Voluntary Remediation Program Status Report No. 3

Former Swift & Company Meat Processing Plant
Moultrie, Colquitt County, Georgia
HSI Site No. 10509

Submitted to:

Georgia Department of Natural Resources
Environmental Protection Division
Hazardous Sites Response and Remediation Program
Suite 1054, East Tower
2 Martin Luther King Jr. Drive SE
Atlanta, Georgia 30334

Prepared for:	ConAgra Brands 222 Merchandise Mart Plaza, Suite 1300, Chicago, IL 60654
Date:	December 14, 2016
Prepared by:	Amec Foster Wheeler Environment & Infrastructure, Inc. 1075 Big Shanty Road NW, Suite 100, Kennesaw, Georgia 30144
Project No.:	6122140220

December 14, 2016

Mr. Allan Nix
Unit Coordinator
Georgia Department of Natural Resources
Response and Remediation Program
Suite 1054 East
2 Martin Luther King Jr. Drive SE
Atlanta, Georgia 30334

Subject: Voluntary Remediation Program Status Report No. 3
Former Swift & Company Meat Processing Plant
1189 North Main Street, Moultrie, Colquitt County, Georgia
HSI Site No. 10509

Dear Mr. Nix:

On behalf of ConAgra Brands and Swift & Company, Inc., Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) respectfully submits the attached Voluntary Remediation Program (VRP) Status Report No. 3 for the above-referenced site. ConAgra submitted a Voluntary Investigation and Remediation Plan (VIRP) to the Georgia Environmental Protection Division (EPD) on February 27, 2015. EPD accepted Swift & Company as a participant as defined in the Georgia Voluntary Remediation Program Act in its letter dated May 29, 2015. This VRP Status Report No. 3 is submitted as a semiannual progress report in accordance with the schedule contained in the May 29, 2015 letter.

Please contact us at 770-421-3400 with any questions you may have regarding this submittal. Thank you for your assistance with this project.

Sincerely,

Amec Foster Wheeler Environment & Infrastructure, Inc.

John Quinn, P.G.
Senior Geologist

David E. Smoak, P.G.
Associate Geologist/Project Manager

cc: Ms. René Rimelspach, ConAgra Foods
Kevin Johnson, Stoel Rives
Mr. Mickey Waller, City of Moultrie
Mr. Billy Fallin, Tumlin Estate

Attachments: VRP Status Report No. 3

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1.0 PG CERTIFICATION

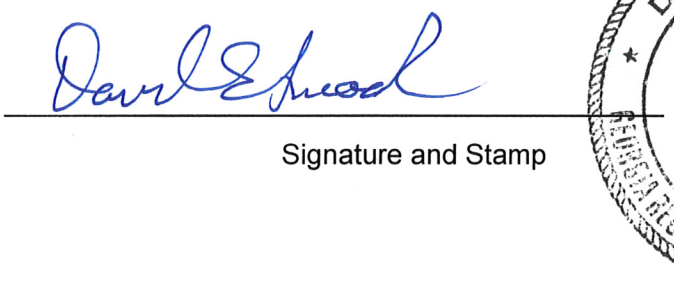
"I certify under penalty of law that this report and all attachments were prepared by me or under my direct supervision in accordance with the Voluntary Remediation Program Act (O.C.G.A. Section 12-8-101, et seq.). I am a professional engineer/professional geologist who is registered with the Georgia State Board of Registration for Professional Engineers and Land Surveyors/Georgia State Board of Registration for Professional Geologists and I have the necessary experience and am in charge of the investigation and remediation of this release of regulated substances.

Furthermore, to document my direct oversight of the Voluntary Remediation Plan development, implementation of corrective action, and long term monitoring, I have attached a monthly summary of hours invoiced and description of services provided by me to the Voluntary Remediation Program participant since the previous submittal to the Georgia Environmental Protection Division.

The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

David E. Smoak / Georgia P.G. #1314 — Printed Name and GA PE Number

12/14/16 — Date



Signature and Stamp

2.0 INTRODUCTION AND BACKGROUND

This Voluntary Remediation Program Semi-Annual Status Report No. 3 (Status Report) was prepared in accordance with the Voluntary Remediation Program (VRP) for the former Swift & Company former meat processing facility site, Hazardous Site Inventory (HSI) No.10509. The Georgia Environmental Protection Division (EPD) letter, dated May 29, 2015, accepted the site into the VRP and requested submittal of semi-annual VRP status reports. As required by EPD's letter dated May 29, 2015, semiannual progress reports are to submitted November 29th and May 29th annually, beginning November 2015 and ending in 2020, unless a compliance status report (CSR) is submitted and approved prior to 2020. This third Status Report covers the activities conducted subsequent to the December 2015 through May 2016 activities documented in Status Report No. 2 (Amec Foster Wheeler, June, 2016). The goals of this Status Report are to comply with the status report submittal schedule, update EPD on the progress of activities at the site, and update prior information and respond to comments provided by EPD in a September 26, 2016 comment letter. This Status Report is submitted under an extension request communicated to EPD via electronic mail on November 22, 2016, and followed up with a hardcopy letter dated November 28, 2016.

The site is comprised of three properties listed on the HSI as qualifying properties and is located at 1189 North Main Street (U.S. Highway 319 Business, Georgia Highway 33) in the northern part of Moultrie, Georgia, in Colquitt County. A site location map is shown on Figure 1. The property boundaries and ownership have changed as a result of an acquisition by Crop Production Services in September 2016. The HSI listed parcels now include:

- A 2.53 acre tract currently owned by the City of Moultrie (Tax ID Parcel M022A 005), which represents the southernmost portion of the former 14-acre Swift & Company meat processing facility property.
- A 1.1 acre (previously 2.52 acre) parcel owned by the Rennie A. Tumlin Estate (Tax ID Parcel M022A 004).
- A 1.42 acre parcel now owned by Crop Production Services (CPS). This is a portion of the site that was previously owned by the Tumlin Estate but subdivided in September 2016 in an acquisition by CPS. CPS owns an additional 5.62 acres abutting the west side and extending to the north that were purchased from other parties (Joint Development Authority (JDA) of Brooks, Colquitt, Grady, Mitchell, and Thomas Counties, the Arnold Property, and North Street Development).

A site map is provided in Figure 2. The western and southern boundaries of the site are bordered by an active railroad right of way owned by Georgia & Florida RailNet, Inc. North Main Street borders the subject properties on the east. The northern boundary of the subject properties are bounded by property that was part of the former Swift facility and currently include the Tumlin Estate and Crop Production Services. Railroad tracks and retention ponds used by Farmland National Beef are located to the west.

While operational, the Swift & Company plant was a stockyard and meat-processing facility where hogs, cattle, and sheep were slaughtered, butchered, and packaged for the consumer market. The meat-processing plant was originally constructed in 1914, and operated until 1970.

After 1970, Swift & Company constructed a new facility to the west now referred to as Farmland National Beef.

After meat processing operations ceased, the buildings remained on the property for about 30 years and were believed to have been used for storage. The buildings on the 2.53-acre City of Moultrie tract were demolished in 2001, and the surface was subsequently graded and grassed. Information contained in a CSR prepared by Advanced Environmental Technologies, LLC (AET), and information provided by City of Moultrie representatives report the demolition debris was removed and properly disposed offsite. The Former Boiler and Engine House were demolished in 2011. There are no activities currently conducted on the subject properties, and the subject properties are currently located on an open tract.

Previous investigations of the property detected volatile organic compounds (VOCs), and metals in groundwater. A few of the constituents exceeded the Hazardous Site Response Act (HSRA) notification concentrations. The environmental history of the site is summarized as follows:

- Assessments including soil and groundwater sampling were conducted in 1997.
- The site was listed on the Hazardous Site Inventory (HSI) on June 6, 1998 as Site No. 10509.
- A HSRA Compliance Status Report (CSR) Assessment was conducted in 2001-2002 that included soil and groundwater sampling and submittal of a CSR. Buildings on the property were demolished in 2001 before the HSRA CSR investigations.
- Further CSR assessment was performed in 2003 (including submittal of a Revised CSR).
- Additional field investigation was conducted in 2004-2005.
- The available 2004-2005 data were included in the September 30, 2008, Revised CSR, which also included details for the 2007 and 2008 investigations conducted by MACTEC.
- The January 29, 2010 Revised CSR responded to the subsequent EPD comments on the September 30, 2008, Revised CSR, and included information from 2009 field investigations by MACTEC.
- A Corrective Action Plan (CAP) was submitted on May 13, 2011. The proposed remedy in the CAP for the former Swift site was monitored natural attenuation (MNA).
- EPD gave Conditional Approval of the CAP In a letter dated December 12, 2011.
- The First Semiannual Corrective Action Effectiveness Report (CAER) was submitted to EPD on June 12, 2012.
- The Second Semiannual CAER was submitted to EPD on December 11, 2012.
- The Third Semiannual CAER was submitted to EPD on May 24, 2013.
- The Fourth Semiannual CAER was submitted to EPD on December 11, 2013.
- The First Annual CAER (ACAER) was submitted to EPD on February 27, 2015 as Appendix B to the Voluntary Remediation Program Application and Plan. Based on the results of the monitoring and the updated SourceDK models presented in the ACAER, and after discussions with EPD, Conagra made the decision to proceed with entering the site into the VRP.

- The EPD letter dated May 29, 2015 accepted the site into the VRP and requested submittal of semi-annual VRP status reports.
- The EPD letter dated June 4, 2015 put forth comments to be addressed during implementation of the VRP. A response letter dated August 31, 2015 to the EPD Comments letter was submitted.
- The VRP Status Report No. 1 was submitted to EPD on December 8, 2015 as a semiannual progress report. The first Status Report covered the activities conducted subsequent to the EPD's May 29, 2015 VRP acceptance letter.
- The VRP Status Report No. 2 was submitted in May 2016 and included responses to an EPD comment letter dated January 25, 2016.

3.0 WORK PERFORMED DURING REPORTING PERIOD

The activities currently identified to be conducted at the Swift site under the VRP are outlined in the VRP Application and Plan, dated February 27, 2015, and the EPD VRP approval and comment letters dated May 29 and June 4, 2015. The activities that have been conducted subsequent to Status Report No. 2 (for the period ending May 2016) include the recording of affidavits for the City of Moultrie property and the Tumlin Estate property; initiation of discussions with representatives of the City of Moultrie and Tumlin Estate regarding Uniform Environmental Covenants; completion of the second annual groundwater sampling and analysis (September 27-29 2016); coordination and execution of access agreements with Thomas Bates on the east side of North Main Street and with the Georgia Department of Transportation for an encroachment permit in the right-of-way along the east side of North Main Street; installation of two monitoring wells; one on the Bates property and one on the Georgia Department of Transportation right of way, as previously requested by EPD; and completion of an update to SourceDK modeling results and fate and transport modeling. These activities are described in the following sections.

3.1 PROPERTY OWNERSHIP CHANGES AND AFFIDAVITS

As reported in Section 2.0 above, during this reporting period, Crop Production Services purchased 7.04 acres of property to the north and partially inclusive of the Swift Moultrie HSI site. These properties included:

- 1.2 acres of the former Tumlin Estate property which was part of the site.
- 1.62 acres abutting the northwest side of the site that was formerly owned by the Joint Development Authority of Brooks, Colquitt, Grady, Mitchell, and Thomas Counties. ,
- 0.49 acres of the former Arnold property.
- 3.51 acres of the North Main Street Properties.

Property Affidavits were filed and recorded for the VRP Properties that are part of the site including the City of Moultrie and the Tumlin Estate. These notices were provided to Georgia EPD on October 31, 2016. The property deed for the portion of the Tumlin Estate that was transferred to Crop Production Services contained the HSI Site Listing Notice. Therefore, it was not necessary to file a separate affidavit for this property because the HSI language is already included in the deed exhibit. EPD provided concurrence on October 25, 2016.

3.2 OFFSITE ACCESS AGREEMENTS

During the reporting period, Amec Foster Wheeler was able to execute a Site Access License Agreement with Thomas Bates, owner of the property across Main Street and east of MW-9. This well was requested by EPD and is a replacement for former MW-28. An access agreement was not able to be executed with the owner of the property east of MW-29 at a second location requested by EPD. However, Amec Foster Wheeler successfully executed a right-of–way encroachment permit with the Georgia Department of Transportation and installed a monitoring well thereon.

3.3 ANNUAL GROUNDWATER SAMPLING AND ANALYSIS

The continued monitoring plan consists of annual groundwater sampling for up to five years of six site monitoring wells for site constituents of concern (COCs) including arsenic, barium, cadmium, chromium, lead, nitrates and chlorides. These six wells include MW-6, MW-9, MW-13D, MW-15, MW-16, and MW-27DDDD, and are shown on Figure 2. In September 2016, eight additional wells (MW-1, MW-4, MW-7, MW-12, MW-18, MW-20, MW-29 and MW-31) were also sampled to address an inadvertent omission of these constituents from the September 2015 supplemental sampling in response to comments included in EPD's letter dated June 4, 2015. Additionally, the field pH of every groundwater sample is monitored during the sampling events. Water level measurements are collected in all site monitoring wells prior to sampling to evaluate groundwater flow direction. The metals sampling is conducted under low-flow methodologies to reduce potential turbidity in the samples. The procedures used to collect groundwater samples are conducted in general accordance with USEPA Region 4 SESD procedure SESDPROC-301-R3 (USEPA, 2013).

The scope of services performed during the September 2016 annual groundwater sampling and analysis event included the following:

- Determined the depth to groundwater in accessible site wells (September 27, 2016) and calculated groundwater elevations.
- Obtained groundwater samples on September 27, 28, and 29, 2016 from 14 site monitoring wells (MW-1, MW-4, MW-6, MW-7, MW-9, MW-12, MW-13D, MW-15, MW-16, MW-18, MW-20, MW-27DDDD, MW-29 and MW-31).
- Six samples were analyzed for the site COCs including arsenic, barium, cadmium, chromium and lead plus nitrates and chloride (MW-6, MW-9, MW-13D, MW-15, MW-16 and MW-27DDDD). Additionally, the field pH of every groundwater sample was monitored during the sampling event. Six samples were analyzed only for nitrates and chlorides (MW-4, MW-7, MW-12, MW-20, MW-29 and MW-31) due to being inadvertently omitted from the September 2015 expanded sampling event required by EPD. One sample (MW-1) was resampled for lead (plus chloride and nitrate) due to a first time occurrence of elevated lead in September 2015 that exceeded the Type I RRS, associated with highly elevated turbidity. One sample (MW-18) was resampled for arsenic, cadmium and lead (plus chloride and nitrate) due to Type I RRS exceedances in September 2015.
- Prepared potentiometric surface maps using the September 27, 2016 groundwater elevation data showing groundwater flow directions in Shallow Zones A and B and determination of the groundwater flow rate.
- Prepared an updated pH map based upon the September 27-29, 2016 pH values.
- Prepared lead and barium isoconcentration maps based upon the September 27-29, 2016 concentrations.
- Updated the SourceDK models submitted in the First ACAER with the data obtained in September 2016.
- Updated the fate and transport modeling (BioScreen-AT) submitted in the VRP Application and Plan.
- Evaluated data and prepared this summary of annual groundwater sampling and analysis.

The following sections describe the services listed above.

3.3.1 Groundwater Elevation and Flow Direction

Groundwater elevations were calculated from depth to groundwater measurements made in site monitoring wells on September 27, 2016 (Table 1). Table 1 also summarizes groundwater elevations measured at the site since 2001.

Potentiometric surface maps for the two shallow aquifers at the site, Shallow Zone A and Shallow Zone B, were developed from the groundwater elevation data obtained on September 27, 2016 and are presented as Figures 3 and 4, respectively. The Shallow Zone A potentiometric map appears similar to the map presented in the 2015 VRP Status Report with the exception of an elevated area in the water table at MW-8. The Shallow Zone B potentiometric map appears similar to the map presented in the 2015 VRP Status Report, although as MW-19 was not gauged on September 27, 2016 the groundwater surface is not depicted to the south in the area of MW-19. The direction of flow in Shallow Zone A (Figure 3) is generally to the north and northwest, while the flow direction in Shallow Zone B shows an eastward component in the central portion of the site and a southerly component in the northern portion of the site, due to higher groundwater elevations in MW-31 and MW-29 as compared to MW-3 and MW-16 (Figure 4). Note that the interpretation of groundwater flow direction in Shallow Zone B for the September 2016 measurement event was made more difficult because of the inability to measure the groundwater elevations at MW-A, MW-23, MW-24 and MW-25, which are presumed to have been destroyed due to the grading which has been performed at the site, as mentioned in previous reports.

In addition, an evaluation of the vertical hydraulic gradient at the site was performed. Based on the groundwater elevation data obtained on September 27, 2016 from the cluster of wells that includes MW-8, MW-13D, MW-22DD and MW-26DDD, there was a downward vertical gradient of about 0.431 foot per foot at well pair MW-8 (screened in Shallow Zone A) and MW-26DDD, and of about 0.265 foot per foot at well pair MW-13D (screened in Shallow Zone B) and MW-26DDD. Additionally, a comparison of groundwater elevations at this well cluster to nearby deep well MW-27DDDD shows a downward vertical gradient from each well (MW-8, MW-13D, and MW-26DDDD) toward the interval screened by MW-27DDDD.

3.3.2 Groundwater Velocity

Based on the potentiometric surface maps, the horizontal gradient in the ground water in Shallow Zone A was about 0.0217 feet per foot across the site on September 27, 2016. The horizontal gradient in the ground water in Shallow Zone B ranged from 0.0069 to 0.0305 feet per foot on September 27, 2016. An effective porosity for the saturated soil was estimated to be 20 percent for a clayey sand/sandy clay (Driscoll, 1986). The horizontal ground-water flow velocity was calculated using the Darcy equation:

$$V = Ki/ne$$

Where: K = hydraulic conductivity (feet/day)
i = hydraulic gradient (feet/foot)
ne = effective porosity

The gradients given above, the geometric mean of the Shallow Zone A and B hydraulic conductivity testing results obtained in May 2012 (4.1544 ft./day and 2.8046 ft./day,

respectively), and the estimated effective porosity of 0.2 were used to calculate a groundwater flow velocity of approximately 165 ft./year for Shallow Zone A, and a groundwater flow velocity of approximately 35 to 156 ft./year for Shallow Zone B. The Shallow Zone A velocity is slightly higher than the range of previous values reported in the previous CAERs and the Revised CSR, while the minimum Shallow Zone B velocity is within the range previously reported in the Revised CSR and the maximum Shallow Zone B velocity is within the range reported in the Revised CSR and the previous CAERs.

3.3.3 Groundwater Quality

For the groundwater quality sampling conducted on September 27, 28 and 29, 2016 in 14 site monitoring wells, the wells sampled were as follows:

Upgradient wells:

- MW-12 Shallow Zone A (chloride and nitrate)

Interior wells:

- MW-6 Shallow Zone B (COC metals, chloride and nitrate)
- MW-7 Shallow Zone B (chloride and nitrate)
- MW-13D Shallow Zone B (COC metals, chloride and nitrate)
- MW-16 Shallow Zone B (COC metals, chloride and nitrate)
- MW-18 Shallow Zone B (arsenic, cadmium, lead, chloride and nitrate)

Perimeter wells:

- MW-4 Shallow Zone A (chloride and nitrate)
- MW-29 Shallow Zone B (chloride and nitrate)
- MW-31 Shallow Zone B (chloride and nitrate)

Downgradient wells:

- MW-1 Shallow Zone B (lead, chloride and nitrate)
- MW-9 Shallow Zone B (COC metals, chloride and nitrate)
- MW-15 Shallow Zone B (COC metals, chloride and nitrate)
- MW-20 Shallow Zone B (chloride and nitrate)

Deep well:

- MW-27DDDD Deep well (COC metals, chloride and nitrate)

The groundwater sampling procedure was conducted as follows. Before the purging and sampling of each well, the depth to water and total well depth were measured. Each well has been marked with a permanent reference survey point. The total depth of the well was measured from this survey point to the well bottom using a measuring tape. The depth to groundwater was measured from the reference survey point to the groundwater surface in the well using an electrical water-level indicator. The water level probe was lowered down the well until the meter's tone sounded, indicating the probe had encountered water. The measured depth to groundwater from the surveyed datum point on the well casing was recorded on the sampling form and in the field logbook to the nearest 0.01 foot. The depth to the groundwater was then subtracted from the surveyed elevation of the casing reference point to determine the groundwater elevation. Depth to groundwater data and groundwater elevations are shown on Table 1.

The wells were purged using a peristaltic pump, with the exception of MW-27DDDD, which was purged using a submersible pump due to the depth to groundwater exceeding the capability of a

peristaltic pump. New polyethylene tubing was used at each well and inserted into the water column of the well. Either a three well volume method of purging or a low-flow method of purging was used, dependent of the rate of well recharge encountered. The tubing intake was initially placed at the approximate midpoint of the well screen, and the wells pumped at a relatively slow pumping rate (less than 500 milliliters per minute [mL/min]). If the water level stabilized, a low-flow purge was conducted until the pH, temperature, and specific conductance (SC) readings stabilized to within 10% of the previous reading, and the sample was collected. If the water level could not be stabilized by adjusting the pumping rate, the intake was placed near the top of the well column and a minimum of three well volumes were purged from the well prior to sample collection.

The groundwater turbidity readings were measured with an electronic turbidity meter and documented before collecting samples in laboratory-provided preserved containers for analysis. At MW-1 and MW-15, both total and dissolved metals samples were collected, as turbidity could not be reduced below >800 and 275 NTU, respectively.

The samples were delivered to Analytical Environmental Services, Inc. (AES) under chain-of-custody protocol for analysis (as indicated above) by EPA Method 6020A for the site COCs including arsenic, barium, cadmium, chromium and lead; and chloride and nitrate by EPA Method 9056A.

As noted above, groundwater samples from six monitoring wells (MW-6, MW-9, MW-13D, MW-15, MW-16 and MW-27DDDD) were analyzed for the complete COC list. Groundwater samples from six monitoring wells (MW-4, MW-7, MW-12, MW-20, MW-29 and MW-31) were analyzed only for chloride and nitrate due to being inadvertently omitted from the September 2015 expanded sampling event. Well MW-1 was resampled for lead (plus chloride and nitrate) due to a first time occurrence in September 2015 that exceeded the Type I RRS, associated with highly elevated turbidity. One well (MW-18) was resampled for arsenic, cadmium and lead (plus chloride and nitrate) due to Type I RRS exceedances in September 2015.

The field pH measurements are reported in Table 2, along with a summary of the results of the analyses of the September 2016 samples. The laboratory analytical reports and field sampling reports for the September 2016 sampling event are provided in Appendix A.

A review of the results of the analyses of the September 2016 samples (Table 2) indicates that arsenic was only detected in MW-15, whereas arsenic was detected in seven wells (MW-1, MW-6, MW-7, MW-9, MW-13D, MW-15 and MW-18) in September 2015. The arsenic detection in MW-15 was in a total metals samples with elevated turbidity, and arsenic was not detected in the dissolved metals sample collected from MW-15. The arsenic concentration in MW-15 was well below the Type 1 RRS of 0.01 mg/L. Arsenic had never before been reported in six of the wells (MW-1, MW-6, MW-7, MW-9, MW-15 and MW-18) where it was reported in September 2015, and had only been reported once before at MW-13D. The only previous arsenic exceedances of the Type 1 RRS prior to September 2015 were isolated occurrences; once at MW-12 (0.0126 mg/L in September 2013), and once at MW-28 (0.017 mg/L in November 2004). Also, while arsenic was reported at MW-9 during the September 2015 sampling event, arsenic was not detected in the duplicate sample (DUP-1) collected at MW-9. For the reasons given above (only two previous Type 1 RRS exceedances, reports of arsenic in multiple wells in which it had never before been reported, an arsenic detection in a parent sample but not the

associated duplicate sample, and arsenic only being detected in a single well in September 2016), the arsenic detections in September 2015 are considered anomalous and are not believed to reflect actual site conditions.

Cadmium was reported in samples from MW-9 (.000918 mg/L), DUP-1 (0.000938 mg/L), MW-13D (0.00219 mg/L), MW-15 (total metals sample at 0.131 mg/L and dissolved metals sample at 0.103 mg/L) and MW-27DDDD (0.00311 mg/L), all below the Type 1 RRS of 0.005 mg/L except for MW-15.

Chromium was only detected in the total metals sample from MW-15 (0.0246 mg/L). The chromium detection in MW-15 was in a total metals sample with elevated turbidity. Chromium was not detected in the dissolved metals sample collected from this well, and did not exceed the Type 1 RRS of 0.1 mg/L

Barium was detected in all samples analyzed for the constituent, with concentrations ranging from 0.0766 mg/L (dissolved sample from MW-15) to 7.22 mg/L (MW-27DDDD). All of the concentrations were below the barium Type 1 RRS of 2 mg/L except for the MW-27DDDD value (7.22 mg/L). The MW-27DDDD concentration of 7.22 mg/L represents a noticeable increase from the September 2015 barium value of 4.95 mg/L, and is the highest barium value observed at MW-27DDDD. The MW-6 concentration of 0.181 mg/L is a substantial decrease from the barium value of 10.3 mg/L reported in September 2014, which is now believed to have been anomalous.

Lead was reported in 7 of the 8 well samples in which it was analyzed (MW-1, MW-6, MW-9, MW-13D, MW-15, MW-16 and MW-18) at concentrations ranging from 0.00146 mg/L (MW-18) to 0.236 mg/L (MW-15). The lead detection in MW-1 was in the total metals sample with elevated turbidity and was not detected in the dissolved metals sample. The lead detections in six of the wells (MW-1, MW-6, MW-9, MW-13D, MW-15 and MW-16) exceeded the Type 1 RRS of 0.015 mg/L. Of these wells, as mentioned above, lead was not detected in the dissolved metals sample collected from MW-1.

3.3.4 Comparison to Prior Analytical Data

Updated SourceDK models have been prepared, following an additional year of monitoring. However, as part of preparation of this first Status Report, a comparison of the September 2016 data to the most recent comparable prior data was performed for the analyzed COCs. This comparison is described below.

The September 2015 arsenic results indicated that arsenic was detected in seven of the well samples (MW-1, MW-6, MW-7, MW-9, MW-13D, MW-15 and MW-18), whereas arsenic was only detected in MW-15 (0.00672 mg/L) in September 2016. Prior to September 2015, arsenic had never before been reported in six of these wells (MW-1, MW-6, MW-7, MW-9, MW-15 and MW-18), and had only been reported once before at MW-13D. The arsenic detection in MW-15 in September 2016 was in a total metals samples with elevated turbidity, and arsenic was not detected in the dissolved metals sample collected from MW-15. The arsenic concentration in MW-15 did not exceed the Type 1 RRS of 0.01 mg/L. The only arsenic exceedances prior to September 2015 of the Type 1 RRS were isolated occurrences; once at MW-12 (0.0126 mg/L in September 2013), and once at MW-28 (0.017 mg/L in November 2004). As mentioned previously, for the reasons given above (only two previous Type 1 RRS exceedances, reports of

arsenic in multiple wells in which it had never before been reported, and an arsenic detection in a parent sample but not the associated duplicate sample), the arsenic detections are considered anomalous and are not believed to reflect actual site conditions.

Detections of cadmium in September 2016 were in wells where it had previously been reported in September 2015 (the duplicate sample [DUP-1] from MW-9, MW-15 and MW-27DDDD), with a new detections at MW-13D. Cadmium was detected in DUP-1 at 0.000938 mg/L, below the September 2015 detection of 0.00135 mg/L at MW-9. This detection is below the Type 1 RRS of 0.005 mg/L. Cadmium at MW-15 increased from 0.00249 mg/L in September 2015 to 0.131 mg/L (total metals sample) and 0.103 (dissolved metals sample), exceeding the Type 1 RRS. Cadmium at MW-18 decreased from 0.00742 mg/l in September 2015 to <0.0007 mg/L. Cadmium was detected at MW-13D at a concentration of 0.00219 mg/L, similar to concentrations found since March 2012 with the exception of September 2015 (<0.00450 mg/L). Cadmium at MW-27DDDD increased slightly from 0.00228 mg/L in September 2015 to 0.00331 mg/L in September 2016. All of the September 2016 cadmium values were below the Type 1 and Type 2 RRS of 0.005 mg/L and 0.0078 respectively, except for the exceedances (total and dissolved samples) at MW-15.

Chromium was only detected in well MW-15. The detection at MW-15 increased from the detection in September 2015, with chromium at MW-15 increasing from 0.00643 mg/L in September 2015 to 0.0246 mg/L in September 2016, and was below the Type 1 RRS of 0.1 mg/L.

For barium, there were three instances of an increase in concentration as compared to the previous data. In two of those wells where an increase was noted (MW-9, and MW-13D), the concentrations were both within the range of values obtained during 2012, 2013, 2014 and 2015 monitoring, and were well below values measured during previous historical site monitoring. The MW-6 concentration of 0.181 mg/L is a substantial decrease from the barium value of 10.3 mg/L reported in September 2014, which is now believed to have been anomalous. The September 2016 value is similar to the barium value of 0.296 mg/L reported at MW-6 in September 2012, further confirming the September 2014 value of 10.3 mg/L as anomalous. The MW-27DDDD concentration of 7.22 mg/L represents a noticeable increase from the September 2015 barium value of 4.95 mg/L, and is the highest barium value observed at MW-27DDDD. Only the MW-27DDDD value (7.22 mg/L) is above the barium Type 1 RRS of 2 mg/L.

The barium detections were further evaluated using the updated SourceDK model, as described in Section 4.0. As noted above, none of the September 2016 barium concentrations exceeded the barium Type 1 RRS of 2 mg/L except for the MW-27DDDD value (7.22 mg/L). While the MW-27DDDD value exceeded the Type 1 RRS, it was well below the Type 4 RRS of 20 mg/L.

For lead, of eight wells analyzed, there were three instances of an increase in concentration as compared to the most recent data (at MW-13D [0.173 mg/l vs. 0.129 mg/L in September 2015], MW-15 [0.294 mg/L vs. 0.243 mg/L in September 2015] and MW-16 [0.0161 mg/L vs. 0.0121 mg/L in September 2015]. In these wells where an increase in lead concentration was noted (MW-13D, MW-15 and MW-16), the concentrations were either within, or only slightly above, the range of values obtained during 2012 through 2015 monitoring, or were well below values measured during previous historical site monitoring.

The lead detections were further evaluated using the updated SourceDK model, as described in Section 4.0. As noted above, the lead detections in six of the wells (MW-1, MW-6, MW-9, MW-13D, MW-15, and MW-16) exceeded the Type 1 RRS of 0.015 mg/L. Of these wells, as also mentioned above, lead was not detected in the dissolved metals sample collected from MW-1.

The September 2016 measured field pH values were also compared to the September 2015 data. Of the 14 wells that had been sampled in both September 2015 and September 2016, two of the measured pH values decreased (becoming more acidic), and twelve of the wells exhibited an increase in pH (becoming more neutral). In general, the changes in pH were minor, with the exceptions of MW-6 and MW-18 with increases of 1.40 and 1.85 standard units respectively.

The September 2016 pH values were used to prepare an updated pH contour map. A comparison to the pH map presented in the 2015 VRP Status Report that the area of low pH appears to have become smaller, based on the September 2016 data.

3.4 UPDATED SOURCEDK MODELING RESULTS

As discussed in Section 3.0, the results of the September 2016 annual sampling event were used to prepare updated SourceDK models. The results of the updated modeling are discussed below.

Monitored natural attenuation (MNA) was evaluated as a corrective action measure in the May 13, 2011 CAP to address groundwater impacts at the site. As described in the CAP, the U.S. Environmental Protection Agency's (USEPA) MNA Directive (USEPA, 1999) was used as guidance, in conjunction with the SourceDK computer spreadsheet. SourceDK is designed for use in evaluating the potential efficacy of MNA as a remedial alternative. This evaluation involves collection of site-specific data sufficient to estimate with an acceptable level of confidence both the rate of attenuation processes and the anticipated time required to achieve remediation objectives (AFCEE, 2004).

This evaluation requires statistical tools to assess the data collected in the site characterization and determine if natural attenuation (decreasing trends) is occurring. The SourceDK Microsoft Excel computer spreadsheet program is a planning-level screening model for estimating groundwater remediation timeframes and the uncertainties associated with the estimated timeframe. In this evaluation, "remediation timeframe" is the time required for the high-concentration source zones at a site to reach a certain target concentration (AFCEE, 2004).

3.4.1 Data Preparation

The updated dataset to be analyzed was generated from groundwater samples taken from August 2001 to September 2016, and included the following wells monitored semi-annually in 2012 and 2013, and annually in 2014, 2015 and 2016: Monitoring well MW-1 was included in the dataset for the SourceDK evaluation, as it was sampled in September 2015 for the first time since January 2003. MW-31 was not included during this period as it was only analyzed for Chloride and Nitrate. Monitoring wells MW-2, MW-3, MW-19 and MW-23 were not sampled in September 2015 or 2016, and were not included in the updated dataset.

Well ID	
MW-01	MW-15
MW-06	MW-16
MW-09	MW-18
MW-13D	MW-27DDDD

Since the methods used in the SourceDK package do not accommodate data below the reporting limit, all data reported as “below reporting limit” were converted to a detection at the reporting limit. Since these wells have had a record of at least one COC detection (barium, lead), this is considered to be a conservative substitution.

Only total metals results were used for the evaluation; dissolved metals results were not used. Both barium and lead were used for the evaluation; the final dataset is listed in Table 3.

3.4.2 Analyses

The SourceDK assessment is based on a slope determined from a regression model of existing groundwater data. As described in the SourceDK documentation, this model predicts remediation timeframe by determining the trend in measured concentration vs. time data from source-zone monitoring wells (or wells in other parts of the plume) and then extrapolating this trend to determine how long it will take to reach a cleanup objective entered by the user. The trend is based on an analysis of log-concentration vs. time data for any constituent in groundwater (AFCEE, 2004).

For each well of interest, a SourceDK spreadsheet model was constructed by adding site-specific sample dates, analytical concentrations, and the proposed regulatory limit (Type 1 RRS) into the spreadsheet. The model then takes the log of concentration and plots that against the sample date and calculates the slope of the resulting regression line. A negative slope (corresponding to a positive decay constant) suggests a downward trend in concentration and the likelihood of attenuation occurring. The model presents a graph of the resulting regression analysis along with a dotted line representing the regulatory limit, the regressions coefficient of determination (r2), a predicted year to attain cleanup (along with confidence limits on the estimate, if possible), and an estimated decay constant derived from the regression slope.

3.4.3 Results

A total of 14 different well/COC models were run. The results of each model run are included in Appendix B. A summary of the results is presented in the following tables. The majority of the updated models present decreasing trends in concentration (negative slopes and positive decay rates), with 75 percent of the barium trends and 83.3 percent of the lead trends decreasing. The direction of trend appears well defined in all cases with the exception of MW-13D (lead), MW-18 (barium), MW-20 (barium and lead) and MW-29 (lead) where the slope is essentially flat.

Summary of SourceDK Trend Results

	Barium	Lead
Decreases	6	5
Total	8	6
Percent	75%	83.3%

SourceDK Trend Results by COC

Well	Barium	Lead	Comments
MW-01	NA	Increasing	2015 and 2016 lead concentration (total metals) above Type 1 RRS; dissolved metals sample non-detect for lead; all previous lead analyses non-detect
MW-06	Decreasing	Decreasing	2015 barium concentration below Type 1 RRS; 2012, 2013, 2014, 2015 and 2016 lead concentrations both above and below Type 1 RRS
MW-09	Decreasing	Decreasing	Barium Type 1 RRS attained; lead Type 1 RRS not yet attained
MW-13D	Decreasing	Decreasing	Barium Type 1 RRS attained; lead Type 1 RRS not yet attained
MW-15	Decreasing	Increasing	Barium Type 1 RRS attained; lead Type 1 RRS not yet attained. Only four data points (2003, 2014, 2015 and 2016)
MW-16	Decreasing	Decreasing	Barium Type 1 RRS attained; lead Type 1 RRS not yet attained
MW-18	Decreasing	Decreasing	Barium Type 1 RRS attained; lead Type 1 RRS attained
MW-27DDDD	Increasing	NA	Barium above Type 1 RRS, but below Type 4 RRS. 2016 concentration is the highest recorded value.

NA- not applicable; either all, or all except one, concentrations below detection limit

3.5 UPDATED FATE AND TRANSPORT MODELING

Contaminant fate and transport modeling was updated using the Bioscreen-AT model (as was completed in the VRP Application and Plan), with updated data from September 2016 to assess theoretical downgradient migration of dissolved lead and determine if the distance would fall within acceptable point of compliance requirements under the VRP. In accordance with ConAgra's August 31, 2015 responses to EPD's comments dated June 4, 2015, the site point of exposure (POE) was designated as a location approximately 1051 feet east of the eastern property line of the site. The associated Point of Demonstration (POD) well was designated as MW-9, pursuant to any clarification resulting from additional potentiometric data that may be obtained in the future from new monitoring wells (MW-28R and MW-32) installed across U.S Highway 319, as stated in the comment responses. Two source area monitoring wells are currently being used for the BioScreen-AT modeling, including MW-18 (replaced previous source well MW-13D based on more current data), and MW-15 which was added pursuant to EPD Comments of June 4, 2015.

BioScreen-AT is an enhanced version of BioScreen (Neewell et al, 1996) with an exact solution for the transport of a contaminant (Karanovic et al, 2007). The model uses the Domenico equation which describes one-dimensional transport of a solute (inorganic or organic, decaying or non-decaying). The model simulates advection, adsorption and three-dimensional dispersion of any dissolved constituent (inorganic or organic), and has the ability to simulate constant or decaying sources, and contaminant degradation using degradation constants. Features within the model designed to account for processes specific to natural attenuation of organic constituents were not applicable. The use of BioScreen-AT was limited for this site-specific application to model only advection, dispersion, and adsorption onto porous media since lead is not known to degrade at notable rates.

The results of the BioScreen-AT modeling remained favorable, indicating that under a theoretical worst-case scenario lead would meet compliance standards within approximately 220 feet to 380 feet downgradient of the property boundary (425 feet to 590 feet from "source" monitoring well MW-18) based on 45 year and 100 year plume durations, respectively. For the MW-15 second source scenario, the lead concentration (for the modeled travel time of 100 additional years) would not exceed the GWPS of 0.015 mg/l between approximately 450 to 620 feet from MW-15, or approximately 270 to 320 feet beyond the eastern boundary along the prevalent groundwater flow direction. However, the actual downgradient extent of the dissolved lead plume would likely be much less since its mobility is diminished as pH level becomes more neutral. This decreased mobility with increased pH is not able to be simulated by BioScreen-AT. Also, the BioScreen-AT model assumes a constant source, which does not apply to the Swift site as operations have ceased and there is no known residual source. The Georgia VRP permits a Point of Compliance up to 1,000 feet from a contaminant source provided there is no exposure risk. The full BioScreen-AT modeling discussion, site data, results and aerial depiction of the modeled potential offsite plume limit are provided in Appendix C.

3.6 RESPONSE TO COMMENTS – EPD LETTER (SEPT. 26, 2016)

Following are the EPD comments in bold, followed by ConAgra's responses:

1) *EPD does not necessarily agree that Shallow Zone B has consistently displayed a flow pattern that converges from north and south, transitioning to an eastward flow. Groundwater elevations along the eastern boundary of the Tumlin property have historically been relatively high compared to groundwater elevations within the property interior. EPD agrees that potentiometric data from two proposed delineations wells, east of MW-9 and MW-15, may help clarify direction of groundwater flow.*

Response to No. 1 - Potentiometric surface maps for Shallow Zone B over the past several years have indicated a general lower groundwater elevation near MW-3 and MW-9 relative to other Shallow Zone B monitoring wells resulting in a lower potentiometric contour in the east central portion of the site near the property line. It is acknowledged that there is some variation noted over time. Additionally, some hydraulic interconnectivity between Shallow Zone A (perched zone) and Shallow Zone B may lead to some inconsistencies dependent upon rainfall and infiltration/recharge factors. Amec Foster Wheeler agrees that the data obtained from Shallow Zone B wells recently installed east of MW9 and MW-15 will serve to clarify the direction of groundwater flow. These data will be incorporated into the next Status Report.

2) The groundwater sampling logs in Report I contain inconsistencies regarding pump-intake placement. If a traditional multi-volume purge is conducted, the pump intake should be initially placed near the top of the water column. The pump intake should be lowered as the water column is drawn down, but should maintain a consistent depth with respect to the top of the water column. A relatively rapid pumping rate may be utilized, but the pumping rate should be reduced if the water column does not stabilize. A rapid pumping rate may also create problems with excess turbidity. If the low-flow purge method is utilized (also known as micro-purging or the tubing-in-screened-interval method), the pump intake should be placed at the approximate midpoint of the well screen, and water-column drawdown should be kept to a minimum (preferably less than 0.1 meter). The pumping rate should be kept relatively slow, usually less than 0.5 liter per minute, to ensure that groundwater is being drawn through the well screen instead of from the top of the water column. The pumping rate and amount of drawdown should be recorded on the groundwater sampling field log at regular intervals. Refer to U.S. EPA Region 4 Science and Ecosystem Support Di vision (SESD), "Operating Procedure SESDPROC-301-R3."

Response to No. 2 – Amec Foster Wheeler's standard field procedures strive to follow the SESD guidance as summarized in the comment above. For the September 2016 sampling event, for all wells except MW-27DDDD, either a three well volume method of purging or a low-flow method of purging was used, dependent of the rate of well recharge encountered. The tubing intake was initially placed at the approximate midpoint of the well screen, and the wells pumped at a relatively slow pumping rate (less than 500 milliliters per minute [mL/min]). If the water level stabilized, a low-flow purge was conducted until the pH, temperature, and specific conductance (SC) readings stabilized, and the sample was collected. If the water level could not be stabilized by adjusting the pumping rate, the intake was placed near the top of the well column and a minimum of three well volumes were purged from the well prior to sample collection. At MW-27DDDD, the three well volume purge method was used from the onset of purging so as to confirm the removal of any stagnant water column that might have been present in that deep well. The attached field sampling forms (Appendix A) present the purge methods used at each well during the September 2016 sampling event.

4.0 CONCLUSIONS AND RECOMMENDATIONS

In March 2012, a total of five well locations (MW-7, MW-9, MW-13D, MW-16, and MW-18) exceeded the lead Type 1 RRS, while in September 2016, seven well locations exceeded the lead Type 1 RRS (MW-1, MW-6, MW-9, MW-13D, MW-15, MW-16 and MW-18). While the lead concentration in MW-1 in September 2016 exceeded the Type 1 RRS, this exceedance was in a total metals sample with elevated turbidity, and lead was not detected in the dissolved metals samples collected in MW-1.

The September 2016 sampling detected arsenic only in MW-15, which is well below the Type 1 RRS of 0.01 mg/L. The arsenic detection in MW-15 was in a total metals sample with elevated turbidity, and arsenic was not detected in the dissolved metals sample collected from MW-15. The only previous arsenic exceedances of the Type 1 RRS were isolated occurences; once at MW-6 (total arsenic only at 0.0159 mg/L in September 2015), once at MW-12 (0.0126 mg/L in September 2013), once at MW-13D (total arsenic only at 0.0264 mg/L in September 2015), once at MW-18 (0.07 mg/L in September 2015) and once at MW-28 (0.017 mg/L in November 2004). Arsenic had never before been reported in six of these wells (MW-1, MW-6, MW-7, MW-9, MW-15 and MW-18), and had been reported only once before at MW-13D.

As mentioned previously, for the reasons given above: (1) only two previous arsenic Type 1 RRS exceedances; (2) reports of arsenic in multiple wells in which it had never before been reported; (3) an arsenic detection in a parent sample but not the associated duplicate sample; and (4) arsenic only being detected in a single well in September 2016, the September 2015 arsenic detections are considered anomalous and not reflective of actual site conditions.

Barium meets the Type 4 RRS of 20 mg/L at all sampling locations, and also meets the Type 1 RRS of 2 mg/L at all locations except MW-27DDDD. The barium value at MW-27DDDD increased from 4.95 mg/L in 2015 to 7.22 mg/L (the highest value observed to date). The MW-6 concentration of 0.181 mg/L in September 2016 is a substantial decrease from the barium value of 10.3 mg/L reported in September 2014, which is now believed to have been anomalous. This anomalous value is possibly due to the redevelopment performed the day prior to MW-6 being sampled in September 2014, as discussed in the ACAER.

Annual groundwater sampling will continue (unless an alternative frequency is subsequently approved by EPD) until the data demonstrate that human health and the environment are adequately protected and EPD concurs. If the data demonstrates that a reduced frequency is warranted, modifications will be proposed in subsequent status reports.

5.0 NEXT SUBMITTAL

As required by EPD's letter dated May 29, 2015, semiannual progress reports are to submitted to EPD November 29th and May 29th annually, beginning November 2015 and ending in 2020, unless a CSR is submitted and approved prior to 2020. A report for the fourth semiannual period is expected to be submitted by May 29th, 2017, and is planned to include the following activities:

- Results from surveying and sampling of the two new offsite wells (MW-28R and MW-32) to include an updated potentiometric surface map for Shallow Zone B and updated COC distribution map.
- Updated biscreen based on results of two new offsite wells (MW-28R and MW-32), if necessary.
- Update on status of Uniform Environmental Covenants.
- Any additional activity, if required, related to pending resolution to EPD comments received prior to submittal of Status Report No. 4.

TABLES

Table 1: Summary of Groundwater Elevations

Well Number	Date Measured	Top of Casing Elevation (ft, NAVD)	Depth of Screened Interval (ft btoc)	Groundwater Elevation (ft, NAVD)
MW-1	8/30/01	308.00	2.59-17.59	295.09
	12/18/01	308.00	2.59-17.59	294.18
	1/30/03	308.00	2.59-17.59	297.77
	2/14/03	308.00	2.59-17.59	296.42
	4/8/03	308.00	2.59-17.59	298.56
	6/9/04	308.00	2.59-17.59	297.45
	11/5/04	308.00	2.59-17.59	298.54
	1/25/2005[1]	306.50	1.09-16.09	299.62
	2/15/05	306.50	1.09-16.09	300.04
	5/15/2007[2]	306.06	0.65-15.66	295.71
	7/16/2008[2]	306.06	0.65-15.66	294.20
	10/19/09	306.06	0.65-15.66	295.59
	3/28/12	306.06	0.65-15.66	301.68
	9/26/12	306.06	0.65-15.66	302.69
	3/26/13	306.06	0.65-15.67	304.38
	9/9/13	306.06	0.65-15.67	303.08
	9/22/14	306.06	0.65-15.67	296.28
	9/21/15	306.06	0.65-15.68	295.56
	9/27/16	306.06	0.65-15.68	304.00
MW-2	8/30/01	309.38	2.35-17.35	297.23
	12/18/01	309.38	2.35-17.35	294.22
	1/30/03	309.38	2.35-17.35	297.63
	2/14/03	309.38	2.35-17.35	297.78
	4/8/03	309.38	2.35-17.35	298.42
	6/9/04	309.38	2.35-17.35	296.61
	11/5/04	309.38	2.35-17.35	297.92
	1/25/2005[1]	307.96	0.93-15.93	299.06
	2/15/05	307.96	0.93-15.93	299.40
	5/16/2007[2]	307.48	0.45-15.45	Dry
	7/16/2008[2]	307.48	0.45-15.45	Dry
	10/19/09	307.48	0.45-15.45	307.27
	3/28/12	307.48	0.45-15.45	Dry
	9/26/12	307.48	0.45-15.45	302.62
	3/26/13	307.48	0.45-15.46	306.17
	9/9/13	307.48	0.45-15.46	304.36
	9/22/14	307.48	0.45-15.46	Dry
	9/21/15	307.48	0.45-15.47	Dry
	9/27/16	307.48	0.45-15.47	Dry
MW-3	8/30/01	306.91	2.07-21.67	296.69
	12/18/01	306.91	2.07-21.67	293.89
	1/30/03	306.91	2.07-21.67	297.38
	2/14/03	306.91	2.07-21.67	297.56
	4/8/03	306.91	2.07-21.67	298.15
	6/9/04	306.91	2.07-21.67	296.42
	11/5/04	306.91	2.07-21.67	297.16
	1/25/2005[1]	306.79	1.95-21.55	297.87
	2/15/05	306.79	1.95-21.55	298.27
	5/15/2007[2]	306.32	1.48-21.08	294.47

Table 1: Summary of Groundwater Elevations

Well Number	Date Measured	Top of Casing Elevation (ft, NAVD)	Depth of Screened Interval (ft btoc)	Groundwater Elevation (ft, NAVD)
	7/16/2008[2]	306.32	1.48-21.08	293.40
	10/19/09	306.32	1.48-21.08	NM
	3/28/12	306.32	1.48-21.08	295.88
	9/26/12	306.32	1.48-21.08	296.43
	3/26/13	306.32	1.48-21.09	298.01
	9/9/13	306.32	1.48-21.09	297.91
	9/22/14	306.32	1.48-21.09	295.97
	9/21/15	306.32	1.48-21.10	293.00
	9/27/16	306.32	1.48-21.10	295.50
MW-4	8/30/01	309.73	3.39-13.39	307.74
	12/18/01	309.73	3.39-13.39	305.45
	1/30/03	309.73	3.39-13.39	307.34
	2/14/03	309.73	3.39-13.39	308.28
	4/8/03	309.73	3.39-13.39	308.11
	6/9/04	309.73	3.39-13.39	306.66
	11/5/04	309.73	3.39-13.39	306.91
	1/25/05	309.73	3.39-13.39	308.28
	2/15/05	309.73	3.39-13.39	309.54
	5/15/2007[2]	309.39	3.05-13.05	NL
	7/16/2008[2]	309.39	3.05-13.05	NL
	10/19/09	309.39	3.05-13.05	308.23
	3/28/12	309.39	3.05-13.05	306.97
	9/26/12	309.39	3.05-13.05	308.04
	3/26/13	309.39	3.05-13.06	308.65
	9/9/13	309.39	3.05-13.06	308.05
	9/22/14	309.39	3.05-13.06	307.92
	9/21/15	309.39	3.05-13.07	305.38
	9/27/16	309.39	3.05-13.07	308.38
MW-5	8/30/01	307.83	1.55-11.55	306.13
	12/18/01	307.83	1.55-11.55	301.38
	1/30/03	307.83	1.55-11.55	304.17
	2/14/03	307.83	1.55-11.55	304.60
	4/8/03	307.83	1.55-11.55	305.40
	6/9/04	307.83	1.55-11.55	304.87
	11/5/04	307.83	1.55-11.55	304.34
	1/25/05	307.83	1.55-11.55	305.01
	2/15/05	307.83	1.55-11.55	305.52
	5/15/07	307.83	1.55-11.55	NL
	7/16/08	307.83	1.55-11.55	NL
	10/19/09	307.83	1.55-11.55	NL
	3/28/12	307.83	1.55-11.55	NL
	9/26/12	307.83	1.55-11.55	NL
	3/26/13	307.83	1.55-11.56	NL
	9/9/13	307.83	1.55-11.56	NL
	9/22/14	307.83	1.55-11.56	NL
	9/21/15	307.83	1.55-11.57	NL
	8/30/01	307.98	2.12-12.12	299.97
	12/18/01	307.98	2.12-12.12	299.29

Table 1: Summary of Groundwater Elevations

Well Number	Date Measured	Top of Casing Elevation (ft, NAVD)	Depth of Screened Interval (ft btoc)	Groundwater Elevation (ft, NAVD)
MW-6	1/30/03	307.98	2.12-12.12	Covered with fill dirt
	2/14/03	307.98	2.12-12.12	305.58
	4/8/03	307.98	2.12-12.12	305.74
	6/9/04	307.98	2.12-12.12	304.46
	11/5/04	307.98	2.12-12.12	304.32
	1/25/2005[1]	309.96	4.10-14.10	304.51
	2/15/05	309.96	4.10-14.10	304.20
	5/15/2007[2]	309.55	3.69-13.69	302.20
	7/16/2008[2]	309.55	3.69-13.69	281.60
	10/19/09	309.55	3.69-13.69	305.80
	3/28/12	309.55	3.69-13.69	303.74
	9/26/12	309.55	3.69-13.69	303.49
	3/26/13	309.55	3.69-13.70	306.30
	9/9/13	309.55	3.69-13.70	306.27
	9/22/14	309.55	3.69-13.70	301.65
	9/21/15	309.55	3.69-13.71	301.70
	9/27/16	309.55	3.69-13.71	304.34
MW-7	12/18/01	308.17	5.49-25.49	294.30
	1/30/03	308.17	5.49-25.49	Covered with fill dirt
	2/14/03	308.17	5.49-25.49	298.18
	4/8/03	308.17	5.49-25.49	298.78
	6/9/04	308.17	5.49-25.49	297.16
	11/5/04	308.17	5.49-25.49	298.60
	1/25/2005[1]	309.63	6.95-26.95	298.41
	2/15/05	309.63	6.95-26.95	298.53
	5/16/2007[2]	309.21	6.53-26.53	294.89
	7/16/2008[2]	309.21	6.53-26.53	NM
	10/19/09	309.21	6.53-26.53	294.40
	3/28/12	309.21	6.53-26.53	296.48
	9/26/12	309.21	6.53-26.53	297.23
	3/26/13	309.21	6.53-26.54	299.65
	9/9/13	309.21	6.53-26.54	298.53
	9/22/14	309.21	6.53-26.54	295.45
	9/21/15	309.21	6.53-26.55	293.36
	9/27/16	309.21	6.53-26.55	296.19
MW-8	8/30/01	308.61	2.20-12.20	297.60
	12/18/01	308.61	2.20-12.20	297.51
	1/30/03	308.61	2.20-12.20	302.32
	2/14/03	308.61	2.20-12.20	303.95
	4/8/03	308.61	2.20-12.20	304.64
	6/9/04	308.61	2.20-12.20	301.94
	11/5/04	308.61	2.20-12.20	300.93
	1/25/2005[1]	308.43	2.02-12.02	304.71
	2/15/05	308.43	2.02-12.02	304.29
	5/15/2007[2]	308.03	1.62-11.62	301.47

Table 1: Summary of Groundwater Elevations

Well Number	Date Measured	Top of Casing Elevation (ft, NAVD)	Depth of Screened Interval (ft btoc)	Groundwater Elevation (ft, NAVD)
	7/16/2008[2]	308.03	1.62-11.62	301.60
	10/19/09	308.03	1.62-11.62	306.62
	3/28/12	308.03	1.62-11.62	303.87
	9/26/12	308.03	1.62-11.62	305.59
	3/26/13	308.03	1.62-11.63	307.17
	9/9/13	308.03	1.62-11.63	305.62
	9/22/14	308.03	1.62-11.63	305.85
	9/21/15	308.03	1.62-11.64	301.02
	9/27/16	308.03	1.62-11.64	307.37
MW-9	8/30/01	307.12	2.43-22.43	296.20
	12/18/01	307.12	2.43-22.43	293.50
	1/30/03	307.12	2.43-22.43	297.15
	2/14/03	307.12	2.43-22.43	297.32
	4/8/03	307.12	2.43-22.43	297.85
	6/9/04	307.12	2.43-22.43	Covered with fill dirt
	11/5/04	307.12	2.43-22.43	296.81
	1/25/2005[1]	307.57	2.88-22.88	297.52
	2/15/05	307.57	2.88-22.88	297.65
	5/15/2007[2]	307.12	2.43-22.43	294.06
	7/16/2008[2]	307.12	2.43-22.43	292.97
	10/19/09	307.12	2.43-22.43	293.66
	3/28/12	307.12	2.43-22.43	295.47
	9/26/12	307.12	2.43-22.43	295.98
	3/26/13	307.12	2.43-22.44	297.63
	9/9/13	307.12	2.43-22.44	297.61
	9/22/14	307.12	2.43-22.44	294.61
	9/21/15	307.12	2.43-22.45	292.69
	9/27/16	307.12	2.43-22.45	294.98
MW-10	8/30/01	308.20	1.65-11.65	304.95
	12/18/01	308.20	1.65-11.65	302.62
	1/30/03	308.20	1.65-11.65	Covered with fill dirt
	2/14/03	308.20	1.65-11.65	305.70
	4/8/03	308.20	1.65-11.65	306.31
	6/9/04	308.20	1.65-11.65	305.33
	11/5/04	308.20	1.65-11.65	304.90
	1/25/2005[1]	309.29	2.74-12.74	305.39
	2/15/05	309.29	2.74-12.74	305.14
	5/15/2007[2]	308.94	2.39-12.39	303.12
	7/16/2008[2]	308.94	2.39-12.39	303.51
	10/19/09	308.94	2.39-12.39	305.20
	3/28/12	308.94	2.39-12.39	NL
	9/26/12	308.94	2.39-12.39	NL
	3/26/13	308.94	2.39-12.40	NL
	9/9/13	308.94	2.39-12.40	NL
	9/22/14	308.94	2.39-12.40	NL
	9/21/15	308.94	2.39-12.41	NL

Table 1: Summary of Groundwater Elevations

Well Number	Date Measured	Top of Casing Elevation (ft, NAVD)	Depth of Screened Interval (ft btoc)	Groundwater Elevation (ft, NAVD)
	9/27/16	308.94	2.39-12.41	NL
MW-11	8/30/01	308.92	1.84-11.84	298.12
	12/18/01	308.92	1.84-11.84	303.19
	1/30/03	308.92	1.84-11.84	306.03
	2/14/03	308.92	1.84-11.84	306.14
	4/8/03	308.92	1.84-11.84	305.76
	6/9/04	308.92	1.84-11.84	303.36
	11/5/04	308.92	1.84-11.84	303.93
	1/25/05	308.92	1.84-11.84	304.77
	2/15/05	308.92	1.84-11.84	304.96
	5/15/2007[2]	308.47	1.39-11.39	302.30
	7/16/2008[2]	308.47	1.39-11.39	304.87
	10/19/09	308.47	1.39-11.39	306.42
	3/28/12	308.47	1.39-11.39	NL
	9/26/12	308.47	1.39-11.39	NL
	3/26/13	308.47	1.39-11.40	NL
	9/9/13	308.47	1.39-11.40	NL
	9/22/14	308.47	1.39-11.40	NL
	9/21/15	308.47	1.39-11.41	NL
	9/27/16	308.47	1.39-11.41	NL
MW-12	8/30/01	311.10	1.76-11.76	306.47
	12/18/01	311.10	1.76-11.76	305.37
	1/30/03	311.10	1.76-11.76	303.30
	2/14/03	311.10	1.76-11.76	306.47
	4/8/03	311.10	1.76-11.76	307.15
	6/9/04	311.10	1.76-11.76	304.98
	11/5/04	311.10	1.76-11.76	304.75
	1/25/05	311.10	1.76-11.76	306.75
	2/15/05	311.10	1.76-11.76	306.70
	5/15/2007[2]	310.77	1.43-11.43	304.17
	7/16/2008[2]	310.77	1.43-11.43	304.30
	10/19/09	310.77	1.43-11.43	307.22
	3/28/12	310.77	1.43-11.43	306.24
	9/26/12	310.77	1.43-11.43	307.29
	3/26/13	310.77	1.43-11.44	308.67
	9/9/13	310.77	1.43-11.44	307.95
	9/22/14	310.77	1.43-11.44	305.83
	9/21/15	310.77	1.43-11.45	304.39
	9/27/16	310.77	1.43-11.45	305.97
	8/30/01	308.78	19.58-24.58	296.43
	12/18/01	308.78	19.58-24.58	293.55
	1/30/03	308.78	19.58-24.58	297.28
	2/14/03	308.78	19.58-24.58	297.44
	4/8/03	308.78	19.58-24.58	296.98
	6/9/04	308.78	19.58-24.58	296.20
	11/5/04	308.78	19.58-24.58	296.97
	1/25/2005[1]	308.58	19.38-24.38	297.66
	2/15/05	308.58	19.38-24.38	297.73

Table 1: Summary of Groundwater Elevations

Well Number	Date Measured	Top of Casing Elevation (ft, NAVD)	Depth of Screened Interval (ft btoc)	Groundwater Elevation (ft, NAVD)
MW-13D	5/15/2007[2]	308.15	18.95-23.95	294.16
	7/16/2008[2]	308.15	18.95-23.95	292.99
	10/19/09	308.15	18.95-23.95	293.64
	3/28/12	308.15	18.95-23.95	295.48
	9/26/12	308.15	18.95-23.95	296.03
	3/26/13	308.15	18.95-23.96	297.69
	9/9/13	308.15	18.95-23.96	297.71
	9/22/14	308.15	18.95-23.96	294.63
	9/21/15	308.15	18.95-23.97	292.70
	9/27/16	308.15	18.95-23.97	295.00
MW-14	8/30/01	306.92	1.19-6.19	DRY
	12/18/01	306.92	1.19-6.19	DRY
	1/30/03	306.92	1.19-6.19	303.94
	2/14/03	306.92	1.19-6.19	304.72
	4/8/03	306.92	1.19-6.19	304.25
	6/9/04	306.92	1.19-6.19	303.72
	11/5/04	306.92	1.19-6.19	303.68
	1/25/2005[1]	306.81	1.08-6.08	304.01
	2/15/05	306.81	1.08-6.08	304.50
	5/15/2007[2]	306.45	0.72-5.72	302.33
	7/16/2008[2]	306.45	0.72-5.72	302.80
	10/19/09	306.45	0.72-5.72	NM
	3/28/12	306.45	0.72-5.72	303.59
	9/26/12	306.45	0.72-5.72	303.79
	3/26/13	306.45	0.72-5.73	304.52
	9/9/13	306.45	0.72-5.73	303.91
	9/22/14	306.45	0.72-5.73	304.06
	9/21/15	306.45	0.72-5.74	302.75
	9//27/16	306.45	0.72-5.74	304.54
MW-15	1/30/03	305.82	5.18-15.18	290.88
	2/14/03	305.82	5.18-15.18	292.05
	4/8/03	305.82	5.18-15.18	296.29
	6/9/04	305.82	5.18-15.18	299.24
	11/5/04	305.82	5.18-15.18	300.07
	1/25/2005[1]	305.88	5.24-15.24	300.63
	2/15/05	305.88	5.24-15.24	301.09
	5/16/2007[2]	305.48	4.84-14.84	297.87
	7/16/2008[2]	305.48	4.84-14.84	297.46
	10/19/09	305.48	4.84-14.84	299.82
	3/28/12	305.48	4.84-14.84	300.56
	9/26/12	305.48	4.84-14.84	300.86
	3/26/13	305.48	4.84-14.85	301.46
	9/9/13	305.48	4.84-14.85	301.34
	9/22/14	305.48	4.84-14.85	300.51
	9/21/15	305.48	4.84-14.86	297.48
	9/27/16	305.48	4.84-14.86	300.61
	1/30/03	309.95	5.40-20.40	NM
	2/14/03	309.95	5.40-20.40	298.04

Table 1: Summary of Groundwater Elevations

Well Number	Date Measured	Top of Casing Elevation (ft, NAVD)	Depth of Screened Interval (ft btoc)	Groundwater Elevation (ft, NAVD)
MW-16	4/8/03	309.95	5.40-20.40	298.64
	6/9/04	309.95	5.40-20.40	296.96
	11/5/04	309.95	5.40-20.40	297.76
	1/25/2005[1]	310.00	5.45-20.45	298.31
	2/15/05	310.00	5.45-20.45	298.47
	5/16/2007[2]	309.55	5.00-20.00	295.00
	7/16/2008[2]	309.55	5.00-20.00	293.88
	10/19/09	309.55	5.00-20.00	295.06
	3/28/12	309.55	5.00-20.00	296.57
	9/26/12	309.55	5.00-20.00	297.17
	3/26/13	309.55	5.00-20.01	298.77
	9/9/13	309.55	5.00-20.01	298.59
	9/22/14	309.55	5.00-20.01	295.38
	9/21/15	307.57	5.00-20.02	293.42
	9/27/16	307.57	5.00-20.02	296.19
MW-17	1/30/03	307.53	4.90-14.90	304.83
	2/14/03	307.53	4.90-14.90	305.26
	4/8/03	307.53	4.90-14.90	305.11
	6/9/04	307.53	4.90-14.90	303.43
	11/5/04	307.53	4.90-14.90	303.71
	1/25/05	307.53	4.90-14.90	Covered with fill dirt
	2/15/05	307.53	4.90-14.90	304.15
	5/16/07	307.53	4.90-14.90	NL
	7/16/08	307.53	4.90-14.90	NL
	10/19/09	307.53	4.90-14.90	Destroyed
	3/28/12	307.53	4.90-14.90	Destroyed
	9/26/12	307.53	4.90-14.90	Destroyed
	3/26/13	307.53	4.90-14.91	Destroyed
	9/9/13	307.53	4.90-14.91	Destroyed
	9/22/14	307.53	4.90-14.91	Destroyed
	9/21/15	307.53	4.90-14.92	Destroyed
	9/27/16	307.53	4.90-14.92	Destroyed
MW-18	1/30/03	307.43	5.38-20.38	298.93
	2/14/03	307.43	5.38-20.38	298.2
	4/8/03	307.43	5.38-20.38	298.69
	6/9/04	307.43	5.38-20.38	297.3
	11/5/04	307.43	5.38-20.38	298.57
	1/25/2005[1]	308.12	6.07-21.07	298.99
	2/15/05	308.12	6.07-21.07	298.96
	5/15/2007[2]	307.69	5.64-20.64	294.6045
	7/16/2008[2]	307.69	5.64-20.64	293.23
	10/19/09	307.69	5.64-20.64	294.32
	3/28/12	307.69	5.64-20.64	296.58
	9/26/12	307.69	5.64-20.64	297.56
	3/26/13	307.69	5.64-20.65	301.57
	9/9/13	307.69	5.64-20.65	299.23
	9/22/14	307.69	5.64-20.65	295.28

Table 1: Summary of Groundwater Elevations

Well Number	Date Measured	Top of Casing Elevation (ft, NAVD)	Depth of Screened Interval (ft btoc)	Groundwater Elevation (ft, NAVD)
	9/21/15	309.03	5.64-20.66	293.12
	9/27/16	309.03	5.64-20.66	298.12
MW-19	1/30/03	308.66	5.42-15.42	303.56
	2/14/03	308.66	5.42-15.42	302.72
	4/8/03	308.66	5.42-15.42	302.58
	6/9/04	308.66	5.42-15.42	301.35
	11/5/04	308.66	5.42-15.42	301.99
	1/25/2005[1]	308.89	5.65-15.65	300.29
	2/15/05	308.89	5.65-15.65	303.46
	5/16/2007[2]	308.47	5.23-15.23	299.794
	7/16/2008[2]	308.47	5.23-15.23	298.69
	10/19/09	308.47	5.23-15.23	302.51
	3/28/12	308.47	5.23-15.23	301.97
	9/26/12	308.47	5.23-15.23	302.12
	3/26/13	308.47	5.23-15.24	303.64
	9/9/13	308.47	5.23-15.24	302.34
	9/22/14	308.47	5.23-15.24	297.76
	9/21/15	308.47	5.23-15.25	297.69
	9/27/16	308.47	5.23-15.25	NM
MW-20	1/30/03	305.63	5.21-15.21	297.43
	2/14/03	305.63	5.21-15.21	297.94
	4/8/03	305.63	5.21-15.21	298.65
	6/9/04	305.63	5.21-15.21	296.91
	11/5/04	305.63	5.21-15.21	297.54
	1/25/2005[1]	305.67	5.25-15.25	298.17
	2/15/05	305.67	5.25-15.25	298.21
	5/15/2007[2]	305.30	4.88-14.88	295.0002
	7/16/2008[2]	305.30	4.88-14.88	298.73
	10/19/09	305.30	4.88-14.88	302.73
	3/28/12	305.30	4.88-14.88	300.42
	9/26/12	305.30	4.88-14.88	302.62
	3/26/13	305.30	4.88-14.89	303.49
	9/9/13	305.30	4.88-14.89	301.39
	9/22/14	305.30	4.88-14.89	301.58
	9/21/15	305.30	4.88-14.90	296.31
	9/27/16	305.30	4.88-14.90	302.84
MW-21	1/30/03	306.12	5.18-15.18	296.52
	2/14/03	306.12	5.18-15.18	299.22
	4/8/03	306.12	5.18-15.18	299.40
	6/9/04	306.12	5.18-15.18	298.21
	11/5/04	306.12	5.18-15.18	297.99
	1/25/2005[1]	306.16	5.22-15.22	298.50
	2/15/05	306.16	5.22-15.22	298.63
	5/15/2007[2]	305.82	4.88-14.88	296.74
	7/16/2008[2]	305.82	4.88-14.88	296.70
	10/19/09	305.82	4.88-14.88	304.07
	3/28/12	305.82	4.88-14.88	301.52
	9/26/12	305.82	4.88-14.88	302.97

Table 1: Summary of Groundwater Elevations

Well Number	Date Measured	Top of Casing Elevation (ft, NAVD)	Depth of Screened Interval (ft btoc)	Groundwater Elevation (ft, NAVD)
	3/26/13	305.82	4.88-14.89	305.36
	9/9/13	305.82	4.88-14.89	304.43
	9/22/14	305.82	4.88-14.89	300.61
	9/21/15	305.82	4.88-14.90	299.84
	9/27/16	305.82	4.88-14.90	305.54
MW-22DD	1/30/03	308.72	40.34-45.34	292.11
	2/14/03	308.72	40.34-45.34	292.21
	4/8/03	308.72	40.34-45.34	292.61
	6/9/04	308.72	40.34-45.34	290.82
	11/5/04	308.72	40.34-45.34	291.59
	1/25/2005[1]	308.55	40.17-45.17	292.44
	2/15/05	308.55	40.17-45.17	292.60
	5/15/2007[2]	308.06	39.68-44.68	289.2084
	7/16/2008[2]	308.06	39.68-44.68	288.49
	10/19/09	308.06	39.68-44.68	288.84
	3/28/12	308.06	39.68-44.68	290.30
	9/26/12	308.06	39.68-44.68	290.56
	3/26/13	308.06	39.68-44.69	292.20
	9/9/13	308.06	39.68-44.69	292.12
	9/22/14	308.06	39.68-44.69	289.60
	9/21/15	308.06	39.68-44.70	288.11
	9/27/16	308.06	39.68-44.70	289.85
MW-23	4/8/03	306.78	5.41-20.41	299.03
	6/9/04	306.78	5.41-20.41	297.71
	11/5/04	306.78	5.41-20.41	298.55
	1/25/2005[1]	306.83	5.46-20.46	298.93
	2/15/05	306.83	5.46-20.46	298.79
	5/16/2007[2]	306.42	5.05-20.05	294.8207
	7/16/2008[2]	306.42	5.05-20.05	293.24
	10/19/09	306.42	5.05-20.05	293.87
	3/28/12	306.42	5.05-20.05	296.80
	9/26/12	306.42	5.05-20.05	297.42
	3/26/13	306.42	5.05-20.06	299.28
	9/9/13	306.42	5.05-20.06	298.91
	9/22/14	306.42	5.05-20.06	NL
	9/21/15	306.42	5.05-20.07	NL
	9/27/16	306.42	5.05-20.07	NL
MW-24	4/8/03	309.81	5.43-20.43	299.24
	6/9/04	309.81	5.43-20.43	297.5
	11/5/04	309.81	5.43-20.43	298.35
	1/25/2005[1]	309.85	5.47-20.47	298.75
	2/15/05	309.85	5.47-20.47	299.08
	5/16/2007[2]	309.42	5.04-20.04	295.4728
	7/16/2008[2]	309.42	5.04-20.04	294.23
	10/19/09	309.42	5.04-20.04	295.86
	3/28/12	309.42	5.04-20.04	297.27
	9/26/12	309.42	5.04-20.04	297.93
	3/26/13	309.42	5.04-20.05	300.20

Table 1: Summary of Groundwater Elevations

Well Number	Date Measured	Top of Casing Elevation (ft, NAVD)	Depth of Screened Interval (ft btoc)	Groundwater Elevation (ft, NAVD)
	9/9/13	309.42	5.04-20.05	299.59
	9/22/14	309.42	5.04-20.05	NL
	9/21/15	309.42	5.04-20.06	NL
	9/27/16	309.42	5.04-20.06	NL
MW-25	4/8/03	311.02	5.30-20.30	299.19
	6/9/04	311.02	5.30-20.30	297.41
	11/5/04	311.02	5.30-20.30	298.24
	1/25/2005[2]	311.06	5.34-20.34	298.81
	1/25/2005[1]	311.06	5.34-20.34	299.01
	5/15/2007[2]	310.76	5.04-20.04	295.5463
	7/16/2008[2]	310.76	5.04-20.04	294.31
	10/19/09	310.76	5.04-20.04	295.81
	3/28/12	310.76	5.04-20.04	297.32
	9/26/12	310.76	5.04-20.04	297.94
	3/26/13	310.76	5.04-20.05	300.22
	9/10/13	310.76	5.04-20.05	299.48
	9/22/14	310.76	5.04-20.05	NL
	9/21/15	310.76	5.04-20.06	NL
	9/27/16	310.76	5.04-20.06	NL
MW-26DDD	4/8/03	308.35	55.43-60.43	288.36
	6/9/04	308.35	55.43-60.43	286.78
	11/5/04	308.35	55.43-60.43	287.48
	1/25/2005[1]	308.57	55.65-60.65	288.21
	2/15/05	308.57	55.65-60.65	288.42
	5/15/2007[2]	308.14	55.22-60.22	285.63
	7/16/2008[2]	308.14	55.22-60.22	284.57
	10/19/09	308.14	55.22-60.22	285.25
	3/28/12	308.14	55.22-60.22	286.27
	9/26/12	308.14	55.22-60.22	286.08
	3/26/13	308.14	55.22-60.23	287.49
	9/9/13	308.14	55.22-60.23	286.86
	9/22/14	308.14	55.22-60.23	285.21
	9/21/15	308.14	55.22-60.24	284.73
	9/27/16	308.14	55.22-60.24	285.38
MW-27DDDD	11/5/04	308.35	71.23-91.19	283.88
	1/25/2005[1]	309.32	72.20-92.16	284.77
	2/15/05	309.32	72.20-92.16	284.84
	5/15/2007[2]	308.85	71.73-91.69	285.35
	7/16/2008[2]	308.85	71.73-91.69	290.14
	10/19/09	308.85	71.73-91.69	280.96
	3/28/12	308.85	71.73-91.69	281.53
	9/26/12	308.85	71.73-91.69	283.13
	3/26/13	308.85	71.73-91.70	284.72
	9/11/13	308.85	71.73-91.70	284.79
	9/22/14	308.85	71.73-91.70	282.33
	9/21/15	308.85	71.73-91.71	281.16
	9/27/16	308.85	71.73-91.71	282.34
	11/5/04	305.83	9.30-24.30	290.21

Table 1: Summary of Groundwater Elevations

Well Number	Date Measured	Top of Casing Elevation (ft, NAVD)	Depth of Screened Interval (ft btoc)	Groundwater Elevation (ft, NAVD)
MW-28	1/25/05	305.83	9.30-24.30	291.08
	2/15/05	305.83	9.30-24.30	291.01
	5/15/07	305.83	9.30-24.30	288.38
	7/16/08	305.83	9.30-24.30	NL
	10/19/09	305.83	9.30-24.30	NL
	3/28/12	305.83	9.30-24.30	NL
	9/26/12	305.83	9.30-24.30	NL
	3/26/13	305.83	9.30-24.30	NL
	9/9/13	305.83	9.30-24.30	NL
	9/22/14	305.83	9.30-24.30	NL
	9/21/15	305.83	9.30-24.30	NL
	9/27/16	305.83	9.30-24.30	NL
MW-A	12/18/01	307.07	15.54-19.54	294.47
	4/8/03	307.07	15.54-19.54	299.46
	6/9/04	307.07	15.54-19.54	298.43
	11/5/04	307.07	15.54-19.54	299.28
	1/25/2005[1]	307.07	15.54-19.54	299.36
	2/15/05	307.07	15.54-19.54	299.26
	5/15/2007[2]	306.73	15.20-19.20	295.27
	7/16/2008[2]	306.73	15.20-19.20	NM
	10/19/09	306.73	15.20-19.20	294.50
	3/28/12	306.73	15.20-19.20	297.33
	9/26/12	306.73	15.20-19.20	298.36
	3/26/13	306.73	15.20-19.20	300.20
	9/9/13	306.73	15.20-19.20	299.01
	9/22/14	306.73	15.20-19.20	NL
	9/21/15	306.73	15.20-19.20	NL
	9/27/16	306.73	15.20-19.20	NL
MW-29	7/17/08	310.49	14.00-24.00	294.54
	10/19/09	310.49	14.00-24.00	296.54
	3/28/12	310.49	14.00-24.00	298.41
	9/26/12	310.49	14.00-24.00	298.46
	3/26/13	310.49	14.00-24.00	297.71
	9/9/13	310.49	14.00-24.00	298.57
	9/22/14	310.49	14.00-24.00	296.02
	9/21/15	306.85	14.00-24.00	294.26
	9/27/16	306.85	14.00-24.00	298.11
MW-30	7/17/08	305.51	10.00-20.00	294.67
	10/19/09	305.51	10.00-20.00	296.10
	3/28/12	305.51	10.00-20.00	NL
	3/28/12	305.51	10.00-20.00	NL
	3/26/13	305.51	10.00-20.00	NL
	9/9/13	305.51	10.00-20.00	NL
	9/22/14	305.51	10.00-20.00	NL
	9/21/15	305.51	10.00-20.00	NL
	9/27/16	305.51	10.00-20.00	NL
	5/2/12	Not Surveyed	14.6-24.6[4]	N/A
	9/26/12	Not Surveyed	14.6-24.6[4]	N/A

Table 1: Summary of Groundwater Elevations

Well Number	Date Measured	Top of Casing Elevation (ft, NAVD)	Depth of Screened Interval (ft btoc)	Groundwater Elevation (ft, NAVD)
MW-31	3/26/13	Not Surveyed	14.6-24.6[4]	N/A
	9/9/13	Not Surveyed	14.6-24.6[4]	N/A
	9/22/14	Not Surveyed	14.6-24.6[4]	N/A
	9/21/15	306.32	14.6-24.6[4]	294.09
	9/27/16	306.32	14.6-24.6[4]	297.15

Notes: JMQ 11/16/16
NJM 11/17/16

NAVD = North American Vertical Datum
btoc = Below top of casing
N/A=Not Applicable
NL = Not Located
NM = Not Measured

[1] Indicates top of casing elevation was revised due to site grading.

[2] Indicates a revised top of casing elevation based on a site topographic survey.

[3] Possible measurement error.

[4] Below ground surface

Table 2: Summary of Groundwater Analytical Results

Sample ID	Sample Date	Sampling Method	pH (pH units)	Turbidity (NTU)	Sample Type	Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Chloride (mg/L)	Nitrate (mg/L)
MW-1	8/30/2001	Bailer	5.32	70	Total	< 0.05	< 0.5	< 0.005	< 0.05	< 0.05	NA	NA
MW-1	9/6/2001	Bailer	NM	NM	Total	< 0.05	< 0.5	< 0.005	< 0.05	< 0.01	NA	NA
MW-1	9/18/2001	Bailer	5.47	NM	Total	NA	NA	NA	NA	NA	NA	< 0.01
MW-1	12/18/2001	Peristaltic Pump	5.35	1.99	Total	NA	**0.33**	NA	NA	< 0.005	NA	< 0.01
MW-1	10/4/2002	-	NM	NM	Total	NA	NA	NA	NA	NA	NA	NA
MW-1	1/31/2003	Peristaltic Pump	5.17	10.3	Total	NA	**0.042**	NA	NA	< 0.005	NA	NA
MW-1	11/9/2004	-	NM	NM	Total	NA	NA	NA	NA	NA	NA	NA
MW-1	9/23/2015	Peristaltic Pump	5.38	7800	Total	**0.00676**	**0.191**	< 0.0007	**0.0499**	**0.077**	NA	NA
MW-1	9/23/2015	Peristaltic Pump	NM	NM	Dissolved	<0.005	**0.0159**	<0.0007	<0.005	<0.001	NA	NA
MW-1	9/29/2016	Peristaltic Pump	5.62	>800	Total	NA	NA	NA	NA	**0.0691**	11	<0.25
MW-1	9/29/2016	Peristaltic Pump	NM	NM	Dissolved	NA	NA	NA	NA	<0.001	NA	NA
MW-2	8/30/2001	Bailer	4.21	75	Total	< 0.05	**3.5**	< 0.005	< 0.05	**0.11**	NA	NA
MW-2	9/6/2001	Bailer	NM	NM	Dissolved	NA	**5**	NA	NA	**0.19**	NA	NA
MW-2	9/6/2001	Bailer	NM	NM	Total	< 0.05	**4.9**	< 0.005	< 0.05	**0.21**	NA	NA
MW-2	9/18/2001	Bailer	4.14	NM	Total	NA	NA	NA	NA	NA	NA	**2.16**
MW-2	12/18/2001	Peristaltic Pump	4.18	1.11	Total	NA	**12**	NA	NA	**0.55**	NA	**1.1**
MW-2 **	10/4/2002	-	NM	NM	Total	NA	NA	NA	NA	NA	NA	NA
MW-2 **	9/28/2012	Peristaltic Pump	6.22	27.8	Total	NA	NA	NA	NA	NA	NA	NA
MW-2	3/28/2013	Peristaltic Pump	5.99	140.0	Total	< 0.005	**0.0409**	< 0.0007	< 0.005	**0.00236**	**300**	**0.66 J**
MW-2	3/28/2013	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.0332**	<0.0007	<0.005	<0.001	NA	NA
MW-2	9/12/2013	Peristaltic Pump	6.04	39.8	Total	< 0.005	**0.0486**	<0.0007	<0.005	**0.00146**	**360**	<2.5
MW-2	9/12/2013	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.0453**	<0.0007	<0.005	<0.001	NA	NA
MW-3	8/30/2001	Bailer	4.72	180000	Total	< 0.05	**3.4**	< 0.005	< 0.05	**0.12**	NA	NA
MW-3	9/6/2001	Bailer	NM	NM	Dissolved	< 0.05	**0.6**	< 0.005	< 0.05	**0.022**	NA	NA
MW-3	9/6/2001	Bailer	NM	NM	Total	< 0.05	**0.56**	< 0.005	< 0.05	**0.02**	NA	NA
MW-3	9/18/2001	Bailer	4.61	NM	Total	NA	NA	NA	NA	NA	NA	**12.7**
MW-3	12/18/2001	Peristaltic Pump	4.5	1.16	Total	NA	**0.89**	NA	NA	**0.044**	NA	**12**
MW-3	10/4/2002	-	NM	NM	Total	NA	NA	NA	NA	NA	NA	NA
MW-3	11/10/2004	Peristaltic Pump	5.71	0.31	Total	NA	**2.3**	NA	NA	**0.019**	NA	NA
MW-3	2/15/2011	Peristaltic Pump	5.95	51.1	Total	<0.005	**0.0848**	< 0.0007	<0.005	**0.00347**	NA	NA
MW-3	2/15/2011	Peristaltic Pump	NM	0.24	Dissolved	<0.005	**0.0801**	< 0.0007	<0.005	<0.001	NA	NA
MW-3	3/29/2012	Peristaltic Pump	5.64	9.2	Total	<0.005	**0.179**	<0.0007	<0.005	**0.00123**	**140**	**0.63**
MW-3	9/27/2012	Peristaltic Pump	5.57	9.5	Total	< 0.005	**0.120**	< 0.0007	< 0.005	**0.00136**	**120**	<2.5
MW-3	3/26/2013	Peristaltic Pump	5.60	89.7	Total	< 0.005	**0.0275**	< 0.0007	< 0.005	**0.00501**	**5.4**	**0.16 J**
MW-3	3/26/2013	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.0234**	< 0.0007	< 0.005	**0.00229**	NA	NA
MW-3	9/10/2013	Peristaltic Pump	5.75	9.96	Total	< 0.005	**0.127**	< 0.0007	< 0.005	**0.00108**	**130**	**0.75**
MW-3	9/23/2014	Peristaltic Pump	5.26	16.1	Total	< 0.005	**0.168**	< 0.0007	< 0.005	**0.00166**	**120**	**0.28**
MW-3	9/23/2014	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.166**	< 0.0007	< 0.005	<0.001	NA	NA
MW-4	8/30/2001	Bailer	6.45	72	Total	< 0.05	< 0.5	< 0.005	< 0.05	< 0.05	NA	NA
MW-4	9/6/2001	Bailer	NM	NM	Total	< 0.05	< 0.5	< 0.005	< 0.05	< 0.01	NA	NA
MW-4	9/18/2001	Bailer	6.35	NM	Total	NA	NA	NA	NA	NA	NA	< 0.01
MW-4	12/18/2001	Peristaltic Pump	6.3	37.2	Total	NA	**0.081**	NA	NA	< 0.005	NA	< 0.01
MW-4	1/31/2003	Peristaltic Pump	5.75	2.86	Total	NA	NA	NA	NA	NA	NA	NA
MW-4	4/8/2003	Peristaltic Pump	NM	NM	Total	NA	NA	NA	NA	NA	NA	NA
MW-4	10/20/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.106**	< 0.0007	< 0.025	< 0.001	NA	NA
MW-4	10/20/2009	Peristaltic Pump	6.55	0.47	Total	< 0.005	**0.107**	< 0.0007	< 0.005	< 0.001	**4.3**	**4**
MW-4	9/22/2015	Peristaltic Pump	6.19	0.37	Total	< 0.005	**0.0948**	< 0.0007	< 0.005	<0.001	NA	NA
MW-4	9/28/2016	Peristaltic Pump	6.44	5.17	Total	NA	NA	NA	NA	NA	**3.9**	**2.2**
MW-5	8/30/2001	Bailer	6.96	2900	Total	< 0.05	< 0.5	< 0.005	< 0.05	< 0.05	NA	NA
MW-5	9/6/2001	Bailer	NM	NM	Total	< 0.05	< 0.5	< 0.005	< 0.05	< 0.01	NA	NA
MW-5	9/18/2001	Bailer	6.55	NM	Total	NA	NA	NA	NA	NA	NA	**0.25**
MW-5	12/18/2001	Peristaltic Pump	6.76	0.67	Total	NA	**0.11**	NA	NA	< 0.005	NA	**0.12**
MW-6	8/30/2001	Bailer	4.09	75	Total	< 0.05	**2**	< 0.005	< 0.05	**0.19**	NA	NA
MW-6	9/6/2001	Bailer	NM	NM	Dissolved	NA	**2.2**	NA	NA	**0.26**	NA	NA
MW-6	9/6/2001	Bailer	NM	NM	Total	< 0.05	**2.1**	< 0.005	< 0.05	**0.27**	NA	NA
MW-6	9/18/2001	Bailer	4.21	NM	Total	NA	NA	NA	NA	NA	NA	**13.8**
MW-6	12/18/2001	Peristaltic Pump	4.12	1.58	Total	NA	**5.3**	NA	NA	**0.55**	NA	**16**
MW-6	5/16/2007	-	4.23	6.72	Total	NA	NA	NA	NA	NA	**2400**	**0.33**
MW-6	3/30/2012	Peristaltic Pump	6.05	9.17	Total	<0.005	**0.0746**	< 0.0007	<0.005	<0.001	**2000**	<2.5
MW-6	9/27/2012	Peristaltic Pump	6.34	8.7	Total	<0.025	**0.296**	< 0.0035	<0.025	**0.0322**	**1800**	<25
MW-6	3/27/2013	Peristaltic Pump	6.65	4.37	Total	< 0.005	**0.039**	**0.00082**	< 0.005	< 0.001	**210**	<2.7
MW-6	9/10/2013	Peristaltic Pump	5.57	69.1	Total	< 0.005	**0.420**	**0.000878**	**0.00547**	**0.0534**	**1400**	<2.5
MW-6	9/10/2013	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.509**	< 0.0007	< 0.005	**0.0112**	NA	NA
MW-6	9/25/2014	Peristaltic Pump	4.10	21.4	Total	< 0.005	**10.3**	**0.00146**	**0.0106**	**1.16**	**6300**	<25
MW-6	9/25/2014	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**9.29**	**0.00158**	< 0.005	**0.994**	NA	NA
MW-6	9/23/2015	Peristaltic Pump	4.55	1.88	Total	**0.0159**	**0.449**	<0.002	<0.005	**0.132**	NA	NA
MW-6	9/28/2016	Peristaltic Pump	5.95	4.41	Total	< 0.005	**0.181**	< 0.0007	< 0.005	**0.036**	**750**	<2.5
MW-7	12/18/2001	Peristaltic Pump	4.31	1.66	Total	NA	**13**	NA	NA	**0.32**	NA	**4.2**
MW-7	5/16/2007	-	3.54	5.02	Total	NA	NA	NA	NA	NA	**3900**	**3.2**
DUP-03	5/16/2007	-	3.54	5.02	Total	NA	NA	NA	NA	NA	**4000**	**3.6**
MW-7	3/30/2012	Peristaltic Pump	5.14	1.41	Total	<0.005	**0.577**	< 0.0007	<0.005	**0.026**	**1500**	**3.4**
MW-7	9/28/2012	Peristaltic Pump	5.94	3.93	Total	<0.005	**0.384**	< 0.0007	<0.005	**0.00666**	**900**	<12 UJ
DUP-1	9/28/2012	Peristaltic Pump	NM	NM	Total	<0.005	**0.320**	< 0.0007	<0.005	**0.00483**	**890**	<12 UJ
MW-7	3/27/2013	Peristaltic Pump	6.34	2.00	Total	<0.005	**0.127**	<0.0007	<0.005	<0.001	**260**	**3.8 J**
MW-7	9/11/2013	Peristaltic Pump	5.91	3.71	Total	<0.005	**0.216**	<0.0007	<0.005	<0.001	**660**	<2.5
MW-7	9/23/2014	Peristaltic Pump	5.65	1.39	Total	<0.005	**0.315**	<0.0007	<0.005	**0.00913**	**1200**	**4.0**
MW-7	9/22/2015	Peristaltic Pump	5.57	1.47	Total	**0.00533**	**0.493**	<0.001	<0.005	**0.00995**	NA	NA
MW-7	9/28/2016	Peristaltic Pump	5.75	0.78	Total	NA	NA	NA	NA	NA	**1100**	<12
MW-8	8/30/2001	-	NM	NM	Total	NA	NA	NA	NA	NA	NA	NA
MW-8	9/6/2001	Bailer	NM	NM	Total	< 0.05	< 0.5	< 0.005	< 0.05	< 0.01	NA	NA
MW-8	9/18/2001	Bailer	5.03	NM	Total	NA	NA	NA	NA	NA	NA	**33.3**
Applicable Standards: HSRA Type 1/3 Groundwater RRS or USEPA MCLs						**0.01**	**2**	**0.005**	**0.1**	**0.015**	**250***	**10**
Background						**<0.005**	**0.125**	**<0.0007**	**<0.005**	**<0.001**	**12**	**2.4**
Highest RRS						**0.01**	**20**	**0.051**	**0.1**	**0.015**	**--**	**--**
Corrective Action Goal						**0.01**	**20**	**0.051**	**0.1**	**0.015**	**--**	**--**

Table 2: Summary of Groundwater Analytical Results

Sample ID	Sample Date	Sampling Method	pH (pH units)	Turbidity (NTU)	Sample Type	Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Chloride (mg/L)	Nitrate (mg/L)
MW-9	8/30/2001	Bailer	4.43	550	Total	< 0.05	**1.6**	< 0.005	< 0.05	**0.08**	NA	NA
MW-9	9/6/2001	Bailer	NM	NM	Dissolved	NA	**4.7**	NA	NA	**0.17**	NA	NA
MW-9	9/6/2001	Bailer	NM	NM	Total	< 0.05	**2**	< 0.005	< 0.05	**0.077**	NA	NA
MW-9	9/18/2001	Bailer	4.33	NM	Total	NA	NA	NA	NA	NA	NA	**5.38**
MW-9	12/18/2001	Peristaltic Pump	4.3	4.74	Total	NA	**5.3**	NA	NA	**0.26**	NA	**5.8**
MW-9	10/21/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**1.1**	**0.00177**	< 0.005	**0.108**	NA	NA
MW-9	10/21/2009	Peristaltic Pump	4.2	2.38	Total	< 0.005	**1.22**	**0.00177**	< 0.005	**0.12**	**940**	**2.4 J**
MW-9	3/30/2012	Peristaltic Pump	4.13	3.35	Total	<0.005	**0.18**	< 0.0007	<0.005	**0.0437**	**490**	**2.6**
MW-9	9/28/2012	Peristaltic Pump	4.13	0.56	Total	<0.005	**0.118**	< 0.0007	<0.005	**0.0472**	**490**	<2.5 UJ
MW-9	3/27/2013	Peristaltic Pump	4.22	4.53	Total	<0.005	**0.232**	**0.000745**	<0.005	**0.0483**	**640**	**2.4 J**
MW-9	9/11/2013	Peristaltic Pump	4.48	0.81	Total	<0.005	**0.225**	**0.000881**	<0.005	**0.0613**	**760**	<2.5
MW-9	9/24/2014	Peristaltic Pump	4.51	0.49	Total	<0.005	**0.338**	**0.000898**	<0.005	**0.0678**	**860**	<25
DUP-1	9/24/2014	Peristaltic Pump	4.51	0.49	Total	<0.005	**0.333**	**0.000896**	<0.005	**0.0677**	**900**	<25
MW-9	9/22/2015	Peristaltic Pump	4.31	2.59	Total	**0.00509**	**0.375**	<0.00150	<0.005	**0.0898**	NA	NA
DUP-1	9/22/2015	Peristaltic Pump	4.31	2.59	Total	< 0.005	**0.374**	**0.00135**	**0.0441**	**0.0912**	NA	NA
MW-9	9/28/2016	Peristaltic Pump	4.90	6.53	Total	<0.005	**0.575**	**0.000918**	<0.005	**0.0715**	**690**	<12
DUP-1	9/28/2016	Peristaltic Pump	4.90	6.53	Total	<0.005	**0.572**	**0.000938**	<0.005	**0.0720**	**710**	<12
MW-10	8/30/2001	Bailer	5.81	42	Total	< 0.05	< 0.5	< 0.005	< 0.05	< 0.05	NA	NA
MW-10	9/6/2001	Bailer	NM	NM	Total	< 0.05	< 0.5	< 0.005	< 0.05	< 0.01	NA	NA
MW-10	9/18/2001	Bailer	6.11	NM	Total	NA	NA	NA	NA	NA	NA	< 0.01
MW-10	12/18/2001	Peristaltic Pump	5.72	1.75	Total	NA	**0.39**	NA	NA	< 0.005	NA	< 0.01
MW-10	10/21/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.103**	< 0.0007	< 0.005	< 0.001	NA	NA
MW-10	10/21/2009	Peristaltic Pump	5.53	0	Total	< 0.005	**0.112**	< 0.0007	< 0.005	< 0.001	**23**	< 0.25
MW-11	8/30/2001	Bailer	6.11	110	Total	< 0.05	< 0.5	< 0.005	< 0.05	< 0.05	NA	NA
MW-11	9/6/2001	Bailer	NM	NM	Total	< 0.05	< 0.5	< 0.005	< 0.05	< 0.01	NA	NA
MW-11	9/18/2001	Bailer	5.89	NM	Total	NA	NA	NA	NA	NA	NA	**0.58**
MW-11	12/18/2001	Peristaltic Pump	5.62	0.59	Total	NA	**0.11**	NA	NA	< 0.005	NA	< 0.01
MW-11	10/21/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.0278**	< 0.0007	< 0.005	< 0.001	NA	NA
MW-11	10/21/2009	Peristaltic Pump	4.61	0.31	Total	< 0.005	**0.0323**	< 0.0007	< 0.005	< 0.001	**5.9**	< 0.25
MW-12	8/30/2001	Bailer	5.98	1800	Total	< 0.05	< 0.5	< 0.005	< 0.05	< 0.05	NA	NA
MW-12	9/6/2001	Bailer	NM	NM	Total	< 0.05	< 0.5	< 0.005	< 0.05	< 0.01	NA	NA
MW-12	9/18/2001	Bailer	5.85	NM	Total	NA	NA	NA	NA	NA	NA	< 0.01
MW-12	12/19/2001	Peristaltic Pump	5.72	4.26	Total	NA	**0.13**	NA	NA	< 0.005	NA	< 0.01
MW-12	10/20/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.123**	< 0.0007	< 0.025	< 0.001	NA	NA
MW-12	10/20/2009	Peristaltic Pump	5.71	0.57	Total	< 0.005	**0.12**	< 0.0007	< 0.005	< 0.001	**6.2**	**2.4**
MW-12	3/29/2012	Peristaltic Pump	6.01	4.04	Total	<0.005	**0.182**	< 0.0007	<0.005	<0.001	**3.1**	<0.25
MW-12	9/27/2012	Peristaltic Pump	6.31	3.72	Total	<0.005	**0.134**	**0.000843**	<0.005	<0.001	**2.9**	**5.4**
MW-12	3/26/2013	Peristaltic Pump	5.75	1.01	Total	<0.005	**0.102**	<0.0007	<0.005	<0.001	**2.1**	**4.8**
MW-12	9/10/2013	Peristaltic Pump	5.86	2.58	Total	**0.0126**	**0.124**	<0.0007	<0.005	<0.001	**2.1**	**0.25**
MW-12	9/23/2014	Peristaltic Pump	5.86	0.12	Total	<0.005	**0.154**	<0.0007	<0.005	<0.001	**2.7**	<0.25
MW-12	9/22/2015	Peristaltic Pump	5.85	0.85	Total	<0.005	**0.130**	<0.0007	<0.005	<0.001	NA	NA
MW-12	9/27/2016	Peristaltic Pump	5.53	0.99	Total	NA	NA	NA	NA	NA	4.5	<0.25
MW-13D	8/30/2001	Bailer	5	3.2	Total	< 0.05	**3.2**	< 0.005	< 0.05	**0.16**	NA	NA
MW-13D	9/6/2001	Bailer	NM	NM	Dissolved	NA	**2.7**	NA	NA	**0.14**	NA	NA
MW-13D	9/6/2001	Bailer	NM	NM	Total	< 0.05	**2.4**	< 0.005	< 0.05	**0.14**	NA	NA
MW-13D	9/18/2001	Bailer	4.22	NM	Total	NA	NA	NA	NA	NA	NA	**3.16**
MW-13D	12/18/2001	Peristaltic Pump	4.04	1.29	Total	NA	**1.7**	NA	NA	**0.19**	NA	**3.4**
MW-13D	11/10/2004	Peristaltic Pump	5.1	0.57	Total	NA	NA	NA	NA	NA	NA	NA
MW-13D	3/30/2012	Peristaltic Pump	3.72	2.62	Total	<0.005	**0.273**	**0.00333**	<0.005	**0.168**	**1600**	**5.5**
MW-13D	9/28/2012	Peristaltic Pump	3.98	1.30	Total	<0.005	**0.295**	**0.00132**	<0.005	**0.128**	**1400**	<12 UJ
MW-13D	3/28/2013	Peristaltic Pump	3.02	0.51	Total	<0.005	**0.383**	**0.00203**	<0.005	**0.143**	**1600**	**4.0 J**
DUP-1	3/28/2013	Peristaltic Pump	NM	NM	Total	<0.005	**0.386**	**0.00202**	<0.005	**0.143**	**1600**	**4.0 J**
MW-13D	9/12/2013	Peristaltic Pump	3.95	0.73	Total	**0.00699**	**0.338**	**0.0049**	<0.005	**0.139**	**1500**	**3.4**
MW-13D	9/25/2014	Peristaltic Pump	3.82	0.61	Total	<0.005	**0.254**	**0.00508**	<0.005	**0.176**	**1600**	<25
MW-13D	9/22/2015	Peristaltic Pump	3.83	2.41	Total	**0.0269**	**0.169**	<0.00450	<0.005	**0.129**	NA	NA
MW-13D	9/28/2016	Peristaltic Pump	3.73	3.81	Total	<0.005	**0.219**	**0.00219**	<0.005	**0.173**	**1800**	<12
MW-15	4/8/2003	Peristaltic Pump	3.58	43.2	Total	NA	**0.412**	NA	NA	**0.124**	NA	NA
MW-15	9/25/2014	Peristaltic Pump	3.75	0.95	Total	<0.005	**0.0628**	<0.0007	**0.0437**	**0.311**	**1900**	<25
MW-15	9/23/2015	Peristaltic Pump	4.18	7.84	Total	**0.0264**	<0.075	**0.00249**	**0.00643**	**0.243**	NA	NA
MW-15	9/29/2016	Peristaltic Pump	4.35	275	Total	**0.00672**	**0.220**	**0.131**	**0.0246**	**0.294**	**2000**	<25
MW-15	9/29/2016	Peristaltic Pump	NM	NM	Dissolved	<0.005	**0.0766**	**0.103**	<0.005	**0.236**	NA	NA
MW-16	2/14/2003	Peristaltic Pump	3.98	0.6	Total	NA	**2.34**	NA	NA	**0.1**	NA	NA
MW-16	4/8/2003	Peristaltic Pump	NM	NM	Total	NA	NA	NA	NA	NA	NA	NA
MW-16	3/29/2012	Peristaltic Pump	4.5	0.5	Total	<0.005	**0.542**	< 0.0007	<0.005	**0.0239**	**530**	**4**
MW-16	9/28/2012	Peristaltic Pump	4.60	1.25	Total	<0.005	**0.642**	< 0.0007	<0.005	**0.0220**	**490**	<12 UJ
MW-16	3/27/2013	Peristaltic Pump	5.44	3.06	Total	<0.005	**0.495**	<0.0007	<0.005	**0.00914**	**640**	**5.9 J**
MW-16	9/11/2013	Peristaltic Pump	5.02	0.0	Total	<0.005	**0.631**	<0.0007	<0.005	**0.01290**	**470**	**5.2**
MW-16	9/24/2014	Peristaltic Pump	4.36	4.86	Total	<0.005	<0.01	<0.0007	<0.005	**0.0244**	**570**	<25
MW-16	9/22/2015	Peristaltic Pump	4.20	8.22	Total	<0.005	**0.531**	<0.0007	<0.005	**0.0121**	NA	NA
MW-16	9/28/2016	Peristaltic Pump	4.41	7.98	Total	<0.005	**0.508**	<0.0007	<0.005	**0.0161**	**250**	<12
MW-17	1/30/2003	Peristaltic Pump	5.42	0.79	Total	NA	**0.06**	NA	NA	< 0.005	NA	NA
MW-17	11/9/2004	Bailer	6.88	5.39	Total	NA	NA	NA	NA	NA	NA	NA
MW-18	1/30/2003	Peristaltic Pump	3.64	1.51	Total	NA	**0.285**	NA	NA	**0.382**	NA	NA
DUPLICATE	1/30/2003	Peristaltic Pump	3.64	1.51	Total	NA	**0.282**	NA	NA	**0.351**	NA	NA
MW-18	11/10/2004	Peristaltic Pump	6.07	1.17	Total	NA	NA	NA	NA	NA	NA	NA
MW-18	10/21/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.312**	**0.00881**	< 0.005	**0.287**	NA	NA
MW-18	10/21/2009	Peristaltic Pump	4.44	4	Total	< 0.005	**0.345**	**0.00849**	< 0.005	**0.318**	**3000**	**1.1 J**
MW-18	3/30/2012	Peristaltic Pump	5.49	5.06	Total	< 0.005	**0.148**	<0.0007	< 0.005	**0.0211**	**1200**	<2.5
DUP-1	3/30/2012	Peristaltic Pump	5.49	5.06	Total	<0.005	**0.148**	< 0.0007	<0.005	**0.022**	**1100**	<2.5
MW-18	9/28/2012	Peristaltic Pump	6.11	2.10	Total	<0.005	**0.0934**	< 0.0007	<0.005	**0.00288**	**800**	<12 UJ
MW-18	3/27/2013	Peristaltic Pump	6.91	35.4	Total	<0.005	**0.0531**	< 0.0007	<0.005	**0.00329**	**200**	<0.14
MW-18	3/27/2013	Peristaltic Pump	NM	NM	Dissolved	<0.005	**0.0529**	<0.0007	<0.005	<0.001	NA	NA
MW-18	9/10/2013	Peristaltic Pump	6.19	5.29	Total	<0.005	**0.124**	**0.00214**	<0.005	**0.00166**	**610**	<2.5
MW-18	9/24/2014	Peristaltic Pump	4.71	8.83	Total	<0.005	**0.254**	**0.00175**	<0.005	**0.216**	**260**	<50
MW-18	9/23/2015	Peristaltic Pump	4.51	17.9	Total	**0.0708**	**0.173**	**0.00742**	<0.005	**0.258**	NA	NA
MW-18	9/23/2015	Peristaltic Pump	NM	NM	Dissolved	**0.0747**	**0.0185**	**0.00507**	<0.005	**0.176**	NA	NA
MW-18	9/29/2016	Peristaltic Pump	6.36	4.08	Total	<0.005	NA	<0.0007	NA	**0.00146**	**360**	<12
Applicable Standards: HSRA Type 1/3 Groundwater RRS or USEPA MCLs						**0.01**	**2**	**0.005**	**0.1**	**0.015**	**250***	**10**
Background						**<0.005**	**0.125**	**<0.0007**	**<0.005**	**<0.001**	**12**	**2.4**
Highest RRS						**0.01**	**20**	**0.051**	**0.1**	**0.015**	**--**	**--**
Corrective Action Goal						**0.01**	**20**	**0.051**	**0.1**	**0.015**	**--**	**--**

Table 2: Summary of Groundwater Analytical Results

Sample ID	Sample Date	Sampling Method	pH (pH units)	Turbidity (NTU)	Sample Type	Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Chloride (mg/L)	Nitrate (mg/L)
MW-19	1/30/2003	Peristaltic Pump	NM	NM	Total	NA	NA	NA	NA	NA	NA	NA
MW-19	10/23/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.12**	< 0.0007	< 0.025	< 0.001	NA	NA
MW-19	10/23/2009	Peristaltic Pump	6.3	0.19	Total	< 0.005	**0.125**	< 0.0007	< 0.005	< 0.001	**12**	< 0.25
MW-19	3/29/2012	Peristaltic Pump	5.78	7.1	Total	<0.005	**0.252**	< 0.0007	<0.005	<0.001	**11**	**0.58**
MW-19	9/28/2012	Peristaltic Pump	6.20	1.03	Total	<0.005	**0.231**	< 0.0007	<0.005	<0.001	**7.8**	<0.25 UJ
MW-19	3/26/2013	Peristaltic Pump	6.46	4.40	Total	<0.005	**0.143**	<0.0007	<0.005	<0.001	**3.6**	<0.25
MW-19	9/11/2013	Peristaltic Pump	5.95	4.39	Total	<0.005	**0.147**	<0.0007	<0.005	<0.001	**6.6**	<0.25
MW-19	9/23/2014	Peristaltic Pump	5.45	1.08	Total	<0.005	**0.131**	<0.0007	<0.005	**0.00287**	**5.5**	<0.25
MW-20	1/30/2003	Peristaltic Pump	5.44	3.03	Total	NA	**0.045**	NA	NA	< 0.005	NA	NA
DUP-2	1/30/2003	Peristaltic Pump	5.44	3.03	Total	NA	NA	NA	NA	NA	NA	NA
MW-20	10/22/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.0161**	< 0.0007	< 0.025	< 0.001	NA	NA
MW-20	10/22/2009	Peristaltic Pump	5.37	30.9	Total	< 0.005	**0.0224**	< 0.0007	< 0.005	**0.00344**	**11**	**0.81**
MW-20	3/30/2012	Peristaltic Pump	5.51	21.1	Total	< 0.005	**0.0447**	< 0.0007	< 0.005	**0.00549**	**9.6**	<0.25
MW-20	3/30/2012	Peristaltic Pump	NM	NM	Dissolved	<0.005	**0.0331**	< 0.0007	<0.005	<0.001	NA	NA
MW-20	9/27/2012	Peristaltic Pump	5.96	73.9	Total	<0.005	**0.0325**	< 0.0007	<0.005	**0.00490**	**9.3**	<0.25
MW-20	9/27/2012	Peristaltic Pump	NM	NM	Dissolved	<0.005	**0.0243**	< 0.0007	<0.005	<0.001	NA	NA
MW-20	3/27/2013	Peristaltic Pump	5.88	33.4	Total	<0.005	**0.0333**	< 0.0007	<0.005	**0.00689**	**12**	**0.24 J**
MW-20	3/27/2013	Peristaltic Pump	NM	NM	Dissolved	<0.005	**0.0209**	<0.0007	<0.005	<0.001	NA	NA
MW-20	9/10/2013	Peristaltic Pump	5.75	158	Total	<0.005	**0.0413**	<0.0007	**0.00808**	**0.0101**	**11**	<0.25
MW-20	9/10/2013	Peristaltic Pump	NM	NM	Dissolved	<0.005	**0.0146**	<0.0007	<0.005	<0.001	NA	NA
MW-20	9/24/2014	Peristaltic Pump	5.50	96.7	Total	<0.005	**0.0334**	<0.0007	**0.00822**	**0.0038**	**15**	<0.25
MW-20	9/24/2014	Peristaltic Pump	NM	NM	Dissolved	<0.005	**0.0188**	<0.0007	<0.005	<0.001	NA	NA
MW-20	9/22/2015	Peristaltic Pump	5.46	51.3	Total	<0.005	**0.0221**	<0.0007	<0.005	**0.00347**	NA	NA
MW-20	9/22/2015	Peristaltic Pump	NM	NM	Dissolved	<0.005	**0.0191**	<0.0007	<0.005	<0.001	NA	NA
MW-20	9/29/2016	Peristaltic Pump	5.96	23.60	Total	NA	NA	NA	NA	NA	**7.0**	<0.25
MW-21	1/31/2003	Peristaltic Pump	4.96	9.7	Total	NA	**0.324**	NA	NA	< 0.005	NA	NA
MW-21	11/10/2004	-	NM	NM	Total	NA	NA	NA	NA	NA	NA	NA
MW-21	10/21/2009	Peristaltic Pump	5.67	> 1000	Total	NA	NA	NA	NA	NA	NA	NA
MW-22DD	1/31/2003	Peristaltic Pump	4.37	3.36	Total	NA	**7.012**	NA	NA	< 0.005	NA	NA
MW-23	4/8/2003	Peristaltic Pump	5.63	44.8	Total	NA	**0.072**	NA	NA	< 0.005	NA	NA
MW-23	11/10/2004	Peristaltic Pump	7.24	9.95	Total	NA	NA	NA	NA	NA	NA	NA
MW-23	5/16/2007	-	NM	NM	Total	NA	NA	NA	NA	NA	**110**	< 0.05
MW-23	10/21/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.0479**	< 0.0007	< 0.025	< 0.001	NA	NA
MW-23	10/21/2009	Peristaltic Pump	5.82	0.78	Total	< 0.005	**0.0517**	< 0.0007	< 0.005	< 0.001	**110**	< 0.25
MW-23	3/29/2012	Peristaltic Pump	6.18	1.48	Total	<0.005	**0.064**	< 0.0007	<0.005	<0.001	**87**	<0.25
MW-23	9/27/2012	Peristaltic Pump	6.75	2.06	Total	<0.005	**0.0912**	< 0.0007	<0.005	<0.001	**62**	**2.8**
MW-23	3/26/2013	Peristaltic Pump	6.04	3.00	Total	<0.005	**0.0689**	<0.0007	<0.005	<0.001	**31**	**0.14 J**
MW-23	9/10/2013	Peristaltic Pump	6.17	1.91	Total	<0.005	**0.0679**	<0.0007	<0.005	<0.001	**37**	**0.98**
MW-24	4/8/2003	Peristaltic Pump	4.73	0.34	Total	NA	**0.051**	NA	NA	< 0.005	NA	NA
DUPLICATE	4/8/2003	Peristaltic Pump	4.73	0.34	Total	NA	NA	NA	NA	NA	NA	NA
MW-24	10/22/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.0416**	< 0.0007	< 0.025	< 0.001	NA	NA
MW-24	10/22/2009	Peristaltic Pump	5.7	0.14	Total	< 0.005	**0.0466**	< 0.0007	< 0.005	< 0.001	**130**	< 0.25
MW-25	4/8/2003	Peristaltic Pump	4.93	2.46	Total	NA	**2.8**	NA	NA	**0.008**	NA	NA
DUPLICATE	4/8/2003	Peristaltic Pump	4.93	2.46	Total	NA	**2.76**	NA	NA	**0.011**	NA	NA
MW-25	11/9/2004	Bailer	4.47	6.11	Total	NA	**3.2**	NA	NA	**0.031**	NA	NA
MW-25	10/22/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.365**	< 0.0007	< 0.005	**0.00508**	NA	NA
MW-25	10/22/2009	Peristaltic Pump	4.32	0.32	Total	< 0.005	**0.402**	< 0.0007	< 0.005	**0.00568**	**270**	**2.7**
MW-26DDD	4/8/2003	Peristaltic Pump	5.8	2	Total	NA	**4.78**	NA	NA	< 0.005	NA	NA
MW-26DDD	4/9/2004	Bladder Pump	NM	NM	Total	NA	NA	NA	NA	NA	NA	NA
MW-26DDD	6/9/2004	Bladder Pump	NM	2.05	Total	NA	**16**	NA	NA	< 0.005	NA	NA
MW-27DDDD	11/10/2004	Bailer	6.6	7.66	Total	NA	< 0.5	NA	NA	NA	NA	NA
MW-27DDDD	2/15/2011	Peristaltic Pump	5.36	5.01	Total	<0.005	**4.34**	**0.00178**	<0.005	<0.001	NA	NA
MW-27DDDD	5/3/2012	Submersible Pump	5.07	2.02	Total	<0.005	**4.91**	**0.00187**	<0.005	<0.001	**490**	**2.5**
MW-27DDDD	9/27/2012	Submersible Pump	4.88	1.59	Total	<0.005	**5.15**	**0.00184**	<0.005	<0.001	**530**	**2.6**
MW-27DDDD	3/28/2013	Submersible Pump	4.93	5.78	Total	<0.005	**5.55**	**0.00216**	<0.005	<0.001	**530**	**3.7 J**
MW-27DDDD	9/12/2013	Peristaltic Pump	4.93	12.9	Total	<0.005	**5.11**	**0.00243**	<0.005	<0.001	**610**	<5.0
MW-27DDDD	9/12/2013	Peristaltic Pump	NM	NM	Dissolved	<0.005	**4.9**	**0.00235**	<0.005	<0.001	NA	NA
MW-27DDDD	9/25/2014	Peristaltic Pump	4.74	0.72	Total	<0.005	**6.72**	**0.00246**	<0.005	<0.001	**610**	<2.5
MW-27DDDD	9/23/2015	Peristaltic Pump	4.9	3.84	Total	< 0.005	**4.95**	**0.00228**	< 0.005	<0.001	NA	NA
MW-27DDDD	9/28/2016	Submersible Pump	4.97	0.87	Total	<0.005	**7.22**	**0.00311**	<0.005	<0.001	**690**	<12
MW-28	11/9/2004	Bailer	6.06	6.34	Total	**0.017**	**2.6**	< 0.01	< 0.01	< 0.005	NA	NA
MW-28	5/16/2007	Peristaltic Pump	5.25	1.16	Total	< 0.01	**0.16**	NA	NA	NA	NA	NA
MW-29	7/17/2008	Bailer	4.42	1.7	Total	NA	**1**	NA	NA	< 0.01	NA	NA
MW-29	10/22/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.965**	< 0.0007	< 0.005	**0.00886**	NA	NA
MW-29	10/22/2009	Peristaltic Pump	4.21	0	Total	< 0.005	**0.985**	< 0.0007	< 0.005	**0.00899**	**160**	**3.5**
MW-29	3/30/2012	Peristaltic Pump	4.08	0.32	Total	<0.005	**0.819**	< 0.0007	<0.005	**0.00733**	**140**	**1.4**
MW-29	9/27/2012	Peristaltic Pump	4.45	0.0	Total	<0.005	**0.765**	< 0.0007	<0.005	**0.00692**	**120**	<2.5
MW-29	3/28/2013	Peristaltic Pump	4.33	0.23	Total	< 0.005	**0.764**	< 0.0007	< 0.005	**0.00780**	**120**	**1.8**
MW-29	9/11/2013	Peristaltic Pump	4.30	0.0	Total	< 0.005	**0.712**	< 0.0007	< 0.005	**0.00721**	**120**	<2.5
DUP-1	9/11/2013	Peristaltic Pump	4.30	0.0	Total	< 0.005	**0.704**	< 0.0007	< 0.005	**0.00729**	**150**	<2.5
MW-29	9/24/2014	Peristaltic Pump	4.28	0.75	Total	< 0.005	**0.682**	< 0.0007	< 0.005	**0.00718**	**130**	<25
MW-29	9/23/2015	Peristaltic Pump	4.07	0.81	Total	< 0.005	**0.589**	< 0.0007	< 0.005	**0.00715**	NA	NA
MW-29	9/29/2016	Peristaltic Pump	4.52	0.16	Total	NA	NA	NA	NA	NA	**110**	**1.1**
MW-30	7/17/2008	Bailer	NM	NM	Total	NA	NA	NA	NA	NA	NA	NA
MW-30	10/23/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.0127**	< 0.0007	< 0.025	**0.0112**	NA	NA
MW-30	10/23/2009	Peristaltic Pump	4.21	0.06	Total	< 0.005	**0.0126**	< 0.0007	< 0.005	**0.0112**	**440**	**0.29**
MW-31	5/2/2012	Peristaltic Pump	4.92	1.52	Total	<0.005	**1.09**	<0.0007	<0.005	**0.0055**	**140**	**6.8**
MW-31	9/23/2015	Peristaltic Pump	4.19	0.66	Total	<0.005	**0.837**	<0.0007	<0.005	**0.00894**	NA	NA
MW-31	9/29/2016	Peristaltic Pump	4.46	0.46	Total	NA	NA	NA	NA	NA	**150**	**5.0**
Applicable Standards: HSRA Type 1/3 Groundwater RRS or USEPA MCLs						**0.01**	**2**	**0.005**	**0.1**	**0.015**	**250***	**10**
Background						**<0.005**	**0.125**	**<0.0007**	**<0.005**	**<0.001**	**12**	**2.4**
Highest RRS						**0.01**	**20**	**0.051**	**0.1**	**0.015**	**--**	**--**
Corrective Action Goal						**0.01**	**20**	**0.051**	**0.1**	**0.015**	**--**	**--**

Table 2: Summary of Groundwater Analytical Results

Sample ID	Sample Date	Sampling Method	pH (pH units)	Turbidity (NTU)	Sample Type	Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Chloride (mg/L)	Nitrate (mg/L)
MW-A	12/18/2001	Peristaltic Pump	6.75	1.41	Total	< 0.005	**0.036**	< 0.002	< 0.002	< 0.005	NA	**0.74**
MW-A	5/15/2007	Peristaltic Pump	6.77	2.36	Total	NA	NA	NA	NA	NA	NA	NA
MW-A	10/22/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.0775**	< 0.0007	< 0.025	< 0.001	NA	NA
MW-DUP01	10/22/2009	Peristaltic Pump	NM	NM	Dissolved	< 0.005	**0.0762**	< 0.0007	< 0.025	< 0.001	NA	NA
MW-A	10/22/2009	Peristaltic Pump	6.21	0	Total	< 0.005	**0.0886**	< 0.0007	< 0.005	< 0.001	**120**	< 0.25
MW-DUP01	10/22/2009	Peristaltic Pump	6.21	0	Total	< 0.005	**0.0839**	< 0.0007	< 0.005	< 0.001	**130**	< 0.25
TMW-1	7/14/1997	-	NM	NM	Total	< 0.005	**5.38**	**0.028**	**0.028**	**0.028**	NA	NA
Applicable Standards: HSRA Type 1/3 Groundwater RRS or USEPA MCLs						**0.01**	**2**	**0.005**	**0.1**	**0.015**	**250***	**10**
Background						**<0.005**	**0.125**	**<0.0007**	**<0.005**	**<0.001**	**12**	**2.4**
Highest RRS						**0.01**	**20**	**0.051**	**0.1**	**0.015**	**--**	**--**
Corrective Action Goal						**0.01**	**20**	**0.051**	**0.1**	**0.015**	**--**	**--**

Notes:

RRS = Risk Reduction Standard
Total Metals are field preserved, unfiltered
Dissolved Metals are not preserved, laboratory filtered
USEPA MCLs = United States Environmental Protection Agency Maximum Contaminant Levels
HSRA Type 1/3 GW RRS from Appendix III
* = USEPA Secondary Maximum Contaminant Levels are used for Chloride
** insufficient water column for sample collection
- = Data unavailable
-- = No Applicable Standard has been established for this constituent
Bolded result represents a positive value
Bolded/Shaded result exceeds the groundwater standard
Bolded/Shaded result exceeds the RRS

Prepared by/Date: RMB 12/21/09
Checked by/Date: JAH 12/21/09
Revised by: JMQ 11/9/16
Checked by: NJM 11/17/16

Data Qualifiers:

J = Estimated value based on QC data
NA = Not Analyzed
NM = Not Measured

Table 3: Summary of SourceDK Model Input

Well ID	Sample Date	Barium (mg/L)	Lead (mg/L)	Number Of Samples
MW-1	8/30/2001	<0.05	<0.05	1
	9/6/2001	<0.05	<0.01	1
	12/18/2001	0.33	<0.005	1
	1/31/2003	0.042	<0.005	1
	9/23/2015	0.191	0.077	1
	9/29/2016	NA	0.0691	1
MW-6	8/30/2001	2	0.19	1
	9/6/2001	2.1	0.27	1
	12/18/2001	5.3	0.55	1
	3/30/2012	0.0746	<0.001	1
	9/27/2012	0.296	0.0322	1
	3/27/2013	0.039	<0.001	1
	9/10/2013	0.42	0.0534	1
	9/25/2014	10.3	1.16	1
	9/23/2015	0.449	0.132	1
	9/28/2016	0.181	0.036	1
MW-7	12/18/2001	13	0.32	1
	3/30/2012	0.577	0.026	1
	9/28/2012	0.384	0.00666	1
	3/27/2013	0.127	<0.001	1
	9/11/2013	0.216	<0.001	1
	9/23/2014	0.315	0.00913	1
	9/22/2015	0.493	0.00995	1
MW-9	8/30/2001	1.6	0.08	1
	9/6/2001	2	0.077	1
	12/18/2001	5.3	0.26	1
	10/21/2009	1.22	0.12	1
	3/30/2012	0.18	0.0437	1
	9/28/2012	0.118	0.0472	1
	3/27/2013	0.232	0.0483	1
	9/11/2013	0.225	0.0613	1
	9/24/2014	0.338	0.0678	1
	9/22/2015	0.375	0.0898	1
	9/28/2016	0.572	0.072	1

Table 3: Summary of SourceDK Model Input

Well ID	Sample Date	Barium (mg/L)	Lead (mg/L)	Number Of Samples
MW-12	8/30/2001	0.5	--	1
	9/6/2001	0.5	--	1
	12/19/2001	0.13	--	1
	10/20/2009	0.12	--	1
	3/29/2012	0.182	<0.001	1
	9/27/2012	0.134	<0.001	1
	3/26/2013	0.102	<0.001	1
	9/10/2013	0.124	<0.001	1
	9/23/2014	0.154	<0.001	1
	9/22/2015	0.130	<0.001	1
MW-13D	8/30/2001	3.2	0.16	1
	9/6/2001	2.4	0.14	1
	12/18/2001	1.7	0.19	1
	3/30/2012	0.273	0.168	1
	9/28/2012	0.295	0.128	1
	3/28/2013	0.383	0.143	1
	9/12/2013	0.338	0.139	1
	9/25/2014	0.254	0.176	1
	9/22/2015	0.169	0.129	1
	9/28/2016	0.219	0.173	1
MW-15	4/8/2003	0.412	0.124	1
	9/25/2014	0.0628	0.311	1
	9/23/2015	<0.075	0.243	1
	9/29/2016	0.22	0.294	1
MW-16	2/14/2003	2.34	0.1	1
	3/29/2012	0.542	0.0239	1
	9/28/2012	0.642	0.022	1
	3/27/2013	0.495	0.00914	1
	9/11/2013	0.631	0.0129	1
	9/24/2014	<0.01	0.0244	1
	9/22/2015	0.531	0.0121	1
	9/28/2016	0.508	0.0161	1
MW-18	1/30/2003	0.2835	0.3665	2
	10/21/2009	0.345	0.318	1
	3/30/2012	0.148	0.0211	1
	9/28/2012	0.093	0.00288	1
	3/27/2013	0.0531	0.00329	1
	9/10/2013	0.124	0.00166	1
	9/24/2014	0.254	0.216	1
	9/23/2015	0.173	0.258	1
	9/29/2016	NA	0.00146	1

Table 3: Summary of SourceDK Model Input

Well ID	Sample Date	Barium (mg/L)	Lead (mg/L)	Number Of Samples
MW-20	1/30/2003	0.045	0.005	1
	10/22/2009	0.0224	0.00344	1
	3/30/2012	0.0447	0.00549	1
	9/27/2012	0.0325	0.0049	1
	3/27/2013	0.0333	0.00689	1
	9/10/2013	0.0413	0.0101	1
	9/24/2014	0.0334	0.0038	1
	9/22/2015	0.0221	0.00347	1
MW-27DDDD	11/10/2004	<0.5	--	1
	2/15/2011	4.34	<0.001	1
	5/3/2012	4.91	<0.001	1
	9/27/2012	5.15	<0.001	1
	3/28/2013	5.55	<0.001	1
	9/12/2013	5.11	<0.001	1
	9/25/2014	6.72	<0.001	1
	9/23/2015	4.95	<0.001	1
	9/28/2016	7.22		
MW-29	10/22/2009	0.985	0.00899	1
	3/30/2012	0.819	0.00733	1
	9/27/2012	0.765	0.00692	1
	3/28/2013	0.764	0.0078	1
	9/11/2013	0.7120	0.00721	1
	9/24/2014	0.682	0.00718	1
	9/23/2015	0.589	0.00715	1
MW-31	5/2/2012	1.09	0.0055	1
	9/23/2015	0.837	0.00894	1

Notes:

mg/L = milligrams per Liter

-- = not analyzed or not used as input

Prepared by/Date: JMQ 11/1/2013
Checked by/Date: JDD 11/5/2013
Revised by: JMQ 11/09/16
Checked by: NM 11/17/16

FIGURES

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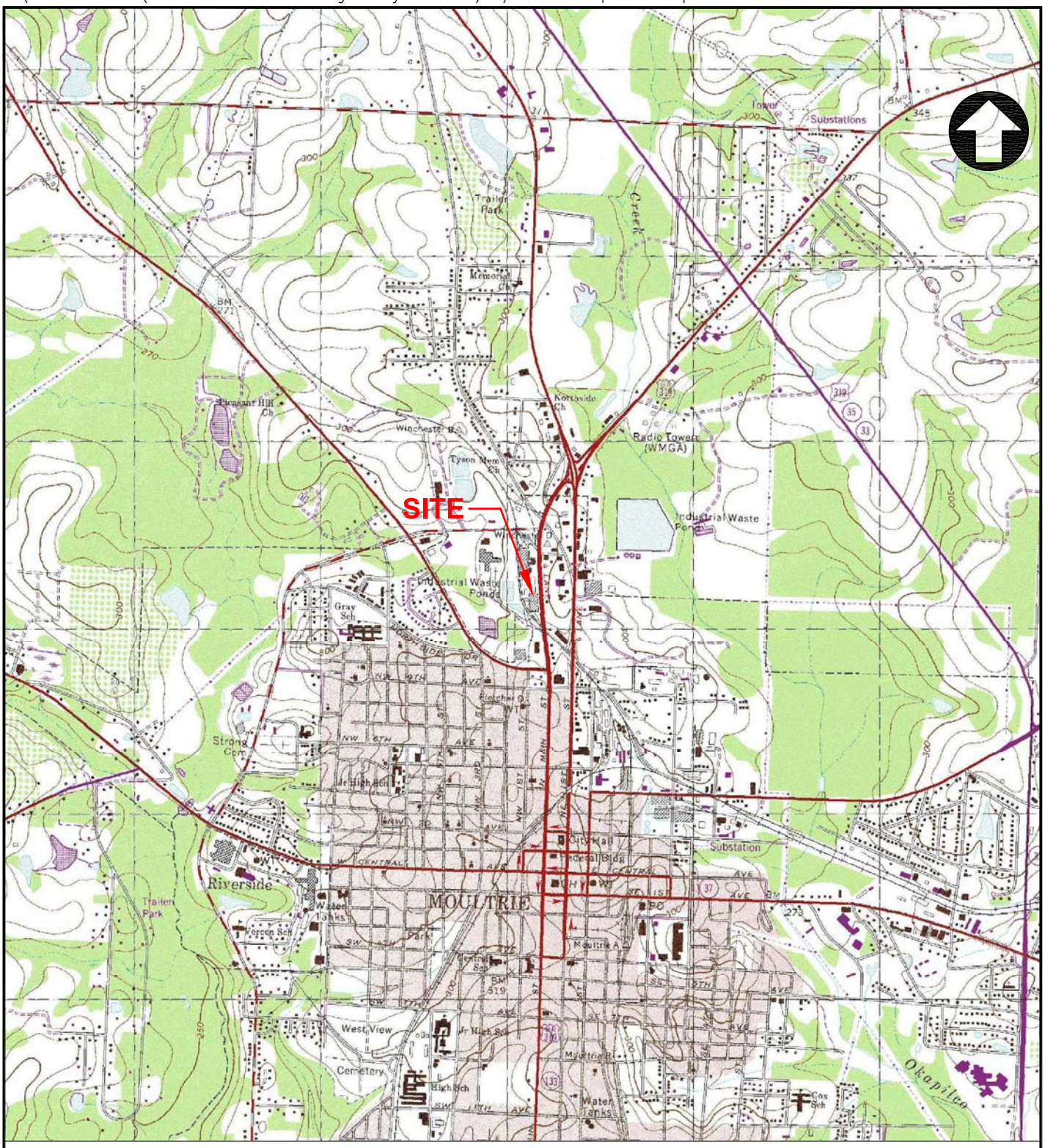


SCALE

0 1 2 MILE

CONTOUR INTERVAL 10 FEET

BASE MAP FROM MOUTRIE QUADRANGLE, 7.5 MINUTE SERIES (TOPOGRAPHIC), 1978, PHOTO REVISED 1988

GEORGIA
QUADRANGLE LOCATION

FORMER SWIFT & COMPANY–
MEAT PROCESSING PLANT
1189 NORTH MAIN STREET
MOULTRIE, GEORGIA COLQUITT
COUNTY

amec foster wheeler

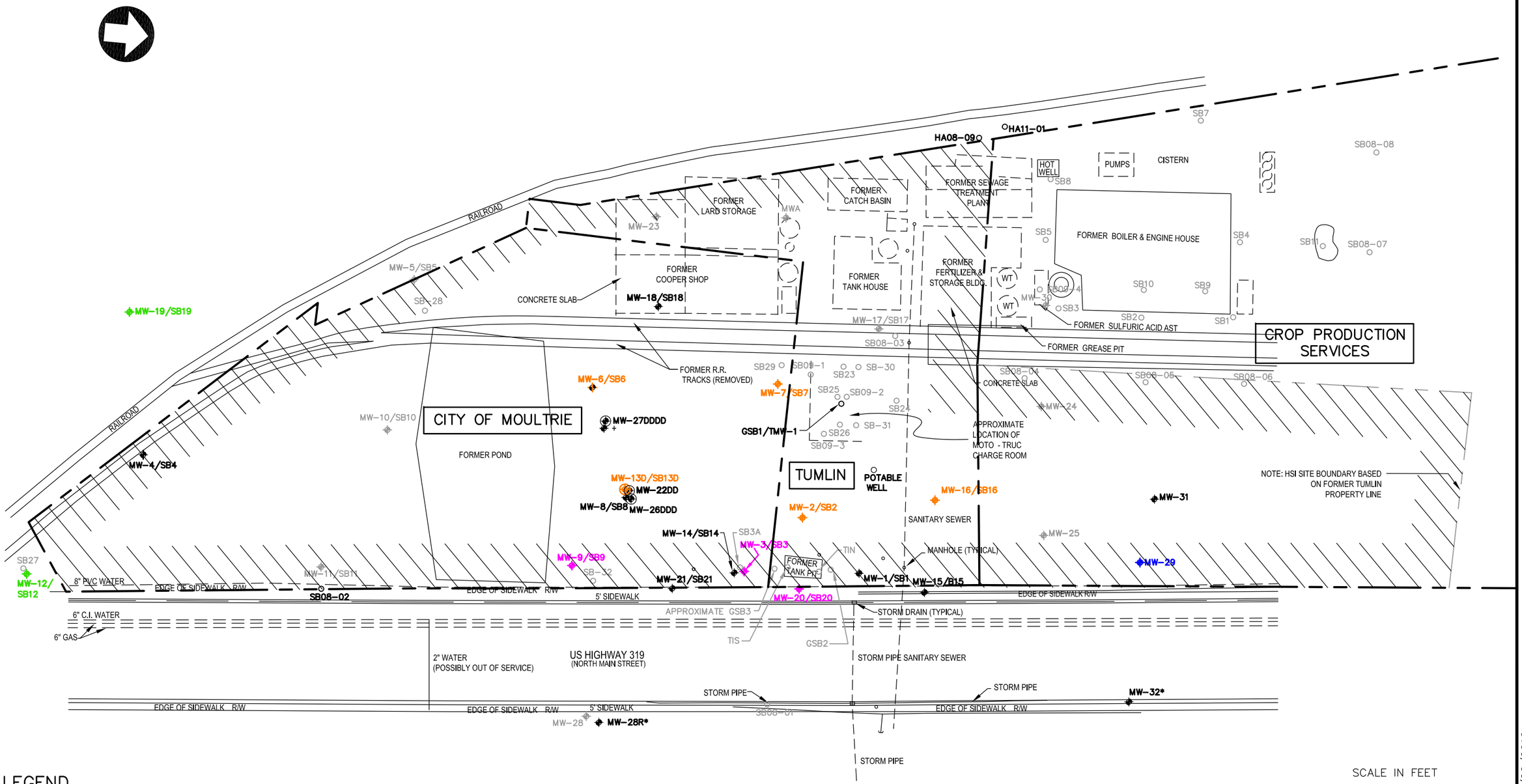
Environment & Infrastructure, Inc.
3200 TOWN POINT DRIVE, SUITE 100
KENNESAW, GEORGIA 30144 (770) 421-3400

SITE LOCATION MAP

JOB NO. 6122-14-0220 FIGURE 1

PREPARED BY/DATE TG 11/16/2015
CHECKED BY/DATE RNQ 11/16/2015

J:\FORMER SWIFT\SEP 2016\SITE MAP SAMP LOC.dwg – Layout1 12/07/2016 3:40pm ligita.kravchuk



LEGEND

- UNDERGROUND UTILITY
- PROPERTY LINE
- MONITORING WELL LOCATION
- UNIDENTIFIED WELL
- DEEP MONITORING WELL LOCATION
- SOIL BORING LOCATION
- WELL NOT LOCATED, PRESUMED DESTROYED
- * WELL INSTALLED NOV 2016 - NOT YET SAMPLED
- HSI SITE

SCALE IN FEET

0 70 140

SOURCE: SITE MAP PREPARED BY ADVANCED ENVIRONMENTAL TECHNOLOGIES, LLC (AET) AND MODIFIED BASED ON COLQUITT COUNTY TAX ASSESSOR PARCEL MAPS AND SURVEY PLAT FOR CROP PRODUCTION SERVICES (DAN HINSON, 2016)

FORMER SWIFT & COMPANY
MEAT PROCESSING PLANT
MOULTRIE, GEORGIA COLQUITT COUNTY

Amec Foster Wheeler
Environment & Infrastructure, Inc.
1075 BIG SHANTY ROAD, NW, SUITE 100
KENNESAW, GEORGIA 30144 (770) 421-3400

SITE MAP

JOB NO. 6122-14-0220 FIGURE 2

PREPARED BY/DATE HVP 11/22/2016
CHECKED BY/DATE JMQ 11/22/2016

J:\FORMER SWIFT\SEP 2016\POTMAP SHALLOW A ZONE 3RD QUAR 2016 PH.dwg – Layout1 12/07/2016 3:40pm ligita.kravchuk

RAILROAD

HA08–09 HA11–01

SB7

HOT WELL

PUMPS

CISTERN

SB8

FORMER SEWAGE TREATMENT PLANT

FORMER CATCH BASIN

FORMER LARD STORAGE

MWA

MW–23

SB5

FORMER BOILER & ENGINE HOUSE

SB4

SB11

MW–5/SB5

FORMER COOPER SHOP

FORMER TANK HOUSE

FORMER FERTILIZER & STORAGE BLDG.

WT

WT

SB10

SB9

SB08–4

MW–30

SB3

SB2

SB1

MW–19/SB19

SB–28

CONCRETE SLAB

MW–18/SB18

MW–17/SB17

SB08–03

FORMER SULFURIC ACID AST

FORMER GREASE PIT

FORMER R.R. TRACKS (REMOVED)

SB29

SB09–1

SB–30

SB23

SB08–04

SB08–05

SB08–06

MW–6/SB6

304.34

MW–7/SB7

SB25

SB09–2

CONCRETE SLAB

MW–24

SB24

RAILROAD

MW–10/SB10

MW–27DDD

GSB1/TMW–1

SB26

SB09–3

SB–31

APPROXIMATE LOCATION OF MOTO - TRUC CHARGE ROOM

FORMER POND

305

306

MW–4/SB4

308.38

308

307

306

MW–13D/SB13D

MW–22DD

307.37

MW–8/SB8

MW–26DDD

307

POTABLE WELL

MW–16/SB16

MW–31

MW–2/SB2

SANITARY SEWER

MW–14/SB14

304.54

SB3A

MW–3/SB3

MW–25

MW–9/SB9

SB–32

MW–21/SB21

FORMER TANK PIT

TIN

MANHOLE (TYPICAL)

MW–29

SB27

MW–11/SB11

MW–1/SB1

MW–15/B15

MW–12/SB12

305.97

6" PVC WATER

EDGE OF SIDEWALK R/W

EDGE OF SIDEWALK R/W

5' SIDEWALK

SB08–02

MW–20/SB20

EDGE OF SIDEWALK R/W

APPROXIMATE GSB3

STORM DRAIN (TYPICAL)

6" C.I. WATER

6" GAS

TIS

GSB2

2" WATER (POSSIBLY OUT OF SERVICE)

US HIGHWAY 319 (NORTH MAIN STREET)

STORM PIPE SANITARY SEWER

STORM PIPE

STORM PIPE

MW–32*

EDGE OF SIDEWALK R/W

EDGE OF SIDEWALK R/W

5' SIDEWALK

SB08–01

EDGE OF SIDEWALK R/W

MW–28

MW–28R*

SCALE IN FEET

0 60 120

STORM PIPE

LEGEND

- UNDERGROUND UTILITY
- PROPERTY LINE
- MONITORING WELL LOCATION
- + UNIDENTIFIED WELL
- DEEP MONITORING WELL LOCATION
- SOIL BORING LOCATION
- WELL NOT LOCATED, PRESUMED DESTROYED
- 307 POTENTIOMETRIC SURFACE CONTOUR
- 304.54 POTENTIOMETRIC SURFACE ELEVATION (FEET, NAVD)
- DIRECTION OF GROUNDWATER FLOW
- * WELL INSTALLED NOV 2016 - NOT YET SAMPLED

SOURCE: SITE MAP PREPARED BY ADVANCED ENVIRONMENTAL TECHNOLOGIES, LLC (AET)

FORMER SWIFT & COMPANY
MEAT PROCESSING PLANT
MOULTRIE, GEORGIA COLQUITT COUNTY

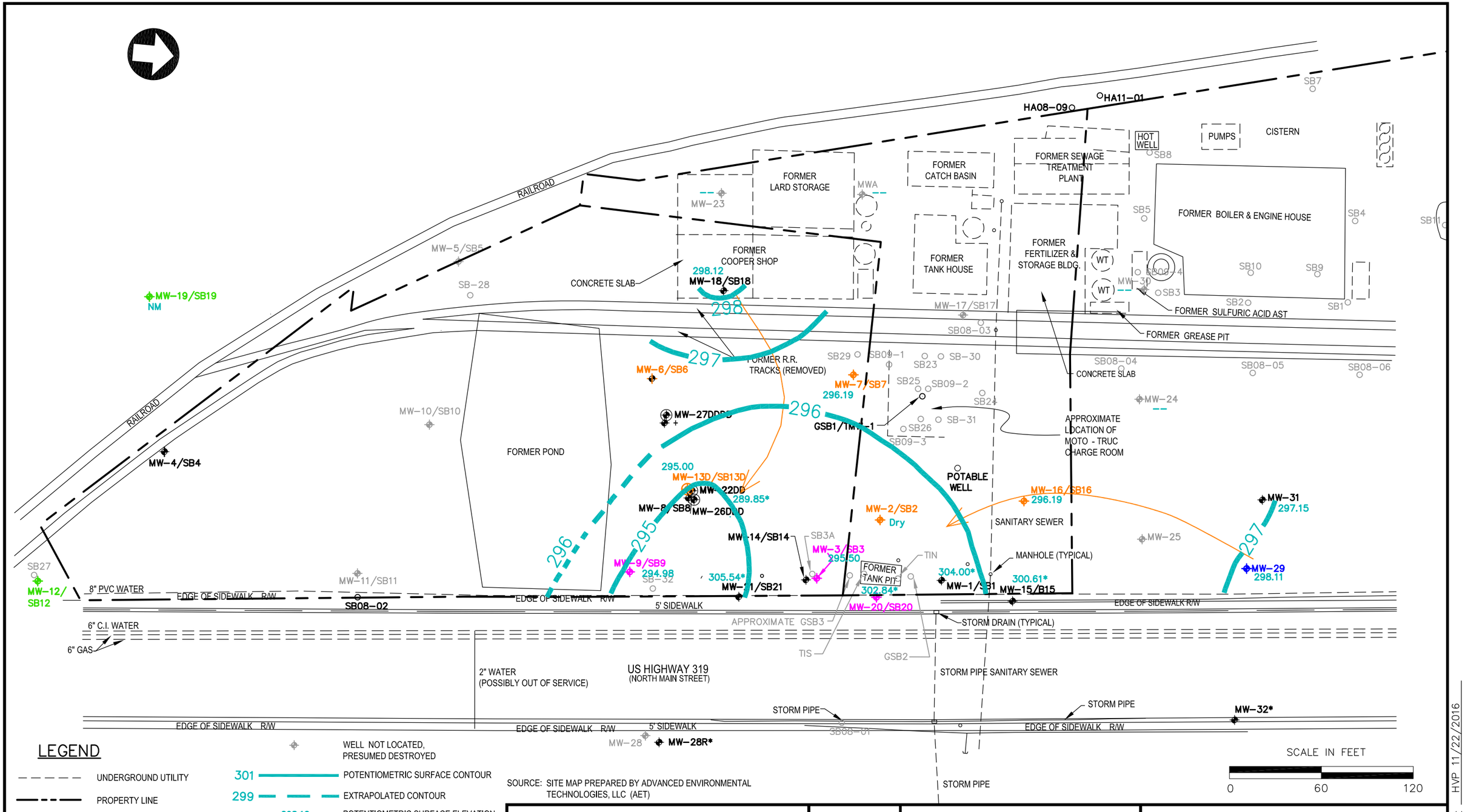
amec foster wheeler

Amec Foster Wheeler
Environment & Infrastructure, Inc.
1075 BIG SHANTY ROAD, NW, SUITE 100
KENNESAW, GEORGIA 30144 (770) 421–3400

POTENTIOMETRIC SURFACE
SHALLOW ZONE A
SEPTEMBER 27, 2016

JOB NO. 6122–14–0220 FIGURE 3

PREPARED BY/DATE HVP 11/22/2016
CHECKED BY/DATE JMQ 11/22/2016



LEGEND

- UNDERGROUND UTILITY
- PROPERTY LINE
- MONITORING WELL LOCATION
- + UNIDENTIFIED WELL
- DEEP MONITORING WELL LOCATION
- SOIL BORING LOCATION
- WELL NOT LOCATED, PRESUMED DESTROYED
- 301 POTENTIOMETRIC SURFACE CONTOUR
- 299 EXTRAPOLATED CONTOUR
- 298.12 POTENTIOMETRIC SURFACE ELEVATION (FEET, NAVD)
- 305.54* ANOMALOUS VALUE. ELEVATION NOT USED IN CONTOURING.
- DIRECTION OF GROUNDWATER FLOW
- * WELL INSTALLED NOV 2016 - NOT YET SAMPLED

SOURCE: SITE MAP PREPARED BY ADVANCED ENVIRONMENTAL TECHNOLOGIES, LLC (AET)

FORMER SWIFT & COMPANY
MEAT PROCESSING PLANT
MOULTRIE, GEORGIA COLQUITT COUNTY

Amec Foster Wheeler
Environment & Infrastructure, Inc.
1075 BIG SHANTY ROAD, NW, SUITE 100
KENNESAW, GEORGIA 30144 (770) 421–3400

POTENTIOMETRIC SURFACE SHALLOW ZONE B SEPTEMBER 27, 2016

JOB NO. 6122–14–0220 FIGURE 4

PREPARED BY/DATE HVP 11/22/2016
CHECKED BY/DATE JMQ 11/22/2016

J:\FORMER SWIFT\SEP 2016\POTMAP 3RD QUAR 2016 PH.dwg – Layout1 12/07/2016 3:43pm ligita.kravchuk

RAILROAD
RAILROAD
HA08–09
HA11–01
SB7
HOT WELL
PUMPS
CISTERN
SB8
FORMER SEWAGE TREATMENT PLANT
FORMER CATCH BASIN
FORMER LARD STORAGE
MW–23
MWA
SB5
FORMER BOILER & ENGINE HOUSE
SB4
MW–5/SB5
FORMER COOPER SHOP
FORMER TANK HOUSE
FORMER FERTILIZER & STORAGE BLDG.
WT
WT
WT
SB10
SB9
SB08–04
MW–30
SB3
SB2
SB1
MW–19/SB19
SB–28
CONCRETE SLAB
MW–18/SB18
6.36
MW–17/SB17
SB08–03
FORMER SULFURIC ACID AST
FORMER GREASE PIT
FORMER R.R. TRACKS (REMOVED)
5.95
MW–6/SB6
SB29
SB09–1
SB23
SB–30
SB08–04
SB08–05
SB08–06
CONCRETE SLAB
MW–7/SB7
5.75
SB25
SB09–2
SB24
MW–24
GSB1/TMW–1
SB26
SB–31
SB09–3
APPROXIMATE LOCATION OF MOTO - TRUC CHARGE ROOM
MW–10/SB10
FORMER POND
4.97*
MW–27DDDD
POTABLE WELL
MW–16/SB16
4.41
MW–31
4.46
MW–2/SB2
SANITARY SEWER
MW–25
MW–4/SB4
6.44
3.73
MW–13D/SB13D
MW–22DD
MW–8/SB8
MW–26DDD
MW–14/SB14
SB3A
MW–3/SB3
TIN
5.62
MANHOLE (TYPICAL)
4.90
MW–9/SB9
SB–32
FORMER TANK PIT
MW–29
4.52
5.53
SB27
MW–12/SB12
8" PVC WATER
EDGE OF SIDEWALK R/W
MW–11/SB11
SB08–02
EDGE OF SIDEWALK R/W
5' SIDEWALK
MW–21/SB21
MW–1/SB1
4.35
MW–15/B15
EDGE OF SIDEWALK R/W
5.96
MW–20/SB20
APPROXIMATE GSB3
STORM DRAIN (TYPICAL)
6" C.I. WATER
6" GAS
TIS
GSB2
2" WATER
(POSSIBLY OUT OF SERVICE)
US HIGHWAY 319
(NORTH MAIN STREET)
STORM PIPE SANITARY SEWER
STORM PIPE
STORM PIPE
MW–32*
EDGE OF SIDEWALK R/W
EDGE OF SIDEWALK R/W
5' SIDEWALK
EDGE OF SIDEWALK R/W
MW–28
MW–28R*
SB08–01
STORM PIPE

LEGEND

- UNDERGROUND UTILITY
- PROPERTY LINE
- MONITORING WELL LOCATION
- UNIDENTIFIED WELL
- DEEP MONITORING WELL LOCATION
- SOIL BORING LOCATION
- WELL NOT LOCATED, PRESUMED DESTROYED
- 6 — ISO CONCENTRATION CONTOUR OF pH
- (6.44) pH VALUES FROM SEPTEMBER, 2016
- * pH CONCENTRATION NOT USED FOR CONTOURING
- * WELL INSTALLED NOV 2016 - NOT YET SAMPLED

SOURCE: SITE MAP PREPARED BY ADVANCED ENVIRONMENTAL TECHNOLOGIES, LLC (AET)

SCALE IN FEET
0 60 120

FORMER SWIFT & COMPANY
MEAT PROCESSING PLANT
MOULTRIE, GEORGIA COLQUITT COUNTY

Amec Foster Wheeler
Environment & Infrastructure, Inc.
1075 BIG SHANTY ROAD, NW, SUITE 100
KENNESAW, GEORGIA 30144 (770) 421–3400

GROUNDWATER QUALITY MAP–pH
SEPTEMBER, 2016

JOB NO. 6122–14–0220 FIGURE 5

PREPARED BY/DATE HVP 11/22/2016
CHECKED BY/DATE JMQ 11/22/2016

RAILROAD
RAILROAD
HA08–09
HA11–01
SB7
HOT WELL
PUMPS
CISTERN
SB8
FORMER SEWAGE TREATMENT PLANT
FORMER CATCH BASIN
FORMER LARD STORAGE
MWA
MW–23
SB5
FORMER BOILER & ENGINE HOUSE
SB4
SB11
MW–5/SB5
FORMER COOPER SHOP
FORMER TANK HOUSE
FORMER FERTILIZER & STORAGE BLDG.
WT
WT
SB10
SB9
MW–30
SB3
SB2
SB1
FORMER SULFURIC ACID AST
FORMER GREASE PIT
MW–19/SB19
NA
SB–28
CONCRETE SLAB
0.1730 (9/15)
MW–18/SB18
MW–17/SB17
SB08–03
SB08–04
SB08–05
SB08–06
CONCRETE SLAB
0.1810
MW–6/SB6
FORMER R.R. TRACKS (REMOVED)
SB09–1
SB–30
SB23
SB09–2
SB25
SB24
SB–31
SB26
SB09–3
MW–24
APPROXIMATE LOCATION OF MOTO – TRUC CHARGE ROOM
MW–10/SB10
MW–27DDDD
7.22*
FORMER POND
0.219
MW–13D/SB13D
MW–22DD
MW–26DDD
POTABLE WELL
0.5080
MW–16/SB16
MW–2/SB2
SANITARY SEWER
MW–31
0.8370 (9/15)
MW–14/SB14
SB3A
MW–3/SB3
TIN
MANHOLE (TYPICAL)
MW–35
0.575
MW–4/SB9
SB27
MW–12/SB12
0.1300 (9/15)
8" PVC WATER
EDGE OF SIDEWALK R/W
MW–11/SB11
SB08–02
EDGE OF SIDEWALK R/W
5' SIDEWALK
MW–21/SB21
FORMER TANK PIT
0.2200
MW–29
0.5890 (9/15)
MW–15/SB15
EDGE OF SIDEWALK R/W
6" C.I. WATER
6" GAS
APPROXIMATE GSB3
MW–20/SB20
0.0221 (9/15)
STORM DRAIN (TYPICAL)
TIS
GSB2
2" WATER (POSSIBLY OUT OF SERVICE)
US HIGHWAY 319 (NORTH MAIN STREET)
STORM PIPE SANITARY SEWER
STORM PIPE
STORM PIPE
MW–32*
EDGE OF SIDEWALK R/W
EDGE OF SIDEWALK R/W
5' SIDEWALK
SB08–07
MW–28
MW–28R*
STORM PIPE
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

LEGEND

- UNDERGROUND UTILITY
- PROPERTY LINE
- MONITORING WELL LOCATION
- \+ UNIDENTIFIED WELL
- DEEP MONITORING WELL LOCATION
- SOIL BORING LOCATION
- WELL NOT LOCATED, PRESUMED DESTROYED
- 0.2 ISO CONCENTRATION CONTOUR OF BARIUM (mg/L)
- (0.219) BARIUM VALUES FROM SEPTEMBER, 2016 (mg/L)
- * BARIUM VALUES NOT USED IN CONTOURING
- 0.0948 (9/15) BARIUM VALUES FROM SEPTEMBER, 2015 (mg/L) USED FOR CONTOURING
- * WELL INSTALLED NOV 2016 - NOT YET SAMPLED

SOURCE: SITE MAP PREPARED BY ADVANCED ENVIRONMENTAL TECHNOLOGIES, LLC (AET)

SCALE IN FEET
0 60 120

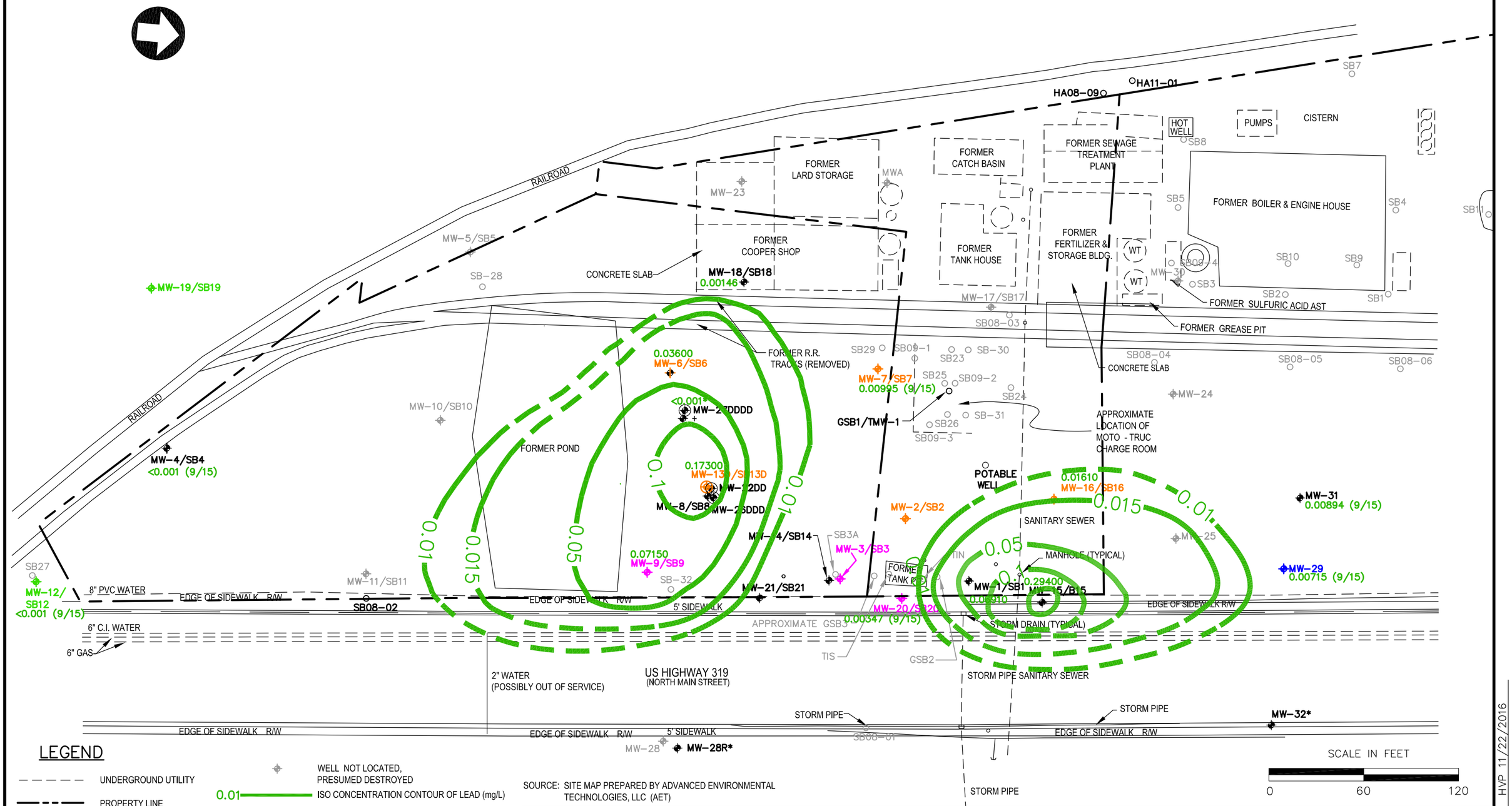
FORMER SWIFT & COMPANY
MEAT PROCESSING PLANT
MOULTRIE, GEORGIA COLQUITT COUNTY

Amec Foster Wheeler
Environment & Infrastructure, Inc.
1075 BIG SHANTY ROAD, NW, SUITE 100
KENNESAW, GEORGIA 30144 (770) 421–3400

GROUNDWATER QUALITY MAP – BARIUM
SEPTEMBER, 2016

JOB NO. 6122–14–0220 FIGURE 6

PREPARED BY/DATE HVP 11/22/2016
CHECKED BY/DATE JMQ 11/22/2016



LEGEND

- UNDERGROUND UTILITY
- PROPERTY LINE
- MONITORING WELL LOCATION
- + UNIDENTIFIED WELL
- DEEP MONITORING WELL LOCATION
- SOIL BORING LOCATION
- WELL NOT LOCATED, PRESUMED DESTROYED
- 0.01 ISO CONCENTRATION CONTOUR OF LEAD (mg/L)
- (0.0715) LEAD VALUES FROM SEPTEMBER, 2016 (mg/L)
- * LEAD VALUES NOT USED IN CONTOURING
- 0.0948 (9/15) BARIUM VALUES FROM SEPTEMBER, 2015 (mg/L) USED FOR CONTOURING
- * WELL INSTALLED NOV 2016 - NOT YET SAMPLED

SOURCE: SITE MAP PREPARED BY ADVANCED ENVIRONMENTAL TECHNOLOGIES, LLC (AET)

FORMER SWIFT & COMPANY
MEAT PROCESSING PLANT
MOULTRIE, GEORGIA COLQUITT COUNTY

Amec Foster Wheeler
Environment & Infrastructure, Inc.
1075 BIG SHANTY ROAD, NW, SUITE 100
KENNESAW, GEORGIA 30144 (770) 421–3400

GROUNDWATER QUALITY MAP – LEAD
SEPTEMBER, 2016

JOB NO. 6122–14–0220 FIGURE 7

PREPARED BY/DATE HVP 11/22/2016
CHECKED BY/DATE JMQ 11/22/2016

APPENDIX A

September 2016 Laboratory Data Reports, Chain Of Custody, And Field Sampling Reports

Laboratory Reports for September 2016 Groundwater Sampling Event

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

October 14, 2016

Mark Andrews
AMEC E&I, Inc. -Kennesaw
1075 Big Shanty Rd NW
Kennesaw GA 30144

TEL: (770) 421-3327
FAX: (770) 421-3308

RE: Swift Moultrie

Dear Mark Andrews: Order No: 1609N31

Analytical Environmental Services, Inc. received 2 samples on 9/28/2016 10:15:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES's accreditations are as follows:
-NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
-NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
-NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Ioana Pacurar

Ioana Pacurar
Project Manager

Revision 10/14/2016

ANALYTICAL ENVIRONMENTAL SERVICES, INC

3080 Presidential Drive, Atlanta GA 30340-3704

AES TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1609N31

Date: 9/27/16 Page 1 of 1

COMPANY:	ADDRESS:
AMEC Foster Wheeler	1075 Big Shanty RD NW Suite 100, Kennesaw, GA
PHONE: 770-421-3400	FAX:
SAMPLED BY: Mark A. & Ever G.	SIGNATURE:

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	Site Metals	Nitrate	Chloride	REMARKS	No # of Containers
1	MW-6	9/27/16	1547	✓		GW	X	X	X		2
2	MW-12	9/27/16	1635	✓		GW		X	X		1
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											

ANALYSIS REQUESTED

PRESERVATION (See codes)

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1:	9/27/16 1700	1:	9/28/16 ms
2:		2:	9/28/16 10:15
3:		3:	

PROJECT INFORMATION

PROJECT NAME: Swift Moultrie

PROJECT #:

SITE ADDRESS: 1189 North Main Street Moultrie, GA

SEND REPORT TO: David Smoak & Mark Andrews

INVOICE TO: (IF DIFFERENT FROM ABOVE)

QUOTE #: PO#:

RECEIPT

Total # of Containers: 3

Turnaround Time Request

- ● Standard 5 Business Days
- ○ 2 Business Day Rush
- ○ Next Business Day Rush
- ○ Same Day Rush **(auth req.)**
- ○ Other

STATE PROGRAM (if any):

E-mail? Y / N; Fax? Y / N

DATA PACKAGE: I II III IV

SPECIAL INSTRUCTIONS/COMMENTS:

Site Metals = Arsenic, Barium, Cadmium Chromium, and Lead

SHIPMENT METHOD

OUT / / VIA:

IN / / VIA:

CLIENT (FedEx) UPS MAIL COURIER

GREYHOUND OTHER

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES. SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

Client: AMEC E&I, Inc. -Kennesaw
Project: Swift Moultrie
Lab ID: 1609N31

Case Narrative

Ion Chromotography Analysis by Method 9056A:

Due to sample matrix, sample(s) 1609N31-001B required dilution during preparation and/or analysis resulting in elevated reporting limits.

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-6
Project Name:	Swift Moultrie	**Collection Date:**	9/27/2016 3:47:00 PM
Lab ID:	1609N31-001	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Arsenic	BRL	0.00500		mg/L	230426	1	10/05/2016 07:32	CC
Barium	0.181	0.0100		mg/L	230426	1	10/05/2016 07:32	CC
Cadmium	BRL	0.000700		mg/L	230426	1	10/05/2016 07:32	CC
Chromium	BRL	0.00500		mg/L	230426	1	10/05/2016 07:32	CC
Lead	0.0360	0.00100		mg/L	230426	1	10/05/2016 07:32	CC
ION SCAN SW9056A								
Chloride	750	50		mg/L	R326252	50	09/28/2016 15:42	JW
Nitrate	BRL	2.5		mg/L	R326252	10	09/28/2016 12:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-12
Project Name:	Swift Moultrie	**Collection Date:**	9/27/2016 4:35:00 PM
Lab ID:	1609N31-002	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
ION SCAN SW9056A								
Chloride	4.5	1.0		mg/L	R326252	1	09/28/2016 11:22	JW
Nitrate	BRL	0.25		mg/L	R326252	1	09/28/2016 11:22	JW

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Amec - Kennesaw Work Order Number 1609N31

Checklist completed by _____ 9/28/16
Signature Date

Carrier name: FedEx __ UPS ✓ Courier __ Client __ US Mail __ Other _____

Shipping container/cooler in good condition? Yes ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present ✓

Custody seals intact on sample bottles? Yes __ No __ Not Present ✓

Container/Temp Blank temperature in compliance? (0°≤6°C)* Yes ✓ No __

Cooler #1 1.7° Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

Chain of custody signed when relinquished and received? Yes ✓ No __

Chain of custody agrees with sample labels? Yes ✓ No __

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

Proceed with Standard TAT as per project history? Yes __ No __ Not Applicable ✓

Water - VOA vials have zero headspace? No VOA vials submitted ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes ✓ No __ Not Applicable __

Adjusted? _____ Checked by CJ

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\Aes_server\I\Sample Receipt\My Documents\COCs and pH Adjustment Sheet\Sample_Cooler_Recipt_Checklist_Rev1.rtf

Analytical Environmental Services, Inc

Date: 5-Oct-16

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift Moultrie
Lab Order: 1609N31

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1609N31-001A	MW-6	9/27/2016 3:47:00PM	Groundwater	Total Metals by ICP/MS		10/3/2016 4:25:00PM	10/05/2016
1609N31-001B	MW-6	9/27/2016 3:47:00PM	Groundwater	ION SCAN			09/28/2016
1609N31-002A	MW-12	9/27/2016 4:35:00PM	Groundwater	ION SCAN			09/28/2016

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift Moultrie
Workorder: 1609N31

ANALYTICAL QC SUMMARY REPORT

BatchID: 230426

Sample ID: **MB-230426** Client ID: Units: **mg/L** Prep Date: **10/03/2016** Run No: **326665**
SampleType: **MBLK** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **230426** Analysis Date: **10/05/2016** Seq No: **7078943**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	BRL	0.00500									
Barium	BRL	0.0100									
Cadmium	BRL	0.000700									
Chromium	BRL	0.00500									
Lead	BRL	0.00100									

Sample ID: **LCS-230426** Client ID: Units: **mg/L** Prep Date: **10/03/2016** Run No: **326665**
SampleType: **LCS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **230426** Analysis Date: **10/05/2016** Seq No: **7078944**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.1017	0.00500	0.1000		102	80	120				
Barium	0.1028	0.0100	0.1000		103	80	120				
Cadmium	0.1032	0.000700	0.1000		103	80	120				
Chromium	0.1023	0.00500	0.1000	0.0007860	102	80	120				
Lead	0.1013	0.00100	0.1000		101	80	120				

Sample ID: **1609N31-001AMS** Client ID: **MW-6** Units: **mg/L** Prep Date: **10/03/2016** Run No: **326665**
SampleType: **MS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **230426** Analysis Date: **10/05/2016** Seq No: **7078946**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.1023	0.00500	0.1000	0.001529	101	75	125				
Barium	0.2817	0.0100	0.1000	0.1811	101	75	125				
Cadmium	0.1011	0.000700	0.1000	0.0004770	101	75	125				
Chromium	0.1003	0.00500	0.1000	0.001372	98.9	75	125				
Lead	0.1400	0.00100	0.1000	0.03603	104	75	125				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift Moultrie
Workorder: 1609N31

ANALYTICAL QC SUMMARY REPORT

BatchID: 230426

Sample ID: **1609N31-001AMSD** Client ID: **MW-6** Units: **mg/L** Prep Date: **10/03/2016** Run No: **326665**
SampleType: **MSD** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **230426** Analysis Date: **10/05/2016** Seq No: **7078947**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.1037	0.00500	0.1000	0.001529	102	75	125	0.1023	1.36	20	
Barium	0.2842	0.0100	0.1000	0.1811	103	75	125	0.2817	0.884	20	
Cadmium	0.1030	0.000700	0.1000	0.0004770	103	75	125	0.1011	1.86	20	
Chromium	0.1014	0.00500	0.1000	0.001372	100	75	125	0.1003	1.09	20	
Lead	0.1426	0.00100	0.1000	0.03603	107	75	125	0.1400	1.84	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift Moultrie
Workorder: 1609N31

ANALYTICAL QC SUMMARY REPORT

BatchID: R326252

Sample ID: **MB-R326252** Client ID: Units: **mg/L** Prep Date: Run No: **326252**
SampleType: **MBLK** TestCode: **ION SCAN SW9056A** BatchID: **R326252** Analysis Date: **09/28/2016** Seq No: **7066629**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	BRL	1.0									
Nitrate	BRL	0.25									

Sample ID: **LCS-R326252** Client ID: Units: **mg/L** Prep Date: Run No: **326252**
SampleType: **LCS** TestCode: **ION SCAN SW9056A** BatchID: **R326252** Analysis Date: **09/28/2016** Seq No: **7066628**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	9.604	1.0	10.00		96.0	90	110				
Nitrate	4.800	0.25	5.000		96.0	90	110				

Sample ID: **1609N85-002BMS** Client ID: Units: **mg/L** Prep Date: Run No: **326252**
SampleType: **MS** TestCode: **ION SCAN SW9056A** BatchID: **R326252** Analysis Date: **09/28/2016** Seq No: **7066638**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	150.6	10	100.0	52.42	98.1	90	110				
Nitrate	63.54	2.5	50.00	13.29	101	90	110				

Sample ID: **1609N85-002BMSD** Client ID: Units: **mg/L** Prep Date: Run No: **326252**
SampleType: **MSD** TestCode: **ION SCAN SW9056A** BatchID: **R326252** Analysis Date: **09/28/2016** Seq No: **7066639**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	150.4	10	100.0	52.42	98.0	90	110	150.6	0.079	20	
Nitrate	63.49	2.5	50.00	13.29	100	90	110	63.54	0.078	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

October 14, 2016

Mark Andrews
AMEC E&I, Inc. -Kennesaw
1075 Big Shanty Rd NW
Kennesaw GA 30144

TEL: (770) 421-3327
FAX: (770) 421-3308

RE: Swift - Moultrie

Dear Mark Andrews: Order No: 1609O92

Analytical Environmental Services, Inc. received 8 samples on 9/29/2016 10:20:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES's accreditations are as follows:
-NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
-NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
-NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Ioana Pacurar

Ioana Pacurar
Project Manager

Revision 10/14/2016

ANALYTICAL ENVIRONMENTAL SERVICES, INC

3080 Presidential Drive, Atlanta GA 30340-3704
AES TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1609092

Date: 9/28/16 Page 1 of 1

COMPANY:	ADDRESS:
AMEC Foster Wheeler	1075 Big Shanty RD NW Suite 100, Kennesaw, GA
PHONE: 770-421-3400	FAX:
SAMPLED BY: Mark A. & Ever G.	SIGNATURE:

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes) V	I	I	ANALYSIS REQUESTED: Site Metals	Nitrate	Chloride	REMARKS	No # of Containers
1	MW-9	9/28/16	1022	✓		GW	X	X	X					2
2	MW-13D	9/28/16	1157	✓		GW	X	X	X					2
3	DUP-1	9/28/16	1200	✓		GW	X	X	X					2
4	EB-1	9/28/16	1120	✓		GW	X	X	X					2
5	MW-7	9/28/16	1040	✓		GW		X	X					1
6	MW-16	9/28/16	1422	✓		GW	X	X	X					2
7	MW-16MS	9/28/16	1422	✓		GW	X	X	X					2
8	MW-16MSD	9/28/16	1422	✓		GW	X	X	X					2
9	MW-27DDDD	9/28/16	1540	✓		GW	X	X	X					2
10	MW-4	9/28/16	1640	✓		GW		X	X					1
11														
12														
13														
14														

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1:	9-28-16/1700	1: Alan Jr.	9/29/16 10:20
2:		2:	
3:		3:	

SPECIAL INSTRUCTIONS/COMMENTS:
Site metals = Arsenic, Barium, Cadmium, Chromium, and Lead

SHIPMENT METHOD
OUT / / VIA:
IN / / VIA:
CLIENT FedEx UPS MAIL COURIER
GREYHOUND OTHER_____

PROJECT INFORMATION

PROJECT NAME: Swift Moultrie
PROJECT #:
SITE ADDRESS: 1189 North Main Street Moultrie, GA
SEND REPORT TO: David Smoak & Mark Andrews
INVOICE TO: (IF DIFFERENT FROM ABOVE)
QUOTE #: PO#:

RECEIPT
Total # of Containers

Turnaround Time Request
- ● Standard 5 Business Days
- ○ 2 Business Day Rush
- ○ Next Business Day Rush
- ○ Same Day Rush (auth req.)
- ○ Other _____

STATE PROGRAM (if any): _____
E-mail? Y / N; Fax? Y / N
DATA PACKAGE: I II III IV

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES.
SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water
PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

Client: AMEC E&I, Inc. -Kennesaw
Project: Swift - Moultrie
Lab ID: 1609O92

Case Narrative

IC Analysis by Method 9056A:

Due to sample matrix, sample(s) 1609O92-001B, -002B, -003B, -005A, -006B, and -007B required a dilution during preparation and/or analysis resulting in elevated reporting limits.

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-9
Project Name:	Swift - Moultrie	**Collection Date:**	9/28/2016 10:22:00 AM
Lab ID:	1609O92-001	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Arsenic	BRL	0.00500		mg/L	230512	1	10/06/2016 06:17	CC
Barium	0.575	0.0100		mg/L	230512	1	10/06/2016 06:17	CC
Cadmium	0.000918	0.000700		mg/L	230512	1	10/06/2016 06:17	CC
Chromium	BRL	0.00500		mg/L	230512	1	10/06/2016 06:17	CC
Lead	0.0715	0.00100		mg/L	230512	1	10/06/2016 06:17	CC
ION SCAN SW9056A								
Chloride	690	50		mg/L	R326571	50	09/29/2016 15:16	JW
Nitrate	BRL	12		mg/L	R326571	50	09/29/2016 15:16	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-13D
Project Name:	Swift - Moultrie	**Collection Date:**	9/28/2016 11:57:00 AM
Lab ID:	1609O92-002	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Arsenic	BRL	0.00500		mg/L	230512	1	10/06/2016 06:23	CC
Barium	0.219	0.0100		mg/L	230512	1	10/06/2016 06:23	CC
Cadmium	0.00219	0.000700		mg/L	230512	1	10/06/2016 06:23	CC
Chromium	BRL	0.00500		mg/L	230512	1	10/06/2016 06:23	CC
Lead	0.173	0.00100		mg/L	230512	1	10/06/2016 06:23	CC
ION SCAN SW9056A								
Chloride	1800	50		mg/L	R326571	50	09/29/2016 15:31	JW
Nitrate	BRL	12		mg/L	R326571	50	09/29/2016 15:31	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	DUP-1
Project Name:	Swift - Moultrie	**Collection Date:**	9/28/2016 12:00:00 PM
Lab ID:	1609O92-003	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Arsenic	BRL	0.00500		mg/L	230512	1	10/06/2016 06:48	CC
Barium	0.572	0.0100		mg/L	230512	1	10/06/2016 06:48	CC
Cadmium	0.000938	0.000700		mg/L	230512	1	10/06/2016 06:48	CC
Chromium	BRL	0.00500		mg/L	230512	1	10/06/2016 06:48	CC
Lead	0.0720	0.00100		mg/L	230512	1	10/06/2016 06:48	CC
ION SCAN SW9056A								
Chloride	710	50		mg/L	R326571	50	09/29/2016 15:46	JW
Nitrate	BRL	12		mg/L	R326571	50	09/29/2016 15:46	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	EB-1
Project Name:	Swift - Moultrie	**Collection Date:**	9/28/2016 11:20:00 AM
Lab ID:	1609O92-004	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Arsenic	BRL	0.00500		mg/L	230512	1	10/06/2016 06:54	CC
Barium	BRL	0.0100		mg/L	230512	1	10/06/2016 06:54	CC
Cadmium	BRL	0.000700		mg/L	230512	1	10/06/2016 06:54	CC
Chromium	BRL	0.00500		mg/L	230512	1	10/06/2016 06:54	CC
Lead	BRL	0.00100		mg/L	230512	1	10/06/2016 06:54	CC
ION SCAN SW9056A								
Chloride	BRL	1.0		mg/L	R326571	1	09/29/2016 14:55	JW
Nitrate	BRL	0.25		mg/L	R326571	1	09/29/2016 14:55	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-7
Project Name:	Swift - Moultrie	**Collection Date:**	9/28/2016 10:40:00 AM
Lab ID:	1609O92-005	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
ION SCAN SW9056A								
Chloride	1100	50		mg/L	R326571	50	09/29/2016 16:00	JW
Nitrate	BRL	12		mg/L	R326571	50	09/29/2016 16:00	JW

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-16
Project Name:	Swift - Moultrie	**Collection Date:**	9/28/2016 2:22:00 PM
Lab ID:	1609O92-006	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Arsenic	BRL	0.00500		mg/L	230512	1	10/06/2016 05:46	CC
Barium	0.508	0.0100		mg/L	230512	1	10/06/2016 05:46	CC
Cadmium	BRL	0.000700		mg/L	230512	1	10/06/2016 05:46	CC
Chromium	BRL	0.00500		mg/L	230512	1	10/06/2016 05:46	CC
Lead	0.0161	0.00100		mg/L	230512	1	10/06/2016 05:46	CC
ION SCAN SW9056A								
Chloride	250	50		mg/L	R326571	50	09/29/2016 16:15	JW
Nitrate	BRL	12		mg/L	R326571	50	09/29/2016 16:15	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-27DDDD
Project Name:	Swift - Moultrie	**Collection Date:**	9/28/2016 3:40:00 PM
Lab ID:	1609O92-007	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Arsenic	BRL	0.00500		mg/L	230512	1	10/06/2016 07:01	CC
Barium	7.22	0.0100		mg/L	230512	1	10/06/2016 07:01	CC
Cadmium	0.00311	0.000700		mg/L	230512	1	10/06/2016 07:01	CC
Chromium	BRL	0.00500		mg/L	230512	1	10/06/2016 07:01	CC
Lead	BRL	0.00100		mg/L	230512	1	10/06/2016 07:01	CC
ION SCAN SW9056A								
Chloride	690	50		mg/L	R326571	50	09/29/2016 16:30	JW
Nitrate	BRL	12		mg/L	R326571	50	09/29/2016 16:30	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-4
Project Name:	Swift - Moultrie	**Collection Date:**	9/28/2016 4:40:00 PM
Lab ID:	1609O92-008	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
ION SCAN SW9056A								
Chloride	3.9	1.0		mg/L	R326571	1	09/30/2016 09:47	JW
Nitrate	2.2	0.25		mg/L	R326571	1	09/30/2016 09:47	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client AMEC Work Order Number 1609092

Checklist completed by Alan Yc 9/20/16
Signature Date

Carrier name: FedEx ✓ UPS __ Courier __ Client __ US Mail __ Other _____

Shipping container/cooler in good condition? Yes ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present ✓

Custody seals intact on sample bottles? Yes __ No __ Not Present ✓

Container/Temp Blank temperature in compliance? (0°≤6°C)* Yes ✓ No __

Cooler #1 5.8° Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

Chain of custody signed when relinquished and received? Yes ✓ No __

Chain of custody agrees with sample labels? Yes ✓ No __

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

Proceed with Standard TAT as per project history? Yes __ No __ Not Applicable ✓

Water - VOA vials have zero headspace? No VOA vials submitted ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes ✓ No __ Not Applicable __

Adjusted? _____ Checked by AD

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\Aes_server\I\Sample Receipt\My Documents\COCs and pH Adjustment Sheet\Sample_Cooler_Recipt_Checklist_Rev1.rtf

Analytical Environmental Services, Inc

Date: 6-Oct-16

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift - Moultrie
Lab Order: 1609O92

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1609O92-001A	MW-9	9/28/2016 10:22:00AM	Groundwater	Total Metals by ICP/MS		10/4/2016 6:14:00 PM	10/06/2016
1609O92-001B	MW-9	9/28/2016 10:22:00AM	Groundwater	ION SCAN			09/29/2016
1609O92-002A	MW-13D	9/28/2016 11:57:00AM	Groundwater	Total Metals by ICP/MS		10/4/2016 6:14:00 PM	10/06/2016
1609O92-002B	MW-13D	9/28/2016 11:57:00AM	Groundwater	ION SCAN			09/29/2016
1609O92-003A	DUP-1	9/28/2016 12:00:00PM	Groundwater	Total Metals by ICP/MS		10/4/2016 6:14:00 PM	10/06/2016
1609O92-003B	DUP-1	9/28/2016 12:00:00PM	Groundwater	ION SCAN			09/29/2016
1609O92-004A	EB-1	9/28/2016 11:20:00AM	Groundwater	Total Metals by ICP/MS		10/4/2016 6:14:00 PM	10/06/2016
1609O92-004B	EB-1	9/28/2016 11:20:00AM	Groundwater	ION SCAN			09/29/2016
1609O92-005A	MW-7	9/28/2016 10:40:00AM	Groundwater	ION SCAN			09/29/2016
1609O92-006A	MW-16	9/28/2016 2:22:00PM	Groundwater	Total Metals by ICP/MS		10/4/2016 6:14:00 PM	10/06/2016
1609O92-006B	MW-16	9/28/2016 2:22:00PM	Groundwater	ION SCAN			09/29/2016
1609O92-007A	MW-27DDDD	9/28/2016 3:40:00PM	Groundwater	Total Metals by ICP/MS		10/4/2016 6:14:00 PM	10/06/2016
1609O92-007B	MW-27DDDD	9/28/2016 3:40:00PM	Groundwater	ION SCAN			09/29/2016
1609O92-008A	MW-4	9/28/2016 4:40:00PM	Groundwater	ION SCAN			09/30/2016

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift - Moultrie
Workorder: 1609O92

ANALYTICAL QC SUMMARY REPORT

BatchID: 230512

Sample ID: **MB-230512** Client ID: Units: **mg/L** Prep Date: **10/04/2016** Run No: **326777**
SampleType: **MBLK** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **230512** Analysis Date: **10/06/2016** Seq No: **7081443**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	BRL	0.00500									
Barium	BRL	0.0100									
Cadmium	BRL	0.000700									
Chromium	BRL	0.00500									
Lead	BRL	0.00100									

Sample ID: **LCS-230512** Client ID: Units: **mg/L** Prep Date: **10/04/2016** Run No: **326777**
SampleType: **LCS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **230512** Analysis Date: **10/06/2016** Seq No: **7081444**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.1055	0.00500	0.1000		106	80	120				
Barium	0.1067	0.0100	0.1000		107	80	120				
Cadmium	0.1050	0.000700	0.1000		105	80	120				
Chromium	0.1051	0.00500	0.1000	0.0009080	104	80	120				
Lead	0.1028	0.00100	0.1000		103	80	120				

Sample ID: **1609O92-006AMS** Client ID: **MW-16** Units: **mg/L** Prep Date: **10/04/2016** Run No: **326777**
SampleType: **MS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **230512** Analysis Date: **10/06/2016** Seq No: **7081446**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.1051	0.00500	0.1000	0.0003180	105	75	125				
Barium	0.6633	0.0100	0.1000	0.5084	155	75	125				S
Cadmium	0.1049	0.000700	0.1000		105	75	125				
Chromium	0.1044	0.00500	0.1000	0.002266	102	75	125				
Lead	0.1217	0.00100	0.1000	0.01611	106	75	125				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift - Moultrie
Workorder: 1609O92

ANALYTICAL QC SUMMARY REPORT

BatchID: 230512

Sample ID: **1609O92-006AMSD** Client ID: **MW-16** Units: **mg/L** Prep Date: **10/04/2016** Run No: **326777**
SampleType: **MSD** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **230512** Analysis Date: **10/06/2016** Seq No: **7081447**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.1052	0.00500	0.1000	0.0003180	105	75	125	0.1051	0.095	20	
Barium	0.6611	0.0100	0.1000	0.5084	153	75	125	0.6633	0.332	20	S
Cadmium	0.1059	0.000700	0.1000		106	75	125	0.1049	0.949	20	
Chromium	0.1054	0.00500	0.1000	0.002266	103	75	125	0.1044	0.953	20	
Lead	0.1232	0.00100	0.1000	0.01611	107	75	125	0.1217	1.22	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift - Moultrie
Workorder: 1609O92

ANALYTICAL QC SUMMARY REPORT

BatchID: R326571

Sample ID: **MB-R326571** Client ID: Units: **mg/L** Prep Date: Run No: **326571**
SampleType: **MBLK** TestCode: **ION SCAN SW9056A** BatchID: **R326571** Analysis Date: **09/29/2016** Seq No: **7076180**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	BRL	1.0									
Nitrate	BRL	0.25									

Sample ID: **LCS-R326571** Client ID: Units: **mg/L** Prep Date: Run No: **326571**
SampleType: **LCS** TestCode: **ION SCAN SW9056A** BatchID: **R326571** Analysis Date: **09/29/2016** Seq No: **7076179**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	9.580	1.0	10.00	0.1263	94.5	90	110				
Nitrate	4.801	0.25	5.000		96.0	90	110				

Sample ID: **1609O26-001AMS** Client ID: Units: **mg/L** Prep Date: Run No: **326571**
SampleType: **MS** TestCode: **ION SCAN SW9056A** BatchID: **R326571** Analysis Date: **09/29/2016** Seq No: **7076204**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	10.91	1.0	10.00	1.743	91.7	90	110				
Nitrate	5.765	0.25	5.000	0.8333	98.6	90	110				

Sample ID: **1609O92-006BMS** Client ID: **MW-16** Units: **mg/L** Prep Date: Run No: **326571**
SampleType: **MS** TestCode: **ION SCAN SW9056A** BatchID: **R326571** Analysis Date: **09/29/2016** Seq No: **7076202**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	779.3	50	500.0	251.0	106	90	110				
Nitrate	246.2	12	250.0	4.569	96.7	90	110				

Sample ID: **1609O92-006BMSD** Client ID: **MW-16** Units: **mg/L** Prep Date: Run No: **326571**
SampleType: **MSD** TestCode: **ION SCAN SW9056A** BatchID: **R326571** Analysis Date: **09/29/2016** Seq No: **7076203**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	751.0	50	500.0	251.0	100	90	110	779.3	3.69	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift - Moultrie
Workorder: 1609O92

ANALYTICAL QC SUMMARY REPORT

BatchID: R326571

Sample ID: **1609O92-006BMSD** Client ID: **MW-16** Units: **mg/L** Prep Date: Run No: **326571**
SampleType: **MSD** TestCode: **ION SCAN SW9056A** BatchID: **R326571** Analysis Date: **09/29/2016** Seq No: **7076203**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Nitrate	244.2	12	250.0	4.569	95.9	90	110	246.2	0.821	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

AES

October 14, 2016

Mark Andrews
AMEC E&I, Inc. -Kennesaw
1075 Big Shanty Rd NW
Kennesaw GA 30144

TEL: (770) 421-3327
FAX: (770) 421-3308

RE: Swift Moultrie

Dear Mark Andrews: Order No: 1609Q19

Analytical Environmental Services, Inc. received 6 samples on 9/30/2016 10:55:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES's accreditations are as follows:
-NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
-NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
-NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Ioana Pacurar

Ioana Pacurar
Project Manager

Revision 10/14/2016

ANALYTICAL ENVIRONMENTAL SERVICES, INC

3080 Presidential Drive Atlanta GA 30340- 3906

TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1609019

Date: 9-29-16 Page 1 of 1

COMPANY: AMEC Foster Wheeler

ADDRESS: 1075 Big Shanty RD NW Suite 100, Kennesaw, GA

PHONE: 770-421-3400

FAX:

SAMPLED BY: Mark A. & Ever G

SIGNATURE:

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	Total 8 Metals	Dissolved 8 Metals	Nitrate	Chloride	Total Lead	Dissolved Lead	Total Arsenic	Total Cadmium	No # of Containers
1	MW-15	9-29-16	1157	✓		GW	X	X	X	X					3
2	MW-18	9-29-16	0950	✓		GW			X	X	X		X	X	2
3	MW-1	9-29-16	1347	✓		GW			X	X	X	X			3
4	~~MW-28~~	~~9-29-16~~		~~DRY~~		~~GW~~									
5	MW-20	9-29-16	1135	✓		GW			X	X					1
6	MW-29	9-29-16	1330	✓		GW			X	X					1
7	MW-31	9-29-16	1515	✓		GW			X	X					1
8															
9															
10															
11															
12															
13															
14															

ANALYSIS REQUESTED

PRESERVATION (See codes)

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

REMARKS

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1:	9/30/16/1055	1: Jennifer Shelly	9/30/16 10:55 am
2:		2:	
3:		3:	

SPECIAL INSTRUCTIONS/COMMENTS: Site Metals = Arsenic, Barium, Cadmium, Chromium, and Lead. Dissolved samples field filtered

SHIPMENT METHOD

OUT / / VIA:

IN / / VIA:

CLIENT FedEx UPS MAIL COURIER GREYHOUND OTHER

PROJECT INFORMATION

PROJECT NAME: Swift Manufacturing

PROJECT #:

SITE ADDRESS: 1184 North Main Street Moultrie, GA

SEND REPORT TO: David Smoak & Mark Andrews

INVOICE TO: (IF DIFFERENT FROM ABOVE)

QUOTE #: PO#:

RECEIPT

Total # of Containers

Turnaround Time Request

- [x] Standard 5 Business Days
- [ ] 2 Business Day Rush
- [ ] Next Business Day Rush
- [ ] Same Day Rush (auth req.)
- [ ] Other

STATE PROGRAM (if any):

E-mail? Y / N; Fax? Y / N

DATA PACKAGE: I II III IV

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED WITH STANDARD TAT.

SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) WW=Wastewater DW=Drinking Water O = Other (specify)

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

Client: AMEC E&I, Inc. -Kennesaw
Project: Swift Moultrie
Lab ID: 1609Q19

Case Narrative

IC Analysis by Method 9056A:

Due to sample matrix, sample MW-15 and MW-18 required a dilution during preparation and/or analysis resulting in elevated reporting limits.

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-15
Project Name:	Swift Moultrie	**Collection Date:**	9/29/2016 11:57:00 AM
Lab ID:	1609Q19-001	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Arsenic	0.00672	0.00500		mg/L	230565	1	10/07/2016 02:12	CC
Barium	0.220	0.0100		mg/L	230565	1	10/07/2016 02:12	CC
Cadmium	0.131	0.000700		mg/L	230565	1	10/07/2016 02:12	CC
Chromium	0.0246	0.00500		mg/L	230565	1	10/07/2016 02:12	CC
Lead	0.294	0.00100		mg/L	230565	1	10/07/2016 02:12	CC
ION SCAN SW9056A								
Chloride	2000	100		mg/L	R326904	100	09/30/2016 18:55	JW
Nitrate	BRL	25		mg/L	R326904	100	09/30/2016 18:55	JW
Dissolved Metals by ICP/MS SW6020B					**(SW3005A)**			
Arsenic	BRL	0.00500		mg/L	230628	1	10/07/2016 02:43	CC
Barium	0.0766	0.0100		mg/L	230628	1	10/07/2016 02:43	CC
Cadmium	0.103	0.000700		mg/L	230628	1	10/07/2016 02:43	CC
Chromium	BRL	0.00500		mg/L	230628	1	10/07/2016 02:43	CC
Lead	0.236	0.00100		mg/L	230628	1	10/07/2016 02:43	CC

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-18
Project Name:	Swift Moultrie	**Collection Date:**	9/29/2016 9:50:00 AM
Lab ID:	1609Q19-002	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Arsenic	BRL	0.00500		mg/L	230565	1	10/07/2016 02:18	CC
Cadmium	BRL	0.000700		mg/L	230565	1	10/07/2016 02:18	CC
Lead	0.00146	0.00100		mg/L	230565	1	10/07/2016 02:18	CC
ION SCAN SW9056A								
Chloride	360	50		mg/L	R326904	50	09/30/2016 19:10	JW
Nitrate	BRL	12		mg/L	R326904	50	09/30/2016 19:10	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-1
Project Name:	Swift Moultrie	**Collection Date:**	9/29/2016 1:47:00 PM
Lab ID:	1609Q19-003	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B (SW3005A)								
Lead	0.0691	0.00100		mg/L	230565	1	10/07/2016 02:24	CC
ION SCAN SW9056A								
Chloride	11	1.0		mg/L	R326904	1	09/30/2016 19:25	JW
Nitrate	BRL	0.25		mg/L	R326904	1	09/30/2016 19:25	JW
Dissolved Metals by ICP/MS SW6020B (SW3005A)								
Lead	BRL	0.00100		mg/L	230628	1	10/07/2016 03:33	CC

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-20
Project Name:	Swift Moultrie	**Collection Date:**	9/29/2016 11:35:00 AM
Lab ID:	1609Q19-004	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
ION SCAN SW9056A								
Chloride	7.0	1.0		mg/L	R326904	1	09/30/2016 17:24	JW
Nitrate	BRL	0.25		mg/L	R326904	1	09/30/2016 17:24	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-29
Project Name:	Swift Moultrie	**Collection Date:**	9/29/2016 1:30:00 PM
Lab ID:	1609Q19-005	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
ION SCAN SW9056A								
Chloride	110	50		mg/L	R326904	50	09/30/2016 20:32	JW
Nitrate	1.1	0.25		mg/L	R326904	1	09/30/2016 17:40	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 14-Oct-16

Client:	AMEC E&I, Inc. -Kennesaw	**Client Sample ID:**	MW-31
Project Name:	Swift Moultrie	**Collection Date:**	9/29/2016 3:15:00 PM
Lab ID:	1609Q19-006	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
ION SCAN SW9056A								
Chloride	150	50		mg/L	R326904	50	09/30/2016 20:47	JW
Nitrate	5.0	0.25		mg/L	R326904	1	09/30/2016 17:55	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client AMEC/Kennesaw Work Order Number 1609Q19

Checklist completed by [signature] 9/30/2016
Signature Date

Carrier name: FedEx __ UPS __ Courier __ Client ✓ US Mail __ Other _____

Shipping container/cooler in good condition? Yes ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present ✓

Custody seals intact on sample bottles? Yes __ No __ Not Present ✓

Container/Temp Blank temperature in compliance? (0°≤6°C)* Yes ✓ No __

Cooler #1 3.8°C Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

Chain of custody signed when relinquished and received? Yes ✓ No __

Chain of custody agrees with sample labels? Yes ✓ No __

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

Proceed with Standard TAT as per project history? Yes __ No __ Not Applicable ✓

Water - VOA vials have zero headspace? No VOA vials submitted ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes ✓ No __ Not Applicable __

Adjusted? _____ Checked by CJ

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\Aes_server\l\Sample Receipt\My Documents\COCs and pH Adjustment Sheet\Sample_Cooler_Recipt_Checklist_Rev1.rtf

Analytical Environmental Services, Inc

Date: 11-Oct-16

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift Moultrie
Lab Order: 1609Q19

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1609Q19-001A	MW-15	9/29/2016 11:57:00AM	Groundwater	Total Metals by ICP/MS		10/5/2016 4:46:00 PM	10/07/2016
1609Q19-001B	MW-15	9/29/2016 11:57:00AM	Groundwater	Dissolved Metals by ICP/MS		10/6/2016 11:50:00 AM	10/07/2016
1609Q19-001C	MW-15	9/29/2016 11:57:00AM	Groundwater	ION SCAN			09/30/2016
1609Q19-002A	MW-18	9/29/2016 9:50:00AM	Groundwater	ION SCAN			09/30/2016
1609Q19-002B	MW-18	9/29/2016 9:50:00AM	Groundwater	Total Metals by ICP/MS		10/5/2016 4:46:00 PM	10/07/2016
1609Q19-003A	MW-1	9/29/2016 1:47:00PM	Groundwater	ION SCAN			09/30/2016
1609Q19-003B	MW-1	9/29/2016 1:47:00PM	Groundwater	Total Metals by ICP/MS		10/5/2016 4:46:00 PM	10/07/2016
1609Q19-003C	MW-1	9/29/2016 1:47:00PM	Groundwater	Dissolved Metals by ICP/MS		10/6/2016 11:50:00 AM	10/07/2016
1609Q19-004A	MW-20	9/29/2016 11:35:00AM	Groundwater	ION SCAN			09/30/2016
1609Q19-005A	MW-29	9/29/2016 1:30:00PM	Groundwater	ION SCAN			09/30/2016
1609Q19-006A	MW-31	9/29/2016 3:15:00PM	Groundwater	ION SCAN			09/30/2016

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift Moultrie
Workorder: 1609Q19

ANALYTICAL QC SUMMARY REPORT

BatchID: 230565

Sample ID: **MB-230565** Client ID: Units: **mg/L** Prep Date: **10/05/2016** Run No: **326889**
SampleType: **MBLK** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **230565** Analysis Date: **10/06/2016** Seq No: **7084741**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	BRL	0.00500									
Barium	BRL	0.0100									
Cadmium	BRL	0.000700									
Chromium	BRL	0.00500									
Lead	BRL	0.00100									

Sample ID: **LCS-230565** Client ID: Units: **mg/L** Prep Date: **10/05/2016** Run No: **326889**
SampleType: **LCS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **230565** Analysis Date: **10/06/2016** Seq No: **7084742**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.1007	0.00500	0.1000		101	80	120				
Barium	0.1002	0.0100	0.1000		100	80	120				
Cadmium	0.1022	0.000700	0.1000		102	80	120				
Chromium	0.1028	0.00500	0.1000	0.001101	102	80	120				
Lead	0.09983	0.00100	0.1000		99.8	80	120				

Sample ID: **1609P93-033CMS** Client ID: Units: **mg/L** Prep Date: **10/05/2016** Run No: **326889**
SampleType: **MS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **230565** Analysis Date: **10/07/2016** Seq No: **7085680**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.09655	0.00500	0.1000	0.0005360	96.0	75	125				
Barium	0.1058	0.0100	0.1000	0.006047	99.8	75	125				
Cadmium	0.1018	0.000700	0.1000		102	75	125				
Chromium	0.09785	0.00500	0.1000	0.003810	94.0	75	125				
Lead	0.1009	0.00100	0.1000	0.0005910	100	75	125				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift Moultrie
Workorder: 1609Q19

ANALYTICAL QC SUMMARY REPORT

BatchID: 230565

Sample ID: **1609P93-033CMSD** Client ID:
SampleType: **MSD** TestCode: **Total Metals by ICP/MS SW6020B**
Units: **mg/L** Prep Date: **10/05/2016** Run No: **326889**
BatchID: **230565** Analysis Date: **10/07/2016** Seq No: **7085681**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.09790	0.00500	0.1000	0.0005360	97.4	75	125	0.09655	1.39	20	
Barium	0.1059	0.0100	0.1000	0.006047	99.9	75	125	0.1058	0.094	20	
Cadmium	0.1026	0.000700	0.1000		103	75	125	0.1018	0.783	20	
Chromium	0.09947	0.00500	0.1000	0.003810	95.7	75	125	0.09785	1.64	20	
Lead	0.1023	0.00100	0.1000	0.0005910	102	75	125	0.1009	1.38	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift Moultrie
Workorder: 1609Q19

ANALYTICAL QC SUMMARY REPORT

BatchID: 230628

Sample ID: **MB-230628**	Client ID:			Units: **mg/L**	Prep Date: **10/06/2016**	Run No: **326891**
SampleType: **MBLK**	TestCode: **Dissolved Metals by ICP/MS SW6020B**			BatchID: **230628**	Analysis Date: **10/07/2016**	Seq No: **7084914**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	BRL	0.00500									
Barium	BRL	0.0100									
Cadmium	BRL	0.000700									
Chromium	BRL	0.00500									
Lead	BRL	0.00100									

Sample ID: **LCS-230628**	Client ID:			Units: **mg/L**	Prep Date: **10/06/2016**	Run No: **326891**
SampleType: **LCS**	TestCode: **Dissolved Metals by ICP/MS SW6020B**			BatchID: **230628**	Analysis Date: **10/07/2016**	Seq No: **7084915**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.09928	0.00500	0.1000		99.3	80	120				
Barium	0.09923	0.0100	0.1000		99.2	80	120				
Cadmium	0.1006	0.000700	0.1000		101	80	120				
Chromium	0.09970	0.00500	0.1000		99.7	80	120				
Lead	0.09831	0.00100	0.1000		98.3	80	120				

Sample ID: **1609Q19-001BMS**	Client ID: **MW-15**			Units: **mg/L**	Prep Date: **10/06/2016**	Run No: **326891**
SampleType: **MS**	TestCode: **Dissolved Metals by ICP/MS SW6020B**			BatchID: **230628**	Analysis Date: **10/07/2016**	Seq No: **7084917**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.09024	0.00500	0.1000		90.2	75	125				
Barium	0.1549	0.0100	0.1000	0.07659	78.3	75	125				
Cadmium	0.1942	0.000700	0.1000	0.1028	91.4	75	125				
Chromium	0.08821	0.00500	0.1000	0.001537	86.7	75	125				
Lead	0.3259	0.00100	0.1000	0.2362	89.7	75	125				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift Moultrie
Workorder: 1609Q19

ANALYTICAL QC SUMMARY REPORT

BatchID: 230628

Sample ID: **1609Q19-001BMSD** Client ID: **MW-15** Units: **mg/L** Prep Date: **10/06/2016** Run No: **326891**
SampleType: **MSD** TestCode: **Dissolved Metals by ICP/MS SW6020B** BatchID: **230628** Analysis Date: **10/07/2016** Seq No: **7084918**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.09485	0.00500	0.1000		94.8	75	125	0.09024	4.98	20	
Barium	0.1575	0.0100	0.1000	0.07659	80.9	75	125	0.1549	1.66	20	
Cadmium	0.1977	0.000700	0.1000	0.1028	94.9	75	125	0.1942	1.79	20	
Chromium	0.09175	0.00500	0.1000	0.001537	90.2	75	125	0.08821	3.93	20	
Lead	0.3301	0.00100	0.1000	0.2362	93.9	75	125	0.3259	1.28	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift Moultrie
Workorder: 1609Q19

ANALYTICAL QC SUMMARY REPORT

BatchID: R326904

Sample ID: **MB-R326904** Client ID: Units: **mg/L** Prep Date: Run No: **326904**
SampleType: **MBLK** TestCode: **ION SCAN SW9056A** BatchID: **R326904** Analysis Date: **09/30/2016** Seq No: **7085166**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	BRL	1.0									
Nitrate	BRL	0.25									

Sample ID: **LCS-R326904** Client ID: Units: **mg/L** Prep Date: Run No: **326904**
SampleType: **LCS** TestCode: **ION SCAN SW9056A** BatchID: **R326904** Analysis Date: **09/30/2016** Seq No: **7085165**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	5.379	1.0	5.000	0.1647	104	90	110				
Nitrate	4.949	0.25	5.000	0.02435	98.5	90	110				

Sample ID: **1609Q13-009DMS** Client ID: Units: **mg/L** Prep Date: Run No: **326904**
SampleType: **MS** TestCode: **ION SCAN SW9056A** BatchID: **R326904** Analysis Date: **09/30/2016** Seq No: **7085188**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	8.417	1.0	5.000		168	90	110				S
Nitrate	5.355	0.25	5.000		107	90	110				

Sample ID: **1609Q13-010DMS** Client ID: Units: **mg/L** Prep Date: Run No: **326904**
SampleType: **MS** TestCode: **ION SCAN SW9056A** BatchID: **R326904** Analysis Date: **09/30/2016** Seq No: **7085190**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	15.11	2.0	10.00		151	90	110				S
Nitrate	10.25	0.50	10.00		103	90	110				

Sample ID: **1609Q13-009AMSD** Client ID: Units: **mg/L** Prep Date: Run No: **326904**
SampleType: **MSD** TestCode: **ION SCAN SW9056A** BatchID: **R326904** Analysis Date: **09/30/2016** Seq No: **7085189**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloride	8.170	1.0	5.000		163	90	110	0	0	20	S

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC E&I, Inc. -Kennesaw
Project Name: Swift Moultrie
Workorder: 1609Q19

ANALYTICAL QC SUMMARY REPORT

BatchID: R326904

Sample ID: **1609Q13-009AMSD** Client ID: Units: **mg/L** Prep Date: Run No: **326904**
SampleType: **MSD** TestCode: **ION SCAN SW9056A** BatchID: **R326904** Analysis Date: **09/30/2016** Seq No: **7085189**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Nitrate	5.205	0.25	5.000		104	90	110	0	0	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Field Sampling Reports for September 2016 Groundwater Sampling Event

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-1
WELL MATERIAL: PVC

SAMPLE METHOD: Peristaltic Pump

WELL DIAMETER: 2"
DEPTH TO WATER: 2.43
TOTAL DEPTH: 15.95
WATER COLUMN HEIGHT: 13.52 X .163 X 3
PURGE VOLUME: 6.61
GRAB (x) COMPOSITE ( )

DUP./REP. OF:

Arrived at: 1205
Screen length:
Tubing Intake (btoc) =

[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 1215	—	NA	NA	6.09	0.25	30.3	399	100 ( )	2.50
1225	.25			5.77	0.18	29.8	226	100	2.65
1231	.75			5.90	0.19	28.2	207	300	3.60
1237	1.25			5.92	0.20	28.4	179	300	4.00
1243	1.75			6.15	0.22	28.6	85.7	300	4.35
1249	2.25			6.09	0.22	28.6	90.3	300	4.71
1255	2.75			5.74	0.19	28.6	215	300	6.45
1301	3.25			5.72	0.18	28.6	231	300	6.90
1307	3.75			5.69	0.18	28.6	200	300	7.25
1313	4.25			5.63	0.18	28.6	300	300	7.57
1319	4.75			5.58	0.16	28.4	300	300	7.85
1325	5.25			5.55	0.15	28.4	7800	300	8.60
1331	5.75			5.58	0.16	30.4	7800	300	9.15
1337	6.25			5.60	0.16	30.1	7800	300	9.57
1343	6.75			5.62	0.16	29.6	7800	300	10.20

NOTES: well dries down at any flow rate, will increase flow rate & purge 3 well volumes before sample, will place intake at top of water table and lower as water level drops

SAMPLE DATE: 4-27-16
SAMPLE TIME: 1347

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
				Total Lead
				Dissolved Lead
				Nitrates & Chlorides

GENERAL INFORMATION	
WEATHER:	
SHIPPED VIA:	
SHIPPED TO:	
SAMPLER:	OBSERVER:

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-4
WELL MATERIAL: PVC

SAMPLE METHOD: PERISTALTIC
DUP./REP. OF:_____
Arrived at:_____
Screen length:_____
Tubing Intake (btoc) = _____

WELL DIAMETER: 2"
DEPTH TO WATER: 1,01
TOTAL DEPTH: 13,40
GRAB (x) COMPOSITE ( )
WATER COLUMN HEIGHT: 12,39 x 0,17 = 2,10 x 3 = 6,31
PURGE VOLUME: 6,31
[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 1615	0.25	—	—	6.57	0.56	27.4	48.2	200 ( )	1.17
1620	0.5	—	—	6.21	0.56	26.5	32.5	200	1.17
1625	0.75	—	—	6.41	0.55	26.7	18.6	200	1.18
1630	1.0	—	—	6.42	0.54	26.9	8.65	200	1.18
1635	1.25	—	—	6.44	0.53	27.0	5.17	200	1.18
1640	COLLEC SAMPLE								

NOTES:

SAMPLE DATE: 9-28-16
SAMPLE TIME: 1640

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
500 ML POLY	1	None		

GENERAL INFORMATION			
WEATHER:	HOT - HUMID - CLEAR		
SHIPPED VIA:	FED-EX		
SHIPPED TO:	AES		
SAMPLER: EVER GUILLEN		OBSERVER:	

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-6
WELL MATERIAL: PVC

SAMPLE METHOD: Peristaltic Pump
DUP./REP. OF: _____
Arrived at: 1310
Screen length: 3.69 – 13.71
Tubing Intake (btoc) = ~9.6'

WELL DIAMETER: 2"
DEPTH TO WATER: 5.21
GRAB (x) COMPOSITE ( )
TOTAL DEPTH: 13.80
WATER COLUMN HEIGHT: 8.59 x .163 x 3 =
PURGE VOLUME: 4.20 gal
[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 1420	—	NA	NA	4.44	9.19	29.8	8.04	150 ( )	5.65
1425	.25			4.64	7.93	29.3	13.1	200	5.80
1430	.50			5.03	6.99	28.7	12.81	200	6.00
1435	.75			5.81	5.35	28.7	12.00	200	6.31
1440	1.00			6.11	3.35	29.2	11.5	200	6.52
1445	1.25			6.06	3.14	29.2	11.2	200	6.62
1450	1.50			6.03	3.05	29.1	9.83	200	6.74
1455	1.75			6.02	3.00	29.1	11.3	200	6.89
1500	2.00			6.02	2.97	29.1	11.2	200	6.96
1505	2.25			5.96	2.69	29.2	8.71	200	7.30
1510	2.50			5.45	2.69	29.1	4.56	200	7.43
1515	2.75			5.95	2.63	29.3	6.49	200	7.61
1520	3.00			5.95	2.60	29.3	4.63	200	7.89
1525	3.25			5.95	2.64	29.3	4.42	200	8.10
1530	3.50			5.95	2.66	29.3	4.22	200	9.30
1535	3.75			5.95	2.68	29.3	4.17	200	8.43

NOTES: 1420 water level Dropping at any Pumping Speed, will ~~Water~~ pull tubing closer to Top of Screen And Purge 3 well Volumes & Move Tubing Down as Water level drops

SAMPLE DATE: 9/27/16
SAMPLE TIME: 1547

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
250ml/poly	1	HNO3		5 for Metals
500ml/poly	1	NaOH		Nitrate & Chloride

GENERAL INFORMATION		
WEATHER:	Cloudy Hot	
SHIPPED VIA:	AES Labs by FedEx	
SHIPPED TO:		
SAMPLER: Mark Andrus		OBSERVER:

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-6 continued
WELL MATERIAL: PVC

SAMPLE METHOD: peristaltic Pump
DUP./REP. OF:_____
Arrived at:_____
Screen length:_____
Tubing Intake (btoc) = _____

WELL DIAMETER: 2"
DEPTH TO WATER: 5.21
TOTAL DEPTH: 12.80
WATER COLUMN HEIGHT:_____
PURGE VOLUME:_____
GRAB (x) COMPOSITE ( )

[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 1540	4.00	NA	NA	5.95	2.64	28.7	3.81	200 ( )	8.51
1545	4.25			5.95	2.69	28.9	4.41	200	8.59
1547	Sample	Pump	MW-6						

NOTES:

SAMPLE DATE: 9/27/16
SAMPLE TIME: 1547

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS

GENERAL INFORMATION			
WEATHER:			
SHIPPED VIA:			
SHIPPED TO:			
SAMPLER:	Mark Andrews	OBSERVER:	

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-7
WELL MATERIAL: PVC

SAMPLE METHOD: PERISTALTIC
DUP./REP. OF: _____
Arrived at: _____
Screen length: _____
Tubing Intake (btoc) = _____

WELL DIAMETER: 2"
DEPTH TO WATER: 13.02
TOTAL DEPTH: 26.23
GRAB (x) COMPOSITE ( )
WATER COLUMN HEIGHT: 13.21 X .17 = 2.24 X 3 = 6.73
PURGE VOLUME: 6.73
[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 920	0.25	—	—	5.74	3.79	24.9	14.4	200 ( )	13.31
925	0.5	—	—	5.61	3.75	25.5	8.84	200	13.67
930	0.75	—	—	5.61	3.69	25.0	7.63	200	13.92
935	1.0	—	—	5.87	3.24	25.1	8.08	200	14.21
940	1.5	—	—	5.80	2.64	24.9	5.49	400	14.58
945 ~~955~~	2.0	—	—	5.95	2.68	24.9	4.86	400	15.13
955	3.0	—	—	5.84	3.24	25.2	4.11	400	15.57
1005	4.0	—	—	5.75	3.52	25.3	3.66	400	15.99
1015	5.0	—	—	5.75	3.53	25.3	2.96	400	16.41
1025	6.0	—	—	5.75	3.54	25.3	1.69	400	~~16~~ 16.97
1030	6.5	—	—	5.75	3.55	25.3	0.86	400	17.24
1035	7.0	—	—	5.75	3.54	25.3	0.78	400	17.68
1040	Collect Sample								

NOTES: well draws Down @ Low Flow rates - moved intake to TOP of Water Col. & Purged 3 well Volumes before Sampling.

SAMPLE DATE: 9-28-16
SAMPLE TIME: 1040

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
500 mL Poly	1	None		

GENERAL INFORMATION			
WEATHER:	Hot - Humid - Clear		
SHIPPED VIA:	FED EX		
SHIPPED TO:	AES		
SAMPLER:	EVER BUILLEN	OBSERVER:	

PROJECT NAME: Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-9
WELL MATERIAL: PVC

SAMPLE METHOD: Portable/Bladder Pump
DUP./REP. OF: DUP-1
Arrived at: 0923
Screen length: 2.43'-22.45'
Tubing Intake (btoc) = ~14'

WELL DIAMETER: 2"
DEPTH TO WATER: 12.02
TOTAL DEPTH: 20.26
WATER COLUMN HEIGHT:
PURGE VOLUME:
GRAB (x) COMPOSITE ( )

[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 0940	—	NA	NA	5.64	1.45	26.2	22.3	200 ( )	12.15
0945	.25			5.40	0.67	26.0	21.1	200	12.15
0950	.50			5.30	0.62	25.8	18.4	200	12.15
0955	.75			5.24	0.87	25.6	9.28	200	12.16
1000	1.00			5.13	1.17	25.7	6.51	200	12.16
1005	1.25		4.97	5.10	1.78	25.9	6.50	200	12.16
1010	1.50			4.95	1.80	26.1	6.87	200	12.16
1015	1.75			4.93	1.82	26.3	6.17	200	12.16
1020	2.00			4.90	1.84	26.4	6.53	200	12.16
1022	Sample from MW-9								

NOTES: Low flow water level stabalized pump intake and screen

SAMPLE DATE: 7/28/16
SAMPLE TIME: 1022

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
Sample/Dup 250ml/HDPE	2			Sulfate Metals
Sample/Dup 500ml/HDPE	2			Nitrate & Chloride

GENERAL INFORMATION		
WEATHER:	Cloudy Hot	
SHIPPED VIA:	FEDEX	
SHIPPED TO:	AES Labs	
SAMPLER: Mark Andrews		OBSERVER:

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-12
WELL MATERIAL: PVC

SAMPLE METHOD: PERISTALTIC
DUP./REP. OF:
Arrived at:
Screen length:
Tubing Intake (btoc) =

WELL DIAMETER: 2"
DEPTH TO WATER: 4.80
TOTAL DEPTH: 11.75
WATER COLUMN HEIGHT: 6.95 X 0.17 = 1.18 X 3 = 3.54
PURGE VOLUME: 3.54

GRAB (x) COMPOSITE ( )

[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 1555	0.25	—	—	5.96	0.38	29.6	13.7	200 ( )	4.93
1800	0.5	—	—	5.82	0.37	29.3	17.8	200	5.29
1605	1.0	—	—	5.85	0.37	29.4	13.1	400	5.42
1610	1.5	—	—	5.41	0.36	29.6	8.29	400	5.73
1615	2.0	—	—	5.49	0.37	29.6	6.03	400	6.04
1620	2.5	—	—	5.52	0.39	29.3	4.01	400	6.42
1625	3.0	—	—	5.48	0.40	29.3	1.96	400	6.73
1630	3.5	—	—	5.53	0.40	29.0	0.99	400	7.01

NOTES: Water level DRAWS Down @ Low Flow — Raised @ Tubing To Top of Water Column and will Purge 3 well Volumes

SAMPLE DATE: 9-27-16
SAMPLE TIME: 1635

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
500 Poly	1	None		

GENERAL INFORMATION

WEATHER:	HOT - HUMID - SOME CLOUDS		
SHIPPED VIA:	FED EX		
SHIPPED TO:	AES		
SAMPLER: EVER GUILLEN		OBSERVER:	

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-13D
WELL MATERIAL: PVC

SAMPLE METHOD: Peristaltic Pump

DUP./REP. OF: _____

Arrived at: 1100
Screen length: 18.95-23.97
Tubing Intake (btoc) = ~21

WELL DIAMETER: 2"
DEPTH TO WATER: 13.03
TOTAL DEPTH: 24.13
GRAB (x) COMPOSITE ( )
WATER COLUMN HEIGHT: 11.1 x .163 x 3 =
PURGE VOLUME: 5.62
[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 1114	—	NA	NA	6.04	1.43	27.3	12.4	200 ( )	13.10
1119	.25			4.34	4.80	26.6	7.77	~~200~~ 150	13.11
1125	.50			4.11	5.39	26.9	8.15	150	13.09
1131	.75			3.86	5.47	26.7	7.66	150	13.09
1137	1.00			3.80	5.49	26.8	6.44	150	13.09
1143	1.25			3.77	5.50	26.8	6.21	150	13.09
1149	1.50			3.75	5.54	26.8	4.00	150	13.09
1155	1.75			3.73	5.55	26.9	3.81	150	13.09
1157	Sample time		MW-13D						

NOTES: water level stabilize, Tubing intake mid screen purge low flow

SAMPLE DATE: 7/28/16
SAMPLE TIME: _____

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
				Sulfate Metals
				Nitrate + chloride

GENERAL INFORMATION			
WEATHER:			
SHIPPED VIA:			
SHIPPED TO:			
SAMPLER: Mark Andrews		OBSERVER:	

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-15
WELL MATERIAL: PVC

SAMPLE METHOD: peristaltic pump

WELL DIAMETER: 2"
DEPTH TO WATER: 4.84
TOTAL DEPTH: 15.05
WATER COLUMN HEIGHT: 10.17 x 3 x .163
PURGE VOLUME: 4.97 Gal

GRAB (x) COMPOSITE ( )

DUP./REP. OF:

Arrived at: 0930
Screen length: 4.84 - 14.86
Tubing Intake (btoc) = 6'

[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 1000	→	NA	NA	4.83	5.08	28.4	24.2	200 ( )	5.56
1005	.25			~~5.63~~	3.27	29.2	13.4	200	6.60
1015	.75			5.87	2.70	28.7	21.4	200	7.30
1025	1.25			5.91	2.58	28.7	72.7	200	8.49
1035	1.75			5.76	2.47	29.0	189.6	200	9.05
1045	2.25			5.65	2.52	29.2	190	200	9.60
1055	2.75			5.36	2.99	28.5	302	200	10.35
1105	3.25			5.22	3.20	29.1	208	200	10.89
1115	3.75			4.67	4.07	28.7	83.6	200	11.42
1125	4.25			4.37	4.97	28.9	43.9	200	11.80
1135	4.75			4.32	4.90	28.7	25.6	200	12.40
1145	5.25			4.30	4.98	28.7	7800	200	12.50
1155	5.75			4.35	4.95	28.6	275	200	12.89
1157	Sample	taken	MW-15						

NOTES: well Drawing down will pump 3 well volume. will position Tubing intake at Top of water column & move tubing down. if Draw down increases. 7800 at 1145 turbidity 800+ very muddy red water then Clears at 1155. well factor a Total & Dissolved metals after Collecting sample, Dropped Tubing to bottom & worked to Developp well, Purged to Dry

SAMPLE DATE: 9-27-16
SAMPLE TIME:

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
250 ml/poly	1			Silica metal
500 ml/poly	1			Nitrate & Chloride
250/poly	1			Dissolved metals

GENERAL INFORMATION	
WEATHER:	Mostly Clear Hot
SHIPPED VIA:	
SHIPPED TO:	
SAMPLER: Mark Andrews	OBSERVER:

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-16
WELL MATERIAL: PVC

SAMPLE METHOD: peristaltic pump
DUP./REP. OF: MS/MSD

WELL DIAMETER: 2"
DEPTH TO WATER: 11.30
TOTAL DEPTH: 18.25
WATER COLUMN HEIGHT: 6.95
PURGE VOLUME: 3.39

GRAB (x) COMPOSITE ( )

Arrived at: 1315
Screen length: ~~1.37 NA 4.44~~ 5.00' - 20.02'
Tubing Intake (btoc) = 13'

[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 1332	—	NA	NA	4.40	1.64	30.3	14.8	150 ( )	11.39
1338	.25			4.26	1.69	28.7	13.2	150	11.39
1344	.50			4.30	1.74	28.1	35.3	150	11.39
1350	.75			4.48	1.41	28.5	25.0	150	11.39
1356	1.00			4.45	1.42	28.5	23.2	150	11.39
1402	1.25			4.42	1.32	27.8	17.8	150	11.39
1409	1.50			4.40	1.26	28.2	11.8	150	11.39
1416	1.75			4.41	1.23	28.4	9.77	150	11.39
1420	2.00			4.41	1.23	28.6	7.98	150	11.39
1422	Sample from MW-16								

NOTES: MS/MSD collected at this location

SAMPLE DATE: 7/28/16
SAMPLE TIME:

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
Sample 250 ml/poly	3	HNO3		5 RCRA metals
MS/MSD 500 ml/poly	3	none		Nitrate & chloride

GENERAL INFORMATION			
WEATHER:	Cloudy Hot		
SHIPPED VIA:	Fedex		
SHIPPED TO:	AES Labs		
SAMPLER:	Mark Andrus	OBSERVER:	

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-18
WELL MATERIAL: PVC

SAMPLE METHOD: PERISTALTIC
DUP./REP. OF: _____
Arrived at: _____
Screen length: _____
Tubing Intake (btoc) = _____

WELL DIAMETER: 2"
DEPTH TO WATER: 11.55
TOTAL DEPTH: 22.18
GRAB (x) COMPOSITE ( )
WATER COLUMN HEIGHT: 10.63 x .17 = 1.80 x 3 = 5.42
PURGE VOLUME: 5.42
[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 845	0.25	—	—	6.31	1.74	23.5	85.4	200 ( )	11.82
855	0.5	—	—	6.19	1.69	23.6	89.9	100	12.01
900	1.0	—	—	6.46	1.64	23.8	38.4	400	12.43
910	2.0	—	—	6.47	1.61	23.9	20.8	400	12.68
920	3.0	—	—	6.35	1.16	24.5	14.4	400	13.13
930	4.0	—	—	6.32	1.17	24.5	7.11	400	13.77
940	5.0	—	—	6.36	1.17	24.5	3.99	400	14.56
945	5.5	—	—	6.36	1.17	24.5	4.08	400	14.94
950	Collect	Sample							

NOTES: Water level draws down @ Low Flow - Moved intake to Top of Water Column & Purged 3 well Volumes before Sampling

SAMPLE DATE: 9-29-16
SAMPLE TIME: 950

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
250ML POLY	1	HNO3		
500ML POLY	1	None		

GENERAL INFORMATION			
WEATHER:	HOT - HUMID - Some Clouds		
SHIPPED VIA:			
SHIPPED TO:	AES		
SAMPLER:	EVER GUILLEN	OBSERVER:	

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-20
WELL MATERIAL: PVC

SAMPLE METHOD: PERISTALTIC
DUP./REP. OF:_____
Arrived at:_____
Screen length:_____
Tubing Intake (btoc) = _____

WELL DIAMETER: 2"
DEPTH TO WATER: 2.46
TOTAL DEPTH: 15.08
GRAB (x) COMPOSITE ( )
WATER COLUMN HEIGHT: 12.62 X 0.17 = 2.14 X 3 = 6.43
PURGE VOLUME: 6.43
[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 1015	0.25	—	—	5.33	0.25	26.9	39.3	200 ( )	3.19
1025	0.5	—	—	5.91	0.24	27.1	28.6	100	3.86
1030	1.0	—	—	5.94	0.24	27.2	25.0	400	4.12
1040	2.0	—	—	5.87	0.24	27.3	22.9	400	4.99
1050	3.0	—	—	5.94	0.24	27.5	18.7	400	5.12
1100	4.0	—	—	5.98	0.25	27.6	14.6	400	6.34
1110	5.0	—	—	5.96	0.25	27.6	14.5	400	7.69
1120	6.0	—	—	5.95	0.24	27.6	19.9	400	8.71
1125	6.5	—	—	5.96	0.23	27.6	23.6	400	9.10
1135	Collect Sample								

NOTES: Water Level DRAWS DOWN @ Low Flow - Set INTAKE @ TOP OF WATER COLUMN and Purged 3 well VOLUMES Before SAMPLING - TURBIDITY RISING as WATER LEVEL DROPS BELOW 8.0'

SAMPLE DATE: 9-29-16
SAMPLE TIME: 1135

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
500 ML. POLY	1	None		

GENERAL INFORMATION			
WEATHER:	HOT - HUMID - Clear		
SHIPPED VIA:			
SHIPPED TO:	AES		
SAMPLER: EVER GUILLEN		OBSERVER:	

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-27DDDD
WELL MATERIAL: PVC

SAMPLE METHOD: Monsoon Pump
DUP./REP. OF:_____
Arrived at:_____
Screen length:_____
Tubing Intake (btoc) = _____

WELL DIAMETER: 2"
DEPTH TO WATER: 26.51
TOTAL DEPTH: 91.41
GRAB (x) COMPOSITE ( )
WATER COLUMN HEIGHT: 64.9 x .17 = 11.03 x 3 = 33.09
PURGE VOLUME: 33.09
[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 1310	4.0	—	—	6.19	2.13	24.9	168.0	( )	33.67
1330	8.0	—	—	5.19	2.00	24.3	64.0		36.72
1350	12.0	—	—	5.03	2.19	23.8	47.1		37.11
1410	16.0	—	—	5.04	2.25	23.6	26.5		37.32
1430	20.0	—	—	4.88	2.31	23.7	16.9		38.19
1450	24.0	—	—	4.95	2.26	23.7	11.7		38.78
1510	28.0	—	—	4.97	2.22	23.6	2.97		39.84
1530	32.0	—	—	4.98	2.21	23.6	1.19		40.18
1535	33.0	—	—	4.97	2.22	23.6	0.87		40.23
1540	Collect Sample								

NOTES:

SAMPLE DATE: 9-28-16
SAMPLE TIME: 1540

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
250ML Poly	1	HNO3		
500 ML Poly	1	None		

GENERAL INFORMATION			
WEATHER:	HOT - HUMID - CLEAR		
SHIPPED VIA:	FED EX		
SHIPPED TO:	AES		
SAMPLER: EVER GUILLEN		OBSERVER:	

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-29
WELL MATERIAL: PVC

SAMPLE METHOD: PERISTALTIC
DUP./REP. OF:_____
Arrived at:_____
Screen length:_____
Tubing Intake (btoc) = _____

WELL DIAMETER: 2"
DEPTH TO WATER: 8.74
TOTAL DEPTH: 20.62
GRAB (x) COMPOSITE ( )
WATER COLUMN HEIGHT: 11.88 X .17 = 2.01 X 3 = 6.05
PURGE VOLUME: 6.05
[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 1225	0.25	—	—	4.67	0.42	27.6	5.0	200 ( )	9.42
1235	1.25	—	—	3.93	0.37	25.8	1.56	400	11.26
1245	2.25	—	—	4.56	0.37	25.8	0.96	400	11.98
1255	3.25	—	—	4.52	0.37	25.9	0.59	400	12.46
1305	4.25	—	—	4.52	0.38	25.9	0.40	400	13.02
1315	5.25	—	—	4.54	0.38	25.7	0.29	400	13.46
1325	6.25	—	—	4.52	0.38	25.7	0.16	400	13.90
1330	COLLECT		SAMPLE						

NOTES:

SAMPLE DATE: 9-29-16
SAMPLE TIME: 1330

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
500 ML POLY	1	None		

GENERAL INFORMATION			
WEATHER:	HOT-HUMID-CLEAR		
SHIPPED VIA:			
SHIPPED TO:	AES		
SAMPLER: EVER GUILLEN		OBSERVER:	

PROJECT NAME:
Swift Moultrie

FIELD SAMPLING REPORT

Project Number:

Amec Foster Wheeler
1075 BIG SHANTY ROAD NW, SUITE 100 KENNESAW GA 30144
PHONE: (770) 421-3400 / FAX: (770) 421-3486

SAMPLING EVENT: __1ST QUARTER __2ND QUARTER __3RD QUARTER __4TH QUARTER
MONITORING WELL TYPE: __Standard __ Compliance __Background __Extraction
WELL ID: MW-31
WELL MATERIAL: PVC

SAMPLE METHOD: PERISTALTIC
DUP./REP. OF:_____
Arrived at:_____
Screen length:_____
Tubing Intake (btoc) = _____

WELL DIAMETER: 2"
DEPTH TO WATER: 9.17
TOTAL DEPTH: 21.35
GRAB (x) COMPOSITE ( )
WATER COLUMN HEIGHT: 12.18 X .17 = 2.07 X 3 = 6.21
PURGE VOLUME: 6.21
[0.163 x water column height (ft) x 3 (well volumes) for 2" wells]
[0.653 x water column height (ft) x 3 (well volumes) for 4" wells]
[1.47 x water column height (ft) x 3 (well volumes) for 6" wells]

TIME	VOL. PURGED (gal)	Diss. Oxygen (+/- 10%)	ORP (+/- 10 mV)	pH (+/- 0.1 pH units)	SPEC. COND. (ms/cm) [+/- 3%]	TEMP (°C)	TURB. (NTU) [<10 NTU]	Pump Rate ml/min. (& pump setting)	New Water Level
Initial: 1445	0.25	—	—	4.56	0.32	27.9	3.45	200 ( )	9.27
1450	0.5	—	—	4.49	0.58	27.8	2.37	200	9.29
1455	0.75	—	—	4.23	0.56	27.7	1.74	200	9.30
1500	1.0	—	—	4.49	0.57	27.5	0.99	200	9.30
1505	1.25	—	—	4.45	0.57	27.5	0.55	200	9.31
1510	1.5	—	—	4.46	0.57	27.4	0.46	200	9.31

NOTES:

SAMPLE DATE: 9-29-16
SAMPLE TIME: 1515

CONTAINER SIZE/TYPE	NO.	PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
500mL Poly	1	None		

GENERAL INFORMATION			
WEATHER:	HOT - HUMID - Clear		
SHIPPED VIA:			
SHIPPED TO:	AES		
SAMPLER: EVER GUILLEN		OBSERVER:	

APPENDIX B
SourceDK Modeling Results

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Site Location and I.D.:	Swift MW-1
Constituent of Interest:	Barium and Lead

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

	Date (mm/dd/yy)	Concentration mg/L — Constituent A	Constituent B	Constituent C	Constituent D
		Barium	***Lead***		
1	8/30/2001	0.05	0.05		
2	9/6/2001	0.05	0.01		
3	12/18/2001	0.33	0.005		
4	1/31/2003	0.042	0.005		
5	9/23/2015	0.191	0.077		
6	9/29/2016		0.0691		
7					
8					
9					
10					
11					
12					
13					
14					
15					

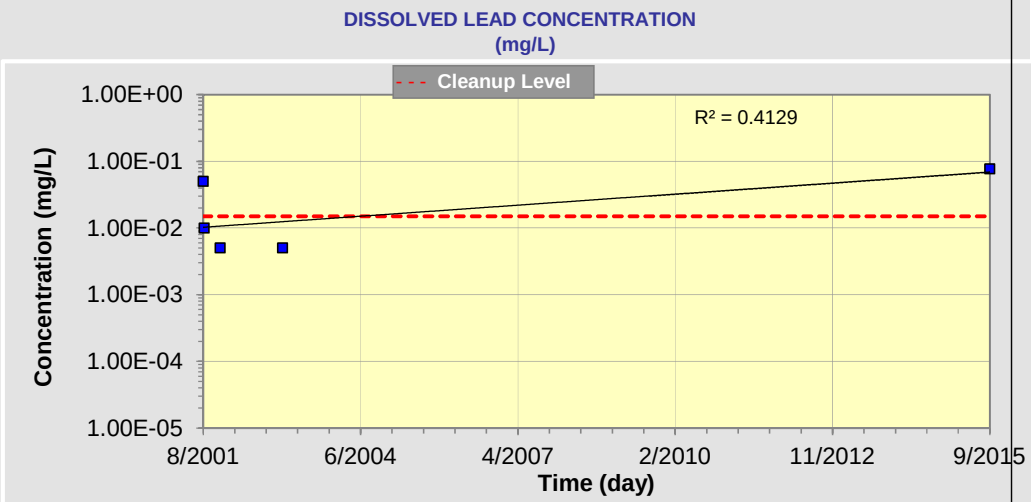
Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

What is the cleanup level?

○	Barium	2 (mg/L)
◉	**Lead**	0.015 (mg/L)
○	Constituent C	(mg/L)
○	Constituent D	(mg/L)

3. OUTPUT GRAPH



Number of Years Over Which to Plot Graph (yr) — Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: [redacted]

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

[redacted] (Lower Limit on Confidence Interval) to [redacted] (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): [redacted]
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Site Location and I.D.:	Swift MW-6
Constituent of Interest:	Barium and Lead

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

	Date (mm/dd/yy)	Constituent A: Barium	Constituent B: Lead	Constituent C	Constituent D
1	8/30/2001	2	0.19		
2	9/6/2001	2.1	0.27		
3	12/18/2001	5.3	0.55		
4	3/30/2012	0.0746	0.001		
5	9/27/2012	0.296	0.0322		
6	3/27/2013	0.039	0.001		
7	9/10/2013	0.42	0.0534		
8	9/25/2014	10.3	1.16		
9	9/23/2015	0.449	0.132		
10	9/28/2016	0.181	0.036		
11					
12					
13					
14					
15					

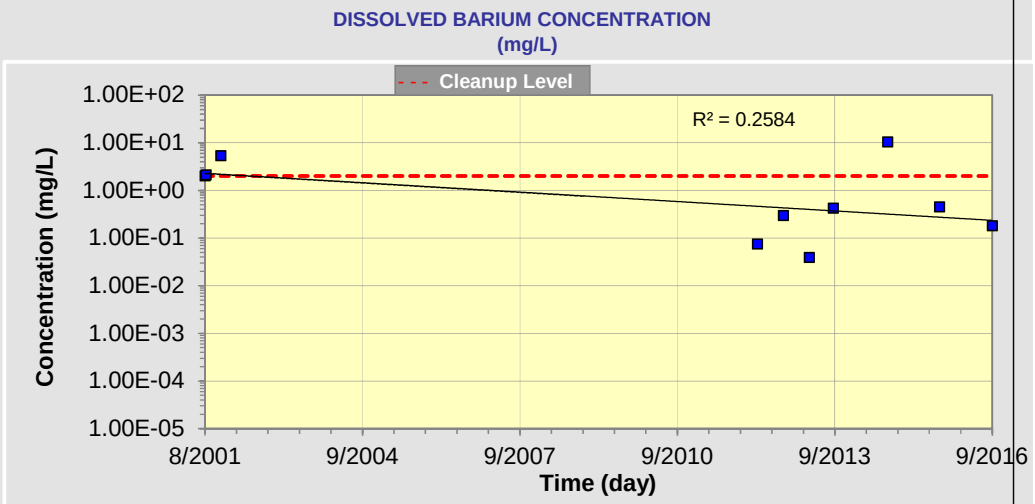
Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

What is the cleanup level?

◉	**Barium**	2 (mg/L)
○	Lead	0.015 (mg/L)
○	Constituent C	(mg/L)
○	Constituent D	(mg/L)

3. OUTPUT GRAPH



Number of Years Over Which to Plot Graph _____ *(yr)* Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: **2002**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

2001 (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **1.51E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

Site Location and I.D.:	Swift MW-6
Constituent of Interest:	Barium and Lead

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

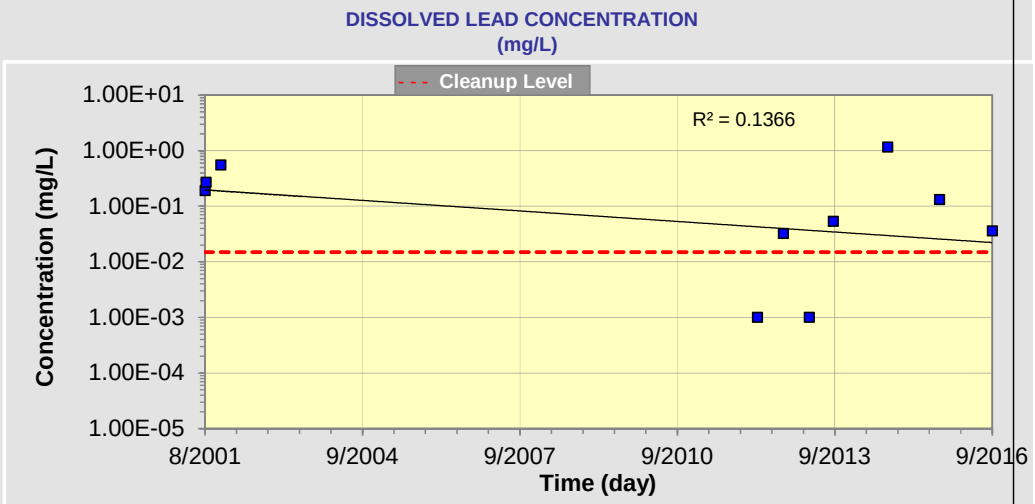
	Date (mm/dd/yy)	Constituent A	Constituent B	Constituent C	Constituent D
		Barium	***Lead***		
1	*8/30/2001*	*2*	*0.19*		
2	*9/6/2001*	*2.1*	*0.27*		
3	*12/18/2001*	*5.3*	*0.55*		
4	*3/30/2012*	*0.0746*	*0.001*		
5	*9/27/2012*	*0.296*	*0.0322*		
6	*3/27/2013*	*0.039*	*0.001*		
7	*9/10/2013*	*0.42*	*0.0534*		
8	*9/25/2014*	*10.3*	*1.16*		
9	*9/23/2015*	*0.449*	*0.132*		
10	*9/28/2016*	*0.181*	*0.036*		
11					
12					
13					
14					
15					

Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

		What is the cleanup level?	
○	Barium	2	(mg/L)
◉	**Lead**	0.015	(mg/L)
○	Constituent C		(mg/L)
○	Constituent D		(mg/L)

3. OUTPUT GRAPH



Number of Years Over Which to Plot Graph _____ *(yr)* Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: **2019**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

2001 (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **1.45E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | ***New Site/Clear Screen*** | ***Paste Example Data Set*** | ***HELP***

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Site Location and I.D.:	Swift MW-9
Constituent of Interest:	Barium and Lead

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

	Date (mm/dd/yy)	Constituent A	Constituent B	Constituent C	Constituent D
		Barium	***Lead***		
1	*8/30/2001*	*1.6*	*0.08*		
2	*9/6/2001*	*2*	*0.077*		
3	*12/18/2001*	*5.3*	*0.26*		
4	*10/21/2009*	*1.22*	*0.12*		
5	*3/30/2012*	*0.18*	*0.0437*		
6	*9/28/2012*	*0.118*	*0.0472*		
7	*3/27/2013*	*0.232*	*0.0483*		
8	*9/11/2013*	*0.225*	*0.0613*		
9	*9/24/2014*	*0.338*	*0.0678*		
10	*9/22/2015*	*0.375*	*0.0898*		
11	*9/28/2016*	*0.575*	*0.0715*		
12					
13					
14					
15					

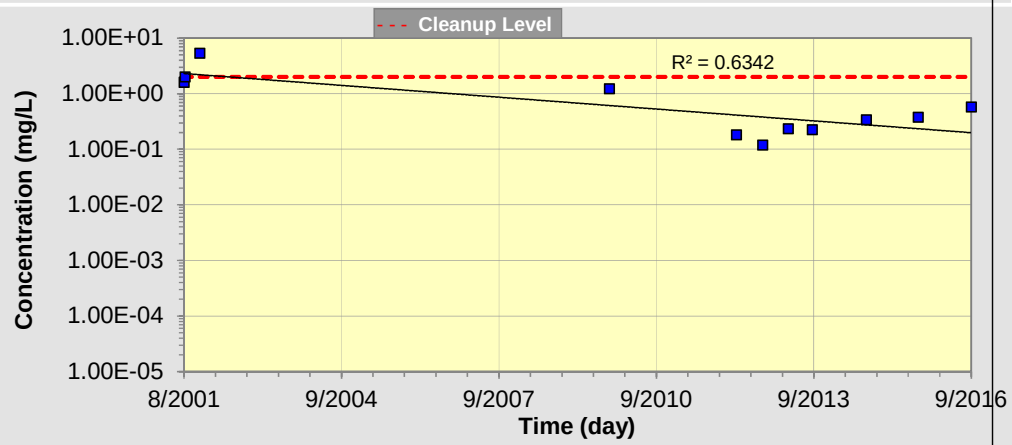
Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

		What is the cleanup level?
◉	**Barium**	2 (mg/L)
○	Lead	0.015 (mg/L)
○	Constituent C	0.005 (mg/L)
○	Constituent D	(mg/L)

3. OUTPUT GRAPH

DISSOLVED BARIUM CONCENTRATION (mg/L)



Number of Years Over Which to Plot Graph (yr) — Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: **2002**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

2001 (Lower Limit on Confidence Interval) to **2012** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **1.63E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

Site Location and I.D.:	Swift MW-9
Constituent of Interest:	Barium and Lead

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

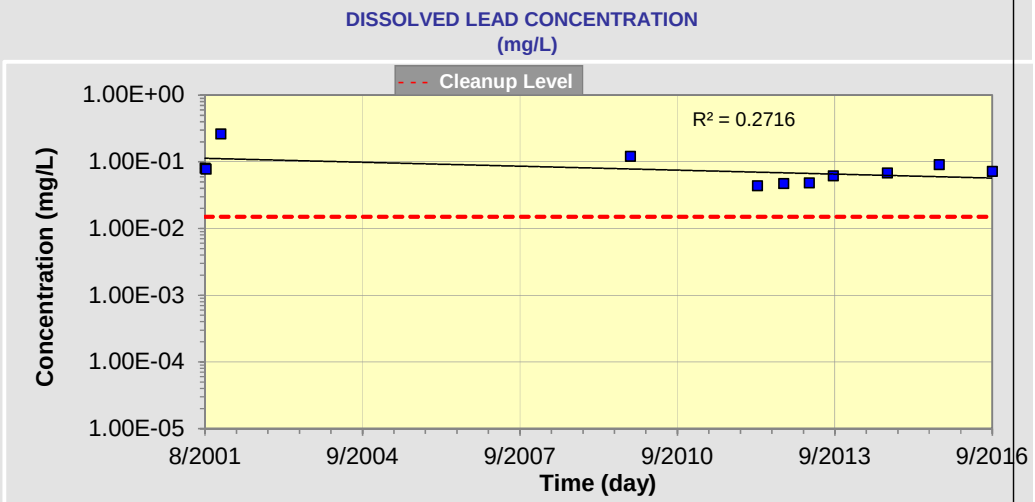
	Date (mm/dd/yy)	Constituent A	Constituent B	Constituent C	Constituent D
		Barium	***Lead***		
1	8/30/2001	1.6	0.08		
2	9/6/2001	2	0.077		
3	12/18/2001	5.3	0.26		
4	10/21/2009	1.22	0.12		
5	3/30/2012	0.18	0.0437		
6	9/28/2012	0.118	0.0472		
7	3/27/2013	0.232	0.0483		
8	9/11/2013	0.225	0.0613		
9	9/24/2014	0.338	0.0678		
10	9/22/2015	0.375	0.0898		
11	9/28/2016	0.575	0.0715		
12					
13					
14					
15					

Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

		What is the cleanup level?
○	Barium	2 (mg/L)
◉	**Lead**	0.015 (mg/L)
○	Constituent C	0.005 (mg/L)
○	Constituent D	(mg/L)

3. OUTPUT GRAPH



Number of Years Over Which to Plot Graph (yr) — Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: **2046**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

2018 (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **4.52E-02**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Site Location and I.D.:	Swift MW13D
Constituent of Interest:	Barium and Lead

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

	Date (mm/dd/yy)	Constituent A: Barium	Constituent B: Lead	Constituent C	Constituent D
1	8/30/2001	3.2	0.16		
2	9/6/2001	2.4	0.14		
3	12/18/2001	1.7	0.19		
4	3/30/2012	0.273	0.168		
5	9/28/2012	0.295	0.128		
6	3/28/2013	0.383	0.143		
7	9/12/2013	0.338	0.139		
8	9/25/2014	0.254	0.176		
9	9/22/2015	0.169	0.129		
10	9/28/2016	0.219	0.173		
11					
12					
13					
14					
15					

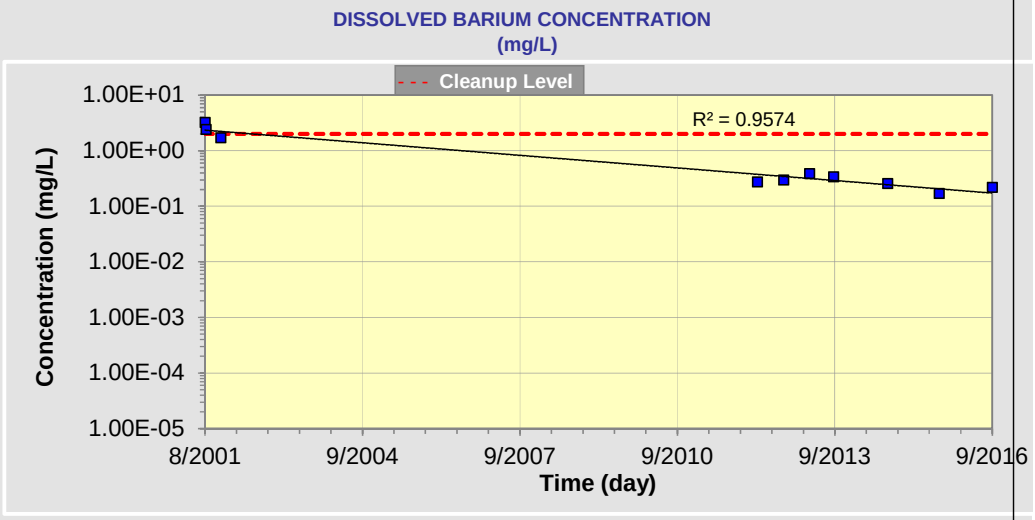
Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

What is the cleanup level?

◉	**Barium**	2 (mg/L)
○	Lead	0.015 (mg/L)
○	Constituent C	(mg/L)
○	Constituent D	(mg/L)

3. OUTPUT GRAPH



Number of Years Over Which to Plot Graph (yr) — Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: **2002**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

2001 (Lower Limit on Confidence Interval) to **2004** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **1.73E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Site Location and I.D.:	Swift MW13D
Constituent of Interest:	Barium and Lead

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

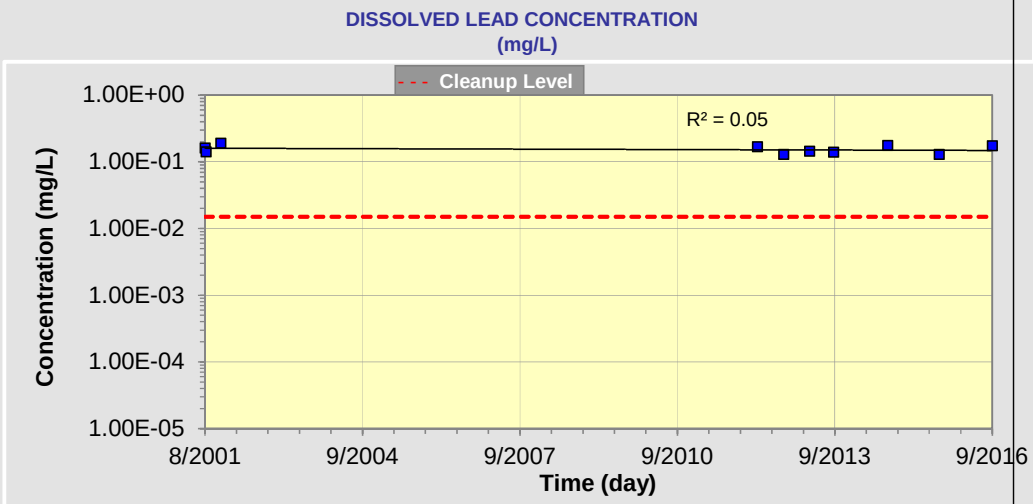
	Date (mm/dd/yy)	Constituent A	Constituent B	Constituent C	Constituent D
		Barium	***Lead***		
1	*8/30/2001*	*3.2*	*0.16*		
2	*9/6/2001*	*2.4*	*0.14*		
3	*12/18/2001*	*1.7*	*0.19*		
4	*3/30/2012*	*0.273*	*0.168*		
5	*9/28/2012*	*0.295*	*0.128*		
6	*3/28/2013*	*0.383*	*0.143*		
7	*9/12/2013*	*0.338*	*0.139*		
8	*9/25/2014*	*0.254*	*0.176*		
9	*9/22/2015*	*0.169*	*0.129*		
10	*9/28/2016*	*0.219*	*0.173*		
11					
12					
13					
14					
15					

Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

		What is the cleanup level?	
○	Barium	2	(mg/L)
◉	**Lead**	0.015	(mg/L)
○	Constituent C		(mg/L)
○	Constituent D		(mg/L)

3. OUTPUT GRAPH



Number of Years Over Which to Plot Graph _____ *(yr)* Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: **2467**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

2114 (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **5.08E-03**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | *New Site/Clear Screen* | *Paste Example Data Set* | *HELP*

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Site Location and I.D.:	Swift MW15
Constituent of Interest:	Barium and Lead

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

	Date (mm/dd/yy)	Constituent A — Barium	Constituent B — Lead	Constituent C	Constituent D
1	4/8/2003	0.412	0.124		
2	9/25/2014	0.0628	0.311		
3	9/23/2015	0.075	0.243		
4	9/29/2016	0.22	0.294		
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

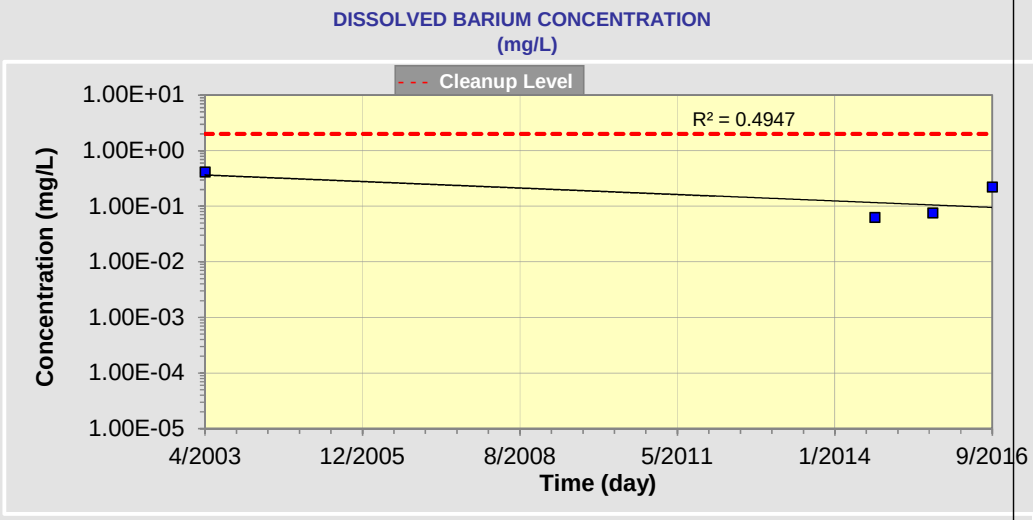
Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

What is the cleanup level?

◉	**Barium**	2 (mg/L)
○	Lead	0.015 (mg/L)
○	Constituent C	(mg/L)
○	Constituent D	(mg/L)

3. OUTPUT GRAPH



Number of Years Over Which to Plot Graph (yr) — Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: **2003**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

2003 (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **1.00E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Site Location and I.D.:	Swift MW15
Constituent of Interest:	Barium and Lead

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

	Date (mm/dd/yy)	Constituent A	Constituent B	Constituent C	Constituent D
		Barium	***Lead***		
1	*4/8/2003*	*0.412*	*0.124*		
2	*9/25/2014*	*0.0628*	*0.311*		
3	*9/23/2015*	*0.075*	*0.243*		
4	*9/29/2016*	*0.22*	*0.294*		
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

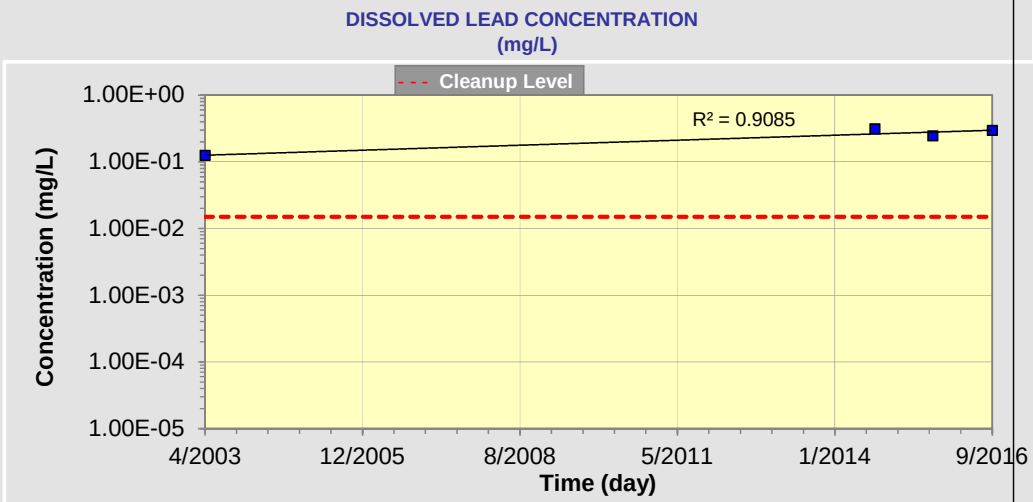
Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

What is the cleanup level?

○	Barium	2 (mg/L)
◉	**Lead**	0.015 (mg/L)
○	Constituent C	(mg/L)
○	Constituent D	(mg/L)

3. OUTPUT GRAPH



Number of Years Over Which to Plot Graph (yr) Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: **Can't Calc (+ve Trend)**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

Can't Calc (+ve Trend) (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **-6.41E-02**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | *New Site/Clear Screen* | *Paste Example Data Set* | *HELP*

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Site Location and I.D.:	Swift MW16
Constituent of Interest:	Barium and Lead

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

	Date (mm/dd/yy)	Constituent A	Constituent B	Constituent C	Constituent D
		Barium	***Lead***		
1	2/14/2003	2.34	0.1		
2	3/29/2012	0.542	0.0239		
3	9/28/2012	0.642	0.022		
4	3/27/2013	0.495	0.00914		
5	9/11/2013	0.631	0.0129		
6	9/24/2014	0.01	0.0244		
7	9/22/2015	0.531	0.0121		
8	9/28/2016	0.508	0.0161		
9					
10					
11					
12					
13					
14					
15					

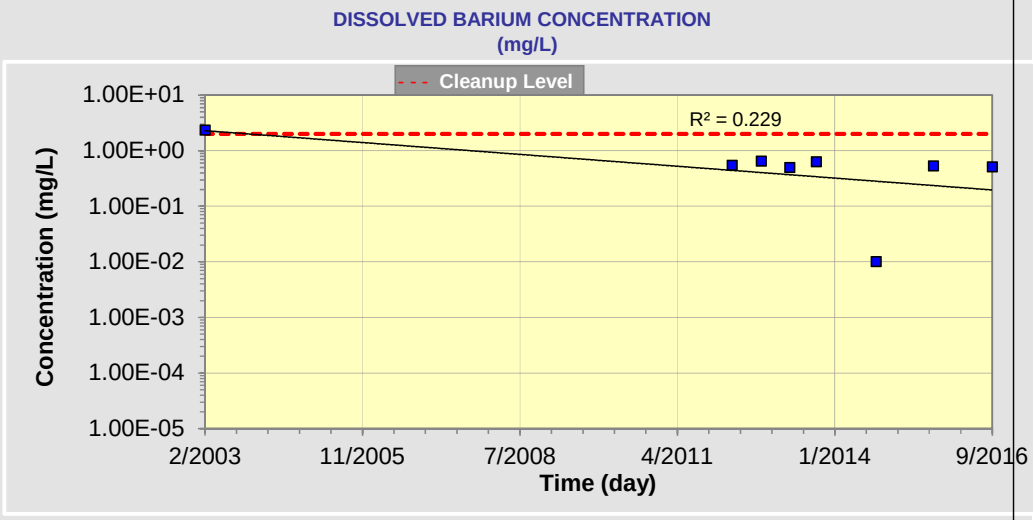
Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

What is the cleanup level?

◉	**Barium**	2 (mg/L)
○	Lead	0.015 (mg/L)
○	Constituent C	(mg/L)
○	Constituent D	(mg/L)

3. OUTPUT GRAPH



Number of Years Over Which to Plot Graph (yr) — Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: **2003**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

2003 (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **1.80E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Site Location and I.D.:	Swift MW16
Constituent of Interest:	Barium and Lead

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

	Date (mm/dd/yy)	Constituent A	Constituent B	Constituent C	Constituent D
		Barium	***Lead***		
1	2/14/2003	2.34	0.1		
2	3/29/2012	0.542	0.0239		
3	9/28/2012	0.642	0.022		
4	3/27/2013	0.495	0.00914		
5	9/11/2013	0.631	0.0129		
6	9/24/2014	0.01	0.0244		
7	9/22/2015	0.531	0.0121		
8	9/28/2016	0.508	0.0161		
9					
10					
11					
12					
13					
14					
15					

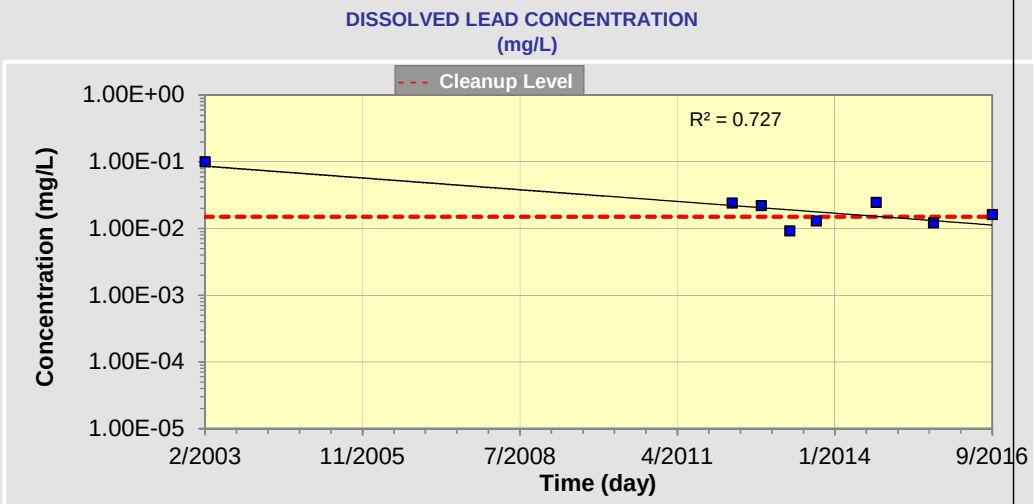
Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

What is the cleanup level?

○	Barium	2 (mg/L)
◉	**Lead**	0.015 (mg/L)
○	Constituent C	(mg/L)
○	Constituent D	(mg/L)

3. OUTPUT GRAPH



Number of Years Over Which to Plot Graph (yr) Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: **2014**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

2007 (Lower Limit on Confidence Interval) to **2035** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **1.49E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | *New Site/Clear Screen* | *Paste Example Data Set* | *HELP*

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

Site Location and I.D.:	Swift MW-18
Constituent of Interest:	Barium and Lead

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

	Date (mm/dd/yy)	Constituent A	Constituent B	Constituent C	Constituent D
		Barium	***Lead***		
1	*1/30/2003*	*0.2835*	*0.3665*		
2	*10/21/2009*	*0.345*	*0.318*		
3	*3/30/2012*	*0.148*	*0.0211*		
4	*9/28/2012*	*0.093*	*0.00288*		
5	*3/27/2013*	*0.531*	*0.00329*		
6	*9/10/2013*	*0.124*	*0.00166*		
7	*9/24/2014*	*0.254*	*0.216*		
8	*9/23/2015*	*0.173*	*0.258*		
9	*9/29/2016*		*0.00146*		
10					
11					
12					
13					
14					
15					

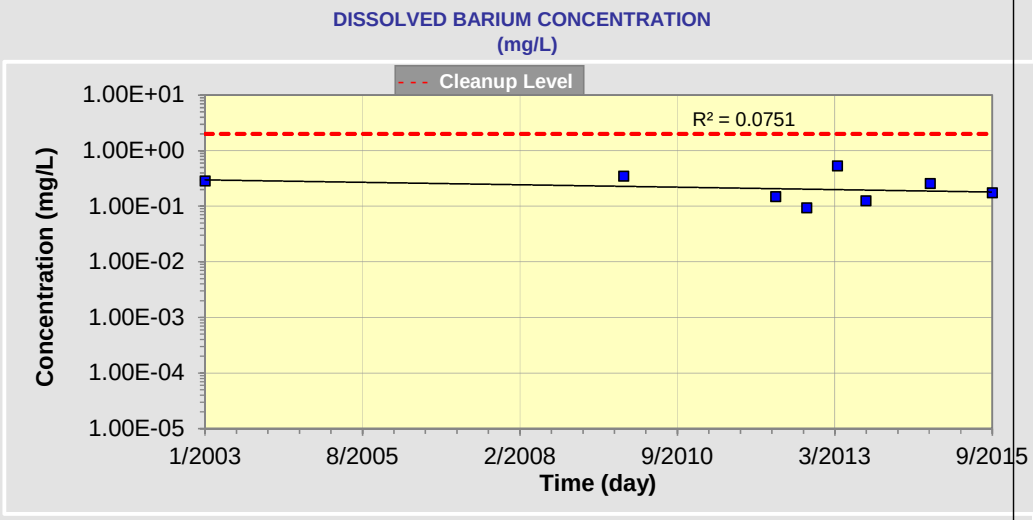
Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

What is the cleanup level?

◉	**Barium**	2 (mg/L)
○	Lead	0.015 (mg/L)
○	Constituent C	(mg/L)
○	Constituent D	(mg/L)

3. OUTPUT GRAPH



Number of Years Over Which to Plot Graph (yr) — Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: **2003**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

2003 (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **3.98E-02**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Site Location and I.D.:	Swift MW-18
Constituent of Interest:	Barium and Lead

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

	Date (mm/dd/yy)	Constituent A	Constituent B	Constituent C	Constituent D
		Barium	***Lead***		
1	*1/30/2003*	*0.2835*	*0.3665*		
2	*10/21/2009*	*0.345*	*0.318*		
3	*3/30/2012*	*0.148*	*0.0211*		
4	*9/28/2012*	*0.093*	*0.00288*		
5	*3/27/2013*	*0.531*	*0.00329*		
6	*9/10/2013*	*0.124*	*0.00166*		
7	*9/24/2014*	*0.254*	*0.216*		
8	*9/23/2015*	*0.173*	*0.258*		
9	*9/29/2016*		*0.00146*		
10					
11					
12					
13					
14					
15					

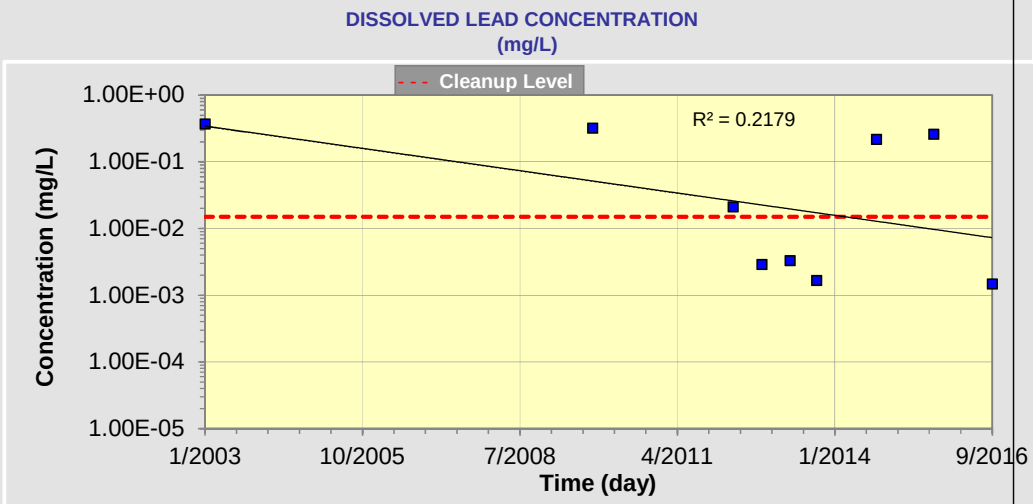
Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

What is the cleanup level?

○	Barium	2 (mg/L)
◉	**Lead**	0.015 (mg/L)
○	Constituent C	(mg/L)
○	Constituent D	(mg/L)

3. OUTPUT GRAPH



Number of Years Over Which to Plot Graph (yr) Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: **2014**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

2003 (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **2.82E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

SourceDK

Remediation Timeframe Decision Support System

Air Force Center for Environmental Excellence — *Version 1.1*

TIER 1 Empirical Data

Data Input Instructions:

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

Site Location and I.D.:	Swift MW-27DDDD
Constituent of Interest:	Barium

1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

	Date (mm/dd/yy)	Constituent A	Constituent B	Constituent C	Constituent D
		Barium			
1	*11/10/2004*	*0.5*			
2	*2/15/2011*	*4.34*			
3	*5/3/2012*	*4.91*			
4	*9/27/2012*	*5.15*			
5	*3/28/2013*	*5.55*			
6	*9/12/2013*	*5.11*			
7	*9/25/2014*	*6.72*			
8	*9/23/2015*	*4.95*			
9	*9/28/2016*	*7.22*			
10					
11					
12					
13					
14					
15					

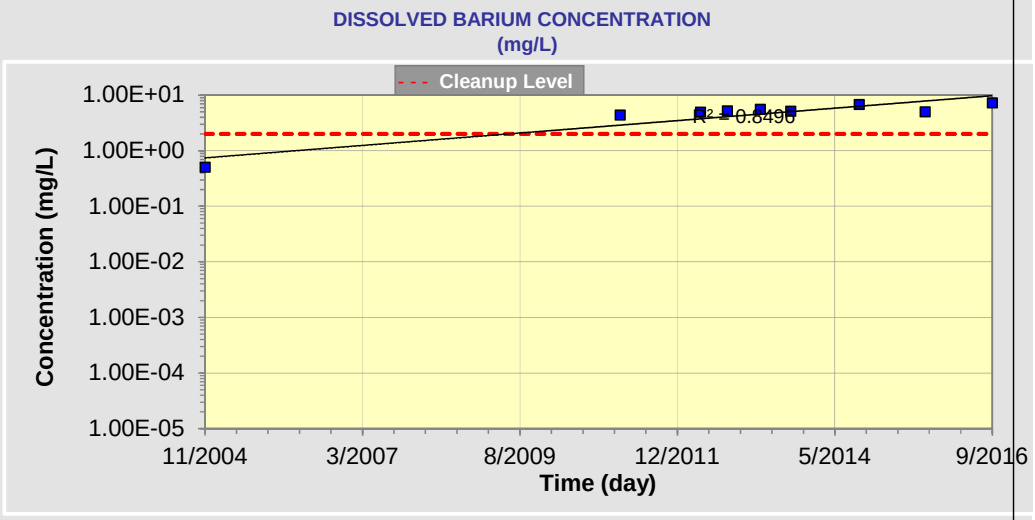
Print Historical Data

2. WHICH CONSTITUENT TO PLOT?

What is the cleanup level?

◉	**Barium**	2 (mg/L)
○	Constituent B	(mg/L)
○	Constituent C	(mg/L)
○	Constituent D	(mg/L)

3. OUTPUT GRAPH



Number of Years Over Which to Plot Graph (yr) Update Graph

4. RESULTS

Predicted Date to Achieve Cleanup: **Can't Calc (+ve Trend)**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

◉ 90 % Confidence Interval
○ 95 % Confidence Interval

Can't Calc (+ve Trend) (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **-2.17E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

APPENDIX C
Updated Fate And Transport Modeling Results

BIOSCREEN-AT Model Results
Former Swift Site, Moultrie, Georgia
Fate and Transport of Lead

This section presents the modeled fate and transport for lead at the former Swift site, which was found above the screening level for groundwater in one or more wells. The screening level is based on the Groundwater Protection Standard (GWPS) of 0.015 mg/L. This section will focus on lead concentrations in groundwater since this form is subject to migration. The purpose of the following assessment is to evaluate the potential for lead detected above the screening levels to migrate beyond the current monitoring well network.

The maximum lead concentration detected in groundwater samples taken in September 2015 was at MW-18 (0.258 mg/L). Additionally, the lead concentration at MW-15 (0.243 mg/L), located on the eastern perimeter of the site, was also modeled using BIOSCREEN-AT.

Lead Transport

The potential for lead in groundwater to migrate from current locations to beyond the current monitoring well network was evaluated using the one-dimensional fate and transport model BIOSCREEN-AT. BIOSCREEN-AT is an enhanced version of BIOSCREEN (Newell et al., 1996) with an exact analytical solution for the transport of a contaminant (Karanovic et al., 2007). This model is based on Microsoft Excel software that solves the widely-used analytical Domenico equation (Karanovic et al, 2007). This equation describes transport of solute in groundwater (inorganic or organic, decaying or non-decaying). Features within the model designed to account for processes specific to natural attenuation of organic constituents were not used. The model simulates advection, adsorption and three dimensional dispersion of any dissolved constituent (inorganic or organic), and has the ability to simulate constant or decaying sources, and contaminant degradation using degradation constants. The use of BIOSCREEN AT was limited for this site-specific application to model only advection, dispersion, and adsorption onto porous media since lead is an elemental contaminant that does not naturally degrade. Processes such as degradation or other chemical/biological processes were not included in this model. The use of this model as described above is consistent with USEPA guidance (Ford et al, 2007), where the USEPA's Center for Subsurface Modeling Support states that the Domenico-based models (such as BIOCHLOR, BIOSCREEN, FOOTPRINT, and REMChlor) in their current forms are reasonable for screening level tools.

Lead is modeled as being transported from the source area with the following assumptions.

- The modeled flow path is depicted from MW-18 through MW-09 and beyond.
- The highest detected lead concentration in MW-18 is representative of lead concentrations in the source area and is constant in concentration.
- An alternate scenario using MW-15 as a source area is also modeled.

The parameters selected for use in the model are presented in the following subsections.

Source Zone Width

The source zone is defined as the two-dimensional cross sectional area that is perpendicular to the direction of groundwater flow and of known constituent concentration. Downgradient of this

zone, the groundwater concentration is calculated by the model based on the dispersion, decay, adsorption, etc. that would occur in the flow field based on the value of the parameters used in the model. The modeled source is MW-18, with MW-15 also modeled as an alternate scenario. The planar two-dimensional source is represented by the highest detected lead concentration (MW-18 or MW-15). The cross section of the source is assumed to be approximately 100 feet wide around MW-18, or MW-15 in the alternate scenario.

Source Zone Thickness
The source zone thickness was assumed to be 50 feet based on the boring log and potentiometric surface measurements of MW-26DDD (near the central portion of the site).

Seepage velocity
There are two ways to input seepage velocity in this model – either as a final seepage velocity or as hydraulic conductivity, groundwater gradient, and effective porosity. The final seepage velocity method was used in this model exercise.

There are two water-bearing zones in the area of this model (Zone A and B). For this model, they are considered as one unit. The seepage velocity in Zone A has been calculated to be 65 ft/yr based on a horizontal gradient of 0.0086 ft/ft. Seepage velocities in Zone B have been calculated to be 32 – 91 ft/yr; based on a horizontal gradient of 0.0063 – 0.0178 ft/ft. Since the model requires a single seepage velocity, 65 ft/y was used. This value is consistent with reported values for both zones.

Dispersivity
The dispersivities were calculated by the model based on an estimated plume length of 280 feet. The resulting values are longitudinal dispersivity (13.3 feet), the transverse dispersivity (1.3 feet), and vertical dispersivity of 0.13 feet. The model estimates these based on published guidelines for dispersivity (Newell et al., 1996).

Partitioning Coefficient
BIOSCREEN is designed to use an organic Kd partitioning coefficient. This value is dependent on the fraction of organic carbon (foc) in the aquifer matrix, which is used to multiply the entered organic carbon partitioning coefficient (Koc) to get the organic Kd. It can also be used to model an inorganic metal constituent by entering a foc = 1.0 and an actual Kd for the Koc. With this adjustment, the appropriate actual metal Kd value is used in the adsorption formula. The Kd value for lead is dependent on pH. Both H+ (which determines pH) and Pb2+ are cations so there can be competition between them for adsorption sites on grain surfaces. This means the effective Kd depends on actual groundwater pH. Literature values report a range of Kd values from 5 L/kg to 100,000 L/kg (USEPA, 1996). Because the groundwater pH is below neutral, the median of literature values (15,849L/kg) was used as an initial input value and adjusted to calibrate the model to historic plume length and actual groundwater concentrations. Final Kd was dependent on length of time assumed since initial release.

Source Concentration and Strength
For the initial calibration, the lead concentration used in the MW-18 area was 0.258 mg/L, based on the September 2015 total metals sampling result at MW-18. At MW-18, both total and dissolved metals samples were collected, as turbidity could not be reduced below 17.9 NTU. The dissolved metals result at MW-18 was 0.176 mg/L. The source was assumed to be

constant over time. The lead concentration in the MW-15 area is 0.243 mg/L based on the September 2015 sampling result.

Degradation and Chemical Transformations
No degradation of lead or chemical reactions was assumed in the model.

Simulation Time
For calibration, the estimated earliest and latest possible times of release (based on the years of operation of the former Swift facility) were modeled. The actual first release date is unknown but should lie somewhere between these endpoints. The estimated earliest possible release date gives the plume 100 years to develop and results in a slower moving plume with a higher retardation factor for the aquifer. Use of these parameters would lead to predictions of slower future growth and more limited extent. The estimated latest possible release date gives the plume 44 years to develop and results in a faster moving plume with a lower retardation factor for the aquifer. Use of these parameters would lead to predictions of faster future growth and more extensive plume development. Since neither of these scenarios takes into account source area attenuation (both use a continuing source), both will generate very conservative (higher concentrations and greater extent) estimates of future plume development.

Calibration Values
The following September 2015 concentrations were used to calibrate the Kd values for the 100 and 44 year historic plume development:

Well	Distance (Feet from Source Area)	September 2015 Lead Concentration (mg/L)
MW-18	0	0.258 (total)
MW-18	0	0.176 (dissolved)
MW-6	74	0.132
MW-13D	132	0.129
MW-9	194	0.0898
MW-20	224	0.00347

Screen captures of final input and output values for the 44 and 100 year historic plumes are attached.

The calibration using the MW-18 total metals value of 0.258 mg/L yielded unsatisfactory predicted values as compared to existing site values. Therefore, the calibration was performed again using the MW-18 dissolved metals value of 0.176 mg/L, which yielded a more satisfactory calibration when compared to site values. As mentioned above, the BIOSCREEN input pages for both the MW-18 total and dissolved metals values, and associated model output pages showing predicted values, are attached.

For the MW-15 scenario, the source used was the MW-15 September 2015 lead concentration of 0.243 mg/L. Modeled travel times of 50 and 100 years were used for this scenario. The set-

up for the MW-18 scenario was otherwise used, as there are no downgradient wells from MW-15 to use for calibration of the Kd values.

CONCLUSIONS

Lead Model Results

The results of this model of lead fate and transport from MW-18 toward MW-9 show that (for the modeled travel time of 100 additional years) the lead concentration would not exceed the GWPS of 0.015 mg/l between approximately 425 to 590 feet from MW-18 (44 year historic plume or 100 year historic plume, respectively). This distance would extend beyond the eastern property boundary approximately 220 to 380 feet for the two time periods. For the MW-15 source scenario, the lead concentration (for the modeled travel time of 100 additional years) would not exceed the GWPS of 0.015 mg/l between approximately 450 to 620 feet from MW-15, or approximately 270 to 320 feet beyond the eastern boundary along the prevalent groundwater flow direction.

The models represent a very conservative estimate and actual conditions will be lower, as the highest detected groundwater concentration was maintained as a constant source over the entire model timeframe, and because the Kd values used are very low when compared to guidance document values. Most importantly, as pH becomes more neutral over time and distance from the source, the mobility of lead will be diminished and corresponding Kd values would increase. Screen captures of model inputs and results are attached.

Final Set-up, and Calibration Using MW-18 Dissolved Metals Value and Predicted Values

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Swift- Lead
Moultrie, GA
Run Name

Data Input Instructions:

115 → *1. Enter value directly....or*
↑ or
0.02 → *2. Calculate by filling in grey cells below. (To restore formulas, hit button below).*

Variable* → *Data used directly in model.*
20 → *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	65.0	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	1.1E-02	*(cm/sec)*
Hydraulic Gradient	*i*	0.003	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.1	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

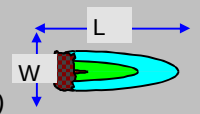
Retardation Factor*	*R*	20.9	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.5	*(kg/l)*
Partition Coefficient	*Koc*	3.98	*(L/kg)*
FractionOrganicCarbon	*foc*	1.0E+0	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	0.0E+0	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.15	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	250	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	44	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 50 *(ft)*

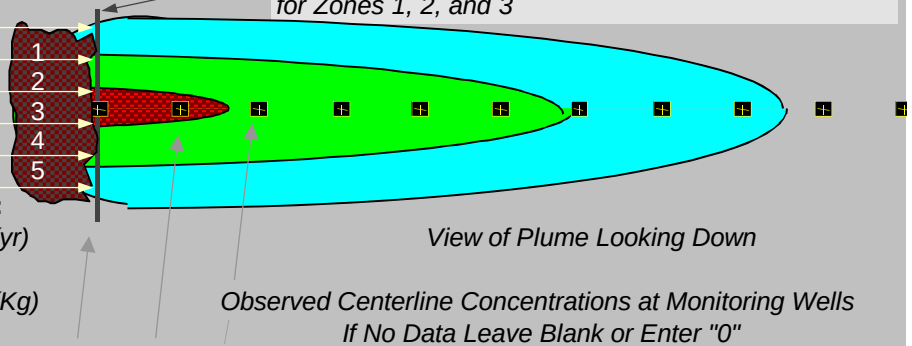
Source Zones:

Width* (ft)	Conc. (mg/L)*	
10	0	1
20	0	2
100	0.176	3
20	0	4
10	0	5

Source Halflife (see Help):

20	>1000	*(yr)*
Inst. React. ↑	↑ 1st Order	
Soluble Mass	2000	*(Kg)*
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	0	25	50	75	100	125	150	175	200	225	250
Concentration (mg/L)	.258			.132		.129			.09	.003	

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help — Recalculate This

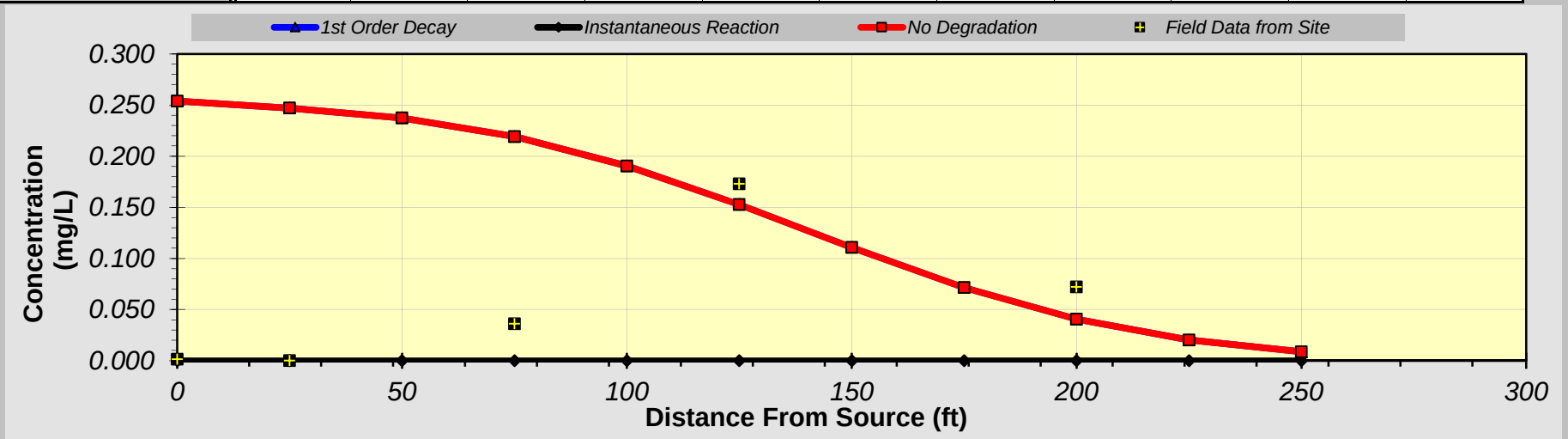
Paste Example Dataset

Restore Formulas for Vs,

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	25	50	75	100	125	150	175	200	225	250
No Degradation	0.254	0.247	0.237	0.219	0.190	0.153	0.111	0.071	0.041	0.020	0.009
1st Order Decay	0.254	0.247	0.237	0.219	0.190	0.153	0.111	0.071	0.041	0.020	0.009
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.001			0.036		0.173			0.072		



Calculate Animation

Time:

45 Years

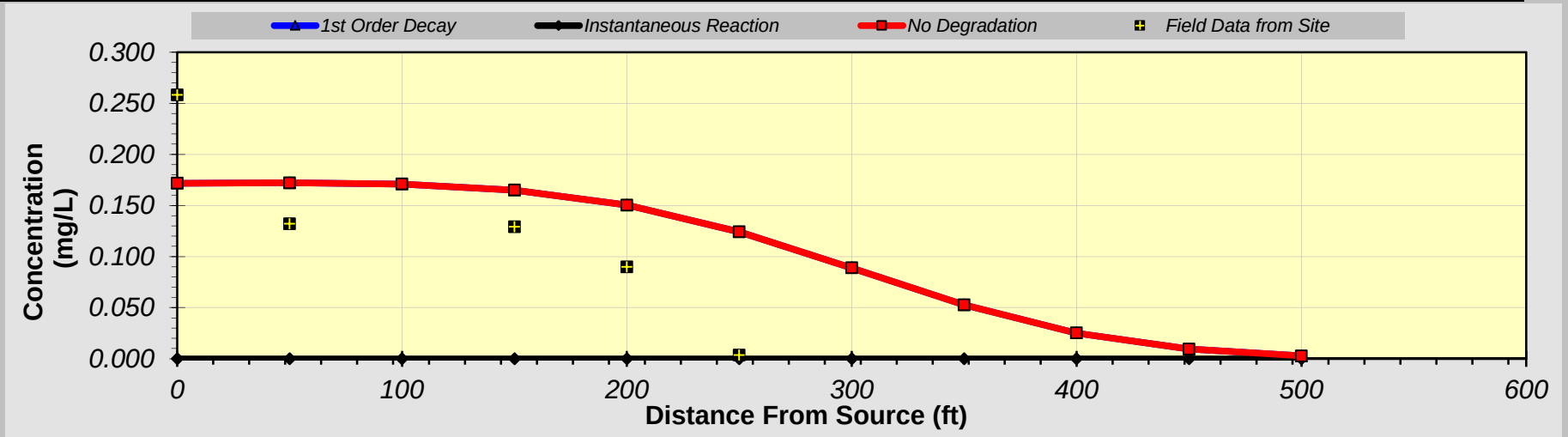
Return to

Recalculate This

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.172	0.172	0.171	0.165	0.150	0.124	0.089	0.053	0.025	0.009	0.003
1st Order Decay	0.172	0.172	0.171	0.165	0.150	0.124	0.089	0.053	0.025	0.009	0.003
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.258	0.132		0.129	0.090	0.003					



Calculate Animation

Time: 100 Years

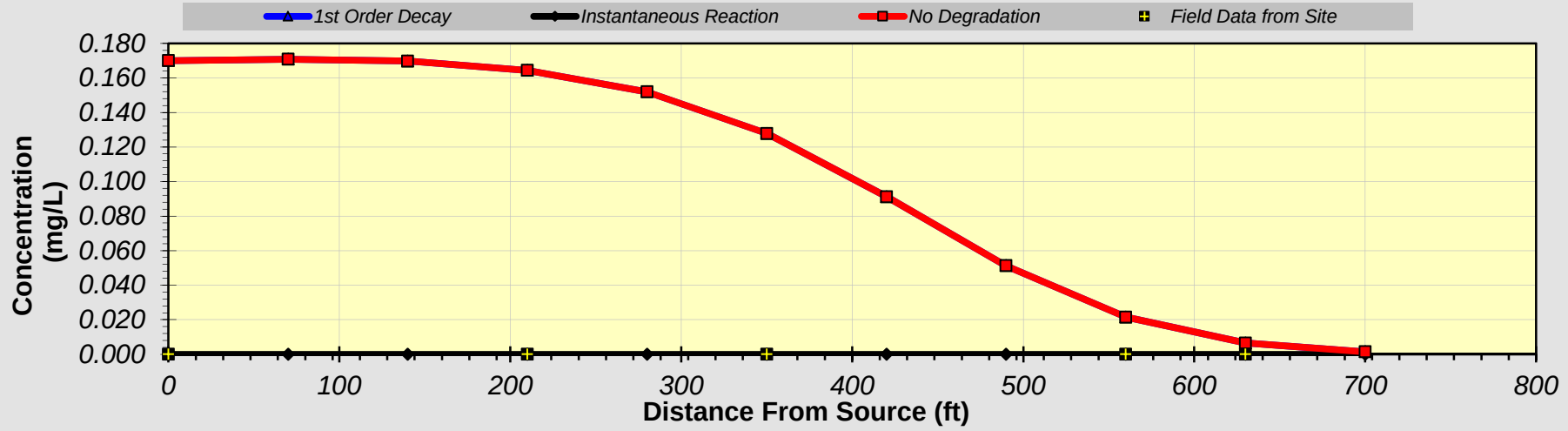
Return to

Recalculate This

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	70	140	210	280	350	420	490	560	630	700
No Degradation	0.170	0.171	0.170	0.164	0.152	0.128	0.091	0.051	0.022	0.007	0.001
1st Order Decay	0.170	0.171	0.170	0.164	0.152	0.128	0.091	0.051	0.022	0.007	0.001
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site											



Calculate Animation

Time: 144 Years

Return to

Recalculate This

Set-up and Predicted Values of MW-15 Scenario

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Swift- Lead MW-15
Moultrie, GA
Run Name

Data Input Instructions:

115 → 1. Enter value directly....or
or
0.02 → 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* → *Data used directly in model.*
20 → *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	65.0	*(ft/yr)*
or		*or*	
Hydraulic Conductivity	*K*	1.1E-02	*(cm/sec)*
Hydraulic Gradient	*i*	0.003	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.1	*(ft)*
or		*or*	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

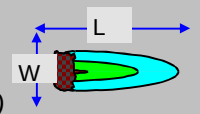
Retardation Factor*	*R*	20.9	*(-)*
or		*or*	
Soil Bulk Density	*rho*	1.5	*(kg/l)*
Partition Coefficient	*Koc*	3.98	*(L/kg)*
FractionOrganicCarbon	*foc*	1.0E+0	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	0.0E+0	*(per yr)*
or		*or*	
Solute Half-Life	*t-half*	0.15	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	100	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 50 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*	
10	0	1
20	0	2
100	0.243	3
20	0	4
10	0	5

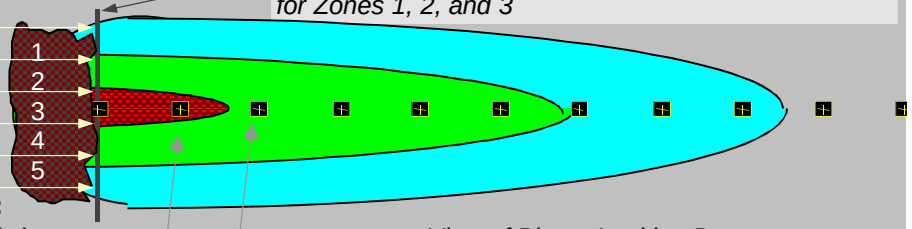
Source Halflife (see Help):

20 | >1000 *(yr)*

Inst. React. ↑ ↑ 1st Order

Soluble Mass 2000 *(Kg)*
In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.243										
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help | Recalculate This

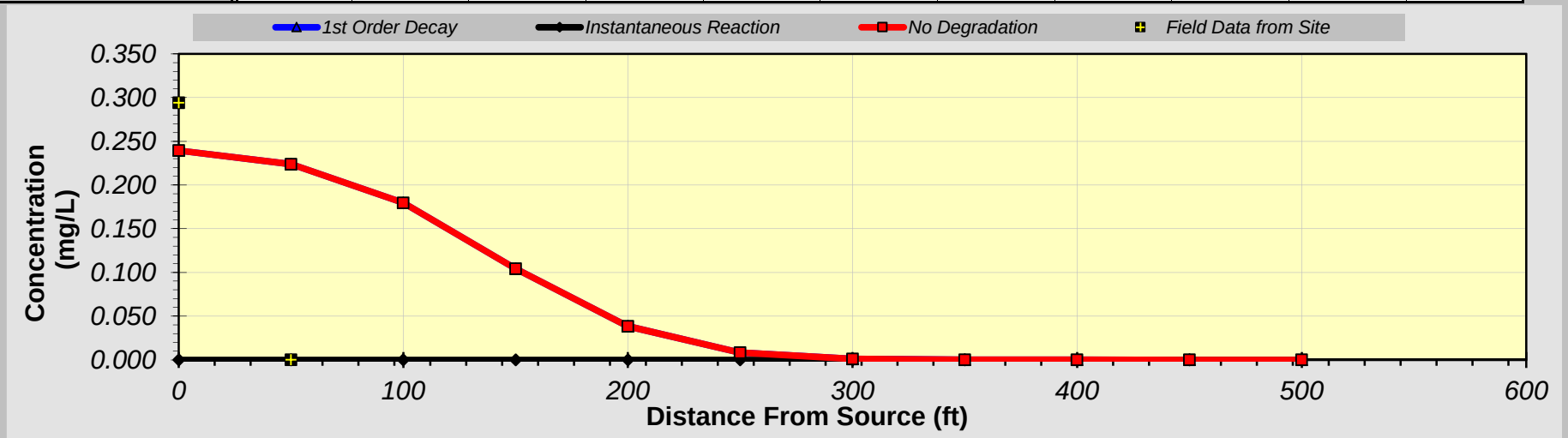
Paste Example Dataset

Restore Formulas for Vs,

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.239	0.224	0.179	0.104	0.038	0.008	0.001	0.000	0.000	0.000	0.000
1st Order Decay	0.239	0.224	0.179	0.104	0.038	0.008	0.001	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.294										



Calculate Animation

Time: 45 Years

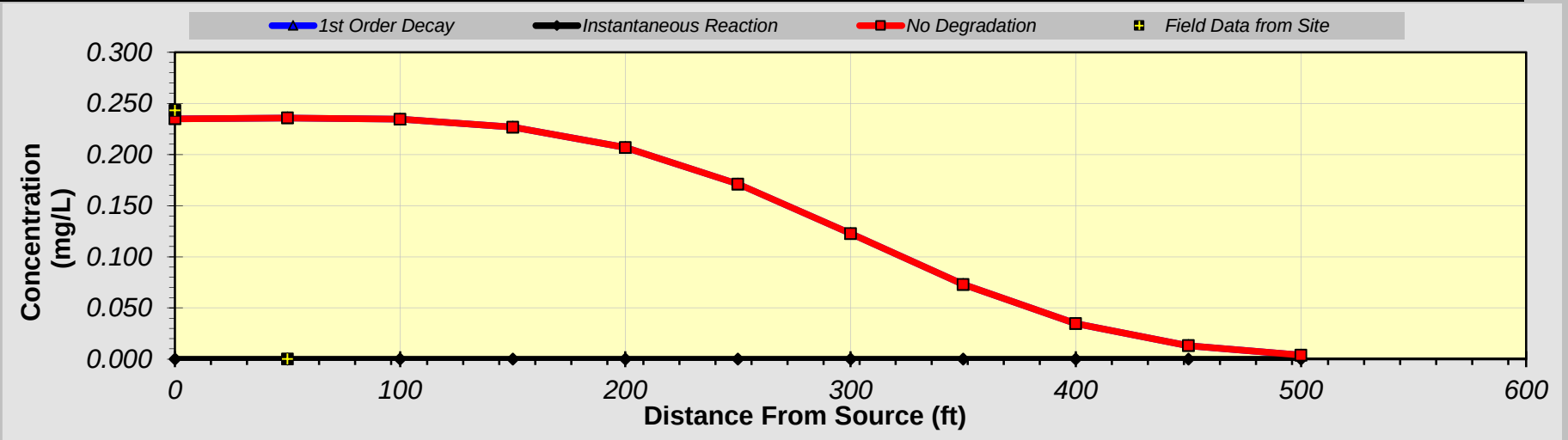
Return to

Recalculate This

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.235	0.236	0.235	0.227	0.207	0.171	0.123	0.073	0.035	0.013	0.004
1st Order Decay	0.235	0.236	0.235	0.227	0.207	0.171	0.123	0.073	0.035	0.013	0.004
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.243										



Replay Animation

Next Timestep

Prev Timestep

Time:

100 Years

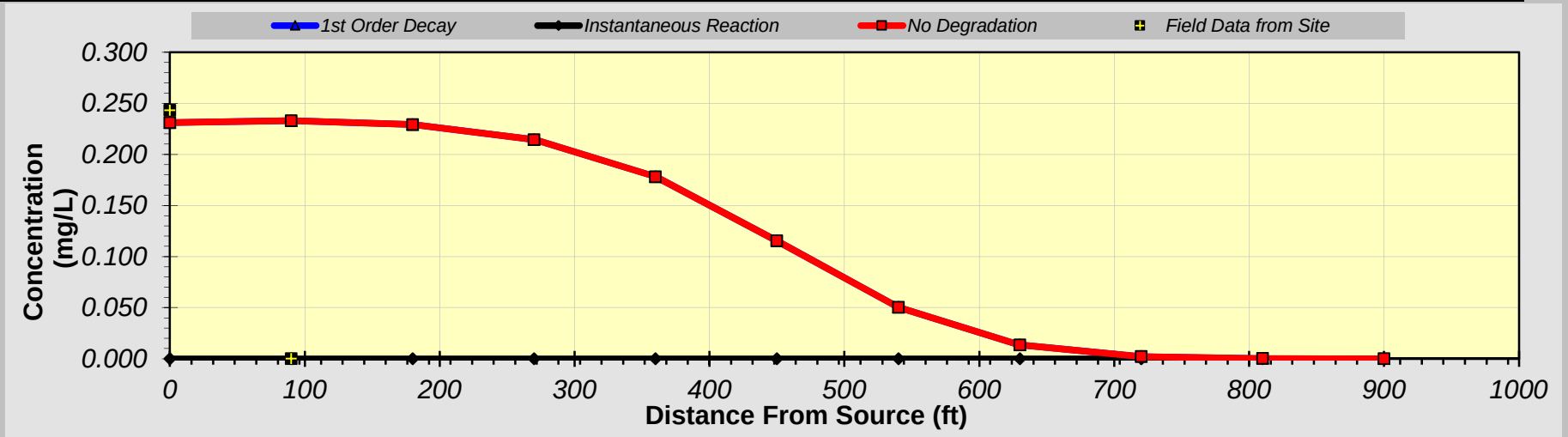
Return to

Recalculate This

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	90	180	270	360	450	540	630	720	810	900
No Degradation	0.231	0.233	0.229	0.214	0.178	0.115	0.050	0.013	0.002	0.000	0.000
1st Order Decay	0.231	0.233	0.229	0.214	0.178	0.115	0.050	0.013	0.002	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.243										



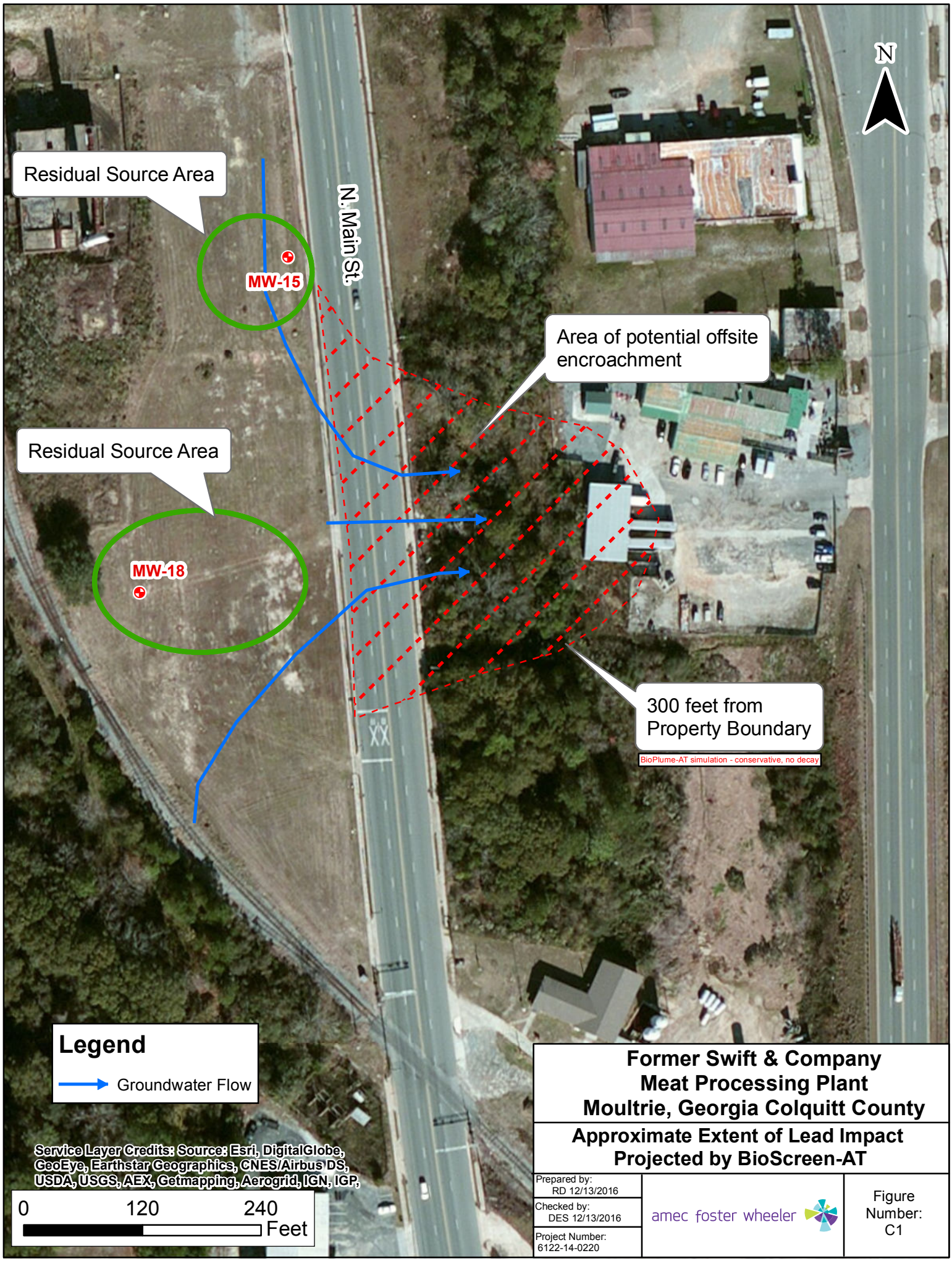
Calculate Animation

Time: 150 Years

Return to

Recalculate This

BioScreen-AT Projection of
Migration Potential in Groundwater
(Conservative – No decay)



Former Swift & Company Meat Processing Plant Moultrie, Georgia Colquitt County

Approximate Extent of Lead Impact Projected by BioScreen-AT

Prepared by: RD 12/13/2016	amec foster wheeler	Figure Number: C1
Checked by: DES 12/13/2016		
Project Number: 6122-14-0220		

Document Path: G:\Former Swift Moultrie\mxd\Site Map-r1.mxd

APPENDIX D
REGISTERED PROFESSIONAL SUPPORTING DOCUMENTATION

Summary of Hours and Services
Former SWIFT & Company Meat Processing Plant
HSI Site No. 10509
Submittal to EPD date December 14, 2016

David E. Smoak, P.G.
Preparation of submittal and review
21 hours charged through December 9, 2016

John Quinn, P.G
Preparation of submittal documentation
26.5 hours charged through December 9, 2016