OF LOUISVILLE ROAD

NORTH 73°17'52" WEST, 1,243.56 FEET TO A POINT; THENCE,

NORTH 72°13'14" WEST, 1,129.97 FEET TO A POINT; THENCE, LEAVING THE NORTHERN RIGHT-OF-WAY LINE OF LOUISVILLE ROAD

NORTH 48°55'30" WEST, 146.72 FEET TO A POINT; THENCE,

NORTH 18°21'00" EAST, 58.68 FEET TO A 5/8" RE-BAR IN CONCRETE ON THE SOUTHERN RIGHT-OF-WAY LINE OF THE CENTRAL OF GEORGIA RAILROAD; THENCE, CONTINUING ALONG THE AFORESAID SOUTHERN RIGHT-OF-WAY LINE OF THE CENTRAL OF GEORGIA RAILROAD

SOUTH 72°33'23" EAST, 1,357.46 FEET TO THE POINT OF BEGINNING,

CONTAINING 292,629 SQUARE FEET OR 6.72 ACRES.

PROPERTY DESCRIPTION TRACT 4

ALL THAT CERTAIN TRACT OR PARCEL OF LAND LYING AND BEING IN THE 8th G.M.D., CHATHAM COUNTY, GEORGIA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TO FIND THE TRUE POINT OF BEGINNING, COMMENCE AT MILE POST THREE ALONG THE CENTRAL OF GEORGIA RAILROAD FROM THE STATION IN SAVANNAH; THENCE, SOUTH 16°42'49" WEST, 207.04 FEET TO A POINT ON THE SOUTHERN RIGHT-OF-WAY LINE OF LOUISVILLE ROAD (APPARENT 40' R/W AT THIS POINT), THENCE, RUNNING WITH THE AFORESAID RIGHT-OF-WAY LINE OF LOUISVILLE ROAD NORTH 73°17'52" WEST, 95.96 FEET TO A POINT; THENCE, NORTH 72°13'14" WEST, 1,338.31 FEET TO THE POINT OF BEGINNING; THENCE, LEAVING AFORESAID POINT OF BEGINNING AND THE AFORESAID RIGHT-OF-WAY LINE OF LOUISVILLE ROAD

SOUTH 53°31'29" EAST, 590.12 FEET TO A POINT; THENCE,
NORTH 16°55'01" EAST, 21.22 FEET TO A POINT; THENCE,
SOUTH 53°31'29" EAST, 447.81 FEET TO A POINT; THENCE,
SOUTH 17°22'31" WEST, 21.17 FEET TO A POINT; THENCE,
SOUTH 53°31'29" EAST, 546.00 FEET TO A POINT; THENCE,
NORTH 18°03'31" EAST, 21.08 FEET TO A POINT; THENCE,
SOUTH 53°31'29" EAST, 430.03 FEET TO A POINT; THENCE,

589.01 FEET ALONG THE ARC OF A CURVE DEFLECTING TO THE LEFT HAVING A RADIUS OF 2,814.93 FEET AND A CHORD OF SOUTH 59°31'09" EAST, 587.93 FEET TO A POINT; THENCE,

SOUTH 65°30'49" EAST, 136.88 FEET TO A POINT; THENCE,
SOUTH 73°04'11" WEST, 151.16 FEET TO A POINT; THENCE,
NORTH 65°30'49" WEST, 23.52 FEET TO A POINT; THENCE,

286.19 FEET ALONG THE ARC OF A CURVE DEFLECTING TO THE LEFT HAVING A RADIUS OF 2914.93 FEET AND A CHORD OF NORTH 62°42'03" WEST, 286.08 FEET TO A POINT; THENCE,

SOUTH 17°15'00" WEST, 231.97 FEET TO A POINT; THENCE,
SOUTH 72°22'30" EAST, 40.91 FEET TO A POINT; THENCE,
SOUTH 73°04'11" WEST, 362.31 FEET TO A POINT; THENCE,
NORTH 31°17'09" WEST, 312.68 FEET TO A POINT; THENCE,
NORTH 72°03'27" WEST, 238.28 FEET TO A POINT; THENCE,
NORTH 18°01'00" EAST, 50.00 FEET TO A POINT; THENCE,
NORTH 70°29'00" WEST, 265.00 FEET TO A POINT; THENCE,
NORTH 31°29'00" WEST, 403.60 FEET TO A POINT; THENCE,
SOUTH 58°31'00" WEST, 66.37 FEET TO A POINT; THENCE,
NORTH 31°29'00" WEST, 368.00 FEET TO A POINT; THENCE,
NORTH 72°32'00" WEST, 154.02 FEET TO A POINT; THENCE,
NORTH 31°20'27" WEST, 806.54 FEET TO A POINT; THENCE,
SOUTH 72°13'14" EAST, 198.38 FEET TO THE POINT OF BEGINNING,

CONTAINING 1,039,175 SQUARE FEET OR 23.86 ACRES.

PROPERTY DESCRIPTION TRACT 2

ALL THAT CERTAIN TRACT OR PARCEL OF LAND LYING AND BEING IN THE 8th G.M.D., CHATHAM COUNTY, GEORGIA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TO FIND THE TRUE POINT OF BEGINNING, COMMENCE AT MILE POST THREE ALONG THE CENTRAL OF GEORGIA RAILROAD FROM THE STATION IN SAVANNAH; THENCE, SOUTH 16°42'49" WEST, 207.04 FEET TO A POINT ON THE SOUTHERN RIGHT-OF-WAY LINE OF LOUISVILLE ROAD (APPARENT 40' R/W AT THIS POINT); THENCE, RUNNING WITH THE AFORESAID RIGHT-OF-WAY LINE OF LOUISVILLE ROAD SOUTH 73°17'52" EAST, 745.64 FEET TO A POINT; THENCE, SOUTH 17°15'00" WEST, 9.43 FEET TO A CONCRETE MONUMENT FOUND; THENCE, SOUTH 73°04'01" EAST, 1,223.04 FEET TO A CONCRETE MONUMENT FOUND AT THE POINT OF BEGINNING; THENCE, LEAVING THE AFORESAID POINT OF BEGINNING AND CONTINUING ALONG THE AFORESAID RIGHT-OF-WAY LINE OF LOUISVILLE ROAD

SOUTH 72°42'56" EAST, 33.33 FEET TO A CONCRETE MONUMENT FOUND; THENCE, LEAVING THE AFORESAID RIGHT-OF-WAY LINE OF LOUISVILLE ROAD

SOUTH 18°37'19" WEST, 406.12 FEET TO A DISTURBED CONCRETE MONUMENT FOUND ON THE RIGHT-OF-WAY LINE OF THE SAVANNAH & ATLANTA RAILROAD; THENCE, CONTINUING ALONG THE AFORESAID RIGHT-OF-WAY LINE OF THE SAVANNAH & ATLANTA RAILROAD

NORTH 68°37'56" WEST, 33.33 FEET TO A POINT; THENCE, LEAVING THE AFORESAID RIGHT-OF-WAY LINE OF THE SAVANNAH & ATLANTA RAILROAD

NORTH 18°37'04" EAST, 403.75 FEET TO THE POINT OF BEGINNING,

CONTAINING 13,487 SQUARE FEET OR 0.31 ACRES.

LEGAL DESCRIPTION TRACT 5

ALL THAT CERTAIN TRACT OR PARCEL OF LAND LYING AND BEING IN THE 7th & 8th G.M.D., SAVANNAH, CHATHAM COUNTY, GEORGIA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TO FIND THE TRUE POINT OF BEGINNING, COMMENCE AT MILE POST THREE ALONG THE CENTRAL OF GEORGIA RAILROAD FROM THE STATION IN SAVANNAH; THENCE, SOUTH 16°42'49" WEST, 207.04 FEET TO A POINT ON THE SOUTHERN RIGHT-OF-WAY LINE OF LOUISVILLE ROAD (APPARENT 40' R/W AT THIS POINT); THENCE, RUNNING WITH THE AFORESAID RIGHT-OF-WAY LINE OF LOUISVILLE ROAD SOUTH 73°17'52" EAST, 745.64 FEET TO A POINT; THENCE, LEAVING AFORESAID RIGHT-OF-WAY LINE OF LOUISVILLE ROAD SOUTH 17°15'00" WEST, 821.55 FEET TO A POINT; THENCE, 286.19 FEET ALONG THE ARC OF A CURVE DEFLECTING TO THE LEFT HAVING A RADIUS OF 2,914.93 FEET AND A CHORD OF SOUTH 62°42'04" EAST, 286.08 FEET TO A POINT; THENCE, SOUTH 65°30'49" EAST, 23.52 FEET TO THE POINT OF BEGINNING; THENCE, LEAVING THE AFORESAID POINT OF BEGINNING

NORTH 73°04'11" EAST, 151.16 FEET TO A CONCRETE MONUMENT FOUND; THENCE,

SOUTH 56°39'59" EAST, 130.04 FEET TO A POINT; THENCE,
SOUTH 65°30'49" EAST, 1,990.41 FEET TO A POINT; THENCE,
SOUTH 24°29'11" WEST, 60.00 FEET TO A POINT; THENCE,
NORTH 65°30'49" WEST, 1,265.15 FEET TO A POINT; THENCE,
SOUTH 60°29'58" WEST, 1,221.40 FEET TO A BROKEN CONCRETE MONUMENT FOUND; THENCE,

NORTH 31°17'09" WEST, 919.30 FEET TO A POINT; THENCE,
NORTH 73°04'11" EAST, 681.57 FEET TO THE POINT OF BEGINNING,

CONTAINING 915,551 SQUARE FEET OR 21.02 ACRES.

LEGAL DESCRIPTION – TRACT 3

ALL THAT CERTAIN TRACT OR PARCEL OF LAND LYING AND BEING IN THE 8th G.M.D., CHATHAM COUNTY, GEORGIA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TO FIND THE TRUE POINT OF BEGINNING, COMMENCE AT MILE POST THREE ALONG THE CENTRAL OF GEORGIA RAILROAD FROM THE STATION IN SAVANNAH; THENCE, SOUTH 16°42'49" WEST, 207.04 FEET TO A POINT ON THE SOUTHERN RIGHT-OF-WAY LINE OF LOUISVILLE ROAD (APPARENT 40' R/W AT THIS POINT) BEING THE POINT OF BEGINNING; THENCE, LEAVING AFORESAID POINT OF BEGINNING AND RUNNING WITH THE AFORESAID RIGHT-OF-WAY LINE OF LOUISVILLE ROAD

SOUTH 73°17'52" EAST, 745.64 FEET TO A POINT; THENCE, LEAVING AFORESAID RIGHT-OF-WAY LINE OF LOUISVILLE ROAD

SOUTH 17°15'00" WEST, 347.08 FEET TO A POINT; THENCE,

SOUTH 68°39'45" EAST, 381.37 FEET TO A CONCRETE MONUMENT FOUND; THENCE,

SOUTH 21°20'15" WEST, 30.00 FEET TO A POINT; THENCE,
SOUTH 68°39'45" EAST, 675.00 FEET TO A POINT; THENCE,
SOUTH 21°20'15" WEST, 40.00 FEET TO A POINT; THENCE,
SOUTH 84°17'03" WEST, 121.27 FEET TO A POINT; THENCE,
NORTH 85°45'20" WEST, 100.00 FEET TO A POINT; THENCE,
SOUTH 88°56'20" WEST, 100.00 FEET TO A POINT; THENCE,
SOUTH 84°13'20" WEST, 100.00 FEET TO A POINT; THENCE,
SOUTH 76°41'40" WEST, 100.00 FEET TO A POINT; THENCE,
SOUTH 73°48'20" WEST, 41.14 FEET TO A POINT; THENCE,

413.81 FEET ALONG THE ARC OF A CURVE DEFLECTING TO THE RIGHT HAVING A RADIUS OF 1,040.48 FEET AND A CHORD OF NORTH 75°39'34" WEST, 411.09 FEET TO A POINT; THENCE,

89.43 FEET ALONG THE ARC OF A CURVE DEFLECTING TO THE RIGHT HAVING A RADIUS OF 1,040.48 FEET AND A CHORD OF NORTH 61°48'13" WEST, 89.40 FEET TO A POINT; THENCE,

106.27 FEET ALONG THE ARC OF A CURVE DEFLECTING TO THE RIGHT HAVING A RADIUS OF 2,626.01 FEET AND A CHORD OF NORTH 58°10'55" WEST, 106.27 FEET TO A POINT; THENCE,

206.76 FEET ALONG THE ARC OF A CURVE DEFLECTING TO THE RIGHT HAVING A RADIUS OF 4,599.02 FEET AND A CHORD OF NORTH 55°01'30" WEST, 206.74 FEET TO A POINT; THENCE,

NORTH 53°43'22" WEST, 67.51 FEET TO A POINT; THENCE,
NORTH 53°32'34" WEST, 782.31 FEET TO A POINT; THENCE,
NORTH 68°39'45" WEST, 28.44 FEET TO A POINT; THENCE,
NORTH 53°28'30" WEST, 613.58 FEET TO A POINT; THENCE,

284.89 FEET ALONG THE ARC OF A CURVE DEFLECTING TO THE RIGHT HAVING A RADIUS OF 822.26 FEET AND A CHORD OF NORTH 43°32'57" WEST, 283.47 FEET TO A POINT; THENCE,

SOUTH 72°13'14" EAST, 1,082.01 FEET TO A POINT; THENCE,
SOUTH 73°17'52" EAST, 95.96 FEET TO THE POINT OF BEGINNING,

CONTAINING 988,435 SQUARE FEET OR 22.69 ACRES.

100 50 0 100 200
GRAPHIC SCALE

CONNOR AND ASSOCIATES, INC.
engineers • planners • surveyors
P.O. BOX 11091
SAVANNAH, GEORGIA 31412
PH (912) 897-5460 / FAX (912) 897-6131

BOUNDARY SURVEY OF HERCULES INCORPORATED PROPERTY
SAVANNAH GEORGIA PLANT
LOCATED NEAR CENTRAL JUNCTION

3000 LOUISVILLE ROAD

7th & 8th G.M.D., SAVANNAH, CHATHAM COUNTY, GEORGIA

RECORDED IN:
PLAT BK._____
PAGE_____
DATE_____

GEORGIA REGISTERED NO. 2673 WRIGHT C. POWELL JR.

REVISIONS:

FIELD CHECK:	CMP
OFFICE CHECK:	WCP
DRAWN BY:	DJP
DATE:	MARCH 16, 2001
SCALE:	1"=100'
PROJECT No.:	00147
FILE:	00147A

SHEET 3 OF 3

F.B. (495-50)

APPENDIX B

Purging and Sample Logs

Field Staff Name(s):

Month/Year:

Table 2
Well Inspection Log
Ashland - Hercules
3000 Louisville Road, Savannah, Georgia

Water Levels collected within one 24-hour period?
Circle one: Yes No

Well Id	Well Completion	Site Area	Well Diameter	Date	Water Level (ft bTOC)	Well ID visible (circle one)	Concrete pad intact (circle one)	Manhole locked and in good working order	Well plug or cap water-tight/bolt	Well Vault Free of e Water	Corrective Action Needed? (☐k	Date Corrective Action Complete	Description of Corrective Actions Needed and Other Observations
Shallow Monitoring Wells													
MW-F1	SU	Resin Areas	2	5/2/16	4.29	✓ x	✓ x	✓ x	✓ x	✓ x			CS 5/2/16
MW-F2	--	Resin Areas	2	5/2/16	4.95	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-F3R	SU	Resin Areas	2	5/2/16	6.96	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-F5	SU	Resin Areas	2	5/2/16	6.18	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-F6	FM	Resin Areas	2	5/2/16	3.23	✓ x	✓ x	✓ x	✓ x	✓ x		5/2/16	Labled
MW-F7	SU	Resin Areas	2	5/2/16	5.45	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-F8	SU	Resin Areas	2	5/2/16	4.97	✓ x	✓ x	✓ x	✓ x	✓ x	✓	CS 5/2/16	Hinge (Picture)
MW-F9	--	Resin Areas	2	5/2/16	3.13	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-F11	FM	Resin Areas	2	5/2/16	2.08	✓ x	✓ x	✓ x	✓ x	✓ x		5/2/16	Labled
MW-F12	FM	Resin Areas	2	5/2/16	2.55	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-F13	SU	Resin Areas	2	5/2/16	9.38	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-F14	SU	Resin Areas	2	5/2/16	2.81	✓ x	✓ x	✓ x	✓ x	✓ x	✓		Hinge (Picture)
MW-F15	FM	Resin Areas	2	5/2/16	4.66	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-F16	SU	Resin Areas	2	5/2/16	2.85	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-F17	SU	Resin Areas	2	5/2/16	5.77	✓ x	✓ x	✓ x	✓ x	✓ x			CS 5/2/16
MW-F19	SU	Resin Areas	2	5/2/16	4.42	✓ x	✓ x	✓ x	✓ x	✓ x	✓		Hinge (Picture)
MW-F21	SU	Resin Areas	2	5/2/16	5.95	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-22	SU	Shallow Background Well	2	5/2/16	3.21	✓ x	✓ x	✓ x	✓ x	✓ x	✓		Hinge (Picture)
MW-23	SU	Resin Areas	2	5/2/16	5.62	✓ x	✓ x	✓ x	✓ x	✓ x	✓		Hinge (Picture)
MW-24	SU	Resin Areas	2	5/2/16	4.80	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-25	SU	Shallow Background Well	2	5/2/16	5.56	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-26	SU	Size Tank Farm	2	5/2/16	8.17	✓ x	✓ x	✓ x	✓ x	✓ x		CS 5/2/16	CS 5/2/16
MW-27	FM	Resin Areas	2	5/2/16	2.36	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-28	SU	Shallow Background Well	2	5/2/16	6.23	✓ x	✓ x	✓ x	✓ x	✓ x			Total Depth = 25.56
MW-29	SU	Resin Areas	2	5/2/16	5.14	✓ x	✓ x	✓ x	✓ x	✓ x			
MW-32	SU	Shallow Background Well	2	5/2/16	3.64	✓ x	✓ x	✓ x	✓ x	✓ x			

Field Staff Name(s):

Month/Year:

Table 2
Well Inspection Log
Ashland - Hercules
3000 Louisville Road, Savannah, Georgia

Water Levels collected within one 24-hour period?
Circle one: Yes No

Well Id	Well Completion	Site Area	Well Diameter	Date	Water Level (ft bTOC)	Well ID visible (circle one)	Concrete pad intact (circle one)	Manhole locked and in good working order	Well plug or cap water-tight	Well Vault Free of Water	Corrective Action Needed?	Date Corrective Action Complete	Description of Corrective Actions Needed and Other Observations
Deep Monitoring Wells													
MWD-22	SU	Resin Areas	2	5/2/16	3.51	✓ ×	✓ ×	✓ ×	✓ ×	✓ ×	✓		Hinge (picture)
MWD-23	SU	Resin Areas	2	5/2/16	7.13	✓ ×	✓ ×	✓ ×	✓ ×	✓ ×	✓		Hinge picture
MWD-24	SU	Deep Background Well	2	5/2/16	4.56	✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
MWD-25	SU	Deep Background Well	2	5/2/16	6.26	✓ ×	✓ ×	✓ ×	✓ ×	✓ ×	Yes ✓		Hinge (picture)
MWD-27	PM	Resin Areas	2	5/2/16	3.21	✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
MWD-28	SU	Deep Background Well	2	N/A	N/A	✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			Destroyed (picture) Abandoned
MWD-29	SU	Resin Areas	2	5/2/16	6.92	✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
MWD-30	SU	Resin Areas	2	5/2/16	8.29	✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
MWD-F1	SU	Resin Areas	2	5/2/16	29.72	✓ ×	✓ ×	✓ ×	✓ ×	✓ ×	✓		Hinge (picture)
MWD-F2	SU	Resin Areas	2	5/2/16	20.80	✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
MWD-F3	SU	Resin Areas	2	5/2/16	17.06	✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			CS 5/2/16 Stickup
Temporary Wells													
Well-1	--	Size Tank Farm	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
Well-2	--	Size Tank Farm	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
Well-3	--	Size Tank Farm	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
TMW-5	--	50s Tank and Hard Resin Area	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
TMW-6	--	50s Tank and Hard Resin Area	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
TMW-7	--	50s Tank and Hard Resin Area	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
TMW-10	--	50s Tank and Hard Resin Area	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
TMW-11	--	50s Tank and Hard Resin Area	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
TMW-12	--	50s Tank and Hard Resin Area	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
TMW-13	--	50s Tank and Hard Resin Area	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
TMW-14	--	50s Tank and Hard Resin Area	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
TMW-15	--	50s Tank and Hard Resin Area	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
TMW-16	--	50s Tank and Hard Resin Area	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			
TMW-17	--	50s Tank and Hard Resin Area	--			✓ ×	✓ ×	✓ ×	✓ ×	✓ ×			

Field Staff Name(s):

Month/Year:

Table 2
Well Inspection Log
Ashland - Hercules
3000 Louisville Road, Savannah, Georgia

Water Levels collected within one 24-hour period?
Circle one: Yes No

Well Id	Well Completion	Site Area	Well Diameter	Date	Water Level (ft bTOC)	Well ID visible (circle one)	Concrete pad intact (circle one)	Manhole locked and in good working order	Well plug or cap water-tight	Well Vault Free of Water	Corrective Action Needed? (☐)	Date Corrective Action Complete	Description of Corrective Actions Needed and Other Observations
Onsite Production Wells													
Well 1 (12")	--	--	12			✓ ✗	✓ ✗	✓ ✗	✓ ✗	✓ ✗			
Well 2 (10")	--	--	10			✓ ✗	✓ ✗	✓ ✗	✓ ✗	✓ ✗			
Well 3 (8")	--	--	8			✓ ✗	✓ ✗	✓ ✗	✓ ✗	✓ ✗			

✓ = yes

✗ = no

Completed Well Repairs

Well ID	Date	Description of Completed Corrective Actions

GROUNDWATER SAMPLING LOG

SITE NAME:	Ashland - Hercules	SITE LOCATION:	3000 Louisville Road, Savannah, GA	
WELL NO:	MW- F3R	SAMPLE ID:	MW- F3R(05031 6)	DATE: 5/3/16

PURGING DATA

WELL DIAMETER (inches): 2	WELL SCREEN INTERVAL DEPTH: 10 feet to 20 feet	STATIC DEPTH TO WATER (feet): 6.96	PURGE PUMP TYPE OR BAILER: Peristaltic

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)

= liters + (0.0054 liters/foot X 15 feet) + 0.4 liters = 0.48 liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 15	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 15	PURGING INITIATED AT: 0910	PURGING ENDED AT: 0930	TOTAL VOLUME PURGED (Liters): 2.0

PUMP SETTING / PSI	TIME	VOLUME PURGED (liters)	CUMUL. VOLUME PURGED (liters)	PURGE RATE (L/min)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISS. OXYGEN (mg/L)	TURBIDITY (NTUs)	OXYGEN REDUCTION POTENTIAL (mV)
1	0915	0.5	0.5	0.1	6.97	6.78	22.79	0.733	3.67	5.28	-213.0
1	0920	0.5	1.0	0.1	6.98	6.78	22.80	0.799	4.00	4.01	-211.8
1	0925	0.5	1.5	0.1	6.99	6.79	22.72	0.799	3.94	6.82	-211.1
1	0930	0.5	2.0	0.1	6.99	6.79	22.75	0.798	3.82	5.81	-210.9
1											
1											
1											
1											

TUBING INSIDE DIA. CAPACITY (Liters/Ft.): **1/8"** = 0.0024; **3/16"** = 0.0054; **1/4"** = 0.0097; **5/16"** = 0.0151; **3/8"** = 0.0217; **1/2"** = 0.0386; **5/8"** = 0.0603

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Chris Bayly / Antea Group	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 0932	SAMPLING ENDED AT: 0940
PUMP OR TUBING DEPTH IN WELL (feet): 15	SAMPLE PUMP FLOW RATE (L per minute): 0.150	TUBING MATERIAL CODE: HDPE/PTFE	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION	INTENDED ANALYSIS AND/OR METHOD
# CONTAINERS	VOLUME	PRESERVATIVE USED	
4	1L	None	8082A, 1668B

REMARKS:

NOTES: 1. STABILIZATION CRITERIA FOR THREE CONSECUTIVE WATER QUALITY READINGS

Turbidity:	<10 NTU or ± 10%	**ORP:**	± 10 mV
Temp.:	± 0.5°	**Dissolved Oxygen:**	± 0.2 mg/L
pH:	± 0.1 units		
Specific Conductance:	± 3%		
Drawdown:	0.33 ft or less		

GROUNDWATER SAMPLING LOG

SITE NAME:	Ashland - Hercules	SITE LOCATION:	3000 Louisville Road, Savannah, GA	
WELL NO:	MW- F5	SAMPLE ID:	MW- F5 (050316)	DATE: 5/3/16

PURGING DATA

WELL DIAMETER (inches): 2	WELL SCREEN INTERVAL DEPTH: 10 feet to 20 feet	STATIC DEPTH TO WATER (feet): 5.63	PURGE PUMP TYPE OR BAILER: Peristaltic

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)

= liters + (0.0054 liters/foot X 15 feet) + 0.4 ~~0.48~~ CG 7816 liters = 0.48 liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 15	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 15	PURGING INITIATED AT: 0950	PURGING ENDED AT: 1015	TOTAL VOLUME PURGED (Liters): 2.5

PUMP SETTING / PSI	TIME	VOLUME PURGED (liters)	CUMUL. VOLUME PURGED (liters)	PURGE RATE (L/min)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISS. OXYGEN (mg/L)	TURBIDITY (NTUs)	OXYGEN REDUCTION POTENTIAL (mV)
1	0955	0.5	0.5	0.1	~~6.53~~ 6.17	6.76	22.54	0.732	2.01	4.43	-170.9
1	1000	0.5	1.0	0.1	~~6.53~~ 6.17	6.78	22.44	0.728	1.17	3.90	-178.8
1	1005	0.5	1.5	0.1	6.17	6.79	22.39	0.720	1.28	3.56	-179.3
1	1010	0.5	2.0	0.1	6.17	6.79	22.39	0.718	1.10	2.01	-179.6
1	1015	0.5	2.5	0.1	6.17	6.79	22.38	0.717	1.07	2.33	-179.9
1											
1											
1											

TUBING INSIDE DIA. CAPACITY (Liters/Ft.): **1/8"** = 0.0024; **3/16"** = 0.0054; **1/4"** = 0.0097; **5/16"** = 0.0151; **3/8"** = 0.0217; **1/2"** = 0.0386; **5/8"** = 0.0603

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Chas Bailey / Antea Group	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1020	SAMPLING ENDED AT: 1030
PUMP OR TUBING DEPTH IN WELL (feet): 15	SAMPLE PUMP FLOW RATE (L per minute): 0.15	TUBING MATERIAL CODE: HDPE / ~~PTFE~~	
FIELD DECONTAMINATION: Y **N**	FIELD-FILTERED: Y **N** FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y **N**	

SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION	INTENDED ANALYSIS AND/OR METHOD
# CONTAINERS	VOLUME	PRESERVATIVE USED	
6	40 mL	HCl	8260 D
2	1 L	NONE	8270 C

REMARKS: Drawdown exceeded 0.33 ft DTW for 0955 & 1000 are 6.17 ft DUP-01 (050216)

NOTES: 1. STABILIZATION CRITERIA FOR THREE CONSECUTIVE WATER QUALITY READINGS

Turbidity:	<10 NTU or ± 10%	**ORP:**	± 10 mV
Temp.:	± 0.5°	**Dissolved Oxygen:**	± 0.2 mg/L
pH:	± 0.1 units		
Specific Conductance:	± 3%		
Drawdown:	0.33 ft or less		

GROUNDWATER SAMPLING LOG

SITE NAME:	Ashland - Hercules	SITE LOCATION:	3000 Louisville Road, Savannah, GA	
WELL NO:	MW-F7	SAMPLE ID:	MW-F7 (050316)	DATE: 5/3/16

PURGING DATA

WELL DIAMETER (inches): 2	WELL SCREEN INTERVAL DEPTH: 10 feet to 20 feet	STATIC DEPTH TO WATER (feet): 5.49	PURGE PUMP TYPE OR BAILER: Peristaltic

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)

= liters + (0.0054 liters/foot X 15 feet) + 0.4 liters = 0.48 liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 15	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 15	PURGING INITIATED AT: 1215	PURGING ENDED AT: 1235	TOTAL VOLUME PURGED (Liters): 20

PUMP SETTING / PSI	TIME	VOLUME PURGED (liters)	CUMUL. VOLUME PURGED (liters)	PURGE RATE (L/min)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISS. OXYGEN (mg/L)	TURBIDITY (NTUs)	OXYGEN REDUCTION POTENTIAL (mV)
1	1220	0.5	0.5	1.0	5.72	4.62	22.73	0.275	5.58	2.87	173.4
1	1225	0.5	1.0	1.0	5.72	4.62	22.74	0.275	4.13	1.99	192.5
1	1230	0.5	1.5	1.0	5.72	4.60	22.64	0.274	4.01	2.37	198.7
1	1235	0.5	2.0	1.0	5.72	4.60	22.60	0.273	3.98	2.15	199.7
1											
1											
1											
1											

TUBING INSIDE DIA. CAPACITY (Liters/Ft.): **1/8"** = 0.0024; **3/16"** = 0.0054; **1/4"** = 0.0097; **5/16"** = 0.0151; **3/8"** = 0.0217; **1/2"** = 0.0386; **5/8"** = 0.0603

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Chris Bagley / Andrea Carney	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1245	SAMPLING ENDED AT: 1255
PUMP OR TUBING DEPTH IN WELL (feet): 15	SAMPLE PUMP FLOW RATE (L per minute): 0.150	TUBING MATERIAL CODE: HDPE / (PTFE)	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION	INTENDED ANALYSIS AND/OR METHOD
# CONTAINERS	VOLUME	PRESERVATIVE USED	
3	40 mL	HCL	8260B
2	1 L	None	8270C

REMARKS:

NOTES: 1. STABILIZATION CRITERIA FOR THREE CONSECUTIVE WATER QUALITY READINGS

Turbidity:	<10 NTU or ± 10%	**ORP:**	± 10 mV
Temp.:	± 0.5°	**Dissolved Oxygen:**	± 0.2 mg/L
pH:	± 0.1 units		
Specific Conductance:	± 3%		
Drawdown:	0.33 ft or less		

GROUNDWATER SAMPLING LOG

SITE NAME:	Ashland - Hercules	SITE LOCATION:	3000 Louisville Road, Savannah, GA	
WELL NO:	MW-F15	SAMPLE ID:	MW-F15 (0503 16)	DATE: 5/3/16

PURGING DATA

WELL DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2	10 feet to 20 feet	4.33	Peristaltic

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)

= liters + (0.0054 liters/foot X 5 feet) + 0.4 liters = 0.48 liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (Liters):
15	15	1130	1150	20

PUMP SETTING / PSI	TIME	VOLUME PURGED (liters)	CUMUL. VOLUME PURGED (liters)	PURGE RATE (L/min)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISS. OXYGEN (mg/L)	TURBIDITY (NTUs)	OXYGEN REDUCTION POTENTIAL (mV)
1	1135	0.5	0.5	1.0	5.29	6.49	20.44	1.095	3.60	5.22	-143.6
1	1140	0.5	1.0	1.0	5.23	6.58	20.89	1.093	4.43	7.63	-153.0
1	1145	0.5	1.5	1.0	5.23	6.59	20.96	1.095	4.47	5.11	-155.9
1	1150	0.5	2.0	1.0	5.23	6.60	20.97	1.093	4.50	5.50	-158.4
1											
1											
1											
1											

TUBING INSIDE DIA. CAPACITY (Liters/Ft.): **1/8"** = 0.0024; **3/16"** = 0.0054; **1/4"** = 0.0097; **5/16"** = 0.0151; **3/8"** = 0.0217; **1/2"** = 0.0386; **5/8"** = 0.0603

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Chris Bagley / Antea Group		1155	1205
PUMP OR TUBING DEPTH IN WELL (feet): 15	SAMPLE PUMP FLOW RATE (L per minute): 0.15	TUBING MATERIAL CODE:	HDPE (PTFE)
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y	(N)

SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION	INTENDED ANALYSIS AND/OR METHOD
# CONTAINERS	VOLUME	PRESERVATIVE USED	
3	40mL	HCL	8260 Benzene
2	1L	None	Asbestos

REMARKS: Drawdown exceeded 0.33 ft

NOTES: 1. STABILIZATION CRITERIA FOR THREE CONSECUTIVE WATER QUALITY READINGS

Turbidity:	<10 NTU or ± 10%	**ORP:**	± 10 mV
Temp.:	± 0.5°	**Dissolved Oxygen:**	± 0.2 mg/L
pH:	± 0.1 units		
Specific Conductance:	± 3%		
Drawdown:	0.33 ft or less		

GROUNDWATER SAMPLING LOG

SITE NAME:	Ashland - Hercules	SITE LOCATION:	3000 Louisville Road, Savannah, GA	
WELL NO:	MW- F21	SAMPLE ID:	MW- F21 (0503/16)	DATE: 5/3/16

PURGING DATA

WELL DIAMETER (inches): 2	WELL SCREEN INTERVAL DEPTH: 10 feet to 20 feet	STATIC DEPTH TO WATER (feet): 5.95	PURGE PUMP TYPE OR BAILER: Peristaltic

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= liters + (0.0054 liters/foot X 15 feet) + 0.4 liters = 0.48 liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 15 ft	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 15	PURGING INITIATED AT: 0735	PURGING ENDED AT: 0755	TOTAL VOLUME PURGED (Liters): 2.0

PUMP SETTING / PSI	TIME	VOLUME PURGED (liters)	CUMUL. VOLUME PURGED (liters)	PURGE RATE (L/min)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISS. OXYGEN (mg/L)	TURBIDITY (NTUs)	OXYGEN REDUCTION POTENTIAL (mV)
1	0740	0.5	0.5	0.1	6.45	5.54	22.76	0.745	2.39	1.51	-181.0
1	0745	0.5	1.0	0.1	6.45	5.63	22.69	0.720	1.14	2.30	-191.7
1	0750	0.5	1.5	0.1	6.45	5.63	22.69	0.720	1.11	1.02	-191.0
1	0755	0.5	2.0	0.1	6.45	5.64	22.60	0.720	1.07	1.83	-189.2
1											
1											
1											
1											

TUBING INSIDE DIA. CAPACITY (Liters/Ft.): **1/8"** = 0.0024; **3/16"** = 0.0054; **1/4"** = 0.0097; **5/16"** = 0.0151; **3/8"** = 0.0217; **1/2"** = 0.0386; **5/8"** = 0.0603

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Chris Bagley / Antea Group	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 0800	SAMPLING ENDED AT: 0810
PUMP OR TUBING DEPTH IN WELL (feet): 15 ft	SAMPLE PUMP FLOW RATE (L per minute): 0.15	TUBING MATERIAL CODE: HDPE / PTFE	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION	INTENDED ANALYSIS AND/OR METHOD
# CONTAINERS	VOLUME	PRESERVATIVE USED	
3	40 mL	HCL	8260B
2	1 L	NONE	6720 C

REMARKS: Drawdown exceeded 0.33 ft

NOTES: 1. STABILIZATION CRITERIA FOR THREE CONSECUTIVE WATER QUALITY READINGS

Turbidity:	<10 NTU or ± 10%	**ORP:**	± 10 mV
Temp.:	± 0.5°	**Dissolved Oxygen:**	± 0.2 mg/L
pH:	± 0.1 units		
Specific Conductance:	± 3%		
Drawdown:	0.33 ft or less		

GROUNDWATER SAMPLING LOG

SITE NAME:	Ashland - Hercules	SITE LOCATION:	3000 Louisville Road, Savannah, GA	
WELL NO:	MW-27	SAMPLE ID:	MW-27 (050316)	DATE: 5/3/16

PURGING DATA

WELL DIAMETER (inches): 2	WELL SCREEN INTERVAL DEPTH: 10 feet to 20 feet	STATIC DEPTH TO WATER (feet): 2.38	PURGE PUMP TYPE OR BAILER: Peristaltic

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)

= liters + (0.0054 liters/foot X 15 feet) + 0.4 liters = 0.48 liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 15	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 15	PURGING INITIATED AT: 1310	PURGING ENDED AT: 1335	TOTAL VOLUME PURGED (Liters): 2.5

PUMP SETTING / PSI	TIME	VOLUME PURGED (liters)	CUMUL. VOLUME PURGED (liters)	PURGE RATE (L/min)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISS. OXYGEN (mg/L)	TURBIDITY (NTUs)	OXYGEN REDUCTION POTENTIAL (mV)
1	1315	0.5	0.5	0.1	2.42	4.33	24.58	0.211	7.44	1.08	245.2
1	1320	0.5	1.0	0.1	2.42	4.38	24.54	0.210	6.58	0.82	256.8
1	1325	0.5	1.5	0.1	2.42	4.40	24.31	0.211	6.36	0.88	264.8
1	1330	0.5	2.0	0.1	2.42	4.39	24.20	0.211	6.43	0.45	265.3
1	1335	0.5	2.5	0.1	2.42	4.39	24.11	0.211	6.33	0.62	268.9
1											
1											
1											

TUBING INSIDE DIA. CAPACITY (Liters/Ft.): **1/8"** = 0.0024; **3/16"** = 0.0054; **1/4"** = 0.0097; **5/16"** = 0.0151; **3/8"** = 0.0217; **1/2"** = 0.0386; **5/8"** = 0.0603

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Chris Bagley / Arden Gray	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1340	SAMPLING ENDED AT: 1355
PUMP OR TUBING DEPTH IN WELL (feet): 15	SAMPLE PUMP FLOW RATE (L per minute): 0.15	TUBING MATERIAL CODE: HDPE / PTFE	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type: ____	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION	INTENDED ANALYSIS AND/OR METHOD
# CONTAINERS	VOLUME	PRESERVATIVE USED	
3	40 mL	HCL	8260B
2	1 L	NONE	8270C

REMARKS:

NOTES: 1. STABILIZATION CRITERIA FOR THREE CONSECUTIVE WATER QUALITY READINGS

Turbidity:	<10 NTU or ± 10%	**ORP:**	± 10 mV
Temp.:	± 0.5°	**Dissolved Oxygen:**	± 0.2 mg/L
pH:	± 0.1 units		
Specific Conductance:	± 3%		
Drawdown:	0.33 ft or less		

GROUNDWATER SAMPLING LOG

SITE NAME:	Ashland - Hercules	SITE LOCATION:	3000 Louisville Road, Savannah, GA	
WELL NO:	MW- 29	SAMPLE ID:	MW- 29 (050316)	DATE: 5/3/16

PURGING DATA

WELL DIAMETER (inches): 2	WELL SCREEN INTERVAL DEPTH: 10 feet to 15 feet	STATIC DEPTH TO WATER (feet): 5.19	PURGE PUMP TYPE OR BAILER: Peristaltic

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= liters + (0.0054 liters/foot X 15 feet) + 0.4 liters = 0.48 liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 15	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 15	PURGING INITIATED AT: 1040	PURGING ENDED AT: 1105	TOTAL VOLUME PURGED (Liters): 2.5

PUMP SETTING / PSI	TIME	VOLUME PURGED (liters)	CUMUL. VOLUME PURGED (liters)	PURGE RATE (L/min)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or mS/cm)	DISS. OXYGEN (mg/L)	TURBIDITY (NTUs)	OXYGEN REDUCTION POTENTIAL (mV)
1	1045	0.5	0.5	0.1	5.25	4.81	22.68	0.294	3.88	1.15	152.9
1	1050	0.5	1.0	0.1	5.25	4.78	22.89	0.294	2.15	1.02	167.2
1	1055	0.5	1.5	0.1	5.25	4.79	22.94	0.294	2.02	0.95	166.6
1	1100	0.5	2.0	0.1	5.25	4.79	23.05	0.294	1.89	0.73	159.2
1	1105	0.5	2.5	0.1	5.25	4.78	23.02	0.294	1.94	0.78	162.5
1											
1											
1											

TUBING INSIDE DIA. CAPACITY (Liters/Ft.): **1/8"** = 0.0024; **3/16"** = 0.0054; **1/4"** = 0.0097; **5/16"** = 0.0151; **3/8"** = 0.0217; **1/2"** = 0.0386; **5/8"** = 0.0603

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Chris Bach / Arcadis Group	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1110	SAMPLING ENDED AT: 1120
PUMP OR TUBING DEPTH IN WELL (feet): 15	SAMPLE PUMP FLOW RATE (L per minute): 0.15	TUBING MATERIAL CODE: HDPE / (PTFE)	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type: ____	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION	INTENDED ANALYSIS AND/OR METHOD
# CONTAINERS	VOLUME	PRESERVATIVE USED	
3	40mL	HCL	8260B
2	1L	NONE	8270C

REMARKS:

NOTES: 1. STABILIZATION CRITERIA FOR THREE CONSECUTIVE WATER QUALITY READINGS

Turbidity:	<10 NTU or ± 10%	**ORP:**	± 10 mV
Temp.:	± 0.5°	**Dissolved Oxygen:**	± 0.2 mg/L
pH:	± 0.1 units		
Specific Conductance:	± 3%		
Drawdown:	0.33 ft or less		

GROUNDWATER SAMPLING LOG

SITE NAME:	Ashland - Hercules	SITE LOCATION:	3000 Louisville Road, Savannah, GA	
WELL NO:	MWD-30	SAMPLE ID:	MWD-30 (05 03 16)	DATE: 5/3/16

PURGING DATA

WELL DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2	40 feet to 50 feet	09.29	Peristaltic

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)

= liters + (0.0054 liters/foot X 45 feet) + 0.4 liters = 0.65 liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (Liters):
45	45	0815	0845	3.0

PUMP SETTING / PSI	TIME	VOLUME PURGED (liters)	CUMUL. VOLUME PURGED (liters)	PURGE RATE (L/min)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISS. OXYGEN (mg/L)	TURBIDITY (NTUs)	OXYGEN REDUCTION POTENTIAL (mV)
1	0825	1.0	1.0	0.1	9.55	7.25	23.47	0.365	2.02	2.88	-49.2
1	0830	0.5	1.5	0.1	9.88	7.26	23.56	0.367	1.75	3.45	-35.9
1	0835	0.5	2.0	0.1	10.20	7.27	23.38	0.366	1.53	1.52	-30.0
1	0840	0.5	2.5	0.1	10.28	7.27	23.36	0.366	1.50	1.33	-29.5
1	0845	0.5	3.0	0.1	10.35	7.27	23.30	0.366	1.48	2.32	-29.1
1											
1											
1											

TUBING INSIDE DIA. CAPACITY (Liters/Ft.): **1/8"** = 0.0024; **3/16"** = 0.0054; **1/4"** = 0.0097; **5/16"** = 0.0151; **3/8"** = 0.0217; **1/2"** = 0.0386; **5/8"** = 0.0603

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Chris Bagley / Antea Group	CB	0950	0900
PUMP OR TUBING DEPTH IN WELL (feet): 45	SAMPLE PUMP FLOW RATE (L per minute): 0.15	TUBING MATERIAL CODE:	HDPE (PTFE)
FIELD DECONTAMINATION: Y **N**	FIELD-FILTERED: Y **N** FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y	(N)

SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION	INTENDED ANALYSIS AND/OR METHOD
# CONTAINERS	VOLUME	PRESERVATIVE USED	
3	40 mL	HCL	8260 D
2	1 L	NONE	8270 C

REMARKS: Drawdown exceeded 0.33 ft

NOTES: 1. STABILIZATION CRITERIA FOR THREE CONSECUTIVE WATER QUALITY READINGS

Turbidity:	<10 NTU or ± 10%	**ORP:**	± 10 mV
Temp.:	± 0.5°	**Dissolved Oxygen:**	± 0.2 mg/L
pH:	± 0.1 units		
Specific Conductance:	± 3%		
Drawdown:	0.33 ft or less		

APPENDIX C

Laboratory Analytical Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-124800-1
Client Project/Site: Hercules Savannah

For:
ARCADIS U.S., Inc.
2410 Paces Ferry Road
Suite 400
Atlanta, Georgia 30339

Attn: Mr. David M Wilderman

Jerry Lanier

Authorized for release by:
5/31/2016 3:22:06 PM

Jerry Lanier, Project Manager I
(912)354-7858 e.3410
jerry.lanier@testamericainc.com

Table of Contents

Job ID: 680-124800-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Hercules Savannah

Report Number: 680-124800-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 05/03/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.2 C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples MW-F21 (050316) (680-124800-1), MW-F5 (050316) (680-124800-3), MW-F7 (050316) (680-124800-4), MW-F15 (050316) (680-124800-5), MW-27 (050316) (680-124800-6), MW-29 (050316) (680-124800-7), MWD-30 (050316) (680-124800-8), Trip Blank (050316) (680-124800-9) and DUP-01 (050316) (680-124800-10) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 05/06/2016, 05/11/2016 and 05/14/2016.

Samples MW-F21 (050316) (680-124800-1)[5X], MW-F5 (050316) (680-124800-3)[5X], MW-F7 (050316) (680-124800-4)[5X], MW-27 (050316) (680-124800-6)[5X], MW-29 (050316) (680-124800-7)[5X] and MWD-30 (050316) (680-124800-8)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS) - LOW LEVEL

Samples MW-F21 (050316) (680-124800-1), MW-F5 (050316) (680-124800-3), MW-F7 (050316) (680-124800-4), MW-27 (050316) (680-124800-6), MW-29 (050316) (680-124800-7) and MWD-30 (050316) (680-124800-8) were analyzed for Semivolatile Organic Compounds (GC/MS) - Low level in accordance with EPA SW-846 Method 8270D. The samples were prepared on 05/05/2016 and analyzed on 05/10/2016.

Aniline, Anthracene, Naphthalene and o-Cresol exceeded the recovery criteria low for the MS of sample MW-F21 (050316)MS (680-124800-1) in batch 680-432504.

Aniline, Benzo[g,h,i]perylene, Benzo[k]fluoranthene and Dibenz(a,h)anthracene exceeded the recovery criteria low for the MSD of sample MW-F21 (050316)MSD (680-124800-1) in batch 680-432504. 1,1'-Biphenyl and o-Cresol exceeded the RPD limit.

Refer to the QC report for details.

Sample MW-F21 (050316) (680-124800-1)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PESTICIDES AND PCBS

Sample MW-F3R (050316) (680-124800-2) was analyzed for Pesticides and PCBs in accordance with EPA SW-846 Method 8081B_8082A. The samples were prepared on 05/05/2016 and analyzed on 05/06/2016.

Job ID: 680-124800-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

This method incorporates 2nd column confirmation. Corrective action is not taken for surrogate/spike compounds unless results from both columns are unacceptable. Results outside criteria are qualified.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

FORMALDEHYDE

Samples MW-F21 (050316) (680-124800-1), MW-F5 (050316) (680-124800-3), MW-F7 (050316) (680-124800-4), MW-27 (050316) (680-124800-6), MW-29 (050316) (680-124800-7) and MWD-30 (050316) (680-124800-8) were analyzed for formaldehyde in accordance with EPA SW-846 Method 8315A. The samples were prepared and analyzed on 05/06/2016.

Butyraldehyde exceeded the surrogate recovery criteria low for MW-F21 (050316) (680-124800-1). There was insufficient sample to perform a re-extraction; therefore, the data have been reported. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CHLORINATED BIPHENYL CONGENERS

Sample MW-F3R (050316) (680-124800-2) was analyzed for chlorinated biphenyl congeners in accordance with EPA method 1668C. The samples were prepared on 05/06/2016 and analyzed on 05/09/2016.

Several analytes were detected in method blank MB 320-109071/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

POLYCHLORINATED BIPHENYLS (PCBS)

Sample MW-F3R (050316) (680-124800-2) was analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA SW-846 Method 1668. The samples were analyzed on 05/13/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract Work

Method Asbestos: This method was subcontracted to EMSL Analytical, Inc.. The subcontract laboratory certification is different from that of the facility issuing the final report.

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-124800-1	MW-F21 (050316)	Water	05/03/16 08:00	05/03/16 15:00
680-124800-2	MW-F3R (050316)	Water	05/03/16 09:32	05/03/16 15:00
680-124800-3	MW-F5 (050316)	Water	05/03/16 10:20	05/03/16 15:00
680-124800-4	MW-F7 (050316)	Water	05/03/16 12:45	05/03/16 15:00
680-124800-5	MW-F15 (050316)	Water	05/03/16 11:55	05/03/16 15:00
680-124800-6	MW-27 (050316)	Water	05/03/16 13:40	05/03/16 15:00
680-124800-7	MW-29 (050316)	Water	05/03/16 11:10	05/03/16 15:00
680-124800-8	MWD-30 (050316)	Water	05/03/16 08:50	05/03/16 15:00
680-124800-9	Trip Blank (050316)	Water	05/03/16 07:30	05/03/16 15:00
680-124800-10	DUP-01 (050316)	Water	05/03/16 00:00	05/03/16 15:00

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL NSH
8270D LL	Semivolatile Organic Compounds by GC/MS - Low Level	SW846	TAL SAV
8081B/8082A	Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography	SW846	TAL SAV
8315A	Carbonyl Compounds by HPLC	SW846	TAL NSH
1668C	Chlorinated Biphenyl Congeners (HRGC/HRMS)	EPA	TAL SAC
None	Total PCB Calculation from HRMS PCB-Congeners	TAL SOP	TAL SAC
Asbestos	EPA 100.2 Asbestos in Drinking Water	NONE	EMSL

Protocol References:

EPA = US Environmental Protection Agency

NONE = NONE

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EMSL = EMSL Analytical, Inc., 200 Rt 130 North, Cinnaminson, NJ 08077

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
X	Surrogate is outside control limits
U	Indicates the analyte was analyzed for but not detected.

Dioxin

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Client Sample ID: MW-F21 (050316) — Lab Sample ID: 680-124800-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	60	J	130	13	ug/L	5		8260B	Total/NA
Benzene	1.5	J	5.0	1.0	ug/L	5		8260B	Total/NA
Acenaphthene	2.2		0.20	0.099	ug/L	1		8270D LL	Total/NA
1,4-Dioxane	13		2.0	0.31	ug/L	1		8270D LL	Total/NA
Fluorene	0.42		0.20	0.099	ug/L	1		8270D LL	Total/NA
Naphthalene - DL	66		2.0	0.99	ug/L	10		8270D LL	Total/NA

Client Sample ID: MW-F3R (050316) — Lab Sample ID: 680-124800-2

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
PCB-1	6.1	J	200	0.78	pg/L	1		1668C	Total/NA
PCB-52	4.7	J B	200	0.93	pg/L	1		1668C	Total/NA
PCB-61/70/74/76	3.9	J B	820	1.1	pg/L	1		1668C	Total/NA
PCB-90/101/113	4.6	J	610	1.3	pg/L	1		1668C	Total/NA
PCB-110/115	4.2	J B	410	1.1	pg/L	1		1668C	Total/NA
PCB-118	3.7	J	20	1.2	pg/L	1		1668C	Total/NA
PCB-129/138/163	4.8	J B	610	1.1	pg/L	1		1668C	Total/NA
PCB-147/149	3.1	J B	410	1.1	pg/L	1		1668C	Total/NA
PCB-153/168	2.8	J B	410	0.96	pg/L	1		1668C	Total/NA
PCB-180/193	2.0	J	410	0.75	pg/L	1		1668C	Total/NA
PCB-183	1.8	J B	200	0.72	pg/L	1		1668C	Total/NA
PCB-209	2.2	J	200	0.93	pg/L	1		1668C	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Polychlorinated biphenyls, Total	44	J	200	20	pg/L	1		None	Total/NA

Client Sample ID: MW-F5 (050316) — Lab Sample ID: 680-124800-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	25	J	130	13	ug/L	5		8260B	Total/NA
Acenaphthene	9.6		0.24	0.12	ug/L	1		8270D LL	Total/NA
Dibenz(a,h)anthracene	0.16	J	0.24	0.12	ug/L	1		8270D LL	Total/NA

Client Sample ID: MW-F7 (050316) — Lab Sample ID: 680-124800-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	2.0	J	5.0	0.70	ug/L	5		8260B	Total/NA

Client Sample ID: MW-F15 (050316) — Lab Sample ID: 680-124800-5

No Detections.

Client Sample ID: MW-27 (050316) — Lab Sample ID: 680-124800-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	0.92	J	5.0	0.70	ug/L	5		8260B	Total/NA

Client Sample ID: MW-29 (050316) — Lab Sample ID: 680-124800-7

No Detections.

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Client Sample ID: MWD-30 (050316) — Lab Sample ID: 680-124800-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dibenzofuran	0.15	J	1.1	0.11	ug/L	1		8270D LL	Total/NA
Fluorene	0.13	J	0.23	0.11	ug/L	1		8270D LL	Total/NA

Client Sample ID: Trip Blank (050316) — Lab Sample ID: 680-124800-9

No Detections.

Client Sample ID: DUP-01 (050316) — Lab Sample ID: 680-124800-10

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-F21 (050316)
Date Collected: 05/03/16 08:00
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**60**	**J**	130	13	ug/L			05/06/16 18:07	5
Acetonitrile	26	U	100	26	ug/L			05/06/16 18:07	5
Acrolein	20	U	250	20	ug/L			05/06/16 18:07	5
Benzene	**1.5**	**J**	5.0	1.0	ug/L			05/06/16 18:07	5
Carbon disulfide	1.1	U	5.0	1.1	ug/L			05/06/16 18:07	5
Chlorobenzene	0.90	U	5.0	0.90	ug/L			05/06/16 18:07	5
1,2-Dichloropropane	1.3	U	5.0	1.3	ug/L			05/06/16 18:07	5
Ethylbenzene	0.95	U	5.0	0.95	ug/L			05/06/16 18:07	5
Ethyl methacrylate	3.4	U	50	3.4	ug/L			05/06/16 18:07	5
Isobutyl alcohol	41	U	250	41	ug/L			05/06/16 18:07	5
Methyl ethyl ketone (MEK)	13	U	250	13	ug/L			05/06/16 18:07	5
4-Methyl-2-pentanone (MIBK)	4.1	U	50	4.1	ug/L			05/06/16 18:07	5
m-Xylene & p-Xylene	1.9	U	10	1.9	ug/L			05/06/16 18:07	5
o-Xylene	1.0	U	5.0	1.0	ug/L			05/06/16 18:07	5
Styrene	1.4	U	5.0	1.4	ug/L			05/06/16 18:07	5
Tetrachloroethene	0.70	U	5.0	0.70	ug/L			05/06/16 18:07	5
Toluene	0.85	U	5.0	0.85	ug/L			05/06/16 18:07	5
trans-1,4-Dichloro-2-butene	2.3	U	25	2.3	ug/L			05/06/16 18:07	5
Xylenes, Total	2.9	U	15	2.9	ug/L			05/06/16 18:07	5

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
cis-1,4-dichloro-2-butene	*None*		*ug/L*			*1476-11-5*		*05/06/16 18:07*	*5*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*05/06/16 18:07*	*5*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*05/06/16 18:07*	*5*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*		*05/06/16 18:07*	*5*
Toluene-d8 (Surr)	*100*		*70 - 130*		*05/06/16 18:07*	*5*

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**2.2**		0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Acenaphthylene	0.099	U	0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Acetophenone	0.30	U	0.99	0.30	ug/L		05/05/16 16:31	05/10/16 02:09	1
Aniline	0.96	U F1	2.0	0.96	ug/L		05/05/16 16:31	05/10/16 02:09	1
Anthracene	0.099	U F1	0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Benzo[a]anthracene	0.099	U	0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Benzo[a]pyrene	0.099	U	0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Benzo[b]fluoranthene	0.099	U	0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Benzo[g,h,i]perylene	0.099	U F1	0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Benzo[k]fluoranthene	0.099	U F1	0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
1,1'-Biphenyl	0.099	U F2	0.99	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Bis(2-ethylhexyl) phthalate	2.0	U	4.9	2.0	ug/L		05/05/16 16:31	05/10/16 02:09	1
Butyl benzyl phthalate	0.12	U	0.99	0.12	ug/L		05/05/16 16:31	05/10/16 02:09	1
Chrysene	0.044	U	0.20	0.044	ug/L		05/05/16 16:31	05/10/16 02:09	1
Dibenz(a,h)anthracene	0.099	U F1	0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Dibenzofuran	0.099	U	0.99	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
2,4-Dimethylphenol	0.68	U	2.0	0.68	ug/L		05/05/16 16:31	05/10/16 02:09	1
Di-n-octyl phthalate	0.17	U	0.99	0.17	ug/L		05/05/16 16:31	05/10/16 02:09	1
1,4-Dioxane	**13**		2.0	0.31	ug/L		05/05/16 16:31	05/10/16 02:09	1

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Client Sample ID: MW-F21 (050316)
Date Collected: 05/03/16 08:00
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-1
Matrix: Water

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Parathion	0.099	U	2.0	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Fluoranthene	0.099	U	0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Fluorene	**0.42**		0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Indeno[1,2,3-cd]pyrene	0.099	U	0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
o-Cresol	0.73	U F1 F2	2.0	0.73	ug/L		05/05/16 16:31	05/10/16 02:09	1
m & p - Cresol	0.65	U	2.0	0.65	ug/L		05/05/16 16:31	05/10/16 02:09	1
N-Nitrosodi-n-butylamine	0.099	U	0.99	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
N-Nitrosomethylethylamine	0.099	U	2.0	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Phenanthrene	0.099	U	0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Pyrene	0.099	U	0.20	0.099	ug/L		05/05/16 16:31	05/10/16 02:09	1
Cresols, Total	1.4	U	4.0	1.4	ug/L		05/05/16 16:31	05/10/16 02:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*93*		*48 - 123*	*05/05/16 16:31*	*05/10/16 02:09*	*1*
2-Fluorobiphenyl (Surr)	*59*		*43 - 105*	*05/05/16 16:31*	*05/10/16 02:09*	*1*
2-Fluorophenol (Surr)	*66*		*32 - 100*	*05/05/16 16:31*	*05/10/16 02:09*	*1*
Terphenyl-d14 (Surr)	*83*		*20 - 112*	*05/05/16 16:31*	*05/10/16 02:09*	*1*
Phenol-d5 (Surr)	*62*		*34 - 101*	*05/05/16 16:31*	*05/10/16 02:09*	*1*
Nitrobenzene-d5 (Surr)	*74*		*43 - 107*	*05/05/16 16:31*	*05/10/16 02:09*	*1*

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**66**		2.0	0.99	ug/L		05/05/16 16:31	05/10/16 14:59	10

Method: 8315A - Carbonyl Compounds by HPLC

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	15	U	50	15	ug/L		05/06/16 06:24	05/06/16 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Butyraldehyde	*24*	*X*	*54 - 128*	*05/06/16 06:24*	*05/06/16 15:42*	*1*

Client Sample ID: MW-F3R (050316)
Date Collected: 05/03/16 09:32
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-2
Matrix: Water

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DDT	0.0074	U	0.053	0.0074	ug/L		05/05/16 16:13	05/06/16 21:40	1
Endrin	0.0056	U	0.053	0.0056	ug/L		05/05/16 16:13	05/06/16 21:40	1
Endrin aldehyde	0.0065	U	0.053	0.0065	ug/L		05/05/16 16:13	05/06/16 21:40	1
Methoxychlor	0.010	U	0.053	0.010	ug/L		05/05/16 16:13	05/06/16 21:40	1
PCB-1254	0.12	U	1.1	0.12	ug/L		05/05/16 16:13	05/06/16 21:40	1
PCB-1260	0.13	U	1.1	0.13	ug/L		05/05/16 16:13	05/06/16 21:40	1
PCB-1262	0.20	U	1.1	0.20	ug/L		05/05/16 16:13	05/06/16 21:40	1
PCB-1268	0.25	U	1.1	0.25	ug/L		05/05/16 16:13	05/06/16 21:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*23*		*14 - 130*	*05/05/16 16:13*	*05/06/16 21:40*	*1*
Tetrachloro-m-xylene	*65*		*40 - 130*	*05/05/16 16:13*	*05/06/16 21:40*	*1*

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1	**6.1**	**J**	200	0.78	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-2	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-3	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-4	16	U	200	16	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-5	15	U	200	15	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-6	14	U	200	14	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-7	14	U	200	14	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-8	13	U	200	13	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-9	17	U	200	17	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-10	12	U	200	12	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-11	18	U	200	18	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-12/13	17	U	410	17	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-14	14	U	200	14	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-15	20	U	200	20	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-16	1.5	U	200	1.5	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-17	1.4	U	200	1.4	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-18/30	1.2	U	410	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-19	1.7	U	200	1.7	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-20/28	3.8	U	410	3.8	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-21/33	3.0	U	410	3.0	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-22	3.8	U	200	3.8	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-23	2.9	U	200	2.9	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-24	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-25	3.0	U	200	3.0	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-26/29	3.4	U	410	3.4	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-27	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-31	3.1	U	200	3.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-32	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-34	3.9	U	200	3.9	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-35	4.3	U	200	4.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-36	3.8	U	200	3.8	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-37	4.7	U	200	4.7	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-38	4.2	U	200	4.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-39	3.6	U	200	3.6	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-40/71	0.84	U	410	0.84	pg/L		05/06/16 11:03	05/09/16 17:18	1

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Client Sample ID: MW-F3R (050316)
Date Collected: 05/03/16 09:32
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-2
Matrix: Water

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-41	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-42	0.81	U	200	0.81	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-43	0.86	U	200	0.86	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-44/47/65	0.82	U	610	0.82	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-45	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-46	0.95	U	200	0.95	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-48	0.83	U	200	0.83	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-49/69	0.71	U	410	0.71	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-50/53	0.77	U	410	0.77	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-51	0.72	U	200	0.72	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-52	**4.7**	**J B**	200	0.93	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-54	0.79	U	200	0.79	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-55	0.92	U	200	0.92	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-56	1.3	U	200	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-57	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-58	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-59/62/75	0.65	U	610	0.65	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-60	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-61/70/74/76	**3.9**	**J B**	820	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-63	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-64	0.58	U	200	0.58	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-66	1.4	U	200	1.4	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-67	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-68	0.98	U	200	0.98	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-72	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-73	0.73	U	200	0.73	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-77	1.4	U	20	1.4	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-78	1.3	U	200	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-79	1.3	U	200	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-80	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-81	1.4	U	20	1.4	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-82	1.7	U	200	1.7	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-83	2.3	U	200	2.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-84	1.7	U	200	1.7	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-85/116/117	1.3	U	610	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-86/87/97/108/119/125	1.3	U	1200	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-88/91	1.4	U	410	1.4	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-89	1.6	U	200	1.6	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-90/101/113	**4.6**	**J**	610	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-92	1.6	U	200	1.6	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-93/100	1.3	U	410	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-107/124	1.3	U	410	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-94	1.5	U	200	1.5	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-95	1.5	U	200	1.5	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-96	0.60	U	200	0.60	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-98/102	1.3	U	410	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-99	1.4	U	200	1.4	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-103	1.3	U	200	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-104	0.55	U	200	0.55	pg/L		05/06/16 11:03	05/09/16 17:18	1

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Client Sample ID: MW-F3R (050316)
Date Collected: 05/03/16 09:32
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-2
Matrix: Water

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-105	1.3	U	20	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-106	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-110/115	**4.2**	**J B**	410	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-109	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-111	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-112	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-114	1.3	U	20	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-118	**3.7**	**J**	20	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-120	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-121	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-122	1.5	U	200	1.5	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-123	1.3	U	20	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-126	1.8	U	20	1.8	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-127	1.5	U	200	1.5	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-128/166	1.1	U	410	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-129/138/163	**4.8**	**J B**	610	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-130	1.4	U	200	1.4	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-131	1.3	U	200	1.3	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-132	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-133	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-134/143	1.2	U	410	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-135/151	1.1	U	410	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-136	0.76	U	200	0.76	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-137	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-139/140	1.0	U	410	1.0	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-141	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-142	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-144	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-145	0.73	U	200	0.73	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-146	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-147/149	**3.1**	**J B**	410	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-148	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-150	0.66	U	200	0.66	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-152	0.72	U	200	0.72	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-153/168	**2.8**	**J B**	410	0.96	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-154	0.89	U	200	0.89	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-155	0.64	U	200	0.64	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-156/157	1.1	U	41	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-158	0.82	U	200	0.82	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-159	0.90	U	200	0.90	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-160	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-161	0.88	U	200	0.88	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-162	0.78	U	200	0.78	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-164	0.92	U	200	0.92	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-165	0.99	U	200	0.99	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-167	0.77	U	20	0.77	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-169	1.1	U	20	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-170	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-171/173	0.90	U	410	0.90	pg/L		05/06/16 11:03	05/09/16 17:18	1

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Client Sample ID: MW-F3R (050316)
Date Collected: 05/03/16 09:32
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-2
Matrix: Water

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-172	0.98	U	200	0.98	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-174	0.89	U	200	0.89	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-175	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-176	0.78	U	200	0.78	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-177	0.96	U	200	0.96	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-178	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-179	0.82	U	200	0.82	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-180/193	**2.0**	**J**	410	0.75	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-181	0.81	U	200	0.81	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-182	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-183	**1.8**	**J B**	200	0.72	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-184	0.84	U	200	0.84	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-185	0.84	U	200	0.84	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-186	0.82	U	200	0.82	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-187	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-188	0.83	U	200	0.83	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-189	1.0	U	20	1.0	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-190	0.71	U	200	0.71	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-191	0.68	U	200	0.68	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-192	0.73	U	200	0.73	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-194	0.99	U	200	0.99	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-195	0.97	U	200	0.97	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-196	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-197	0.74	U	200	0.74	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-198/199	1.2	U	410	1.2	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-200	0.78	U	200	0.78	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-201	0.74	U	200	0.74	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-202	0.82	U	200	0.82	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-203	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-204	0.79	U	200	0.79	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-205	0.81	U	200	0.81	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-206	0.95	U	200	0.95	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-207	0.64	U	200	0.64	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-208	0.77	U	200	0.77	pg/L		05/06/16 11:03	05/09/16 17:18	1
PCB-209	**2.2**	**J**	200	0.93	pg/L		05/06/16 11:03	05/09/16 17:18	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
PCB-1L	*59*		*5 - 145*	*05/06/16 11:03*	*05/09/16 17:18*	*1*
PCB-3L	*68*		*5 - 145*	*05/06/16 11:03*	*05/09/16 17:18*	*1*
PCB-4L	*64*		*5 - 145*	*05/06/16 11:03*	*05/09/16 17:18*	*1*
PCB-15L	*92*		*5 - 145*	*05/06/16 11:03*	*05/09/16 17:18*	*1*
PCB-19L	*69*		*5 - 145*	*05/06/16 11:03*	*05/09/16 17:18*	*1*
PCB-37L	*106*		*5 - 145*	*05/06/16 11:03*	*05/09/16 17:18*	*1*
PCB-54L	*55*		*5 - 145*	*05/06/16 11:03*	*05/09/16 17:18*	*1*
PCB-77L	*105*		*10 - 145*	*05/06/16 11:03*	*05/09/16 17:18*	*1*
PCB-81L	*103*		*10 - 145*	*05/06/16 11:03*	*05/09/16 17:18*	*1*
PCB-104L	*64*		*10 - 145*	*05/06/16 11:03*	*05/09/16 17:18*	*1*
PCB-105L	*89*		*10 - 145*	*05/06/16 11:03*	*05/09/16 17:18*	*1*
PCB-114L	*93*		*10 - 145*	*05/06/16 11:03*	*05/09/16 17:18*	*1*
PCB-118L	*93*		*10 - 145*	*05/06/16 11:03*	*05/09/16 17:18*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Client Sample ID: MW-F3R (050316)
Date Collected: 05/03/16 09:32
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-2
Matrix: Water

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
PCB-123L	93		10 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-126L	99		10 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-155L	83		10 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-156L/157L	108		10 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-167L	108		10 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-169L	113		10 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-188L	71		10 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-189L	89		10 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-202L	81		10 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-205L	94		10 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-206L	88		10 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-208L	96		10 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-209L	78		10 - 145	05/06/16 11:03	05/09/16 17:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
PCB-28L	94		5 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-111L	93		10 - 145	05/06/16 11:03	05/09/16 17:18	1
PCB-178L	82		10 - 145	05/06/16 11:03	05/09/16 17:18	1

Method: None - Total PCB Calculation from HRMS PCB-Congeners

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Polychlorinated biphenyls, Total	44	J	200	20	pg/L			05/13/16 09:14	1

Client Sample ID: MW-F5 (050316)
Date Collected: 05/03/16 10:20
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**25**	**J**	130	13	ug/L			05/06/16 18:37	5
Acetonitrile	26	U	100	26	ug/L			05/06/16 18:37	5
Acrolein	20	U	250	20	ug/L			05/06/16 18:37	5
Benzene	1.0	U	5.0	1.0	ug/L			05/06/16 18:37	5
Carbon disulfide	1.1	U	5.0	1.1	ug/L			05/06/16 18:37	5
Chlorobenzene	0.90	U	5.0	0.90	ug/L			05/06/16 18:37	5
1,2-Dichloropropane	1.3	U	5.0	1.3	ug/L			05/06/16 18:37	5
Ethylbenzene	0.95	U	5.0	0.95	ug/L			05/06/16 18:37	5
Ethyl methacrylate	3.4	U	50	3.4	ug/L			05/06/16 18:37	5
Isobutyl alcohol	41	U	250	41	ug/L			05/06/16 18:37	5
Methyl ethyl ketone (MEK)	13	U	250	13	ug/L			05/06/16 18:37	5
4-Methyl-2-pentanone (MIBK)	4.1	U	50	4.1	ug/L			05/06/16 18:37	5
m-Xylene & p-Xylene	1.9	U	10	1.9	ug/L			05/06/16 18:37	5
o-Xylene	1.0	U	5.0	1.0	ug/L			05/06/16 18:37	5
Styrene	1.4	U	5.0	1.4	ug/L			05/06/16 18:37	5
Tetrachloroethene	0.70	U	5.0	0.70	ug/L			05/06/16 18:37	5
Toluene	0.85	U	5.0	0.85	ug/L			05/06/16 18:37	5
trans-1,4-Dichloro-2-butene	2.3	U	25	2.3	ug/L			05/06/16 18:37	5
Xylenes, Total	2.9	U	15	2.9	ug/L			05/06/16 18:37	5

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
cis-1,4-dichloro-2-butene	*None*		*ug/L*			*1476-11-5*		*05/06/16 18:37*	*5*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*05/06/16 18:37*	*5*
Dibromofluoromethane (Surr)	*94*		*70 - 130*		*05/06/16 18:37*	*5*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*05/06/16 18:37*	*5*
Toluene-d8 (Surr)	*100*		*70 - 130*		*05/06/16 18:37*	*5*

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**9.6**		0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Acenaphthylene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Acetophenone	0.37	U	1.2	0.37	ug/L		05/05/16 16:31	05/10/16 02:34	1
Aniline	1.2	U	2.4	1.2	ug/L		05/05/16 16:31	05/10/16 02:34	1
Anthracene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Benzo[a]anthracene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Benzo[a]pyrene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Benzo[b]fluoranthene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Benzo[g,h,i]perylene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Benzo[k]fluoranthene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
1,1'-Biphenyl	0.12	U	1.2	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Bis(2-ethylhexyl) phthalate	2.4	U	6.1	2.4	ug/L		05/05/16 16:31	05/10/16 02:34	1
Butyl benzyl phthalate	0.15	U	1.2	0.15	ug/L		05/05/16 16:31	05/10/16 02:34	1
Chrysene	0.055	U	0.24	0.055	ug/L		05/05/16 16:31	05/10/16 02:34	1
Dibenz(a,h)anthracene	**0.16**	**J**	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Dibenzofuran	0.12	U	1.2	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
2,4-Dimethylphenol	0.84	U	2.4	0.84	ug/L		05/05/16 16:31	05/10/16 02:34	1
Di-n-octyl phthalate	0.21	U	1.2	0.21	ug/L		05/05/16 16:31	05/10/16 02:34	1
1,4-Dioxane	0.38	U	2.4	0.38	ug/L		05/05/16 16:31	05/10/16 02:34	1

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Client Sample ID: MW-F5 (050316)
Date Collected: 05/03/16 10:20
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-3
Matrix: Water

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Parathion	0.12	U	2.4	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Fluoranthene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Fluorene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Indeno[1,2,3-cd]pyrene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
o-Cresol	0.90	U	2.4	0.90	ug/L		05/05/16 16:31	05/10/16 02:34	1
m & p - Cresol	0.80	U	2.4	0.80	ug/L		05/05/16 16:31	05/10/16 02:34	1
Naphthalene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
N-Nitrosodi-n-butylamine	0.12	U	1.2	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
N-Nitrosomethylethylamine	0.12	U	2.4	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Phenanthrene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Pyrene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 02:34	1
Cresols, Total	1.7	U	4.9	1.7	ug/L		05/05/16 16:31	05/10/16 02:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*88*		*48 - 123*	*05/05/16 16:31*	*05/10/16 02:34*	*1*
2-Fluorobiphenyl (Surr)	*68*		*43 - 105*	*05/05/16 16:31*	*05/10/16 02:34*	*1*
2-Fluorophenol (Surr)	*63*		*32 - 100*	*05/05/16 16:31*	*05/10/16 02:34*	*1*
Terphenyl-d14 (Surr)	*71*		*20 - 112*	*05/05/16 16:31*	*05/10/16 02:34*	*1*
Phenol-d5 (Surr)	*60*		*34 - 101*	*05/05/16 16:31*	*05/10/16 02:34*	*1*
Nitrobenzene-d5 (Surr)	*70*		*43 - 107*	*05/05/16 16:31*	*05/10/16 02:34*	*1*

Method: 8315A - Carbonyl Compounds by HPLC

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	15	U	50	15	ug/L		05/06/16 06:24	05/06/16 16:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Butyraldehyde	*104*		*54 - 128*	*05/06/16 06:24*	*05/06/16 16:05*	*1*

Client Sample ID: MW-F7 (050316)
Date Collected: 05/03/16 12:45
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	13	U	130	13	ug/L			05/06/16 19:07	5
Acetonitrile	26	U	100	26	ug/L			05/06/16 19:07	5
Acrolein	20	U	250	20	ug/L			05/06/16 19:07	5
Benzene	1.0	U	5.0	1.0	ug/L			05/06/16 19:07	5
Carbon disulfide	1.1	U	5.0	1.1	ug/L			05/06/16 19:07	5
Chlorobenzene	0.90	U	5.0	0.90	ug/L			05/06/16 19:07	5
1,2-Dichloropropane	1.3	U	5.0	1.3	ug/L			05/06/16 19:07	5
Ethylbenzene	0.95	U	5.0	0.95	ug/L			05/06/16 19:07	5
Ethyl methacrylate	3.4	U	50	3.4	ug/L			05/06/16 19:07	5
Isobutyl alcohol	41	U	250	41	ug/L			05/06/16 19:07	5
Methyl ethyl ketone (MEK)	13	U	250	13	ug/L			05/06/16 19:07	5
4-Methyl-2-pentanone (MIBK)	4.1	U	50	4.1	ug/L			05/06/16 19:07	5
m-Xylene & p-Xylene	1.9	U	10	1.9	ug/L			05/06/16 19:07	5
o-Xylene	1.0	U	5.0	1.0	ug/L			05/06/16 19:07	5
Styrene	1.4	U	5.0	1.4	ug/L			05/06/16 19:07	5
Tetrachloroethene	**2.0**	**J**	5.0	0.70	ug/L			05/06/16 19:07	5
Toluene	0.85	U	5.0	0.85	ug/L			05/06/16 19:07	5
trans-1,4-Dichloro-2-butene	2.3	U	25	2.3	ug/L			05/06/16 19:07	5
Xylenes, Total	2.9	U	15	2.9	ug/L			05/06/16 19:07	5

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
cis-1,4-dichloro-2-butene	*None*		*ug/L*			*1476-11-5*		*05/06/16 19:07*	*5*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*05/06/16 19:07*	*5*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*05/06/16 19:07*	*5*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*05/06/16 19:07*	*5*
Toluene-d8 (Surr)	*101*		*70 - 130*		*05/06/16 19:07*	*5*

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Acenaphthylene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Acetophenone	0.35	U	1.2	0.35	ug/L		05/05/16 16:31	05/10/16 02:58	1
Aniline	1.1	U	2.3	1.1	ug/L		05/05/16 16:31	05/10/16 02:58	1
Anthracene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Benzo[a]anthracene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Benzo[a]pyrene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Benzo[b]fluoranthene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Benzo[g,h,i]perylene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Benzo[k]fluoranthene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
1,1'-Biphenyl	0.12	U	1.2	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Bis(2-ethylhexyl) phthalate	2.3	U	5.8	2.3	ug/L		05/05/16 16:31	05/10/16 02:58	1
Butyl benzyl phthalate	0.14	U	1.2	0.14	ug/L		05/05/16 16:31	05/10/16 02:58	1
Chrysene	0.052	U	0.23	0.052	ug/L		05/05/16 16:31	05/10/16 02:58	1
Dibenz(a,h)anthracene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Dibenzofuran	0.12	U	1.2	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
2,4-Dimethylphenol	0.80	U	2.3	0.80	ug/L		05/05/16 16:31	05/10/16 02:58	1
Di-n-octyl phthalate	0.20	U	1.2	0.20	ug/L		05/05/16 16:31	05/10/16 02:58	1
1,4-Dioxane	0.36	U	2.3	0.36	ug/L		05/05/16 16:31	05/10/16 02:58	1

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Client Sample ID: MW-F7 (050316)
Date Collected: 05/03/16 12:45
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-4
Matrix: Water

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Parathion	0.12	U	2.3	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Fluoranthene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Fluorene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Indeno[1,2,3-cd]pyrene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
o-Cresol	0.86	U	2.3	0.86	ug/L		05/05/16 16:31	05/10/16 02:58	1
m & p - Cresol	0.76	U	2.3	0.76	ug/L		05/05/16 16:31	05/10/16 02:58	1
Naphthalene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
N-Nitrosodi-n-butylamine	0.12	U	1.2	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
N-Nitrosomethylethylamine	0.12	U	2.3	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Phenanthrene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Pyrene	0.12	U	0.23	0.12	ug/L		05/05/16 16:31	05/10/16 02:58	1
Cresols, Total	1.6	U	4.6	1.6	ug/L		05/05/16 16:31	05/10/16 02:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*88*		*48 - 123*	*05/05/16 16:31*	*05/10/16 02:58*	*1*
2-Fluorobiphenyl (Surr)	*71*		*43 - 105*	*05/05/16 16:31*	*05/10/16 02:58*	*1*
2-Fluorophenol (Surr)	*67*		*32 - 100*	*05/05/16 16:31*	*05/10/16 02:58*	*1*
Terphenyl-d14 (Surr)	*78*		*20 - 112*	*05/05/16 16:31*	*05/10/16 02:58*	*1*
Phenol-d5 (Surr)	*67*		*34 - 101*	*05/05/16 16:31*	*05/10/16 02:58*	*1*
Nitrobenzene-d5 (Surr)	*74*		*43 - 107*	*05/05/16 16:31*	*05/10/16 02:58*	*1*

Method: 8315A - Carbonyl Compounds by HPLC

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	15	U	50	15	ug/L		05/06/16 06:24	05/06/16 16:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Butyraldehyde	*116*		*54 - 128*	*05/06/16 06:24*	*05/06/16 16:29*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Client Sample ID: MW-F15 (050316)
Date Collected: 05/03/16 11:55
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.20	U	1.0	0.20	ug/L			05/14/16 11:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*		*05/14/16 11:14*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*05/14/16 11:14*	*1*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*05/14/16 11:14*	*1*
Toluene-d8 (Surr)	*97*		*70 - 130*		*05/14/16 11:14*	*1*

Client Sample ID: MW-27 (050316)
Date Collected: 05/03/16 13:40
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	13	U	130	13	ug/L			05/06/16 19:37	5
Acetonitrile	26	U	100	26	ug/L			05/06/16 19:37	5
Acrolein	20	U	250	20	ug/L			05/06/16 19:37	5
Benzene	1.0	U	5.0	1.0	ug/L			05/06/16 19:37	5
Carbon disulfide	1.1	U	5.0	1.1	ug/L			05/06/16 19:37	5
Chlorobenzene	0.90	U	5.0	0.90	ug/L			05/06/16 19:37	5
1,2-Dichloropropane	1.3	U	5.0	1.3	ug/L			05/06/16 19:37	5
Ethylbenzene	0.95	U	5.0	0.95	ug/L			05/06/16 19:37	5
Ethyl methacrylate	3.4	U	50	3.4	ug/L			05/06/16 19:37	5
Isobutyl alcohol	41	U	250	41	ug/L			05/06/16 19:37	5
Methyl ethyl ketone (MEK)	13	U	250	13	ug/L			05/06/16 19:37	5
4-Methyl-2-pentanone (MIBK)	4.1	U	50	4.1	ug/L			05/06/16 19:37	5
m-Xylene & p-Xylene	1.9	U	10	1.9	ug/L			05/06/16 19:37	5
o-Xylene	1.0	U	5.0	1.0	ug/L			05/06/16 19:37	5
Styrene	1.4	U	5.0	1.4	ug/L			05/06/16 19:37	5
Tetrachloroethene	**0.92**	**J**	5.0	0.70	ug/L			05/06/16 19:37	5
Toluene	0.85	U	5.0	0.85	ug/L			05/06/16 19:37	5
trans-1,4-Dichloro-2-butene	2.3	U	25	2.3	ug/L			05/06/16 19:37	5
Xylenes, Total	2.9	U	15	2.9	ug/L			05/06/16 19:37	5

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
cis-1,4-dichloro-2-butene	*None*		*ug/L*			*1476-11-5*		*05/06/16 19:37*	*5*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*05/06/16 19:37*	*5*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*05/06/16 19:37*	*5*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 130*		*05/06/16 19:37*	*5*
Toluene-d8 (Surr)	*103*		*70 - 130*		*05/06/16 19:37*	*5*

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Acenaphthylene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Acetophenone	0.36	U	1.2	0.36	ug/L		05/05/16 16:31	05/10/16 03:22	1
Aniline	1.2	U	2.4	1.2	ug/L		05/05/16 16:31	05/10/16 03:22	1
Anthracene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Benzo[a]anthracene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Benzo[a]pyrene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Benzo[b]fluoranthene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Benzo[g,h,i]perylene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Benzo[k]fluoranthene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
1,1'-Biphenyl	0.12	U	1.2	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Bis(2-ethylhexyl) phthalate	2.4	U	6.0	2.4	ug/L		05/05/16 16:31	05/10/16 03:22	1
Butyl benzyl phthalate	0.14	U	1.2	0.14	ug/L		05/05/16 16:31	05/10/16 03:22	1
Chrysene	0.054	U	0.24	0.054	ug/L		05/05/16 16:31	05/10/16 03:22	1
Dibenz(a,h)anthracene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Dibenzofuran	0.12	U	1.2	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
2,4-Dimethylphenol	0.83	U	2.4	0.83	ug/L		05/05/16 16:31	05/10/16 03:22	1
Di-n-octyl phthalate	0.21	U	1.2	0.21	ug/L		05/05/16 16:31	05/10/16 03:22	1
1,4-Dioxane	0.37	U	2.4	0.37	ug/L		05/05/16 16:31	05/10/16 03:22	1

Client Sample ID: MW-27 (050316)
Date Collected: 05/03/16 13:40
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-6
Matrix: Water

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Parathion	0.12	U	2.4	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Fluoranthene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Fluorene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Indeno[1,2,3-cd]pyrene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
o-Cresol	0.89	U	2.4	0.89	ug/L		05/05/16 16:31	05/10/16 03:22	1
m & p - Cresol	0.80	U	2.4	0.80	ug/L		05/05/16 16:31	05/10/16 03:22	1
Naphthalene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
N-Nitrosodi-n-butylamine	0.12	U	1.2	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
N-Nitrosomethylethylamine	0.12	U	2.4	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Phenanthrene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Pyrene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:22	1
Cresols, Total	1.7	U	4.8	1.7	ug/L		05/05/16 16:31	05/10/16 03:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*88*		*48 - 123*	*05/05/16 16:31*	*05/10/16 03:22*	*1*
2-Fluorobiphenyl (Surr)	*73*		*43 - 105*	*05/05/16 16:31*	*05/10/16 03:22*	*1*
2-Fluorophenol (Surr)	*65*		*32 - 100*	*05/05/16 16:31*	*05/10/16 03:22*	*1*
Terphenyl-d14 (Surr)	*81*		*20 - 112*	*05/05/16 16:31*	*05/10/16 03:22*	*1*
Phenol-d5 (Surr)	*64*		*34 - 101*	*05/05/16 16:31*	*05/10/16 03:22*	*1*
Nitrobenzene-d5 (Surr)	*74*		*43 - 107*	*05/05/16 16:31*	*05/10/16 03:22*	*1*

Method: 8315A - Carbonyl Compounds by HPLC

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	15	U	50	15	ug/L		05/06/16 06:24	05/06/16 16:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Butyraldehyde	*97*		*54 - 128*	*05/06/16 06:24*	*05/06/16 16:52*	*1*

Client Sample ID: MW-29 (050316)
Date Collected: 05/03/16 11:10
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	13	U	130	13	ug/L			05/06/16 20:07	5
Acetonitrile	26	U	100	26	ug/L			05/06/16 20:07	5
Acrolein	20	U	250	20	ug/L			05/06/16 20:07	5
Benzene	1.0	U	5.0	1.0	ug/L			05/06/16 20:07	5
Carbon disulfide	1.1	U	5.0	1.1	ug/L			05/06/16 20:07	5
Chlorobenzene	0.90	U	5.0	0.90	ug/L			05/06/16 20:07	5
1,2-Dichloropropane	1.3	U	5.0	1.3	ug/L			05/06/16 20:07	5
Ethylbenzene	0.95	U	5.0	0.95	ug/L			05/06/16 20:07	5
Ethyl methacrylate	3.4	U	50	3.4	ug/L			05/06/16 20:07	5
Isobutyl alcohol	41	U	250	41	ug/L			05/06/16 20:07	5
Methyl ethyl ketone (MEK)	13	U	250	13	ug/L			05/06/16 20:07	5
4-Methyl-2-pentanone (MIBK)	4.1	U	50	4.1	ug/L			05/06/16 20:07	5
m-Xylene & p-Xylene	1.9	U	10	1.9	ug/L			05/06/16 20:07	5
o-Xylene	1.0	U	5.0	1.0	ug/L			05/06/16 20:07	5
Styrene	1.4	U	5.0	1.4	ug/L			05/06/16 20:07	5
Tetrachloroethene	0.70	U	5.0	0.70	ug/L			05/06/16 20:07	5
Toluene	0.85	U	5.0	0.85	ug/L			05/06/16 20:07	5
trans-1,4-Dichloro-2-butene	2.3	U	25	2.3	ug/L			05/06/16 20:07	5
Xylenes, Total	2.9	U	15	2.9	ug/L			05/06/16 20:07	5

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
cis-1,4-dichloro-2-butene	*None*		*ug/L*			*1476-11-5*		*05/06/16 20:07*	*5*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*05/06/16 20:07*	*5*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*05/06/16 20:07*	*5*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 130*		*05/06/16 20:07*	*5*
Toluene-d8 (Surr)	*104*		*70 - 130*		*05/06/16 20:07*	*5*

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Acenaphthylene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Acetophenone	0.36	U	1.2	0.36	ug/L		05/05/16 16:31	05/10/16 03:46	1
Aniline	1.2	U	2.4	1.2	ug/L		05/05/16 16:31	05/10/16 03:46	1
Anthracene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Benzo[a]anthracene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Benzo[a]pyrene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Benzo[b]fluoranthene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Benzo[g,h,i]perylene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Benzo[k]fluoranthene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
1,1'-Biphenyl	0.12	U	1.2	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Bis(2-ethylhexyl) phthalate	2.4	U	6.0	2.4	ug/L		05/05/16 16:31	05/10/16 03:46	1
Butyl benzyl phthalate	0.14	U	1.2	0.14	ug/L		05/05/16 16:31	05/10/16 03:46	1
Chrysene	0.054	U	0.24	0.054	ug/L		05/05/16 16:31	05/10/16 03:46	1
Dibenz(a,h)anthracene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Dibenzofuran	0.12	U	1.2	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
2,4-Dimethylphenol	0.83	U	2.4	0.83	ug/L		05/05/16 16:31	05/10/16 03:46	1
Di-n-octyl phthalate	0.20	U	1.2	0.20	ug/L		05/05/16 16:31	05/10/16 03:46	1
1,4-Dioxane	0.37	U	2.4	0.37	ug/L		05/05/16 16:31	05/10/16 03:46	1

Client Sample ID: MW-29 (050316)
Date Collected: 05/03/16 11:10
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-7
Matrix: Water

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Parathion	0.12	U	2.4	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Fluoranthene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Fluorene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Indeno[1,2,3-cd]pyrene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
o-Cresol	0.89	U	2.4	0.89	ug/L		05/05/16 16:31	05/10/16 03:46	1
m & p - Cresol	0.80	U	2.4	0.80	ug/L		05/05/16 16:31	05/10/16 03:46	1
Naphthalene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
N-Nitrosodi-n-butylamine	0.12	U	1.2	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
N-Nitrosomethylethylamine	0.12	U	2.4	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Phenanthrene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Pyrene	0.12	U	0.24	0.12	ug/L		05/05/16 16:31	05/10/16 03:46	1
Cresols, Total	1.7	U	4.8	1.7	ug/L		05/05/16 16:31	05/10/16 03:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*89*		*48 - 123*	*05/05/16 16:31*	*05/10/16 03:46*	*1*
2-Fluorobiphenyl (Surr)	*76*		*43 - 105*	*05/05/16 16:31*	*05/10/16 03:46*	*1*
2-Fluorophenol (Surr)	*69*		*32 - 100*	*05/05/16 16:31*	*05/10/16 03:46*	*1*
Terphenyl-d14 (Surr)	*80*		*20 - 112*	*05/05/16 16:31*	*05/10/16 03:46*	*1*
Phenol-d5 (Surr)	*69*		*34 - 101*	*05/05/16 16:31*	*05/10/16 03:46*	*1*
Nitrobenzene-d5 (Surr)	*76*		*43 - 107*	*05/05/16 16:31*	*05/10/16 03:46*	*1*

Method: 8315A - Carbonyl Compounds by HPLC

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	15	U	50	15	ug/L		05/06/16 06:24	05/06/16 17:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Butyraldehyde	*82*		*54 - 128*	*05/06/16 06:24*	*05/06/16 17:16*	*1*

Client Sample ID: MWD-30 (050316)
Date Collected: 05/03/16 08:50
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	13	U	130	13	ug/L			05/06/16 20:36	5
Acetonitrile	26	U	100	26	ug/L			05/06/16 20:36	5
Acrolein	20	U	250	20	ug/L			05/06/16 20:36	5
Benzene	1.0	U	5.0	1.0	ug/L			05/06/16 20:36	5
Carbon disulfide	1.1	U	5.0	1.1	ug/L			05/06/16 20:36	5
Chlorobenzene	0.90	U	5.0	0.90	ug/L			05/06/16 20:36	5
1,2-Dichloropropane	1.3	U	5.0	1.3	ug/L			05/06/16 20:36	5
Ethylbenzene	0.95	U	5.0	0.95	ug/L			05/06/16 20:36	5
Ethyl methacrylate	3.4	U	50	3.4	ug/L			05/06/16 20:36	5
Isobutyl alcohol	41	U	250	41	ug/L			05/06/16 20:36	5
Methyl ethyl ketone (MEK)	13	U	250	13	ug/L			05/06/16 20:36	5
4-Methyl-2-pentanone (MIBK)	4.1	U	50	4.1	ug/L			05/06/16 20:36	5
m-Xylene & p-Xylene	1.9	U	10	1.9	ug/L			05/06/16 20:36	5
o-Xylene	1.0	U	5.0	1.0	ug/L			05/06/16 20:36	5
Styrene	1.4	U	5.0	1.4	ug/L			05/06/16 20:36	5
Tetrachloroethene	0.70	U	5.0	0.70	ug/L			05/06/16 20:36	5
Toluene	0.85	U	5.0	0.85	ug/L			05/06/16 20:36	5
trans-1,4-Dichloro-2-butene	2.3	U	25	2.3	ug/L			05/06/16 20:36	5
Xylenes, Total	2.9	U	15	2.9	ug/L			05/06/16 20:36	5

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
cis-1,4-dichloro-2-butene	*None*		*ug/L*			*1476-11-5*		*05/06/16 20:36*	*5*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*05/06/16 20:36*	*5*
Dibromofluoromethane (Surr)	*97*		*70 - 130*		*05/06/16 20:36*	*5*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*		*05/06/16 20:36*	*5*
Toluene-d8 (Surr)	*101*		*70 - 130*		*05/06/16 20:36*	*5*

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Acenaphthylene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Acetophenone	0.34	U	1.1	0.34	ug/L		05/05/16 16:31	05/10/16 04:10	1
Aniline	1.1	U	2.3	1.1	ug/L		05/05/16 16:31	05/10/16 04:10	1
Anthracene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Benzo[a]anthracene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Benzo[a]pyrene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Benzo[b]fluoranthene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Benzo[g,h,i]perylene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Benzo[k]fluoranthene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
1,1'-Biphenyl	0.11	U	1.1	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Bis(2-ethylhexyl) phthalate	2.3	U	5.6	2.3	ug/L		05/05/16 16:31	05/10/16 04:10	1
Butyl benzyl phthalate	0.14	U	1.1	0.14	ug/L		05/05/16 16:31	05/10/16 04:10	1
Chrysene	0.051	U	0.23	0.051	ug/L		05/05/16 16:31	05/10/16 04:10	1
Dibenz(a,h)anthracene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Dibenzofuran	**0.15**	**J**	1.1	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
2,4-Dimethylphenol	0.78	U	2.3	0.78	ug/L		05/05/16 16:31	05/10/16 04:10	1
Di-n-octyl phthalate	0.19	U	1.1	0.19	ug/L		05/05/16 16:31	05/10/16 04:10	1
1,4-Dioxane	0.35	U	2.3	0.35	ug/L		05/05/16 16:31	05/10/16 04:10	1

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Client Sample ID: MWD-30 (050316)
Date Collected: 05/03/16 08:50
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-8
Matrix: Water

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Parathion	0.11	U	2.3	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Fluoranthene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Fluorene	**0.13**	**J**	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Indeno[1,2,3-cd]pyrene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
o-Cresol	0.83	U	2.3	0.83	ug/L		05/05/16 16:31	05/10/16 04:10	1
m & p - Cresol	0.74	U	2.3	0.74	ug/L		05/05/16 16:31	05/10/16 04:10	1
Naphthalene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
N-Nitrosodi-n-butylamine	0.11	U	1.1	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
N-Nitrosomethylethylamine	0.11	U	2.3	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Phenanthrene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Pyrene	0.11	U	0.23	0.11	ug/L		05/05/16 16:31	05/10/16 04:10	1
Cresols, Total	1.6	U	4.5	1.6	ug/L		05/05/16 16:31	05/10/16 04:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*86*		*48 - 123*	*05/05/16 16:31*	*05/10/16 04:10*	*1*
2-Fluorobiphenyl (Surr)	*73*		*43 - 105*	*05/05/16 16:31*	*05/10/16 04:10*	*1*
2-Fluorophenol (Surr)	*67*		*32 - 100*	*05/05/16 16:31*	*05/10/16 04:10*	*1*
Terphenyl-d14 (Surr)	*78*		*20 - 112*	*05/05/16 16:31*	*05/10/16 04:10*	*1*
Phenol-d5 (Surr)	*65*		*34 - 101*	*05/05/16 16:31*	*05/10/16 04:10*	*1*
Nitrobenzene-d5 (Surr)	*75*		*43 - 107*	*05/05/16 16:31*	*05/10/16 04:10*	*1*

Method: 8315A - Carbonyl Compounds by HPLC

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	15	U	50	15	ug/L		05/06/16 06:24	05/06/16 18:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Butyraldehyde	*83*		*54 - 128*	*05/06/16 06:24*	*05/06/16 18:26*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Client Sample ID: Trip Blank (050316)
Date Collected: 05/03/16 07:30
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-9
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.7	U	25	2.7	ug/L			05/11/16 18:24	1
Acetonitrile	5.2	U	20	5.2	ug/L			05/11/16 18:24	1
Acrolein	4.1	U	50	4.1	ug/L			05/11/16 18:24	1
Benzene	0.20	U	1.0	0.20	ug/L			05/11/16 18:24	1
Carbon disulfide	0.22	U	1.0	0.22	ug/L			05/11/16 18:24	1
Chlorobenzene	0.18	U	1.0	0.18	ug/L			05/11/16 18:24	1
1,2-Dichloropropane	0.25	U	1.0	0.25	ug/L			05/11/16 18:24	1
Ethylbenzene	0.19	U	1.0	0.19	ug/L			05/11/16 18:24	1
Ethyl methacrylate	0.68	U	10	0.68	ug/L			05/11/16 18:24	1
Isobutyl alcohol	8.3	U	50	8.3	ug/L			05/11/16 18:24	1
Methyl ethyl ketone (MEK)	2.6	U	50	2.6	ug/L			05/11/16 18:24	1
4-Methyl-2-pentanone (MIBK)	0.81	U	10	0.81	ug/L			05/11/16 18:24	1
m-Xylene & p-Xylene	0.38	U	2.0	0.38	ug/L			05/11/16 18:24	1
o-Xylene	0.20	U	1.0	0.20	ug/L			05/11/16 18:24	1
Styrene	0.28	U	1.0	0.28	ug/L			05/11/16 18:24	1
Tetrachloroethene	0.14	U	1.0	0.14	ug/L			05/11/16 18:24	1
Toluene	0.17	U	1.0	0.17	ug/L			05/11/16 18:24	1
trans-1,4-Dichloro-2-butene	0.46	U	5.0	0.46	ug/L			05/11/16 18:24	1
Xylenes, Total	0.58	U	3.0	0.58	ug/L			05/11/16 18:24	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
cis-1,4-dichloro-2-butene	*None*		*ug/L*			*1476-11-5*		*05/11/16 18:24*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*05/11/16 18:24*	*1*
Dibromofluoromethane (Surr)	*111*		*70 - 130*		*05/11/16 18:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*70 - 130*		*05/11/16 18:24*	*1*
Toluene-d8 (Surr)	*110*		*70 - 130*		*05/11/16 18:24*	*1*

Client Sample ID: DUP-01 (050316)
Date Collected: 05/03/16 00:00
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-10
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.7	U	25	2.7	ug/L			05/11/16 22:28	1
Acetonitrile	5.2	U	20	5.2	ug/L			05/11/16 22:28	1
Acrolein	4.1	U	50	4.1	ug/L			05/11/16 22:28	1
Benzene	0.20	U	1.0	0.20	ug/L			05/11/16 22:28	1
Carbon disulfide	0.22	U	1.0	0.22	ug/L			05/11/16 22:28	1
Chlorobenzene	0.18	U	1.0	0.18	ug/L			05/11/16 22:28	1
1,2-Dichloropropane	0.25	U	1.0	0.25	ug/L			05/11/16 22:28	1
Ethylbenzene	0.19	U	1.0	0.19	ug/L			05/11/16 22:28	1
Ethyl methacrylate	0.68	U	10	0.68	ug/L			05/11/16 22:28	1
Isobutyl alcohol	8.3	U	50	8.3	ug/L			05/11/16 22:28	1
Methyl ethyl ketone (MEK)	2.6	U	50	2.6	ug/L			05/11/16 22:28	1
4-Methyl-2-pentanone (MIBK)	0.81	U	10	0.81	ug/L			05/11/16 22:28	1
m-Xylene & p-Xylene	0.38	U	2.0	0.38	ug/L			05/11/16 22:28	1
o-Xylene	0.20	U	1.0	0.20	ug/L			05/11/16 22:28	1
Styrene	0.28	U	1.0	0.28	ug/L			05/11/16 22:28	1
Tetrachloroethene	0.14	U	1.0	0.14	ug/L			05/11/16 22:28	1
Toluene	0.17	U	1.0	0.17	ug/L			05/11/16 22:28	1
trans-1,4-Dichloro-2-butene	0.46	U	5.0	0.46	ug/L			05/11/16 22:28	1
Xylenes, Total	0.58	U	3.0	0.58	ug/L			05/11/16 22:28	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
cis-1,4-dichloro-2-butene	*None*		*ug/L*			*1476-11-5*		*05/11/16 22:28*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*05/11/16 22:28*	*1*
Dibromofluoromethane (Surr)	*111*		*70 - 130*		*05/11/16 22:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 130*		*05/11/16 22:28*	*1*
Toluene-d8 (Surr)	*107*		*70 - 130*		*05/11/16 22:28*	*1*

Toxicity Summary

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Client Sample ID: MW-F3R (050316)

Lab Sample ID: 680-124800-2

Analyte	Result	Qualifier	NONE	NONE	Unit	WHO 2005 ND = 0 TEF	WHO 2005 ND = 0 TEQ	Method
Total PCB TEQ					pg/L		0.00011	TEQ
Total TEQ					pg/L		0.00011	TEQ

Analyte	Result	Qualifier	RL	EDL	Unit	WHO 2005 ND = 0 TEF	WHO 2005 ND = 0 TEQ	Method
PCB-77	1.4	U	20	1.4	pg/L	0.0001	0.00	1668C
PCB-81	1.4	U	20	1.4	pg/L	0.0003	0.00	1668C
PCB-105	1.3	U	20	1.3	pg/L	0.00003	0.00	1668C
PCB-114	1.3	U	20	1.3	pg/L	0.00003	0.00	1668C
PCB-118	**3.7**	**J**	20	1.2	pg/L	0.00003	**0.00011**	1668C
PCB-123	1.3	U	20	1.3	pg/L	0.00003	0.00	1668C
PCB-126	1.8	U	20	1.8	pg/L	0.1	0.00	1668C
PCB-156/157	1.1	U	41	1.1	pg/L	0.00003	0.00	1668C
PCB-167	0.77	U	20	0.77	pg/L	0.00003	0.00	1668C
PCB-169	1.1	U	20	1.1	pg/L	0.03	0.00	1668C
PCB-189	1.0	U	20	1.0	pg/L	0.00003	0.00	1668C

Analyte	Result	Qualifier	RL	MDL	Unit	WHO 2005 ND = 0 TEF	WHO 2005 ND = 0 TEQ	Method
Polychlorinated biphenyls, Total	44	J	200	20	pg/L		0.00011	None

TEF Reference:

WHO 2005 = World Health Organization (WHO) 2005 TEF, Dioxins, Furans and PCB Congeners

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	DBFM	12DCE	TOL
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
680-124800-1	MW-F21 (050316)	97	96	93	100
680-124800-3	MW-F5 (050316)	97	94	94	100
680-124800-4	MW-F7 (050316)	99	98	94	101
680-124800-5	MW-F15 (050316)	98	98	96	97
680-124800-6	MW-27 (050316)	100	100	91	103
680-124800-7	MW-29 (050316)	102	100	91	104
680-124800-8	MWD-30 (050316)	97	97	93	101
680-124800-9	Trip Blank (050316)	96	111	116	110
680-124800-10	DUP-01 (050316)	96	111	112	107
LCS 490-337773/3	Lab Control Sample	95	98	99	102
LCS 490-339042/3	Lab Control Sample	99	106	106	106
LCS 490-339983/3	Lab Control Sample	97	98	101	99
LCSD 490-337773/4	Lab Control Sample Dup	95	99	99	103
LCSD 490-339042/4	Lab Control Sample Dup	99	107	104	107
LCSD 490-339983/4	Lab Control Sample Dup	95	98	103	98
MB 490-337773/7	Method Blank	97	92	97	100
MB 490-339042/7	Method Blank	96	109	115	106
MB 490-339983/7	Method Blank	94	97	103	97

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	TPH	PHL	NBZ
Lab Sample ID	Client Sample ID	(48-123)	(43-105)	(32-100)	(20-112)	(34-101)	(43-107)
680-124800-1	MW-F21 (050316)	93	59	66	83	62	74
680-124800-1 MS	MW-F21 (050316)	91	60	50	65	66	74
680-124800-1 MSD	MW-F21 (050316)	99	78	67	61	64	84
680-124800-3	MW-F5 (050316)	88	68	63	71	60	70
680-124800-4	MW-F7 (050316)	88	71	67	78	67	74
680-124800-6	MW-27 (050316)	88	73	65	81	64	74
680-124800-7	MW-29 (050316)	89	76	69	80	69	76
680-124800-8	MWD-30 (050316)	86	73	67	78	65	75
LCS 680-431999/8-A	Lab Control Sample	98	71	64	76	63	71
MB 680-431999/7-A	Method Blank	94	71	62	76	59	73

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
TPH = Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB2	TCX2
Lab Sample ID	Client Sample ID	(14-130)	(40-130)
680-124800-2	MW-F3R (050316)	23	65

Surrogate Legend

DCB = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB2	TCX1
Lab Sample ID	Client Sample ID	(14-130)	(40-130)
LCS 680-432005/17-A	Lab Control Sample	82	78
LCS 680-432005/20-A	Lab Control Sample	73	79
MB 680-432005/16-A	Method Blank	80	77

Surrogate Legend

DCB = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Method: 8315A - Carbonyl Compounds by HPLC

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		BTRL
Lab Sample ID	Client Sample ID	(54-128)
680-124800-1	MW-F21 (050316)	24 X
680-124800-3	MW-F5 (050316)	104
680-124800-4	MW-F7 (050316)	116
680-124800-6	MW-27 (050316)	97
680-124800-7	MW-29 (050316)	82
680-124800-8	MWD-30 (050316)	83
LCS 490-337667/2-A	Lab Control Sample	76
LCSD 490-337667/3-A	Lab Control Sample Dup	84
MB 490-337667/1-A	Method Blank	90

Surrogate Legend

BTRL = Butyraldehyde

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		PCB-28L	PCB-111L	PCB-178L
Lab Sample ID	Client Sample ID	(5-145)	(10-145)	(10-145)
680-124800-2	MW-F3R (050316)	94	93	82
LCS 320-109071/2-A	Lab Control Sample	95	101	85
LCSD 320-109071/3-A	Lab Control Sample Dup	94	96	84

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	PCB-28L (5-145)	PCB-111L (10-145)	PCB-178L (10-145)						
MB 320-109071/1-A	Method Blank	89	92	82						

Surrogate Legend

PCB-28L = PCB-28L
PCB-111L = PCB-111L
PCB-178L = PCB-178L

Isotope Dilution Summary

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PCB-1L	PCB-3L	PCB-4L	PCB-15L	PCB-19L	PCB-37L	PCB-54L	PCB-77L
Lab Sample ID	Client Sample ID	(5-145)	(5-145)	(5-145)	(5-145)	(5-145)	(5-145)	(5-145)	(10-145)
680-124800-2	MW-F3R (050316)	59	68	64	92	69	106	55	105
MB 320-109071/1-A	Method Blank	53	58	58	72	60	83	55	102

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PCB-81L	PCB-104L	PCB-105L	PCB-114L	PCB-118L	PCB-123L	PCB-126L	PCB-155L
Lab Sample ID	Client Sample ID	(10-145)	(10-145)	(10-145)	(10-145)	(10-145)	(10-145)	(10-145)	(10-145)
680-124800-2	MW-F3R (050316)	103	64	89	93	93	93	99	83
MB 320-109071/1-A	Method Blank	98	59	88	90	92	91	101	68

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		CB-156L/15	PCB-167L	PCB-169L	PCB-188L	PCB-189L	PCB-202L	PCB-205L	PCB-206L
Lab Sample ID	Client Sample ID	(10-145)	(10-145)	(10-145)	(10-145)	(10-145)	(10-145)	(10-145)	(10-145)
680-124800-2	MW-F3R (050316)	108	108	113	71	89	81	94	88
MB 320-109071/1-A	Method Blank	107	106	117	60	83	74	87	85

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PCB-208L	PCB-209L						
Lab Sample ID	Client Sample ID	(10-145)	(10-145)						
680-124800-2	MW-F3R (050316)	96	78						
MB 320-109071/1-A	Method Blank	88	81						

Surrogate Legend

PCB-1L = PCB-1L
PCB-3L = PCB-3L
PCB-4L = PCB-4L
PCB-15L = PCB-15L
PCB-19L = PCB-19L
PCB-37L = PCB-37L
PCB-54L = PCB-54L
PCB-77L = PCB-77L
PCB-81L = PCB-81L
PCB-104L = PCB-104L
PCB-105L = PCB-105L
PCB-114L = PCB-114L
PCB-118L = PCB-118L
PCB-123L = PCB-123L
PCB-126L = PCB-126L
PCB-155L = PCB-155L
PCB-156L/157L = PCB-156L/157L
PCB-167L = PCB-167L
PCB-169L = PCB-169L
PCB-188L = PCB-188L
PCB-189L = PCB-189L
PCB-202L = PCB-202L
PCB-205L = PCB-205L
PCB-206L = PCB-206L
PCB-208L = PCB-208L
PCB-209L = PCB-209L

Isotope Dilution Summary

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PCB-1L	PCB-3L	PCB-4L	PCB-15L	PCB-19L	PCB-37L	PCB-54L	PCB-77L
Lab Sample ID	Client Sample ID	(15-145)	(15-145)	(15-145)	(15-145)	(15-145)	(15-145)	(15-145)	(40-145)
LCS 320-109071/2-A	Lab Control Sample	56	65	61	86	61	100	54	123
LCSD 320-109071/3-A	Lab Control Sample Dup	52	59	55	77	57	92	48	109

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PCB-81L	PCB-104L	PCB-105L	PCB-114L	PCB-118L	PCB-123L	PCB-126L	PCB-155L
Lab Sample ID	Client Sample ID	(40-145)	(40-145)	(40-145)	(40-145)	(40-145)	(40-145)	(40-145)	(40-145)
LCS 320-109071/2-A	Lab Control Sample	118	63	100	102	103	103	119	74
LCSD 320-109071/3-A	Lab Control Sample Dup	105	53	90	90	91	91	106	67

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		CB-156L/15	PCB-167L	PCB-169L	PCB-188L	PCB-189L	PCB-202L	PCB-205L	PCB-206L
Lab Sample ID	Client Sample ID	(40-145)	(40-145)	(40-145)	(40-145)	(40-145)	(40-145)	(40-145)	(40-145)
LCS 320-109071/2-A	Lab Control Sample	118	117	132	62	93	77	97	92
LCSD 320-109071/3-A	Lab Control Sample Dup	111	108	122	57	84	69	87	84

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PCB-208L	PCB-209L						
Lab Sample ID	Client Sample ID	(40-145)	(40-145)						
LCS 320-109071/2-A	Lab Control Sample	96	83						
LCSD 320-109071/3-A	Lab Control Sample Dup	87	75						

Surrogate Legend

PCB-1L = PCB-1L
PCB-3L = PCB-3L
PCB-4L = PCB-4L
PCB-15L = PCB-15L
PCB-19L = PCB-19L
PCB-37L = PCB-37L
PCB-54L = PCB-54L
PCB-77L = PCB-77L
PCB-81L = PCB-81L
PCB-104L = PCB-104L
PCB-105L = PCB-105L
PCB-114L = PCB-114L
PCB-118L = PCB-118L
PCB-123L = PCB-123L
PCB-126L = PCB-126L
PCB-155L = PCB-155L
PCB-156L/157L = PCB-156L/157L
PCB-167L = PCB-167L
PCB-169L = PCB-169L
PCB-188L = PCB-188L
PCB-189L = PCB-189L
PCB-202L = PCB-202L
PCB-205L = PCB-205L
PCB-206L = PCB-206L
PCB-208L = PCB-208L
PCB-209L = PCB-209L

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 490-337773/7
Matrix: Water
Analysis Batch: 337773

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.7	U	25	2.7	ug/L			05/06/16 14:37	1
Acetonitrile	5.2	U	20	5.2	ug/L			05/06/16 14:37	1
Acrolein	4.1	U	50	4.1	ug/L			05/06/16 14:37	1
Carbon disulfide	0.22	U	1.0	0.22	ug/L			05/06/16 14:37	1
Chlorobenzene	0.18	U	1.0	0.18	ug/L			05/06/16 14:37	1
Benzene	0.20	U	1.0	0.20	ug/L			05/06/16 14:37	1
1,2-Dichloropropane	0.25	U	1.0	0.25	ug/L			05/06/16 14:37	1
Ethylbenzene	0.19	U	1.0	0.19	ug/L			05/06/16 14:37	1
Ethyl methacrylate	0.68	U	10	0.68	ug/L			05/06/16 14:37	1
Isobutyl alcohol	8.3	U	50	8.3	ug/L			05/06/16 14:37	1
Methyl ethyl ketone (MEK)	2.6	U	50	2.6	ug/L			05/06/16 14:37	1
4-Methyl-2-pentanone (MIBK)	0.81	U	10	0.81	ug/L			05/06/16 14:37	1
m-Xylene & p-Xylene	0.38	U	2.0	0.38	ug/L			05/06/16 14:37	1
o-Xylene	0.20	U	1.0	0.20	ug/L			05/06/16 14:37	1
Styrene	0.28	U	1.0	0.28	ug/L			05/06/16 14:37	1
Tetrachloroethene	0.14	U	1.0	0.14	ug/L			05/06/16 14:37	1
Toluene	0.17	U	1.0	0.17	ug/L			05/06/16 14:37	1
trans-1,4-Dichloro-2-butene	0.46	U	5.0	0.46	ug/L			05/06/16 14:37	1
Xylenes, Total	0.58	U	3.0	0.58	ug/L			05/06/16 14:37	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
cis-1,4-dichloro-2-butene	*None*		*ug/L*			*1476-11-5*		*05/06/16 14:37*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*05/06/16 14:37*	*1*
Dibromofluoromethane (Surr)	*92*		*70 - 130*		*05/06/16 14:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*		*05/06/16 14:37*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*05/06/16 14:37*	*1*

Lab Sample ID: LCS 490-337773/3
Matrix: Water
Analysis Batch: 337773

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	100	97.9		ug/L		98	39 - 150
Acetonitrile	200	211		ug/L		105	50 - 150
Acrolein	50.0	59.7		ug/L		119	10 - 150
Carbon disulfide	20.0	20.5		ug/L		103	64 - 135
Chlorobenzene	20.0	20.2		ug/L		101	70 - 130
Benzene	20.0	20.0		ug/L		100	70 - 130
1,2-Dichloropropane	20.0	20.0		ug/L		100	70 - 130
Ethylbenzene	20.0	20.7		ug/L		103	70 - 130
Ethyl methacrylate	20.0	20.6		ug/L		103	60 - 136
Isobutyl alcohol	500	557		ug/L		111	42 - 150
Methyl ethyl ketone (MEK)	100	104		ug/L		104	55 - 143
4-Methyl-2-pentanone (MIBK)	100	102		ug/L		102	60 - 137
m-Xylene & p-Xylene	20.0	20.5		ug/L		103	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 490-337773/3
Matrix: Water
Analysis Batch: 337773

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
o-Xylene	20.0	20.7		ug/L		103	70 - 130
Styrene	20.0	21.2		ug/L		106	70 - 130
Tetrachloroethene	20.0	20.3		ug/L		102	70 - 130
Toluene	20.0	20.4		ug/L		102	70 - 130
trans-1,4-Dichloro-2-butene	20.0	21.3		ug/L		106	41 - 150
Xylenes, Total	40.0	41.2		ug/L		103	70 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
Dibromofluoromethane (Surr)	*98*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*
Toluene-d8 (Surr)	*102*		*70 - 130*

Lab Sample ID: LCSD 490-337773/4
Matrix: Water
Analysis Batch: 337773

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	100	97.2		ug/L		97	39 - 150	1	23
Acetonitrile	200	206		ug/L		103	50 - 150	2	19
Acrolein	50.0	52.3		ug/L		105	10 - 150	13	25
Carbon disulfide	20.0	20.6		ug/L		103	64 - 135	0	16
Chlorobenzene	20.0	20.4		ug/L		102	70 - 130	1	12
Benzene	20.0	20.1		ug/L		100	70 - 130	0	12
1,2-Dichloropropane	20.0	19.3		ug/L		97	70 - 130	3	15
Ethylbenzene	20.0	20.7		ug/L		104	70 - 130	0	12
Ethyl methacrylate	20.0	19.9		ug/L		100	60 - 136	3	15
Isobutyl alcohol	500	547		ug/L		109	42 - 150	2	24
Methyl ethyl ketone (MEK)	100	98.5		ug/L		98	55 - 143	6	19
4-Methyl-2-pentanone (MIBK)	100	98.6		ug/L		99	60 - 137	3	21
m-Xylene & p-Xylene	20.0	20.7		ug/L		103	70 - 130	1	12
o-Xylene	20.0	20.8		ug/L		104	70 - 130	1	11
Styrene	20.0	21.5		ug/L		107	70 - 130	1	12
Tetrachloroethene	20.0	20.1		ug/L		101	70 - 130	1	17
Toluene	20.0	20.6		ug/L		103	70 - 130	1	13
trans-1,4-Dichloro-2-butene	20.0	21.1		ug/L		105	41 - 150	1	20
Xylenes, Total	40.0	41.5		ug/L		104	70 - 132	1	11

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
Dibromofluoromethane (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*
Toluene-d8 (Surr)	*103*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 490-339042/7
Matrix: Water
Analysis Batch: 339042

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.7	U	25	2.7	ug/L			05/11/16 15:41	1
Acetonitrile	5.2	U	20	5.2	ug/L			05/11/16 15:41	1
Acrolein	4.1	U	50	4.1	ug/L			05/11/16 15:41	1
Carbon disulfide	0.22	U	1.0	0.22	ug/L			05/11/16 15:41	1
Chlorobenzene	0.18	U	1.0	0.18	ug/L			05/11/16 15:41	1
Benzene	0.20	U	1.0	0.20	ug/L			05/11/16 15:41	1
1,2-Dichloropropane	0.25	U	1.0	0.25	ug/L			05/11/16 15:41	1
Ethylbenzene	0.19	U	1.0	0.19	ug/L			05/11/16 15:41	1
Ethyl methacrylate	0.68	U	10	0.68	ug/L			05/11/16 15:41	1
Isobutyl alcohol	8.3	U	50	8.3	ug/L			05/11/16 15:41	1
Methyl ethyl ketone (MEK)	2.6	U	50	2.6	ug/L			05/11/16 15:41	1
4-Methyl-2-pentanone (MIBK)	0.81	U	10	0.81	ug/L			05/11/16 15:41	1
m-Xylene & p-Xylene	0.38	U	2.0	0.38	ug/L			05/11/16 15:41	1
o-Xylene	0.20	U	1.0	0.20	ug/L			05/11/16 15:41	1
Styrene	0.28	U	1.0	0.28	ug/L			05/11/16 15:41	1
Tetrachloroethene	0.14	U	1.0	0.14	ug/L			05/11/16 15:41	1
Toluene	0.17	U	1.0	0.17	ug/L			05/11/16 15:41	1
trans-1,4-Dichloro-2-butene	0.46	U	5.0	0.46	ug/L			05/11/16 15:41	1
Xylenes, Total	0.58	U	3.0	0.58	ug/L			05/11/16 15:41	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
cis-1,4-dichloro-2-butene	*None*		*ug/L*			*1476-11-5*		*05/11/16 15:41*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*05/11/16 15:41*	*1*
Dibromofluoromethane (Surr)	*109*		*70 - 130*		*05/11/16 15:41*	*1*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 130*		*05/11/16 15:41*	*1*
Toluene-d8 (Surr)	*106*		*70 - 130*		*05/11/16 15:41*	*1*

Lab Sample ID: LCS 490-339042/3
Matrix: Water
Analysis Batch: 339042

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	100	113		ug/L		113	39 - 150
Acetonitrile	200	182		ug/L		91	50 - 150
Acrolein	50.0	62.0		ug/L		124	10 - 150
Carbon disulfide	20.0	19.4		ug/L		97	64 - 135
Chlorobenzene	20.0	19.9		ug/L		100	70 - 130
Benzene	20.0	19.7		ug/L		98	70 - 130
1,2-Dichloropropane	20.0	18.1		ug/L		90	70 - 130
Ethylbenzene	20.0	20.2		ug/L		101	70 - 130
Ethyl methacrylate	20.0	21.9		ug/L		110	60 - 136
Isobutyl alcohol	500	587		ug/L		117	42 - 150
Methyl ethyl ketone (MEK)	100	121		ug/L		121	55 - 143
4-Methyl-2-pentanone (MIBK)	100	124		ug/L		124	60 - 137
m-Xylene & p-Xylene	20.0	19.3		ug/L		96	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 490-339042/3
Matrix: Water
Analysis Batch: 339042

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
o-Xylene	20.0	19.3		ug/L		96	70 - 130
Styrene	20.0	19.6		ug/L		98	70 - 130
Tetrachloroethene	20.0	21.4		ug/L		107	70 - 130
Toluene	20.0	21.4		ug/L		107	70 - 130
trans-1,4-Dichloro-2-butene	20.0	19.8		ug/L		99	41 - 150
Xylenes, Total	40.0	38.6		ug/L		97	70 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
Dibromofluoromethane (Surr)	*106*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*
Toluene-d8 (Surr)	*106*		*70 - 130*

Lab Sample ID: LCSD 490-339042/4
Matrix: Water
Analysis Batch: 339042

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	100	105		ug/L		105	39 - 150	7	23
Acetonitrile	200	186		ug/L		93	50 - 150	2	19
Acrolein	50.0	61.0		ug/L		122	10 - 150	2	25
Carbon disulfide	20.0	20.8		ug/L		104	64 - 135	7	16
Chlorobenzene	20.0	20.6		ug/L		103	70 - 130	3	12
Benzene	20.0	20.8		ug/L		104	70 - 130	6	12
1,2-Dichloropropane	20.0	19.8		ug/L		99	70 - 130	9	15
Ethylbenzene	20.0	21.5		ug/L		108	70 - 130	6	12
Ethyl methacrylate	20.0	20.7		ug/L		104	60 - 136	6	15
Isobutyl alcohol	500	579		ug/L		116	42 - 150	1	24
Methyl ethyl ketone (MEK)	100	115		ug/L		115	55 - 143	5	19
4-Methyl-2-pentanone (MIBK)	100	118		ug/L		118	60 - 137	5	21
m-Xylene & p-Xylene	20.0	20.1		ug/L		101	70 - 130	4	12
o-Xylene	20.0	20.5		ug/L		102	70 - 130	6	11
Styrene	20.0	20.3		ug/L		101	70 - 130	3	12
Tetrachloroethene	20.0	22.3		ug/L		111	70 - 130	4	17
Toluene	20.0	22.6		ug/L		113	70 - 130	5	13
trans-1,4-Dichloro-2-butene	20.0	19.5		ug/L		97	41 - 150	2	20
Xylenes, Total	40.0	40.6		ug/L		102	70 - 132	5	11

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
Dibromofluoromethane (Surr)	*107*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*
Toluene-d8 (Surr)	*107*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 490-339983/7
Matrix: Water
Analysis Batch: 339983

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.20	U	1.0	0.20	ug/L			05/14/16 04:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*05/14/16 04:14*	*1*
Dibromofluoromethane (Surr)	*97*		*70 - 130*		*05/14/16 04:14*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*05/14/16 04:14*	*1*
Toluene-d8 (Surr)	*97*		*70 - 130*		*05/14/16 04:14*	*1*

Lab Sample ID: LCS 490-339983/3
Matrix: Water
Analysis Batch: 339983

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			20.0	18.9		ug/L		95	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
Dibromofluoromethane (Surr)	*98*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*
Toluene-d8 (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 490-339983/4
Matrix: Water
Analysis Batch: 339983

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			20.0	19.3		ug/L		96	70 - 130	2	12

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
Dibromofluoromethane (Surr)	*98*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*
Toluene-d8 (Surr)	*98*		*70 - 130*

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

Lab Sample ID: MB 680-431999/7-A
Matrix: Water
Analysis Batch: 432504

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 431999

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Acenaphthylene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Acetophenone	0.30	U	1.0	0.30	ug/L		05/05/16 16:31	05/10/16 00:33	1
Aniline	0.97	U	2.0	0.97	ug/L		05/05/16 16:31	05/10/16 00:33	1
Anthracene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Benzo[a]anthracene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Lab Sample ID: MB 680-431999/7-A
Matrix: Water
Analysis Batch: 432504

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 431999

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Benzo[b]fluoranthene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Benzo[g,h,i]perylene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Benzo[k]fluoranthene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
1,1'-Biphenyl	0.10	U	1.0	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Bis(2-ethylhexyl) phthalate	2.0	U	5.0	2.0	ug/L		05/05/16 16:31	05/10/16 00:33	1
Butyl benzyl phthalate	0.12	U	1.0	0.12	ug/L		05/05/16 16:31	05/10/16 00:33	1
Chrysene	0.045	U	0.20	0.045	ug/L		05/05/16 16:31	05/10/16 00:33	1
Dibenz(a,h)anthracene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Dibenzofuran	0.10	U	1.0	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
2,4-Dimethylphenol	0.69	U	2.0	0.69	ug/L		05/05/16 16:31	05/10/16 00:33	1
Di-n-octyl phthalate	0.17	U	1.0	0.17	ug/L		05/05/16 16:31	05/10/16 00:33	1
1,4-Dioxane	0.31	U	2.0	0.31	ug/L		05/05/16 16:31	05/10/16 00:33	1
Parathion	0.10	U	2.0	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Fluoranthene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Fluorene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Indeno[1,2,3-cd]pyrene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
o-Cresol	0.74	U	2.0	0.74	ug/L		05/05/16 16:31	05/10/16 00:33	1
m & p - Cresol	0.66	U	2.0	0.66	ug/L		05/05/16 16:31	05/10/16 00:33	1
Naphthalene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
N-Nitrosodi-n-butylamine	0.10	U	1.0	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
N-Nitrosomethylethylamine	0.10	U	2.0	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Phenanthrene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Pyrene	0.10	U	0.20	0.10	ug/L		05/05/16 16:31	05/10/16 00:33	1
Cresols, Total	1.4	U	4.0	1.4	ug/L		05/05/16 16:31	05/10/16 00:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*94*		*48 - 123*	*05/05/16 16:31*	*05/10/16 00:33*	*1*
2-Fluorobiphenyl (Surr)	*71*		*43 - 105*	*05/05/16 16:31*	*05/10/16 00:33*	*1*
2-Fluorophenol (Surr)	*62*		*32 - 100*	*05/05/16 16:31*	*05/10/16 00:33*	*1*
Terphenyl-d14 (Surr)	*76*		*20 - 112*	*05/05/16 16:31*	*05/10/16 00:33*	*1*
Phenol-d5 (Surr)	*59*		*34 - 101*	*05/05/16 16:31*	*05/10/16 00:33*	*1*
Nitrobenzene-d5 (Surr)	*73*		*43 - 107*	*05/05/16 16:31*	*05/10/16 00:33*	*1*

Lab Sample ID: LCS 680-431999/8-A
Matrix: Water
Analysis Batch: 432504

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 431999

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	10.0	7.18		ug/L		72	45 - 101
Acenaphthylene	10.0	7.06		ug/L		71	48 - 110
Acetophenone	10.0	7.33		ug/L		73	49 - 95
Aniline	10.0	1.02	J	ug/L		10	10 - 130
Anthracene	10.0	7.36		ug/L		74	51 - 102
Benzo[a]anthracene	10.0	7.77		ug/L		78	49 - 112
Benzo[a]pyrene	10.0	7.17		ug/L		72	49 - 103
Benzo[b]fluoranthene	10.0	8.10		ug/L		81	46 - 113
Benzo[g,h,i]perylene	10.0	7.18		ug/L		72	44 - 118

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Lab Sample ID: LCS 680-431999/8-A
Matrix: Water
Analysis Batch: 432504

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 431999

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[k]fluoranthene	10.0	7.06		ug/L		71	53 - 104
1,1'-Biphenyl	10.0	6.79		ug/L		68	10 - 130
Bis(2-ethylhexyl) phthalate	10.0	6.74		ug/L		67	56 - 114
Butyl benzyl phthalate	10.0	6.68		ug/L		67	39 - 131
Chrysene	10.0	7.41		ug/L		74	47 - 116
Dibenz(a,h)anthracene	10.0	7.65		ug/L		76	45 - 114
Dibenzofuran	10.0	7.29		ug/L		73	51 - 109
2,4-Dimethylphenol	10.0	7.83		ug/L		78	22 - 114
Di-n-octyl phthalate	10.0	7.03		ug/L		70	49 - 108
1,4-Dioxane	10.0	6.12		ug/L		61	10 - 130
Fluoranthene	10.0	7.94		ug/L		79	44 - 113
Fluorene	10.0	7.55		ug/L		76	53 - 105
Indeno[1,2,3-cd]pyrene	10.0	7.47		ug/L		75	45 - 104
o-Cresol	10.0	7.12		ug/L		71	55 - 103
Naphthalene	10.0	6.76		ug/L		68	35 - 88
Phenanthrene	10.0	7.35		ug/L		73	45 - 113
Pyrene	10.0	7.28		ug/L		73	48 - 112
Cresols, Total	20.0	14.3		ug/L		71	10 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*98*		*48 - 123*
2-Fluorobiphenyl (Surr)	*71*		*43 - 105*
2-Fluorophenol (Surr)	*64*		*32 - 100*
Terphenyl-d14 (Surr)	*76*		*20 - 112*
Phenol-d5 (Surr)	*63*		*34 - 101*
Nitrobenzene-d5 (Surr)	*71*		*43 - 107*

Lab Sample ID: 680-124800-1 MS
Matrix: Water
Analysis Batch: 432504

Client Sample ID: MW-F21 (050316)
Prep Type: Total/NA
Prep Batch: 431999

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	2.2		9.95	7.46		ug/L		53	42 - 130
Acenaphthylene	0.099	U	9.95	5.65		ug/L		57	45 - 130
Acetophenone	0.30	U	9.95	7.80		ug/L		78	45 - 130
Aniline	0.96	U F1	9.95	0.96	U F1	ug/L		0	10 - 130
Anthracene	0.099	U F1	9.95	5.62	F1	ug/L		56	58 - 130
Benzo[a]anthracene	0.099	U	9.95	6.34		ug/L		64	42 - 143
Benzo[a]pyrene	0.099	U	9.95	5.87		ug/L		59	45 - 151
Benzo[b]fluoranthene	0.099	U	9.95	7.86		ug/L		79	41 - 140
Benzo[g,h,i]perylene	0.099	U F1	9.95	3.63		ug/L		37	27 - 134
Benzo[k]fluoranthene	0.099	U F1	9.95	4.82		ug/L		48	45 - 140
1,1'-Biphenyl	0.099	U F2	9.95	5.02		ug/L		50	50 - 130
Bis(2-ethylhexyl) phthalate	2.0	U	9.95	6.45		ug/L		65	10 - 158
Butyl benzyl phthalate	0.12	U	9.95	7.97		ug/L		80	60 - 130
Chrysene	0.044	U	9.95	5.46		ug/L		55	40 - 142
Dibenz(a,h)anthracene	0.099	U F1	9.95	4.11		ug/L		41	38 - 130
Dibenzofuran	0.099	U	9.95	5.70		ug/L		57	56 - 130

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Lab Sample ID: 680-124800-1 MS — **Client Sample ID: MW-F21 (050316)**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432504 — **Prep Batch: 431999**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-Dimethylphenol	0.68	U	9.95	8.82		ug/L		89	41 - 130
Di-n-octyl phthalate	0.17	U	9.95	6.34		ug/L		64	19 - 130
1,4-Dioxane	13		9.95	17.3		ug/L		46	10 - 130
Fluoranthene	0.099	U	9.95	6.08		ug/L		61	46 - 136
Fluorene	0.42		9.95	6.07		ug/L		57	48 - 130
Indeno[1,2,3-cd]pyrene	0.099	U	9.95	3.68		ug/L		37	12 - 130
o-Cresol	0.73	U F1 F2	9.95	4.58	F1	ug/L		46	49 - 130
Naphthalene	45	E	9.95	42.2	E 4	ug/L		-25	35 - 130
Phenanthrene	0.099	U	9.95	5.71		ug/L		57	45 - 134
Pyrene	0.099	U	9.95	6.07		ug/L		61	47 - 143
Cresols, Total	1.4	U	19.9	11.5		ug/L		58	10 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*91*		*48 - 123*
2-Fluorobiphenyl (Surr)	*60*		*43 - 105*
2-Fluorophenol (Surr)	*50*		*32 - 100*
Terphenyl-d14 (Surr)	*65*		*20 - 112*
Phenol-d5 (Surr)	*66*		*34 - 101*
Nitrobenzene-d5 (Surr)	*74*		*43 - 107*

Lab Sample ID: 680-124800-1 MSD — **Client Sample ID: MW-F21 (050316)**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432504 — **Prep Batch: 431999**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	2.2		10.2	11.7		ug/L		93	42 - 130	44	50
Acenaphthylene	0.099	U	10.2	8.54		ug/L		84	45 - 130	41	50
Acetophenone	0.30	U	10.2	9.30		ug/L		91	45 - 130	18	50
Aniline	0.96	U F1	10.2	0.99	U F1	ug/L		0	10 - 130	NC	50
Anthracene	0.099	U F1	10.2	7.54		ug/L		74	58 - 130	29	50
Benzo[a]anthracene	0.099	U	10.2	6.20		ug/L		61	42 - 143	2	50
Benzo[a]pyrene	0.099	U	10.2	4.96		ug/L		49	45 - 151	17	50
Benzo[b]fluoranthene	0.099	U	10.2	7.21		ug/L		71	41 - 140	9	50
Benzo[g,h,i]perylene	0.099	U F1	10.2	2.61	F1	ug/L		26	27 - 134	33	50
Benzo[k]fluoranthene	0.099	U F1	10.2	3.53	F1	ug/L		35	45 - 140	31	50
1,1'-Biphenyl	0.099	U F2	10.2	8.83	F2	ug/L		87	50 - 130	55	50
Bis(2-ethylhexyl) phthalate	2.0	U	10.2	5.13		ug/L		50	10 - 158	23	50
Butyl benzyl phthalate	0.12	U	10.2	7.55		ug/L		74	60 - 130	5	50
Chrysene	0.044	U	10.2	5.34		ug/L		52	40 - 142	2	50
Dibenz(a,h)anthracene	0.099	U F1	10.2	3.15	F1	ug/L		31	38 - 130	27	50
Dibenzofuran	0.099	U	10.2	8.95		ug/L		88	56 - 130	44	50
2,4-Dimethylphenol	0.68	U	10.2	10.5		ug/L		103	41 - 130	17	50
Di-n-octyl phthalate	0.17	U	10.2	5.14		ug/L		51	19 - 130	21	50
1,4-Dioxane	13		10.2	19.9		ug/L		71	10 - 130	14	50
Fluoranthene	0.099	U	10.2	8.51		ug/L		84	46 - 136	33	50
Fluorene	0.42		10.2	8.83		ug/L		83	48 - 130	37	50
Indeno[1,2,3-cd]pyrene	0.099	U	10.2	3.11		ug/L		31	12 - 130	17	50
o-Cresol	0.73	U F1 F2	10.2	7.72	F2	ug/L		76	49 - 130	51	50

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Lab Sample ID: 680-124800-1 MSD — **Client Sample ID: MW-F21 (050316)**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432504 — **Prep Batch: 431999**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	45	E	10.2	52.9	E 4	ug/L		81	35 - 130	23	50
Phenanthrene	0.099	U	10.2	8.23		ug/L		81	45 - 134	36	50
Pyrene	0.099	U	10.2	7.52		ug/L		74	47 - 143	21	50
Cresols, Total	1.4	U	20.3	15.4		ug/L		76	10 - 130	29	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*99*		*48 - 123*
2-Fluorobiphenyl (Surr)	*78*		*43 - 105*
2-Fluorophenol (Surr)	*67*		*32 - 100*
Terphenyl-d14 (Surr)	*61*		*20 - 112*
Phenol-d5 (Surr)	*64*		*34 - 101*
Nitrobenzene-d5 (Surr)	*84*		*43 - 107*

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography

Lab Sample ID: MB 680-432005/16-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432207 — **Prep Batch: 432005**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DDT	0.0070	U	0.050	0.0070	ug/L		05/05/16 16:13	05/06/16 15:28	1
Endrin	0.0053	U	0.050	0.0053	ug/L		05/05/16 16:13	05/06/16 15:28	1
Endrin aldehyde	0.0061	U	0.050	0.0061	ug/L		05/05/16 16:13	05/06/16 15:28	1
Methoxychlor	0.0098	U	0.050	0.0098	ug/L		05/05/16 16:13	05/06/16 15:28	1
PCB-1254	0.11	U	1.0	0.11	ug/L		05/05/16 16:13	05/06/16 15:28	1
PCB-1260	0.12	U	1.0	0.12	ug/L		05/05/16 16:13	05/06/16 15:28	1
PCB-1262	0.19	U	1.0	0.19	ug/L		05/05/16 16:13	05/06/16 15:28	1
PCB-1268	0.24	U	1.0	0.24	ug/L		05/05/16 16:13	05/06/16 15:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*80*		*14 - 130*	*05/05/16 16:13*	*05/06/16 15:28*	*1*
Tetrachloro-m-xylene	*77*		*40 - 130*	*05/05/16 16:13*	*05/06/16 15:28*	*1*

Lab Sample ID: LCS 680-432005/17-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432207 — **Prep Batch: 432005**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
DDT	0.100	0.110		ug/L		110	47 - 134
Endrin	0.100	0.104		ug/L		104	59 - 143
Endrin aldehyde	0.100	0.110		ug/L		110	45 - 166
Methoxychlor	0.100	0.108		ug/L		108	52 - 136

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*82*		*14 - 130*
Tetrachloro-m-xylene	*78*		*40 - 130*

Lab Sample ID: LCS 680-432005/20-A
Matrix: Water
Analysis Batch: 432207

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432005

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1260			6.00	5.59		ug/L		93	35 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*73*		*14 - 130*
Tetrachloro-m-xylene	*79*		*40 - 130*

Method: 8315A - Carbonyl Compounds by HPLC

Lab Sample ID: MB 490-337667/1-A
Matrix: Water
Analysis Batch: 337819

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 337667

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	15	U	50	15	ug/L		05/06/16 06:24	05/06/16 13:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Butyraldehyde	*90*		*54 - 128*	*05/06/16 06:24*	*05/06/16 13:45*	*1*

Lab Sample ID: LCS 490-337667/2-A
Matrix: Water
Analysis Batch: 337819

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 337667

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Formaldehyde			100	76.3		ug/L		76	47 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Butyraldehyde	*76*		*54 - 128*

Lab Sample ID: LCSD 490-337667/3-A
Matrix: Water
Analysis Batch: 337819

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 337667

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Formaldehyde			100	85.2		ug/L		85	47 - 150	11	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Butyraldehyde	*84*		*54 - 128*

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

Lab Sample ID: MB 320-109071/1-A
Matrix: Water
Analysis Batch: 109322

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 109071

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-2	1.5	U	200	1.5	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-3	1.7	U	200	1.7	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-4	18	U	200	18	pg/L		05/06/16 11:03	05/09/16 13:33	1

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-109071/1-A
Matrix: Water
Analysis Batch: 109322

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 109071

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-5	6.0	U	200	6.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-6	5.7	U	200	5.7	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-7	5.6	U	200	5.6	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-8	5.1	U	200	5.1	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-9	6.5	U	200	6.5	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-10	15	U	200	15	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-11	7.0	U	200	7.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-12/13	6.5	U	400	6.5	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-14	5.5	U	200	5.5	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-15	9.2	U	200	9.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-16	2.2	U	200	2.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-17	2.0	U	200	2.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-18/30	1.7	U	400	1.7	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-19	1.9	U	200	1.9	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-20/28	1.5	U	400	1.5	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-21/33	1.2	U	400	1.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-22	1.5	U	200	1.5	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-23	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-24	1.6	U	200	1.6	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-25	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-26/29	1.3	U	400	1.3	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-27	1.7	U	200	1.7	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-31	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-32	1.4	U	200	1.4	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-34	1.5	U	200	1.5	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-35	1.7	U	200	1.7	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-36	1.5	U	200	1.5	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-37	2.5	U	200	2.5	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-38	1.7	U	200	1.7	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-39	1.4	U	200	1.4	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-40/71	0.92	U	400	0.92	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-41	1.3	U	200	1.3	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-42	0.89	U	200	0.89	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-43	0.94	U	200	0.94	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-44/47/65	2.12	J	600	0.90	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-45	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-46	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-48	0.91	U	200	0.91	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-49/69	0.78	U	400	0.78	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-50/53	0.84	U	400	0.84	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-51	0.79	U	200	0.79	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-52	3.01	J	200	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-54	0.66	U	200	0.66	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-55	0.82	U	200	0.82	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-56	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-57	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-58	0.97	U	200	0.97	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-59/62/75	0.71	U	600	0.71	pg/L		05/06/16 11:03	05/09/16 13:33	1

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-109071/1-A
Matrix: Water
Analysis Batch: 109322

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 109071

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-60	0.95	U	200	0.95	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-61/70/74/76	2.30	J	800	0.95	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-63	0.96	U	200	0.96	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-64	0.64	U	200	0.64	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-66	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-67	0.91	U	200	0.91	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-68	0.87	U	200	0.87	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-72	0.94	U	200	0.94	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-73	0.79	U	200	0.79	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-77	1.3	U	20	1.3	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-78	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-79	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-80	0.92	U	200	0.92	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-81	1.3	U	20	1.3	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-82	1.3	U	200	1.3	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-83	1.8	U	200	1.8	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-84	1.3	U	200	1.3	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-85/116/117	0.99	U	600	0.99	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-86/87/97/108/119/125	1.0	U	1200	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-88/91	1.1	U	400	1.1	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-89	1.3	U	200	1.3	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-90/101/113	1.0	U	600	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-92	1.3	U	200	1.3	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-93/100	1.0	U	400	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-107/124	0.99	U	400	0.99	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-94	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-95	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-96	0.56	U	200	0.56	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-98/102	1.0	U	400	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-99	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-103	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-104	0.55	U	200	0.55	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-105	1.0	U	20	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-106	0.90	U	200	0.90	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-110/115	2.41	J	400	0.87	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-109	0.98	U	200	0.98	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-111	0.85	U	200	0.85	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-112	0.80	U	200	0.80	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-114	1.0	U	20	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-118	0.93	U	20	0.93	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-120	0.98	U	200	0.98	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-121	0.86	U	200	0.86	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-122	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-123	0.98	U	20	0.98	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-126	1.4	U	20	1.4	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-127	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-128/166	0.96	U	400	0.96	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-129/138/163	2.00	J	600	0.96	pg/L		05/06/16 11:03	05/09/16 13:33	1

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-109071/1-A
Matrix: Water
Analysis Batch: 109322

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 109071

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-130	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-131	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-132	0.99	U	200	0.99	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-133	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-134/143	1.0	U	400	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-135/151	0.93	U	400	0.93	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-136	0.65	U	200	0.65	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-137	0.97	U	200	0.97	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-139/140	0.88	U	400	0.88	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-141	0.94	U	200	0.94	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-142	0.97	U	200	0.97	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-144	0.86	U	200	0.86	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-145	0.62	U	200	0.62	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-146	0.93	U	200	0.93	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-147/149	1.39	J	400	0.90	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-148	0.85	U	200	0.85	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-150	0.56	U	200	0.56	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-152	0.61	U	200	0.61	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-153/168	1.59	J	400	0.82	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-154	0.76	U	200	0.76	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-155	0.63	U	200	0.63	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-156/157	0.92	U	40	0.92	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-158	0.70	U	200	0.70	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-159	0.77	U	200	0.77	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-160	0.88	U	200	0.88	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-161	0.75	U	200	0.75	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-162	0.66	U	200	0.66	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-164	0.78	U	200	0.78	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-165	0.84	U	200	0.84	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-167	0.63	U	20	0.63	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-169	0.86	U	20	0.86	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-170	1.0	U	200	1.0	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-171/173	0.90	U	400	0.90	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-172	0.98	U	200	0.98	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-174	0.89	U	200	0.89	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-175	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-176	0.75	U	200	0.75	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-177	0.95	U	200	0.95	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-178	1.2	U	200	1.2	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-179	0.79	U	200	0.79	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-180/193	0.75	U	400	0.75	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-181	0.81	U	200	0.81	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-182	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-183	1.03	J	200	0.72	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-184	0.81	U	200	0.81	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-185	0.84	U	200	0.84	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-186	0.79	U	200	0.79	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-187	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 13:33	1

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-109071/1-A
Matrix: Water
Analysis Batch: 109322

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 109071

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-188	0.85	U	200	0.85	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-189	1.1	U	20	1.1	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-190	0.71	U	200	0.71	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-191	0.68	U	200	0.68	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-192	0.73	U	200	0.73	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-194	1.3	U	200	1.3	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-195	1.3	U	200	1.3	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-196	0.96	U	200	0.96	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-197	0.60	U	200	0.60	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-198/199	0.97	U	400	0.97	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-200	0.63	U	200	0.63	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-201	0.60	U	200	0.60	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-202	0.68	U	200	0.68	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-203	0.87	U	200	0.87	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-204	0.64	U	200	0.64	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-205	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-206	1.3	U	200	1.3	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-207	0.93	U	200	0.93	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-208	1.1	U	200	1.1	pg/L		05/06/16 11:03	05/09/16 13:33	1
PCB-209	0.90	U	200	0.90	pg/L		05/06/16 11:03	05/09/16 13:33	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
PCB-1L	*53*		*5 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-3L	*58*		*5 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-4L	*58*		*5 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-15L	*72*		*5 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-19L	*60*		*5 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-37L	*83*		*5 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-54L	*55*		*5 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-77L	*102*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-81L	*98*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-104L	*59*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-105L	*88*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-114L	*90*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-118L	*92*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-123L	*91*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-126L	*101*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-155L	*68*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-156L/157L	*107*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-167L	*106*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-169L	*117*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-188L	*60*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-189L	*83*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-202L	*74*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-205L	*87*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-206L	*85*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-208L	*88*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*
PCB-209L	*81*		*10 - 145*	*05/06/16 11:03*	*05/09/16 13:33*	*1*

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-109071/1-A
Matrix: Water
Analysis Batch: 109322

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 109071

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
PCB-28L	89		5 - 145	05/06/16 11:03	05/09/16 13:33	1
PCB-111L	92		10 - 145	05/06/16 11:03	05/09/16 13:33	1
PCB-178L	82		10 - 145	05/06/16 11:03	05/09/16 13:33	1

Lab Sample ID: LCS 320-109071/2-A
Matrix: Water
Analysis Batch: 109322

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 109071

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1	2000	1900		pg/L		95	60 - 135
PCB-3	2000	1870		pg/L		93	60 - 135
PCB-4	2000	2050		pg/L		103	60 - 135
PCB-15	2000	1760		pg/L		88	60 - 135
PCB-19	2000	2050		pg/L		102	60 - 135
PCB-37	2000	1900		pg/L		95	60 - 135
PCB-54	2000	2160		pg/L		108	60 - 135
PCB-77	2000	1750		pg/L		87	60 - 135
PCB-81	2000	1840		pg/L		92	60 - 135
PCB-104	2000	2120		pg/L		106	60 - 135
PCB-105	2000	1830		pg/L		91	60 - 135
PCB-114	2000	1920		pg/L		96	60 - 135
PCB-118	2000	1920		pg/L		96	60 - 135
PCB-123	2000	1930		pg/L		97	60 - 135
PCB-126	2000	1810		pg/L		91	60 - 135
PCB-155	2000	2110		pg/L		105	60 - 135
PCB-156/157	4000	3920		pg/L		98	60 - 135
PCB-167	2000	1860		pg/L		93	60 - 135
PCB-169	2000	1930		pg/L		97	60 - 135
PCB-188	2000	2130		pg/L		106	60 - 135
PCB-189	2000	1910		pg/L		96	60 - 135
PCB-202	2000	2070		pg/L		103	60 - 135
PCB-205	2000	1960		pg/L		98	60 - 135
PCB-206	2000	1940		pg/L		97	60 - 135
PCB-208	2000	1930		pg/L		97	60 - 135
PCB-209	2000	1970		pg/L		99	60 - 135

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
PCB-1L	56		15 - 145
PCB-3L	65		15 - 145
PCB-4L	61		15 - 145
PCB-15L	86		15 - 145
PCB-19L	61		15 - 145
PCB-37L	100		15 - 145
PCB-54L	54		15 - 145
PCB-77L	123		40 - 145
PCB-81L	118		40 - 145
PCB-104L	63		40 - 145
PCB-105L	100		40 - 145

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-109071/2-A
Matrix: Water
Analysis Batch: 109322

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 109071

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
PCB-114L	*102*		*40 - 145*
PCB-118L	*103*		*40 - 145*
PCB-123L	*103*		*40 - 145*
PCB-126L	*119*		*40 - 145*
PCB-155L	*74*		*40 - 145*
PCB-156L/157L	*118*		*40 - 145*
PCB-167L	*117*		*40 - 145*
PCB-169L	*132*		*40 - 145*
PCB-188L	*62*		*40 - 145*
PCB-189L	*93*		*40 - 145*
PCB-202L	*77*		*40 - 145*
PCB-205L	*97*		*40 - 145*
PCB-206L	*92*		*40 - 145*
PCB-208L	*96*		*40 - 145*
PCB-209L	*83*		*40 - 145*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
PCB-28L	*95*		*5 - 145*
PCB-111L	*101*		*10 - 145*
PCB-178L	*85*		*10 - 145*

Lab Sample ID: LCSD 320-109071/3-A
Matrix: Water
Analysis Batch: 109322

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 109071

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1			2000	1860		pg/L		93	60 - 135	2	50
PCB-3			2000	1850		pg/L		93	60 - 135	1	50
PCB-4			2000	2030		pg/L		102	60 - 135	1	50
PCB-15			2000	1670		pg/L		83	60 - 135	5	50
PCB-19			2000	2110		pg/L		106	60 - 135	3	50
PCB-37			2000	1850		pg/L		93	60 - 135	2	50
PCB-54			2000	2200		pg/L		110	60 - 135	2	50
PCB-77			2000	1950		pg/L		97	60 - 135	11	50
PCB-81			2000	1790		pg/L		90	60 - 135	3	50
PCB-104			2000	2110		pg/L		106	60 - 135	0	50
PCB-105			2000	1800		pg/L		90	60 - 135	1	50
PCB-114			2000	1910		pg/L		95	60 - 135	1	50
PCB-118			2000	1930		pg/L		96	60 - 135	0	50
PCB-123			2000	1930		pg/L		96	60 - 135	0	50
PCB-126			2000	1810		pg/L		91	60 - 135	0	50
PCB-155			2000	2090		pg/L		105	60 - 135	1	50
PCB-156/157			4000	3890		pg/L		97	60 - 135	1	50
PCB-167			2000	1880		pg/L		94	60 - 135	1	50
PCB-169			2000	1930		pg/L		96	60 - 135	0	50
PCB-188			2000	2050		pg/L		103	60 - 135	4	50
PCB-189			2000	1920		pg/L		96	60 - 135	0	50
PCB-202			2000	2120		pg/L		106	60 - 135	2	50

Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-109071/3-A
Matrix: Water
Analysis Batch: 109322

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 109071

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-205			2000	1970		pg/L		98	60 - 135	0	50
PCB-206			2000	1950		pg/L		97	60 - 135	0	50
PCB-208			2000	1910		pg/L		95	60 - 135	1	50
PCB-209			2000	1990		pg/L		100	60 - 135	1	50

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
PCB-1L	*52*		*15 - 145*
PCB-3L	*59*		*15 - 145*
PCB-4L	*55*		*15 - 145*
PCB-15L	*77*		*15 - 145*
PCB-19L	*57*		*15 - 145*
PCB-37L	*92*		*15 - 145*
PCB-54L	*48*		*15 - 145*
PCB-77L	*109*		*40 - 145*
PCB-81L	*105*		*40 - 145*
PCB-104L	*53*		*40 - 145*
PCB-105L	*90*		*40 - 145*
PCB-114L	*90*		*40 - 145*
PCB-118L	*91*		*40 - 145*
PCB-123L	*91*		*40 - 145*
PCB-126L	*106*		*40 - 145*
PCB-155L	*67*		*40 - 145*
PCB-156L/157L	*111*		*40 - 145*
PCB-167L	*108*		*40 - 145*
PCB-169L	*122*		*40 - 145*
PCB-188L	*57*		*40 - 145*
PCB-189L	*84*		*40 - 145*
PCB-202L	*69*		*40 - 145*
PCB-205L	*87*		*40 - 145*
PCB-206L	*84*		*40 - 145*
PCB-208L	*87*		*40 - 145*
PCB-209L	*75*		*40 - 145*

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
PCB-28L	*94*		*5 - 145*
PCB-111L	*96*		*10 - 145*
PCB-178L	*84*		*10 - 145*

GC/MS VOA

Analysis Batch: 337773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-1	MW-F21 (050316)	Total/NA	Water	8260B	
680-124800-3	MW-F5 (050316)	Total/NA	Water	8260B	
680-124800-4	MW-F7 (050316)	Total/NA	Water	8260B	
680-124800-6	MW-27 (050316)	Total/NA	Water	8260B	
680-124800-7	MW-29 (050316)	Total/NA	Water	8260B	
680-124800-8	MWD-30 (050316)	Total/NA	Water	8260B	
LCS 490-337773/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-337773/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 490-337773/7	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 339042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-9	Trip Blank (050316)	Total/NA	Water	8260B	
680-124800-10	DUP-01 (050316)	Total/NA	Water	8260B	
LCS 490-339042/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-339042/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 490-339042/7	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 339983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-5	MW-F15 (050316)	Total/NA	Water	8260B	
LCS 490-339983/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-339983/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 490-339983/7	Method Blank	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 431999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-1 - DL	MW-F21 (050316)	Total/NA	Water	3520C	
680-124800-1	MW-F21 (050316)	Total/NA	Water	3520C	
680-124800-1 MS	MW-F21 (050316)	Total/NA	Water	3520C	
680-124800-1 MSD	MW-F21 (050316)	Total/NA	Water	3520C	
680-124800-3	MW-F5 (050316)	Total/NA	Water	3520C	
680-124800-4	MW-F7 (050316)	Total/NA	Water	3520C	
680-124800-6	MW-27 (050316)	Total/NA	Water	3520C	
680-124800-7	MW-29 (050316)	Total/NA	Water	3520C	
680-124800-8	MWD-30 (050316)	Total/NA	Water	3520C	
LCS 680-431999/8-A	Lab Control Sample	Total/NA	Water	3520C	
MB 680-431999/7-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 432504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-1	MW-F21 (050316)	Total/NA	Water	8270D LL	431999
680-124800-1 MS	MW-F21 (050316)	Total/NA	Water	8270D LL	431999
680-124800-1 MSD	MW-F21 (050316)	Total/NA	Water	8270D LL	431999
680-124800-3	MW-F5 (050316)	Total/NA	Water	8270D LL	431999
680-124800-4	MW-F7 (050316)	Total/NA	Water	8270D LL	431999
680-124800-6	MW-27 (050316)	Total/NA	Water	8270D LL	431999
680-124800-7	MW-29 (050316)	Total/NA	Water	8270D LL	431999

GC/MS Semi VOA (Continued)

Analysis Batch: 432504 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-8	MWD-30 (050316)	Total/NA	Water	8270D LL	431999
LCS 680-431999/8-A	Lab Control Sample	Total/NA	Water	8270D LL	431999
MB 680-431999/7-A	Method Blank	Total/NA	Water	8270D LL	431999

Analysis Batch: 432579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-1 - DL	MW-F21 (050316)	Total/NA	Water	8270D LL	431999

GC Semi VOA

Prep Batch: 432005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-2	MW-F3R (050316)	Total/NA	Water	3520C	
LCS 680-432005/17-A	Lab Control Sample	Total/NA	Water	3520C	
LCS 680-432005/20-A	Lab Control Sample	Total/NA	Water	3520C	
MB 680-432005/16-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 432207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-432005/17-A	Lab Control Sample	Total/NA	Water	8081B/8082A	432005
LCS 680-432005/20-A	Lab Control Sample	Total/NA	Water	8081B/8082A	432005
MB 680-432005/16-A	Method Blank	Total/NA	Water	8081B/8082A	432005

Analysis Batch: 432270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-2	MW-F3R (050316)	Total/NA	Water	8081B/8082A	432005

HPLC/IC

Prep Batch: 337667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-1	MW-F21 (050316)	Total/NA	Water	8315_W_Prep	
680-124800-3	MW-F5 (050316)	Total/NA	Water	8315_W_Prep	
680-124800-4	MW-F7 (050316)	Total/NA	Water	8315_W_Prep	
680-124800-6	MW-27 (050316)	Total/NA	Water	8315_W_Prep	
680-124800-7	MW-29 (050316)	Total/NA	Water	8315_W_Prep	
680-124800-8	MWD-30 (050316)	Total/NA	Water	8315_W_Prep	
LCS 490-337667/2-A	Lab Control Sample	Total/NA	Water	8315_W_Prep	
LCSD 490-337667/3-A	Lab Control Sample Dup	Total/NA	Water	8315_W_Prep	
MB 490-337667/1-A	Method Blank	Total/NA	Water	8315_W_Prep	

Analysis Batch: 337819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-1	MW-F21 (050316)	Total/NA	Water	8315A	337667
680-124800-3	MW-F5 (050316)	Total/NA	Water	8315A	337667
680-124800-4	MW-F7 (050316)	Total/NA	Water	8315A	337667
680-124800-6	MW-27 (050316)	Total/NA	Water	8315A	337667
680-124800-7	MW-29 (050316)	Total/NA	Water	8315A	337667
680-124800-8	MWD-30 (050316)	Total/NA	Water	8315A	337667
LCS 490-337667/2-A	Lab Control Sample	Total/NA	Water	8315A	337667

HPLC/IC (Continued)

Analysis Batch: 337819 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 490-337667/3-A	Lab Control Sample Dup	Total/NA	Water	8315A	337667
MB 490-337667/1-A	Method Blank	Total/NA	Water	8315A	337667

Specialty Organics

Prep Batch: 109071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-2	MW-F3R (050316)	Total/NA	Water	HRMS-Sep	
LCS 320-109071/2-A	Lab Control Sample	Total/NA	Water	HRMS-Sep	
LCSD 320-109071/3-A	Lab Control Sample Dup	Total/NA	Water	HRMS-Sep	
MB 320-109071/1-A	Method Blank	Total/NA	Water	HRMS-Sep	

Analysis Batch: 109322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-2	MW-F3R (050316)	Total/NA	Water	1668C	109071
LCS 320-109071/2-A	Lab Control Sample	Total/NA	Water	1668C	109071
LCSD 320-109071/3-A	Lab Control Sample Dup	Total/NA	Water	1668C	109071
MB 320-109071/1-A	Method Blank	Total/NA	Water	1668C	109071

Analysis Batch: 109818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-124800-2	MW-F3R (050316)	Total/NA	Water	None	

Client Sample ID: MW-F21 (050316)

Lab Sample ID: 680-124800-1

Date Collected: 05/03/16 08:00

Matrix: Water

Date Received: 05/03/16 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	10 mL	10 mL	337773	05/06/16 18:07	KS	TAL NSH
Total/NA	Prep	3520C	DL		506.3 mL	0.5 mL	431999	05/05/16 16:31	RBS	TAL SAV
Total/NA	Analysis	8270D LL	DL	10	506.3 mL	0.5 mL	432579	05/10/16 14:59	NED	TAL SAV
Total/NA	Prep	3520C			506.3 mL	0.5 mL	431999	05/05/16 16:31	RBS	TAL SAV
Total/NA	Analysis	8270D LL		1	506.3 mL	0.5 mL	432504	05/10/16 02:09	NED	TAL SAV
Total/NA	Prep	8315_W_Prep			100 mL	1 mL	337667	05/06/16 06:24	ET	TAL NSH
Total/NA	Analysis	8315A		1	100 mL	1 mL	337819	05/06/16 15:42	ET	TAL NSH

Client Sample ID: MW-F3R (050316)

Lab Sample ID: 680-124800-2

Date Collected: 05/03/16 09:32

Matrix: Water

Date Received: 05/03/16 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			945.3 mL	10 mL	432005	05/05/16 16:13	RBS	TAL SAV
Total/NA	Analysis	8081B/8082A		1	945.3 mL	10 mL	432270	05/06/16 21:40	JCK	TAL SAV
Total/NA	Prep	HRMS-Sep			980.6 mL	20 uL	109071	05/06/16 11:03	DXD	TAL SAC
Total/NA	Analysis	1668C		1	980.6 mL	20 uL	109322	05/09/16 17:18	KSS	TAL SAC
Total/NA	Analysis	None		1			109818	05/13/16 09:14	SHK	TAL SAC

Client Sample ID: MW-F5 (050316)

Lab Sample ID: 680-124800-3

Date Collected: 05/03/16 10:20

Matrix: Water

Date Received: 05/03/16 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	10 mL	10 mL	337773	05/06/16 18:37	KS	TAL NSH
Total/NA	Prep	3520C			820.4 mL	1.0 mL	431999	05/05/16 16:31	RBS	TAL SAV
Total/NA	Analysis	8270D LL		1	820.4 mL	1.0 mL	432504	05/10/16 02:34	NED	TAL SAV
Total/NA	Prep	8315_W_Prep			100 mL	1 mL	337667	05/06/16 06:24	ET	TAL NSH
Total/NA	Analysis	8315A		1	100 mL	1 mL	337819	05/06/16 16:05	ET	TAL NSH

Client Sample ID: MW-F7 (050316)

Lab Sample ID: 680-124800-4

Date Collected: 05/03/16 12:45

Matrix: Water

Date Received: 05/03/16 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	10 mL	10 mL	337773	05/06/16 19:07	KS	TAL NSH
Total/NA	Prep	3520C			865 mL	1.0 mL	431999	05/05/16 16:31	RBS	TAL SAV
Total/NA	Analysis	8270D LL		1	865 mL	1.0 mL	432504	05/10/16 02:58	NED	TAL SAV
Total/NA	Prep	8315_W_Prep			100 mL	1 mL	337667	05/06/16 06:24	ET	TAL NSH
Total/NA	Analysis	8315A		1	100 mL	1 mL	337819	05/06/16 16:29	ET	TAL NSH

Client Sample ID: MW-F15 (050316)

Lab Sample ID: 680-124800-5

Date Collected: 05/03/16 11:55

Matrix: Water

Date Received: 05/03/16 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	339983	05/14/16 11:14	RP	TAL NSH

Client Sample ID: MW-27 (050316)

Lab Sample ID: 680-124800-6

Date Collected: 05/03/16 13:40

Matrix: Water

Date Received: 05/03/16 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	10 mL	10 mL	337773	05/06/16 19:37	KS	TAL NSH
Total/NA	Prep	3520C			827.6 mL	1.0 mL	431999	05/05/16 16:31	RBS	TAL SAV
Total/NA	Analysis	8270D LL		1	827.6 mL	1.0 mL	432504	05/10/16 03:22	NED	TAL SAV
Total/NA	Prep	8315_W_Prep			100 mL	1 mL	337667	05/06/16 06:24	ET	TAL NSH
Total/NA	Analysis	8315A		1	100 mL	1 mL	337819	05/06/16 16:52	ET	TAL NSH

Client Sample ID: MW-29 (050316)

Lab Sample ID: 680-124800-7

Date Collected: 05/03/16 11:10

Matrix: Water

Date Received: 05/03/16 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	10 mL	10 mL	337773	05/06/16 20:07	KS	TAL NSH
Total/NA	Prep	3520C			829.6 mL	1.0 mL	431999	05/05/16 16:31	RBS	TAL SAV
Total/NA	Analysis	8270D LL		1	829.6 mL	1.0 mL	432504	05/10/16 03:46	NED	TAL SAV
Total/NA	Prep	8315_W_Prep			100 mL	1 mL	337667	05/06/16 06:24	ET	TAL NSH
Total/NA	Analysis	8315A		1	100 mL	1 mL	337819	05/06/16 17:16	ET	TAL NSH

Client Sample ID: MWD-30 (050316)

Lab Sample ID: 680-124800-8

Date Collected: 05/03/16 08:50

Matrix: Water

Date Received: 05/03/16 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	10 mL	10 mL	337773	05/06/16 20:36	KS	TAL NSH
Total/NA	Prep	3520C			887.5 mL	1.0 mL	431999	05/05/16 16:31	RBS	TAL SAV
Total/NA	Analysis	8270D LL		1	887.5 mL	1.0 mL	432504	05/10/16 04:10	NED	TAL SAV
Total/NA	Prep	8315_W_Prep			100 mL	1 mL	337667	05/06/16 06:24	ET	TAL NSH
Total/NA	Analysis	8315A		1	100 mL	1 mL	337819	05/06/16 18:26	ET	TAL NSH

Client Sample ID: Trip Blank (050316)

Lab Sample ID: 680-124800-9

Date Collected: 05/03/16 07:30

Matrix: Water

Date Received: 05/03/16 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	339042	05/11/16 18:24	AK1	TAL NSH

Client Sample ID: DUP-01 (050316)
Date Collected: 05/03/16 00:00
Date Received: 05/03/16 15:00

Lab Sample ID: 680-124800-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	339042	05/11/16 22:28	AK1	TAL NSH

Laboratory References:

EMSL = EMSL Analytical, Inc., 200 Rt 130 North, Cinnaminson, NJ 08077

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order ID:	041611674
Customer ID:	STLS77
Customer PO:	68001205
Project ID:	

Attn: Jerry Lanier
TestAmerica Laboratories, Inc.
5102 LaRoche Avenue
Savannah, GA 31404

Phone:	(912) 354-7858
Fax:	(912) 352-0165
Collected:	05/03/2016
Received:	05/05/2016
Analyzed:	05/11/2016

Proj: Hercules Savannah / 68001205 / TestAmerica Savannah Job #680-124800

Test Report: Determination of Asbestos Structures > 10µm in Water
Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS				
					Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
							MFL (million fibers per liter)		
MW-F15 (050316)(680-12 041611674-0001	5/5/2016 10:30 AM	50	1392	0.1452	None Detected	ND	0.19	<0.19	0.00 - 0.71

Analyst(s)
Patrick Carr (1)

Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

Any questions please contact Benjamin Ellis.

Initial report from: 05/11/2016 10:54:05

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Chris Bagley	Lab PM: Lanier, Jerry A	Carrier Tracking No(s):	COC No: 680-74340-30950.1
Client Contact: Mr David Wilderman	Phone: (919) 608-2569	E-Mail: jerry.lanier@testamericainc.com		Page: Page 1 of 2
Company: ARCADIS U.S , Inc.				Job #:
Address: 2410 Paces Ferry Road Suite 400	Due Date Requested:			
City: Atlanta	TAT Requested (days):			
State, Zip: GA, 30339				
Phone: 770-428-9009(Tel)	PO #: 4501696543			
Email: dwilderman@arcadis-us.com	WO #:			
Project Name: Hercules Savannah	Project #: 68001205			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - Appendix 9	8270D_LL - Appendix 9	1668C - (MOD) Full List (209)	8081B_8082A - (MOD) Routine PCBs	SUBCONTRACT - Asbestos	8260B - Benzene	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	N	N	N	N	A		
MW-F21 (05 03 16)	5/3/16	0800	G	Water			3	2						
MW-F3R (05 03 16)	5/3/16	0932	G	Water					2	2				
MW-F5 (05 03 16)	5/3/16	1020	G	Water			3	2						
MW-F7 (05 03 16)	5/3/16	1245	G	Water			3	2						
~~MW-F15~~ MW-F15 (05 03 16)	5/3/16	1155	G	Water							2	3		
MW-27 (05 03 16)	5/3/16	1340	G	Water			3	2						
MW-29 (05 03 16)	5/3/16	1110	G	Water			3	2						
MWD-30 (05 03 16)	5/3/16	0850	G	Water			3	2						
Trip Blank (05 03 16)	5/3/16	0730	✓	Water			2							
DUP-01 (05 03 16)	5/3/16	0000	G	Water			3							
~~MW-F3R~~				Water										

680-124800 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: 2.9/3.2

Empty Kit Relinquished by.	Date.	Time:	Method of Shipment

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Chris Bagley	5/3/16 1500	Arcadis Group		5-3-16 15:00	TA
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	Date/Time:	Company	Received by	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler	Lab PM	Carrier Tracking No(s)	COC No
Client Contact: Shipping/Receiving	Phone	Lanier, Jerry A E-Mail: jerry.lanier@testamericainc.com		680-432019.1 Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.				Job #: 680-124800-1
Address: 680 Riverside Parkway,	Due Date Requested: 5/19/2016			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605	PO #			
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	WO #			
Email	Project #: 68001205			
Project Name: Hercules Savannah	SSOW#			
Site				

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total_PCB_Cong	Total_TEQ	1668C/HRMS_Sep_P Full List (209 Comb/Coel)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-F3R (050316) (680-124800-2)	5/3/16	09 32 Eastern		Water			X	X	X	2	

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Deliverable Requested I, II, III, IV, Other (specify)

Special Instructions/QC Requirements

Empty Kit Relinquished by.	Date	Time	Method of Shipment

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1		0504-16 1600	SAV.		05/05/16 0955	TALS
2	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
3	Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
		0.2

Page 61 of 71

5/31/2016

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

680-124800 Chain of Custody

Cooler Received/Opened On 5/5/2016 @ 1000

Time Samples Removed From Cooler_____ Time Samples Placed In Storage_____ (2 Hour Window)

1. Tracking # 0872 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 17960353 pH Strip Lot HC564992 Chlorine Strip Lot 1211515B

2. Temperature of rep. sample or temp blank when opened: 0-2 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

If yes, how many and where:_____

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) MMB

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? ~~Bubblewrap~~ Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # NA

I certify that I unloaded the cooler and answered questions 7-14 (intial) EMA

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES..NO..NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) EMA

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) EMA

I certify that I attached a label with the unique LIMS number to each container (intial) EMA

21. Were there Non-Conformance issues at login? YES..NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment

Loc: 680

124800

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

5/31/2016

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Lanier, Jerry A	COC No: 680-432027.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: jerry.lanier@testamericainc.com	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc		**Analysis Requested**	Job #: 680-124800-1
Address: 2960 Foster Creighton Drive, ,	Due Date Requested: 5/19/2016		Preservation Codes:
City: Nashville	TAT Requested (days):		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: TN, 37204			
Phone: 615-726-0177(Tel) 615-726-3404(Fax)	PO #:		Other:
Email:	WO #:		
Project Name: Hercules Savannah	Project #: 68001205		
Site:	SSOW#:		

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8315A/8316_W_LLE_Prep (MOD) Custom Carbonyl List (HPLC)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-F21 (050316) (680-124800-1)	5/3/16	08:00 Eastern		Water			X	1	
MW-F5 (050316) (680-124800-3)	5/3/16	10:20 Eastern		Water			X	1	
MW-F7 (050316) (680-124800-4)	5/3/16	12:45 Eastern		Water			X	1	
MW-27 (050316) (680-124800-6)	5/3/16	13:40 Eastern		Water			X	1	
MW-29 (050316) (680-124800-7)	5/3/16	11:10 Eastern		Water			X	1	
MWD-30 (050316) (680-124800-8)	5/3/16	08:50 Eastern		Water			X	1	

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 050416 1629	Company: SAV	Received by:	Date/Time: 5-5-16 1000	Company: TAL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.2

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

680-124800 Chain of Custody

Cooler Received/Opened On 5/6/2016 @ 1010

Time Samples Removed From Cooler _____ Time Samples Placed In Storage 1700 (2 Hour Window)

1. Tracking # 0931 (last 4 digits, FedEx) Courier: _FedEx_

IR Gun ID 96210146 pH Strip Lot HC564992 Chlorine Strip Lot 1211515B _

2. Temperature of rep. sample or temp blank when opened: 1.3 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO (NA)

4. Were custody seals on outside of cooler? YES..(NO)..NA

If yes, how many and where: 0

5. Were the seals intact, signed, and dated correctly? YES...NO...(NA)

6. Were custody papers inside cooler? (YES)...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES (NO) and Intact YES...NO...(NA)

Were these signed and dated correctly? YES...NO...(NA)

8. Packing mat'l used? (Bubblewrap) Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)...NO...NA

12. Did all container labels and tags agree with custody papers? (YES)...NO...NA

13a. Were VOA vials received? (YES)...NO...NA

b. Was there any observable headspace present in any VOA vial? YES..(NO)..NA

14. Was there a Trip Blank in this cooler? (YES)..NO...NA If multiple coolers, sequence # N/A

I certify that I unloaded the cooler and answered questions 7-14 (intial) AES

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES..NO..(NA)

b. Did the bottle labels indicate that the correct preservatives were used (YES)..NO...NA

16. Was residual chlorine present? YES...NO..(NA)

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AES

17. Were custody papers properly filled out (ink, signed, etc)? (YES)...NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)..NO...NA

19. Were correct containers used for the analysis requested? (YES)..NO...NA

20. Was sufficient amount of sample sent in each container? (YES)..NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) AES

I certify that I attached a label with the unique LIMS number to each container (intial) AES

21. Were there Non-Conformance issues at login? YES..(NO) Was a NCM generated? YES..(NO)..# N/A

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 12/15/15

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Lanier, Jerry A	Carrier Tracking No(s):	COC No: 680-432212.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: jerry.lanier@testamericainc.com		Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc				Job #: 680-124800-1
Address: 2960 Foster Creighton Drive,	Due Date Requested: 5/19/2016			
City: Nashville	TAT Requested (days):			
State, Zip: TN, 37204				
Phone: 615-726-0177(Tel) 615-726-3404(Fax)	PO #:			
Email:	WO #:			
Project Name: Hercules Savannah	Project #: 68001205			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric A
E - NaHS(
F - MeOH
G - Amchl(
H - Ascorb
I - Ice
J - DI Wate
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
Other:

Loc: 680
124800
ydrate

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B/6030B (MOD) Routine TAL AQ	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Trip Blank (050316) (680-124800-9)	5/3/16	07:30 Eastern		Water			X	2	
DUP-01 (050316) (680-124800-10)	5/3/16	Eastern		Water			X	3	
-1								3	
-3								3	
-4								3	
-5								3	
-6								3	
-7								3	
-8								3	

Possible Hazard Identification
Unconfirmed
Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	050516 1626	SAV		5/6/16 1000	TAN
Relinquished by:					
Relinquished by:					

Custody Seals Intact: | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 680-124800-1

Login Number: 124800

List Source: TestAmerica Savannah

List Number: 1

Creator: White, Menica R

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 680-124800-1

Login Number: 124800
List Number: 3
Creator: Abernathy, Eric

List Source: TestAmerica Nashville
List Creation: 05/05/16 02:28 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 680-124800-1

Login Number: 124800
List Number: 4
Creator: Stvartak, Anthony Q

List Source: TestAmerica Nashville
List Creation: 05/06/16 04:56 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 680-124800-1

Login Number: 124800
List Number: 2
Creator: Shockley, Wesley S

List Source: TestAmerica Sacramento
List Creation: 05/05/16 11:49 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Laboratory: TestAmerica Savannah

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Georgia	State Program	4	803	06-30-16 *

Laboratory: TestAmerica Nashville

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	A2LA		NA: NELAP & A2LA	12-31-17
A2LA	ISO/IEC 17025		0453.07	12-31-17
Alaska (UST)	State Program	10	UST-087	07-24-16
Arizona	State Program	9	AZ0473	05-05-17
Arkansas DEQ	State Program	6	88-0737	04-25-17
California	State Program	9	2938	10-31-16
Connecticut	State Program	1	PH-0220	12-31-17
Florida	NELAP	4	E87358	06-30-16
Georgia	State Program	4	N/A	06-30-16
Illinois	NELAP	5	200010	12-09-16
Iowa	State Program	7	131	04-01-18
Kansas	NELAP	7	E-10229	07-31-16 *
Kentucky (UST)	State Program	4	19	06-30-16
Kentucky (WW)	State Program	4	90038	12-31-16
Louisiana	NELAP	6	30613	06-30-16
Maine	State Program	1	TN00032	11-03-17
Maryland	State Program	3	316	03-31-17
Massachusetts	State Program	1	M-TN032	06-30-16
Minnesota	NELAP	5	047-999-345	12-31-16
Mississippi	State Program	4	N/A	06-30-16
Montana (UST)	State Program	8	NA	02-24-20
Nevada	State Program	9	TN00032	07-31-16
New Hampshire	NELAP	1	2963	10-09-16
New Jersey	NELAP	2	TN965	06-30-16
New York	NELAP	2	11342	03-31-17
North Carolina (WW/SW)	State Program	4	387	12-31-16
North Dakota	State Program	8	R-146	06-30-16
Ohio VAP	State Program	5	CL0033	07-10-17
Oklahoma	State Program	6	9412	08-31-16
Oregon	NELAP	10	TN200001	04-27-16 *
Pennsylvania	NELAP	3	68-00585	06-30-16
Rhode Island	State Program	1	LAO00268	12-30-15 *
South Carolina	State Program	4	84009 (001)	02-28-16 *
South Carolina (Do Not Use - DW)	State Program	4	84009 (002)	12-16-17
Tennessee	State Program	4	2008	02-23-17
Texas	NELAP	6	T104704077	08-31-16
USDA	Federal		S-48469	10-30-16
Utah	NELAP	8	TN00032	07-31-16
Virginia	NELAP	3	460152	06-14-16
Washington	State Program	10	C789	07-19-16
West Virginia DEP	State Program	3	219	02-28-17
Wisconsin	State Program	5	998020430	08-31-16
Wyoming (UST)	A2LA	8	453.07	12-31-17

Laboratory: TestAmerica Sacramento

* Certification renewal pending - certification considered valid.

Client: ARCADIS U.S., Inc.
Project/Site: Hercules Savannah

TestAmerica Job ID: 680-124800-1

Laboratory: TestAmerica Sacramento (Continued)

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E87570	06-30-16

Arcadis U.S., Inc.

1000 Cobb Place Blvd.

Bldg. 500-A

Kennesaw, Georgia 30144

Tel 770 428 9009

Fax 770 428 4004

www.arcadis.com