REPORT

2016 Annual Groundwater Monitoring Report
Voluntary Remediation Program
Fashion Care/Executive Care Site
2211 Savoy Drive
DeKalb County
Chamblee, Georgia

Project Number
2015.0058.01

Report Date:
April 24, 2017

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April 24, 2017

Ms. Robin Futch, P.G.
Site Compliance Officer
Response & Remediation Program
Land Protection Branch
2 Martin Luther King, Jr. Dr. SE, Suite 1054 Atlanta,
GA 30334

RE: Annual Groundwater Monitoring Report - 2016
Voluntary Remediation Program
Fashion Care/Executive Care VRP Site
2211 Savoy Drive, DeKalb County, Chamblee, Georgia
United Consulting Project No. 2015.0058.01

Dear Ms. Futch:

On behalf of **John F. Rowan, Sr. Item IV Trust**, United Consulting is submitting this 2016 Annual Groundwater Monitoring Report regarding the second annual sampling event conducted in December 2016 for the above-referenced Voluntary Remediation Program Site. This document has been prepared in accordance with the VRP Monitoring Plan dated April 17, 2015 approved by the Environmental Protection Division.

Please contact Len Diprima, P.G., with United Consulting at 770-582-2854, if you have any questions or if we can be of further assistance.

Sincerely,

Leonard J. Diprima, Jr., P.G.
Associate Environmental Specialist

Spencer C. Cox
Staff Environmental Specialist

LJD/SCC/nm

SharePoint: 2015.0081.02

cc: John F. Rowan, Sr. Item IV Trust, Catherine Norris representative

2016 Annual Groundwater Monitoring Report

Image Courtesy of Google Earth

Fashion Care/Executive Care VRP Site
2211 Savoy Drive, Chamblee, DeKalb County, Georgia

Prepared For

John F. Rowan, Sr. Item IV Trust
PO Box 197, Carmel Valley, CA 93924

Project No. 2015.0081.01

March 17, 2017

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1.0 GROUNDWATER SCIENTIST STATEMENT

I certify that I am a qualified groundwater scientist who has received a baccalaureate or post-graduate degree in the natural sciences or engineering, and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, that enable me to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that this report (2016 Annual Groundwater Monitoring Report, Fashion Care/Executive Care VRP Site, 2211 Savoy Drive, Chamblee, DeKalb County, Georgia; March 20, 2017) was prepared by me and appropriate qualified subordinates working under my direction.

Leonard J. Diprima, Jr. / Georgia PG #949
Printed Name and GA PE/PG Number

April 24 2017
Date

Signature

2.0 INTRODUCTION

United Consulting has prepared this Voluntary Remediation Program (VRP) 2016 Annual Monitoring Report for the Fashion Care/Executive Care Site (Site/Fashion Care) located at 2211 Savoy Drive, Chamblee, DeKalb County, Georgia, on behalf of the John F. Rowan, Sr. Item IV Trust (Trust), the previous owner of the property and responsible party under the VRP. The work described herein was conducted in accordance with the VRP Monitoring Plan dated April 7, 2015, approved by the Georgia Environmental Protection Division (EPD). The Site location is presented on Figure 1. The monitoring of groundwater and surface water at the Site is being conducted to confirm if potential receptors identified during the implementation of the VRP will not be exposed now or in the future to the Site constituents of interest (COI) related to the historical release of regulated drycleaner constituents.

3.0 SITE BACKGROUND

The Fashion Care/former Trust property currently has a single, one-story building that contains a drycleaner on the west side with on-site cleaning, and an additional space that has been occupied by various businesses on the east side. Figure 2 shows the Fashion Care property and surrounding properties. A drycleaner has been located in the building since the building was initially constructed in the 1960's. The east side of the building has contained various retail and restaurant businesses. The remainder of the property is paved with asphalt. During the history of tenant drycleaner operations on the property, one or more historical releases of drycleaner chlorinated solvents occurred. The discovery of the impacts resulted in the Trust submitting to the EPD a Hazardous Sites Response Act (HSRA) Program Release Notification that resulted in the property being listed on the Georgia Hazardous Sites Inventory (HSI) for a release to soil. The property was owned by the Trust, who assessed the release through the HSRA Program and later the VRP. In November 2014 the property was purchased by Charles and Wendy Pero who entered the property into the Georgia Brownfield Program, obtaining a Limitation of Liability from the EPD. Upon submittal and approval by the EPD of the VRP Compliance Status Report (CSR) on July 17, 2015, the EPD removed the site from the HSI. The Trust has continued to implement the monitoring phase of the VRP. Greater detail regarding the regulatory history of the release is provided below.

3.1 Previous Environmental & Regulatory History

A historical release of tetrachloroethene (PCE) and its degradation products to soil from drycleaner operations conducted at the Fashion Care drycleaner property was identified in 2004. As a result, a HSRA Program Release Notification was submitted to the EPD on March 24, 2004. The EPD listed the property/Site on the HSI on July 29, 2004 for a release of regulated constituents to soil. On June 30, 2006 the EPD issued a HSRA CSR Call-in Letter to the Trust requiring the assessment of soil and groundwater related to the historical release.

During the course of addressing the release of drycleaner constituents under the HSRA Program and later the VRP, the Trust (owner at the time) required the current drycleaner tenant to discontinue the use of PCE in their operation and replaced the PCE dry cleaning machine in May 2009 with a non-chlorinated solvent based dry cleaning machine. No PCE use remains on the Site and the last additional suspected source of release, a leaking sanitary sewer collection sump that was part of the original building construction in the rear of the building, was twice cleaned and resealed by the Trust.

On July 9, 2010 the Trust entered the Site into the VRP with the submittal of a VRP CAP, which was approved with comments by the EPD in December 2, 2010. Since EPD approval of the VRP CAP and entry into the VRP, site evaluation and corrective actions under the VRP have progressed steadily through the submittal of a VRP CSR on October 31, 2014. The EPD approved the CSR in correspondence dated December 3, 2014, and subsequently removed the Site from the Hazardous Sites Inventory.

During the course of the HSRA and VRP assessments conducted for soil, groundwater, surface water, sediment and soil vapor; impacts associated with the release of PCE were identified on the

following properties. Each of these properties was originally entered into the VRP as part of the Site as a "qualifying property", as defined by the Voluntary Remediation Program Act (Act).

- Fashion Care property, 2211 Savoy Drive, Chamblee, Georgia (Parcel 18-343-13-002) – Soil, groundwater and the potential for soil vapor impacts were identified.

- Southern Automatic Company property, 4306 North Peachtree Road, Chamblee, Georgia (Parcel 18-343-13-005) – Soil, groundwater and the potential for soil vapor impacts were identified.

- Asl Limited Partnership property, no street address and immediately to the east bordering Nancy Creek (Parcel 18-333-02-023) – Groundwater, and the potential for surface water and soil vapor impacts were identified.

- Georgia-Alabama Commercial Investments, LLC property, 4308 North Peachtree Road, Chamblee, Georgia (Parcel 18-343-13-001) – Groundwater and the potential for soil vapor impacts were identified.

Each of these properties were also found to be impacted by a release of petroleum from gas station underground storage tank (UST) systems located on the Georgia-Alabama Commercial Investments, LLC property (UST Facility I.D. No. 900341*1; EZ-Serve Site). This petroleum release underwent remediation through the EPD Underground Storage Tank Management Program (UST Program) and received a "no further action required" status. A dual-phase extraction system was operated for a period of time to recover free-phase gasoline on the property. The dissolved phase gasoline constituents have migrated off the property to the south and west. The remediation system was not designed to address the groundwater plume, and the plume of petroleum constituents has comingled with the dissolved-phase chlorinated solvent plume originating from the Trust property.

As part of the assessment of the drycleaner release under the VRP, the horizontal and vertical extent of the soil impacts were delineated. The majority of soil above non-residential RRS is present beneath the concrete slab of the existing building and on the Fashion Care property. A small area of impacted soil is projected to be on the adjacent Southern Automatic Company property based upon the soil sample control. Soil impacts extend vertically to the water table in much of this area. The soil remedy established under the VRP is a Type 5 solution using engineering and institutional controls to mitigate the potential exposure pathways. The existing concrete building slab and surrounding asphalt paving provides a cap for the impacted soil, and the maintenance of the cap and health and safety requirements associated with future construction or utility work/worker exposure is assured through the use of Uniform Environmental Covenants (UECs) that have been established for the Fashion Care/Parcel #5 and Southern Automatic Company properties.

The horizontal and vertical extent of groundwater impacts from the drycleaner release were delineated under the VRP. The most recent set of groundwater data collected from the Site was in December 2016, and is depicted on Figure 4 relative to Type 1 and 3 RRS and Type 5 RRS. The plume extends southwest from the Fashion Care property source area toward and

intersecting with Nancy Creek, which borders the Asl Limited Partnership property. Based on the December 2016 data, impacted groundwater is present on portions of the Fashion Care, Southern Automatic Company, and Asl Limited Partnership properties. The plume was previously determined to be confined vertically to the water table aquifer, which is perched upon a dense, dry silt layer that is at least ten feet thick across the Site.

Numerous rounds of surface water samples have been collected from Nancy Creek along the length of the groundwater plume's intersection with the creek. The COI have not been identified in any of the SW samples collected to date. In addition, sediment samples collected in this area did not detect any of the COI.

The potential receptor for groundwater impacts is Nancy Creek. Due to the depth to groundwater across the Site, on average 10 feet or more below grade, direct contact by potential construction or utility workers was determined not to be a potential completed pathway for exposure at this Site. Surface water sampling and fate and transport modeling of the release have indicated that the groundwater plume is not predicted to be a potential completed pathway for exposure (see VRP CSR and VRP Monitoring Plan).

3.2 Site Topography, Geology and Hydrogeology

Topography across the Site, based upon visual relief and survey elevations of soil borings and monitoring wells, slopes gently to the south-southwest from Savoy Drive (approximate elevation 936 ft. msl) to Nancy Creek (approximate elevation 921 ft. msl). The banks of Nancy Creek adjacent to the Site are near vertical, dropping approximately 10 to 12 feet to the normal water level. On the south side of Nancy Creek, across from the Site, the topography begins to immediately rise approximately 260 feet to a knoll.

Surficial geology across the Site consists primarily of reddish-brown silt with varying minor amounts of sand and clay, overlying a grey to tan and grey silty sand to sandy silt with pebbles; which overlies a dense, dry silt of varying color across the Site. The presence of the dense, dry silt across the Site was confirmed in November 2013 by advancing 10 borings (SB-37 through SB-46, Figure 5) across the site to confirm the presence or absence of the dry silt, and utilizing existing borings that had been advanced deep enough to encounter the dry silt.

The saturated soil zone is divided into an upper and lower water bearing zone, separated by the dense, dry silt indicated above. The thickness of the upper water bearing zone is greater near Savoy Drive and thins as it approaches Nancy Creek. This is based upon the evidence that the upper water bearing zone is thinner adjacent to Nancy Creek where saturated conditions are encountered in borings as shallow as 5 feet below grade and the dense dry silt is encountered at 8 to 16 feet below grade. The dry silt was encountered at deeper depths at the higher elevations around the Fashion Care building, at approximately 23 feet below ground surface (bgs). Toward the creek, the dry silt was encountered at shallower depths ranging from 8 feet bgs (FMW-15) to 19 feet bgs (SB-46). The dry silt is very dense and the majority of borings drilled into this layer terminated with DPT refusal due to the hard nature of the material. When slight pressure was applied to a core of the silt it would crumble into loose material, indicative of the lack of

moisture in the silt. To determine the general thickness of the layer to aid in planning the construction of a Type III monitoring well to be screened below the silt, one boring, SB-37, successfully penetrated the silt. The silt was found to be approximately 10 feet thick (23 feet bgs to 33 feet bgs) at that location.

It should be noted that the dense dry silt does not form the streambed of Nancy Creek adjacent to the Site as originally theorized. Based upon stratigraphic assessment of the streambed conducted in September 2014, Nancy Creek in the area of the Site is still eroding through the silty sand/sandy silt overlying the dense dry silt.

On April 22, 2014, an attempt was made to evaluate the lower water bearing zone that was theorized to be present downgradient below the dense, dry silt, but above the potential bedrock aquifer by installing a Type III double cased monitoring well (MW-18D) adjacent to FMW-5. This location was previously agreed to by EPD for installing a deep well to establish groundwater quality conditions beneath the dry silt. A pilot hole was first drilled to identify the top of and base of the dry silt to determine the placement of the outer casing for the deep monitoring well. As anticipated, the dry silt was encountered at approximately 14 feet bgs, and water table aquifer conditions were encountered above the silt. However, bedrock was encountered immediately at the base of the dry silt at a depth of 33.5 feet bgs. As a result, the installation of the Type III well was aborted and EPD was notified of the conditions that were found. Based upon these findings, the following determinations were made:

- A Type III well could not be installed downgradient; and

- The water bearing zone present beneath the dry silt topographically upgradient near the Fashion Care building, appears to pinch out moving toward Nancy Creek, with the dry silt resting upon bedrock.

Based upon discussions with EPD regarding the conditions found during the attempt to install the deep well, it was determined in consultation with the EPD that the lithology did not support the installation of a deep well. The information obtained from this attempted installation of the Type III monitoring well was used to finalize the conceptual site model for the Site. This activity is described in the VRP Semiannual Status Report dated July 2, 2014.

Potentiometric surface maps have been constructed for the Site using the monitoring wells present on site during specific monitoring events. Potentiometric surface maps of the Site dated December 2016, December 2015, and April 2014 are presented in Figures 4 through 6. Water table measurements collected during the 2016 event are presented in Table 1. The water table elevations during the most recent event ranged from approximately 83.92 feet (FMW-1) to approximately 80.88 feet (FMW-16) near Nancy Creek. Monitoring well constructions logs are provided in Appendix C.

Slug tests were conducted in monitoring wells FMW-1, FMW-5 and FMW-9 in September 2014 to determine hydraulic conductivity in the shallow water bearing zone. The hydraulic conductivity ranged from 0.45 feet per day (FMW-1, slug-out) to 57 feet per day (FMW-9, slug-in). Slug test data is presented in the VRP CSR. The hydraulic gradient across the site was

calculated by performing three-point problems using water table measurements in wells from the April 2014 groundwater data map (Figure 6). The hydraulic gradient ranged from approximately 0.022 ft/ft in the northeast portion of the site using wells FMW-5, FMW-7 and SB-24, to approximately 0.004 ft/ft in the southwestern portion of the site using wells FMW-9, FMW-10 and FMW-16.

Surface water runoff across the Site in paved areas runs into various storm water drop inlets and is discharged at various points into Nancy Creek bordering the south side of the Site. Surface water on unpaved areas, such as the Asl Limited Partnership property, infiltrates or runs overland to Nancy Creek. Nancy Creek borders the south side of the Site and flows generally northeast to southwest in the immediate area.

4.0 MONITORING PLAN SCOPE OF WORK

Based upon the VRP assessment and fate and transport modeling of the drycleaner release on the Fashion Care property, it has been determined that groundwater and surface water monitoring should be conducted at the Site to confirm potential receptors identified during these activities will not be exposed to the COI identified in the future.

4.1 Groundwater and Surface Water Monitoring

Per the original monitoring plan, in order to confirm the predicted exposure trends for the Site, a limited groundwater and surface water sampling plan was initiated under the VRP, and the data acquired during the 2015 and 2016 annual sampling events were to be compared to the input data from the contaminant transport model to confirm the current exposure modeling results presented in the VRP CSR. Sampling was conducted using the following network of existing monitoring wells and surface water locations for two consecutive annual sampling events. The locations are shown on Figure 2.

- Monitoring Wells: FMW-4, FMW-6, FMW-9, FMW-12, and FMW-16
- Surface Water Locations: SW-1, SW-2 and SW-3.

Samples were collected for Target Compound List (TCL) volatile organic compounds (VOCs). It is noted that should a detection of COI be found in surface water during the implementation of the VRP Monitoring Plan, the Surface Water Corrective Action Plan presented in the Semiannual Status Report dated July 2, 2014, and approved by the EPD, would be implemented. No constituents associated with the release of PCE at the Site have been identified in Nancy Creek to date. Reporting of the December 2016 sampling results is presented in Sections 5.0 and 6.0 below.

4.1.1 Groundwater Sampling

Monitoring wells FMW-4, FMW-6, FMW-9, FMW-12, and FMW-16, were sampled for TCL VOCs and analyzed by Method 8260B. Prior to sampling, groundwater elevation measurements were collected from all the monitoring wells on the Site. This data was used to construct a potentiometric surface map of the water table (upper water bearing zone) representative of the sampling event. Each monitoring well was opened and allowed to equilibrate prior to collecting groundwater elevation measurements. A water level indicator calibrated to 0.01 feet was used for water level measurements. At each well location, the depth to the water table was measured from the well top of casing and then sounded to determine the height of the water column, and to determine if the well was obstructed. The water level indicator was cleaned with isopropyl alcohol and rinsed with deionized water between monitoring wells.

Groundwater sampling was conducted in accordance with USEPA Region 4 Field Branches Quality System and Technical Procedures in effect at the time of sampling. Sampling was conducted using a peristaltic pump and the low flow/low stress method. Field measurements of pH, conductivity, dissolved oxygen, oxidation-reduction potential and temperature were

collected until all parameters stabilized within approximately 10 percent for three consecutive readings. When this stabilization point was reached, samples were collected for TCL VOCs using the pipette method. A groundwater sampling data sheet was completed for each monitoring well sampled to record the conditions under which the sampling was conducted, procedures followed, measurements recorded, and other pertinent information. The groundwater sampling data sheets are provided in Appendix A.

Groundwater samples were secured in an ice-filled cooler and hand delivered to the laboratory for analysis. Laboratory work orders, and chain-of-custody documents, which include information on project name and number, sampler(s) signature, project manager's name, sample matrix, sample identification/station ID number, date and time of sample collection, total number of containers per sample station, requested analyses and number of containers per analyses per sample station, preservatives, and any other pertinent comments for the laboratory, were placed within each cooler for delivery.

4.1.2 Surface Water Sampling

Surface Water Locations SW-1, SW-2 and SW-3, were sampled for TCL VOCs and analyzed by Method 8260B. Three surface water sampling locations were established to consistently evaluate the effect of the groundwater plume intersecting Nancy Creek. The locations are shown on Figures 2 and 4 and are described as follows:

- SW-1, located upgradient and outside the area where the groundwater plume intersects Nancy Creek;

- SW-2, located downstream of SW-1 and within the area where the groundwater plume intersects Nancy Creek; and

- SW-3, located downstream of SW-2 and within the area of highest impacts where the groundwater plume intersects Nancy Creek.

Surface water elevation measurements were collected at each sample location based on an established elevation reference point for each location. This data was used in the construction of the potentiometric surface map representative of the sampling event.

Surface Water samples were collected by direct method. This was completed by entering the stream downstream and sampling from downstream to upstream. This included utilizing individual 6 oz glass jars and collecting the sample under the water surface at mid-depth while pointing the sample container upstream. The collected water was then transferred to laboratory supplied 40 ml vials with preservative for VOC analysis. Sampling was conducted in concordance with EPA Region 8 SOP for Surface Water collection, September 2003.

Surface water samples were secured in an ice-filled cooler and hand delivered to the laboratory for analysis. Laboratory work orders and chain-of-custody documents, which include information on project name and number, sampler(s) signature, project manager's name, sample matrix, sample identification/station ID number, date and time of sample collection, total number of containers per sample station, requested analyses and number of containers per analyses per

sample station, preservatives, and any other pertinent comments for the laboratory, were placed within each cooler for delivery.

5.0 SEMIANNUAL GROUNDWATER MONITORING

5.1 December 2016 Groundwater Sampling Event

The December 2016 groundwater sampling event was conducted on December 9th. Groundwater elevation measurements were conducted on December 8th. All the monitoring wells were found to be in good condition and no problems were encountered during the sampling event.

5.2 Groundwater Flow Direction

Groundwater elevation measurements of the water table aquifer collected on December 8, 2016 were used to construct the potentiometric surface map presented as Figure 3. Groundwater flow was to the south and west, consistent with historical data. For comparison, the potentiometric surface maps from the December 2015 and April 2014 sampling events are present in Figures 5 and 6.

5.3 Analytical Results

Detected constituents from the December 2016 sampling are presented in Table 2, compared to HSRA Types 1/3 RRS and Type 5 RRS established for the site. The data is also presented on Figure 4. The results from this round of groundwater samples is also compared to historical rounds of groundwater data collected on the Site in Table 2. The results of these comparisons are consistent with previous trends. The concentrations in groundwater near the source area, FMW-4, show decreasing and/or stabilizing concentrations of all constituents, demonstrating that the Type 5 capping in this area is being effective in reducing or eliminating the contribution of additional constituents into groundwater. Near the center of the groundwater plume(s) at FMW-6, the PCE concentrations have remained nearly constant, and the degradation constituents of PCE have risen slightly. Downgradient within the plume at FMW-9, adjacent to Nancy Creek, concentrations of constituents have shown a slight decline. Monitoring point FMW-16 at the downgradient-most point continues to be below detection limits for all constituents, indicating that the plume is not migrating further. These trends are presented for each monitoring well sampled in Figure 6.

6.0 SURFACE WATER ASSESMENT

6.1 December 2016 Surface Water Sampling Event

The December 2016 surface water sampling was conducted on December 9th. Surface water elevation measurements were collected on December 8th and are provided in Table 1. Water level and flow in the creek were at normal levels, relative to flow observed during rainfall events and drought conditions.

6.2 Analytical Results

Sixteen rounds of surface water samples have been collected from sample locations, SW-1, SW-2 and SW-3, between September 2008 and December 2016, and the results are presented in Table 3. No Site COI have been detected above laboratory PQLs in any of the samples collected.

7.0 SUMMARY AND CONCLUSIONS

Based upon the results of the contaminant transport modeling presented in the 2015 VRP CSR using groundwater and surface water sampling results conducted up to that time, no completed exposure pathways were anticipated to result from the migration and continued degradation of the groundwater plume. In order to confirm the predicted exposure trends for the Site, a limited groundwater and surface water sampling plan was initiated in 2015 and the data acquired would be input into the contaminant transport model to confirm the then current results. The approved VRP Monitoring Plan dated April 7, 2015, requires sampling of key monitoring wells in the groundwater plume and the collection of surface water samples at three locations for two consecutive annual sampling events beginning in December 2015. Following the completion of the December 2016 the continuation of the monitoring plan was to be re-evaluated.

Monitoring wells FMW-4, FMW-6, FMW-9, FMW-12, and FMW-16, were sampled for TCL VOCs on December 9, 2016. The results of the sampling when compared to previous results are consistent with previous trends. The concentrations in groundwater near the source area at FMW-4 show declining concentrations of PCE and TCE and slightly higher concentrations of constituents in the degradation chain, demonstrating that the Type 5 capping in this area is continuing to be effective in reducing or eliminating the contribution of additional constituents into groundwater. Near the center of the groundwater plume(s) at FMW-6 the PCE concentrations have declined, and the degradation constituents of PCE have risen slightly or remained constant. Downgradient within the plume, adjacent to Nancy Creek at FMW-9, concentrations of constituents have shown declining trend, indicating that the risk to the creek as a receptor is declining. Monitoring point at the downgradient-most point, FMW-16, continues to be below detection limits for all constituents, indicating that the plume is not migrating further.

Consistent with all previous surface water sampling results, no Site COI were detected in surface water samples collected from sample locations SW-1, SW-2 and SW-3.

Based upon the data collected to date it was determined that groundwater modeling was unnecessary to use a prediction tool for future risk:

- Due to the continued declining constituent concentrations nearest the receptor, Nancy Creek;
- Due to declining PCE concentrations and relatively flat concentrations of degradation constituents between the source area and the creek;
- Due to continued degradation of constituents nearest the source are;
- Due to continued non-detect results at the downgradient most monitoring point; and
- Due to no constituents being detected in Nancy Creek after eight rounds of sampling.

As a result of an evaluation of the groundwater modeling conducted and presented in the VRP CSR, and the results of two subsequent rounds of annual groundwater and surface water monitoring that indicate the potential exposure pathway to Nancy Creek is incomplete and will not be at risk in the future, the Trust respectfully requests the groundwater/surface water monitoring plan be discontinued and the VRP evaluation of the Fashion Care/Executive Care Site be closed.

TABLES

Table 1 - Water Table And Surface Water Elevation Measurements

Fashion Care/Executive Care VRP Site (HSI #10786)

2211 Savoy Drive, Chamblee, Georgia

Well I.D.	Groundwater Measurement Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Well Bottom (feet)	Product Thickness (feet)	Depth to Free Product (feet)	Water Column Height (feet)	Water Table Elevation (feet)
FMW-1	8-Dec-16	98.92	15.00	25.00	0.00	none	10.00	83.92
FMW-2	8-Dec-16	97.07	13.59	22.20	0.00	none	8.61	83.48
FMW-3	8-Dec-16	96.96	13.91	19.90	0.00	none	5.99	83.05
FMW-4	8-Dec-16	97.11	13.80	20.30	0.00	none	6.50	83.31
FMW-5	8-Dec-16	95.4	12.96	18.72	0.00	none	5.76	82.44
FMW-6	8-Dec-16	93.12	10.82	18.66	0.00	none	7.84	82.30
FMW-7	8-Dec-16	96.81	13.88	18.48	0.00	none	4.60	82.93
FMW-8	8-Dec-16	97.4	13.52	20.18	0.00	none	6.66	83.88
FMW-9	8-Dec-16	94.07	11.78	19.26	0.00	none	7.48	82.29
FMW-10	8-Dec-16	92.85	10.58	19.15	0.00	none	8.57	82.27
FMW-11	8-Dec-16	94.4	12.00	19.13	0.00	none	7.13	82.40
FMW-12	8-Dec-16	95.9	12.96	19.35	0.00	none	6.39	82.94
FMW-13	8-Dec-16	92.05	9.80	19.65	0.00	none	9.85	82.25
FMW-14	8-Dec-16	92.03	10.68	18.88	0.00	none	8.20	81.35
FMW-15	8-Dec-16	92.1	10.57	14.34	0.00	none	3.77	81.53
FMW-16	8-Dec-16	91.32	10.44	15.36	0.00	none	4.92	80.88
FMW-17	8-Dec-16	91.90	10.42	17.32	0.00	none	6.90	81.48
SW-1	8-Dec-16	-	-	-	-	-	1.56	78.58
SW-2	8-Dec-16	-	-	-	-	-	0.67	72.10
SW-3	8-Dec-16	-	-	-	-	-	1.87	71.54

Notes:

Elevations in feet relative to on-site datum

ft - feet

- : data does not exist / not applicable

Table 2
Groundwater Analytical Data - Detected Constituents
Fashion Care/Executive Care VRP Site (HSI #10786)
2211 Savoy Drive, Chamblee, Georgia

Constituent	CAS No.	HSRA Type 1&3 Standard (mg/L)	HSRA Type 5 Standard (mg/L)		FMW-1	FMW-1[3]	FMW-1	DUP 1 (FMW-1)	FMW-1	DUP 1 (FMW-1)	FMW-2	FMW-2[3]	FMW-2	FMW-3	FMW-3[3]	FMW-3	FMW-4	FMW-4[3]	FMW-4	FMW-4	FMW-4	FMW-4	FWM-5	FWM-5	FMW-5	FMW-5	FMW-6
			Construction Worker	Utility Worker	9/8/08	3/8/10	7/11/12	7/11/12	4/28/14	4/28/14	9/8/08	3/8/10	7/11/12	9/8/08	3/9/10	7/12/12	9/8/08	3/8/10	7/12/12	4/29/14	12/8/15	12/9/16	9/5/08	3/11/10	7/11/12	4/29/14	9/5/08
Volatile Organic Compounds																											
Fashion Care HSRA Site Constituents of Interest																											
1,1-Dichloroethene	75-35-4	0.007	0.577	4.12	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.5	<0.5	<0.001	<0.005	<0.005	**0.061**	**0.038**	<0.5	**0.027**	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.001
1,1,2-Trichloroethane	79-00-5	0.005			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.5	<0.5	<0.001	<0.005	<0.005	< 0.001	**0.038**	<0.5	**0.014**	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.001
cis-1, 2-Dichloroethene	156-59-2	0.53	12.8	91.3	0.0027	0.024	0.18	0.16	0.049	0.046	0.11	0.16J	<0.5	0.0048	<0.005	<0.005	**52.0**	**63.0**	**75**	**40**	**2.4**	**4.6**	0.1	0.039	0.059	<0.005	0.18
Tetrachloroethene (PCE)	127-18-4	0.005**	0.286	0.082	**0.0086**	**0.006**	**0.0097**	**0.0087**	<0.005	<0.005	**0.06**	<0.5	<0.5	**0.016**	<0.005	<0.005	**42.0**	**17.0**	**1.5**	**4.9**	**0.017**	<0.005	**4.7**	**1.2**	**0.0073**	<0.005	**1.1**
trans-1, 2-Dichloroethene	156-60-5	0.1	0.174	1.24	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	0.0057	<0.5	<0.5	<0.001	<0.005	<0.005	**0.90**	**1.3**	**0.54**	**0.32**	0.016	0.034	<0.001	<0.005	<0.005	<0.005	0.0036
Trichloroethene (TCE)	79-01-6	0.005**	1.02	0.290	0.0028	0.0034J	**0.012**	0.01	<0.005	<0.005	**0.027**	<0.5	<0.5	**0.0057**	<0.005	<0.005	**30.0**	**22.0**	**1.1**	**1.8**	**0.027**	**0.017**	**0.1**	**0.029**	**0.0068**	<0.005	**0.056**
Vinyl Chloride	75-01-4	0.002**	0.27	0.097	<0.001	<0.002	**0.055**	**0.05**	**0.022**	**0.021**	<0.001	<0.2	<0.2	<0.001	<0.002	<0.002	**3.7**	**1.8**	**2.4**	**1.6**	**0.18**	**0.42**	<0.001	**0.0028**	**0.0071**	<0.002	<0.001
Properly Applied Chemicals, Non-HSRA Regulated Chemicals, Naturally Ocurring or Laboratory Artifacts																											
1,2-Dichlorobenzene	95-50-1	NA(1)			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.5	<0.5	<0.001	<0.005	<0.005	0.019	0.01	<0.5	0.0052	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.001
Acetone	67-64-1	4			<0.002	<0.05	<0.05	<0.05	<0.05	<0.05	<0.002	<0.5	<5	<0.002	<0.05	<0.05	<0.002	0.094	<5	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.05	<0.002
Chlorobenzene	108-90-7	NA(1)			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.5	<0.5	<0.001	<0.005	<0.005	0.0036	0.002J	<0.5	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.001
Petroleum Constituents/VOCs Related to the EZ-Serve UST SITE																											
1,2-Dibromoethane (EDB)	106-93-4	PRC			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	<0.5	<0.5	<0.001	<0.005	<0.005	<0.001	<0.005	<0.5	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.001
1, 2-Dichloroethane	107-06-2	PRC			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	0.4	<0.5	<0.5	<0.001	<0.005	<0.005	<0.001	<0.005	<0.5	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.001
2-Butanone (MEK)	78-93-3	PRC			<0.002	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	<5.0	<5.0	<0.002	<0.05	<0.05	<0.002	<0.05	<5.0	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.05	<0.002
4-Methyl-2-pentanone (MIBK)	108-10-1	PRC			<0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<1.0	<1.0	<0.002	<0.01	<0.01	<0.002	0.076	<1.0	0.012	<0.01	<0.01	<0.002	<0.01	<0.01	<0.01	<0.002
Benzene	71-43-2	PRC			0.83	1.2	1.2	0.74	0.24	0.28	13.0	14.0	13	0.16	0.19	0.07	2.0	3.7	5	3.1	0.31	0.73	0.0018	<0.005	<0.005	<0.005	0.0018
Cyclohexane	110-82-7	PRC			0.045	0.1	0.19	0.23	0.061	0.07	0.14	<0.5	<0.5	0.035	0.053	0.042	<0.001	0.069	<0.5	0.064	0.0071	0.0370	<0.001	<0.005	<0.005	<0.005	<0.001
Ethylbenzene	100-41-4	PRC			0.33	0.6	0.63	0.4	0.25	0.27	2.6	3.0	2.7	0.19	0.0075	<0.005	0.465	0.89	1.3	0.53	0.094	0.590	<0.001	<0.005	<0.005	<0.005	<0.001
Isopropylbenzene	98-82-8	PRC			0.013	0.027	0.044	0.043	0.014	0.016	0.082	0.095J	0.5	0.017	0.034	0.019	0.019	0.038	0.5	0.041	0.0075	0.0230	<0.001	<0.005	<0.005	<0.005	<0.001
Methyl tert-butyl ether (MTBE)	1634-04-4	PRC			2.4	3.2	1.1	18	1.4	1.6	0.93	1.1	1.4	<0.002	0.0012J	<0.005	0.945	1.3	1.6	0.7	0.026	0.062	0.022	<0.005	<0.005	<0.005	0.26
Styrene	100-42-5	PRC			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.5	<0.5	<0.001	<0.005	<0.005	<0.001	<0.005	<0.5	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.001
Toluene	108-88-3	PRC			0.054	3.4	3.3	2.1	0.77	0.87	6.0	15.0	7.9	0.0075	0.0065	<0.005	4.1	7.1	1.8	0.6	0.026	0.087	<0.001	<0.005	<0.005	<0.005	<0.001
Xylenes, Total	1330-20-7	PRC			0.445	2.34	2.67	16.6	0.90	0.95	14.7	16.9	16.4	0.8884	0.019	0.0078	1.6	3.7	0.71	0.45	0.052	0.023	<0.002	<0.01	<0.005	<0.005	<0.002

NOTES:

BOLD	Exceeds HSRA Type 1&3 RRS
BOLD	Exceeds HSRA Type 5 RRS-Construction Worker
BOLD	Exceeds HSRA Type 5 RRS-Utility Worker
XX.XX	Exceeds UST Program ISWQS for Petroleum Constituent
FMW-XX	Current groundwater analytical data as of 12/9/16
< XX.XX	Reporting limit for constituent

ISWQS - Georgia In-Stream Water Quality Standards (Rule 391-3-6-.03 Water Use Classifications and Water Quality Standards)

PRC - Pertroleum related constituent

NA(1) * Not Applicable - fumigant-insecticide properly applied

NA(2) * Not Applicable - Petroleum related constituent which has no In-Stream Water Quality Standard

NR * Not regulated

* - Type 4 RRS is defaulted to the equivalent of the Type 1 RRS because the Type 1 RRS has a higher value.

** - RRS is taken from EPD CAP approval letter dated December 28, 2007, table of approved RRS in Condition 8.

FPP * Free-phase petroleum present in the monitoring well

Table 2
Groundwater Analytical Data - Detected Constituents
Fashion Care/Executive Care VRP Site (HSI #10786)
2211 Savoy Drive, Chamblee, Georgia

Constituent	CAS No.	HSRA Type 1&3 Standard (mg/L)	HSRA Type 5 Standard (mg/L)		FMW-6	FMW-6	FMW-6	FMW-6	FMW-6	FMW-7	FMW-7	FMW-7	FMW-8	FMW-8[3]	FMW-8	FMW-9	FMW-9	FMW-9	FMW-9	FMW-9	FMW-9	FMW-10	FMW-10	FMW-10	FMW-11
			Construction Worker	Utility Worker	3/11/10	7/11/12	4/29/14	12/8/15	12/9/16	12/3/08	3/9/10	7/12/12	12/2/08	3/8/10	7/11/12	12/3/08	3/11/10	7/10/12	4/29/14	12/8/15	12/9/16	12/2/08	3/11/10	7/11/12	12/2/08
Volatile Organic Compounds																									
Fashion Care HSRA Site Constituents of Interest																									
1,1-Dichloroethene	75-35-4	0.007	0.577	4.12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001
1,1,2-Trichloroethane	79-00-5	0.005			<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001
cis-1, 2-Dichloroethene	156-59-2	0.53	12.8	91.3	0.18	**0.87**	**0.92**	**1.4**	**1.6**	<0.001	<0.005	<0.005	0.00236	0.0022J	<0.005	0.0534	0.29	**0.72**	**0.82**	**0.73**	**0.53**	0.0445	0.11	<0.005	0.00288
Tetrachloroethene (PCE)	127-18-4	0.005**	0.286	0.082	**1.4**	**2.6**	**3.1**	**3.5**	**2.8**	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	**0.9**	**1.6**	**1.8**	**2.3**	**1.7**	**1.0**	<0.001	<0.005	<0.005	**0.0394**
trans-1, 2-Dichloroethene	156-60-5	0.1	0.174	1.24	<0.005	0.016	0.016	0.023	0.023	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	0.00086	0.0062	0.01	0.014	<0.005	0.0072	<0.001	<0.005	<0.005	<0.001
Trichloroethene (TCE)	79-01-6	0.005**	1.02	0.290	**0.052**	**0.17**	**0.26**	**0.40**	**0.41**	<0.001	<0.005	<0.005	<0.001	0.001J	<0.005	**0.0262**	**0.072**	**0.13**	**0.25**	**0.19**	**0.13**	<0.001	**0.028**	<0.005	**0.00573**
Vinyl Chloride	75-01-4	0.002**	0.27	0.097	<0.002	**0.0078**	<0.002	**0.0023**	**0.0027**	<0.001	<0.002	<0.002	<0.001	<0.002	<0.002	<0.001	<0.002	<0.002	**0.02**	**0.02**	**0.0072**	**0.0106**	**0.011**	<0.002	<0.001
Properly Applied Chemicals, Non-HSRA Regulated Chemicals, Naturally Ocurring or Laboratory Artifacts																									
1,2-Dichlorobenzene	95-50-1	NA(1)			<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001
Acetone	67-64-1	4			<0.05	<0.05	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.002	<0.05	<0.05	<0.002	<0.05	<0.05	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.002
Chlorobenzene	108-90-7	NA(1)			<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001
Petroleum Constituents/VOCs Related to the EZ-Serve UST SITE																									
1,2-Dibromoethane (EDB)	106-93-4	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001
1, 2-Dichloroethane	107-06-2	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	0.0013J	<0.005	0.00215	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	0.00152
2-Butanone (MEK)	78-93-3	PRC			<0.05	<0.05	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.002	<0.05	<0.05	<0.002	<0.05	<0.05	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.002
4-Methyl-2-pentanone (MIBK)	108-10-1	PRC			<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.01	0.0102	<0.01	<0.01	<0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.01	<0.002
Benzene	71-43-2	PRC			<0.005	0.013	<0.005	0.0055	0.0380	<0.001	<0.005	<0.005	3.07	2.4	2.5	0.00065	<0.005	<0.005	0.035	0.028	0.0098	0.00097	<0.005	<0.005	0.00134
Cyclohexane	110-82-7	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	0.18	0.37	<0.25	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001
Ethylbenzene	100-41-4	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	2.72	2.2	2.3	0.00052	<0.005	<0.005	<0.005	<0.005	<0.005	0.00073	<0.005	<0.005	0.00321
Isopropylbenzene	98-82-8	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	0.0823	0.086	0.091	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001
Methyl tert-butyl ether (MTBE)	1634-04-4	PRC			0.064	0.31	0.052	0.15	0.31	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	0.615	0.19	0.4	0.26	0.39	0.56	0.0235	0.017	<0.005	0.575
Styrene	100-42-5	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	0.0213	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001
Toluene	108-88-3	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	7.71	5.5	2.5	0.00196	<0.005	<0.005	<0.005	<0.005	<0.005	0.0014	<0.005	<0.005	0.00559
Xylenes, Total	1330-20-7	PRC			<0.01	<0.005	<0.005	<0.005	<0.005	<0.002	<0.01	<0.005	14.97	12.1	13.3	0.00285	<0.01	<0.005	<0.005	<0.005	<0.005	0.00412	<0.01	<0.005	0.021

NOTES:

BOLD	Exceeds HSRA Type 1&3 RRS
BOLD	Exceeds HSRA Type 5 RRS-Construction Worker
BOLD	Exceeds HSRA Type 5 RRS-Utility Worker
XX.XX	Exceeds UST Program ISWQS for Petroleum Constituent
FMW-XX	Current groundwater analytical data as of 12/9/16
< XX.XX	Reporting limit for constituent

ISWQS - Georgia In-Stream Water Quality Standards (Rule 391-3-6-.03 Water Use Classifications and Water Quality Standards)

PRC - Pertroleum related constituent

NA(1) - Not Applicable - fumigant-insecticide properly applied

NA(2) - Not Applicable - Petroleum related constituent which has no In-Stream Water Quality Standard

NR - Not regulated

* - Type 4 RRS is defaulted to the equivalent of the Type 1 RRS because the Type 1 RRS has a higher value.

** - RRS is taken from EPD CAP approval letter dated December 28, 2007, table of approved RRS in Condition 8.

FPP - Free-phase petroleum present in the monitoring well

Table 2
Groundwater Analytical Data - Detected Constituents
Fashion Care/Executive Care VRP Site (HSI #10786)
2211 Savoy Drive, Chamblee, Georgia

Constituent	CAS No.	HSRA Type 1&3 Standard (mg/L)	HSRA Type 5 Standard (mg/L)		FMW-11	FMW-11	FMW-12[3]	FMW-12	FMW-12	FMW-12	FMW-13(3)	FMW-13	FMW-13	FMW-14	FMW-14	FMW-14	FMW-15	FMW-15	FMW-15	FMW-16	FMW-16	FMW-16	FMW-16	FMW-16	FMW-17
			Construction Worker	Utility Worker	3/11/10	7/11/12	3/17/10	7/12/12	12/8/15	12/9/16	3/17/10	7/10/12	4/29/14	5/27/10	7/11/12	4/29/14	6/15/10	7/10/12	4/30/14	6/15/10	7/10/12	4/30/14	12/8/15	12/9/16	3/29/13
Volatile Organic Compounds																									
Fashion Care HSRA Site Constituents of Interest																									
1,1-Dichloroethene	75-35-4	0.007	0.577	4.12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	79-00-5	0.005			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1, 2-Dichloroethene	156-59-2	0.53	12.8	91.3	0.01	<0.005	0.0014J	<0.005	<0.005	<0.005	0.0011J	0.078	<0.005	**0.0074**	0.027	0.0071	<0.005	<0.005	<0.005	<0.005	0.0094	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene (PCE)	127-18-4	0.005**	0.286	0.082	**0.044**	**0.03**	0.0046J	<0.005	<0.005	<0.005	**0.018**	**0.23**	**0.01**	**0.01**	**0.027**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans-1, 2-Dichloroethene	156-60-5	0.1	0.174	1.24	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene (TCE)	79-01-6	0.005**	1.02	0.290	**0.011**	<0.005	<0.005	<0.005	<0.005	<0.005	0.0026J	**0.054**	<0.005	**0.02**	**0.023**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Chloride	75-01-4	0.002**	0.27	0.097	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	**0.0061**	**0.0032**	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Properly Applied Chemicals, Non-HSRA Regulated Chemicals, Naturally Ocurring or Laboratory Artifacts																									
1,2-Dichlorobenzene	95-50-1	NA(1)			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Acetone	67-64-1	4			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	108-90-7	NA(1)			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Petroleum Constituents/VOCs Related to the EZ-Serve UST SITE																									
1,2-Dibromoethane (EDB)	106-93-4	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1, 2-Dichloroethane	107-06-2	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Butanone (MEK)	78-93-3	PRC			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4-Methyl-2-pentanone (MIBK)	108-10-1	PRC			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzene	71-43-2	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyclohexane	110-82-7	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Isopropylbenzene	98-82-8	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methyl tert-butyl ether (MTBE)	1634-04-4	PRC			0.14	0.24	0.047	0.046	0.02	<0.005	<0.005	0.027	<0.005	0.0033	0.012	<0.005	0.0021	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	100-42-5	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	PRC			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Xylenes, Total	1330-20-7	PRC			<0.01	<0.005	<0.01	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES:

BOLD	Exceeds HSRA Type 1&3 RRS
BOLD	Exceeds HSRA Type 5 RRS-Construction Worker
BOLD	Exceeds HSRA Type 5 RRS-Utility Worker
XX.XX	Exceeds UST Program ISWQS for Petroleum Constituent
FMW-XX	Current groundwater analytical data as of 12/9/16
< XX.XX	Reporting limit for constituent

ISWQS - Georgia In-Stream Water Quality Standards (Rule 391-3-6-.03 Water Use Classifications and Water Quality Standards)

PRC - Pertroleum related constituent

NA(1) * Not Applicable - fumigant-insecticide properly applied

NA(2) * Not Applicable - Petroleum related constituent which has no In-Stream Water Quality Standard

NR * Not regulated

* - Type 4 RRS is defaulted to the equivalent of the Type 1 RRS because the Type 1 RRS has a higher value.

** - RRS is taken from EPD CAP approval letter dated December 28, 2007, table of approved RRS in Condition 8.

FPP * Free-phase petroleum present in the monitoring well

Table 2
Groundwater Analytical Data - Detected Constituents
Fashion Care/Executive Care VRP Site (HSI #10786)
2211 Savoy Drive, Chamblee, Georgia

Constituent	CAS No.	HSRA Type 1&3 Standard (mg/L)	HSRA Type 5 Standard (mg/L)		FMW-17	SB-24[3]	SB-24	SB-25[3]	SB-26[3]	SB-26	Stantec UST Data MW-1	Stantec UST Data MW-2R	MW-2R	MW-2R	Stantec UST Data MW-3	Stantec UST Data MW-4R	Stantec UST Data MW-8	MW-8	Stantec UST Data MW-9R	MW-9R	MW-9R	Stantec UST Data RW-13 (MW-10R)
			Construction Worker	Utility Worker	4/30/14	3/16/10	7/13/12	3/16/10	3/16/10	7/13/12	6/7/08	6/7/08	9/9/08	3/8/10	6/7/08	6/7/08	6/7/08	3/9/10	6/7/08	9/9/08	3/9/10	6/7/08
Volatile Organic Compounds																						
Fashion Care HSRA Site Constituents of Interest																						
1,1-Dichloroethene	75-35-4	0.007	0.577	4.12	<0.005	<0.1	<0.5	<0.1	<0.25	<0.5	FPP	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
1,1,2-Trichloroethane	79-00-5	0.005			<0.005	<0.1	<0.5	<0.1	<0.25	<0.5	FPP	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	**0.013**	<0.005
cis-1, 2-Dichloroethene	156-59-2	0.53	12.8	91.3	<0.005	**2.2**	**2.7**	**0.78**	**9.7**	**13**	FPP	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	0.110	0.220	**1.7**	<0.005
Tetrachloroethene (PCE)	127-18-4	0.005**	0.286	0.082	<0.005	<0.1	<0.5	<0.1	**9.0**	**12.0**	FPP	<0.005	<0.001	<0.005	<0.005	<0.013	<0.005	<0.005	**0.12**	**0.1**	**1.7**	<0.005
trans-1, 2-Dichloroethene	156-60-5	0.1	0.174	1.24	<0.005	0.046J	<0.5	<0.1	0.057J	<0.5	FPP	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.021	<0.005
Trichloroethene (TCE)	79-01-6	0.005**	1.02	0.290	<0.005	**0.02J**	<0.5	<0.1	**6.7**	**11.0**	FPP	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	**0.021**	**0.022**	**0.62**	<0.005
Vinyl Chloride	75-01-4	0.002**	0.27	0.097	<0.002	**0.035J**	<0.2	<0.04	**0.81**	**0.46**	FPP	<0.002	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	**0.1**	**0.087**	<0.002
Properly Applied Chemicals, Non-HSRA Regulated Chemicals, Naturally Ocurring or Laboratory Artifacts																						
1,2-Dichlorobenzene	95-50-1	NA(1)			<0.005	<0.1	<0.5	<0.1	<0.25	<0.5	FPP	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Acetone	67-64-1	4			<0.05	2.6	<5	<1.0	<2.5	<5	FPP	<0.05	<0.002	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05
Chlorobenzene	108-90-7	NA(1)			<0.005	<0.1	<0.5	<0.1	<0.25	<0.5	FPP	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Petroleum Constituents/VOCs Related to the EZ-Serve UST SITE																						
1,2-Dibromoethane (EDB)	106-93-4	PRC			<0.005	**<0.1**	**<0.5**	<0.1	<0.25	<0.5	FPP	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
1, 2-Dichloroethane	107-06-2	PRC			<0.005	**<0.1**	**<0.5**	<0.1	<0.25	<0.5	FPP	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
2-Butanone (MEK)	78-93-3	PRC			<0.05	0.81J	<5.0	<1.0	<2.5	<5.0	FPP	<0.05	<0.002	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05
4-Methyl-2-pentanone (MIBK)	108-10-1	PRC			<0.01	**<0.2**	<1.0	<0.2	<0.5	<1.0	FPP	<0.01	<0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Benzene	71-43-2	PRC			<0.005	3.5	5.3	1.5	0.33	<0.5	FPP	<0.005	<0.001	<0.005	0.068	<0.005	1.8	1.0	1.8	1.6	0.83	14.0
Cyclohexane	110-82-7	PRC			<0.005	0.12	<0.5	0.12	0.17J	<0.5	FPP	<0.005	<0.001	<0.005	0.13	<0.005	0.085	0.075	0.11	0.14	0.12	0.17
Ethylbenzene	100-41-4	PRC			<0.005	0.55	1.2	1.4	0.065J	<0.5	FPP	<0.005	<0.001	<0.005	0.86	<0.005	0.90	1.1	1.8	2.0	1.5	3.9
Isopropylbenzene	98-82-8	PRC			<0.005	0.027J	<0.5	0.044J	<0.25	<0.5	FPP	<0.005	<0.001	<0.01	0.095	<0.005	0.071	0.081	0.16	0.19	0.14	0.16
Methyl tert-butyl ether (MTBE)	1634-04-4	PRC			<0.005	8.1	10	0.62	<0.25	<0.5	FPP	<0.005	<0.002	<0.005	0.038	<0.005	0.022	0.013	0.089	<0.02	0.15	6.2
Styrene	100-42-5	PRC			<0.005	<0.1	<0.5	<0.1	<0.25	<0.5	FPP	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Toluene	108-88-3	PRC			<0.005	4.6	9.8	4.7	0.086J	<0.5	FPP	<0.005	<0.001	<0.005	0.220	<0.005	3.5	2.3	0.180	0.26	0.15	41.0
Xylenes, Total	1330-20-7	PRC			<0.005	3.15	7.7	6.3	0.081J	<0.5	FPP	<0.005	<0.002	<0.01	4.10	<0.005	6.2	5.6	3.5	4.05	3.06	22.1

NOTES:

BOLD	Exceeds HSRA Type 1&3 RRS
BOLD	Exceeds HSRA Type 5 RRS-Construction Worker
BOLD	Exceeds HSRA Type 5 RRS-Utility Worker
XX.XX	Exceeds UST Program ISWQS for Petroleum Constituent
FMW-XX	Current groundwater analytical data as of 12/9/16
< XX.XX	Reporting limit for constituent

ISWQS - Georgia In-Stream Water Quality Standards (Rule 391-3-6-.03 Water Use Classifications and Water Quality Standards)

PRC - Petroleum related constituent

NA(1) * Not Applicable - fumigant-insecticide properly applied

NA(2) * Not Applicable - Petroleum related constituent which has no In-Stream Water Quality Standard

NR * Not regulated

* - Type 4 RRS is defaulted to the equivalent of the Type 1 RRS because the Type 1 RRS has a higher value.

** - RRS is taken from EPD CAP approval letter dated December 28, 2007, table of approved RRS in Condition 8.

FPP * Free-phase petroleum present in the monitoring well

Table 2
Groundwater Analytical Data - Detected Constituents
Fashion Care/Executive Care VRP Site (HSI #10786)
2211 Savoy Drive, Chamblee, Georgia

Constituent	CAS No.	HSRA Type 1&3 Standard (mg/L)	HSRA Type 5 Standard (mg/L)		Stantec UST Data MW-11	MW-11	MW-11[3]	Stantec UST Data MW-12	Stantec UST Data MW-13	MW-13	MW-13	Stantec UST Data MW-14	MW-14	Stantec UST Data MW-15	Stantec UST Data MW-16	Stantec UST Data RW-7 (MW-17)	Stantec UST Data MW-18	Stantec UST Data MW-19	Stantec UST Data MW-20	Stantec UST Data MW-21	Stantec UST Data MW-22	Stantec UST Data MW-23D	MW-23D	Stantec UST Data MW-9R	MW-9R	Stantec UST Data RW-13 (MW-10R)
			Construction Worker	Utility Worker	6/7/08	9/9/08	3/9/10	6/7/08	6/7/08	9/8/08	3/11/10	6/7/08	9/8/08	6/7/08	6/7/08	6/7/08	6/7/08	6/7/08	6/7/08	6/7/08	6/7/08	6/7/08	9/9/08	6/7/08	9/9/08	6/7/08
Volatile Organic Compounds																										
Fashion Care HSRA Site Constituents of Interest																										
1,1-Dichloroethene	75-35-4	0.007	0.577	4.12	<0.005	<0.001	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	0.0027	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.01	<0.005
1,1,2-Trichloroethane	79-00-5	0.005			<0.005	<0.001	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	< 0.002	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.01	<0.005
cis-1, 2-Dichloroethene	156-59-2	0.53	12.8	91.3	<0.005	<0.001	0.021	<0.005	<0.005	<0.001	<0.005	**2.4**	**2.6**	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	0.068	0.0034	0.110	0.220	<0.005
Tetrachloroethene (PCE)	127-18-4	0.005**	0.286	0.082	<0.005	0.0028	**0.026**	<0.005	<0.005	<0.001	<0.005	**0.22**	**0.26**	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.006	<0.005	**26.0**	**1.70**	**0.12**	**0.1**	<0.005
trans-1, 2-Dichloroethene	156-60-5	0.1	0.174	1.24	<0.005	<0.001	0.0011J	<0.005	<0.005	<0.001	<0.005	<0.005	0.018	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.01	<0.005
Trichloroethene (TCE)	79-01-6	0.005**	1.02	0.290	<0.005	<0.001	**0.016**	<0.005	<0.005	<0.001	<0.005	**0.23**	**0.26**	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	**0.7**	**0.028**	**0.021**	**0.022**	<0.005
Vinyl Chloride	75-01-4	0.002**	0.27	0.097	<0.002	<0.001	0.001J	<0.002	<0.002	<0.001	<0.002	**0.34**	**0.83**	<0.002	<0.002	FPP	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	**0.1**	<0.002
Properly Applied Chemicals, Non-HSRA Regulated Chemicals, Naturally Ocurring or Laboratory Artifacts																										
1,2-Dichlorobenzene	95-50-1	NA(1)			<0.005	<0.001	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	0.0026	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	0.0058	<0.001	<0.005	<0.01	<0.005
Acetone	67-64-1	4			<0.05	<0.002	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.002	<0.05	<0.05	FPP	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.033	<0.05	<0.02	<0.05
Chlorobenzene	108-90-7	NA(1)			<0.005	<0.001	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.01	<0.005
Petroleum Constituents/VOCs Related to the EZ-Serve UST SITE																										
1,2-Dibromoethane (EDB)	106-93-4	PRC			<0.005	<0.001	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.01	<0.005
1, 2-Dichloroethane	107-06-2	PRC			<0.005	<0.001	<0.005	<0.005	0.024	0.012	<0.005	<0.005	<0.001	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.01	<0.005
2-Butanone (MEK)	78-93-3	PRC			<0.05	<0.002	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.002	<0.05	<0.05	FPP	<0.05	<0.05	<0.05	0.051	<0.05	<0.05	<0.002	<0.05	<0.02	<0.05
4-Methyl-2-pentanone (MIBK)	108-10-1	PRC			<0.01	<0.002	<0.01	<0.01	<0.01	<0.002	<0.01	<0.01	<0.002	<0.01	<0.01	FPP	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.02	<0.01
Benzene	71-43-2	PRC			<0.005	0.0052	0.047	<0.005	<0.005	<0.001	<0.005	0.14	0.13	1.3	<0.005	FPP	<0.005	<0.005	<0.005	10.0	<0.005	<0.005	<0.001	1.8	1.6	14.0
Cyclohexane	110-82-7	PRC			<0.005	<0.001	<0.005	<0.005	<0.005	<0.001	<0.005	0.018	0.026	0.034	<0.005	FPP	<0.005	<0.005	<0.005	0.170	0.053	0.005	<0.001	0.11	0.14	0.17
Ethylbenzene	100-41-4	PRC			<0.005	0.0014	0.017	<0.005	<0.005	<0.001	<0.005	<0.005	0.0014	0.013	<0.005	FPP	<0.005	0.0083	<0.005	4.4	0.057	<0.005	<0.001	1.8	2.0	3.9
Isopropylbenzene	98-82-8	PRC			<0.005	<0.001	0.001J	<0.005	<0.005	<0.001	<0.01	0.0078	0.01	0.027	<0.005	FPP	<0.005	<0.005	<0.005	0.160	0.027	<0.005	<0.001	0.16	0.19	0.16
Methyl tert-butyl ether (MTBE)	1634-04-4	PRC			0.012	0.013	0.0041J	<0.005	0.038	0.19	0.012	0.370	0.13	0.320	<0.005	FPP	0.018	<0.005	<0.005	9.2	<0.005	0.049	0.0018	0.089	<0.02	6.2
Styrene	100-42-5	PRC			<0.005	<0.001	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.01	<0.005
Toluene	108-88-3	PRC			<0.005	<0.001	0.0058	<0.005	<0.005	<0.001	<0.005	0.0086	0.015	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	6.6	0.021	<0.005	<0.001	0.180	0.26	41.0
Xylenes, Total	1330-20-7	PRC			<0.005	<0.002	0.0084J	<0.005	<0.005	<0.002	<0.01	<0.005	0.0059	0.0078	<0.005	FPP	<0.005	<0.005	<0.005	23.8	0.220	0.011	0.0011	3.5	4.05	22.1

NOTES:

BOLD	Exceeds HSRA Type 1&3 RRS
BOLD	Exceeds HSRA Type 5 RRS-Construction Worker
BOLD	Exceeds HSRA Type 5 RRS-Utility Worker
XX.XX	Exceeds UST Program ISWQS for Petroleum Constituent
FMW-XX	Current groundwater analytical data as of 12/9/16
< XX.XX	Reporting limit for constituent

ISWQS - Georgia In-Stream Water Quality Standards (Rule 391-3-6-.03 Water Use Classifications and Water Quality Standards)

PRC - Pertroleum related constituent

NA(1) * Not Applicable - fumigant-insecticide properly applied

NA(2) * Not Applicable - Petroleum related constituent which has no In-Stream Water Quality Standard

NR * Not regulated

* - Type 4 RRS is defaulted to the equivalent of the Type 1 RRS because the Type 1 RRS has a higher value.

** - RRS is taken from EPD CAP approval letter dated December 28, 2007, table of approved RRS in Condition 8.

FPP * Free-phase petroleum present in the monitoring well

Table 2
Groundwater Analytical Data - Detected Constituents
Fashion Care/Executive Care VRP Site (HSI #10786)
2211 Savoy Drive, Chamblee, Georgia

Constituent	CAS No.	HSRA Type 1&3 Standard (mg/L)	HSRA Type 5 Standard (mg/L)		Stantec UST Data MW-11	MW-11	Stantec UST Data MW-12	Stantec UST Data MW-13	MW-13	Stantec UST Data MW-14	MW-14	Stantec UST Data MW-15	Stantec UST Data MW-16	Stantec UST Data RW-7 (MW-17)	Stantec UST Data MW-18	Stantec UST Data MW-19	Stantec UST Data MW-20	Stantec UST Data MW-21	Stantec UST Data MW-22	Stantec UST Data MW-23D	MW-23D	MW-23D[3]
			Construction Worker	Utility Worker	6/7/08	9/9/08	6/7/08	6/7/08	9/8/08	6/7/08	9/8/08	6/7/08	6/7/08	6/7/08	6/7/08	6/7/08	6/7/08	6/7/08	6/7/08	6/7/08	9/9/08	3/9/10
Volatile Organic Compounds																						
Fashion Care HSRA Site Constituents of Interest																						
1,1-Dichloroethene	75-35-4	0.007	0.577	4.12	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	0.0027	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005
1,1,2-Trichloroethane	79-00-5	0.005			<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	0.0027	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005
cis-1, 2-Dichloroethene	156-59-2	0.53	12.8	91.3	<0.005	<0.001	<0.005	<0.005	<0.001	**2.4**	**2.6**	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	0.068	0.0034	0.095
Tetrachloroethene (PCE)	127-18-4	0.005**	0.286	0.082	<0.005	0.0028	<0.005	<0.005	<0.001	**0.22**	**0.26**	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.006	<0.005	**26.0**	**1.70**	**18.0**
trans-1, 2-Dichloroethene	156-60-5	0.1	0.174	1.24	<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	0.018	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	0.0015J
Trichloroethene (TCE)	79-01-6	0.005**	1.02	0.290	<0.005	<0.001	<0.005	<0.005	<0.001	**0.23**	**0.26**	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	**0.7**	**0.028**	**0.061**
Vinyl Chloride	75-01-4	0.002**	0.27	0.097	<0.002	<0.001	<0.002	<0.002	<0.001	**0.34**	**0.83**	<0.002	<0.002	FPP	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002
Properly Applied Chemicals, Non-HSRA Regulated Chemicals, Naturally Ocurring or Laboratory Artifacts																						
1,2-Dichlorobenzene	95-50-1	NA(1)			<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	0.0026	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	0.0058	<0.001	0.0021J
Acetone	67-64-1	4			<0.05	<0.002	<0.05	<0.05	<0.002	<0.05	<0.002	<0.05	<0.05	FPP	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.033	<0.05
Chlorobenzene	108-90-7	NA(1)			<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.001	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005
Petroleum Constituents/VOCs Related to the EZ-Serve UST SITE																						
1,2-Dibromoethane (EDB)	106-93-4	PRC			<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.001	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005
1, 2-Dichloroethane	107-06-2	PRC			<0.005	<0.001	<0.005	0.024	0.012	<0.005	<0.001	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	0.00093J
2-Butanone (MEK)	78-93-3	PRC			<0.05	<0.002	<0.05	<0.05	<0.002	<0.05	<0.002	<0.05	<0.05	FPP	<0.05	<0.05	<0.05	0.051	<0.05	<0.05	<0.002	<0.05
4-Methyl-2-pentanone (MIBK)	108-10-1	PRC			<0.01	<0.002	<0.01	<0.01	<0.002	<0.01	<0.002	<0.01	<0.01	FPP	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01
Benzene	71-43-2	PRC			<0.005	0.0052	<0.005	<0.005	<0.001	0.14	0.13	1.3	<0.005	FPP	<0.005	<0.005	<0.005	10.0	<0.005	<0.005	<0.001	0.00028J
Cyclohexane	110-82-7	PRC			<0.005	<0.001	<0.005	<0.005	<0.001	0.018	0.026	0.034	<0.005	FPP	<0.005	<0.005	<0.005	0.170	0.053	0.005	<0.001	<0.005
Ethylbenzene	100-41-4	PRC			<0.005	0.0014	<0.005	<0.005	<0.001	<0.005	0.0014	0.013	<0.005	FPP	<0.005	0.0083	<0.005	4.4	0.057	<0.005	<0.001	0.0009J
Isopropylbenzene	98-82-8	PRC			<0.005	<0.001	<0.005	<0.005	<0.001	0.0078	0.01	0.027	<0.005	FPP	<0.005	<0.005	<0.005	0.160	0.027	<0.005	<0.001	0.00036J
Methyl tert-butyl ether (MTBE)	1634-04-4	PRC			0.012	0.013	<0.005	0.038	0.19	0.370	0.13	0.320	<0.005	FPP	0.018	<0.005	<0.005	9.2	<0.005	0.049	0.0018	0.015
Styrene	100-42-5	PRC			<0.005	<0.001	<0.005	<0.005	<0.001	<0.005	<0.001	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005
Toluene	108-88-3	PRC			<0.005	<0.001	<0.005	<0.005	<0.001	0.0086	0.015	<0.005	<0.005	FPP	<0.005	<0.005	<0.005	6.6	0.021	<0.005	<0.001	<0.005
Xylenes, Total	1330-20-7	PRC			<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	0.0059	0.0078	<0.005	FPP	<0.005	<0.005	<0.005	23.8	0.220	0.011	0.0011	0.0041J

NOTES:

BOLD	Exceeds HSRA Type 1&3 RRS
BOLD	Exceeds HSRA Type 5 RRS-Construction Worker
BOLD	Exceeds HSRA Type 5 RRS-Utility Worker
XX.XX	Exceeds UST Program ISWQS for Petroleum Constituent
FMW-XX	Current groundwater analytical data as of 12/9/16
< XX.XX	Reporting limit for constituent

ISWQS - Georgia In-Stream Water Quality Standards (Rule 391-3-6-.03 Water Use Classifications and Water Quality Standards)

PRC - Pertroleum related constituent

NA(1) * Not Applicable - fumigant-insecticide properly applied

NA(2) * Not Applicable - Petroleum related constituent which has no In-Stream Water Quality Standard

NR * Not regulated

* - Type 4 RRS is defaulted to the equivalent of the Type 1 RRS because the Type 1 RRS has a higher value.

** - RRS is taken from EPD CAP approval letter dated December 28, 2007, table of approved RRS in Condition 8.

FPP * Free-phase petroleum present in the monitoring well

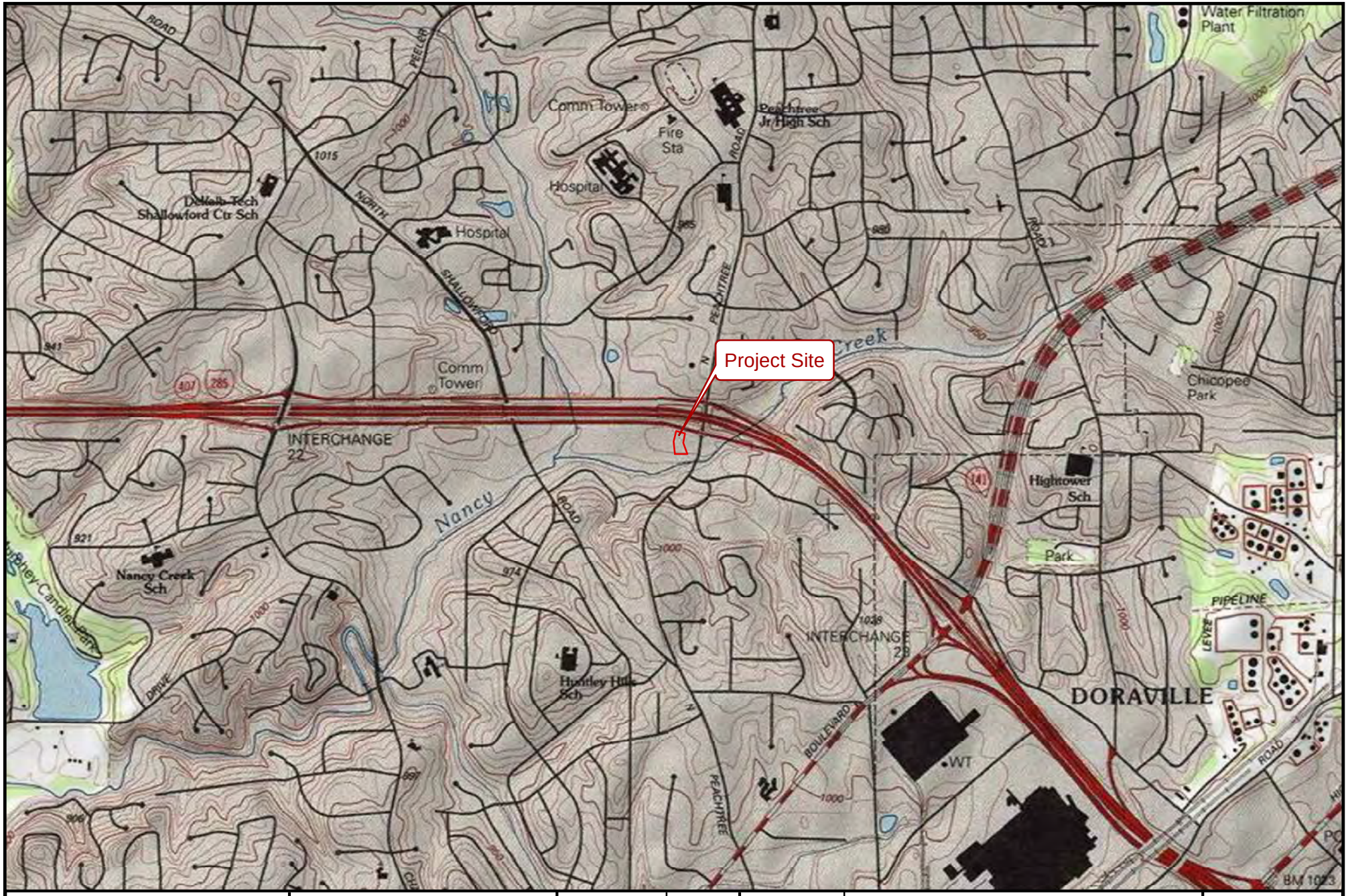
Table 3
Surface Water Analytical Data - Detected Constituents
Fashion Care/Executive Care VRP Site (HSI #10786)
2211 Savoy Drive, Chamblee, Georgia

Constituent	CAS No.	HSRA Type 1&3 Standard (mg/L)	HSRA Type 4 Standard (mg/L)	HSRA Type 5 Standard (mg/L)		SW-1						SW-2						SW-3					
				Construction Worker	Utility Worker	9/8/08	1/5/10	7/11/12	4/28/14	12/9/15	12/9/16	9/8/08	1/5/10	7/11/12	4/28/14	12/9/15	12/9/16	9/8/08	1/5/10	7/11/12	4/28/14	12/9/15	12/9/16
Volatile Organic Compounds																							
Fashion Care HSRA Site Constituents of Interest																							
1,1-Dichloroethene	75-35-4	0.007	0.5229	0.577	4.12	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1, 2-Dichloroethene	156-59-2	0.53	1.02**	12.8	91.3	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene (PCE)	127-18-4	0.005**	0.005*	0.286	0.082	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
trans-1, 2-Dichloroethene	156-60-5	0.1	2**	0.174	1.24	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene (TCE)	79-01-6	0.005**	0.0345	1.02	0.290	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Chloride	75-01-4	0.002**	0.0033	0.27	0.097	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Properly Applied Chemicals, Non-HSRA Regulated Chemicals, Naturally Ocurring or Laboratory Artifacts																							
1,2-Dichlorobenzene	95-50-1	NA(1)	NA(1)			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Acetone	67-64-1	4	45.6			<0.002	<0.05	<0.05	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	108-90-7	NA(1)	NA(1)			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Petroleum Constituents/VOCs Related to the EZ-Serve UST SITE																							
1,2-Dibromoethane (EDB)	106-93-4	PRC	PRC			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
1, 2-Dichloroethane	107-06-2	PRC	PRC			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
2-Butanone (MEK)	78-93-3	PRC	PRC			<0.002	<0.05	<0.05	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.05	<0.05	<0.05
4-Methyl-2-pentanone (MIBK)	108-10-1	PRC	PRC			<0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.01	<0.01	<0.01	<0.01
Benzene	71-43-2	PRC	PRC			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Cyclohexane	110-82-7	PRC	PRC			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	PRC	PRC			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Isopropylbenzene	98-82-8	PRC	PRC			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Methyl tert-butyl ether (MTBE)	1634-04-4	PRC	PRC			<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	100-42-5	PRC	PRC			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	PRC	PRC			<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Xylenes, Total	1330-20-7	PRC	PRC			<0.002	<0.01	<0.005	<0.005	<0.005	<0.005	<0.002	<0.01	<0.005	<0.005	<0.005	<0.005	<0.002	<0.01	<0.005	<0.005	<0.005	<0.005

NOTES:

BOLD	Exceeds HSRA Type 1&3 RRS
BOLD	Exceeds HSRA Type 5 RRS-Construction Worker
BOLD	Exceeds HSRA Type 5 RRS-Utility Worker
	Exceeds UST Program ISWQS for Petroleum Constituent
ISWQS	Georgia In-Stream Water Quality Standards (Rule 391-3-6-.03 Water Use Classifications and Water Quality Standards)
PRC	Pertroleum related constituent
NA(1)	Not Applicable - fumigant-insecticide properly applied
NA(2)	Not Applicable - Petroleum related constituent which has no In-Stream Water Quality Standard
NR	Not regulated
*	Type 4 RRS is defaulted to the equivalent of the Type 1 RRS because the Type 1 RRS has a higher value.
**	RRS is taken from EPD CAP approval letter dated December 28, 2007, table of approved RRS in Condition 8.
FPP	Free-phase petroleum present in the monitoring well

FIGURES



UNITED CONSULTING	**Figure Scale** N 0 1,500 3,000 1 inch = 2,000 feet	**Prepared:**	SCC	**Title:**	Site Location Map
		Checked:	SCC	**Project:**	Fashion Care/Exceutive Care VRP Site
		Date:	03/15/17	**Project No.**	2015.0058.03
				Client:	John F. Rowan, Sr. Item IV Trust

FIG. 1

REFERENCE: ORIGINAL PLAN CREATED BY WOODARD & CURRAN.

FIG. 2

TITLE: SAMPLE LOCATION MAP
FASHION CARE/EXECUTIVE CARE VRP SITE
2211 SAVOY DRIVE, CHAMBLEE, GEORGIA

UNITED CONSULTING
We're here for you
625 Holcomb Bridge Road
Norcross, Georgia 30071
770-209-0029 Fax 582-2900
www.unitedconsulting.com

PROJECT NO: 2015.0058.02

REVISIONS:

DATE: 2-11-16

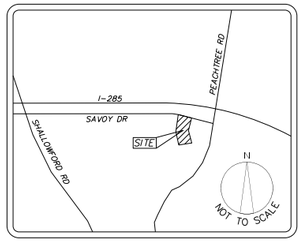
CHECKED: SCC

SCALE: 1" = 60'

PREPARED: VPV

CLIENT: ROWAN TRUST

REFERENCE: ORIGINAL PLAN CREATED BY WOODARD & CURRAN.



VICINITY MAP

LEGEND

- APPROXIMATE PROPERTY LINE
- MW-8 [83.64] — MONITORING WELL [GROUNDWATER ELEVATION]
- SD-1 — SEDIMENT SAMPLE LOCATION
- SWE-2 [82.25] — SURFACE WATER ELEVATION
- 84' — GROUNDWATER ISOCONTOUR
- GROUNDWATER FLOW DIRECTION

SAVOY DR.
2201 SAVOY DRIVE 18-343-13-003
FASHION CAR/EXECUTIVE CARE 2211 SAVOY DRIVE 18-343-13-002
4306 NORTH PEACHTREE ROAD 18-343-13-005
4308 NORTH PEACHTREE ROAD 18-343-13-001
RETAIL / DENTIST
NORTH SHALLOWFORD ROAD 18-333-02-023
NORTH PEACHTREE RD.
EDGE OF ASPHALT
RESTAURANT
FASHION CLEANERS DRYCLEANERS
UST Area
Canopy
Fuel Pumps
Sidewalk
D.O.T. MH
SIG. BOX
Bus Stop
Car Wash
24"RCP
Sign
MH
NANCY CREEK
C.L. CREEK
TOP OF BANK
EDGE OF WATER
CULVERT
FURTHER DOWNSTREAM
OLD FMW-17

MW-2R, MW-15, MW-22, MW-21, MW-3, MW-16, MW-1, MW-11, MW-20, MW-17, MW-19, MW-18, MW-4R, MW-8, MW-10R, MW-23D, MW-9R, MW-14, MW-13, MW-12

FMW-8 [83.88], FMW-2 [83.48], FMW-7 [82.93], FMW-3 [83.05], FMW-1 [83.92], FMW-4 [83.31], FMW-17 [81.48], FMW-15 [81.53], FMW-10 [82.27], FMW-5 [82.44], FMW-6 [82.30], FMW-11 [82.40], FMW-12 [82.94], FMW-13 [82.25], FMW-16 [80.88], FMW-14 [81.35], FMW-9 [82.40]

SB-24, SB-25, SB-26

SW-1 [78.58], SW-2 [72.10], SW-3 [71.54], SW-11, SG-2, SWE-1, SWE-2, SWE-3, SD-1

84', 83', 82', 81', 80'

0 30 60
SCALE IN FEET

NOTE: REFERENCED DRAWING IS BASED ON LANDPRO SURVEY

FIG. 3

TITLE: GROUNDWATER CONTOURS - DECEMBER 2016
FASHION CARE/EXECUTIVE CARE VRP SITE
2211 SAVOY DRIVE, CHAMBLEE, GEORGIA

625 Holcomb Bridge Road
Norcross, Georgia 30071
770-209-0029 Fax 582-2900
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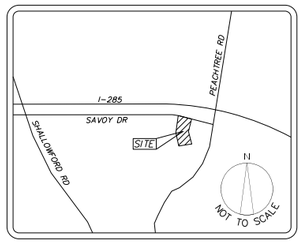
SCALE: 1" = 60'
DATE: 1-27-17
PREPARED: VPV
CHECKED: SCC
PROJECT NO: 2015.0058.02
REVISIONS:

CLIENT: ROWAN TRUST

REFERENCE: ORIGINAL PLAN CREATED BY WOODARD & CURRAN.



VICINITY MAP

LEGEND

- APPROXIMATE PROPERTY LINE
- MW-8 [83.64] — MONITORING WELL [GROUNDWATER ELEVATION]
- SD-1 — SEDIMENT SAMPLE LOCATION
- SWE-2 [82.25] — SURFACE WATER ELEVATION
- 84' — GROUNDWATER ISOCONTOUR
- GROUNDWATER FLOW DIRECTION
- PCE 0.01 — GROUNDWATER CONCENTRATION (mg/l)
- CONCENTRATIONS > TYPE 1/3 RRS
- CONCENTRATIONS > TYPE 5 CONSTRUCTION/UTILITY WORKER

SAVOY DR.

2201 SAVOY DRIVE
18-343-13-003

FASHION CAR/EXECUTIVE CARE
2211 SAVOY DRIVE
18-343-13-002

4306 NORTH PEACHTREE ROAD
18-343-13-005

4308 NORTH PEACHTREE ROAD
18-343-13-001

RETAIL / DENTIST

RESTAURANT

RESTAURANT

FASHION CLEANERS DRYCLEANERS

RESTAURANT

EZ-Serve Gas Station Bldg.

Canopy

Fuel Pumps

UST Area

Car Wash

Sidewalk

Bus Stop

D.O.T. MH

SIG. BOX

Sign

EDGE OF ASPHALT

NORTH SHALLOWFORD ROAD
18-333-02-023

NORTH PEACHTREE RD.

NANCY CREEK

C.L. CREEK

TOP OF BANK

EDGE OF WATER

24"RCP

CULVERT

TOP= 94.6

FURTHER DOWNSTREAM

OLD FMW-17

FMW-4 — 12-9-16

CIS-1,2-DICHLOROETHENE	4.6
TRANS-1,2-DICHLOROETHENE	0.034
TRICHLOROETHENE (TCE)	0.017
VINYL CHLORIDE	0.42
BENZENE	0.73
CYCLOHEXANE	0.0370
ETHYLBENZENE	0.590
ISOPROPYLBENZENE	0.0230
METHYL TERT BUTYL ETHER (MTBE)	0.062
TOLUENE	0.022
XYLENES, TOTAL	0.023

FMW-6 — 12-9-16

CIS-1,2-DICHLOROETHENE	1.6
TETRACHLOROETHENE (PCE)	2.8
TRANS-1,2-DICHLOROETHENE	0.023
TRICHLOROETHENE (TCE)	0.41
VINYL CHLORIDE	0.0027
BENZENE	0.0380
METHYL TERT BUTYL ETHER (MTBE)	0.31

FMW-9 — 12-9-16

CIS-1,2-DICHLOROETHENE	0.53
TETRACHLOROETHENE (PCE)	0
TRANS-1,2-DICHLOROETHENE	0.13
TRICHLOROETHENE (TCE)	0.13
VINYL CHLORIDE	0.0072
BENZENE	0.0098
METHYL TERT BUTYL ETHER (MTBE)	0.56

FMW-12 — 12-9-16 — VOC CONSTITUENTS OF INTEREST | NON-DETECT

FMW-16 — 12-9-16 — VOC CONSTITUENTS OF INTEREST | NON-DETECT

0 30 60
SCALE IN FEET

NOTE: REFERENCED DRAWING IS BASED ON LANDPRO SURVEY

FIG. 4

TITLE: DECEMBER 2016 GROUNDWATER & SURFACE WATER DATA MAP - FASHION CARE/EXECUTIVE CARE VRP SITE 2211 SAVOY DRIVE, CHAMBLEE, GEORGIA

SCALE: 1" = 60'
DATE: 1-27-17
PROJECT NO: 2015.0058.02
REVISIONS:
PREPARED: VPV
CHECKED: SCC
CLIENT: ROWAN TRUST

625 Holcomb Bridge Road
Norcross, Georgia 30071
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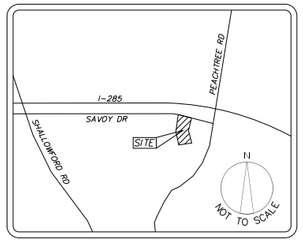
REFERENCE: ORIGINAL PLAN CREATED BY WOODARD & CURRAN.



VICINITY MAP

LEGEND

- APPROXIMATE PROPERTY LINE
- MW-8 [83.64] MONITORING WELL [GROUNDWATER ELEVATION]
- SD-1 SEDIMENT SAMPLE LOCATION
- SWE-2 [82.25] SURFACE WATER ELEVATION
- 84' GROUNDWATER ISOCONTOUR
- GROUNDWATER FLOW DIRECTION
- PCE 0.01 GROUNDWATER CONCENTRATION (mg/l)
- CONCENTRATIONS > TYPE 1/3 RRS
- CONCENTRATIONS > TYPE 5 CONSTRUCTION/UTILITY WORKER

SAVOY DR.

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18-343-13-003

FASHION CAR/EXECUTIVE CARE
2211 SAVOY DRIVE
18-343-13-002

4306 NORTH PEACHTREE ROAD
18-343-13-005

4308 NORTH PEACHTREE ROAD
18-343-13-001

NORTH SHALLOWFORD ROAD
18-333-02-023

RETAIL / DENTIST

RESTAURANT

FASHION CLEANERS DRYCLEANERS

EZ-Serve Gas Station Bldg.

Canopy

Fuel Pumps

UST Area

Car Wash

Sidewalk

Bus Stop

Sign

D.O.T. MH

S/G BOX

EDGE OF ASPHALT

NORTH PEACHTREE RD.

NANCY CREEK

C.L. CREEK

TOP OF BANK

EDGE OF WATER

CULVERT

24"RCP

FURTHER DOWNSTREAM

OLD FMW-17

FMW-4	12-8-15
1,1-DICHLOROETHENE	NON-DETECT
1,1,2-TRICHLOROETHANE	NON-DETECT
CIS-1,2-DICHLOROETHENE	2.4
TETRACHLOROETHENE (PCE)	0.017
TRANS-1,2-DICHLOROETHENE	0.016
TRICHLOROETHENE (TCE)	0.027
VINYL CHLORIDE	0.18
1,2-DICHLOROBENZENE	NON-DETECT
ACETONE	NON-DETECT
CHLOROBENZENE	NON-DETECT

FMW-8	12-8-15
1,1-DICHLOROETHENE	NON-DETECT
1,1,2-TRICHLOROETHANE	NON-DETECT
CIS-1,2-DICHLOROETHENE	1.4
TETRACHLOROETHENE (PCE)	3.5
TRANS-1,2-DICHLOROETHENE	0.023
TRICHLOROETHENE (TCE)	0.4
VINYL CHLORIDE	0.0023
1,2-DICHLOROBENZENE	NON-DETECT
ACETONE	NON-DETECT
CHLOROBENZENE	NON-DETECT

FMW-9	12-8-15
1,1-DICHLOROETHENE	NON-DETECT
1,1,2-TRICHLOROETHANE	NON-DETECT
CIS-1,2-DICHLOROETHENE	0.73
TETRACHLOROETHENE (PCE)	1.7
TRANS-1,2-DICHLOROETHENE	NON-DETECT
TRICHLOROETHENE (TCE)	0.19
VINYL CHLORIDE	0.02
1,2-DICHLOROBENZENE	NON-DETECT
ACETONE	NON-DETECT
CHLOROBENZENE	NON-DETECT

FMW-12	12-8-15
1,1-DICHLOROETHENE	NON-DETECT
1,1,2-TRICHLOROETHANE	NON-DETECT
CIS-1,2-DICHLOROETHENE	NON-DETECT
TETRACHLOROETHENE (PCE)	NON-DETECT
TRANS-1,2-DICHLOROETHENE	NON-DETECT
TRICHLOROETHENE (TCE)	NON-DETECT
VINYL CHLORIDE	NON-DETECT
1,2-DICHLOROBENZENE	NON-DETECT
ACETONE	NON-DETECT
CHLOROBENZENE	NON-DETECT

FMW-16	12-8-15
1,1-DICHLOROETHENE	NON-DETECT
1,1,2-TRICHLOROETHANE	NON-DETECT
CIS-1,2-DICHLOROETHENE	NON-DETECT
TETRACHLOROETHENE (PCE)	NON-DETECT
TRANS-1,2-DICHLOROETHENE	NON-DETECT
TRICHLOROETHENE (TCE)	NON-DETECT
VINYL CHLORIDE	NON-DETECT
1,2-DICHLOROBENZENE	NON-DETECT
ACETONE	NON-DETECT
CHLOROBENZENE	NON-DETECT

0 30 60
SCALE IN FEET

NOTE: REFERENCED DRAWING IS BASED ON LANDPRO SURVEY

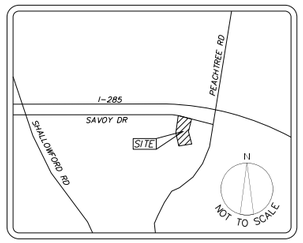
FIG. 5

TITLE: DECEMBER 2015 GROUNDWATER & SURFACE WATER DATA MAP - FASHION CARE/EXECUTIVE CARE VRP SITE 2211 SAVOY DRIVE, CHAMBLEE, GEORGIA

SCALE: 1" = 60'
DATE: 2-11-16
PREPARED: VPV
CHECKED: SCC
PROJECT NO: 2015.0058.02
REVISIONS:
CLIENT: ROWAN TRUST

UNITED CONSULTING
We're here for you
625 Holcomb Bridge Road
Norcross, Georgia 30071
770-209-0029 Fax 582-2900
www.unitedconsulting.com

REFERENCE: ORIGINAL PLAN CREATED BY WOODARD & CURRAN.



VICINITY MAP

LEGEND

- APPROXIMATE PROPERTY LINE
- MW-8 [83.64] — MONITORING WELL [GROUNDWATER ELEVATION]
- SD-1 — SEDIMENT SAMPLE LOCATION
- 84' — GROUNDWATER ISOCONTOUR
- PCE 0.01 — GROUNDWATER CONCENTRATION (mg/l)
- CONCENTRATIONS > TYPE 1/3 RRS
- CONCENTRATIONS > TYPE 5 CONSTRUCTION/UTILITY WORKER

SAVOY DR.

2201 SAVOY DRIVE
18-343-13-003

FASHION CAR/EXECUTIVE CARE
2211 SAVOY DRIVE
18-343-13-002

RESTAURANT

RESTAURANT

EDGE OF ASPHALT

4306 NORTH PEACHTREE ROAD
18-343-13-005

RETAIL / DENTIST

FASHION CLEANERS DRYCLEANERS

RESTAURANT

UST Area

Fuel Pumps

Canopy

EZ-Serve Gas Station Bldg.

Car Wash

Sidewalk

Bus Stop

D.O.T. MH

SIG. BOX

4308 NORTH PEACHTREE ROAD
18-343-13-001

NORTH SHALLOWFORD ROAD
18-333-02-023

NORTH PEACHTREE RD.

EDGE OF ASPHALT

24"RCP

Sign

MH

NANCY CREEK

C.L. CREEK

TOP OF BANK

EDGE OF WATER

CULVERT

TOP= 94.6

FURTHER DOWNSTREAM

OLD FMW-17

FMW-1 [85.82]
cis-1,2-DCE 0.049
Vinyl Chloride 0.022

FMW-2 [85.84]

FMW-3 [85.51]

FMW-4 [85.27]
1,1-DCE 0.027
1,1,2-TCA 0.014
cis-1,2-DCE 40
PCE 4.9
trans-1,2-DCE 0.32
TCE 1.8
Vinyl Chloride 1.6

FMW-5 [83.18] none detected

FMW-6 [82.78]
cis-1,2-DCE 0.92
PCE 3.1
trans-1,2-DCE 0.016
TCE 0.26

FMW-7 [84.89]

FMW-8 [85.78]

FMW-9 [82.75]
cis-1,2-DCE 0.82
PCE 2.3
trans-1,2-DCE 0.014
TCE 0.25
Vinyl Chloride 0.02

FMW-10 [82.89]

FMW-11 [82.94]

FMW-12 [83.19]

FMW-13 [82.87]
PCE 0.01

FMW-14 [81.94]
cis-1,2-DCE 0.0071

FMW-15 [82.44]
none detected

FMW-16 [81.49]
none detected

FMW-17 [82.47]
none detected

SB-24 [86.18]

SB-25 [85.93]

SB-26 [86.87]

MW-1

MW-2R

MW-3

MW-4R

MW-8

MW-9R

MW-10R

MW-11

MW-12

MW-13

MW-14

MW-15

MW-16

MW-17

MW-18

MW-19

MW-20

MW-21

MW-22

MW-23D

SW-1

SW-2

SW-3

SW-11

SG-2

SD-1

83'

84'

85'

86'

82'

0 30 60
SCALE IN FEET

NOTE: REFERENCED DRAWING IS BASED ON LANDPRO SURVEY

FIG. 6

TITLE: APRIL 2014 GROUNDWATER DATA MAP
FASHION CARE/EXECUTIVE CARE VRP SITE
2211 SAVOY DRIVE, CHAMBLEE, GEORGIA

SCALE: 1" = 60'
DATE: 2-11-16
PREPARED: VPV
CHECKED: SCC
PROJECT NO: 2015.0058.02
REVISIONS:
CLIENT: ROWAN TRUST

625 Holcomb Bridge Road
Norcross, Georgia 30071
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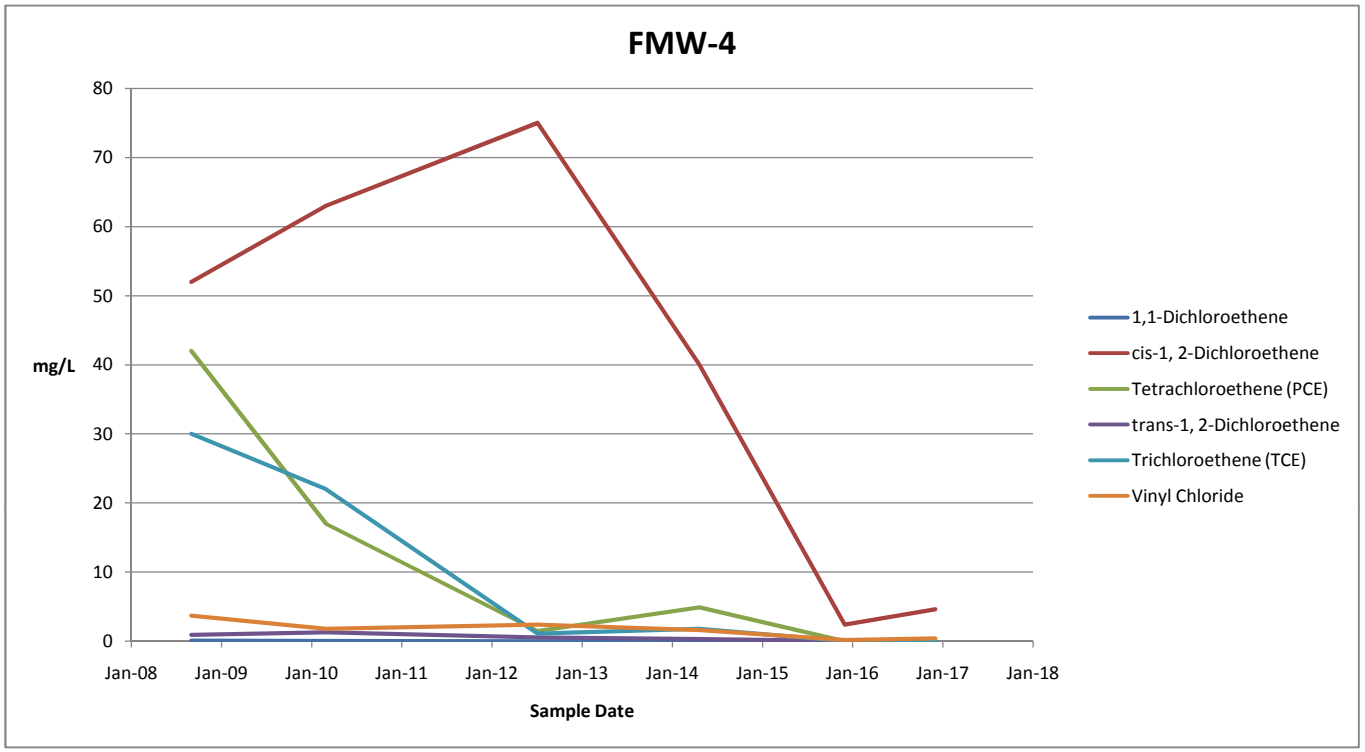
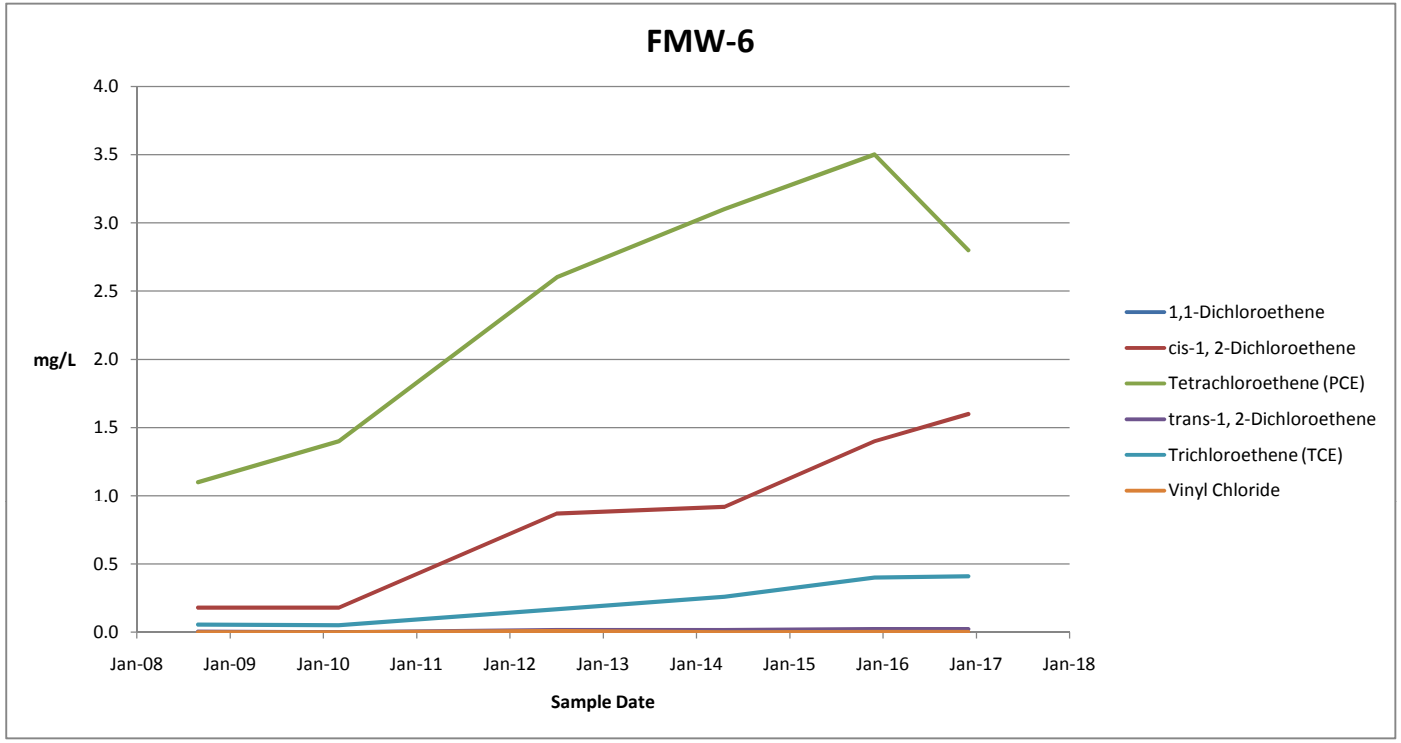
Figure 7
Trend Charts
Fashion Care/Executive Care VRP Site (HSI #10786)
2211 Savoy Drive, Chamblee, Georgia



Sample Location	FMW-4					
Sample Date	**8-Sep-08**	**8-Mar-10**	**12-Jul-12**	**29-Apr-14**	**8-Dec-15**	**9-Dec-16**
1,1-Dichloroethene	**0.061**	**0.038**	< 0.5	**0.027**	< 0.005	< 0.005
cis-1, 2-Dichloroethene	**52.0**	**63.0**	**75**	**40**	**2.4**	**4.6**
Tetrachloroethene (PCE)	**42.0**	**17.0**	**1.5**	**4.9**	**0.017**	< 0.005
trans-1, 2-Dichloroethene	**0.90**	**1.3**	**0.54**	**0.32**	**0.016**	**0.034**
Trichloroethene (TCE)	**30.0**	**22.0**	**1.1**	**1.8**	**0.027**	**0.017**
Vinyl Chloride	**3.7**	**1.8**	**2.4**	**1.6**	**0.18**	**0.42**
Groundwater Level (ft toc)	**13.59**	**10.95**	**13.80**	**11.75**	**11.85**	**13.80**

BOLD	Exceeds HSRA Type 1&3 RRS
BOLD	Exceeds HSRA Type 5 RRS-Construction Worker
BOLD	Exceeds HSRA Type 5 RRS-Utility Worker

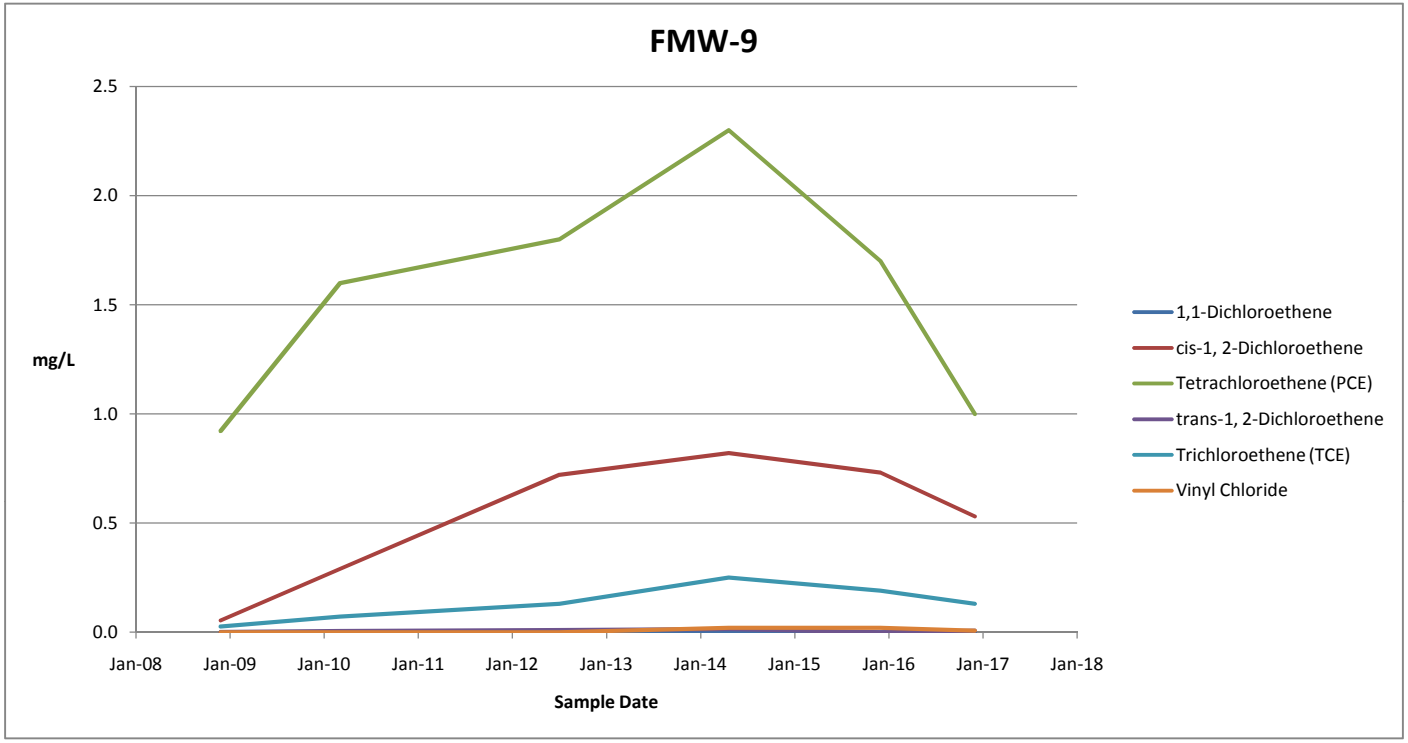
Figure 7
Trend Charts
Fashion Care/Executive Care VRP Site (HSI #10786)
2211 Savoy Drive, Chamblee, Georgia



Sample Location	FMW-6					
Sample Date	**5-Sep-08**	**11-Mar-10**	**11-Jul-12**	**29-Apr-14**	**8-Dec-15**	**9-Dec-16**
1,1-Dichloroethene	<0.001	<0.005	<0.005	<0.005	<0.005	< 0.005
cis-1, 2-Dichloroethene	**0.18**	**0.18**	**0.87**	**0.92**	**1.4**	**1.6**
Tetrachloroethene (PCE)	**1.1**	**1.4**	**2.6**	**3.1**	**3.5**	**2.8**
trans-1, 2-Dichloroethene	**0.0036**	<0.005	**0.016**	**0.016**	**0.023**	**0.023**
Trichloroethene (TCE)	**0.056**	**0.052**	**0.17**	**0.26**	**0.4**	**0.41**
Vinyl Chloride	<0.001	<0.002	**0.0078**	< 0.002	**0.0023**	**0.0027**
Groundwater Level (ft toc)	**10.68**	**9.65**	**10.88**	**9.85**	**10.31**	**10.82**

BOLD	Exceeds HSRA Type 1&3 RRS
BOLD	Exceeds HSRA Type 5 RRS-Construction Worker
BOLD	Exceeds HSRA Type 5 RRS-Utility Worker

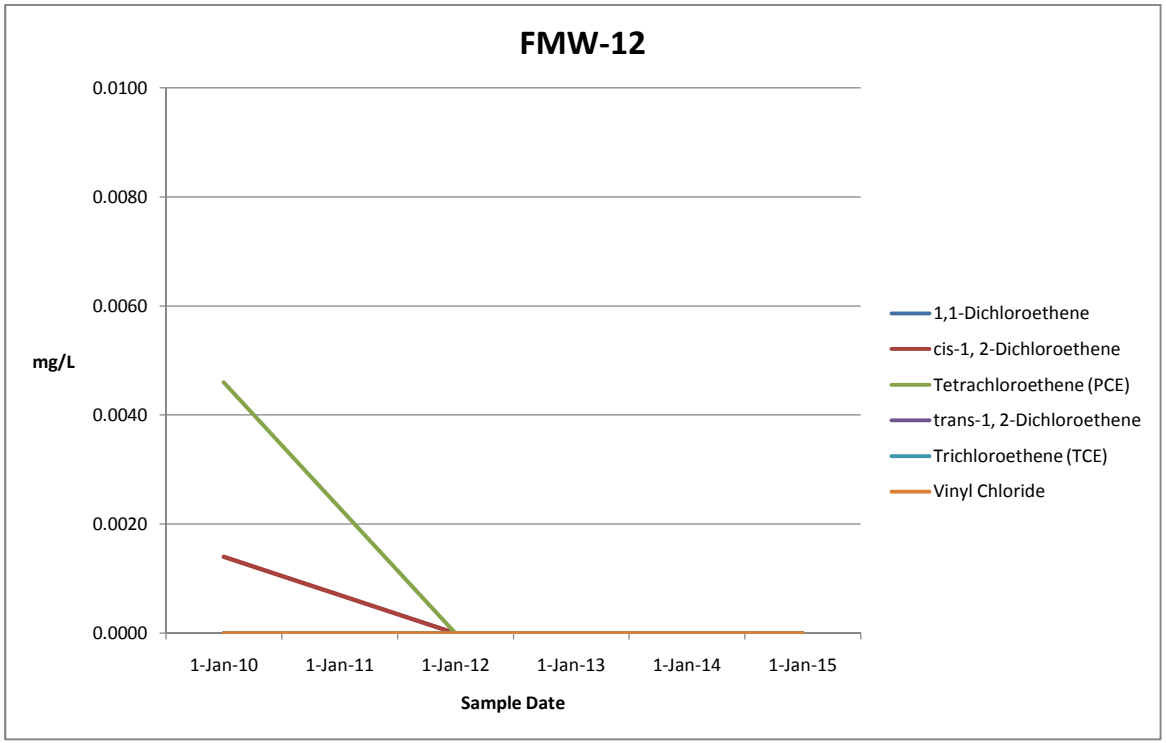
Figure 7
Trend Charts
Fashion Care/Executive Care VRP Site (HSI #10786)
2211 Savoy Drive, Chamblee, Georgia



Sample Location	FMW-9					
Sample Date	**3-Dec-08**	**11-Mar-10**	**10-Jul-12**	**29-Apr-14**	**8-Dec-15**	**9-Dec-16**
1,1-Dichloroethene	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
cis-1, 2-Dichloroethene	**0.0534**	**0.29**	**0.72**	**0.82**	**0.73**	**0.53**
Tetrachloroethene (PCE)	**0.922**	**1.6**	**1.8**	**2.3**	**1.7**	**1.0**
trans-1, 2-Dichloroethene	**0.00086**	**0.0062**	**0.01**	**0.01**	< 0.005	**0.0072**
Trichloroethene (TCE)	**0.0262**	**0.072**	**0.13**	**0.25**	**0.19**	**0.13**
Vinyl Chloride	< 0.001	< 0.002	< 0.002	**0.020**	**0.02**	**0.0072**
Groundwater Level (ft toc)	**11.44**	**10.89**	**11.70**	**11.02**	**11.45**	**11.78**

BOLD	Exceeds HSRA Type 1&3 RRS
BOLD	Exceeds HSRA Type 5 RRS-Construction Worker
BOLD	Exceeds HSRA Type 5 RRS-Utility Worker

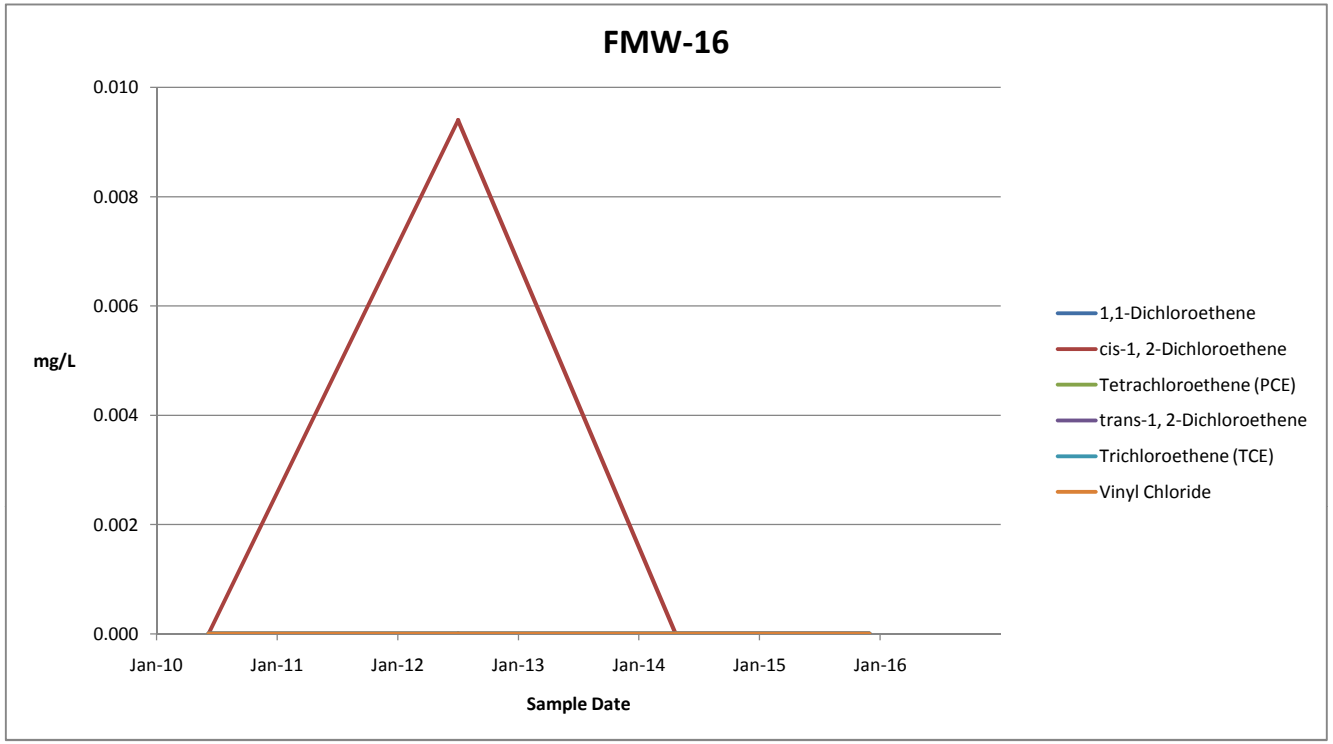
Figure 7
Trend Charts
Fashion Care/Executive Care VRP Site (HSI #10786)
2211 Savoy Drive, Chamblee, Georgia



Sample Location	FMW-12			
Sample Date	**17-Mar-10**	**12-Jul-12**	**8-Dec-15**	**9-Dec-16**
1,1-Dichloroethene	< 0.005	< 0.005	< 0.005	< 0.005
cis-1, 2-Dichloroethene	**0.00140**	< 0.005	< 0.005	< 0.005
Tetrachloroethene (PCE)	**0.0046**	< 0.005	< 0.005	< 0.005
trans-1, 2-Dichloroethene	< 0.005	< 0.005	< 0.005	< 0.005
Trichloroethene (TCE)	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl Chloride	< 0.002	< 0.002	< 0.002	< 0.002
Groundwater Level (ft toc)	**12.55**	**12.80**	**12.70**	**12.96**

BOLD	Exceeds HSRA Type 1&3 RRS
BOLD	Exceeds HSRA Type 5 RRS-Construction Worker
BOLD	Exceeds HSRA Type 5 RRS-Utility Worker
xx.xx	J-Flagged analytical results

Figure 7
Trend Charts
Fashion Care/Executive Care VRP Site (HSI #10786)
2211 Savoy Drive, Chamblee, Georgia



Sample Location	FMW-16				
Sample Date	**15-Jun-10**	**10-Jul-12**	**30-Apr-14**	**8-Dec-15**	**9-Dec-16**
1,1-Dichloroethene	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1, 2-Dichloroethene	<0.005	**0.0094**	<0.005	<0.005	<0.005
Tetrachloroethene (PCE)	<0.005	<0.005	<0.005	<0.005	<0.005
trans-1, 2-Dichloroethene	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene (TCE)	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Chloride	<0.002	<0.002	<0.002	<0.002	<0.002
Groundwater Level (ft toc)	-	**10.75**	**9.38**	**9.80**	**10.44**

BOLD	Exceeds HSRA Type 1&3 RRS
BOLD	Exceeds HSRA Type 5 RRS-Construction Worker
BOLD	Exceeds HSRA Type 5 RRS-Utility Worker

APPENDIX A – GROUNDWATER SAMPLING LOGS

UNITED CONSULTING

Project #: 2015.0058.05
Facility Name: Fashion Care Cleaners
Facility Location: Chamblee, Georgia

Well ID: FMW-4
Well Diameter: 2 (inches)
Total Depth (TD): 20.30 (ft)
Depth to Groundwater (GW): 13.80 (ft)
Water Column Height (CH): 6.50 (ft) = TD - GW
Well Volume: 1.06 (gals)
Total Liters Purged: 3.4 (Lt)

Date: 9-Dec-16
Measuring Pt: **Yes** / No
Personnel: Spencer Cox
Weather: Clear, 42F
Depth to: 10 feet (top) / 20 feet (bottom) of screen (below MP)
Pump Intake at (ft. below MP): 14.5 feet

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Parameter Monitoring Results

Time	Vol. Purged (units: mL/min)	D.T.W. (feet)	Temp. (℃)	Sp. Cond (mS/cm)	D.O. (mg/l)	pH (su)	Orp (mV)	Turb. (NTUs)	Clarity /Color
Instrument Accuracy			+/- 0.5 °C	+/- 5%	+/- 0.5 mg/L	+/- 0.2	+/- 20mV	+/- 10%	Stabilization Criteria
1:26	100	13.62	20.80	1.48	6.70	5.71	13.6	N/A	C
1:29	100	13.68	20.77	1.50	6.86	5.70	15.6	N/A	C
1:32	100	13.69	20.79	1.50	6.38	5.81	312	N/A	C
1:35	100	13.72	20.90	1.51	6.23	5.68	35.1	N/A	C
1:38	100	13.79	20.92	1.51	6.17	5.69	37.1	N/A	C
1:41	100	13.79	20.82	1.52	5.51	5.70	36.9	N/A	C
1:44	100	13.81	20.83	1.51	5.50	5.70	36.8	N/A	C
1:47	100	13.80	20.84	1.50	5.49	5.71	36.9	N/A	C

Clarity: VC = very cloudy, CL = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

Comments:

Low flow sampling using a geopump, In Situ SmartTroll MP, and a Solinst P7 water level tape.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Time: 1:47 PM

# Containers/Type	Preservative	Analysis/Method	Field Filter Y/N	Filter size	MS/MSD	Dup ID
2-40mL VOA's	HCL	VOC's	N/A	N/A	N/A	N/A

Note sample time, parameters, duplicates, field blanks, etc.

UNITED CONSULTING

Project #: 2015.0058.05
Facility Name: Fashion Care Cleaners
Facility Location: Chamblee, Georgia

Well ID: FMW-6
Well Diameter: 2 (inches)
Total Depth (TD): 18.75 (ft)
Depth to Groundwater (GW): 10.82 (ft)
Water Column Height (CH): 7.93 (ft) = TD - GW
Well Volume: 1.29 (gals)
Total Liters Purged: 4.0 (Lt)

Date: 9-Dec-16
Measuring Pt: **Yes** / No
Personnel: Spencer Cox
Weather: Clear, 42F
Depth to: 8.25 feet (top) / 18.25 feet (bottom) of screen (below MP)
Pump Intake at (ft. below MP): 12.5 Feet

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Parameter Monitoring Results

Time	Vol. Purged (units: mL/min)	D.T.W. (feet)	Temp. (°C)	Sp. Cond (mS/cm)	D.O. (mg/l)	pH (su)	Orp (mV)	Turb. (NTUs)	Clarity /Color
Instrument Accuracy			+/- 0.5 °C	+/- 5%	+/- 0.5 mg/L	+/- 0.2	+/- 20mV	+/- 10%	Stabilization Criteria
9:25	125	10.58	15.89	0.175	3.16	5.54	36.5	N/A	AC
9:30	125	10.69	15.68	0.176	2.05	5.56	26.5	N/A	AC
9:35	125	10.78	15.48	0.180	1.59	5.58	10.5	N/A	AC
9:40	125	10.80	15.49	0.181	1.62	5.58	8.9	N/A	AC
9:45	125	10.83	15.48	0.179	1.60	5.60	9.2	N/A	AC

Clarity: VC = very cloudy, CL = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

Comments:

Low flow sampling using a geopump, In Situ SmartTroll MP, and a Solinst P7 water level tape.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Time: 9:45 AM

# Containers/Type	Preservative	Analysis/Method	Field Filter Y/N	Filter size	MS/MSD	Dup ID
2-40mL VOA's	HCL	VOC's	N/A	N/A	N/A	N/A

Note sample time, parameters, duplicates, field blanks, etc.

UNITED CONSULTING

Project #: 2015.0058.05
Facility Name: Fashion Care Cleaners
Facility Location: Chamblee, Georgia

Well ID: FMW-9
Well Diameter: 2 (inches)
Total Depth (TD): 19.35 (ft)
Depth to Groundwater (GW): 11.78 (ft)
Water Column Height (CH): 7.57 (ft) = TD - GW
Well Volume: 1.23 (gals)
Total Liters Purged: 3.4 (Lt)

Date: 9-Dec-16
Measuring Pt: **Yes** / No
Personnel: Spencer Cox
Weather: Clear, 42F
Depth to: 8.85 feet (top) / 18.85 feet (bottom) of screen (below MP)
Pump Intake at (ft. below MP): 12.5 Feet

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Parameter Monitoring Results

Time	Vol. Purged (units: mL/min)	D.T.W. (feet)	Temp. (°C)	Sp. Cond (mS/cm)	D.O. (mg/l)	pH (su)	Orp (mV)	Turb. (NTUs)	Clarity /Color
Instrument Accuracy			+/- 0.5 °C	+/- 5%	+/- 0.5 mg/L	+/- 0.2	+/- 20mV	+/- 10%	Stabilization Criteria
10:15	125	11.49	15.96	0.131	5.89	5.98	25.1	N/A	VC
10:20	125	11.58	15.89	0.130	2.50	5.80	20.5	N/A	VC
10:25	125	11.76	15.88	0.110	2.38	5.79	23.9	N/A	VC
10:30	125	11.78	15.89	0.099	2.36	5.78	22.8	N/A	VC
10:35	125	11.79	15.91	0.100	2.39	5.80	22.4	N/A	VC

Clarity: VC = very cloudy, CL = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

Comments:

Low flow sampling using a geopump, In Situ SmartTroll MP, and a Solinst P7 Interface water level tape.

Sample was very cloudy and had distinctive solvent odor.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Time: 10:35 AM

# Containers/Type	Preservative	Analysis/Method	Field Filter Y/N	Filter size	MS/MSD	Dup ID
2-40mL VOA's	HCL	VOC's	N/A	N/A	N/A	N/A

Note sample time, parameters, duplicates, field blanks, etc.

UNITED CONSULTING

Project #: 2015.0058.05
Facility Name: Fashion Care Cleaners
Facility Location: Chamblee, Georgia

Well ID: FMW-12
Well Diameter: 2 (inches)
Total Depth (TD): 19.20 (ft)
Depth to Groundwater (GW): 12.96 (ft)
Water Column Height (CH): 6.24 (ft) = TD - GW
Well Volume: 1.02 (gals)
Total Liters Purged: 5.3 (Lt)

Date: 9-Dec-16
Measuring Pt: **Yes** / No
Personnel: Spencer Cox
Weather: Clear, 42F
Depth to: 8.7 feet (top) / 18.7 feet (bottom) of screen (below MP)
Pump Intake at (ft. below MP): 13.75 Feet

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Parameter Monitoring Results

Time	Vol. Purged (units: mL/min)	D.T.W. (feet)	Temp. (°C)	Sp. Cond (mS/cm)	D.O. (mg/l)	pH (su)	Orp (mV)	Turb. (NTUs)	Clarity /Color
Instrument Accuracy			+/- 0.5 °C	+/- 5%	+/- 0.5 mg/L	+/- 0.2	+/- 20mV	+/- 10%	Stabilization Criteria
11:43	125	12.60	14.99	0.069	12.58	4.82	26.4	N/A	C
11:46	125	12.62	14.88	0.068	10.80	4.83	58.5	N/A	C
11:49	125	12.72	14.81	0.073	3.52	4.85	1.50	N/A	C
11:52	125	12.86	14.80	0.083	3.40	4.86	1.46	N/A	C
11:55	125	12.96	14.81	0.081	3.45	4.86	1.20	N/A	C
11:58	125	12.98	14.86	0.082	3.43	4.85	1.90	N/A	C

Clarity: VC = very cloudy, CL = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

Comments:

Low flow sampling using a geopump, In Situ SmartTroll MP, and a Solinst P7 water level tape.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Time: 11:58 AM

# Containers/Type	Preservative	Analysis/Method	Field Filter Y/N	Filter size	MS/MSD	Dup ID
2-40mL VOA's	HCL	VOC's	N/A	N/A	N/A	N/A

Note sample time, parameters, duplicates, field blanks, etc.

UNITED CONSULTING

Project #: 2015.0058.05
Facility Name: Fashion Care Cleaners
Facility Location: Chamblee, Georgia

Well ID: FMW-16
Well Diameter: 2 (inches)
Total Depth (TD): 15.65 (ft)
Depth to Groundwater (GW): 10.44 (ft)
Water Column Height (CH): 5.21 (ft) = TD - GW
Well Volume: 0.85 (gals)
Total Liters Purged: 7.0 (Lt)

Date: 9-Dec-16
Measuring Pt: **Yes** / No
Personnel: Spencer Cox
Weather: Clear, 42F
Depth to: 10.15 feet (top) / 15.15 feet (bottom) of screen (below MP)
Pump Intake at (ft. below MP): 11.0 Feet

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Parameter Monitoring Results

Time	Vol. Purged (units: mL/min)	D.T.W. (feet)	Temp. (°C)	Sp. Cond (mS/cm)	D.O. (mg/l)	pH (su)	Orp (mV)	Turb. (NTUs)	Clarity /Color
Instrument Accuracy			+/- 0.5 °C	+/- 5%	+/- 0.5 mg/L	+/- 0.2	+/- 20mV	+/- 10%	Stabilization Criteria
8:58	100	10.96	15.85	0.175	1.83	6.09	64	N/A	SC
9:01	100	10.91	15.69	0.174	0.84	6.08	84	N/A	SC
9:04	100	10.84	15.49	0.175	1.03	6.08	92	N/A	SC
9:07	100	10.68	15.35	0.176	1.07	6.08	89	N/A	SC
9:10	100	10.65	15.32	0.177	1.04	6.09	84	N/A	SC
9:13	100	10.44	15.31	0.176	1.02	6.11	78	N/A	SC
9:16	100	10.46	15.36	0.175	1.06	6.10	91	N/A	SC

Clarity: VC = very cloudy, CL = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

Comments:

Low flow sampling using a geopump, In Situ SmartTroll MP, and a Solinst P7 water level tape.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Time: 9:16 AM

# Containers/Type	Preservative	Analysis/Method	Field Filter Y/N	Filter size	MS/MSD	Dup ID
2-40mL VOA's	HCL	VOC's	N/A	N/A	N/A	N/A

Note sample time, parameters, duplicates, field blanks, etc.

APPENDIX B – BORING LOGS AND WELL CONSTRUCTION LOGS – SAMPLED WELLS

MONITOR WELL LOG - FLUSH MOUNT

WINTER ENVIRONMENTAL

	Constr. Start	Constr. Finish
Time	1000	1150
Date	9/4/08	9/4/08

Well ID	FMW-4
Project No.	08096
Geol./Eng.	Joe King/L. Diprima
Driller	Atlas Geo Sampling

Top cap and lock

Ground surface

Concrete pad and 8 **-inch diameter, flush-mounted manhole**

Drainage gravel

71/4 -inch diameter borehole

Sch 40 PVC **riser pipe material**

2 **-inch diameter riser pipe**

15 **-ft. long riser pipe**

Type Grout

Type 1 A Portland

Type Seal

Pure Gold Bentonite Med Chip

Sch 40 PVC Screen Material

2 **-inch diameter screen**

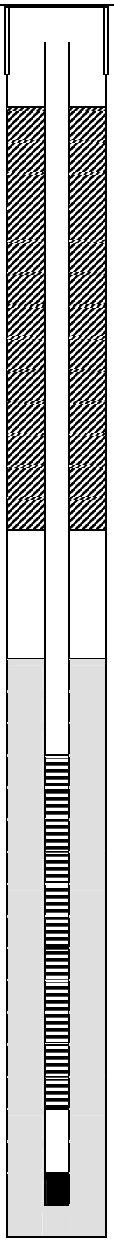
0.010 **-inch screen slot size**

10 **-ft. long screen**

Type Sandpack

Type 1 Filter Sand 20/30 Wash

.5 **-ft. long well plug/point**



Depth to top of riser pipe:
0 **ft. bgs**

Depth to top of grout seal:
.5 **ft. bgs**

Depth to top of seal:
2 **ft. bgs**

Depth to top of sandpack:
8 **ft. bgs**

Depth to top of screen:
10 **ft. bgs**

Depth to bottom of screen:
20 **ft. bgs**

Depth to bottom of well plug/point:
20.5 **ft. bgs**

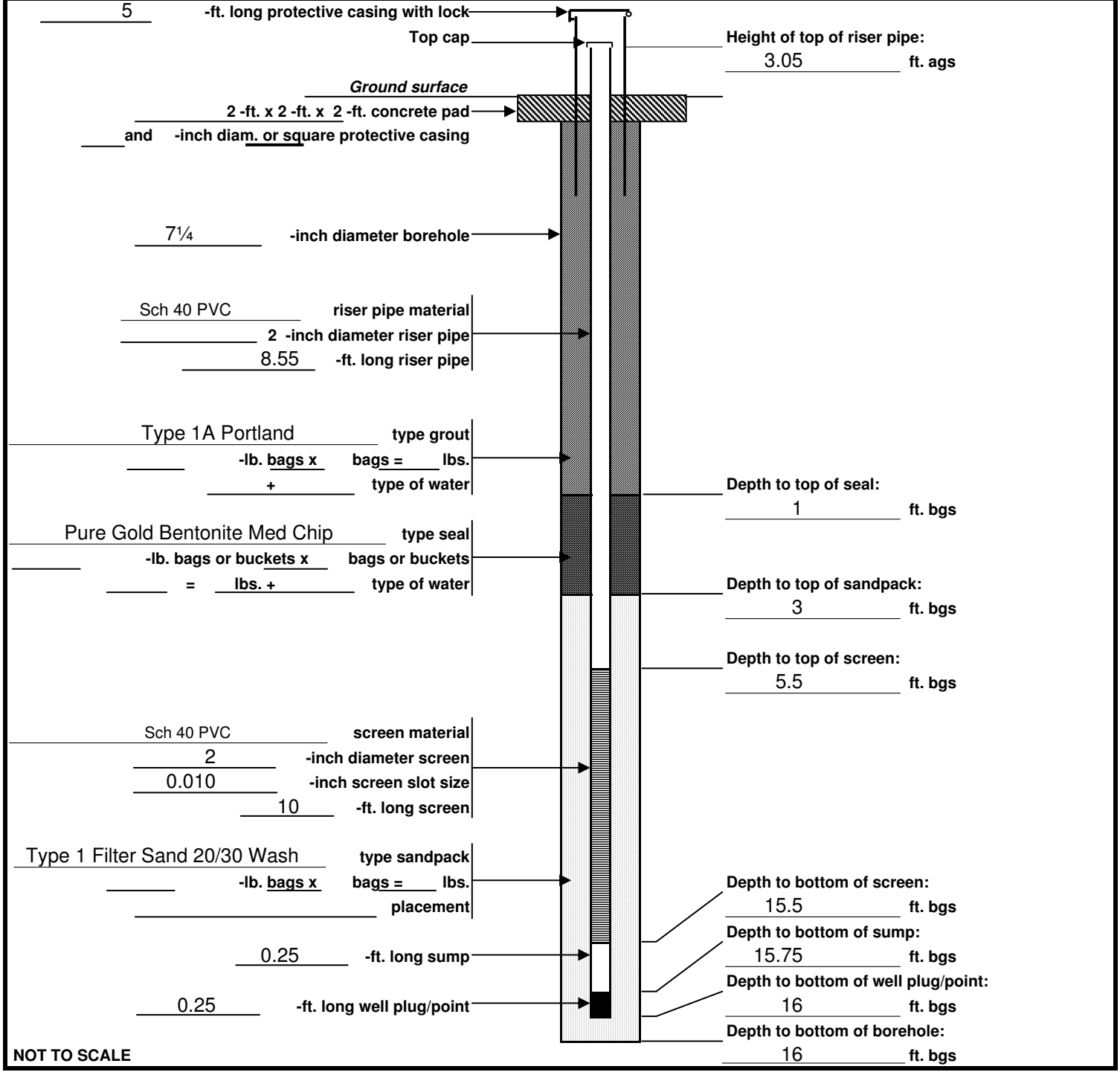
Depth to bottom of borehole:
20.5 **ft. bgs**

MONITOR WELL LOG - STICKUP

WINTER ENVIRONMENTAL

	Constr. Start	Constr. Finish
Time	1545	1710
Date	9/4/08	9/4/08

Well ID	FMW-6
Project No.	8096
Oversight:	Joe King/L. Diprima
Driller:	Atlas GEO Sampling

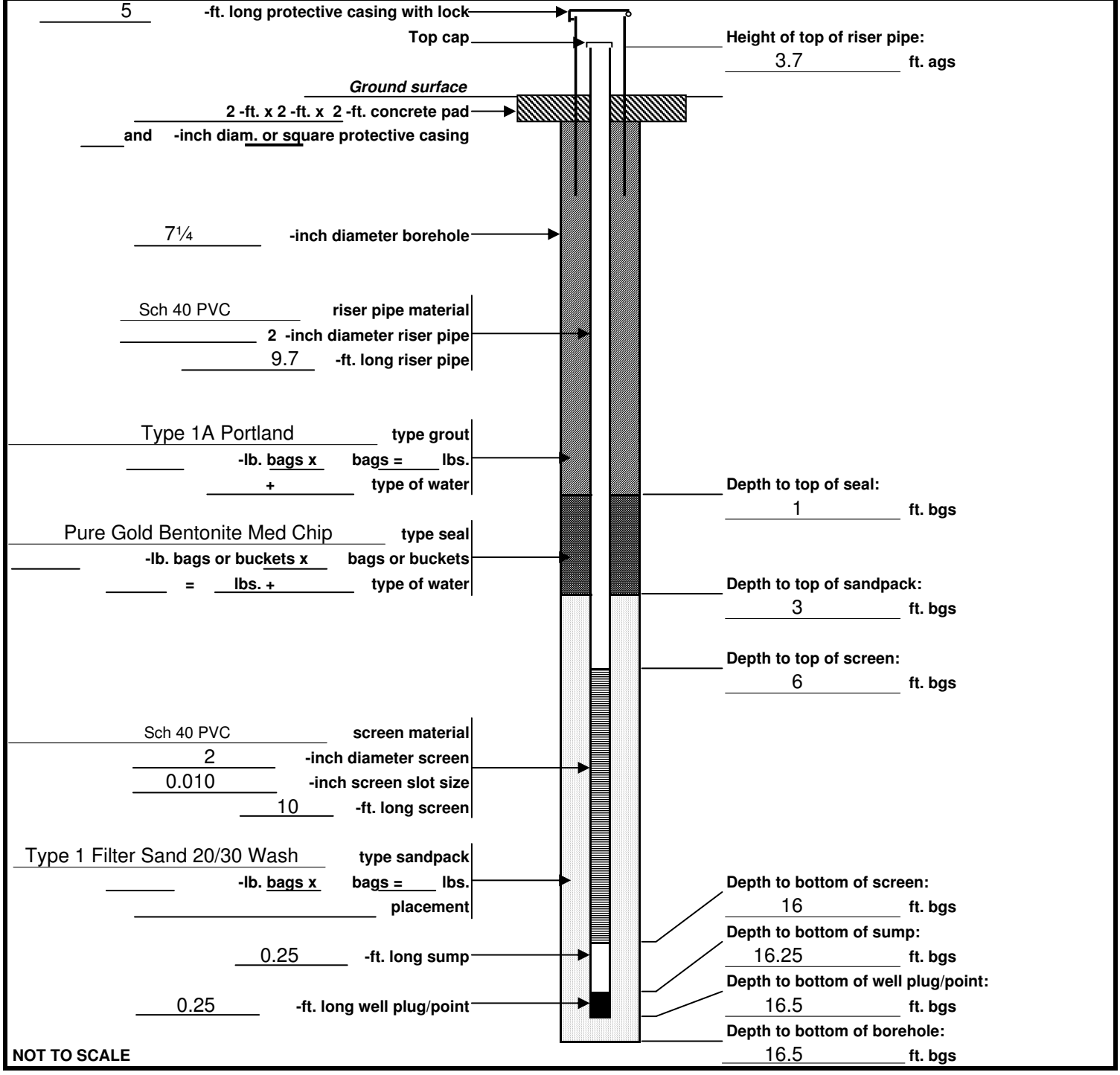


MONITOR WELL LOG - STICKUP

WINTER ENVIRONMENTAL

	Constr. Start	Constr. Finish
Time	1400	1445
Date	11/25/08	11/25/08

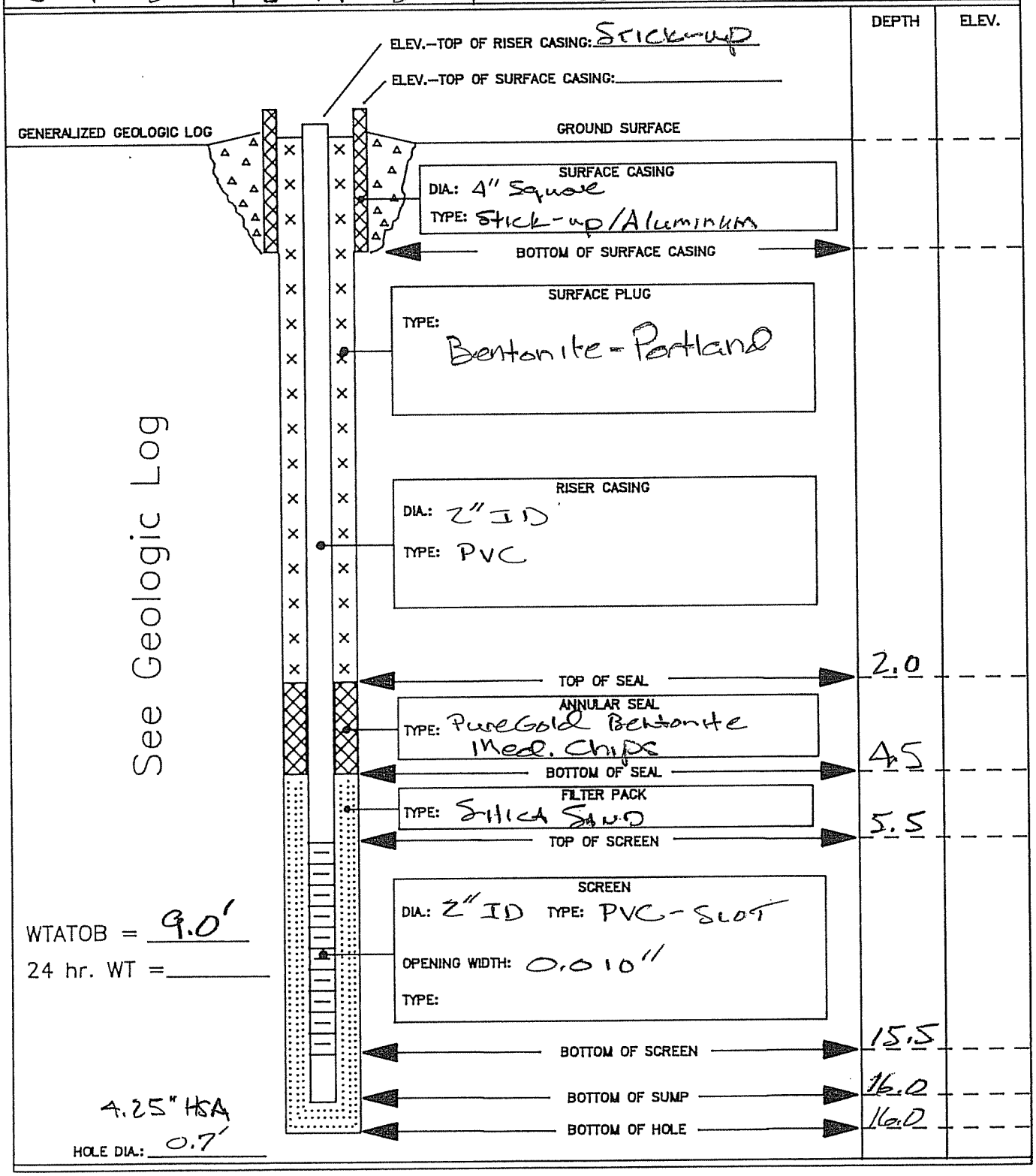
Well ID	FMW-9
Project No.	8096
Oversight:	Joe King/L. Diprima
Driller:	Atlas GEO Sampling



NOT TO SCALE

MONITORING WELL

PROJECT: Fashion Cove		WELL NO.: FMW-12
SITE: 08096	LOCATION: 2211 Savoy Dr. Chamblee, GA	
BEGUN: 3-17-10	COMPLETED: 3-17-10	CONSTRUCTED BY: Atlas



MONITORING WELL

PROJECT: Fashion Care

WELL NO.: FMW-1C

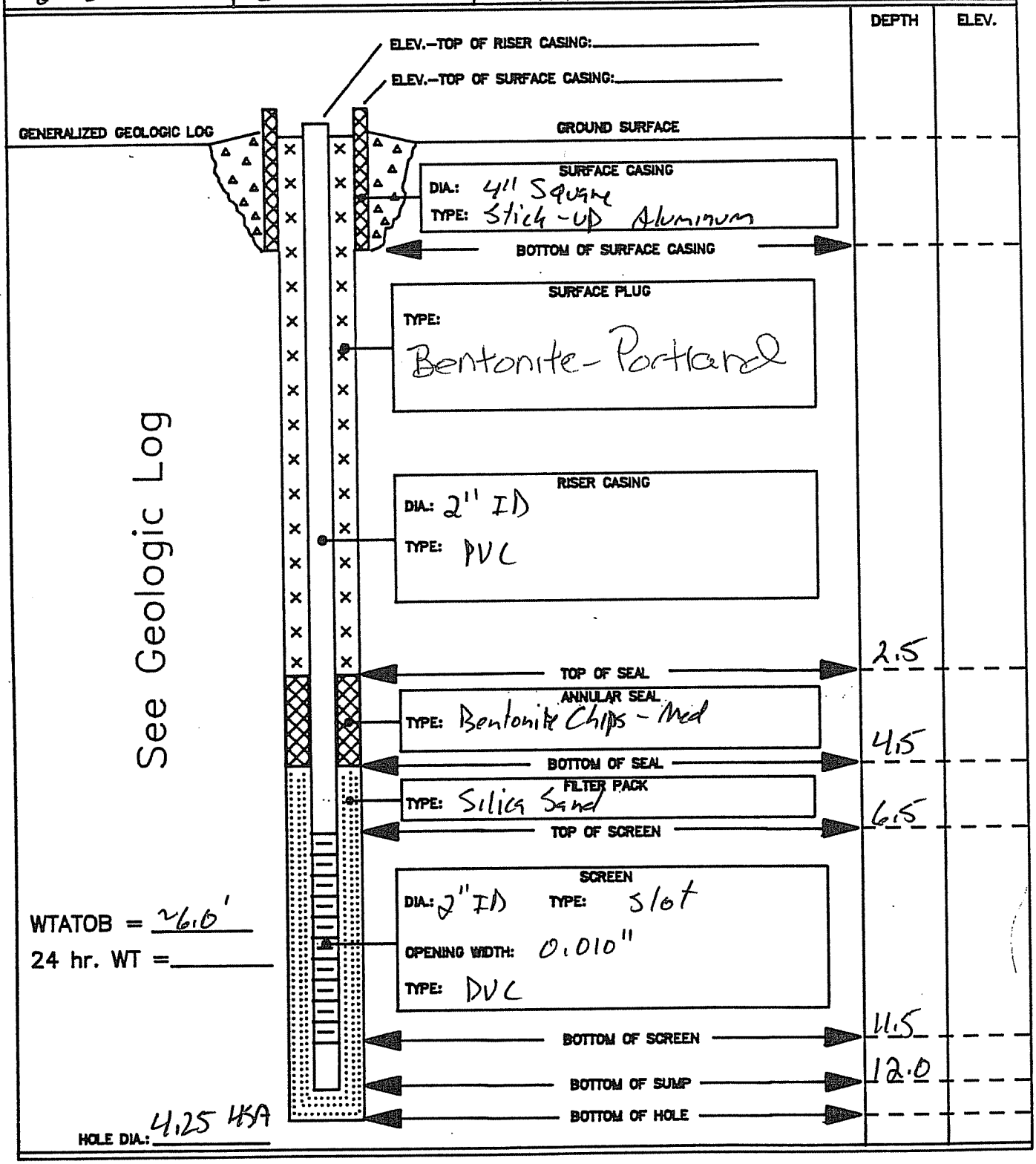
SITE: 08096

LOCATION: 2211 Savoy Dr, Chamblee, GA

BEGUN: 6-15-10

COMPLETED: 6-15-10

CONSTRUCTED BY: Atlas



APPENDIX C – LABORATORY DATA REPORTS

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

December 14, 2016

Spencer Cox
United Consulting Group Inc.
625 Holcomb Bridge Rd
Norcross GA 30071

TEL: (770) 209-0029
FAX: (770) 582-2900

RE: Fashion Care VRP

Dear Spencer Cox: Order No: 1612A90

Analytical Environmental Services, Inc. received 9 samples on 12/9/2016 3:15:00 PM 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

ANALYTICAL ENVIRONMENTAL SERVICES, INC

3785 Presidential Parkway, Atlanta GA 30340-3704
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1612490

Date: 12-9-16 Page 1 of 1

COMPANY: **United Consulting**

ADDRESS: 625 HOLCOMB BRIDGE ROAD
NORCROSS, GEORGIA 30071
770-209-0029 FAX: 770-582-2900
WWW.UNITEDCONSULTING.COM

PHONE: Spencer Cox

FAX: 770-209-0029

SAMPLED BY:

SIGNATURE: scox@unitedconsulting.com

ANALYSIS REQUESTED

VOCs *

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

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No # of Containers
1	SW-3	12-9-16	9:08A	/		SW	/		2
2	FMW-16		9:16A	/		GW	/		2
3	FMW-6		9:45A	/		GW	/		2
4	FMW-9		10:35A	/		GW	/		2
5	FMW-12		11:58A	/		GW	/		2
6	FMW-4		1:47P	/		GW	/		2
7	SW-2		1:59P	/		SW	/		2
8	SW-1		2:30P	/		SW	/		2
9	Trip Blank		—	/		W	/		2
10									
11									
12									
13									
14									

RELINQUISHED BY / DATE/TIME
1: 12-9-16 3:15PM
2:
3:

RECEIVED BY / DATE/TIME
1: Denita Omeara 12/9/16 3:15
2:
3:

SPECIAL INSTRUCTIONS/COMMENTS:
* Project Analyte List
- Will Email

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

PROJECT INFORMATION
PROJECT NAME: **Fashion Care VRP**
PROJECT #: 2015.0058.04
SITE ADDRESS: -
SEND REPORT TO: Spencer Cox
INVOICE TO:
(IF DIFFERENT FROM ABOVE)
QUOTE #:_____ PO#: Will Email

RECEIPT
Total # of Containers: 18

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 SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS 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) 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

White Copy - Original; Yellow Copy - Client

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

Client:	United Consulting Group Inc.	**Client Sample ID:**	SW-3
Project Name:	Fashion Care VRP	**Collection Date:**	12/9/2016 9:08:00 AM
Lab ID:	1612A90-001	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
1,1-Dichloroethane	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
1,1-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
1,2-Dibromoethane	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
2-Butanone	BRL	50		ug/L	234809	1	12/13/2016 21:59	NP
2-Hexanone	BRL	10		ug/L	234809	1	12/13/2016 21:59	NP
4-Methyl-2-pentanone	BRL	10		ug/L	234809	1	12/13/2016 21:59	NP
Acetone	BRL	50		ug/L	234809	1	12/13/2016 21:59	NP
Benzene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
Chlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
Cyclohexane	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
Ethylbenzene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
Isopropylbenzene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
m,p-Xylene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
Methylcyclohexane	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
o-Xylene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
Styrene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
Tetrachloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
Toluene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
Trichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 21:59	NP
Vinyl chloride	BRL	2.0		ug/L	234809	1	12/13/2016 21:59	NP
Surr: 4-Bromofluorobenzene	94.8	66.1-129		%REC	234809	1	12/13/2016 21:59	NP
Surr: Dibromofluoromethane	112	83.6-123		%REC	234809	1	12/13/2016 21:59	NP
Surr: Toluene-d8	96.1	81.8-118		%REC	234809	1	12/13/2016 21:59	NP

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-Dec-16

Client:	United Consulting Group Inc.	**Client Sample ID:**	FMW-16
Project Name:	Fashion Care VRP	**Collection Date:**	12/9/2016 9:16:00 AM
Lab ID:	1612A90-002	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
1,1-Dichloroethane	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
1,1-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
1,2-Dibromoethane	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
2-Butanone	BRL	50		ug/L	234809	1	12/13/2016 22:24	NP
2-Hexanone	BRL	10		ug/L	234809	1	12/13/2016 22:24	NP
4-Methyl-2-pentanone	BRL	10		ug/L	234809	1	12/13/2016 22:24	NP
Acetone	BRL	50		ug/L	234809	1	12/13/2016 22:24	NP
Benzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
Chlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
Cyclohexane	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
Ethylbenzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
Isopropylbenzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
m,p-Xylene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
Methylcyclohexane	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
o-Xylene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
Styrene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
Tetrachloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
Toluene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
Trichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 22:24	NP
Vinyl chloride	BRL	2.0		ug/L	234809	1	12/13/2016 22:24	NP
Surr: 4-Bromofluorobenzene	90.1	66.1-129		%REC	234809	1	12/13/2016 22:24	NP
Surr: Dibromofluoromethane	109	83.6-123		%REC	234809	1	12/13/2016 22:24	NP
Surr: Toluene-d8	95.4	81.8-118		%REC	234809	1	12/13/2016 22:24	NP

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-Dec-16

Client:	United Consulting Group Inc.	**Client Sample ID:**	FMW-6
Project Name:	Fashion Care VRP	**Collection Date:**	12/9/2016 9:45:00 AM
Lab ID:	1612A90-003	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
1,1-Dichloroethane	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
1,1-Dichloroethene	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
1,2-Dibromoethane	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
2-Butanone	BRL	50		ug/L	234809	1	12/14/2016 11:03	NP
2-Hexanone	BRL	10		ug/L	234809	1	12/14/2016 11:03	NP
4-Methyl-2-pentanone	BRL	10		ug/L	234809	1	12/14/2016 11:03	NP
Acetone	BRL	50		ug/L	234809	1	12/14/2016 11:03	NP
Benzene	38	5.0		ug/L	234809	1	12/14/2016 11:03	NP
Chlorobenzene	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
cis-1,2-Dichloroethene	1600	100		ug/L	234809	20	12/14/2016 01:25	NP
Cyclohexane	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
Ethylbenzene	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
Isopropylbenzene	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
m,p-Xylene	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
Methyl tert-butyl ether	310	100		ug/L	234809	20	12/14/2016 01:25	NP
Methylcyclohexane	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
o-Xylene	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
Styrene	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
Tetrachloroethene	2800	100		ug/L	234809	20	12/14/2016 01:25	NP
Toluene	BRL	5.0		ug/L	234809	1	12/14/2016 11:03	NP
trans-1,2-Dichloroethene	23	5.0		ug/L	234809	1	12/14/2016 11:03	NP
Trichloroethene	410	100		ug/L	234809	20	12/14/2016 01:25	NP
Vinyl chloride	2.7	2.0		ug/L	234809	1	12/14/2016 11:03	NP
Surr: 4-Bromofluorobenzene	89.2	66.1-129		%REC	234809	1	12/14/2016 11:03	NP
Surr: 4-Bromofluorobenzene	89.6	66.1-129		%REC	234809	20	12/14/2016 01:25	NP
Surr: Dibromofluoromethane	109	83.6-123		%REC	234809	20	12/14/2016 01:25	NP
Surr: Dibromofluoromethane	106	83.6-123		%REC	234809	1	12/14/2016 11:03	NP
Surr: Toluene-d8	94	81.8-118		%REC	234809	1	12/14/2016 11:03	NP
Surr: Toluene-d8	92.1	81.8-118		%REC	234809	20	12/14/2016 01:25	NP

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-Dec-16

Client:	United Consulting Group Inc.	**Client Sample ID:**	FMW-9
Project Name:	Fashion Care VRP	**Collection Date:**	12/9/2016 10:35:00 AM
Lab ID:	1612A90-004	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
1,1-Dichloroethane	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
1,1-Dichloroethene	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
1,2-Dibromoethane	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
2-Butanone	BRL	50		ug/L	234809	1	12/14/2016 01:51	NP
2-Hexanone	BRL	10		ug/L	234809	1	12/14/2016 01:51	NP
4-Methyl-2-pentanone	BRL	10		ug/L	234809	1	12/14/2016 01:51	NP
Acetone	BRL	50		ug/L	234809	1	12/14/2016 01:51	NP
Benzene	9.8	5.0		ug/L	234809	1	12/14/2016 01:51	NP
Chlorobenzene	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
cis-1,2-Dichloroethene	530	50		ug/L	234809	10	12/14/2016 02:16	NP
Cyclohexane	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
Ethylbenzene	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
Isopropylbenzene	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
m,p-Xylene	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
Methyl tert-butyl ether	560	50		ug/L	234809	10	12/14/2016 02:16	NP
Methylcyclohexane	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
o-Xylene	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
Styrene	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
Tetrachloroethene	1000	50		ug/L	234809	10	12/14/2016 02:16	NP
Toluene	BRL	5.0		ug/L	234809	1	12/14/2016 01:51	NP
trans-1,2-Dichloroethene	7.2	5.0		ug/L	234809	1	12/14/2016 01:51	NP
Trichloroethene	130	5.0		ug/L	234809	1	12/14/2016 01:51	NP
Vinyl chloride	7.2	2.0		ug/L	234809	1	12/14/2016 01:51	NP
Surr: 4-Bromofluorobenzene	87.6	66.1-129		%REC	234809	10	12/14/2016 02:16	NP
Surr: 4-Bromofluorobenzene	88.4	66.1-129		%REC	234809	1	12/14/2016 01:51	NP
Surr: Dibromofluoromethane	103	83.6-123		%REC	234809	1	12/14/2016 01:51	NP
Surr: Dibromofluoromethane	113	83.6-123		%REC	234809	10	12/14/2016 02:16	NP
Surr: Toluene-d8	90.4	81.8-118		%REC	234809	1	12/14/2016 01:51	NP
Surr: Toluene-d8	90.9	81.8-118		%REC	234809	10	12/14/2016 02:16	NP

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-Dec-16

Client:	United Consulting Group Inc.	**Client Sample ID:**	FMW-12
Project Name:	Fashion Care VRP	**Collection Date:**	12/9/2016 11:58:00 AM
Lab ID:	1612A90-005	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
1,1-Dichloroethane	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
1,1-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
1,2-Dibromoethane	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
2-Butanone	BRL	50		ug/L	234809	1	12/13/2016 22:50	NP
2-Hexanone	BRL	10		ug/L	234809	1	12/13/2016 22:50	NP
4-Methyl-2-pentanone	BRL	10		ug/L	234809	1	12/13/2016 22:50	NP
Acetone	BRL	50		ug/L	234809	1	12/13/2016 22:50	NP
Benzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
Chlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
Cyclohexane	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
Ethylbenzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
Isopropylbenzene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
m,p-Xylene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
Methylcyclohexane	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
o-Xylene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
Styrene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
Tetrachloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
Toluene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
Trichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 22:50	NP
Vinyl chloride	BRL	2.0		ug/L	234809	1	12/13/2016 22:50	NP
Surr: 4-Bromofluorobenzene	92.4	66.1-129		%REC	234809	1	12/13/2016 22:50	NP
Surr: Dibromofluoromethane	112	83.6-123		%REC	234809	1	12/13/2016 22:50	NP
Surr: Toluene-d8	93	81.8-118		%REC	234809	1	12/13/2016 22:50	NP

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-Dec-16

Client:	United Consulting Group Inc.	**Client Sample ID:**	FMW-4
Project Name:	Fashion Care VRP	**Collection Date:**	12/9/2016 1:47:00 PM
Lab ID:	1612A90-006	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
1,1-Dichloroethane	BRL	5.0		ug/L	234809	1	12/14/2016 11:29	NP
1,1-Dichloroethene	BRL	5.0		ug/L	234809	1	12/14/2016 11:29	NP
1,2-Dibromoethane	BRL	5.0		ug/L	234809	1	12/14/2016 11:29	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/14/2016 11:29	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/14/2016 11:29	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/14/2016 11:29	NP
2-Butanone	BRL	50		ug/L	234809	1	12/14/2016 11:29	NP
2-Hexanone	BRL	10		ug/L	234809	1	12/14/2016 11:29	NP
4-Methyl-2-pentanone	BRL	10		ug/L	234809	1	12/14/2016 11:29	NP
Acetone	BRL	50		ug/L	234809	1	12/14/2016 11:29	NP
Benzene	730	250		ug/L	234809	50	12/14/2016 00:08	NP
Chlorobenzene	BRL	5.0		ug/L	234809	1	12/14/2016 11:29	NP
cis-1,2-Dichloroethene	4600	250		ug/L	234809	50	12/14/2016 00:08	NP
Cyclohexane	37	5.0		ug/L	234809	1	12/14/2016 11:29	NP
Ethylbenzene	590	250		ug/L	234809	50	12/14/2016 00:08	NP
Isopropylbenzene	23	5.0		ug/L	234809	1	12/14/2016 11:29	NP
m,p-Xylene	11	5.0		ug/L	234809	1	12/14/2016 11:29	NP
Methyl tert-butyl ether	62	5.0		ug/L	234809	1	12/14/2016 11:29	NP
Methylcyclohexane	28	5.0		ug/L	234809	1	12/14/2016 11:29	NP
o-Xylene	12	5.0		ug/L	234809	1	12/14/2016 11:29	NP
Styrene	BRL	5.0		ug/L	234809	1	12/14/2016 11:29	NP
Tetrachloroethene	BRL	5.0		ug/L	234809	1	12/14/2016 11:29	NP
Toluene	87	5.0		ug/L	234809	1	12/14/2016 11:29	NP
trans-1,2-Dichloroethene	34	5.0		ug/L	234809	1	12/14/2016 11:29	NP
Trichloroethene	17	5.0		ug/L	234809	1	12/14/2016 11:29	NP
Vinyl chloride	420	100		ug/L	234809	50	12/14/2016 00:08	NP
Surr: 4-Bromofluorobenzene	96.6	66.1-129		%REC	234809	50	12/14/2016 00:08	NP
Surr: 4-Bromofluorobenzene	97.6	66.1-129		%REC	234809	1	12/14/2016 11:29	NP
Surr: Dibromofluoromethane	105	83.6-123		%REC	234809	50	12/14/2016 00:08	NP
Surr: Dibromofluoromethane	102	83.6-123		%REC	234809	1	12/14/2016 11:29	NP
Surr: Toluene-d8	94.2	81.8-118		%REC	234809	50	12/14/2016 00:08	NP
Surr: Toluene-d8	101	81.8-118		%REC	234809	1	12/14/2016 11:29	NP

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-Dec-16

Client:	United Consulting Group Inc.	**Client Sample ID:**	SW-2
Project Name:	Fashion Care VRP	**Collection Date:**	12/9/2016 1:59:00 PM
Lab ID:	1612A90-007	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
1,1-Dichloroethane	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
1,1-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
1,2-Dibromoethane	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
2-Butanone	BRL	50		ug/L	234809	1	12/13/2016 23:16	NP
2-Hexanone	BRL	10		ug/L	234809	1	12/13/2016 23:16	NP
4-Methyl-2-pentanone	BRL	10		ug/L	234809	1	12/13/2016 23:16	NP
Acetone	BRL	50		ug/L	234809	1	12/13/2016 23:16	NP
Benzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
Chlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
Cyclohexane	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
Ethylbenzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
Isopropylbenzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
m,p-Xylene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
Methylcyclohexane	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
o-Xylene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
Styrene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
Tetrachloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
Toluene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
Trichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 23:16	NP
Vinyl chloride	BRL	2.0		ug/L	234809	1	12/13/2016 23:16	NP
Surr: 4-Bromofluorobenzene	91.8	66.1-129		%REC	234809	1	12/13/2016 23:16	NP
Surr: Dibromofluoromethane	118	83.6-123		%REC	234809	1	12/13/2016 23:16	NP
Surr: Toluene-d8	98.1	81.8-118		%REC	234809	1	12/13/2016 23:16	NP

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-Dec-16

Client:	United Consulting Group Inc.	**Client Sample ID:**	SW-1
Project Name:	Fashion Care VRP	**Collection Date:**	12/9/2016 2:30:00 PM
Lab ID:	1612A90-008	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
1,1-Dichloroethane	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
1,1-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
1,2-Dibromoethane	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
2-Butanone	BRL	50		ug/L	234809	1	12/13/2016 23:42	NP
2-Hexanone	BRL	10		ug/L	234809	1	12/13/2016 23:42	NP
4-Methyl-2-pentanone	BRL	10		ug/L	234809	1	12/13/2016 23:42	NP
Acetone	BRL	50		ug/L	234809	1	12/13/2016 23:42	NP
Benzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
Chlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
Cyclohexane	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
Ethylbenzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
Isopropylbenzene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
m,p-Xylene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
Methylcyclohexane	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
o-Xylene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
Styrene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
Tetrachloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
Toluene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
Trichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 23:42	NP
Vinyl chloride	BRL	2.0		ug/L	234809	1	12/13/2016 23:42	NP
Surr: 4-Bromofluorobenzene	89.7	66.1-129		%REC	234809	1	12/13/2016 23:42	NP
Surr: Dibromofluoromethane	110	83.6-123		%REC	234809	1	12/13/2016 23:42	NP
Surr: Toluene-d8	97.4	81.8-118		%REC	234809	1	12/13/2016 23:42	NP

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-Dec-16

Client:	United Consulting Group Inc.	**Client Sample ID:**	TRIP BLANK
Project Name:	Fashion Care VRP	**Collection Date:**	12/9/2016
Lab ID:	1612A90-009	**Matrix:**	Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				**(SW5030B)**				
1,1-Dichloroethane	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
1,1-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
1,2-Dibromoethane	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
2-Butanone	BRL	50		ug/L	234809	1	12/13/2016 17:17	NP
2-Hexanone	BRL	10		ug/L	234809	1	12/13/2016 17:17	NP
4-Methyl-2-pentanone	BRL	10		ug/L	234809	1	12/13/2016 17:17	NP
Acetone	BRL	50		ug/L	234809	1	12/13/2016 17:17	NP
Benzene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
Chlorobenzene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
Cyclohexane	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
Ethylbenzene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
Isopropylbenzene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
m,p-Xylene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
Methylcyclohexane	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
o-Xylene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
Styrene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
Tetrachloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
Toluene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
Trichloroethene	BRL	5.0		ug/L	234809	1	12/13/2016 17:17	NP
Vinyl chloride	BRL	2.0		ug/L	234809	1	12/13/2016 17:17	NP
Surr: 4-Bromofluorobenzene	91.7	66.1-129		%REC	234809	1	12/13/2016 17:17	NP
Surr: Dibromofluoromethane	113	83.6-123		%REC	234809	1	12/13/2016 17:17	NP
Surr: Toluene-d8	98.6	81.8-118		%REC	234809	1	12/13/2016 17:17	NP

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 Anchol Work Order Number 1612A90

Checklist completed by _____ 12/9/16
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 1.3 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 _____

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

Client: United Consulting Group Inc.
Project Name: Fashion Care VRP
Workorder: 1612A90

ANALYTICAL QC SUMMARY REPORT

BatchID: 234809

Sample ID: **MB-234809** Client ID: Units: **ug/L** Prep Date: **12/13/2016** Run No: **332050**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **234809** Analysis Date: **12/13/2016** Seq No: **7230804**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethane	BRL	5.0									
1,1-Dichloroethene	BRL	5.0									
1,2-Dibromoethane	BRL	5.0									
1,2-Dichlorobenzene	BRL	5.0									
1,3-Dichlorobenzene	BRL	5.0									
1,4-Dichlorobenzene	BRL	5.0									
2-Butanone	BRL	50									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	50									
Benzene	BRL	5.0									
Chlorobenzene	BRL	5.0									
cis-1,2-Dichloroethene	BRL	5.0									
Cyclohexane	BRL	5.0									
Ethylbenzene	BRL	5.0									
Isopropylbenzene	BRL	5.0									
m,p-Xylene	BRL	5.0									
Methyl tert-butyl ether	BRL	5.0									
Methylcyclohexane	BRL	5.0									
o-Xylene	BRL	5.0									
Styrene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Toluene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
Trichloroethene	BRL	5.0									
Vinyl chloride	BRL	2.0									
Surr: 4-Bromofluorobenzene	48.12	0	50.00		96.2	66.1	129				

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: United Consulting Group Inc.
Project Name: Fashion Care VRP
Workorder: 1612A90

ANALYTICAL QC SUMMARY REPORT

BatchID: 234809

Sample ID: **MB-234809** Client ID: Units: **ug/L** Prep Date: **12/13/2016** Run No: **332050**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **234809** Analysis Date: **12/13/2016** Seq No: **7230804**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: Dibromofluoromethane	56.81	0	50.00		114	83.6	123				
Surr: Toluene-d8	51.24	0	50.00		102	81.8	118				

Sample ID: **LCS-234809** Client ID: Units: **ug/L** Prep Date: **12/13/2016** Run No: **332050**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **234809** Analysis Date: **12/13/2016** Seq No: **7230803**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	58.32	5.0	50.00		117	68	139				
Benzene	51.55	5.0	50.00		103	74	125				
Chlorobenzene	46.57	5.0	50.00		93.1	75.7	123				
Toluene	49.84	5.0	50.00		99.7	75.9	126				
Trichloroethene	47.97	5.0	50.00		95.9	70.6	129				
Surr: 4-Bromofluorobenzene	43.84	0	50.00		87.7	66.1	129				
Surr: Dibromofluoromethane	53.48	0	50.00		107	83.6	123				
Surr: Toluene-d8	47.93	0	50.00		95.9	81.8	118				

Sample ID: **1612A90-006AMS** Client ID: **FMW-4** Units: **ug/L** Prep Date: **12/13/2016** Run No: **332050**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **234809** Analysis Date: **12/14/2016** Seq No: **7230825**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	3594	250	2500		144	64.3	149				
Benzene	4000	250	2500	725.0	131	71.6	132				
Chlorobenzene	2775	250	2500		111	73.1	126				
Toluene	3174	250	2500	90.50	123	72.5	135				
Trichloroethene	2952	250	2500		118	70.2	132				
Surr: 4-Bromofluorobenzene	2364	0	2500		94.5	66.1	129				
Surr: Dibromofluoromethane	2738	0	2500		110	83.6	123				
Surr: Toluene-d8	2441	0	2500		97.6	81.8	118				

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: United Consulting Group Inc.
Project Name: Fashion Care VRP
Workorder: 1612A90

ANALYTICAL QC SUMMARY REPORT

BatchID: 234809

Sample ID: **1612A90-006AMSD** Client ID: **FMW-4** Units: **ug/L** Prep Date: **12/13/2016** Run No: **332050**
SampleType: **MSD** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **234809** Analysis Date: **12/14/2016** Seq No: **7230826**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	3692	250	2500		148	64.3	149	3594	2.66	30.8	
Benzene	3984	250	2500	725.0	130	71.6	132	4000	0.426	20.7	
Chlorobenzene	2736	250	2500		109	73.1	126	2775	1.43	26.6	
Toluene	3102	250	2500	90.50	120	72.5	135	3174	2.31	23.2	
Trichloroethene	2894	250	2500		116	70.2	132	2952	1.98	27.7	
Surr: 4-Bromofluorobenzene	2189	0	2500		87.6	66.1	129	2364	0	0	
Surr: Dibromofluoromethane	2759	0	2500		110	83.6	123	2738	0	0	
Surr: Toluene-d8	2402	0	2500		96.1	81.8	118	2441	0	0	

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		

APPENDIX D – CONTAMINANT TRANSPORT MODELING REPORT, APRIL 7, 2015

Contaminant Transport Modeling Report

(Revision 1)

April 7, 2015

2055 Sugarloaf Circle, Suite 175
Duluth, GA 30097
888-239-6279

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1. INTRODUCTION

1.1 PROJECT BACKGROUND

This report details chemical fate and transport modeling for volatile organic compounds (VOCs) at the Fashion Care Voluntary Remediation Program (VRP) Site in Chamblee, Georgia. The Site area is depicted on Figure 1-1. This Site consists of an active dry cleaner and adjoining vacant space. Adjacent properties include a gas station/car wash, dental office, and various retail stores. All of these properties are located on the south side of I-285 and north of Nancy Creek and in total consist of approximately 12.3 acres of land. A dry-cleaning operation has been located at the Site since the buildings were constructed during the 1960's (Winter Environmental, 2010).The drycleaner location was the site of an historical release of tetrachloroethylene (PCE) that was subject to past corrective actions no longer on-going. Residual PCE and its daughter products are present in soil and groundwater and downgradient of the Site. The adjacent gas station was the site of a release of gasoline to the subsurface from underground storage tanks (UST) which comingled with the PCE plume at the Site (Winter Environmental, 2010).

Multiple phases of investigation by multiple contractors began with an investigation of Site soils in 2006. Additional investigation of Site soils occurred in 2007. A comprehensive investigation of Site soils, groundwater, and surface water began in 2008. Soil remediation efforts consisting of sodium persulfate injection in the presumed source area and sealing of potential pathways were conducted in 2009. Since that time, supplemental well installations, soil borings, and hydrogeological investigations have been conducted. This report summarizes pertinent information from the various investigations for the purposes of modeling fate and transport of Site-related constituents in groundwater and surface water.

1.2 REPORT ORGANIZATION

This report consists of a cursory review of project background data and site conceptual model in Section 2. Section 3 provides a discussion of the construction and benchmarking of the model used at the Site. Section 4 presents the results of the modeling. Section 5 provides a brief summary and recommendations for the Site based on the modeling efforts completed for the Site.

2. CONCEPTUAL SITE MODEL AND PROJECT DATA SUMMARY

This section discusses the conceptual site model (CSM) and project data used in the evaluation and fate and transport modeling of Site-related contaminants. The CSM is discussed in Section 2.1. Data used to support the modeling efforts is summarized in Section 2.2.

2.1 SITE CONCEPTUAL MODEL

The basic CSM for the Site is summarized in Figures 2-1a and 2-1b Figure 2-1a provides cross-section locations and the cross-sections are presented in Figure 2-1b. The residual Site-related VOCs in soil are depicted beneath the Fashion Care building and the paved area adjacent to the building. It has been conservatively assumed that this residual soil contamination is subjected to a limited amount (owing to the predominance of impervious surfaces in the area) of infiltration from the surface and from fluctuations in the water table that likely periodically wet portions of the soil column allowing dissolution to occur. This dissolves additional contaminants which then migrate within groundwater in the sandy silt and clayey silt perched atop the dry silt, ultimately discharging to Nancy Creek.

2.2 SITE DATA SUMMARY

The data used to construct and benchmark the fate and transport model for the Site comes from previous reports for the Site. The data pertinent to the modeling efforts for the Site are as follows:

- Hydrogeologic properties of the sandy silt/clayey silt;
- Overburden thickness above dense, dry silt;
- Groundwater levels across the Site,
- Nancy Creek surface water elevations and flow data (as available);
- The current distribution of VOCs in soil and groundwater across the Site.

Each of these data types and available information for the Site is summarized below.

2.2.1 Hydrogeologic Site Data

Surficial geology across the Site consists primarily of reddish-brown silt with varying minor amounts of sand and clay, overlying a grey to tan and grey silty sand to sandy silt with pebbles. This overlies a dense, dry silt of varying color present across the Site. The presence of the dense, dry silt across the Site was confirmed in November 2013 by advancing 10 borings (SB-37 through SB-46) across the Site to confirm the presence or absence of the dry silt, and utilizing existing borings that had been advanced deep enough to encounter the dry silt. Boring logs are provided in Appendix B.

The surficial saturated soil zone is divided into upper and lower water bearing zones, separated by the dense, dry silt indicated above. The thickness of the upper water bearing zone appears to be greater near Savoy Drive and thins as Nancy Creek is approached. This is based upon the evidence that the upper water bearing zone is thinner adjacent to Nancy Creek where saturated conditions are encountered in borings as shallow as 5 feet below grade and the dense dry silt is encountered at 8 to 16 feet below grade. The dry silt was encountered at deeper depths at the higher elevations around the Fashion Care building, at approximately 23 feet below ground surface (bgs). Toward Nancy Creek the dry silt was encountered at shallower depths ranging from 8 feet bgs (FMW-15) to 19 feet bgs (SB-46). The dry silt is very dense and in the majority of borings, drilling was terminated with DPT refusal due to the nature of the material. When slight pressure was applied to a core of the silt it crumbles into loose material, indicative of the

lack of moisture in the silt. To determine the general thickness of the layer to aid in planning the construction of a Type III monitoring well to be screened below the silt, one boring, SB-37, successfully penetrated the silt. The silt was found to be approximately 10 feet thick (23 feet bgs to 33 feet bgs) at that location. Based upon this data, the dense dry silt has been determined to act as a layer that retards the migration of groundwater from the upper water bearing zone to the lower water bearing zone in the Site area.

On April 22, 2014, an attempt was made to evaluate the lower water bearing zone below the dense, dry silt, and above the potential bedrock aquifer by installing a Type III double cased monitoring well (MW-18D) adjacent to FMW-5. This location was previously agreed to by EPD for installing a deep well to establish groundwater quality conditions beneath the dry silt. A pilot hole was first drilled to identify the top of and base of the dry silt to determine the placement of the outer casing for the deep monitoring well. As anticipated, the dense, dry silt was encountered at approximately 14 feet bgs, and water table aquifer conditions (upper water bearing zone) were encountered above the silt. However, bedrock was encountered immediately at the base of the dry silt at a depth of 33.5 feet bgs. A boring log is provided in Appendix B. As a result, the installation of the Type III well was aborted and EPD was notified of the conditions that were found. Based upon these findings, the following determinations were made:

- A Type III well could not be installed downgradient, and

- The water bearing zone present beneath the dry silt topographically upgradient near the Fashion Care building appears to pinch out moving toward Nancy Creek, with the dry silt resting upon bedrock.

It was also confirmed that the dry silt does not form the streambed of Nancy Creek adjacent to the Site. Based upon a stratigraphic assessment of the streambed, Nancy Creek in the area of the Site is still eroding through the silty sand/sandy silt overlying the dense dry silt. Woodard & Curran personnel completed hand auger explorations in Nancy Creek to investigate the creek bottom in the summer 2014. The objective of these explorations was to evaluate the potential for the creek to have eroded through the dry silt and expose bedrock in or immediately below the creek in the Site area. Locations were selected relative to the area where the groundwater plume enters the creek, and were the stream bottom was an erosional surface, not an area of sedimentation. This enabled accurate identification of the creek bed lithology. Two hand auger explorations were completed, CK-HA-1 and CK-HA-2. These locations are depicted in Figure 2-3. The CK-HA-1 location is in a bend of the creek adjacent to SB-41 and FMW-11. The CK-HA-2 location is located approximately 200 feet downstream of SB-43 and FMW-9. The hand augers penetrated to approximately 2.5 feet below the bed of the creek at which point the auger boring was terminated due to inability to further penetrate the creek bed. In both borings, grey, clayey silt was encountered. The grey clayey silt in CK-HA-1 was approximately 1.5 feet thick and was underlain by 0.5 feet of reddish-brown, poorly sorted, coarse sand and pebbles. In auger boring CK-HA-2, the grey, clayey silt, was encountered to a depth of 1.5 feet below the creek bottom at which point the boring was terminated. Based on comparison with the nearest soil borings, each boring terminated in the red to brown to grey silt located stratigraphically above the dense, dry silt which serves as the lower confining layer for the upper water bearing zone in which the contaminant plume migrates. Nancy Creek at the Site is located in the upper water bearing zone and has not eroded through the dense, dry silt, and does not intersect the bedrock. Appendix B provides the hand auger logs and correlation sections with adjacent borings. Photographs of the boring locations and lithology are also provided in Appendix B.

The groundwater gradients across the Site in the upper water bearing zone are based on water level monitoring completed during groundwater sampling mobilizations to the Site. Figure 2-2 provides a plot of groundwater potentiometric surface from the April 2014 monitoring round. The head during this sampling round varied across the Site between approximately 4 to 5 feet. The gradients appear to be steeper near the developed areas and flatten closer to Nancy Creek. The gradients vary between approximately 0.0056 ft/ft and 0.032 ft/ft based on elevations measured in April of 2014.

Hydrogeologic properties of interest for flow and transport modeling include hydraulic conductivity and effective porosity. The hydraulic conductivity values used in the modeling efforts for the Site were obtained from recently completed and previous slug testing performed on Site wells in the upper water bearing zone. Historic slug testing indicated that hydraulic conductivity at the Site ranges from approximately 10 to 27 ft/day. The more recent data indicated a range from 0.45 to 57 ft/day. The data from these slug tests are summarized in Table 2-1. Data and analyses are for slug tests completed in September of 2014 and are provided in Appendix A. Effective porosity for the Site is most likely dependent on the relative percentages of fines in the perched aquifer. There are no direct tests of effective porosity for the Site so an estimated effective porosity of 10% was assumed given the predominance of fines in the soil (Kresic, 1997).

The overburden thickness (upper water bearing zone) above dense, dry silt was mapped based on observations made in soil borings across the Site, and described above. The overburden thickness values assigned to each boring were then interpolated by kriging the values. The resulting thickness map is provided in Figure 2-3. The overburden thickness was subtracted from publicly available surface elevation data to obtain the bottom of the perched aquifer.

2.2.2 Surface Water Site Data and Recharge Estimates

Nancy Creek surface water elevations were taken from the data collected during Site groundwater monitoring. The differences between upstream station and downstream station elevations were used to model the surface water body and its relationship to the groundwater flow system. Surface water elevations, where available, are provided in Table 2-2 along with available groundwater elevations. The 7Q10 flow for the area where groundwater from the Site discharges to Nancy Creek has been calculated by the Georgia Environmental Protection Division (EPD) to be 3 cubic feet/second (CFS) (GAEPD, 2010).

Stream statistics from the United States Geological Survey (USGS) are available for Nancy Creek at Randall Mill Road (USGS Station ID 2336380) indicate a baseflow on the order of 10 to 18 CFS. The drainage basin size at the Randall Mill Road gauging station is approximately 34.8 square miles. This yields a general recharge range of between 2.6 to 4.1 inches/year. Another USGS station located closer to the site at Johnson Ferry Road (USGS Station ID 2336340) suggests a baseflow on the order of 3 to 6 CFS. Given the drainage basin size at this gauging station of approximately 17.8 square miles, the average recharge rate would be approximately 2.3 to 4.6 inches/year. Both ranges of numbers are in general agreement with each other despite the difference in drainage basin sizes and periods for gauging. Graphs showing the flows for these stations are provided in Appendix C.

2.2.3 Site VOC Concentrations

Site residual soil VOC concentrations used in the modeling efforts are based on soil data summarized in the report on soil remediation activities completed by Winter Environmental (May 2009). The average soil data was approximately 7.5 mg/kg over and area of approximately 2,100 square feet. The approximate depth to the water table in the source area is 7 feet. At an assumed soil density of 100 pounds per cubic foot, the approximate mass of PCE on soil in the source area is 5,020,860 milligrams or 5,020 grams.

The detection of VOCs in groundwater at the Site includes breakdown products of the degradation of PCE. These detected compounds include trichloroethylene (TCE), cis-1,2 dichlroethylene (cis-1,2 DCE), trans-1,2 dichlorethylene (trans-1,2 DCE), and vinyl chloride (VC). The presence of a gasoline station adjacent to the property and the associated hydrocarbons, benzene, toluene, ethylbenzene, and xylene (BTEX) indicates there is the potential for dechlorination of the PCE plume from comingling of this carbon rich source and may have set the stage for associated anaerobic conditions. The presence of higher quantities of DCE indicate that reductive dechlorination is likely occurring at the Site. The minimal detections of VC suggest that either the dechlorination stalls at the DCE stage or VC degradation occurs rapidly via another mechanism such as aerobic degradation. Other studies have indicated that VC can decay rapidly under aerobic conditions (Davis and Carpenter, 1990 and Singh et al., 2004).

Figure 2-4 depicts the total VOC plume in 2008 prior to remediation efforts. The plume extended from the source area near the Site building southward toward Nancy Creek. The plume bends to the west prior to reaching the creek. This bend is likely reflective of the plume encountering materials of greater transmissivity and the influence of the creek on groundwater flow patterns.

3. FLOW AND TRANSPORT MODELING

This section discusses the modeling of the soil to groundwater and groundwater flow and transport of Site related VOCs. Section 3.1 briefly describes the simplified modeling of the transfer of soil contamination to the groundwater flow system. Section 3.2 discusses the model selection, construction, and benchmarking of the groundwater flow model.

3.1 SOIL TO GROUNDWATER MODEL

For the purposes of modeling the transfer of contaminant mass to the groundwater system, a simple soil flushing calculation was used. Using the contaminant mass of 5,020,860 milligrams or 5,020 grams as estimated in Section 2.2, and an estimated infiltration rate of 1 inch/year applied over the approximate area of soil impact; the estimated time to reduce the contaminant levels to non-detect values is approximately seven years. The amount of soil contamination released to groundwater was then estimated for each year and used in step-wise fashion as the initial inputs to the contaminant transport model discussed in Section 3.2. Calculations regarding this estimation are provided in Appendix D. Adjustments were made during calibration to match observed conditions at downgradient wells.

3.2 GROUNDWATER FLOW AND TRANSPORT MODEL

The groundwater modeling of flow and contaminant transport for the Site is discussed in the following sections. Section 3.2.1 discusses the model code selection. Section 3.2.2 discusses the groundwater flow model construction, parameter selection, and benchmarking to Site observations. Section 3.2.3 discusses the contaminant transport model, parameter selection, and benchmarking to Site observations.

3.2.1 Computer Code Selection

The computer code used to simulate the flow of groundwater at the Site was MODFLOW 2000 (Harbaugh et al, 2000). MODFLOW is an industry standard code for modeling three dimensional groundwater flow and has various packages or modules to handle different aspects of groundwater flow. The computer code used to simulate contaminant transport was MT3DMS (Zheng and Wang, 1999). MT3DMS is a industry standard code for simulating transport of contaminants in three dimensions and uses the outputs from MODFLOW to calculate simulated transport in groundwater. Both codes were implemented using the commercially available Groundwater Vistas graphical user interface (GUI).

3.2.2 Groundwater Flow Model Construction

The construction of the groundwater flow model was based on available Site data for perched aquifer geometry, boundary conditions, and site specific parameters. The model grid and boundary conditions are indicated on Figure 3-1. The model grid was based on a nominal grid spacing of 20 feet by 20 feet. The grid was refined around the source area to a spacing of 10 feet by 10 feet. The boundary conditions used in the model included no-flow and river boundaries. The no-flow boundaries were assigned based on interpretation of presumed groundwater divides, based on surface topography or where the upper unit was assumed to be unsaturated at the higher elevations in the model space. Nancy Creek was simulated as a river boundary with elevation values assigned based on surface topography and measured differences in elevations at various Site surface water stations.

Aquifer geometry was assigned based on the depth to the top of the dry silt as discussed in Section 2. The upper limit of the aquifer surface was assumed to be the surface elevation. The bottom of the aquifer was computed by subtracting the overburden thickness from the surface elevation for the entire model space.

Hydraulic conductivity was varied based on Site values discussed in Section 2.2. Based on benchmarking to Site water levels, two conductivity values were used. A hydraulic conductivity of 0.8 feet/day was used for the majority of the model space and reflects a predominance of silt in much of the model area. A transition value of 6.3 feet/day was assigned to reflect sandier silt present between the sand observed in some Site wells/borings and the finer-grained silt. A higher conductivity value of 25 feet/day was assigned to an area near Nancy Creek. This was completed to better match the wider spacing of groundwater contours adjacent to the creek. The lower gradient in this area is indicative of more transmissive soils likely associated with the alluvium along the creek. The hand-augers completed in the creek suggest that the creek is eroding into the underlying silt. The higher conductivity materials adjacent to the creek may represent an area of past channel alluvium deposited in an area previously occupied by the creek. The distribution of conductivity values are presented in Figure 3-2. It is important to note that the hydraulic conductivity field provided in Figure 3-2 represents the final distributions of hydraulic conductivity after adjustments were made during calibration to achieve the best fit to site water level data. The adjustments made during calibration also provided the best match to plume extents. Plume modeling is discussed further in Section 3.2.4.

Recharge was assigned based on surface conditions in the area of the Site. Generally, paved areas were conservatively assigned a recharge rate of approximately 1 in/yr or less. Open spaces were set at approximately 4 in/year. Areas with depressions such as ditches and swales along the highways were assigned recharge rates of approximately 7 in/yr. These numbers reflect final adjustments to achieve calibration.

3.2.3 Flow Model Calibration

The groundwater flow model was calibrated to the average of groundwater elevations for the period of record collected at each well. These data were adjusted from the arbitrary Site datum to a representative elevation similar and consistent with the publicly available land surface elevation. This datum adjustment was made by computing the elevation difference between each average groundwater value from the surface water elevation at the surface water station SW-1 on March 19, 2010 (the most complete round of monitoring data for the Site), and then adding that difference to the elevation of SW-1 based on the digital elevation model (DEM). Table 2-1 provided the data for the average groundwater conditions and the adjustment to a site datum consistent with the DEM for the Site area.

Overall, the shape of the contours and the change in head across the Site in the model appears to mimic the observed change in heads and contour shapes. The groundwater model appears to be relatively well benchmarked against Site conditions. The change in modeled head across the Site is approximately 5 feet which agrees with Site observations and gradients similar for both the modeled and observed flow fields. Figure 3-3 depicts the benchmarked flow field. Figure 3-4 provides a graphic depicting modeled heads versus observed heads. The modeled graph depicts a line representing where data would fall if there were perfect agreement between modeled and observed heads. There is generally a good correlation between modeled and observed heads as indicated by the lack of scatter about the line. Table 3-1 provides the modeled versus observed heads as well as calibration statistics. The calibration statistics further indicate a good match in the modeled head data.

3.2.4 Contaminant Transport Modeling

Contaminant transport modeling was conducted in three distinct steps. The first step was to model distribution of total dissolved VOCs in the groundwater. The second step was to model the anticipated maximum concentration of PCE in the future, as this compound is the most prevalent compound at the Site with the lowest In-Stream Water Quality Standard (ISWQS). The third step was to evaluate the likely relative concentrations of the daughter products of PCE decay at the Site at the time of the maximum future PCE concentration and then compare these concentrations to the appropriate environmental standards.

For bench-marking simulations, the model assumes that source became active in the subsurface approximately 5 years after the Site began operation in 1968. The starting time for the simulation is therefore 1973. The source was

assumed constant until late 2008/early 2009 when the source remedy using sodium persulfate and chelated iron was implemented, and other sources of impacts were removed (PCE dry cleaner machine, lint sump cleaned and sealed). The flushing of Site soils as discussed in Section 3.1 was then used as the basis for adjusting source concentrations over time. Forward looking prediction of daughter products is discussed in Section 4.3.

3.2.4.1 Total VOC Plume Modeling

The total VOC plume modeling was conducted to evaluate the following:

1.) The expected maximum extent of the total plume in the aquifer ,

2.) The relevant environmental criteria against which to evaluate modeled future concentrations (i.e. surface water protection, drinking water, etc.);

3.) The adequacy of the existing monitoring network to effectively monitor anticipated changes, if any, in the plume distribution, and

4.) The potential for additional receptors to be impacted by the plume in the future.

The main parameters for varying in the contaminant transport model are the source distribution and concentration and the dispersivity values. The initial source area for the total VOC portion of the model was assigned based on observations of data. Source concentrations were varied between 5 mg/l and 86 mg/l in the area beneath the southern corner of the dry cleaning building. The overall initial average concentration in the source area was close to the 75 mg/L value for the area discussed in Sections 2.2.3 and 3.1. The source concentration was varied from these initial values in a stepwise fashion over 7 years until reaching an assumed, irreducible minimum of 1 mg/l in year seven. A graph depicting the final applied source concentrations versus the soil flushing estimated values is provided in Figure 3-5. .

Dispersivity values were initially assigned a value of 10 feet for longitudinal dispersivity, 1 foot for transverse dispersivity, and 0.01 feet for vertical dispersivity. During benchmarking, the values for dispersivity were adjusted to 30 feet, 2.5 feet, and 0.3 feet respectively for longitudinal, transverse, and vertical dispersivities.

In order to develop a model that yielded modeled data consistent with Site monitoring results, plume retardation was incorporated into the transport simulation. Retardation in the MT3D model is accomplished by incorporating soil adsorption. Adsorption is based on three parameters: K_{oc}, f_{oc}, and soil bulk density. The product of K_{oc} and f_{oc} is the transport parameter K_d or adsorption constant. Since there is not a specific K_{oc} value for total VOCs and the site specific f_{oc} may vary over a large range, the value for K_d was adjusted during calibration to achieve a suitable match to observed Site chemical data.

3.2.4.2 PCE Plume Modeling

The PCE plume was developed using the same basic dispersivity as was used in the total VOC transport model. The source terms were adjusted to reflect the portion of the total VOCs that are attributed to PCE in Site groundwater. The resulting source term for PCE was adjusted to have decay proportional to that used in the total VOC plume model.

The chemical specific adsorption on soils for PCE is based on values for K_{oc}, f_{oc}, and bulk density. The K_{oc} of 94.94 L/kg for PCE was obtained from Regional Screening Level (RSL) Chemical-specific Parameters Support Table, May 2014. The initial f_{oc} value for the Site soils was estimated at 0.002 mg/kg per guidance provided by the Georgia EPD. The value for f_{oc} was varied during the modeling in order to achieve a good fit to the available Site chemical data time series. The final calibrated foc value from the modeling was 0.00092 mg/kg.

3.2.4.3 Daughter Product Benchmarking and Prediction Modeling

The Site monitoring data include detectable concentrations of the breakdown of PCE into its various daughter products as discussed in Section 2.2.3. An initial BIOCHLOR22 model was completed to evaluate transport parameters for use in forward prediction. In order to understand the maximum expected concentration of each of the daughter products at the time of maximum PCE concentration, a second simulation using BIOCHLOR22 was performed. Chemical transport parameters were initially set at those used in the PCE modeling and adjusted during the benchmarking process discussed in Section 3.2.5.3. The discussion of forward prediction of daughter products in provided in Section 4.3.

3.2.5Contaminant Transport Model Benchmarking

Each stage of the contaminant transport modeling process underwent individual benchmarking to Site data. The discussion of the benchmarking for each step is provided in the sections below.

3.2.5.1 Total VOC Plume Benchmarking

The plume was generally well benchmarked against field measured values for VOCs in both the extent and shape of the plume. Figure 3-6 depicts the benchmarked plume distribution versus observed plume concentrations. As depicted, there is generally a good match with regard to plume shape and concentrations. The benchmarking of plume migration timing was accomplished by extracting modeled contaminant concentrations versus time, plotting them, and comparing them to actual values. Figure 3-7 a, b, and c depict the modeled concentration time-series data for wells FMW-4, FMW-6 and FMW-9.

3.2.5.2 PCE Plume Benchmarking

The plume was generally well benchmarked against field measured values for PCE in both the extent and shape of the plume. Figure 3-8 depicts the benchmarked plume distribution versus observed plume concentrations. As depicted, there is generally a good match with regard to plume shape and concentrations. The benchmarking of plume migration timing was accomplished by extracting modeled contaminant concentrations versus time, plotting them, and comparing them to actual values. Figure 3-9 a, b, and c depict the modeled concentration time-series data for wells FMW-4, FMW-6 and FMW-9. While some values are under-predicted, in general the order of magnitude of predictions is correct, as are the trends in concentrations relative to the well location within the plume.

3.2.5.3 Daughter Product Model Benchmarking

The first step in this process was to benchmark the simulation against Site VOC data. Initial transport parameters were set to match those of the three dimensional model simulation for PCE transport. Model parameters were then modified to achieve a match for each of the daughter products. The BIOCHLOR22 model is a two-dimensional spreadsheet based model and provides outputs depicting modeled versus actual concentrations for each of the daughter products in the decay chain. The calibrated parameters used in the BIOCHLOR simulation to achieve these matches are provided in Table 3-3. Some parameters are slightly different from the parameters used in the MT3D model. This is related to the ability of the MT3D to allow for heterogeneity in parameters that is not allowed in the BIOCHLOR model.

As an example, the hydraulic conductivity used in the BIOCHLOR model is a weighted average (based on flow path length through different materials) of the hydraulic conductivities used in the MT3D model. Essentially the flow path at the core of the plume travels approximately 190 feet in material of 25 feet/day conductivity and 87 feet in material with a conductivity of 6.3 feet/day. The weighted average yields approximately 19.13 feet/day or 0.0068 cm/sec.

Similarly, the dispersivity values were adjusted based on flow path lengths through differing materials to arrive at the value of 22 feet for dispersivity in the BIOCHLOR model.

Additionally, the BIOCHLOR model does not have the flexibility to allow for a time variant source component representative of source reduction measures as were performed at the site in the 2008 to 2009 timeframe. The source component therefore is different from that used in MT3D where the step-wise PCE source was used. In order to accommodate the BIOCHLOR model usage, a higher initial concentration of PCE was used and no source removal was accounted for as was done in the MT3D model where a time variant source concentration is allowed. Source dimensions were set at 15 feet of thickness and 25 feet of width. This is approximately equivalent to the cross-sectional area of the source used in the MT3D model. The source data were adjusted to match field observations. Initial source concentrations were set at close to the solubility limit for PCE as this was assumed at near solubility when first released to the subsurface. Since wells were not present on the site at that time (assumed to be 1973 as directed by EPD), the data were subsequently adjusted via trial and error. Other constituents (TCE, DCE, VC) were also arrived at by adjusting values until matching concentrations were achieved at the nearest source area well (FMW-4) and reasonable matches to wells further downgradient (FMW-6 and FMW-9) were achieved.

The parameters for the decay of the PCE to each of its daughter products generally conform to ranges presented in the BIOCHLOR modeling guidance document that accompanies the software. The one general exception to this is that the VC decay rate needed to be well above this range in order to match the observations at the Site. Sensitivity analyses around the VC decay rate are discussed further in the mixing zone calculations in Section 4.3. As demonstrated in Figure 3-10, the modeled values for PCE, TCE, DCE, and VC match the field data relatively well as indicated by the points in each graph lying reasonably close to the prediction line for the 41 years of the simulation from 1973 through 2014 when the benchmarking data were collected. The points on the graph represent FMW-4 (closest to y-axis), FMW-6 (intermediate distance), and FMW-9 (farthest from y-axis). BIOCHLOR screen captures for the benchmarking portion of the modeling are included in Appendix F. The forward-looking projections of PCE and its daughter products are discussed in Section 4.3.

4. PLUME SIMULATIONS AND SURFACE WATER MIXING CALCULATION

The benchmarked groundwater model was used to complete various simulations to evaluate plume stability and predicted future extents. Two types of simulations were performed, a steady-state simulation assuming soil remains an ongoing source at current concentrations and transient simulations assuming that soils flush in a stepwise fashion as discussed in Section 3.1.

4.1 TOTAL VOC PLUME DISTRIBUTION

The simulation of total VOC concentrations was run forward in time to evaluate the existing groundwater monitoring network distribution and the potential for influencing additional receptors. The projected maximum extent of the plume is depicted in Figure 4-1. This figure indicates that the existing monitoring network is adequate for plume monitoring as it would allow delineation and monitoring of the plume over time.

4.2 PCE PLUME DISTRIBUTION AND MAXIMUM STREAM VALUES

The maximum extent of the PCE plume is slightly less than that of the total VOC plume depicted in Figure 4-1. In order to understand the potential time-frame and concentration of the maximum discharge concentration of PCE into Nancy Creek, monitoring nodes were placed in the modeled creek at areas where the core of the modeled plume discharges to the creek. The modeled points are depicted on Figure 4-2 that depicts the maximum projected extents of the core of the plume in Nancy Creek. The modeled time-frame for the maximum extents is indicated on the graphic as potentially occurring at approximately 41 years from 2014. Additional graphics depicting plume development over time are provided in Appendix E and include predictions of plume extent in 2024, 2034, and 2044. These additional figures show the slow development of the plume in the interim time-period from 2014 to the maximum concentrations reaching the stream predicted to occur in 2052. These snapshots show that the plume does not expand substantially beyond the existing monitoring network. These figures further demonstrate that core of the plume degrades and slowly migrates toward Nancy Creek as it degrades.

Figure 4-3 depicts the maximum expected groundwater discharge concentration at two locations in the creek. The maximum predicted concentration of PCE entering Nancy Creek is approximately 2.42 mg/L. Smaller versions of these figures have also been placed on Figure 4-2 for reference. This predicted maximum concentration for PCE is used in later sections to evaluate the potential for exceedance of ISWQS.

4.3 PLUME DAUGHTER PRODUCT PREDICTION AT NANCY CREEK

The calibrated BIOCHLOR22 model was used to predict concentrations of daughter products at the maximum PCE concentration of approximately 2.42 ug/L at the stream. Since BIOCHLOR22 is a simple two-dimensional model assuming a uniform flow field, the maximum concentration at a given distance at given time is located along the centerline of a symmetrical plume. Since the plume at the Site is not a simple symmetrical plume in a uniform flow-field, the distance used for prediction of daughter products based on the time projection was the distance from the source area to Nancy Creak. To predict the concentrations of the daughter products at the maximum plume intersection with Nancy Creek a second BIOCHLOR22 model run was set up. The parameters for forward simulation were the calibrated values from the benchmarking BIOCHLOR22 runs discussed in Section 3.2.5.3. The only difference in the run was the initial concentration that was adjusted to be representative of the core of the plume after the remediation efforts that took place in 2008-2009. This is based on the assumption that the core of the plume is likely closer to Nancy Creek subsequent to the remediation efforts. The values for the initial concentration are indicated in Table 4-1 and represent the maximum detections in FMW-4 which were assumed to be representative of the core of the plume subsequent to source remediation activities. Appendix F also contains model setup and outputs from the BIOCHLOR22 forward-prediction model runs for reference. The projection was run 40 years into the future from 2012 which in turn corresponds to the expected year 2052 maximum for PCE from the MT3D model. Table 4-1

provides the predicted maximum concentrations of PCE and the concentrations of the following degradation daughter products: TCE, DCE, and VC.

4.4 SURFACE WATER MIXING CALCULATION

In order to evaluate the potential for PCE and its degradation products to be present in the stream above ISWQS, a groundwater to surface water mixing calculation was performed. The concentrations for PCE, TCE, DCE and VC in groundwater predicted in the previous sections were then blended based on modeled groundwater discharge and the volume of flow in Nancy Creek at the Site at 7Q10 conditions. Per correspondence from Georgia EPD dated December 2, 2010, the 7Q10 flow at the area of groundwater discharge is 3 cubic feet/second. The zone of mixing was calculated for the core of the plume and the maximum concentration was assumed as prevailing at each point in that area. This is a conservative assumption in that the concentration in the core of the plume where it intersects the stream would vary between 1 and a maximum of 2.42 mg/l according to the modeling. Therefore, the calculated amounts in the mixing zone represent the maximum value the concentration could be, but it is likely to be lower given the conservative assumption previously discussed.

The mixing zone calculation is as follows:

$$C_{SWVOC} = \frac{V_{gw}}{V_{gw} + V_{sw}} * C_{GWVOC}$$

where:

C_{SWVOC} = concentration of a particular VOC in surface water after mixing with groundwater containing that VOC discharges to the stream

V_{gw} = groundwater discharge volume (modeled value is 0.0019 cfs)

V_{sw} = surface water flow at 7Q10 (3 cfs for the Site)

C_{GWVOC} is the concentration in groundwater of the particular VOC being modeled

Table 4-1 provides the calculation of the concentration each VOC in surface water for the single point in the stream with the maximum predicted concentrations in groundwater and compares them to the Georgia EPD compound specific ISWQS.

As discussed in Section 3.2.5.3, VC decay rate needed to be set outside the general range of values for this parameter presented in the BIOCHLOR guidance manual. In order to understand the potential implications of this high rate of VC decay, a sensitivity analysis was conducted to see what the predicted VC values would be if the decay rate was set to zero. The resulting concentration for VC with VC decay rate of zero and the resulting mixing calculation is provided in Table 4-1. These results indicate that even if the VC decay were zero, the concentration of VC resulting from the mixing of plume water with surface water is still below the compound specific ISWQS for VC.

5. SUMMARY AND CONCLUSIONS

Based on the modeling exercises completed to date, the plume will likely remain stable or decrease over the next 60 years. The plume generally appears to migrate down the axis of the Nancy Creek Valley on the northern side of the creek. The overall plume distribution appears to be monitored adequately by the existing well network. Given these observations, the following conclusions/recommendations are made:

- The predicted plume footprint does not expand substantially beyond the existing monitoring well network as discussed in Section 4;
- As the source area is depleted, the center of maximum plume concentration will slowly migrate and continue to degrade as it migrates toward Nancy Creek;
- The maximum modeled concentration of PCE is predicted to discharge to Nancy Creek approximately 41 years after the source remediation effort conducted in 2008;
- Based on modeling, plume characteristics can be adequately monitored through annual or semi-annual sampling of FMW-6, FMW-9, and FMW-16;
- Mixing calculations for the predicted maximum concentrations of PCE and daughter products in Nancy Creek indicate that ISWQS will not be exceeded; and
- No other receptors for the groundwater plume are present within the existing or predicted footprint of the plume at the Site.

6. REFERENCES

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Georgia Environmental Protection Division, December 2, 2010, *Voluntary Investigation and Remediation Plan and Application, July 9, 2010 Comment Letter, Fashion Care/Executive Care Site, HSI No. 10786, 2211 Savoy Drive, Chamblee, Dekalb County, Georgia, Tax Parcel ID Nos. 18-343-13-002, 18-343-13-005, 18-343-13-001, & 18-333-02-023.*

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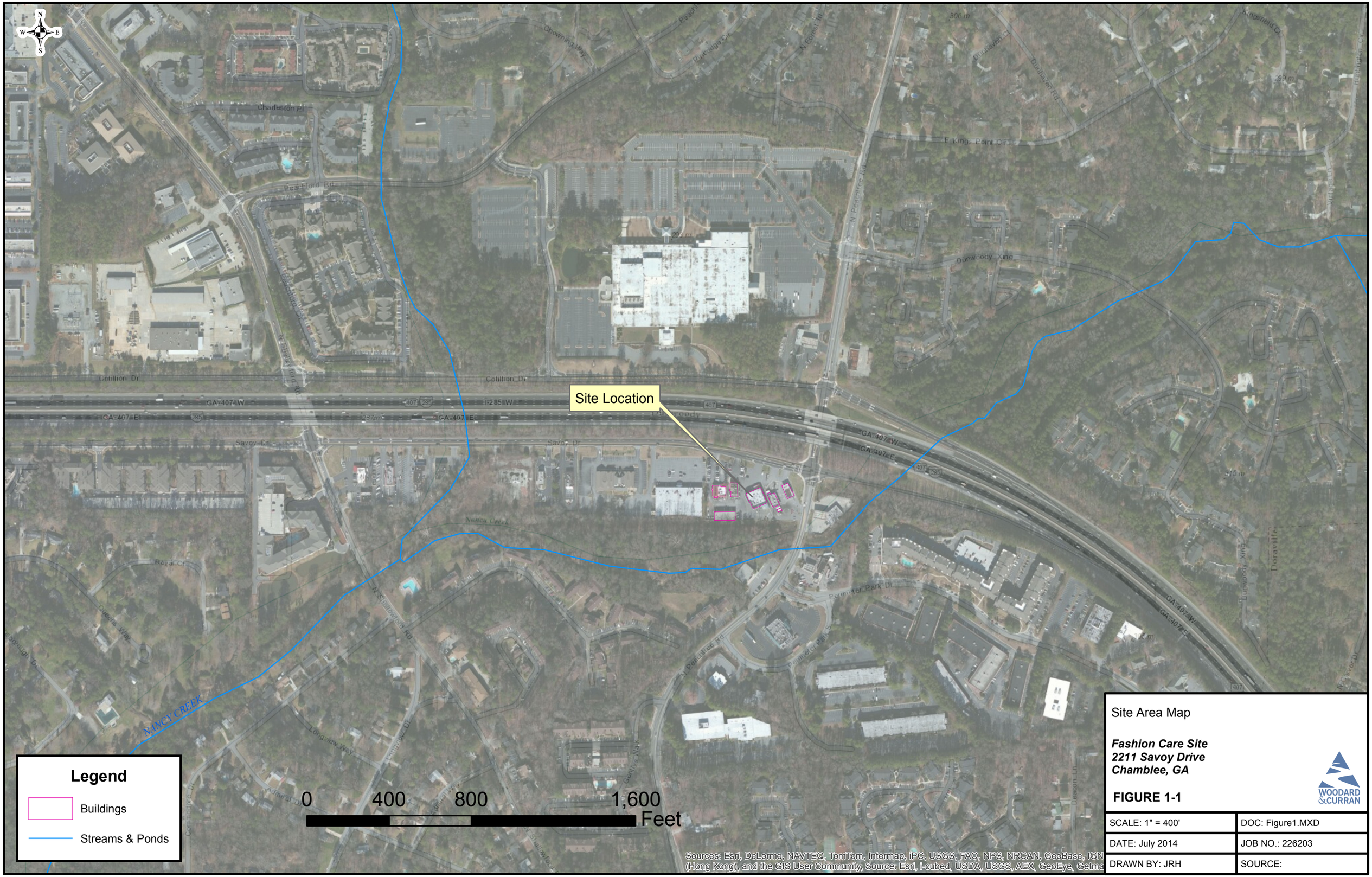
Zheng, Chunmiao, and P. Patrick Wang, 1999, *MT3DMS, A modular three-dimensional multi-species transport model for simulation of advection, dispersion and chemical reactions of contaminants in groundwater systems; documentation and user¡¯s guide,* U.S. Army Engineer Research and Development Center Contract Report SERDP-99-1, Vicksburg, MS, 202 p.

FIGURES



Site Area Map

Fashion Care Site
2211 Savoy Drive
Chamblee, GA

FIGURE 1-1

WOODARD &CURRAN

SCALE: 1" = 400'	DOC: Figure1.MXD
DATE: July 2014	JOB NO.: 226203
DRAWN BY: JRH	SOURCE:

2055 Sugarloaf Circle, Suite 175
Duluth, Georgia 30097
770.622.6766 | www.woodardcurran.com
WOODARD & CURRAN
COMMITMENT & INTEGRITY DRIVE RESULTS

REV	DESCRIPTION	DATE

DESIGNED BY:
DRAWN BY:
CHECKED BY:
CROSS-SEC LOCATIONS-REV.DWG

FIGURE 2-1a

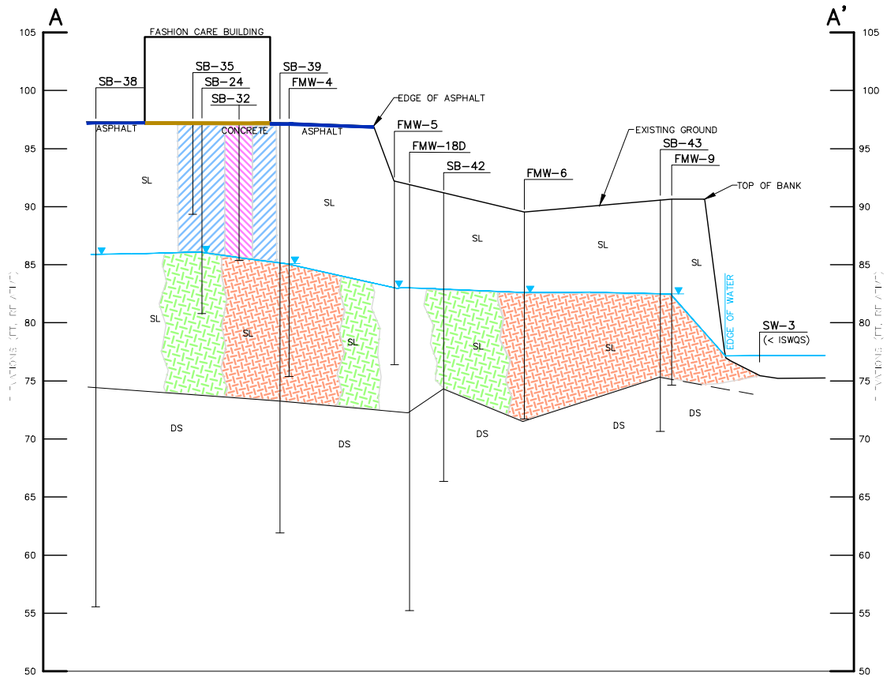
CONCEPTUAL SITE MODEL
CROSS-SECTION LOCATIONS

FASHION CARE
EXECUTIVE CARE SITE

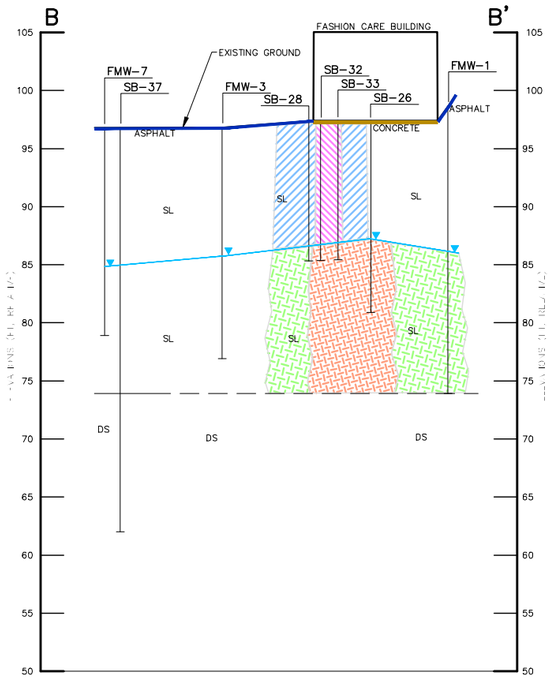
2211 SAVOY DRIVE
CHAMBLEE, GA 30341

JOB NO.:
DATE:
SCALE:
SHEET: OF

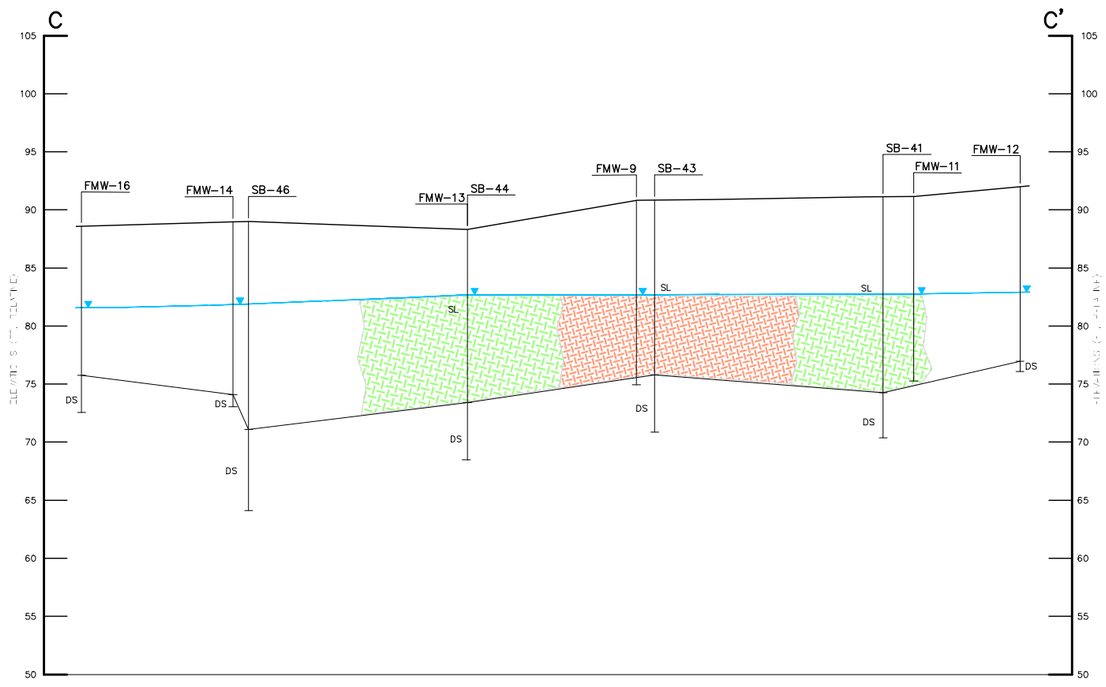
1



CROSS SECTION A–A'
(LOOKING EAST)



CROSS SECTION B–B'
(LOOKING NORTH)



CROSS SECTION C–C'
(LOOKING NORTH)

NOTES

1. EXTENT OF SOIL IMPACTS BASED ON FIGURE 4 OF THE FINAL RCRA FACILITY INVESTIGATION REPORT DATED JUNE 2014.
2. EXTENT OF GROUNDWATER IMPACTS BASED ON FIGURE 4 IN THE JULY 2014 SEMI-ANNUAL GROUNDWATER MONITORING REPORT DATED AUGUST 2014.
3. CROSS-SECTION LOCATIONS ARE DEPICTED ON FIGURE 1.
4. STRATIGRAPHIC DATA/INFORMATION INTERPRETED FROM SOIL BORING LOGS, GEOPROBE BORING LOGS AND EXPOSED EXCAVATION WALL LOGS. SUBSURFACE CONDITIONS ONLY AT SPECIFIC LOCATIONS. SOIL CONDITIONS AT OTHER LOCATIONS MAY DIFFER FROM CONDITIONS OCCURRING AT THESE BORING LOCATIONS. ALSO, THE PASSAGE OF TIME MAY RESULT IN A CHANGE IN THE CONDITIONS AT THESE BORING LOCATIONS.

LEGEND

- SL — SILTY SAND/SILT/CLAYEY SILT
- DS — DENSE SOIL
- GROUNDWATER LEVEL (7-28-14)
- SOIL CONCENTRATIONS > TYPE 3/4 RRS
- SOIL CONCENTRATIONS > TYPE 5 STANDARD
- GROUNDWATER CONCENTRATIONS > TYPE 1/2 RRS
- GROUNDWATER CONCENTRATIONS > TYPE 5 STANDARD

HORIZONTAL SCALE
50 0 50 100

VERTICAL SCALE
5 0 5 10 FEET

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Duluth, Georgia 30097
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COMMITMENT & INTEGRITY DRIVE RESULTS

REV	DESCRIPTION	DESIGNED BY: LJD	DRAWN BY: DJM	CHECKED BY: BRM	CROSS-SECTIONS	DATE

FIGURE 2–1b
CONCEPTUAL SITE MODEL

FASHION CARE/EXECUTIVE CARE SITE
2211 SAVOY DRIVE
CHAMBLEE, GEORGIA

VRP STATUS REPORT

JOB NO.: 226203
DATE: DECEMBER 2014
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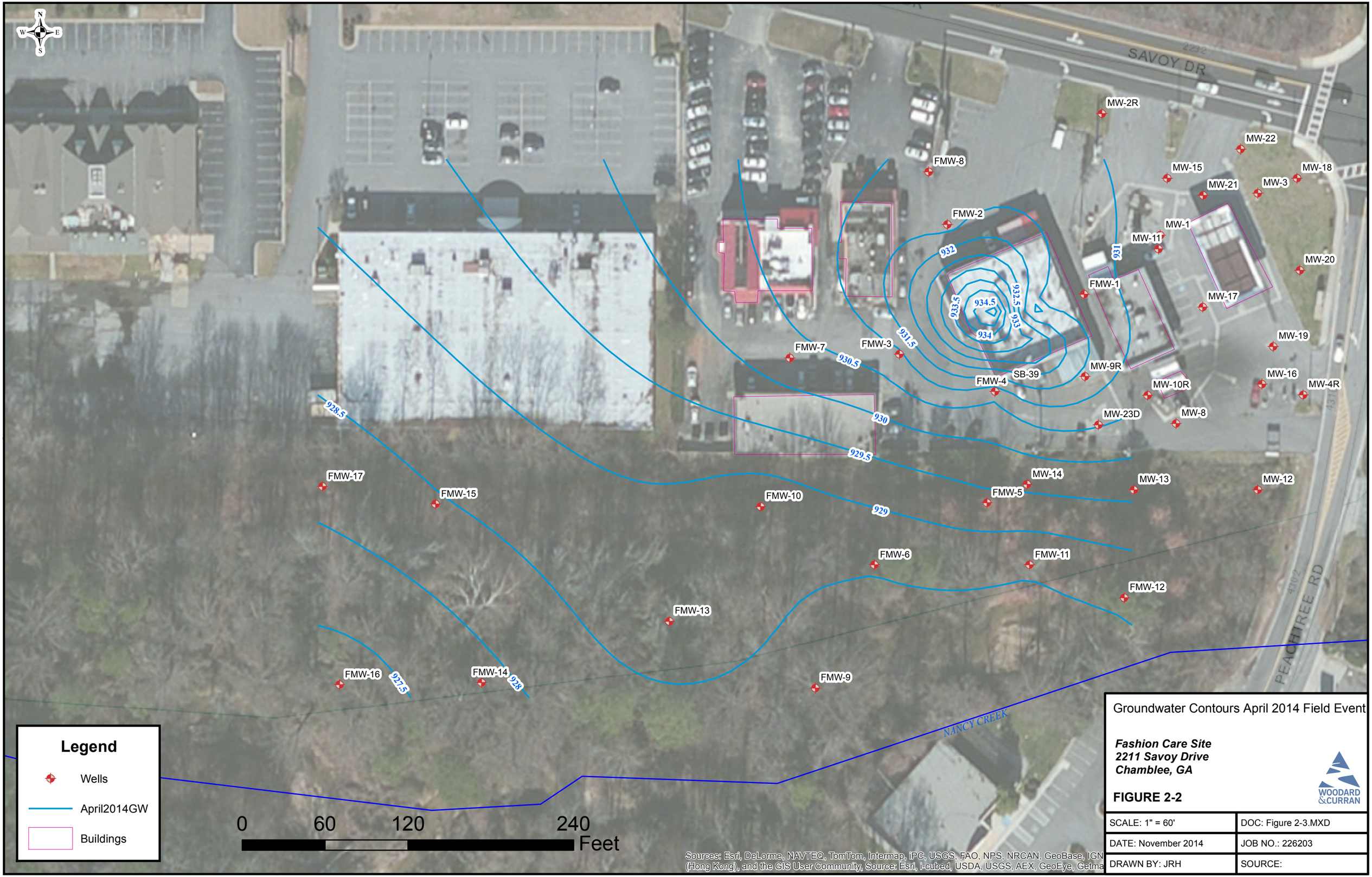
SHEET: OF



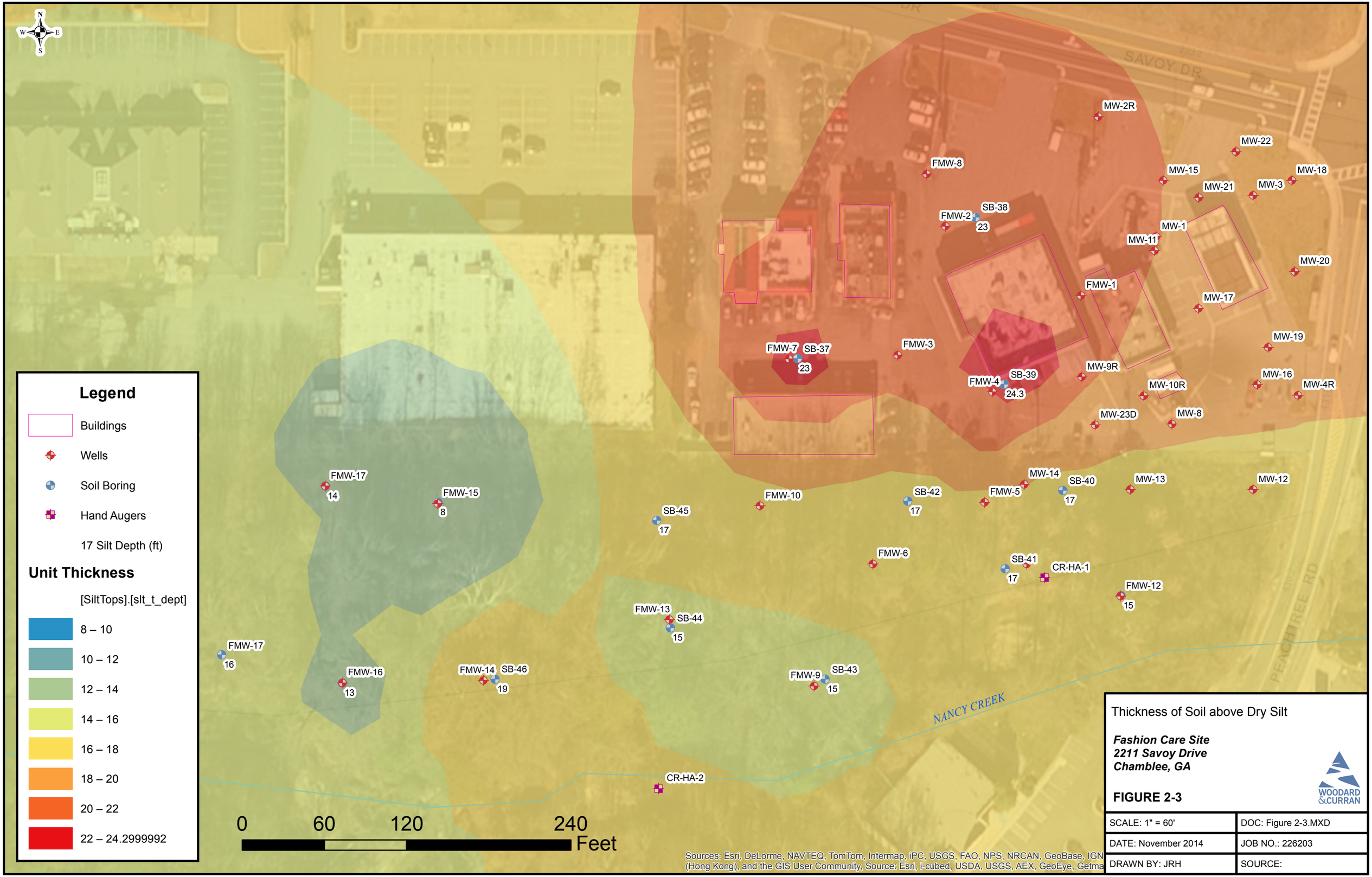
Groundwater Contours April 2014 Field Event

Fashion Care Site
2211 Savoy Drive
Chamblee, GA

FIGURE 2-2

WOODARD &CURRAN

SCALE: 1" = 60'	DOC: Figure 2-3.MXD
DATE: November 2014	JOB NO.: 226203
DRAWN BY: JRH	SOURCE:



Thickness of Soil above Dry Silt

Fashion Care Site
2211 Savoy Drive
Chamblee, GA

FIGURE 2-3

WOODARD &CURRAN

SCALE: 1" = 60'	DOC: Figure 2-3.MXD
DATE: November 2014	JOB NO.: 226203
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Legend

- Interpreted tVOC Plume (mg/L) - 2008
- Buildings
- Wells

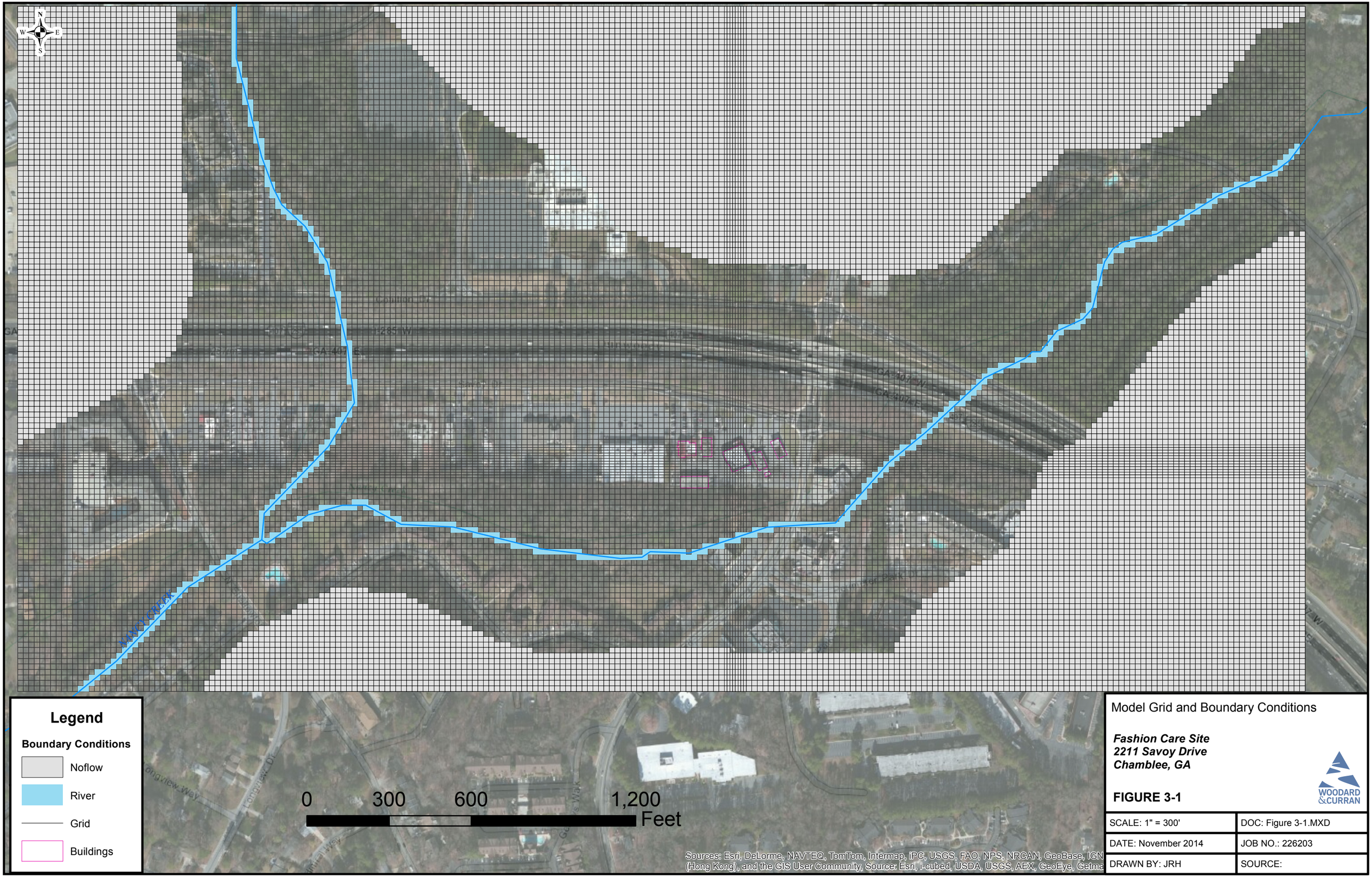
Total VOC Plume Configuration in 2008 Prior to Remediation

Fashion Care Site
2211 Savoy Drive
Chamblee, GA

FIGURE 2-4

WOODARD &CURRAN

SCALE: 1" = 60'	DOC: Figure 2-3.MXD
DATE: November 2014	JOB NO.: 226203
DRAWN BY: JRH	SOURCE:



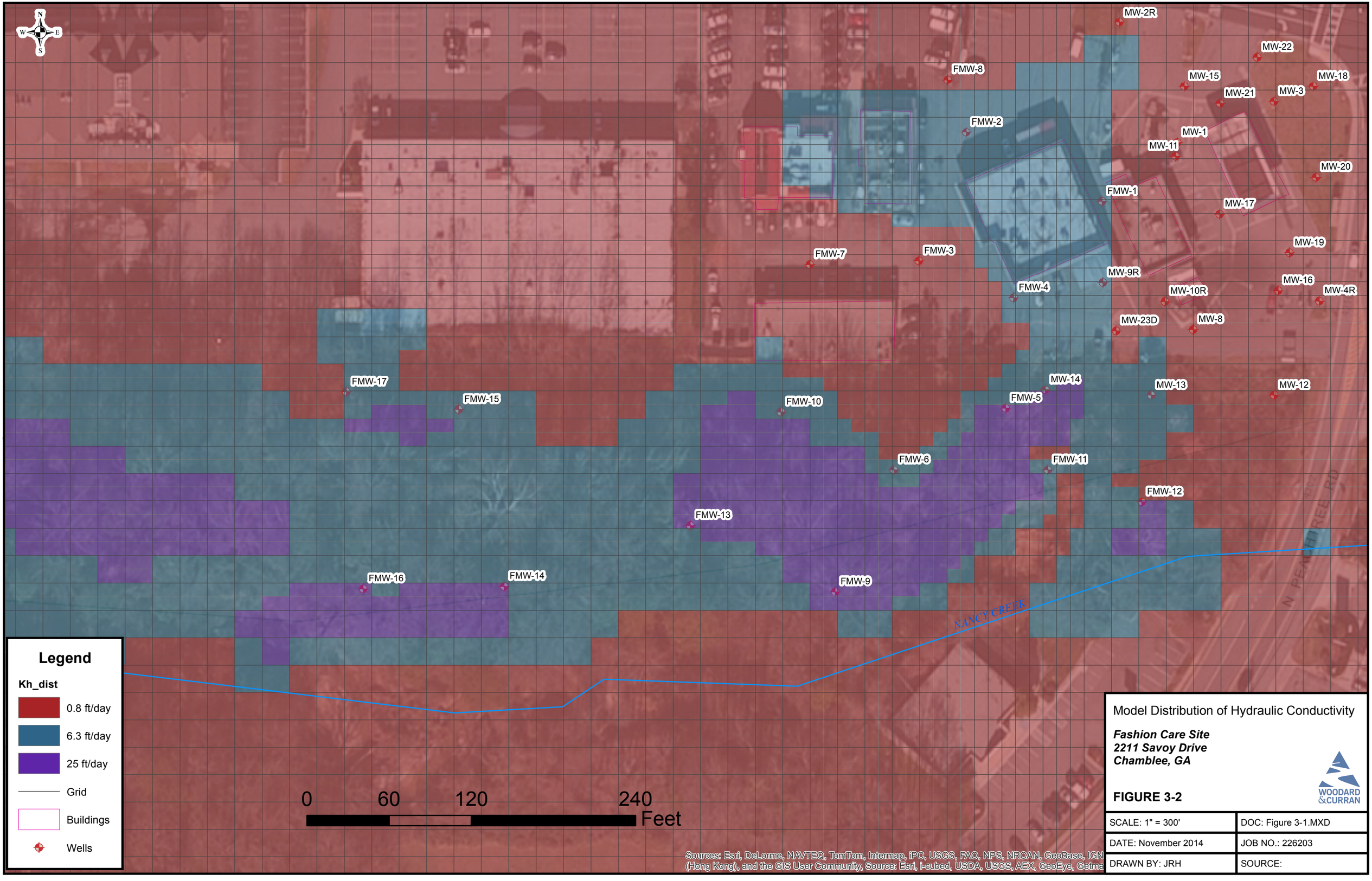
Model Grid and Boundary Conditions

Fashion Care Site
2211 Savoy Drive
Chamblee, GA

FIGURE 3-1

WOODARD &CURRAN

SCALE: 1" = 300'	DOC: Figure 3-1.MXD
DATE: November 2014	JOB NO.: 226203
DRAWN BY: JRH	SOURCE:



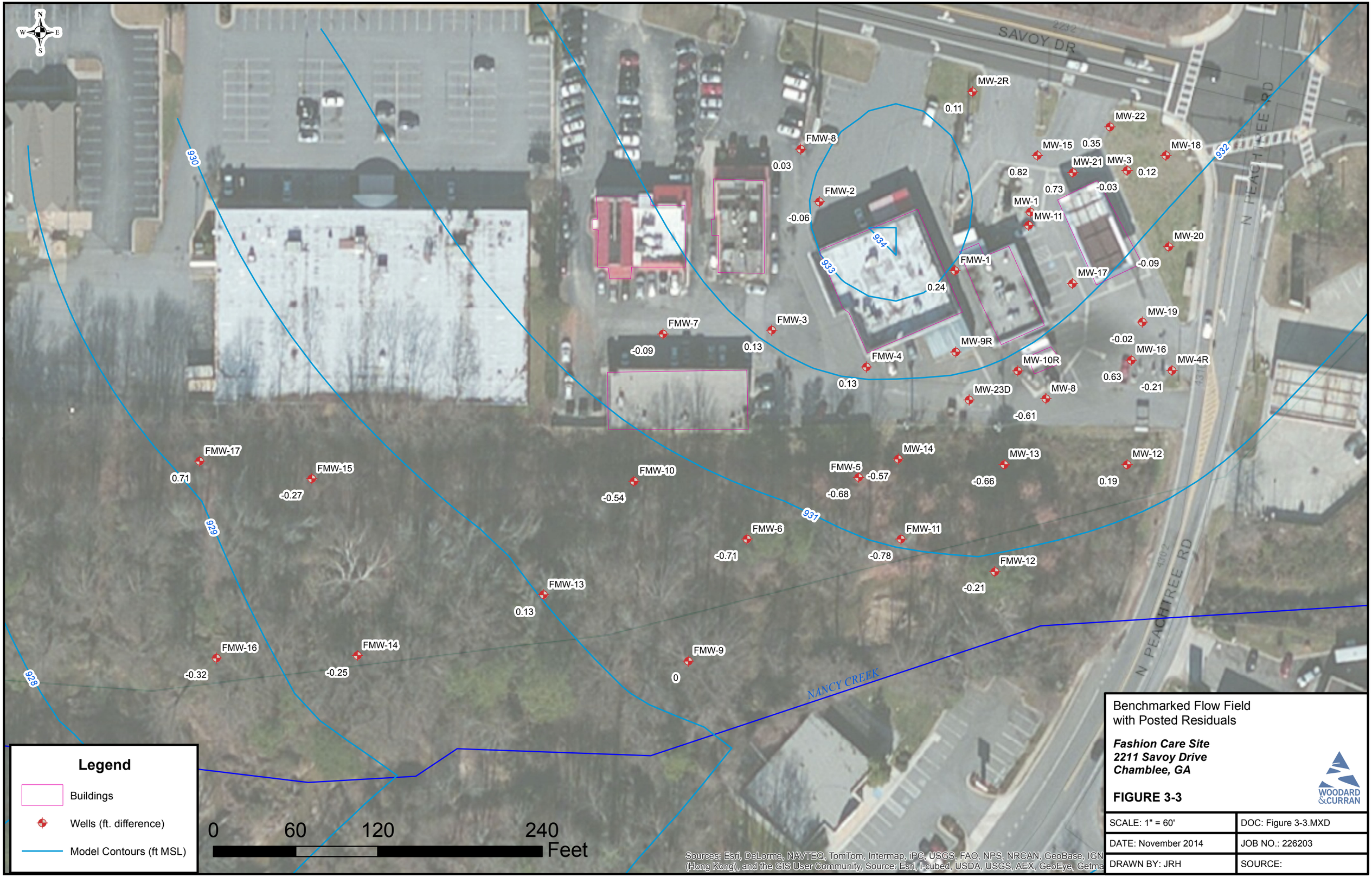
Model Distribution of Hydraulic Conductivity

Fashion Care Site
2211 Savoy Drive
Chamblee, GA

WOODARD &CURRAN

FIGURE 3-2

SCALE: 1" = 300'	DOC: Figure 3-1.MXD
DATE: November 2014	JOB NO.: 226203
DRAWN BY: JRH	SOURCE:



Benchmarked Flow Field
with Posted Residuals

Fashion Care Site
2211 Savoy Drive
Chamblee, GA

FIGURE 3-3

WOODARD &CURRAN

SCALE: 1" = 60'	DOC: Figure 3-3.MXD
DATE: November 2014	JOB NO.: 226203
DRAWN BY: JRH	SOURCE:

Figure 3-4: Observed versus Modeled Heads

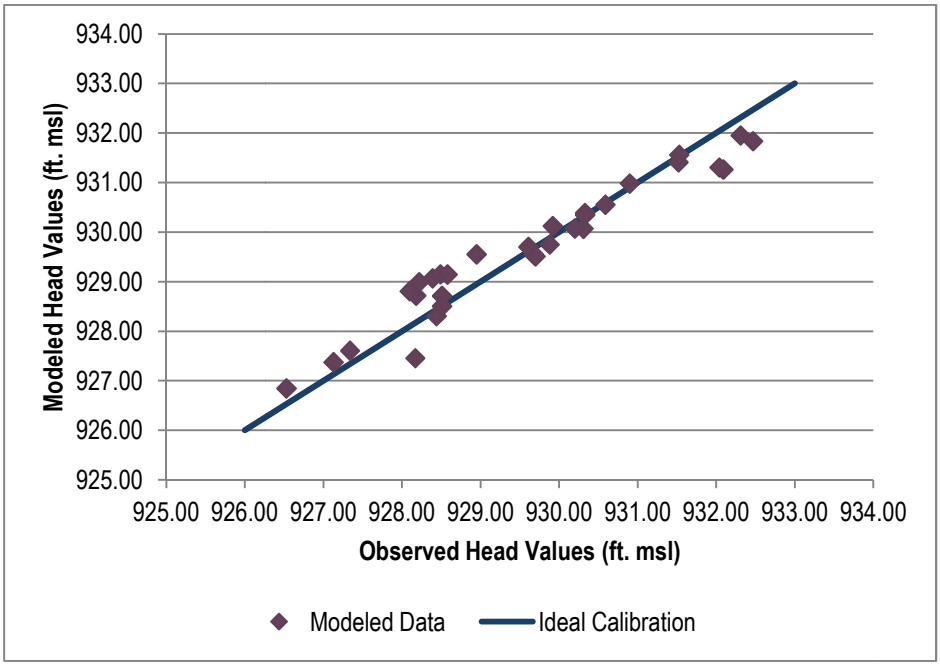
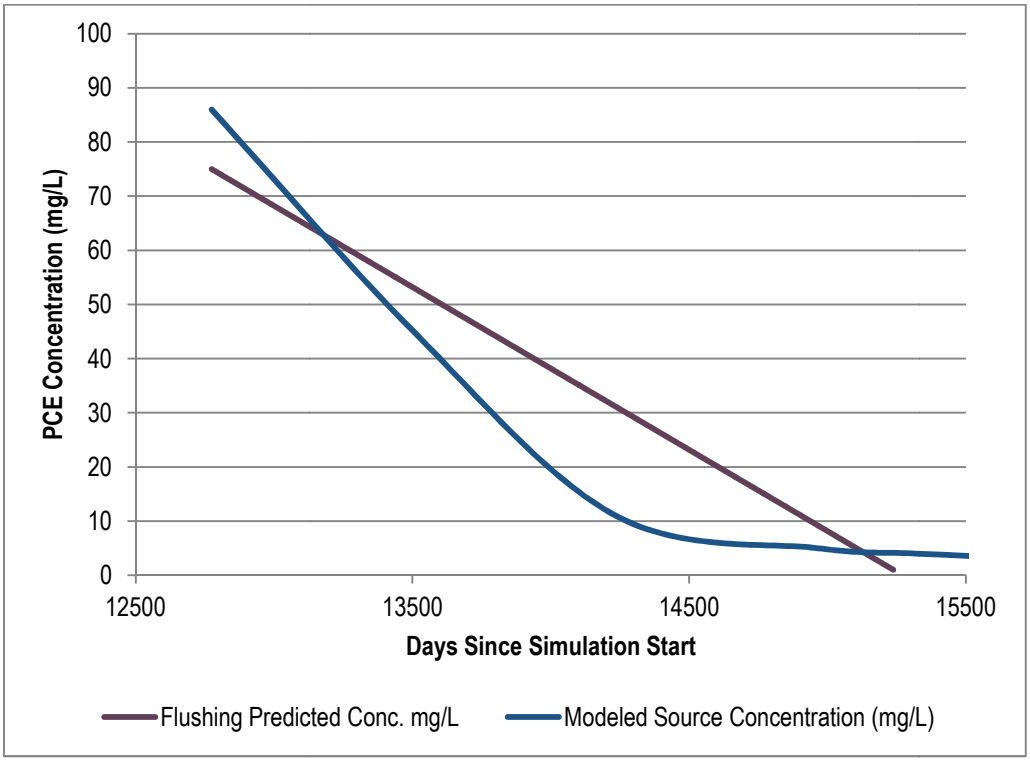
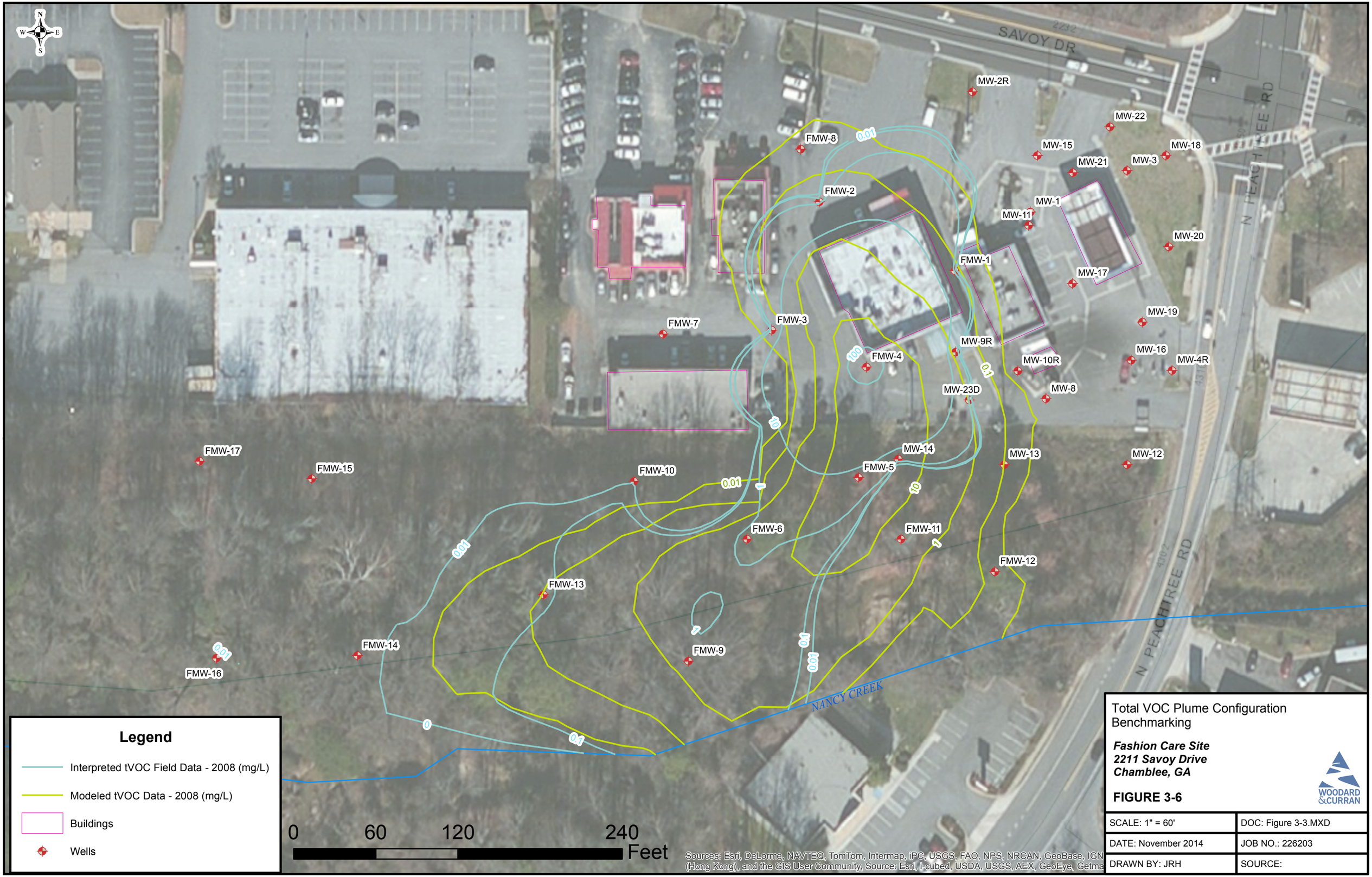


Figure 3-5: Soil Flushing versus MT3D Modeled Source Concentrations





Total VOC Plume Configuration
Benchmarking

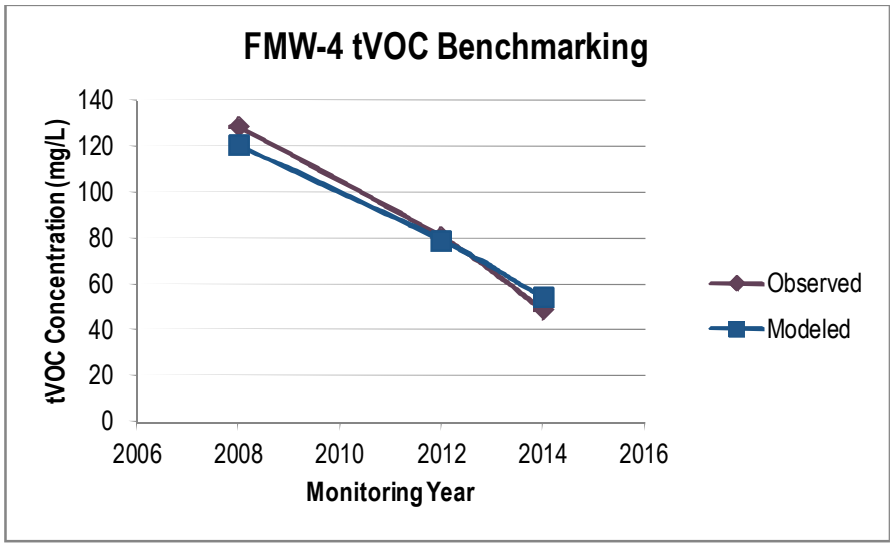
Fashion Care Site
2211 Savoy Drive
Chamblee, GA

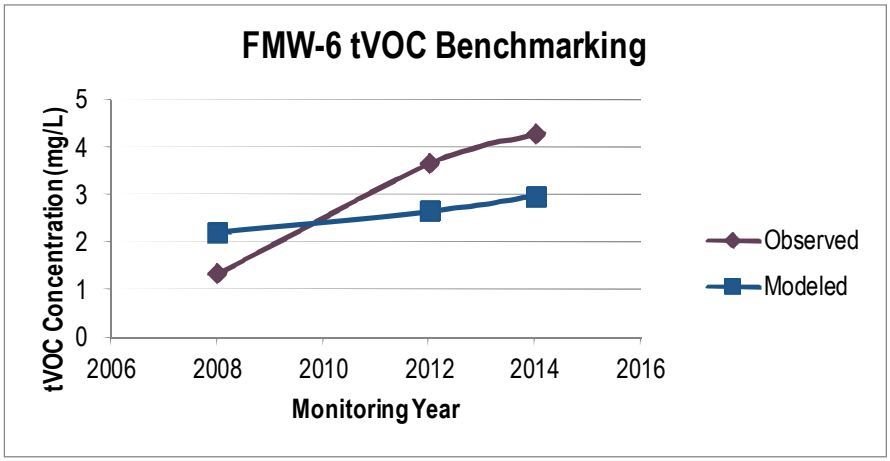
FIGURE 3-6

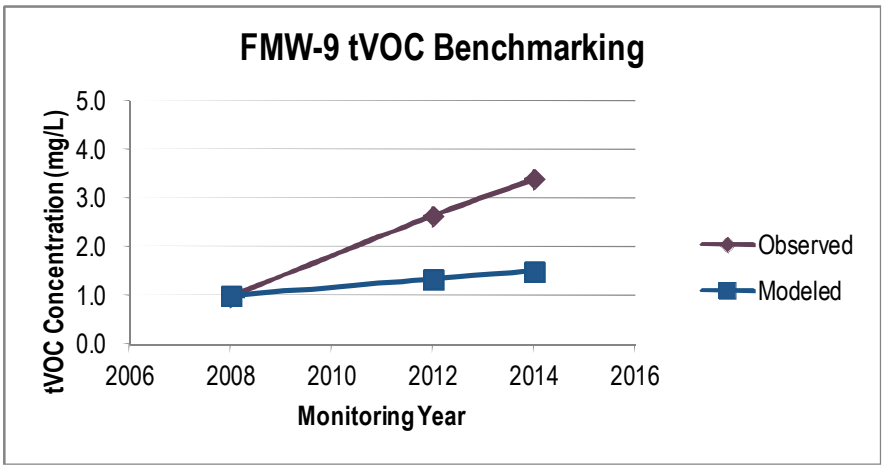
WOODARD &CURRAN

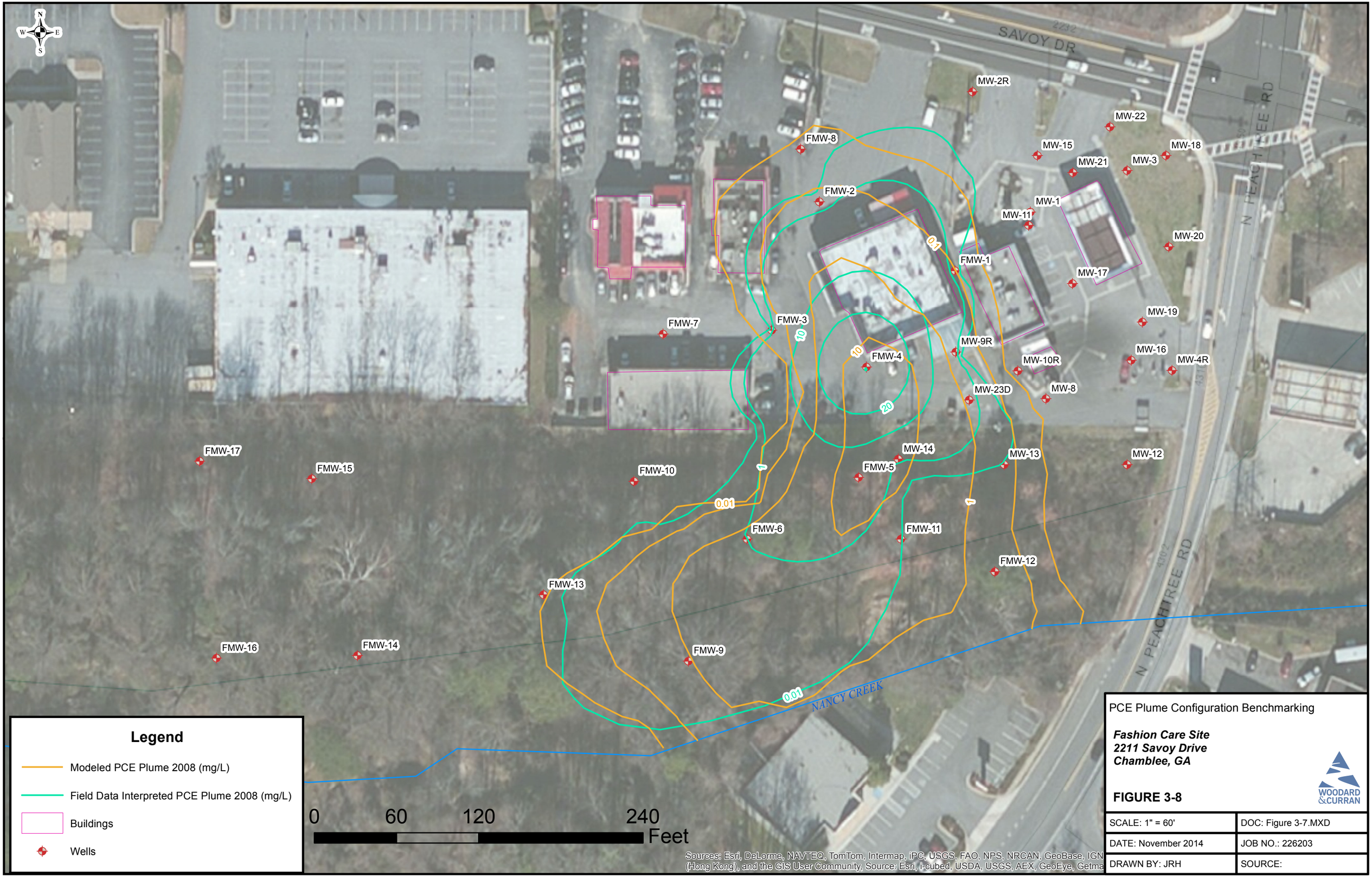
SCALE: 1" = 60'	DOC: Figure 3-3.MXD
DATE: November 2014	JOB NO.: 226203
DRAWN BY: JRH	SOURCE:

Figure 3-7: Total VOC Well Comparisons









Legend

- Modeled PCE Plume 2008 (mg/L)
- Field Data Interpreted PCE Plume 2008 (mg/L)
- Buildings
- Wells

PCE Plume Configuration Benchmarking

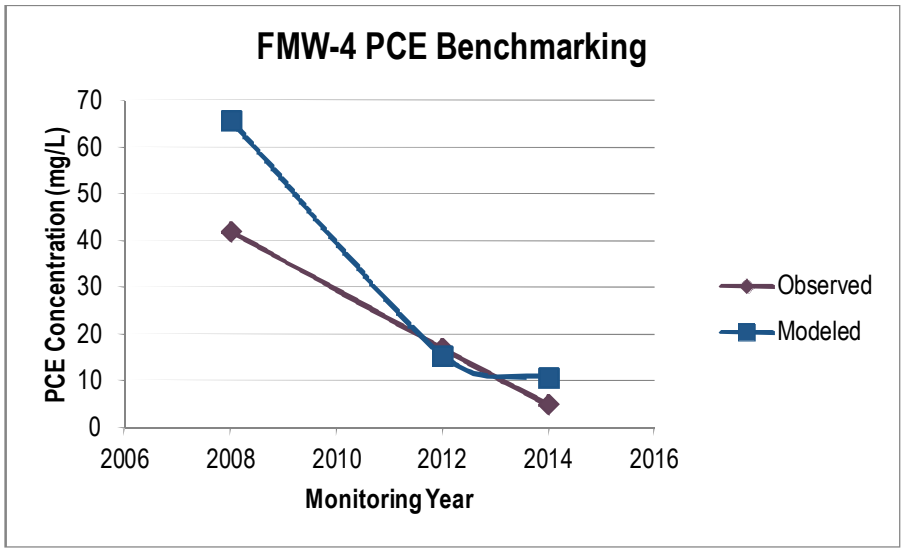
Fashion Care Site
2211 Savoy Drive
Chamblee, GA

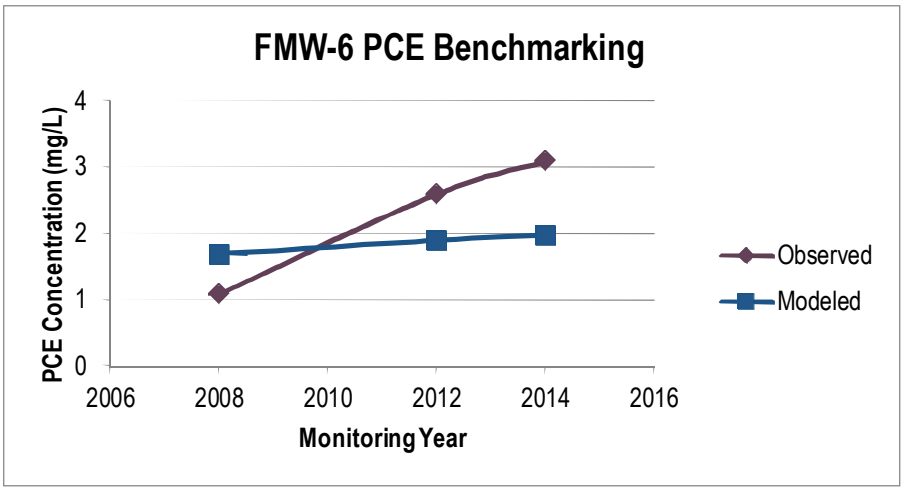
FIGURE 3-8

WOODARD &CURRAN

SCALE: 1" = 60'	DOC: Figure 3-7.MXD
DATE: November 2014	JOB NO.: 226203
DRAWN BY: JRH	SOURCE:

Figure 3-9: PCE Well Comparisons





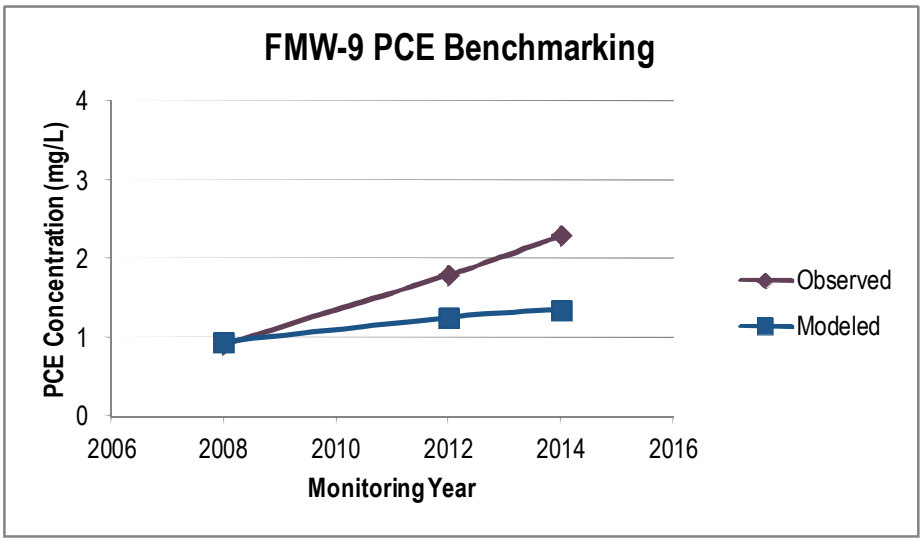
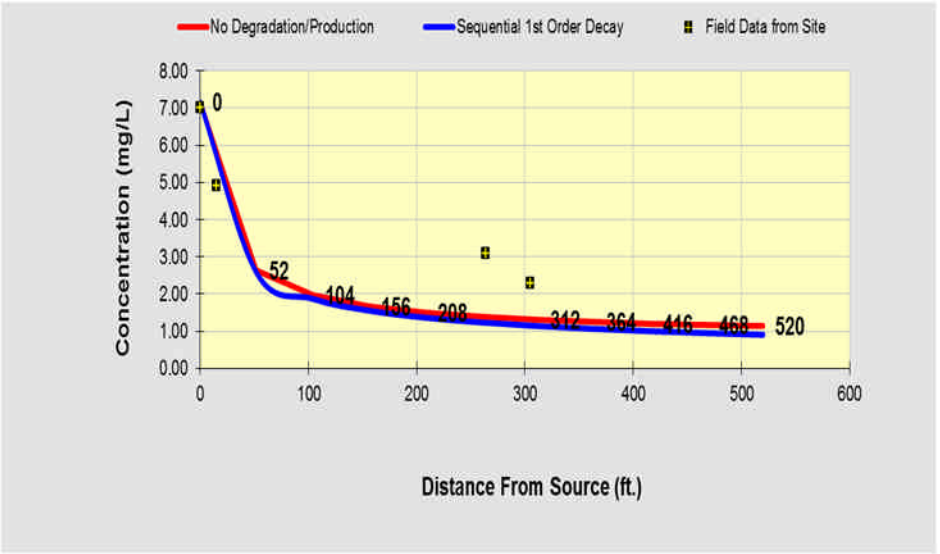
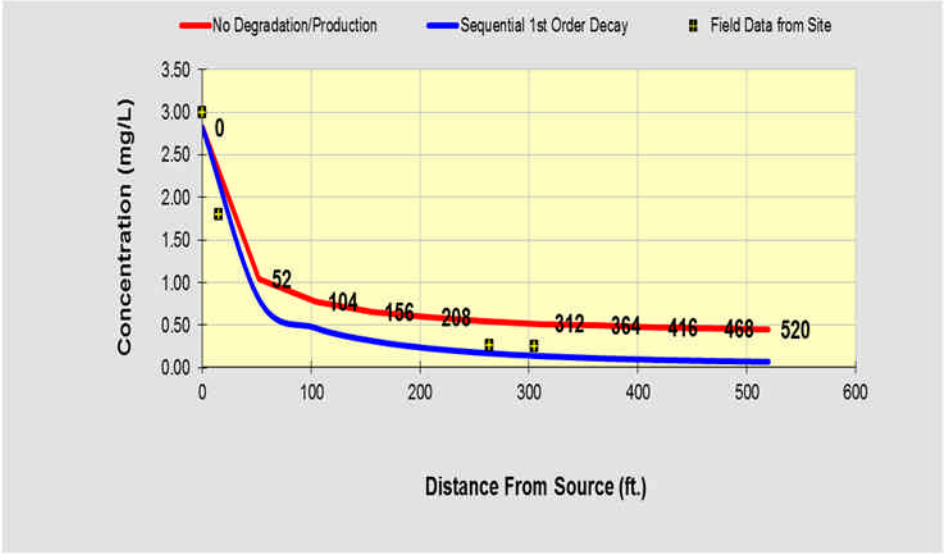


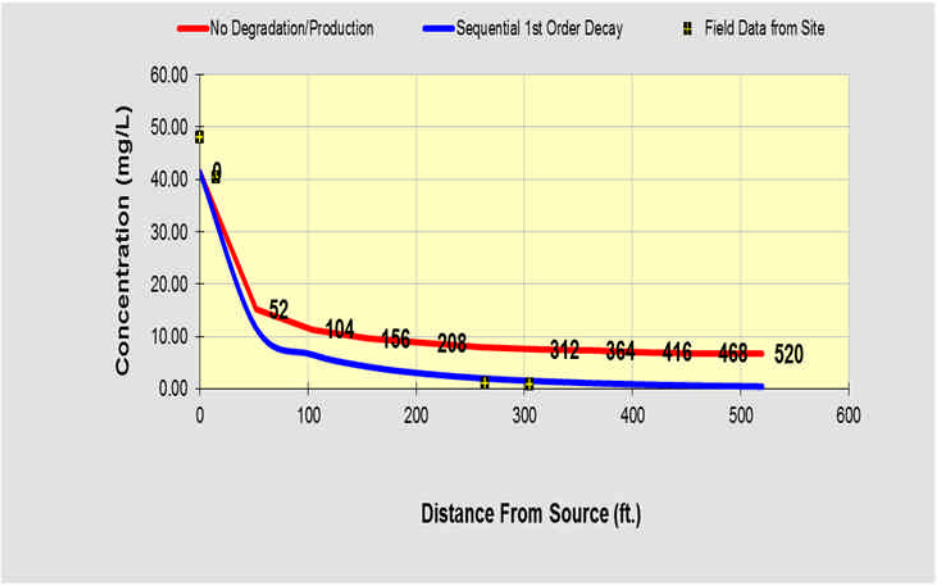
Figure 3-10: Modeled PCE and daughter product concentrations compared to field data



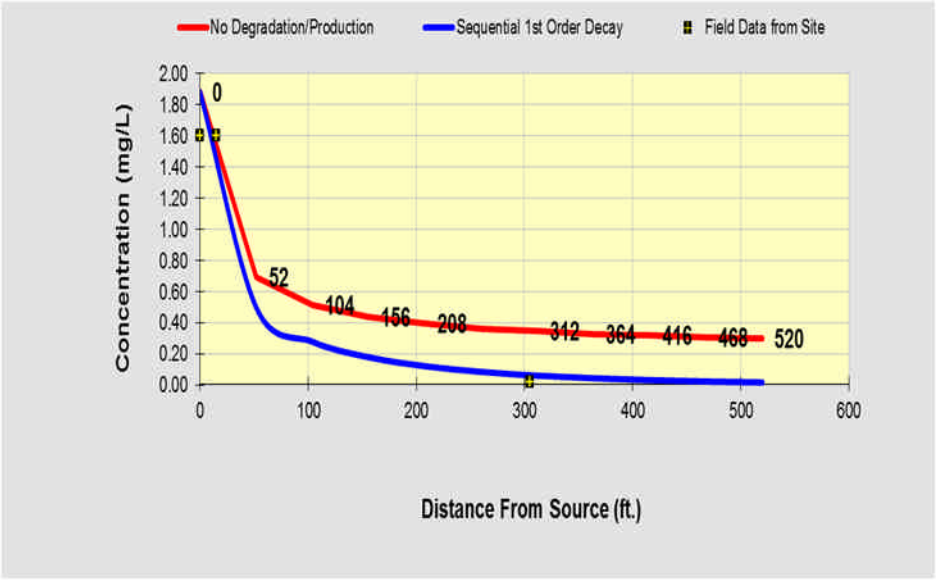
A. Modeled PCE concentrations versus distance along axis of plume.



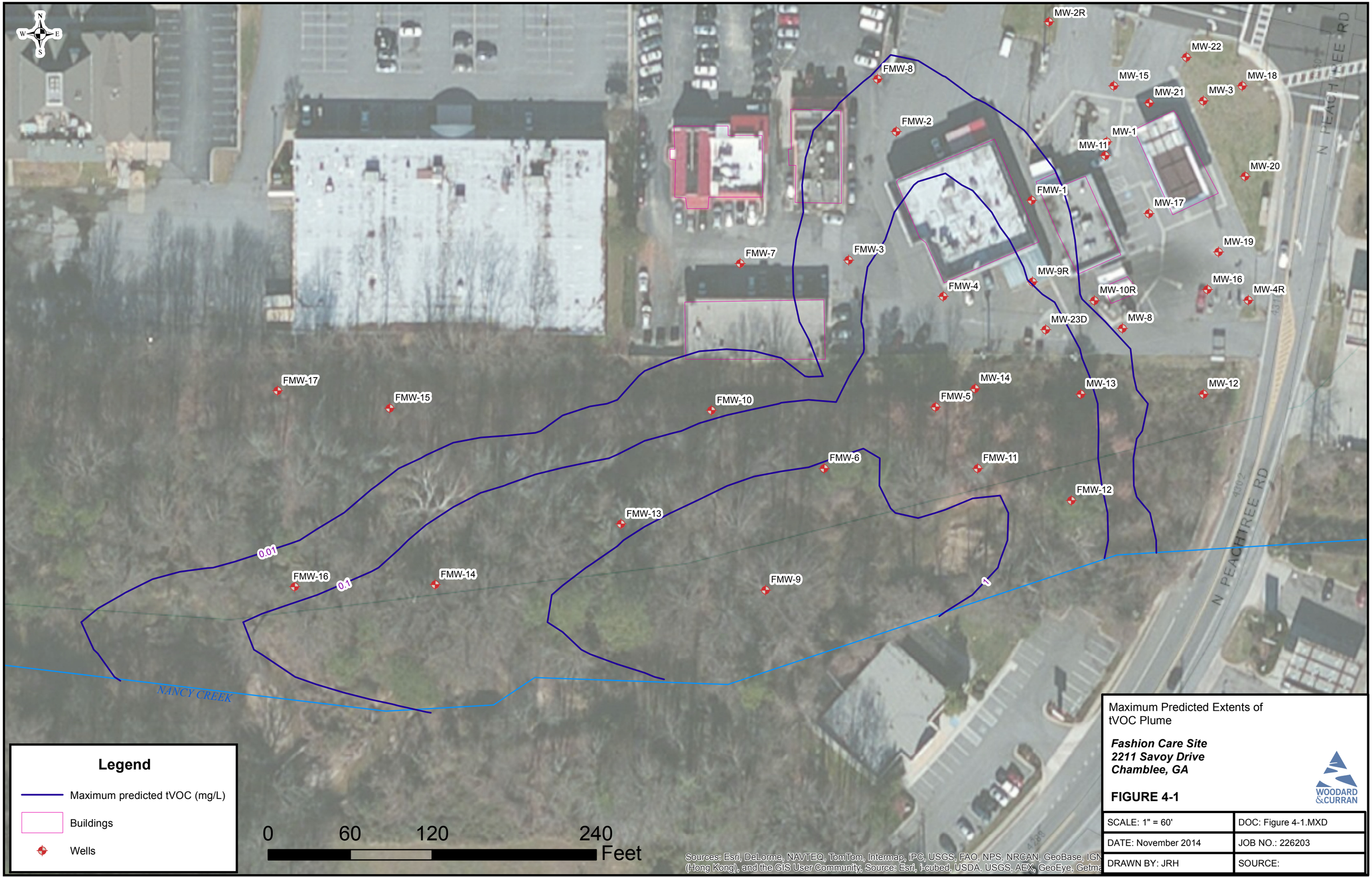
B. Modeled TCE concentrations along axis of plume



C. Modeled DCE concentrations versus distance along axis of plume



D. Modeled VC concentrations along axis of plume.



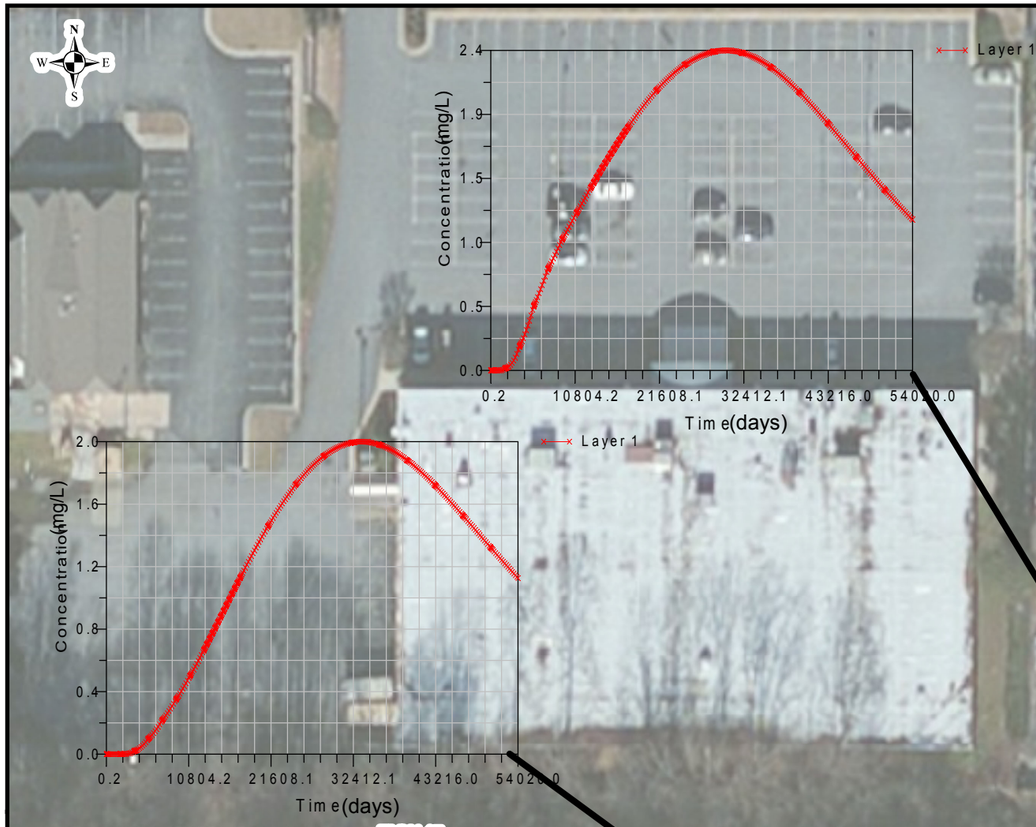
Maximum Predicted Extents of tVOC Plume

Fashion Care Site
2211 Savoy Drive
Chamblee, GA

FIGURE 4-1

WOODARD &CURRAN

SCALE: 1" = 60'	DOC: Figure 4-1.MXD
DATE: November 2014	JOB NO.: 226203
DRAWN BY: JRH	SOURCE:



Legend

- wells2
- Predicted PCE Plume 2052 (mg/L)
- Buildings
- Wells

Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN (Hong Kong), and the GIS User Community. Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getma

Maximum Predicted Extent of PCE Plume Core in Nancy Creek

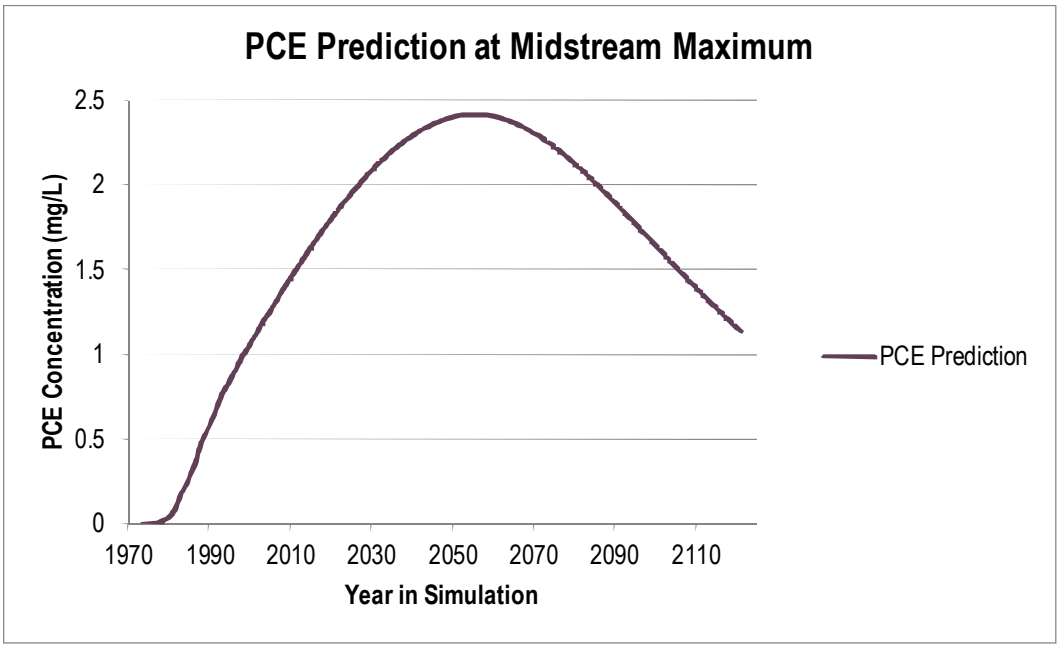
Fashion Care Site
2211 Savoy Drive
Chamblee, GA

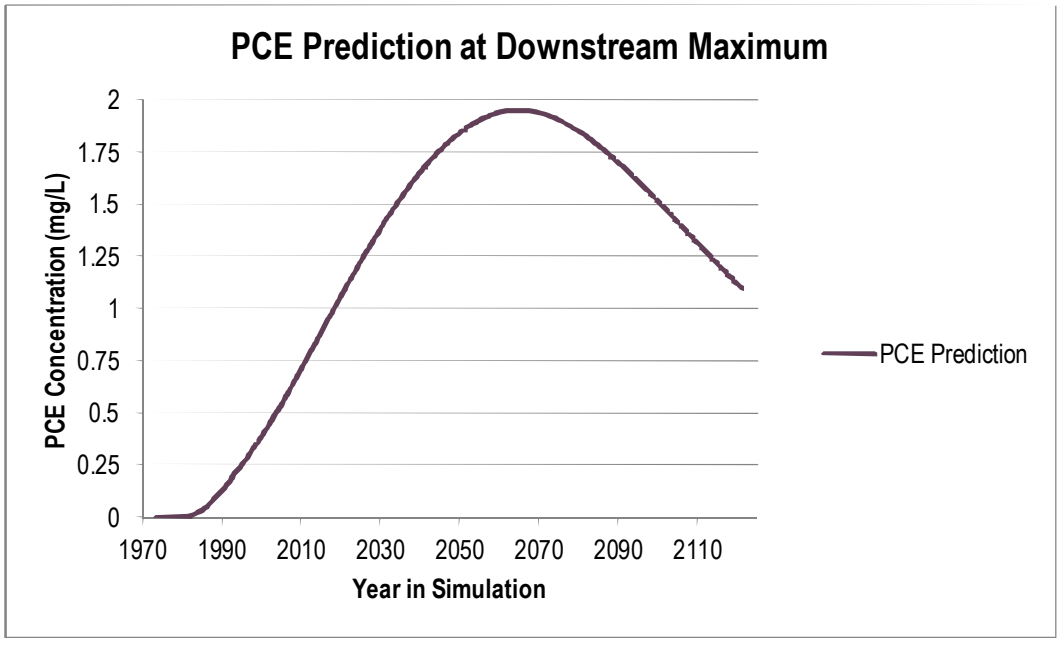
FIGURE 4-2

WOODARD &CURRAN

SCALE: 1" = 60'	DOC: Figure 4-2.MXD
DATE: November 2014	JOB NO.: 226203
DRAWN BY: JRH	SOURCE:

Figure 4-3: Maximum Predicted PCE Concentrations to Nancy Creek





TABLES

Table 2-1: Slug Testing Summary

Well ID	Slug-In	Slug-Out	Notes
	K (ft/day)	K(ft/day)	
FMW-1	0.58	0.45	2014 Testing
FMW-4	20	9.9	Historic Testing
FMW-5	9.9	3.7	2014 Testing
FMW-5	17	27	Historic Testing
FMW-9	57	7.2	2014 Testing

Table 2-2

Groundwater and Surface Water Elevation Data

Fashion Care/Executive Care VRP Site (HSI# 10786)

Well ID	Top of Casing Elevation (ft sd)	09/04/08	12/1-3/2008	03/19/10	04/07/10	07/10/12	04/01/14	Average Groundwater Elevation (ft sd)	Feet Above SG-1	Adjusted Elevation (ft msl)	Max. Groundwater Fluctuation (ft)	Lowest Groundwater Elevation		Highest Groundwater Elevation	
		Groundwater Elevation (ft sd)	Groundwater Elevation (ft sd)	Groundwater Elevation (ft sd)	Groundwater Elevation (ft sd)	Groundwater Elevation (ft sd)	Groundwater Elevation (ft sd)					bgs	ft sd	bgs	ft sd
FMW-1	98.92	83.87	84.01	87.82		83.62	85.87	85.04	1.85	930.31	4.20	15.30	83.62	11.10	87.82
FMW-10	92.85		82.61	83.49		82.15	83.40	82.91	0.28	928.18	1.34	10.70	82.15	9.36	83.49
FMW-11	94.40		82.75	83.37		82.39	83.30	82.95	0.24	928.22	0.98	12.01	82.39	11.03	83.37
FMW-12	95.90			83.35	83.27	83.01	83.32	83.24	0.05	928.51	0.34	12.89	83.01	12.55	83.35
FMW-13	92.05			83.77		82.13	83.60	83.17	0.02	928.44	1.64	9.92	82.13	8.28	83.77
FMW-14	92.03					81.15	82.57	81.86	1.33	927.13	1.42	10.88	81.15	9.46	82.57
FMW-15	92.10					80.95	83.18	82.07	1.13	927.34	2.23	11.15	80.95	8.92	83.18
FMW-16	91.32					80.57	81.94	81.26	1.94	926.53	1.37	10.75	80.57	9.38	81.94
FMW-17	91.90						82.90	82.90	0.29	928.17					
FMW-2	97.07	83.80	83.98	87.92		83.62	85.99	85.06	1.87	930.33	4.30	13.45	83.62	9.15	87.92
FMW-3	96.96	83.62	83.61	86.42		83.81	85.60	84.61	1.42	929.88	2.81	13.35	83.61	10.54	86.42
FMW-4	97.11	83.52	83.70	86.16		83.31	85.36	84.41	1.22	929.68	2.85	13.80	83.31	10.95	86.16
FMW-5	95.40	82.55	82.84	83.71		82.40	84.10	83.12	0.07	928.39	1.70	13.00	82.40	11.30	84.10
FMW-6	93.12	82.44	82.73	83.47		82.24	83.27	82.83	0.36	928.10	1.23	10.88	82.24	9.65	83.47
FMW-7	96.81		83.49	85.61		83.21	85.06	84.34	1.15	929.61	2.40	13.60	83.21	11.20	85.61
FMW-8	97.40		84.95	86.98		83.50	85.85	85.32	2.13	930.59	3.48	13.90	83.50	10.42	86.98
FMW-9	94.07		82.63	83.18	84.99	82.37	83.05	83.24	0.05	928.51	0.81	11.70	82.37	10.89	83.18
MW-1	98.51	82.71	82.42	88.60		-	-	84.58	1.39	929.85	6.18				
MW-11	98.77		84.06	87.27		-	-	85.67	2.47	930.94	3.21				
MW-12	97.52		84.09	84.77		-	-	84.43	1.24	929.70	0.68				
MW-13	96.49		82.75	83.69		-	-	83.22	0.03	928.49	0.94				
MW-14	96.59		82.78	83.84		-	-	83.31	0.12	928.58	1.06				
MW-15	98.91		84.70	88.94		-	-	86.82	3.63	932.09	4.24				
MW-16	98.54		85.00	89.39		-	-	87.20	4.01	932.47	4.39				
MW-18	96.68		84.27	85.58		-	-	84.93	1.74	930.20	1.31				
MW-19	97.31		84.35	85.76		-	-	85.06	1.87	930.33	1.41				
MW-20	97.86		84.42	86.84		-	-	85.63	2.44	930.90	2.42				
MW-21	99.00		84.66	88.88		-	-	86.77	3.58	932.04	4.22				
MW-22	99.48		84.84	89.24		-	-	87.04	3.85	932.31	4.40				
MW-23D	96.13		83.34	85.01		-	-	84.18	0.98	929.45	1.67				
MW-2R	98.38	84.55	84.88	89.32		-	-	86.25	3.06	931.52	4.77				
MW-3	98.56	84.64	84.87	89.26		-	-	86.26	3.07	931.53	4.62				
MW-4R	96.72	84.10	84.27	85.57		-	-	84.65	1.46	929.92	1.47				
MW-8	96.62	83.08	83.31	84.64		-	-	83.68	0.49	928.95	1.56				
MW-9R	97.11	83.23	83.46	85.36		-	-	84.02	0.83	929.29	2.13				
SB-24	98.56	84.06	-	87.45		83.86	90.24	86.40	3.21	931.67	6.38	14.70	83.86	8.32	90.24
SB-25	98.50		84.12	87.10		83.70	86.06	85.25	2.06	930.52	2.36	14.80	83.70	12.44	86.06
SB-26	98.36	85.19	85.02	86.86		85.51	87.93	86.10	2.91	931.37	2.91	13.34	85.02	10.43	87.93
SG-1	86.84			83.19	3.72					928.46					
SG-2	86.38			82.51	3.94				0.68	927.78					

NOTES:

ft sd, feet relative to site datum.

ft toc, feet below top of casing.

MW-5, MW-6 and MW-7 do not exist

-, denotes no free-phase petroleum was found in the well

NT, measurement not taken

NI, Monitoring well not installed

Abandoned, Wells were abandoned by the EPD UST Program

Lost, Surface water guages lost to storm flow in Nancy Creek.

FMW-14, FMW-15, FMW-16 installed 5/27/10, 6/15/10 and 6/15/10, respectively.

Table 3-1: Calibration Data and Statistics
Fashion Care Site
Chamblee, GA

Name	Observed Head (ft)	Modeled Head (ft)	Residual
FMW-1	930.31	930.07	0.24
FMW-10	928.18	928.72	-0.54
FMW-11	928.22	929.00	-0.78
FMW-12	928.51	928.72	-0.21
FMW-13	928.44	928.31	0.13
FMW-14	927.13	927.38	-0.25
FMW-15	927.34	927.61	-0.27
FMW-16	926.53	926.85	-0.32
FMW-17	928.17	927.46	0.71
FMW-2	930.33	930.39	-0.06
FMW-3	929.88	929.75	0.13
FMW-4	929.68	929.55	0.13
FMW-5	928.39	929.07	-0.68
FMW-6	928.1	928.81	-0.71
FMW-7	929.61	929.70	-0.09
FMW-8	930.59	930.56	0.03
FMW-9	928.51	928.51	0.00
MW-12	929.7	929.51	0.19
MW-13	928.49	929.15	-0.66
MW-14	928.58	929.15	-0.57
MW-15	932.09	931.27	0.82
MW-18	930.2	930.08	0.12
MW-16	932.47	931.84	0.63
MW-19	930.33	930.35	-0.02
MW-20	930.9	930.99	-0.09
MW-21	932.04	931.31	0.73
MW-22	932.31	931.96	0.35
MW-2R	931.52	931.41	0.11
MW-3	931.53	931.56	-0.03
MW-4R	929.92	930.13	-0.21
MW-8	928.95	929.56	-0.61
Residual Mean			-0.06
Absoluate Residual Mean			0.34
Residual Std. Deviation			0.43
Sum of Squares			5.74
RMS Error			0.43
Min. Residual			-0.78
Max. Residual			0.82
Number of Observations			31
Range in Observations			5.94
Scaled Residual Std. Deviation			0.07
Scaled Absolute Residual Mean			0.06
Scaled RMS Error			0.07
Scaled Residual Mean			-0.01

Table 3-2: Model Parameters for BIOCHLOR Simulation

General			***Source***		
Simulation Time	41	yrs	PCE	190	mg/L
Modeled Width	190	ft	TCE	75	mg/L
Modeled Length	520	ft	DCE	1100	mg/L
Zone 1 Length	520	ft	VC	50	mg/L
Source Thickness	15	ft	ETH	1.8	mg/L
Source Width	25	ft			
Advection			***Dispersion***		
K	0.0068	cm/sec	αx	22	ft
i	0.005192	ft/ft	αy/ αx	0.32	unitless
n	0.09	unitless	αz/ αx	0.002	unitless
Seepage Velocity	407	ft/yr			
Adsorption					
Soil bulk density	1.75	kg/L			
foc	0.002	unitless			

Partition Coefficients			***R value***	***Biotransformation***		
				Zone 1 Path	***λ (1/yr)***	***Yield***
PCE	95	L/kg	4.69	PCE -> TCE	0.18	0.79
TCE	61	L/kg	3.36	TCE -> DCE	2.6	0.74
DCE	40	L/kg	2.54	DCE -> VC	2.5	0.64
VC	22	L/kg	1.85	VC -> ETH	40	0.45
ETH	302	L/kg	12.74			
Common R used in model			3.36			

Table 4-1: Predicted Point Concentrations in Surface Water after Mixing

	Initial Source Concentration for Forward BIOCHLOR Simulation (mg/L)	GW conc. (mg/L) at MS-1	Mixed Conc. (mg/L) at MS-1	GA ISWQC (mg/L)	Above Criteria
PCE	17	2.42	0.00153	0.003	no
TCE	22	0.924	0.000584	0.030	no
DCE	75	3.823	0.002417	10.000	no
VC	2.4	0.162	0.000102	0.0024	no
VC (no degradation)	2.4	0.392	0.000248	0.0024	no

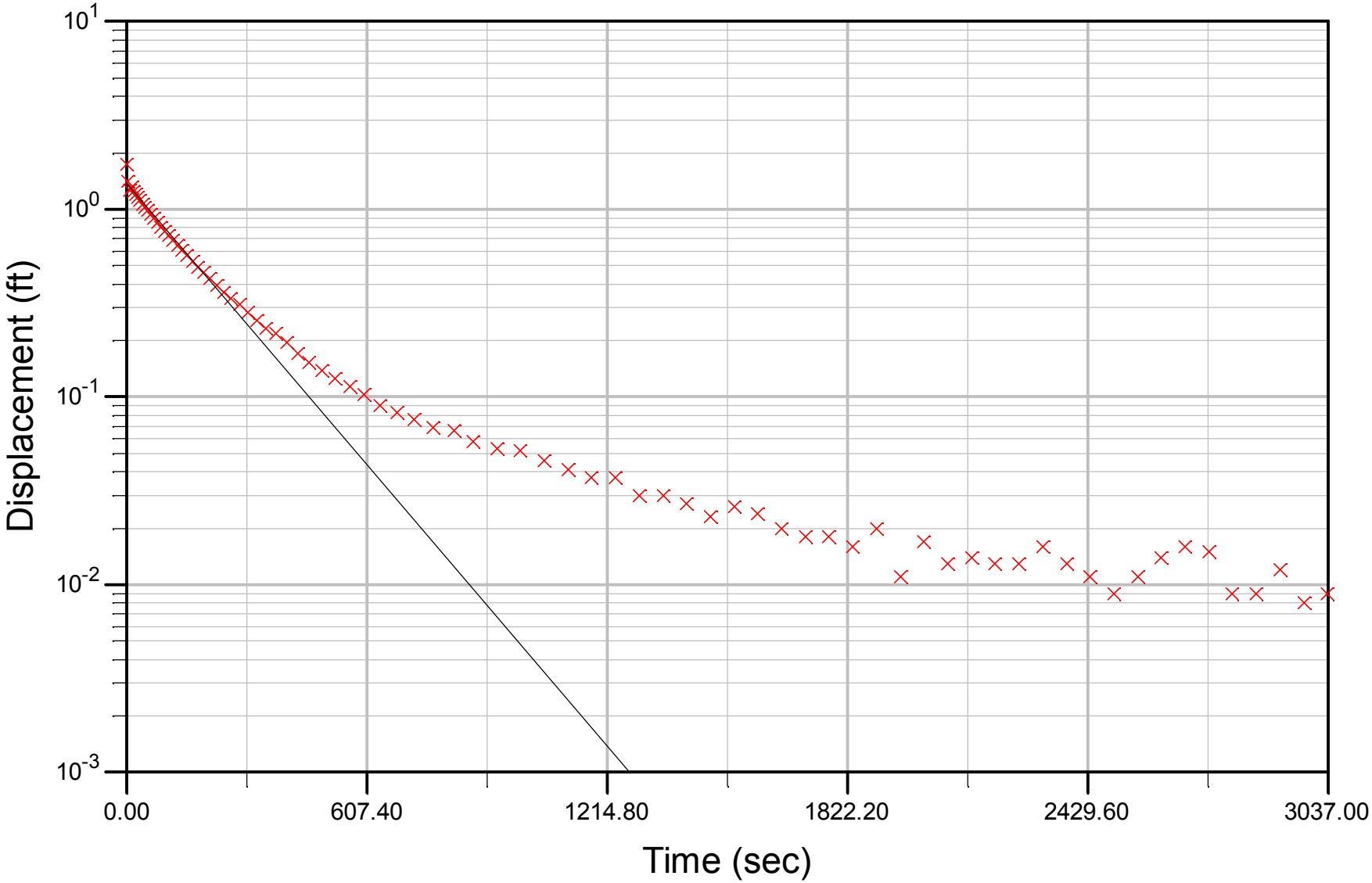
Notes: SW/GW = Surface water/Groundwater
GA ISWQC = Georgia In-Stream Water Quality Criteria

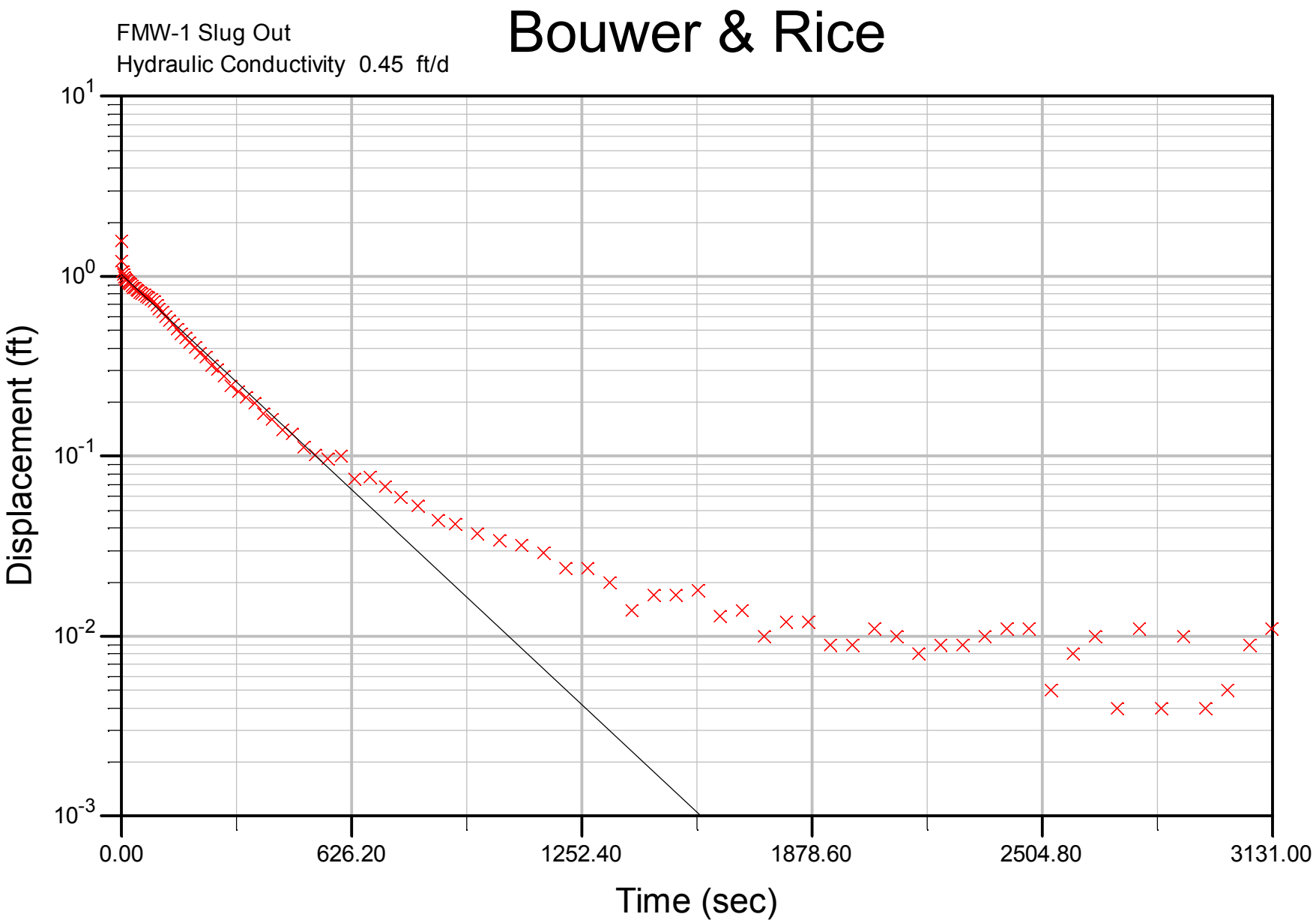
APPENDIX A: 2014 SLUG TESTING

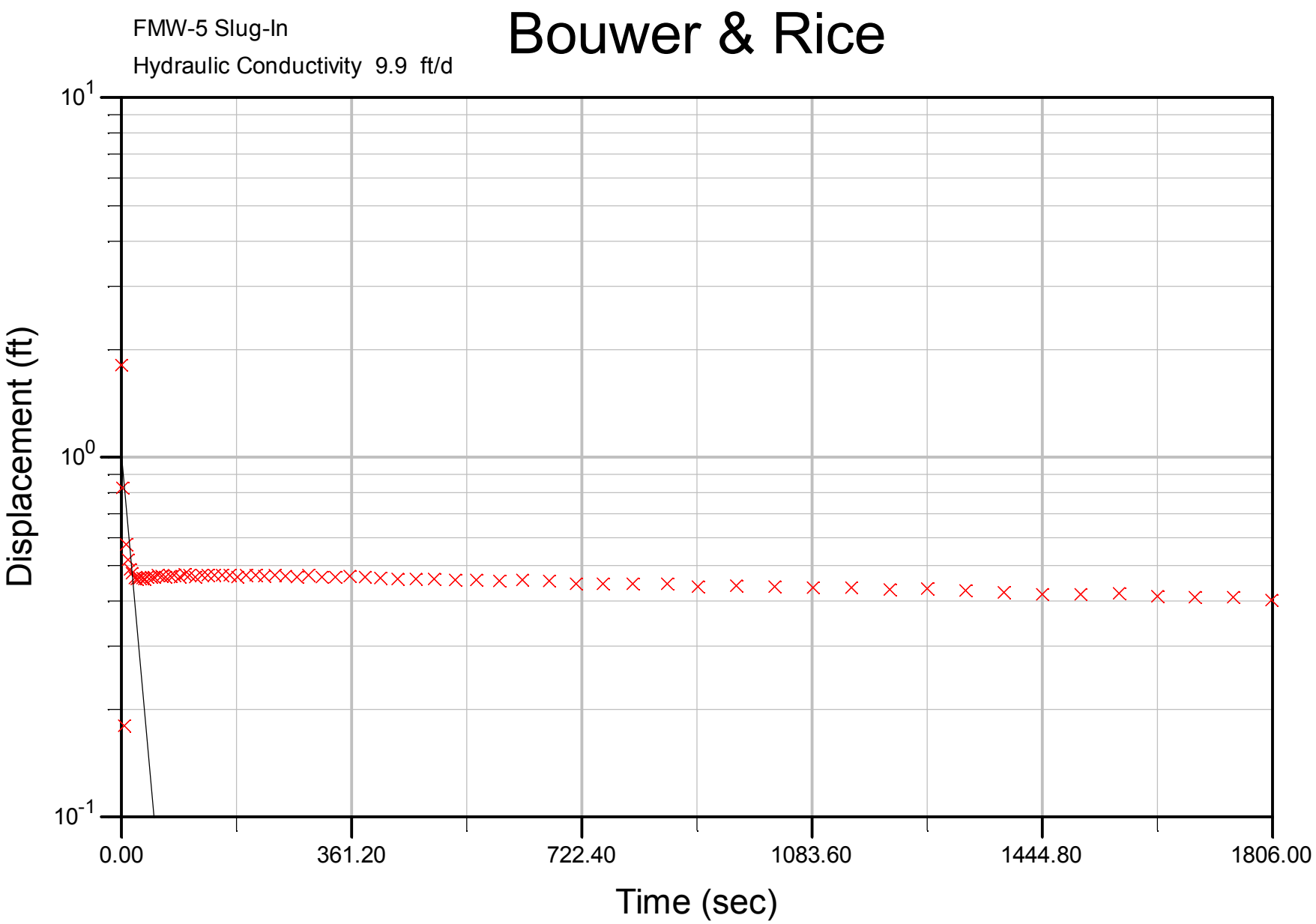
FMW-1 Slug-In

Hydraulic Conductivity 0.58 ft/d

Bouwer & Rice



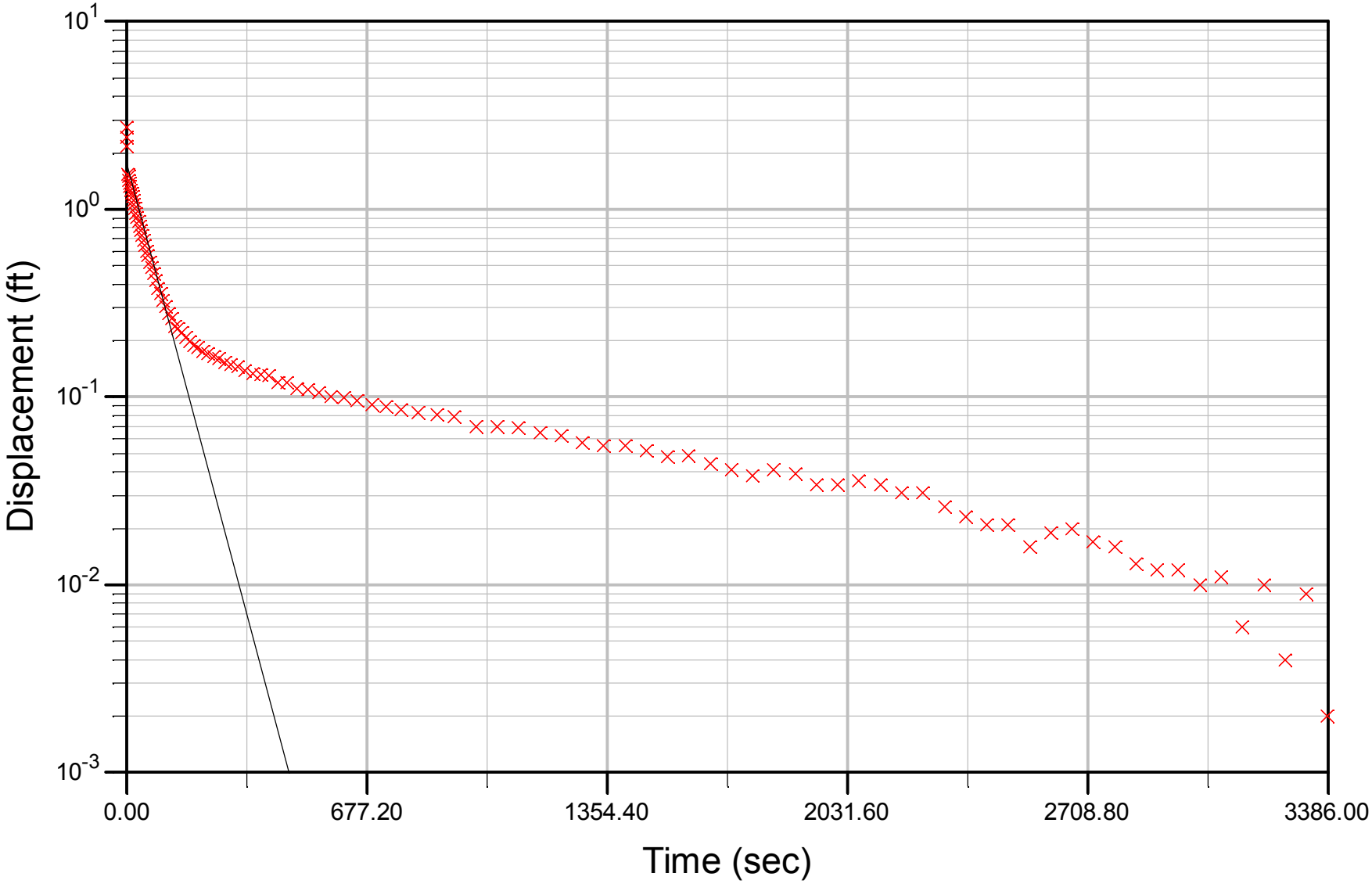

Bouwer & Rice
FMW-1 Slug Out
Hydraulic Conductivity 0.45 ft/d
Displacement (ft)
10^1
10^0
10^-1
10^-2
10^-3
0.00
626.20
1252.40
1878.60
2504.80
3131.00
Time (sec)

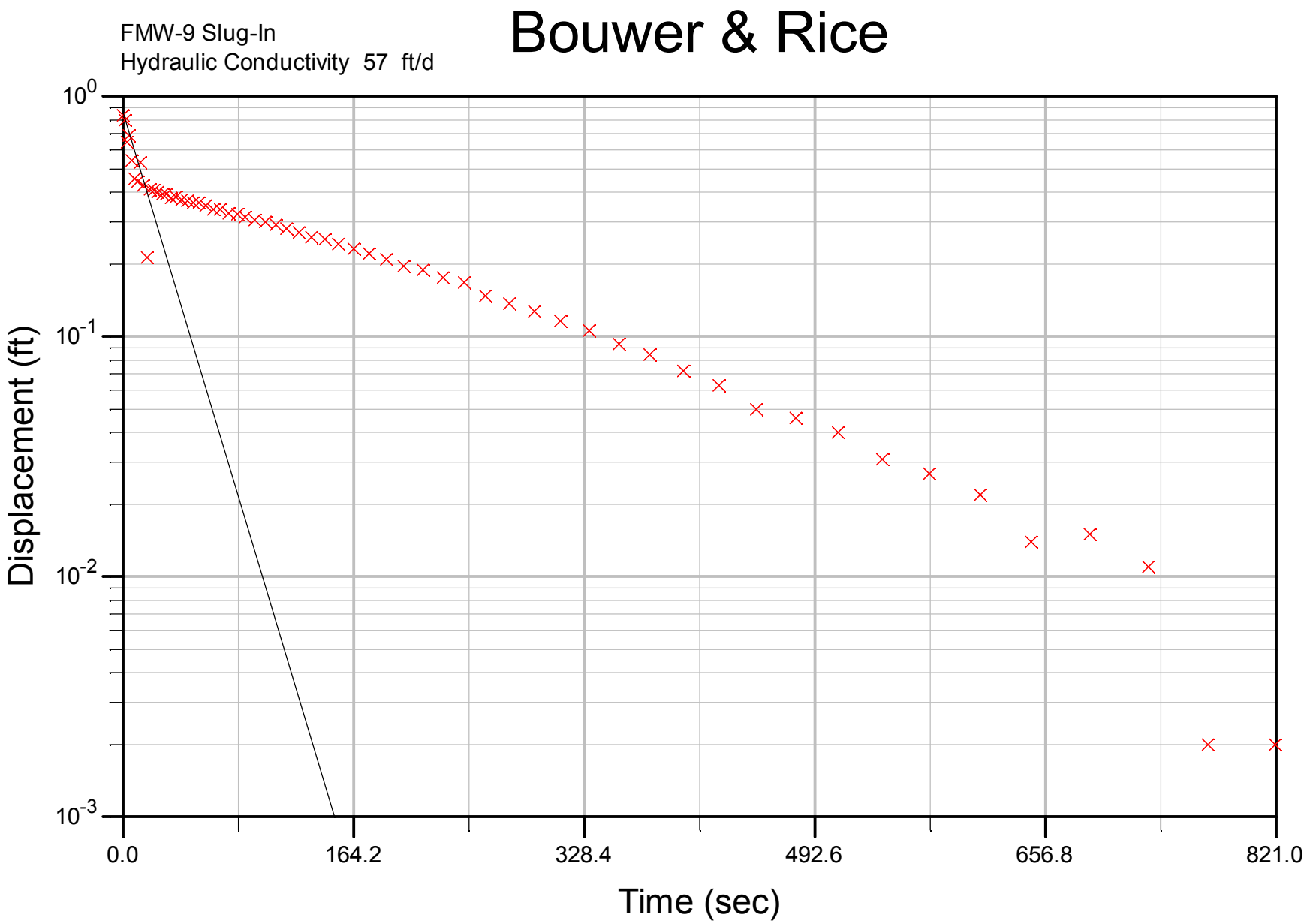

FMW-5 Slug-In
Hydraulic Conductivity 9.9 ft/d
Bouwer & Rice
Displacement (ft)
10^1
10^0
10^-1
0.00
361.20
722.40
1083.60
1444.80
1806.00
Time (sec)

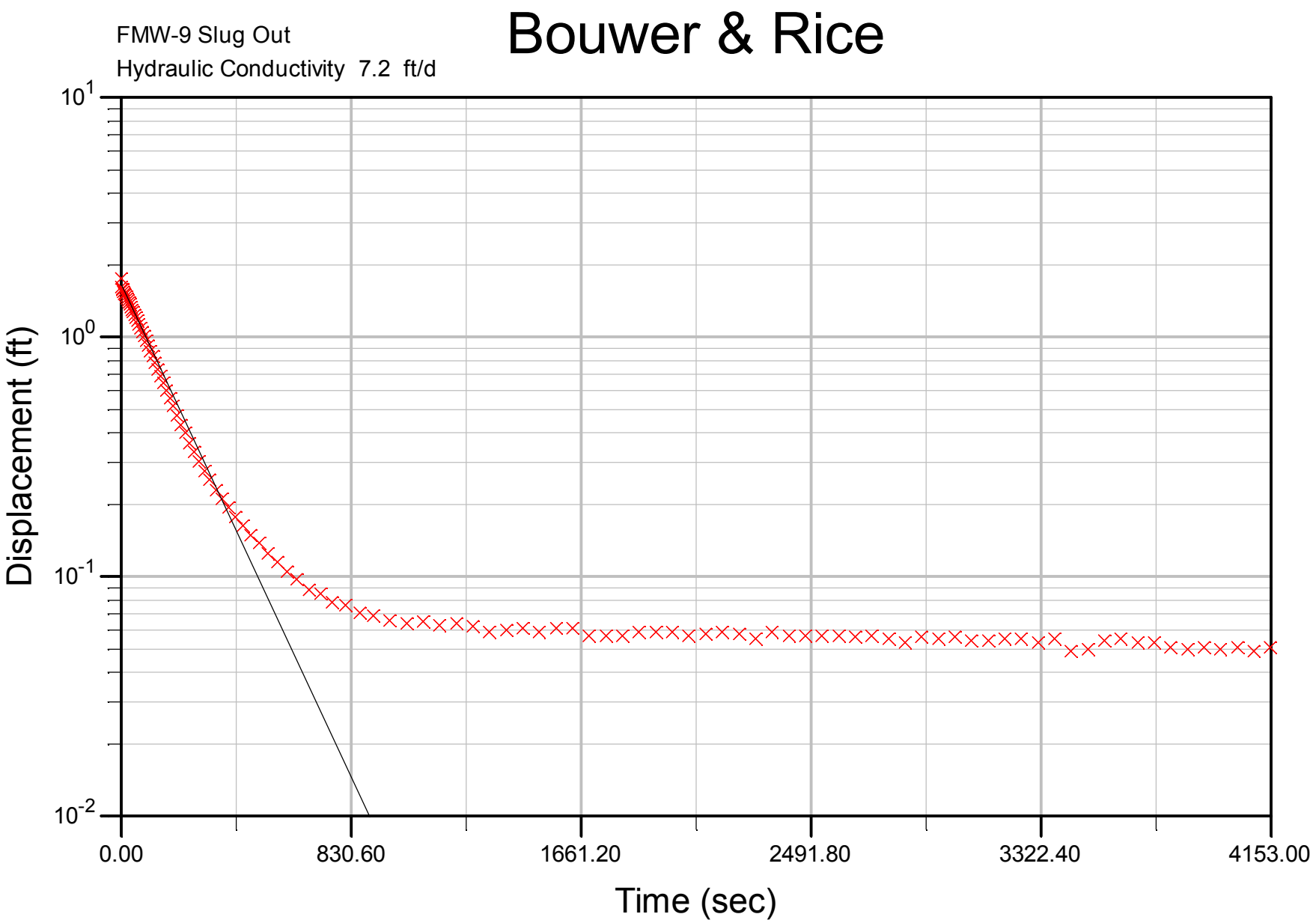
FMW-5 Slug-Out

Hydraulic Conductivity 3.68 ft/d

Bouwer & Rice




Bouwer & Rice
FMW-9 Slug-In
Hydraulic Conductivity 57 ft/d
Displacement (ft)
10^0
10^-1
10^-2
10^-3
0.0
164.2
328.4
492.6
656.8
821.0
Time (sec)


Bouwer & Rice
FMW-9 Slug Out
Hydraulic Conductivity 7.2 ft/d
Displacement (ft)
10^1
10^0
10^-1
10^-2
0.00
830.60
1661.20
2491.80
3322.40
4153.00
Time (sec)

APPENDIX B: HYDROGEOLOGIC SOIL BORING LOGS

Project Photos

Nancy Creek Hand Auger Borings
Fashion Care/Executive Care
VRP Site
2211 Savoy Drive
Chamblee, GA

Photo 1

Description: Location of boring CK-HA-1. An erosional surface at the base of the channel of Nancy Creek.

View Direction: North

Date Taken: 09/09/2014

Photo 2

Description: Hand auger cuttings, boring CK-HA-1.

Date Taken: 09/09/2014

Project Photos

Nancy Creek Hand Auger Borings
Fashion Care/Executive Care
VRP Site
2211 Savoy Drive
Chamblee, GA

Photo 3

Description: Hand auger cuttings, boring CK-HA-1.

Date Taken: 09/09/2014

Photo 4

Description: Location of boring CK-HA-2. An erosional surface at the base of the channel of Nancy Creek

View Direction: South

Date Taken: 09/09/2014

WOODARD &CURRAN

Project Photos

Nancy Creek Hand Auger Borings
Fashion Care/Executive Care
VRP Site
2211 Savoy Drive
Chamblee, GA

Photo 5

Description: Hand auger cuttings, boring CK-HA-2.

Date Taken: 09/09/2014

Soil Boring Log

Boring ID: **CK-HA-1**
Nancy Creek

Project:	Fashion Care Cleaners	Elevation:	
Project No:	226203	Date started:	9/9/2014
Location:	2211 Savoy Drive, Chamblee, GA	Date Completed:	9/9/2014
Driller:	Hand Auger	Field Oversight:	LJD
DTW:	NA	Final Depth:	2.5 ft

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	PID (ppm)	Remarks
0	Surface Water-Base of creek 1' below water surface		No samples collected	No readings collected	This boring was located slightly upstream of FMW-11. Surface water level and flow normal. Boring located in an erosional bend of the creek with no sediment accumulation. Exposed bank was a reddish-brown, sandy to clayey SILT.
	Grey, clayey SILT				
5	Reddish-brown, poorly sorted, sub-angular to well-rounded very coarse SAND w/large sub-angular to well-rounded pebbles				
	Hand auger boring termiated at approx. 2.5 ft.				
10					
15					
20					
25					
30					
35					

GENERAL SOIL PROFILE AT BORING LOCATION CK-HA-1

Elevation (relative to arbitrary datum of)	Feet BGS	
91.5	0	Ground Surface
		Reddish Brown SILT with varying content of clay and very fine sand
86.5	5	
		(Saturated approx. 7.5-8 ft BGS)
	SW	(Approx. average surface water elevation 83.16 ft; Approx. Base of Creek, 1 ft below SW at boring CK-HA-1)
81.5	BOC 10	
		Reddish-brown, poorly sorted, sub-angular to well- rounded very coarse SAND w/large sub-angular to well-rounded pebbles. Thickness varies from 1-4 ft across site.
		Red to Brown SILT - moist
76.5	15	**Reddish-Brown SILT - dry, dense**
71.5	20	
		Bedrock
	25	

Notes:
Created from boring logs from SB-41, FMW-11, FMW-12 and CK-HA-1.
▼ Top of saturated zone.
SW Approximate surface water elevation during non-storm events.
BOC Approximate base of creek channel on September 9, 2014 at hand auger location relative to top of surface water.

Soil Boring Log

Boring ID **CK-HA-2**
Nancy Creek

Project:	Fashion Care Cleaners	Elevation:	
Project No:	226203	Date started:	9/9/2014
Location:	2211 Savoy Drive, Chamblee, GA	Date Completed:	9/9/2014
Driller:	Hand Auger	Field Oversight:	LJD
DTW:	NA	Final Depth:	1.5 ft

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	PID (ppm)	Remarks
0	Surface Water-Base of creek 2' below water surface		No samples collected	No readings collected	This boring was located downstream of FMW-9, estimated due south of FMW-13. Surface water level and flow normal. Boring located in an erosional bend of the creek with some sediment accumulation.
	Grey, clayey SILT				
5	Hand auger boring termiated at approx. 2.5 ft.				
10					
15					
20					
25					
30					
35					

GENERAL SOIL PROFILE AT BORING LOCATION CK-HA-2

Elevation (relative to arbitrary datum of	Feet BGS	
91	0	Ground Surface
		Reddish Brown SILT with varying content of clay and very fine sand
86	5	(Saturated approx. 8.5-9 ft BGS)
		(Approx. average surface water elevation 82.48 ft; Approx. Base of Creek, 2 ft below SW at boring CK-HA-2)
	SW ▼	
81	10	**Grey to Tan, poorly sorted, sub-angular to well- rounded very coarse SAND w/large sub-angular to well-rounded pebbles.** Thickness varies from 1-4 ft across site.
	BOC	
		Red to Brown to Grey SILT - moist
76	15	
		Reddish-Brown SILT - dry, dense
71	20	
	25	

Notes:
Created from boring logs from SB-43, FMW-9 and CK-HA-2.
▼ Top of saturated zone.
SW Approximate surface water elevation during non-storm events.
BOC Approximate base of creek channel on September 9, 2014 at hand auger location relative to top of surface water.

Soil Boring Log

Boring ID: SB-41

Project:	Fashion Care	Elevation:	
Project No:	226203.00	Date started:	11/7/13
Location:	2211 Savoy Dr	Date Completed:	11/7/13
Driller:	Geo Lab	Field Oversight:	King
DTW:	7.5'	Final Depth:	21'

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Top soil			No odor in boring
	Reddish-Brown sandy SILT - dry	40%		Dry silt from 17' to 21' (refusal).
				Boring was sealed w/hydrated bentonite
5				Picture # 3
	Becoming Reddish-Gray - moist	85%		
▽	Saturated @ 7.5'			
10		80%		
	Reddish-Brown sandy SILT - moist			
15	Red to Brown SILT - moist	40%		
	Reddish-Brown SILT - dry, dense			
20		10%		
	Refusal @ 21'			
25				
30				
35				
40				

Soil Boring Log

Boring ID: SB-43

Project:	Fashion Care	Elevation:	
Project No:	226203.00	Date started:	11/7/13
Location:	2211 Savoy Dr	Date Completed:	11/7/13
Driller:	Geo Lab	Field Oversight:	King
DTW:	9'	Final Depth:	20'

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Top soil			No odor in boring
	Reddish-Brown sandy SILT - dry	40%		Dry silt from 15' to 20' (termination).
				Boring was sealed w/hydrated bentonite
5	Becoming moist	60%		Picture # 5&6
	▽			
10	Gray to Tan SAND, course - wet, saturated @ 9' w/pebbles	50%		
	Reddish-Brown SILT - moist			
15	Reddish-Brown SILT - dry, dense	90%		
20	Boring Terminated @ 20'			
25				
30				
35				
40				

Soil Boring Log

Boring ID: SB-44

Project:	Fashion Care	Elevation:	
Project No:	226203.00	Date started:	11/7/13
Location:	2211 Savoy Dr	Date Completed:	11/7/13
Driller:	Geo Lab	Field Oversight:	King
DTW:	7'	Final Depth:	20'

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Top soil			No odor in boring
	Reddish-Brown clayey SILT - dry	50%		Dry silt from 15' to 20' (termination).
	Becoming moist			Boring was sealed w/hydrated bentonite
5				Picture # 7 is the bottom 0f 10'-15' and 15'-20'
	▽	60%		
	Gray SAND course - wet, saturated @7'			
10	w/some pebbles	70%		
	Tan to Reddish-Brown SILT - moist			
15	Tan to Reddish-Brown SILT - dry, dense	100%		
20	Boring Terminated @ 20'			
25				
30				
35				
40				

Soil Boring Log

Boring ID: FMW-9

Project: Fashion Care
Project No: 8096
Location: Southwest of dry cleaner near creek
Driller: Atlas Geo Sampling
DTW: 8.5' Final Depth: 16'

Elevation:
Date started: 11/25/08
Date Completed: 11/25/08
Field Oversite: Len Diprima/Joe King

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Reddish Brown SILT	45%		No soil samples collected
5	(7') Moist.	60%		
	▽WT~8.5'			
10	8.5' Grey sandy SILT, w/scattered round pebbles, WET	50%		
15				
	Boring Terminated @ 16' BLS			
20				
25				
30				
35				
40				

Soil Boring Log

Boring ID: FMW-11

Project: Fashion Care
Project No: 8096
Location: South of dry cleaner
Driller: Atlas Geo Sampling
DTW: 9' Final Depth: 16'

Elevation:
Date started: 11/25/08
Date Completed: 11/25/08
Field Oversite: Len Diprima/Joe King

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Reddish Brown silty CLAY, mosit	50%		No soil samples collected
5		80%		
	▽ WT~9'			
10	Reddish Tan silty CLAY, WET	100%		
		100%		
15				
	Boring Terminated @ 16' BLS			
20				
25				
30				
35				
40				

Soil Boring Log

Boring ID: FMW-12

Project:	Fashion Care	Elevation:	
Project No:	8096	Date started:	3/17/10
Location:	South of dry cleaner	Date Completed:	3/17/10
Driller:	Atlas Geo Sampling	Field Oversite:	Diprima
DTW:	9'	Final Depth:	16'

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Reddish Brown SILT, some relict rock structure	60%		No soil samples collected
5	5'-7' clayey SILT	80%		
▽	9' sandy SILT; WET	90%		
10				
	14'-15' Gravel	50%		
15	15'-16' Grey SILT; DRY			
	Boring Terminated @ 16' BLS			
20				
25				
30				
35				
40				

Soil Boring Log

Boring ID: SB-38

WOODARD &CURRAN

Project:	Fashion Care	Elevation:	
Project No:	226203.00	Date started:	11/7/13
Location:	2211 Savoy Dr	Date Completed:	11/7/13
Driller:	Geo Lab	Field Oversight:	Diprima/King
DTW:	12'	Final Depth:	33'

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Asphalt			Solvent odor in boring
	Reddish Brown to Brown clayey SILT - moist	75%		Dry silt from 23' to refusal.
5	Grading to Lt Gray to Gray SILT- moist	60%		Boring was sealed w/hydrated bentonite
10	▽ Saturated @ 12'	100%		
15	Becoming Dry @ 18'	95%		
20	21'-23' wet 23'-27' dry	75%		
25	27'-28.5' wet	100%		
	28.5'-33' Reddish-brown dry dense SILT	100%		
30	Refusal @ 33'			
35				
40				

Soil Boring Log

Boring ID: SB-39

WOODARD &CURRAN

Project:	Fashion Care	Elevation:	
Project No:	226203.00	Date started:	11/7/13
Location:	2211 Savoy Dr	Date Completed:	11/7/13
Driller:	Geo Lab	Field Oversight:	Diprima/King
DTW:	15'	Final Depth:	33.5'

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Asphalt			Solvent odor in boring
	Reddish-Brown clayey SILT	50%		Dry silt from 24.3' to refusal. Still dry at refusal.>9' thick
5	Lt Gray SAND - moist	50%		Boring was sealed w/hydrated bentonite
	Brown to Dark Gray clayey SILT - moist			
10	Lt Gray clayey SILT moist	100%		
15 ▽	Lt. Gray SAND - wet @16'	70%		
	Reddish-Brown SILT - moist			
20	24.3'-28' dry	100%		
25	28'-29' moist/wet	100%		
30	29'-33.5' Reddish-brown dry dense SILT	100%		
	Refusal @ 33.5'			
35				
40				

Soil Boring Log

Boring ID: SB-40

Project:	Fashion Care	Elevation:	
Project No:	226203.00	Date started:	11/7/13
Location:	2211 Savoy Dr	Date Completed:	11/7/13
Driller:	Geo Lab	Field Oversight:	King
DTW:	12.5'	Final Depth:	25'

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Top soil	50%		No odor in boring
	Reddish-Brown clayey SILT - moist			Dry silt from 17' to 25' (termination).
				Boring was sealed w/hydrated bentonite
5	Reddish Brown sandy SILT - moist	90%		Picture # 1&2
	Becoming Red to Gray			
10	Becoming Red to Tan	70%		
▽	Saturated @ 12.5'			
	Lt. Gray clayey SILT - wet			
15	Reddish Brown SILT - wet	70%		
	Reddish-Brown SILT - dry, dense			
20	17' to 25' dry	90%		
25	Boring Terminated @ 25'			
30				
35				
40				

Soil Boring Log

Boring ID: SB-42

WOODARD &CURRAN

Project:	Fashion Care	Elevation:	
Project No:	226203.00	Date started:	11/7/13
Location:	2211 Savoy Dr	Date Completed:	11/7/13
Driller:	Geo Lab	Field Oversight:	King
DTW:	10'	Final Depth:	25'

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Top soil			No odor in boring
	Reddish-Brown clayey SILT - dry	60%		Dry silt from 17' to 25' (termination).
	Becoming moist			Boring was sealed w/hydrated bentonite
5		90%		Picture # 4
10 ▽	Reddish-Brown sandy SILT- wet, saturated @11'	90%		
15	Reddish-Brown clayey SILT - moist	70%		
	Reddish-Brown SILT - dry, dense			
20		70%		
25	Boring Terminated @ 25'			
30				
35				
40				

Soil Boring Log

Boring ID: SB-45

Project:	Fashion Care	Elevation:	
Project No:	226203.00	Date started:	11/8/13
Location:	2211 Savoy Dr	Date Completed:	11/8/13
Driller:	Geo Lab	Field Oversight:	King
DTW:	9'	Final Depth:	25'

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Top soil			No odor in boring
	Brown to Tan sandy SILT - moist	90%		Dry silt from 17' to 25' (termination).
				Boring was sealed w/hydrated bentonite
5	Becoming Tan to Gray	70%		Picture # 10&11
▽				
10	Reddish-Tan to Gray SAND, course - wet, saturated @ 9'	80%		
	Reddish-Brown clayey SILT - moist	80%		
15				
	Red to Tan to Brown SILT - dry, dense	100%		
20				
25	Boring Terminated @ 25'			
30				
35				
40				

Soil Boring Log

Boring ID: SB-46

WOODARD &CURRAN

Project:	Fashion Care	Elevation:	
Project No:	226203.00	Date started:	11/8/13
Location:	2211 Savoy Dr	Date Completed:	11/8/13
Driller:	Geo Lab	Field Oversight:	King
DTW:	7'	Final Depth:	25'

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Top soil			No odor in boring
	Red to Brown sandy SILT - moist	50%		Dry silt from 18' to 25' (termination).
5				Boring was sealed w/hydrated bentonite
▽		50%		Picture # 8 & 9
	Gray-Black SAND, course w/pebbles - wet, saturated @ 7'			
10		50%		
15	Reddish-Tan clayey SILT - moist	70%		
	Red to Tan SILT - dry, dense			
20		90%		
	Reddish-Black saprolite - dry			
25	Boring Terminated @ 25'			
30				
35				
40				

Soil Boring Log

Boring ID: FMW-15

WINTER ENVIRONMENTAL

Project: Fashion Care
Project No: 8096
Location: South of dry cleaner
Driller: Atlas Geo Sampling
DTW: 5' Final Depth: 16'

Elevation:
Date started: 6/15/10
Date Completed: 6/15/10
Field Oversite: V Owens/L LeMay

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Grey silty CLAY, moist	70%		No soil samples collected
	WT~5' ▽			
5	Grey SAND, wet slight silt	70%		
10	Hard dry clayey SILT, striations (Saprolite)	100%		
15	Same	100%		
	Boring Terminated @ 16' BLS			
20				
25				
30				
35				
40				

Soil Boring Log

Boring ID: **MW-18D (well aborted)**

Project:	Fashion Care Cleaners	Elevation:	
Project No:	226203	Date started:	4/22/2014
Location:	2211 Savoy Drive, Chamblee, GA	Date Completed:	4/22/2014
Driller:	GeoLab	Field Oversight:	LJD
DTW:	7 ft. bgs	Final Depth:	33.5 ft. bgs

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	PID (ppm)	Well Completion	Remarks
0	Reddish-brown Silt, moist	20%	No samples collected	No readings collected	Type III well installation aborted	On 4/22/14 suspected bedrock on refusal at 33.5ft. bgs using solid-stem augers. Borehole temporarily abandoned using bentonite on 4/22/14. 4/24/14 returned with hollow-stem augers. Re-drilled borehole to refusal at 33.5 ft. bgs, used split-spoon to collect small sample of bedrock to confirm type of refusal, tremie-grouted boring with Portland-bentonite slurry to ensure good borehole seal.
5						
	Reddish-brown silty, fine to coarse SAND Wet	100%				
10	13 ft. color change to medium gray	100%				
15	Reddish-brown SILT, dense, moist	80%				
20	19.5 ft. Silt becoming dry, very dense	Solid stem augers required beginning at 20 ft. bgs due to DPT refusal. Down-pressure and cuttings used to identify lithology/lithologic changes.				
25						
30	Bedrock at 33.5 ft. immediately below SILT Mica-Garnet Greenschist					
35	Boring Terminated at 33.5 ft. bgs - Refusal					

Soil Boring Log

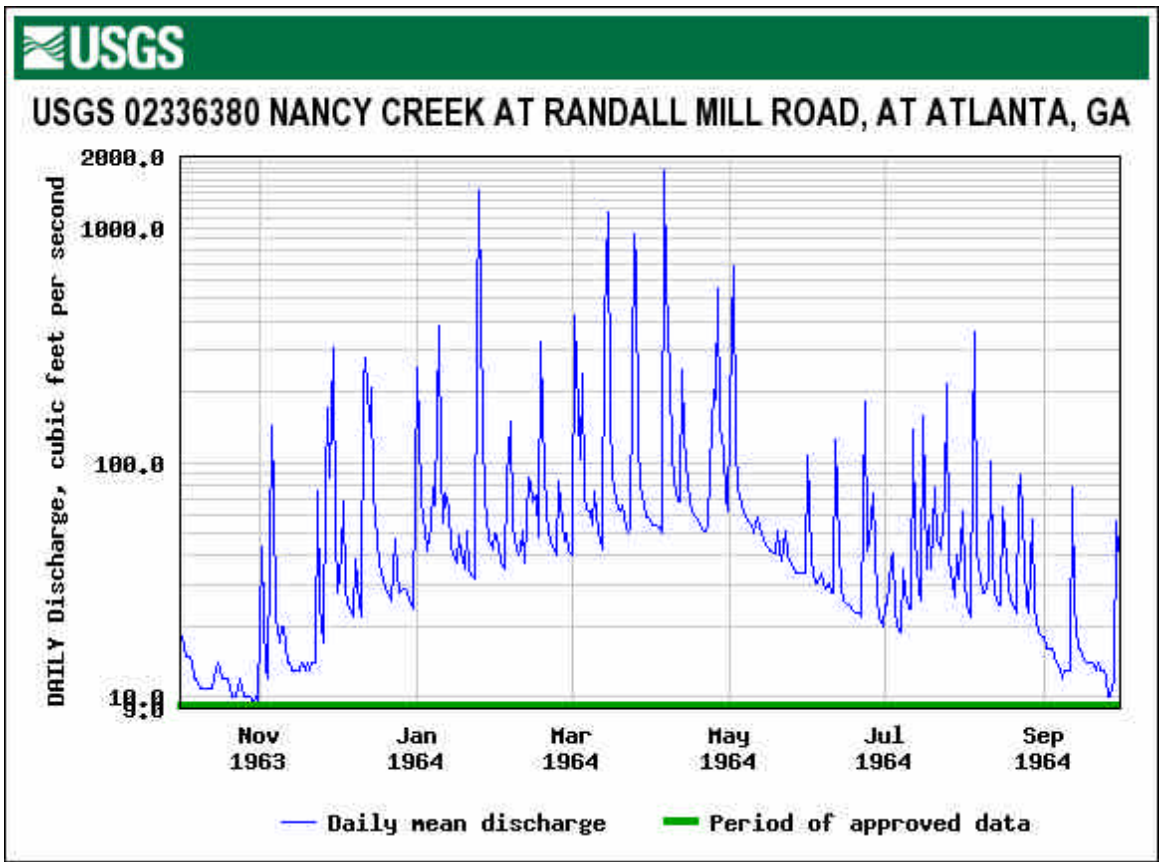
WOODARD &CURRAN

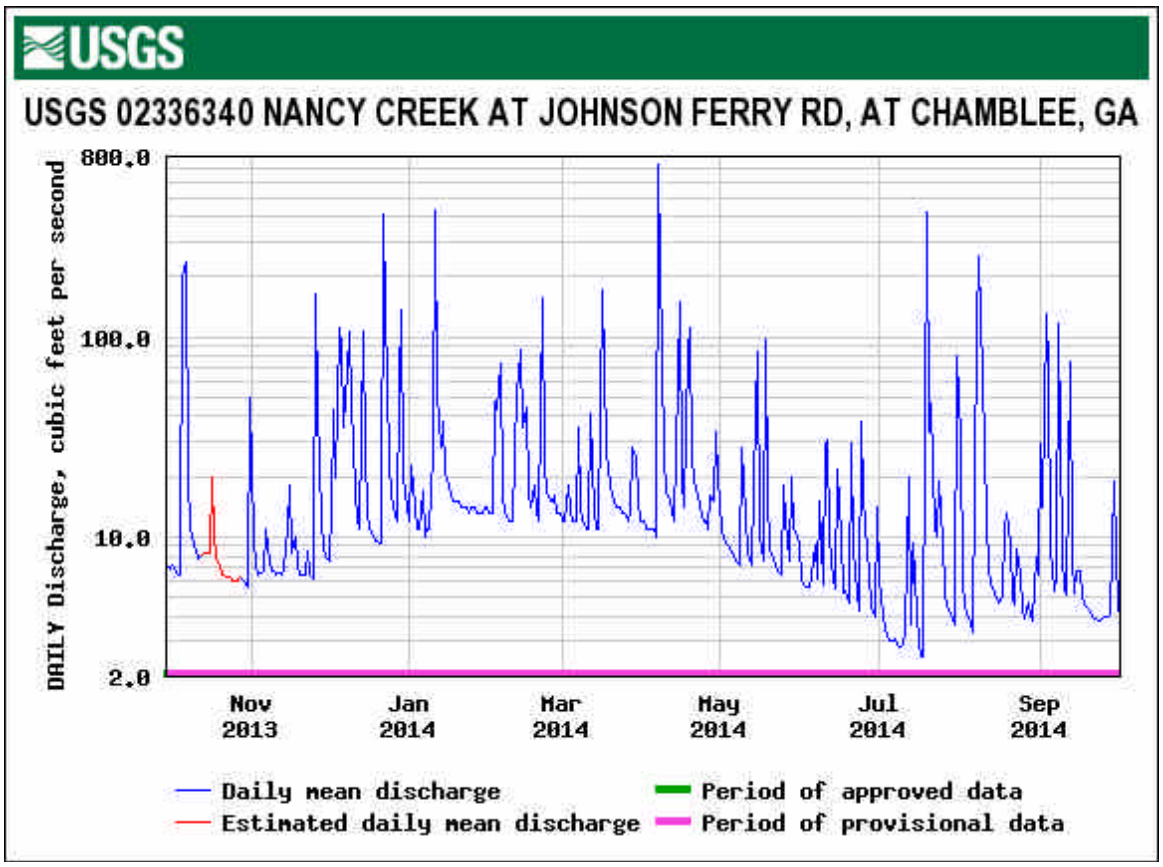
Boring ID: SB-37

Project:	Fashion Care	Elevation:	
Project No:	226203.00	Date started:	11/7/13
Location:	2211 Savoy Dr	Date Completed:	11/7/13
Driller:	Geo Lab	Field Oversight:	Diprima/King
DTW:	7.5'	Final Depth:	35'

Depth (feet bgs)	Soil Classification	% Recovery	Sample No.	Remarks
0	Asphalt			There is approx. 10' of dry silt at this location from 23'-33'
	Reddish Brown to tan silty CLAY - moist	65%		
5		90%		Boring was sealed w/hydrated bentonite
▽	Light gray SAND - saturated (7.5')			
	Brown to Dark grey silty CLAY to clayey SILT - moist			
10		100%		
15				
	Light Gray silty SAND - wet	80%		
	Reddish Brown to tan SILT- moist			
20	Becoming Dry @ 23'			
	Dense material	95%		
25		95%		
30		100%		
	Becoming moist @ 34'			
35	Boring Terminated @ 35'			
40				

APPENDIX C: NANCY CREEK FLOW GRAPHS FROM USGS STATIONS


USGS
USGS 02336380 NANCY CREEK AT RANDALL MILL ROAD, AT ATLANTA, GA
DAILY Discharge, cubic feet per second
2000.0
1000.0
100.0
10.0
Nov 1963
Jan 1964
Mar 1964
May 1964
Jul 1964
Sep 1964
Daily mean discharge
Period of approved data


USGS
USGS 02336340 NANCY CREEK AT JOHNSON FERRY RD, AT CHAMBLEE, GA
DAILY Discharge, cubic feet per second
800.0
100.0
10.0
2.0
Nov 2013
Jan 2014
Mar 2014
May 2014
Jul 2014
Sep 2014
Daily mean discharge
Estimated daily mean discharge
Period of approved data
Period of provisional data

APPENDIX D: SOIL FLUSHING CALCULATIONS

Soil Dissolution -

Depth of Unsat contamination (ft)	7					
Average Soil concentration (mg/kg)	7.53					
Assumed density (lbs/cubic foot)	100			Kv	1.5	ft/day
Mass contaminated Soil (lbs)	1,470,000	666,780	kg	porosity	0.2	unitless
Initial Contaminant Mass (mg)	5,017,521			gradient	1	ft/ft
Recharge Rate (in/year)	1.00	2.28E-04	ft/day	unsat depth	7	ft
Surface Area (sq.ft)	2100					
Flow per day (CFD)	0.48	13.58	L/day	v	7.5	ft/day
PCE Solubility (mg/L)	150					
Daily Dissolution (mg/D)	2,036			Mass Dissolution:	Total Days	Total Years
					2464	7

Year	Day	Mass Remaining	Conc. mg/L
0.003	1	5,015,485	75
0.005	2	5,013,448	74.97
0.008	3	5,011,412	74.94
0.011	4	5,009,375	74.91
0.014	5	5,007,339	74.88
0.016	6	5,005,302	74.85
0.019	7	5,003,266	74.82
0.022	8	5,001,229	74.79
0.025	9	4,999,193	74.76
0.027	10	4,997,156	74.73
0.030	11	4,995,120	74.70
0.033	12	4,993,084	74.67
0.036	13	4,991,047	74.64
0.038	14	4,989,011	74.61
0.041	15	4,986,974	74.58
0.044	16	4,984,938	74.55
0.047	17	4,982,901	74.52
0.049	18	4,980,865	74.49
0.052	19	4,978,828	74.46
0.055	20	4,976,792	74.43
0.058	21	4,974,755	74.40
0.060	22	4,972,719	74.37
0.063	23	4,970,682	74.34
0.066	24	4,968,646	74.31
0.068	25	4,966,609	74.28
0.071	26	4,964,573	74.25
0.074	27	4,962,536	74.22
0.077	28	4,960,500	74.19
0.079	29	4,958,463	74.16
0.082	30	4,956,427	74.13
0.085	31	4,954,390	74.10
0.088	32	4,952,354	74.07
0.090	33	4,950,317	74.04
0.093	34	4,948,281	74.01
0.096	35	4,946,244	73.98
0.099	36	4,944,208	73.95
0.101	37	4,942,171	73.92
0.104	38	4,940,135	73.89
0.107	39	4,938,099	73.86
0.110	40	4,936,062	73.83

	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
0.03		0	75
	1	365	64
	2	730	53
	3	1095	42
	4	1460	31
	5	1825	20
	6	2190	9
	7	2555	1

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
0.112	41	4,934,026	73.80			
0.115	42	4,931,989	73.77			
0.118	43	4,929,953	73.74			
0.121	44	4,927,916	73.71			
0.123	45	4,925,880	73.68			
0.126	46	4,923,843	73.65			
0.129	47	4,921,807	73.62			
0.132	48	4,919,770	73.59			
0.134	49	4,917,734	73.56			
0.137	50	4,915,697	73.53			
0.140	51	4,913,661	73.50			
0.142	52	4,911,624	73.47			
0.145	53	4,909,588	73.44			
0.148	54	4,907,551	73.41			
0.151	55	4,905,515	73.38			
0.153	56	4,903,478	73.35			
0.156	57	4,901,442	73.32			
0.159	58	4,899,405	73.29			
0.162	59	4,897,369	73.26			
0.164	60	4,895,332	73.23			
0.167	61	4,893,296	73.20			
0.170	62	4,891,259	73.17			
0.173	63	4,889,223	73.14			
0.175	64	4,887,186	73.11			
0.178	65	4,885,150	73.08			
0.181	66	4,883,113	73.05			
0.184	67	4,881,077	73.02			
0.186	68	4,879,041	72.99			
0.189	69	4,877,004	72.96			
0.192	70	4,874,968	72.93			
0.195	71	4,872,931	72.90			
0.197	72	4,870,895	72.87			
0.200	73	4,868,858	72.84			
0.203	74	4,866,822	72.81			
0.205	75	4,864,785	72.78			
0.208	76	4,862,749	72.75			
0.211	77	4,860,712	72.72			
0.214	78	4,858,676	72.69			
0.216	79	4,856,639	72.66			
0.219	80	4,854,603	72.63			
0.222	81	4,852,566	72.60			
0.225	82	4,850,530	72.57			
0.227	83	4,848,493	72.54			
0.230	84	4,846,457	72.51			
0.233	85	4,844,420	72.48			
0.236	86	4,842,384	72.45			
0.238	87	4,840,347	72.42			
0.241	88	4,838,311	72.39			
0.244	89	4,836,274	72.36			
0.247	90	4,834,238	72.33			
0.249	91	4,832,201	72.30			
0.252	92	4,830,165	72.27			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
0.255	93	4,828,128	72.24			
0.258	94	4,826,092	72.21			
0.260	95	4,824,055	72.18			
0.263	96	4,822,019	72.15			
0.266	97	4,819,983	72.12			
0.268	98	4,817,946	72.09			
0.271	99	4,815,910	72.06			
0.274	100	4,813,873	72.03			
0.277	101	4,811,837	72.00			
0.279	102	4,809,800	71.97			
0.282	103	4,807,764	71.94			
0.285	104	4,805,727	71.91			
0.288	105	4,803,691	71.88			
0.290	106	4,801,654	71.85			
0.293	107	4,799,618	71.82			
0.296	108	4,797,581	71.79			
0.299	109	4,795,545	71.76			
0.301	110	4,793,508	71.73			
0.304	111	4,791,472	71.70			
0.307	112	4,789,435	71.67			
0.310	113	4,787,399	71.63			
0.312	114	4,785,362	71.60			
0.315	115	4,783,326	71.57			
0.318	116	4,781,289	71.54			
0.321	117	4,779,253	71.51			
0.323	118	4,777,216	71.48			
0.326	119	4,775,180	71.45			
0.329	120	4,773,143	71.42			
0.332	121	4,771,107	71.39			
0.334	122	4,769,070	71.36			
0.337	123	4,767,034	71.33			
0.340	124	4,764,998	71.30			
0.342	125	4,762,961	71.27			
0.345	126	4,760,925	71.24			
0.348	127	4,758,888	71.21			
0.351	128	4,756,852	71.18			
0.353	129	4,754,815	71.15			
0.356	130	4,752,779	71.12			
0.359	131	4,750,742	71.09			
0.362	132	4,748,706	71.06			
0.364	133	4,746,669	71.03			
0.367	134	4,744,633	71.00			
0.370	135	4,742,596	70.97			
0.373	136	4,740,560	70.94			
0.375	137	4,738,523	70.91			
0.378	138	4,736,487	70.88			
0.381	139	4,734,450	70.85			
0.384	140	4,732,414	70.82			
0.386	141	4,730,377	70.79			
0.389	142	4,728,341	70.76			
0.392	143	4,726,304	70.73			
0.395	144	4,724,268	70.70			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
0.397	145	4,722,231	70.67			
0.400	146	4,720,195	70.64			
0.403	147	4,718,158	70.61			
0.405	148	4,716,122	70.58			
0.408	149	4,714,085	70.55			
0.411	150	4,712,049	70.52			
0.414	151	4,710,012	70.49			
0.416	152	4,707,976	70.46			
0.419	153	4,705,940	70.43			
0.422	154	4,703,903	70.40			
0.425	155	4,701,867	70.37			
0.427	156	4,699,830	70.34			
0.430	157	4,697,794	70.31			
0.433	158	4,695,757	70.28			
0.436	159	4,693,721	70.25			
0.438	160	4,691,684	70.22			
0.441	161	4,689,648	70.19			
0.444	162	4,687,611	70.16			
0.447	163	4,685,575	70.13			
0.449	164	4,683,538	70.10			
0.452	165	4,681,502	70.07			
0.455	166	4,679,465	70.04			
0.458	167	4,677,429	70.01			
0.460	168	4,675,392	69.98			
0.463	169	4,673,356	69.95			
0.466	170	4,671,319	69.92			
0.468	171	4,669,283	69.89			
0.471	172	4,667,246	69.86			
0.474	173	4,665,210	69.83			
0.477	174	4,663,173	69.80			
0.479	175	4,661,137	69.77			
0.482	176	4,659,100	69.74			
0.485	177	4,657,064	69.71			
0.488	178	4,655,027	69.68			
0.490	179	4,652,991	69.65			
0.493	180	4,650,955	69.62			
0.496	181	4,648,918	69.59			
0.499	182	4,646,882	69.56			
0.501	183	4,644,845	69.53			
0.504	184	4,642,809	69.50			
0.507	185	4,640,772	69.47			
0.510	186	4,638,736	69.44			
0.512	187	4,636,699	69.41			
0.515	188	4,634,663	69.38			
0.518	189	4,632,626	69.35			
0.521	190	4,630,590	69.32			
0.523	191	4,628,553	69.29			
0.526	192	4,626,517	69.26			
0.529	193	4,624,480	69.23			
0.532	194	4,622,444	69.20			
0.534	195	4,620,407	69.17			
0.537	196	4,618,371	69.14			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
0.540	197	4,616,334	69.11			
0.542	198	4,614,298	69.08			
0.545	199	4,612,261	69.05			
0.548	200	4,610,225	69.02			
0.551	201	4,608,188	68.99			
0.553	202	4,606,152	68.96			
0.556	203	4,604,115	68.93			
0.559	204	4,602,079	68.90			
0.562	205	4,600,042	68.87			
0.564	206	4,598,006	68.84			
0.567	207	4,595,969	68.81			
0.570	208	4,593,933	68.78			
0.573	209	4,591,897	68.75			
0.575	210	4,589,860	68.72			
0.578	211	4,587,824	68.69			
0.581	212	4,585,787	68.66			
0.584	213	4,583,751	68.63			
0.586	214	4,581,714	68.60			
0.589	215	4,579,678	68.57			
0.592	216	4,577,641	68.54			
0.595	217	4,575,605	68.51			
0.597	218	4,573,568	68.48			
0.600	219	4,571,532	68.45			
0.603	220	4,569,495	68.42			
0.605	221	4,567,459	68.39			
0.608	222	4,565,422	68.36			
0.611	223	4,563,386	68.33			
0.614	224	4,561,349	68.30			
0.616	225	4,559,313	68.27			
0.619	226	4,557,276	68.24			
0.622	227	4,555,240	68.21			
0.625	228	4,553,203	68.18			
0.627	229	4,551,167	68.15			
0.630	230	4,549,130	68.12			
0.633	231	4,547,094	68.09			
0.636	232	4,545,057	68.06			
0.638	233	4,543,021	68.03			
0.641	234	4,540,984	68.00			
0.644	235	4,538,948	67.97			
0.647	236	4,536,912	67.94			
0.649	237	4,534,875	67.91			
0.652	238	4,532,839	67.88			
0.655	239	4,530,802	67.85			
0.658	240	4,528,766	67.82			
0.660	241	4,526,729	67.79			
0.663	242	4,524,693	67.76			
0.666	243	4,522,656	67.73			
0.668	244	4,520,620	67.70			
0.671	245	4,518,583	67.67			
0.674	246	4,516,547	67.64			
0.677	247	4,514,510	67.61			
0.679	248	4,512,474	67.58			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
0.682	249	4,510,437	67.55			
0.685	250	4,508,401	67.52			
0.688	251	4,506,364	67.49			
0.690	252	4,504,328	67.46			
0.693	253	4,502,291	67.43			
0.696	254	4,500,255	67.40			
0.699	255	4,498,218	67.37			
0.701	256	4,496,182	67.34			
0.704	257	4,494,145	67.31			
0.707	258	4,492,109	67.28			
0.710	259	4,490,072	67.25			
0.712	260	4,488,036	67.22			
0.715	261	4,485,999	67.19			
0.718	262	4,483,963	67.16			
0.721	263	4,481,926	67.13			
0.723	264	4,479,890	67.10			
0.726	265	4,477,854	67.07			
0.729	266	4,475,817	67.04			
0.732	267	4,473,781	67.01			
0.734	268	4,471,744	66.98			
0.737	269	4,469,708	66.95			
0.740	270	4,467,671	66.92			
0.742	271	4,465,635	66.89			
0.745	272	4,463,598	66.86			
0.748	273	4,461,562	66.83			
0.751	274	4,459,525	66.80			
0.753	275	4,457,489	66.77			
0.756	276	4,455,452	66.74			
0.759	277	4,453,416	66.71			
0.762	278	4,451,379	66.68			
0.764	279	4,449,343	66.65			
0.767	280	4,447,306	66.62			
0.770	281	4,445,270	66.59			
0.773	282	4,443,233	66.56			
0.775	283	4,441,197	66.53			
0.778	284	4,439,160	66.50			
0.781	285	4,437,124	66.47			
0.784	286	4,435,087	66.44			
0.786	287	4,433,051	66.41			
0.789	288	4,431,014	66.38			
0.792	289	4,428,978	66.35			
0.795	290	4,426,941	66.32			
0.797	291	4,424,905	66.29			
0.800	292	4,422,869	66.26			
0.803	293	4,420,832	66.23			
0.805	294	4,418,796	66.20			
0.808	295	4,416,759	66.17			
0.811	296	4,414,723	66.14			
0.814	297	4,412,686	66.11			
0.816	298	4,410,650	66.08			
0.819	299	4,408,613	66.05			
0.822	300	4,406,577	66.02			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
0.825	301	4,404,540	65.99			
0.827	302	4,402,504	65.96			
0.830	303	4,400,467	65.93			
0.833	304	4,398,431	65.90			
0.836	305	4,396,394	65.87			
0.838	306	4,394,358	65.84			
0.841	307	4,392,321	65.81			
0.844	308	4,390,285	65.78			
0.847	309	4,388,248	65.75			
0.849	310	4,386,212	65.72			
0.852	311	4,384,175	65.69			
0.855	312	4,382,139	65.66			
0.858	313	4,380,102	65.63			
0.860	314	4,378,066	65.60			
0.863	315	4,376,029	65.57			
0.866	316	4,373,993	65.54			
0.868	317	4,371,956	65.51			
0.871	318	4,369,920	65.48			
0.874	319	4,367,883	65.45			
0.877	320	4,365,847	65.42			
0.879	321	4,363,811	65.39			
0.882	322	4,361,774	65.36			
0.885	323	4,359,738	65.33			
0.888	324	4,357,701	65.30			
0.890	325	4,355,665	65.27			
0.893	326	4,353,628	65.24			
0.896	327	4,351,592	65.21			
0.899	328	4,349,555	65.18			
0.901	329	4,347,519	65.15			
0.904	330	4,345,482	65.12			
0.907	331	4,343,446	65.09			
0.910	332	4,341,409	65.06			
0.912	333	4,339,373	65.03			
0.915	334	4,337,336	65.00			
0.918	335	4,335,300	64.97			
0.921	336	4,333,263	64.94			
0.923	337	4,331,227	64.90			
0.926	338	4,329,190	64.87			
0.929	339	4,327,154	64.84			
0.932	340	4,325,117	64.81			
0.934	341	4,323,081	64.78			
0.937	342	4,321,044	64.75			
0.940	343	4,319,008	64.72			
0.942	344	4,316,971	64.69			
0.945	345	4,314,935	64.66			
0.948	346	4,312,898	64.63			
0.951	347	4,310,862	64.60			
0.953	348	4,308,826	64.57			
0.956	349	4,306,789	64.54			
0.959	350	4,304,753	64.51			
0.962	351	4,302,716	64.48			
0.964	352	4,300,680	64.45			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
0.967	353	4,298,643	64.42			
0.970	354	4,296,607	64.39			
0.973	355	4,294,570	64.36			
0.975	356	4,292,534	64.33			
0.978	357	4,290,497	64.30			
0.981	358	4,288,461	64.27			
0.984	359	4,286,424	64.24			
0.986	360	4,284,388	64.21			
0.989	361	4,282,351	64.18			
0.992	362	4,280,315	64.15			
0.995	363	4,278,278	64.12			
0.997	364	4,276,242	64.09			
1.000	365	4,274,205	64.06			
1.003	366	4,272,169	64.03			
1.005	367	4,270,132	64.00			
1.008	368	4,268,096	63.97			
1.011	369	4,266,059	63.94			
1.014	370	4,264,023	63.91			
1.016	371	4,261,986	63.88			
1.019	372	4,259,950	63.85			
1.022	373	4,257,913	63.82			
1.025	374	4,255,877	63.79			
1.027	375	4,253,840	63.76			
1.030	376	4,251,804	63.73			
1.033	377	4,249,768	63.70			
1.036	378	4,247,731	63.67			
1.038	379	4,245,695	63.64			
1.041	380	4,243,658	63.61			
1.044	381	4,241,622	63.58			
1.047	382	4,239,585	63.55			
1.049	383	4,237,549	63.52			
1.052	384	4,235,512	63.49			
1.055	385	4,233,476	63.46			
1.058	386	4,231,439	63.43			
1.060	387	4,229,403	63.40			
1.063	388	4,227,366	63.37			
1.066	389	4,225,330	63.34			
1.068	390	4,223,293	63.31			
1.071	391	4,221,257	63.28			
1.074	392	4,219,220	63.25			
1.077	393	4,217,184	63.22			
1.079	394	4,215,147	63.19			
1.082	395	4,213,111	63.16			
1.085	396	4,211,074	63.13			
1.088	397	4,209,038	63.10			
1.090	398	4,207,001	63.07			
1.093	399	4,204,965	63.04			
1.096	400	4,202,928	63.01			
1.099	401	4,200,892	62.98			
1.101	402	4,198,855	62.95			
1.104	403	4,196,819	62.92			
1.107	404	4,194,783	62.89			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
1.110	405	4,192,746	62.86			
1.112	406	4,190,710	62.83			
1.115	407	4,188,673	62.80			
1.118	408	4,186,637	62.77			
1.121	409	4,184,600	62.74			
1.123	410	4,182,564	62.71			
1.126	411	4,180,527	62.68			
1.129	412	4,178,491	62.65			
1.132	413	4,176,454	62.62			
1.134	414	4,174,418	62.59			
1.137	415	4,172,381	62.56			
1.140	416	4,170,345	62.53			
1.142	417	4,168,308	62.50			
1.145	418	4,166,272	62.47			
1.148	419	4,164,235	62.44			
1.151	420	4,162,199	62.41			
1.153	421	4,160,162	62.38			
1.156	422	4,158,126	62.35			
1.159	423	4,156,089	62.32			
1.162	424	4,154,053	62.29			
1.164	425	4,152,016	62.26			
1.167	426	4,149,980	62.23			
1.170	427	4,147,943	62.20			
1.173	428	4,145,907	62.17			
1.175	429	4,143,870	62.14			
1.178	430	4,141,834	62.11			
1.181	431	4,139,797	62.08			
1.184	432	4,137,761	62.05			
1.186	433	4,135,725	62.02			
1.189	434	4,133,688	61.99			
1.192	435	4,131,652	61.96			
1.195	436	4,129,615	61.93			
1.197	437	4,127,579	61.90			
1.200	438	4,125,542	61.87			
1.203	439	4,123,506	61.84			
1.205	440	4,121,469	61.81			
1.208	441	4,119,433	61.78			
1.211	442	4,117,396	61.75			
1.214	443	4,115,360	61.72			
1.216	444	4,113,323	61.69			
1.219	445	4,111,287	61.66			
1.222	446	4,109,250	61.63			
1.225	447	4,107,214	61.60			
1.227	448	4,105,177	61.57			
1.230	449	4,103,141	61.54			
1.233	450	4,101,104	61.51			
1.236	451	4,099,068	61.48			
1.238	452	4,097,031	61.45			
1.241	453	4,094,995	61.42			
1.244	454	4,092,958	61.39			
1.247	455	4,090,922	61.36			
1.249	456	4,088,885	61.33			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
1.252	457	4,086,849	61.30			
1.255	458	4,084,812	61.27			
1.258	459	4,082,776	61.24			
1.260	460	4,080,739	61.21			
1.263	461	4,078,703	61.18			
1.266	462	4,076,667	61.15			
1.268	463	4,074,630	61.12			
1.271	464	4,072,594	61.09			
1.274	465	4,070,557	61.06			
1.277	466	4,068,521	61.03			
1.279	467	4,066,484	61.00			
1.282	468	4,064,448	60.97			
1.285	469	4,062,411	60.94			
1.288	470	4,060,375	60.91			
1.290	471	4,058,338	60.88			
1.293	472	4,056,302	60.85			
1.296	473	4,054,265	60.82			
1.299	474	4,052,229	60.79			
1.301	475	4,050,192	60.76			
1.304	476	4,048,156	60.73			
1.307	477	4,046,119	60.70			
1.310	478	4,044,083	60.67			
1.312	479	4,042,046	60.64			
1.315	480	4,040,010	60.61			
1.318	481	4,037,973	60.58			
1.321	482	4,035,937	60.55			
1.323	483	4,033,900	60.52			
1.326	484	4,031,864	60.49			
1.329	485	4,029,827	60.46			
1.332	486	4,027,791	60.43			
1.334	487	4,025,754	60.40			
1.337	488	4,023,718	60.37			
1.340	489	4,021,682	60.34			
1.342	490	4,019,645	60.31			
1.345	491	4,017,609	60.28			
1.348	492	4,015,572	60.25			
1.351	493	4,013,536	60.22			
1.353	494	4,011,499	60.19			
1.356	495	4,009,463	60.16			
1.359	496	4,007,426	60.13			
1.362	497	4,005,390	60.10			
1.364	498	4,003,353	60.07			
1.367	499	4,001,317	60.04			
1.370	500	3,999,280	60.01			
1.373	501	3,997,244	59.98			
1.375	502	3,995,207	59.95			
1.378	503	3,993,171	59.92			
1.381	504	3,991,134	59.89			
1.384	505	3,989,098	59.86			
1.386	506	3,987,061	59.83			
1.389	507	3,985,025	59.80			
1.392	508	3,982,988	59.77			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
1.395	509	3,980,952	59.74			
1.397	510	3,978,915	59.71			
1.400	511	3,976,879	59.68			
1.403	512	3,974,842	59.65			
1.405	513	3,972,806	59.62			
1.408	514	3,970,769	59.59			
1.411	515	3,968,733	59.56			
1.414	516	3,966,696	59.53			
1.416	517	3,964,660	59.50			
1.419	518	3,962,624	59.47			
1.422	519	3,960,587	59.44			
1.425	520	3,958,551	59.41			
1.427	521	3,956,514	59.38			
1.430	522	3,954,478	59.35			
1.433	523	3,952,441	59.32			
1.436	524	3,950,405	59.29			
1.438	525	3,948,368	59.26			
1.441	526	3,946,332	59.23			
1.444	527	3,944,295	59.20			
1.447	528	3,942,259	59.17			
1.449	529	3,940,222	59.14			
1.452	530	3,938,186	59.11			
1.455	531	3,936,149	59.08			
1.458	532	3,934,113	59.05			
1.460	533	3,932,076	59.02			
1.463	534	3,930,040	58.99			
1.466	535	3,928,003	58.96			
1.468	536	3,925,967	58.93			
1.471	537	3,923,930	58.90			
1.474	538	3,921,894	58.87			
1.477	539	3,919,857	58.84			
1.479	540	3,917,821	58.81			
1.482	541	3,915,784	58.78			
1.485	542	3,913,748	58.75			
1.488	543	3,911,711	58.72			
1.490	544	3,909,675	58.69			
1.493	545	3,907,639	58.66			
1.496	546	3,905,602	58.63			
1.499	547	3,903,566	58.60			
1.501	548	3,901,529	58.57			
1.504	549	3,899,493	58.54			
1.507	550	3,897,456	58.51			
1.510	551	3,895,420	58.48			
1.512	552	3,893,383	58.45			
1.515	553	3,891,347	58.42			
1.518	554	3,889,310	58.39			
1.521	555	3,887,274	58.36			
1.523	556	3,885,237	58.33			
1.526	557	3,883,201	58.30			
1.529	558	3,881,164	58.27			
1.532	559	3,879,128	58.24			
1.534	560	3,877,091	58.21			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
1.537	561	3,875,055	58.17			
1.540	562	3,873,018	58.14			
1.542	563	3,870,982	58.11			
1.545	564	3,868,945	58.08			
1.548	565	3,866,909	58.05			
1.551	566	3,864,872	58.02			
1.553	567	3,862,836	57.99			
1.556	568	3,860,799	57.96			
1.559	569	3,858,763	57.93			
1.562	570	3,856,726	57.90			
1.564	571	3,854,690	57.87			
1.567	572	3,852,653	57.84			
1.570	573	3,850,617	57.81			
1.573	574	3,848,581	57.78			
1.575	575	3,846,544	57.75			
1.578	576	3,844,508	57.72			
1.581	577	3,842,471	57.69			
1.584	578	3,840,435	57.66			
1.586	579	3,838,398	57.63			
1.589	580	3,836,362	57.60			
1.592	581	3,834,325	57.57			
1.595	582	3,832,289	57.54			
1.597	583	3,830,252	57.51			
1.600	584	3,828,216	57.48			
1.603	585	3,826,179	57.45			
1.605	586	3,824,143	57.42			
1.608	587	3,822,106	57.39			
1.611	588	3,820,070	57.36			
1.614	589	3,818,033	57.33			
1.616	590	3,815,997	57.30			
1.619	591	3,813,960	57.27			
1.622	592	3,811,924	57.24			
1.625	593	3,809,887	57.21			
1.627	594	3,807,851	57.18			
1.630	595	3,805,814	57.15			
1.633	596	3,803,778	57.12			
1.636	597	3,801,741	57.09			
1.638	598	3,799,705	57.06			
1.641	599	3,797,668	57.03			
1.644	600	3,795,632	57.00			
1.647	601	3,793,596	56.97			
1.649	602	3,791,559	56.94			
1.652	603	3,789,523	56.91			
1.655	604	3,787,486	56.88			
1.658	605	3,785,450	56.85			
1.660	606	3,783,413	56.82			
1.663	607	3,781,377	56.79			
1.666	608	3,779,340	56.76			
1.668	609	3,777,304	56.73			
1.671	610	3,775,267	56.70			
1.674	611	3,773,231	56.67			
1.677	612	3,771,194	56.64			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
1.679	613	3,769,158	56.61			
1.682	614	3,767,121	56.58			
1.685	615	3,765,085	56.55			
1.688	616	3,763,048	56.52			
1.690	617	3,761,012	56.49			
1.693	618	3,758,975	56.46			
1.696	619	3,756,939	56.43			
1.699	620	3,754,902	56.40			
1.701	621	3,752,866	56.37			
1.704	622	3,750,829	56.34			
1.707	623	3,748,793	56.31			
1.710	624	3,746,756	56.28			
1.712	625	3,744,720	56.25			
1.715	626	3,742,683	56.22			
1.718	627	3,740,647	56.19			
1.721	628	3,738,610	56.16			
1.723	629	3,736,574	56.13			
1.726	630	3,734,538	56.10			
1.729	631	3,732,501	56.07			
1.732	632	3,730,465	56.04			
1.734	633	3,728,428	56.01			
1.737	634	3,726,392	55.98			
1.740	635	3,724,355	55.95			
1.742	636	3,722,319	55.92			
1.745	637	3,720,282	55.89			
1.748	638	3,718,246	55.86			
1.751	639	3,716,209	55.83			
1.753	640	3,714,173	55.80			
1.756	641	3,712,136	55.77			
1.759	642	3,710,100	55.74			
1.762	643	3,708,063	55.71			
1.764	644	3,706,027	55.68			
1.767	645	3,703,990	55.65			
1.770	646	3,701,954	55.62			
1.773	647	3,699,917	55.59			
1.775	648	3,697,881	55.56			
1.778	649	3,695,844	55.53			
1.781	650	3,693,808	55.50			
1.784	651	3,691,771	55.47			
1.786	652	3,689,735	55.44			
1.789	653	3,687,698	55.41			
1.792	654	3,685,662	55.38			
1.795	655	3,683,625	55.35			
1.797	656	3,681,589	55.32			
1.800	657	3,679,553	55.29			
1.803	658	3,677,516	55.26			
1.805	659	3,675,480	55.23			
1.808	660	3,673,443	55.20			
1.811	661	3,671,407	55.17			
1.814	662	3,669,370	55.14			
1.816	663	3,667,334	55.11			
1.819	664	3,665,297	55.08			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
1.822	665	3,663,261	55.05			
1.825	666	3,661,224	55.02			
1.827	667	3,659,188	54.99			
1.830	668	3,657,151	54.96			
1.833	669	3,655,115	54.93			
1.836	670	3,653,078	54.90			
1.838	671	3,651,042	54.87			
1.841	672	3,649,005	54.84			
1.844	673	3,646,969	54.81			
1.847	674	3,644,932	54.78			
1.849	675	3,642,896	54.75			
1.852	676	3,640,859	54.72			
1.855	677	3,638,823	54.69			
1.858	678	3,636,786	54.66			
1.860	679	3,634,750	54.63			
1.863	680	3,632,713	54.60			
1.866	681	3,630,677	54.57			
1.868	682	3,628,640	54.54			
1.871	683	3,626,604	54.51			
1.874	684	3,624,567	54.48			
1.877	685	3,622,531	54.45			
1.879	686	3,620,495	54.42			
1.882	687	3,618,458	54.39			
1.885	688	3,616,422	54.36			
1.888	689	3,614,385	54.33			
1.890	690	3,612,349	54.30			
1.893	691	3,610,312	54.27			
1.896	692	3,608,276	54.24			
1.899	693	3,606,239	54.21			
1.901	694	3,604,203	54.18			
1.904	695	3,602,166	54.15			
1.907	696	3,600,130	54.12			
1.910	697	3,598,093	54.09			
1.912	698	3,596,057	54.06			
1.915	699	3,594,020	54.03			
1.918	700	3,591,984	54.00			
1.921	701	3,589,947	53.97			
1.923	702	3,587,911	53.94			
1.926	703	3,585,874	53.91			
1.929	704	3,583,838	53.88			
1.932	705	3,581,801	53.85			
1.934	706	3,579,765	53.82			
1.937	707	3,577,728	53.79			
1.940	708	3,575,692	53.76			
1.942	709	3,573,655	53.73			
1.945	710	3,571,619	53.70			
1.948	711	3,569,582	53.67			
1.951	712	3,567,546	53.64			
1.953	713	3,565,510	53.61			
1.956	714	3,563,473	53.58			
1.959	715	3,561,437	53.55			
1.962	716	3,559,400	53.52			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
1.964	717	3,557,364	53.49			
1.967	718	3,555,327	53.46			
1.970	719	3,553,291	53.43			
1.973	720	3,551,254	53.40			
1.975	721	3,549,218	53.37			
1.978	722	3,547,181	53.34			
1.981	723	3,545,145	53.31			
1.984	724	3,543,108	53.28			
1.986	725	3,541,072	53.25			
1.989	726	3,539,035	53.22			
1.992	727	3,536,999	53.19			
1.995	728	3,534,962	53.16			
1.997	729	3,532,926	53.13			
2.000	730	3,530,889	53.10			
2.003	731	3,528,853	53.07			
2.005	732	3,526,816	53.04			
2.008	733	3,524,780	53.01			
2.011	734	3,522,743	52.98			
2.014	735	3,520,707	52.95			
2.016	736	3,518,670	52.92			
2.019	737	3,516,634	52.89			
2.022	738	3,514,597	52.86			
2.025	739	3,512,561	52.83			
2.027	740	3,510,524	52.80			
2.030	741	3,508,488	52.77			
2.033	742	3,506,452	52.74			
2.036	743	3,504,415	52.71			
2.038	744	3,502,379	52.68			
2.041	745	3,500,342	52.65			
2.044	746	3,498,306	52.62			
2.047	747	3,496,269	52.59			
2.049	748	3,494,233	52.56			
2.052	749	3,492,196	52.53			
2.055	750	3,490,160	52.50			
2.058	751	3,488,123	52.47			
2.060	752	3,486,087	52.44			
2.063	753	3,484,050	52.41			
2.066	754	3,482,014	52.38			
2.068	755	3,479,977	52.35			
2.071	756	3,477,941	52.32			
2.074	757	3,475,904	52.29			
2.077	758	3,473,868	52.26			
2.079	759	3,471,831	52.23			
2.082	760	3,469,795	52.20			
2.085	761	3,467,758	52.17			
2.088	762	3,465,722	52.14			
2.090	763	3,463,685	52.11			
2.093	764	3,461,649	52.08			
2.096	765	3,459,612	52.05			
2.099	766	3,457,576	52.02			
2.101	767	3,455,539	51.99			
2.104	768	3,453,503	51.96			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
2.107	769	3,451,467	51.93			
2.110	770	3,449,430	51.90			
2.112	771	3,447,394	51.87			
2.115	772	3,445,357	51.84			
2.118	773	3,443,321	51.81			
2.121	774	3,441,284	51.78			
2.123	775	3,439,248	51.75			
2.126	776	3,437,211	51.72			
2.129	777	3,435,175	51.69			
2.132	778	3,433,138	51.66			
2.134	779	3,431,102	51.63			
2.137	780	3,429,065	51.60			
2.140	781	3,427,029	51.57			
2.142	782	3,424,992	51.54			
2.145	783	3,422,956	51.51			
2.148	784	3,420,919	51.48			
2.151	785	3,418,883	51.44			
2.153	786	3,416,846	51.41			
2.156	787	3,414,810	51.38			
2.159	788	3,412,773	51.35			
2.162	789	3,410,737	51.32			
2.164	790	3,408,700	51.29			
2.167	791	3,406,664	51.26			
2.170	792	3,404,627	51.23			
2.173	793	3,402,591	51.20			
2.175	794	3,400,554	51.17			
2.178	795	3,398,518	51.14			
2.181	796	3,396,481	51.11			
2.184	797	3,394,445	51.08			
2.186	798	3,392,409	51.05			
2.189	799	3,390,372	51.02			
2.192	800	3,388,336	50.99			
2.195	801	3,386,299	50.96			
2.197	802	3,384,263	50.93			
2.200	803	3,382,226	50.90			
2.203	804	3,380,190	50.87			
2.205	805	3,378,153	50.84			
2.208	806	3,376,117	50.81			
2.211	807	3,374,080	50.78			
2.214	808	3,372,044	50.75			
2.216	809	3,370,007	50.72			
2.219	810	3,367,971	50.69			
2.222	811	3,365,934	50.66			
2.225	812	3,363,898	50.63			
2.227	813	3,361,861	50.60			
2.230	814	3,359,825	50.57			
2.233	815	3,357,788	50.54			
2.236	816	3,355,752	50.51			
2.238	817	3,353,715	50.48			
2.241	818	3,351,679	50.45			
2.244	819	3,349,642	50.42			
2.247	820	3,347,606	50.39			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
2.249	821	3,345,569	50.36			
2.252	822	3,343,533	50.33			
2.255	823	3,341,496	50.30			
2.258	824	3,339,460	50.27			
2.260	825	3,337,423	50.24			
2.263	826	3,335,387	50.21			
2.266	827	3,333,351	50.18			
2.268	828	3,331,314	50.15			
2.271	829	3,329,278	50.12			
2.274	830	3,327,241	50.09			
2.277	831	3,325,205	50.06			
2.279	832	3,323,168	50.03			
2.282	833	3,321,132	50.00			
2.285	834	3,319,095	49.97			
2.288	835	3,317,059	49.94			
2.290	836	3,315,022	49.91			
2.293	837	3,312,986	49.88			
2.296	838	3,310,949	49.85			
2.299	839	3,308,913	49.82			
2.301	840	3,306,876	49.79			
2.304	841	3,304,840	49.76			
2.307	842	3,302,803	49.73			
2.310	843	3,300,767	49.70			
2.312	844	3,298,730	49.67			
2.315	845	3,296,694	49.64			
2.318	846	3,294,657	49.61			
2.321	847	3,292,621	49.58			
2.323	848	3,290,584	49.55			
2.326	849	3,288,548	49.52			
2.329	850	3,286,511	49.49			
2.332	851	3,284,475	49.46			
2.334	852	3,282,438	49.43			
2.337	853	3,280,402	49.40			
2.340	854	3,278,366	49.37			
2.342	855	3,276,329	49.34			
2.345	856	3,274,293	49.31			
2.348	857	3,272,256	49.28			
2.351	858	3,270,220	49.25			
2.353	859	3,268,183	49.22			
2.356	860	3,266,147	49.19			
2.359	861	3,264,110	49.16			
2.362	862	3,262,074	49.13			
2.364	863	3,260,037	49.10			
2.367	864	3,258,001	49.07			
2.370	865	3,255,964	49.04			
2.373	866	3,253,928	49.01			
2.375	867	3,251,891	48.98			
2.378	868	3,249,855	48.95			
2.381	869	3,247,818	48.92			
2.384	870	3,245,782	48.89			
2.386	871	3,243,745	48.86			
2.389	872	3,241,709	48.83			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
2.392	873	3,239,672	48.80			
2.395	874	3,237,636	48.77			
2.397	875	3,235,599	48.74			
2.400	876	3,233,563	48.71			
2.403	877	3,231,526	48.68			
2.405	878	3,229,490	48.65			
2.408	879	3,227,453	48.62			
2.411	880	3,225,417	48.59			
2.414	881	3,223,380	48.56			
2.416	882	3,221,344	48.53			
2.419	883	3,219,308	48.50			
2.422	884	3,217,271	48.47			
2.425	885	3,215,235	48.44			
2.427	886	3,213,198	48.41			
2.430	887	3,211,162	48.38			
2.433	888	3,209,125	48.35			
2.436	889	3,207,089	48.32			
2.438	890	3,205,052	48.29			
2.441	891	3,203,016	48.26			
2.444	892	3,200,979	48.23			
2.447	893	3,198,943	48.20			
2.449	894	3,196,906	48.17			
2.452	895	3,194,870	48.14			
2.455	896	3,192,833	48.11			
2.458	897	3,190,797	48.08			
2.460	898	3,188,760	48.05			
2.463	899	3,186,724	48.02			
2.466	900	3,184,687	47.99			
2.468	901	3,182,651	47.96			
2.471	902	3,180,614	47.93			
2.474	903	3,178,578	47.90			
2.477	904	3,176,541	47.87			
2.479	905	3,174,505	47.84			
2.482	906	3,172,468	47.81			
2.485	907	3,170,432	47.78			
2.488	908	3,168,395	47.75			
2.490	909	3,166,359	47.72			
2.493	910	3,164,323	47.69			
2.496	911	3,162,286	47.66			
2.499	912	3,160,250	47.63			
2.501	913	3,158,213	47.60			
2.504	914	3,156,177	47.57			
2.507	915	3,154,140	47.54			
2.510	916	3,152,104	47.51			
2.512	917	3,150,067	47.48			
2.515	918	3,148,031	47.45			
2.518	919	3,145,994	47.42			
2.521	920	3,143,958	47.39			
2.523	921	3,141,921	47.36			
2.526	922	3,139,885	47.33			
2.529	923	3,137,848	47.30			
2.532	924	3,135,812	47.27			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
2.534	925	3,133,775	47.24			
2.537	926	3,131,739	47.21			
2.540	927	3,129,702	47.18			
2.542	928	3,127,666	47.15			
2.545	929	3,125,629	47.12			
2.548	930	3,123,593	47.09			
2.551	931	3,121,556	47.06			
2.553	932	3,119,520	47.03			
2.556	933	3,117,483	47.00			
2.559	934	3,115,447	46.97			
2.562	935	3,113,410	46.94			
2.564	936	3,111,374	46.91			
2.567	937	3,109,337	46.88			
2.570	938	3,107,301	46.85			
2.573	939	3,105,265	46.82			
2.575	940	3,103,228	46.79			
2.578	941	3,101,192	46.76			
2.581	942	3,099,155	46.73			
2.584	943	3,097,119	46.70			
2.586	944	3,095,082	46.67			
2.589	945	3,093,046	46.64			
2.592	946	3,091,009	46.61			
2.595	947	3,088,973	46.58			
2.597	948	3,086,936	46.55			
2.600	949	3,084,900	46.52			
2.603	950	3,082,863	46.49			
2.605	951	3,080,827	46.46			
2.608	952	3,078,790	46.43			
2.611	953	3,076,754	46.40			
2.614	954	3,074,717	46.37			
2.616	955	3,072,681	46.34			
2.619	956	3,070,644	46.31			
2.622	957	3,068,608	46.28			
2.625	958	3,066,571	46.25			
2.627	959	3,064,535	46.22			
2.630	960	3,062,498	46.19			
2.633	961	3,060,462	46.16			
2.636	962	3,058,425	46.13			
2.638	963	3,056,389	46.10			
2.641	964	3,054,352	46.07			
2.644	965	3,052,316	46.04			
2.647	966	3,050,280	46.01			
2.649	967	3,048,243	45.98			
2.652	968	3,046,207	45.95			
2.655	969	3,044,170	45.92			
2.658	970	3,042,134	45.89			
2.660	971	3,040,097	45.86			
2.663	972	3,038,061	45.83			
2.666	973	3,036,024	45.80			
2.668	974	3,033,988	45.77			
2.671	975	3,031,951	45.74			
2.674	976	3,029,915	45.71			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
2.677	977	3,027,878	45.68			
2.679	978	3,025,842	45.65			
2.682	979	3,023,805	45.62			
2.685	980	3,021,769	45.59			
2.688	981	3,019,732	45.56			
2.690	982	3,017,696	45.53			
2.693	983	3,015,659	45.50			
2.696	984	3,013,623	45.47			
2.699	985	3,011,586	45.44			
2.701	986	3,009,550	45.41			
2.704	987	3,007,513	45.38			
2.707	988	3,005,477	45.35			
2.710	989	3,003,440	45.32			
2.712	990	3,001,404	45.29			
2.715	991	2,999,367	45.26			
2.718	992	2,997,331	45.23			
2.721	993	2,995,294	45.20			
2.723	994	2,993,258	45.17			
2.726	995	2,991,222	45.14			
2.729	996	2,989,185	45.11			
2.732	997	2,987,149	45.08			
2.734	998	2,985,112	45.05			
2.737	999	2,983,076	45.02			
2.740	1000	2,981,039	44.99			
2.742	1001	2,979,003	44.96			
2.745	1002	2,976,966	44.93			
2.748	1003	2,974,930	44.90			
2.751	1004	2,972,893	44.87			
2.753	1005	2,970,857	44.84			
2.756	1006	2,968,820	44.81			
2.759	1007	2,966,784	44.78			
2.762	1008	2,964,747	44.75			
2.764	1009	2,962,711	44.71			
2.767	1010	2,960,674	44.68			
2.770	1011	2,958,638	44.65			
2.773	1012	2,956,601	44.62			
2.775	1013	2,954,565	44.59			
2.778	1014	2,952,528	44.56			
2.781	1015	2,950,492	44.53			
2.784	1016	2,948,455	44.50			
2.786	1017	2,946,419	44.47			
2.789	1018	2,944,382	44.44			
2.792	1019	2,942,346	44.41			
2.795	1020	2,940,309	44.38			
2.797	1021	2,938,273	44.35			
2.800	1022	2,936,237	44.32			
2.803	1023	2,934,200	44.29			
2.805	1024	2,932,164	44.26			
2.808	1025	2,930,127	44.23			
2.811	1026	2,928,091	44.20			
2.814	1027	2,926,054	44.17			
2.816	1028	2,924,018	44.14			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
2.819	1029	2,921,981	44.11			
2.822	1030	2,919,945	44.08			
2.825	1031	2,917,908	44.05			
2.827	1032	2,915,872	44.02			
2.830	1033	2,913,835	43.99			
2.833	1034	2,911,799	43.96			
2.836	1035	2,909,762	43.93			
2.838	1036	2,907,726	43.90			
2.841	1037	2,905,689	43.87			
2.844	1038	2,903,653	43.84			
2.847	1039	2,901,616	43.81			
2.849	1040	2,899,580	43.78			
2.852	1041	2,897,543	43.75			
2.855	1042	2,895,507	43.72			
2.858	1043	2,893,470	43.69			
2.860	1044	2,891,434	43.66			
2.863	1045	2,889,397	43.63			
2.866	1046	2,887,361	43.60			
2.868	1047	2,885,324	43.57			
2.871	1048	2,883,288	43.54			
2.874	1049	2,881,251	43.51			
2.877	1050	2,879,215	43.48			
2.879	1051	2,877,179	43.45			
2.882	1052	2,875,142	43.42			
2.885	1053	2,873,106	43.39			
2.888	1054	2,871,069	43.36			
2.890	1055	2,869,033	43.33			
2.893	1056	2,866,996	43.30			
2.896	1057	2,864,960	43.27			
2.899	1058	2,862,923	43.24			
2.901	1059	2,860,887	43.21			
2.904	1060	2,858,850	43.18			
2.907	1061	2,856,814	43.15			
2.910	1062	2,854,777	43.12			
2.912	1063	2,852,741	43.09			
2.915	1064	2,850,704	43.06			
2.918	1065	2,848,668	43.03			
2.921	1066	2,846,631	43.00			
2.923	1067	2,844,595	42.97			
2.926	1068	2,842,558	42.94			
2.929	1069	2,840,522	42.91			
2.932	1070	2,838,485	42.88			
2.934	1071	2,836,449	42.85			
2.937	1072	2,834,412	42.82			
2.940	1073	2,832,376	42.79			
2.942	1074	2,830,339	42.76			
2.945	1075	2,828,303	42.73			
2.948	1076	2,826,266	42.70			
2.951	1077	2,824,230	42.67			
2.953	1078	2,822,194	42.64			
2.956	1079	2,820,157	42.61			
2.959	1080	2,818,121	42.58			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
2.962	1081	2,816,084	42.55			
2.964	1082	2,814,048	42.52			
2.967	1083	2,812,011	42.49			
2.970	1084	2,809,975	42.46			
2.973	1085	2,807,938	42.43			
2.975	1086	2,805,902	42.40			
2.978	1087	2,803,865	42.37			
2.981	1088	2,801,829	42.34			
2.984	1089	2,799,792	42.31			
2.986	1090	2,797,756	42.28			
2.989	1091	2,795,719	42.25			
2.992	1092	2,793,683	42.22			
2.995	1093	2,791,646	42.19			
2.997	1094	2,789,610	42.16			
3.000	1095	2,787,573	42.13			
3.003	1096	2,785,537	42.10			
3.005	1097	2,783,500	42.07			
3.008	1098	2,781,464	42.04			
3.011	1099	2,779,427	42.01			
3.014	1100	2,777,391	41.98			
3.016	1101	2,775,354	41.95			
3.019	1102	2,773,318	41.92			
3.022	1103	2,771,281	41.89			
3.025	1104	2,769,245	41.86			
3.027	1105	2,767,208	41.83			
3.030	1106	2,765,172	41.80			
3.033	1107	2,763,136	41.77			
3.036	1108	2,761,099	41.74			
3.038	1109	2,759,063	41.71			
3.041	1110	2,757,026	41.68			
3.044	1111	2,754,990	41.65			
3.047	1112	2,752,953	41.62			
3.049	1113	2,750,917	41.59			
3.052	1114	2,748,880	41.56			
3.055	1115	2,746,844	41.53			
3.058	1116	2,744,807	41.50			
3.060	1117	2,742,771	41.47			
3.063	1118	2,740,734	41.44			
3.066	1119	2,738,698	41.41			
3.068	1120	2,736,661	41.38			
3.071	1121	2,734,625	41.35			
3.074	1122	2,732,588	41.32			
3.077	1123	2,730,552	41.29			
3.079	1124	2,728,515	41.26			
3.082	1125	2,726,479	41.23			
3.085	1126	2,724,442	41.20			
3.088	1127	2,722,406	41.17			
3.090	1128	2,720,369	41.14			
3.093	1129	2,718,333	41.11			
3.096	1130	2,716,296	41.08			
3.099	1131	2,714,260	41.05			
3.101	1132	2,712,223	41.02			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
3.104	1133	2,710,187	40.99			
3.107	1134	2,708,151	40.96			
3.110	1135	2,706,114	40.93			
3.112	1136	2,704,078	40.90			
3.115	1137	2,702,041	40.87			
3.118	1138	2,700,005	40.84			
3.121	1139	2,697,968	40.81			
3.123	1140	2,695,932	40.78			
3.126	1141	2,693,895	40.75			
3.129	1142	2,691,859	40.72			
3.132	1143	2,689,822	40.69			
3.134	1144	2,687,786	40.66			
3.137	1145	2,685,749	40.63			
3.140	1146	2,683,713	40.60			
3.142	1147	2,681,676	40.57			
3.145	1148	2,679,640	40.54			
3.148	1149	2,677,603	40.51			
3.151	1150	2,675,567	40.48			
3.153	1151	2,673,530	40.45			
3.156	1152	2,671,494	40.42			
3.159	1153	2,669,457	40.39			
3.162	1154	2,667,421	40.36			
3.164	1155	2,665,384	40.33			
3.167	1156	2,663,348	40.30			
3.170	1157	2,661,311	40.27			
3.173	1158	2,659,275	40.24			
3.175	1159	2,657,238	40.21			
3.178	1160	2,655,202	40.18			
3.181	1161	2,653,165	40.15			
3.184	1162	2,651,129	40.12			
3.186	1163	2,649,093	40.09			
3.189	1164	2,647,056	40.06			
3.192	1165	2,645,020	40.03			
3.195	1166	2,642,983	40.00			
3.197	1167	2,640,947	39.97			
3.200	1168	2,638,910	39.94			
3.203	1169	2,636,874	39.91			
3.205	1170	2,634,837	39.88			
3.208	1171	2,632,801	39.85			
3.211	1172	2,630,764	39.82			
3.214	1173	2,628,728	39.79			
3.216	1174	2,626,691	39.76			
3.219	1175	2,624,655	39.73			
3.222	1176	2,622,618	39.70			
3.225	1177	2,620,582	39.67			
3.227	1178	2,618,545	39.64			
3.230	1179	2,616,509	39.61			
3.233	1180	2,614,472	39.58			
3.236	1181	2,612,436	39.55			
3.238	1182	2,610,399	39.52			
3.241	1183	2,608,363	39.49			
3.244	1184	2,606,326	39.46			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
3.247	1185	2,604,290	39.43			
3.249	1186	2,602,253	39.40			
3.252	1187	2,600,217	39.37			
3.255	1188	2,598,180	39.34			
3.258	1189	2,596,144	39.31			
3.260	1190	2,594,107	39.28			
3.263	1191	2,592,071	39.25			
3.266	1192	2,590,035	39.22			
3.268	1193	2,587,998	39.19			
3.271	1194	2,585,962	39.16			
3.274	1195	2,583,925	39.13			
3.277	1196	2,581,889	39.10			
3.279	1197	2,579,852	39.07			
3.282	1198	2,577,816	39.04			
3.285	1199	2,575,779	39.01			
3.288	1200	2,573,743	38.98			
3.290	1201	2,571,706	38.95			
3.293	1202	2,569,670	38.92			
3.296	1203	2,567,633	38.89			
3.299	1204	2,565,597	38.86			
3.301	1205	2,563,560	38.83			
3.304	1206	2,561,524	38.80			
3.307	1207	2,559,487	38.77			
3.310	1208	2,557,451	38.74			
3.312	1209	2,555,414	38.71			
3.315	1210	2,553,378	38.68			
3.318	1211	2,551,341	38.65			
3.321	1212	2,549,305	38.62			
3.323	1213	2,547,268	38.59			
3.326	1214	2,545,232	38.56			
3.329	1215	2,543,195	38.53			
3.332	1216	2,541,159	38.50			
3.334	1217	2,539,122	38.47			
3.337	1218	2,537,086	38.44			
3.340	1219	2,535,050	38.41			
3.342	1220	2,533,013	38.38			
3.345	1221	2,530,977	38.35			
3.348	1222	2,528,940	38.32			
3.351	1223	2,526,904	38.29			
3.353	1224	2,524,867	38.26			
3.356	1225	2,522,831	38.23			
3.359	1226	2,520,794	38.20			
3.362	1227	2,518,758	38.17			
3.364	1228	2,516,721	38.14			
3.367	1229	2,514,685	38.11			
3.370	1230	2,512,648	38.08			
3.373	1231	2,510,612	38.05			
3.375	1232	2,508,575	38.02			
3.378	1233	2,506,539	37.98			
3.381	1234	2,504,502	37.95			
3.384	1235	2,502,466	37.92			
3.386	1236	2,500,429	37.89			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
3.389	1237	2,498,393	37.86			
3.392	1238	2,496,356	37.83			
3.395	1239	2,494,320	37.80			
3.397	1240	2,492,283	37.77			
3.400	1241	2,490,247	37.74			
3.403	1242	2,488,210	37.71			
3.405	1243	2,486,174	37.68			
3.408	1244	2,484,137	37.65			
3.411	1245	2,482,101	37.62			
3.414	1246	2,480,064	37.59			
3.416	1247	2,478,028	37.56			
3.419	1248	2,475,992	37.53			
3.422	1249	2,473,955	37.50			
3.425	1250	2,471,919	37.47			
3.427	1251	2,469,882	37.44			
3.430	1252	2,467,846	37.41			
3.433	1253	2,465,809	37.38			
3.436	1254	2,463,773	37.35			
3.438	1255	2,461,736	37.32			
3.441	1256	2,459,700	37.29			
3.444	1257	2,457,663	37.26			
3.447	1258	2,455,627	37.23			
3.449	1259	2,453,590	37.20			
3.452	1260	2,451,554	37.17			
3.455	1261	2,449,517	37.14			
3.458	1262	2,447,481	37.11			
3.460	1263	2,445,444	37.08			
3.463	1264	2,443,408	37.05			
3.466	1265	2,441,371	37.02			
3.468	1266	2,439,335	36.99			
3.471	1267	2,437,298	36.96			
3.474	1268	2,435,262	36.93			
3.477	1269	2,433,225	36.90			
3.479	1270	2,431,189	36.87			
3.482	1271	2,429,152	36.84			
3.485	1272	2,427,116	36.81			
3.488	1273	2,425,079	36.78			
3.490	1274	2,423,043	36.75			
3.493	1275	2,421,007	36.72			
3.496	1276	2,418,970	36.69			
3.499	1277	2,416,934	36.66			
3.501	1278	2,414,897	36.63			
3.504	1279	2,412,861	36.60			
3.507	1280	2,410,824	36.57			
3.510	1281	2,408,788	36.54			
3.512	1282	2,406,751	36.51			
3.515	1283	2,404,715	36.48			
3.518	1284	2,402,678	36.45			
3.521	1285	2,400,642	36.42			
3.523	1286	2,398,605	36.39			
3.526	1287	2,396,569	36.36			
3.529	1288	2,394,532	36.33			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
3.532	1289	2,392,496	36.30			
3.534	1290	2,390,459	36.27			
3.537	1291	2,388,423	36.24			
3.540	1292	2,386,386	36.21			
3.542	1293	2,384,350	36.18			
3.545	1294	2,382,313	36.15			
3.548	1295	2,380,277	36.12			
3.551	1296	2,378,240	36.09			
3.553	1297	2,376,204	36.06			
3.556	1298	2,374,167	36.03			
3.559	1299	2,372,131	36.00			
3.562	1300	2,370,094	35.97			
3.564	1301	2,368,058	35.94			
3.567	1302	2,366,021	35.91			
3.570	1303	2,363,985	35.88			
3.573	1304	2,361,949	35.85			
3.575	1305	2,359,912	35.82			
3.578	1306	2,357,876	35.79			
3.581	1307	2,355,839	35.76			
3.584	1308	2,353,803	35.73			
3.586	1309	2,351,766	35.70			
3.589	1310	2,349,730	35.67			
3.592	1311	2,347,693	35.64			
3.595	1312	2,345,657	35.61			
3.597	1313	2,343,620	35.58			
3.600	1314	2,341,584	35.55			
3.603	1315	2,339,547	35.52			
3.605	1316	2,337,511	35.49			
3.608	1317	2,335,474	35.46			
3.611	1318	2,333,438	35.43			
3.614	1319	2,331,401	35.40			
3.616	1320	2,329,365	35.37			
3.619	1321	2,327,328	35.34			
3.622	1322	2,325,292	35.31			
3.625	1323	2,323,255	35.28			
3.627	1324	2,321,219	35.25			
3.630	1325	2,319,182	35.22			
3.633	1326	2,317,146	35.19			
3.636	1327	2,315,109	35.16			
3.638	1328	2,313,073	35.13			
3.641	1329	2,311,036	35.10			
3.644	1330	2,309,000	35.07			
3.647	1331	2,306,964	35.04			
3.649	1332	2,304,927	35.01			
3.652	1333	2,302,891	34.98			
3.655	1334	2,300,854	34.95			
3.658	1335	2,298,818	34.92			
3.660	1336	2,296,781	34.89			
3.663	1337	2,294,745	34.86			
3.666	1338	2,292,708	34.83			
3.668	1339	2,290,672	34.80			
3.671	1340	2,288,635	34.77			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
3.674	1341	2,286,599	34.74			
3.677	1342	2,284,562	34.71			
3.679	1343	2,282,526	34.68			
3.682	1344	2,280,489	34.65			
3.685	1345	2,278,453	34.62			
3.688	1346	2,276,416	34.59			
3.690	1347	2,274,380	34.56			
3.693	1348	2,272,343	34.53			
3.696	1349	2,270,307	34.50			
3.699	1350	2,268,270	34.47			
3.701	1351	2,266,234	34.44			
3.704	1352	2,264,197	34.41			
3.707	1353	2,262,161	34.38			
3.710	1354	2,260,124	34.35			
3.712	1355	2,258,088	34.32			
3.715	1356	2,256,051	34.29			
3.718	1357	2,254,015	34.26			
3.721	1358	2,251,978	34.23			
3.723	1359	2,249,942	34.20			
3.726	1360	2,247,906	34.17			
3.729	1361	2,245,869	34.14			
3.732	1362	2,243,833	34.11			
3.734	1363	2,241,796	34.08			
3.737	1364	2,239,760	34.05			
3.740	1365	2,237,723	34.02			
3.742	1366	2,235,687	33.99			
3.745	1367	2,233,650	33.96			
3.748	1368	2,231,614	33.93			
3.751	1369	2,229,577	33.90			
3.753	1370	2,227,541	33.87			
3.756	1371	2,225,504	33.84			
3.759	1372	2,223,468	33.81			
3.762	1373	2,221,431	33.78			
3.764	1374	2,219,395	33.75			
3.767	1375	2,217,358	33.72			
3.770	1376	2,215,322	33.69			
3.773	1377	2,213,285	33.66			
3.775	1378	2,211,249	33.63			
3.778	1379	2,209,212	33.60			
3.781	1380	2,207,176	33.57			
3.784	1381	2,205,139	33.54			
3.786	1382	2,203,103	33.51			
3.789	1383	2,201,066	33.48			
3.792	1384	2,199,030	33.45			
3.795	1385	2,196,993	33.42			
3.797	1386	2,194,957	33.39			
3.800	1387	2,192,921	33.36			
3.803	1388	2,190,884	33.33			
3.805	1389	2,188,848	33.30			
3.808	1390	2,186,811	33.27			
3.811	1391	2,184,775	33.24			
3.814	1392	2,182,738	33.21			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
3.816	1393	2,180,702	33.18			
3.819	1394	2,178,665	33.15			
3.822	1395	2,176,629	33.12			
3.825	1396	2,174,592	33.09			
3.827	1397	2,172,556	33.06			
3.830	1398	2,170,519	33.03			
3.833	1399	2,168,483	33.00			
3.836	1400	2,166,446	32.97			
3.838	1401	2,164,410	32.94			
3.841	1402	2,162,373	32.91			
3.844	1403	2,160,337	32.88			
3.847	1404	2,158,300	32.85			
3.849	1405	2,156,264	32.82			
3.852	1406	2,154,227	32.79			
3.855	1407	2,152,191	32.76			
3.858	1408	2,150,154	32.73			
3.860	1409	2,148,118	32.70			
3.863	1410	2,146,081	32.67			
3.866	1411	2,144,045	32.64			
3.868	1412	2,142,008	32.61			
3.871	1413	2,139,972	32.58			
3.874	1414	2,137,935	32.55			
3.877	1415	2,135,899	32.52			
3.879	1416	2,133,863	32.49			
3.882	1417	2,131,826	32.46			
3.885	1418	2,129,790	32.43			
3.888	1419	2,127,753	32.40			
3.890	1420	2,125,717	32.37			
3.893	1421	2,123,680	32.34			
3.896	1422	2,121,644	32.31			
3.899	1423	2,119,607	32.28			
3.901	1424	2,117,571	32.25			
3.904	1425	2,115,534	32.22			
3.907	1426	2,113,498	32.19			
3.910	1427	2,111,461	32.16			
3.912	1428	2,109,425	32.13			
3.915	1429	2,107,388	32.10			
3.918	1430	2,105,352	32.07			
3.921	1431	2,103,315	32.04			
3.923	1432	2,101,279	32.01			
3.926	1433	2,099,242	31.98			
3.929	1434	2,097,206	31.95			
3.932	1435	2,095,169	31.92			
3.934	1436	2,093,133	31.89			
3.937	1437	2,091,096	31.86			
3.940	1438	2,089,060	31.83			
3.942	1439	2,087,023	31.80			
3.945	1440	2,084,987	31.77			
3.948	1441	2,082,950	31.74			
3.951	1442	2,080,914	31.71			
3.953	1443	2,078,878	31.68			
3.956	1444	2,076,841	31.65			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
3.959	1445	2,074,805	31.62			
3.962	1446	2,072,768	31.59			
3.964	1447	2,070,732	31.56			
3.967	1448	2,068,695	31.53			
3.970	1449	2,066,659	31.50			
3.973	1450	2,064,622	31.47			
3.975	1451	2,062,586	31.44			
3.978	1452	2,060,549	31.41			
3.981	1453	2,058,513	31.38			
3.984	1454	2,056,476	31.35			
3.986	1455	2,054,440	31.32			
3.989	1456	2,052,403	31.29			
3.992	1457	2,050,367	31.25			
3.995	1458	2,048,330	31.22			
3.997	1459	2,046,294	31.19			
4.000	1460	2,044,257	31.16			
4.003	1461	2,042,221	31.13			
4.005	1462	2,040,184	31.10			
4.008	1463	2,038,148	31.07			
4.011	1464	2,036,111	31.04			
4.014	1465	2,034,075	31.01			
4.016	1466	2,032,038	30.98			
4.019	1467	2,030,002	30.95			
4.022	1468	2,027,965	30.92			
4.025	1469	2,025,929	30.89			
4.027	1470	2,023,892	30.86			
4.030	1471	2,021,856	30.83			
4.033	1472	2,019,820	30.80			
4.036	1473	2,017,783	30.77			
4.038	1474	2,015,747	30.74			
4.041	1475	2,013,710	30.71			
4.044	1476	2,011,674	30.68			
4.047	1477	2,009,637	30.65			
4.049	1478	2,007,601	30.62			
4.052	1479	2,005,564	30.59			
4.055	1480	2,003,528	30.56			
4.058	1481	2,001,491	30.53			
4.060	1482	1,999,455	30.50			
4.063	1483	1,997,418	30.47			
4.066	1484	1,995,382	30.44			
4.068	1485	1,993,345	30.41			
4.071	1486	1,991,309	30.38			
4.074	1487	1,989,272	30.35			
4.077	1488	1,987,236	30.32			
4.079	1489	1,985,199	30.29			
4.082	1490	1,983,163	30.26			
4.085	1491	1,981,126	30.23			
4.088	1492	1,979,090	30.20			
4.090	1493	1,977,053	30.17			
4.093	1494	1,975,017	30.14			
4.096	1495	1,972,980	30.11			
4.099	1496	1,970,944	30.08			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
4.101	1497	1,968,907	30.05			
4.104	1498	1,966,871	30.02			
4.107	1499	1,964,835	29.99			
4.110	1500	1,962,798	29.96			
4.112	1501	1,960,762	29.93			
4.115	1502	1,958,725	29.90			
4.118	1503	1,956,689	29.87			
4.121	1504	1,954,652	29.84			
4.123	1505	1,952,616	29.81			
4.126	1506	1,950,579	29.78			
4.129	1507	1,948,543	29.75			
4.132	1508	1,946,506	29.72			
4.134	1509	1,944,470	29.69			
4.137	1510	1,942,433	29.66			
4.140	1511	1,940,397	29.63			
4.142	1512	1,938,360	29.60			
4.145	1513	1,936,324	29.57			
4.148	1514	1,934,287	29.54			
4.151	1515	1,932,251	29.51			
4.153	1516	1,930,214	29.48			
4.156	1517	1,928,178	29.45			
4.159	1518	1,926,141	29.42			
4.162	1519	1,924,105	29.39			
4.164	1520	1,922,068	29.36			
4.167	1521	1,920,032	29.33			
4.170	1522	1,917,995	29.30			
4.173	1523	1,915,959	29.27			
4.175	1524	1,913,922	29.24			
4.178	1525	1,911,886	29.21			
4.181	1526	1,909,849	29.18			
4.184	1527	1,907,813	29.15			
4.186	1528	1,905,777	29.12			
4.189	1529	1,903,740	29.09			
4.192	1530	1,901,704	29.06			
4.195	1531	1,899,667	29.03			
4.197	1532	1,897,631	29.00			
4.200	1533	1,895,594	28.97			
4.203	1534	1,893,558	28.94			
4.205	1535	1,891,521	28.91			
4.208	1536	1,889,485	28.88			
4.211	1537	1,887,448	28.85			
4.214	1538	1,885,412	28.82			
4.216	1539	1,883,375	28.79			
4.219	1540	1,881,339	28.76			
4.222	1541	1,879,302	28.73			
4.225	1542	1,877,266	28.70			
4.227	1543	1,875,229	28.67			
4.230	1544	1,873,193	28.64			
4.233	1545	1,871,156	28.61			
4.236	1546	1,869,120	28.58			
4.238	1547	1,867,083	28.55			
4.241	1548	1,865,047	28.52			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
4.244	1549	1,863,010	28.49			
4.247	1550	1,860,974	28.46			
4.249	1551	1,858,937	28.43			
4.252	1552	1,856,901	28.40			
4.255	1553	1,854,864	28.37			
4.258	1554	1,852,828	28.34			
4.260	1555	1,850,791	28.31			
4.263	1556	1,848,755	28.28			
4.266	1557	1,846,719	28.25			
4.268	1558	1,844,682	28.22			
4.271	1559	1,842,646	28.19			
4.274	1560	1,840,609	28.16			
4.277	1561	1,838,573	28.13			
4.279	1562	1,836,536	28.10			
4.282	1563	1,834,500	28.07			
4.285	1564	1,832,463	28.04			
4.288	1565	1,830,427	28.01			
4.290	1566	1,828,390	27.98			
4.293	1567	1,826,354	27.95			
4.296	1568	1,824,317	27.92			
4.299	1569	1,822,281	27.89			
4.301	1570	1,820,244	27.86			
4.304	1571	1,818,208	27.83			
4.307	1572	1,816,171	27.80			
4.310	1573	1,814,135	27.77			
4.312	1574	1,812,098	27.74			
4.315	1575	1,810,062	27.71			
4.318	1576	1,808,025	27.68			
4.321	1577	1,805,989	27.65			
4.323	1578	1,803,952	27.62			
4.326	1579	1,801,916	27.59			
4.329	1580	1,799,879	27.56			
4.332	1581	1,797,843	27.53			
4.334	1582	1,795,806	27.50			
4.337	1583	1,793,770	27.47			
4.340	1584	1,791,734	27.44			
4.342	1585	1,789,697	27.41			
4.345	1586	1,787,661	27.38			
4.348	1587	1,785,624	27.35			
4.351	1588	1,783,588	27.32			
4.353	1589	1,781,551	27.29			
4.356	1590	1,779,515	27.26			
4.359	1591	1,777,478	27.23			
4.362	1592	1,775,442	27.20			
4.364	1593	1,773,405	27.17			
4.367	1594	1,771,369	27.14			
4.370	1595	1,769,332	27.11			
4.373	1596	1,767,296	27.08			
4.375	1597	1,765,259	27.05			
4.378	1598	1,763,223	27.02			
4.381	1599	1,761,186	26.99			
4.384	1600	1,759,150	26.96			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
4.386	1601	1,757,113	26.93			
4.389	1602	1,755,077	26.90			
4.392	1603	1,753,040	26.87			
4.395	1604	1,751,004	26.84			
4.397	1605	1,748,967	26.81			
4.400	1606	1,746,931	26.78			
4.403	1607	1,744,894	26.75			
4.405	1608	1,742,858	26.72			
4.408	1609	1,740,821	26.69			
4.411	1610	1,738,785	26.66			
4.414	1611	1,736,748	26.63			
4.416	1612	1,734,712	26.60			
4.419	1613	1,732,676	26.57			
4.422	1614	1,730,639	26.54			
4.425	1615	1,728,603	26.51			
4.427	1616	1,726,566	26.48			
4.430	1617	1,724,530	26.45			
4.433	1618	1,722,493	26.42			
4.436	1619	1,720,457	26.39			
4.438	1620	1,718,420	26.36			
4.441	1621	1,716,384	26.33			
4.444	1622	1,714,347	26.30			
4.447	1623	1,712,311	26.27			
4.449	1624	1,710,274	26.24			
4.452	1625	1,708,238	26.21			
4.455	1626	1,706,201	26.18			
4.458	1627	1,704,165	26.15			
4.460	1628	1,702,128	26.12			
4.463	1629	1,700,092	26.09			
4.466	1630	1,698,055	26.06			
4.468	1631	1,696,019	26.03			
4.471	1632	1,693,982	26.00			
4.474	1633	1,691,946	25.97			
4.477	1634	1,689,909	25.94			
4.479	1635	1,687,873	25.91			
4.482	1636	1,685,836	25.88			
4.485	1637	1,683,800	25.85			
4.488	1638	1,681,763	25.82			
4.490	1639	1,679,727	25.79			
4.493	1640	1,677,691	25.76			
4.496	1641	1,675,654	25.73			
4.499	1642	1,673,618	25.70			
4.501	1643	1,671,581	25.67			
4.504	1644	1,669,545	25.64			
4.507	1645	1,667,508	25.61			
4.510	1646	1,665,472	25.58			
4.512	1647	1,663,435	25.55			
4.515	1648	1,661,399	25.52			
4.518	1649	1,659,362	25.49			
4.521	1650	1,657,326	25.46			
4.523	1651	1,655,289	25.43			
4.526	1652	1,653,253	25.40			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
4.529	1653	1,651,216	25.37			
4.532	1654	1,649,180	25.34			
4.534	1655	1,647,143	25.31			
4.537	1656	1,645,107	25.28			
4.540	1657	1,643,070	25.25			
4.542	1658	1,641,034	25.22			
4.545	1659	1,638,997	25.19			
4.548	1660	1,636,961	25.16			
4.551	1661	1,634,924	25.13			
4.553	1662	1,632,888	25.10			
4.556	1663	1,630,851	25.07			
4.559	1664	1,628,815	25.04			
4.562	1665	1,626,778	25.01			
4.564	1666	1,624,742	24.98			
4.567	1667	1,622,705	24.95			
4.570	1668	1,620,669	24.92			
4.573	1669	1,618,633	24.89			
4.575	1670	1,616,596	24.86			
4.578	1671	1,614,560	24.83			
4.581	1672	1,612,523	24.80			
4.584	1673	1,610,487	24.77			
4.586	1674	1,608,450	24.74			
4.589	1675	1,606,414	24.71			
4.592	1676	1,604,377	24.68			
4.595	1677	1,602,341	24.65			
4.597	1678	1,600,304	24.62			
4.600	1679	1,598,268	24.59			
4.603	1680	1,596,231	24.56			
4.605	1681	1,594,195	24.52			
4.608	1682	1,592,158	24.49			
4.611	1683	1,590,122	24.46			
4.614	1684	1,588,085	24.43			
4.616	1685	1,586,049	24.40			
4.619	1686	1,584,012	24.37			
4.622	1687	1,581,976	24.34			
4.625	1688	1,579,939	24.31			
4.627	1689	1,577,903	24.28			
4.630	1690	1,575,866	24.25			
4.633	1691	1,573,830	24.22			
4.636	1692	1,571,793	24.19			
4.638	1693	1,569,757	24.16			
4.641	1694	1,567,720	24.13			
4.644	1695	1,565,684	24.10			
4.647	1696	1,563,648	24.07			
4.649	1697	1,561,611	24.04			
4.652	1698	1,559,575	24.01			
4.655	1699	1,557,538	23.98			
4.658	1700	1,555,502	23.95			
4.660	1701	1,553,465	23.92			
4.663	1702	1,551,429	23.89			
4.666	1703	1,549,392	23.86			
4.668	1704	1,547,356	23.83			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
4.671	1705	1,545,319	23.80			
4.674	1706	1,543,283	23.77			
4.677	1707	1,541,246	23.74			
4.679	1708	1,539,210	23.71			
4.682	1709	1,537,173	23.68			
4.685	1710	1,535,137	23.65			
4.688	1711	1,533,100	23.62			
4.690	1712	1,531,064	23.59			
4.693	1713	1,529,027	23.56			
4.696	1714	1,526,991	23.53			
4.699	1715	1,524,954	23.50			
4.701	1716	1,522,918	23.47			
4.704	1717	1,520,881	23.44			
4.707	1718	1,518,845	23.41			
4.710	1719	1,516,808	23.38			
4.712	1720	1,514,772	23.35			
4.715	1721	1,512,735	23.32			
4.718	1722	1,510,699	23.29			
4.721	1723	1,508,662	23.26			
4.723	1724	1,506,626	23.23			
4.726	1725	1,504,590	23.20			
4.729	1726	1,502,553	23.17			
4.732	1727	1,500,517	23.14			
4.734	1728	1,498,480	23.11			
4.737	1729	1,496,444	23.08			
4.740	1730	1,494,407	23.05			
4.742	1731	1,492,371	23.02			
4.745	1732	1,490,334	22.99			
4.748	1733	1,488,298	22.96			
4.751	1734	1,486,261	22.93			
4.753	1735	1,484,225	22.90			
4.756	1736	1,482,188	22.87			
4.759	1737	1,480,152	22.84			
4.762	1738	1,478,115	22.81			
4.764	1739	1,476,079	22.78			
4.767	1740	1,474,042	22.75			
4.770	1741	1,472,006	22.72			
4.773	1742	1,469,969	22.69			
4.775	1743	1,467,933	22.66			
4.778	1744	1,465,896	22.63			
4.781	1745	1,463,860	22.60			
4.784	1746	1,461,823	22.57			
4.786	1747	1,459,787	22.54			
4.789	1748	1,457,750	22.51			
4.792	1749	1,455,714	22.48			
4.795	1750	1,453,677	22.45			
4.797	1751	1,451,641	22.42			
4.800	1752	1,449,605	22.39			
4.803	1753	1,447,568	22.36			
4.805	1754	1,445,532	22.33			
4.808	1755	1,443,495	22.30			
4.811	1756	1,441,459	22.27			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
4.814	1757	1,439,422	22.24			
4.816	1758	1,437,386	22.21			
4.819	1759	1,435,349	22.18			
4.822	1760	1,433,313	22.15			
4.825	1761	1,431,276	22.12			
4.827	1762	1,429,240	22.09			
4.830	1763	1,427,203	22.06			
4.833	1764	1,425,167	22.03			
4.836	1765	1,423,130	22.00			
4.838	1766	1,421,094	21.97			
4.841	1767	1,419,057	21.94			
4.844	1768	1,417,021	21.91			
4.847	1769	1,414,984	21.88			
4.849	1770	1,412,948	21.85			
4.852	1771	1,410,911	21.82			
4.855	1772	1,408,875	21.79			
4.858	1773	1,406,838	21.76			
4.860	1774	1,404,802	21.73			
4.863	1775	1,402,765	21.70			
4.866	1776	1,400,729	21.67			
4.868	1777	1,398,692	21.64			
4.871	1778	1,396,656	21.61			
4.874	1779	1,394,619	21.58			
4.877	1780	1,392,583	21.55			
4.879	1781	1,390,547	21.52			
4.882	1782	1,388,510	21.49			
4.885	1783	1,386,474	21.46			
4.888	1784	1,384,437	21.43			
4.890	1785	1,382,401	21.40			
4.893	1786	1,380,364	21.37			
4.896	1787	1,378,328	21.34			
4.899	1788	1,376,291	21.31			
4.901	1789	1,374,255	21.28			
4.904	1790	1,372,218	21.25			
4.907	1791	1,370,182	21.22			
4.910	1792	1,368,145	21.19			
4.912	1793	1,366,109	21.16			
4.915	1794	1,364,072	21.13			
4.918	1795	1,362,036	21.10			
4.921	1796	1,359,999	21.07			
4.923	1797	1,357,963	21.04			
4.926	1798	1,355,926	21.01			
4.929	1799	1,353,890	20.98			
4.932	1800	1,351,853	20.95			
4.934	1801	1,349,817	20.92			
4.937	1802	1,347,780	20.89			
4.940	1803	1,345,744	20.86			
4.942	1804	1,343,707	20.83			
4.945	1805	1,341,671	20.80			
4.948	1806	1,339,634	20.77			
4.951	1807	1,337,598	20.74			
4.953	1808	1,335,562	20.71			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
4.956	1809	1,333,525	20.68			
4.959	1810	1,331,489	20.65			
4.962	1811	1,329,452	20.62			
4.964	1812	1,327,416	20.59			
4.967	1813	1,325,379	20.56			
4.970	1814	1,323,343	20.53			
4.973	1815	1,321,306	20.50			
4.975	1816	1,319,270	20.47			
4.978	1817	1,317,233	20.44			
4.981	1818	1,315,197	20.41			
4.984	1819	1,313,160	20.38			
4.986	1820	1,311,124	20.35			
4.989	1821	1,309,087	20.32			
4.992	1822	1,307,051	20.29			
4.995	1823	1,305,014	20.26			
4.997	1824	1,302,978	20.23			
5.000	1825	1,300,941	20.20			
5.003	1826	1,298,905	20.17			
5.005	1827	1,296,868	20.14			
5.008	1828	1,294,832	20.11			
5.011	1829	1,292,795	20.08			
5.014	1830	1,290,759	20.05			
5.016	1831	1,288,722	20.02			
5.019	1832	1,286,686	19.99			
5.022	1833	1,284,649	19.96			
5.025	1834	1,282,613	19.93			
5.027	1835	1,280,576	19.90			
5.030	1836	1,278,540	19.87			
5.033	1837	1,276,504	19.84			
5.036	1838	1,274,467	19.81			
5.038	1839	1,272,431	19.78			
5.041	1840	1,270,394	19.75			
5.044	1841	1,268,358	19.72			
5.047	1842	1,266,321	19.69			
5.049	1843	1,264,285	19.66			
5.052	1844	1,262,248	19.63			
5.055	1845	1,260,212	19.60			
5.058	1846	1,258,175	19.57			
5.060	1847	1,256,139	19.54			
5.063	1848	1,254,102	19.51			
5.066	1849	1,252,066	19.48			
5.068	1850	1,250,029	19.45			
5.071	1851	1,247,993	19.42			
5.074	1852	1,245,956	19.39			
5.077	1853	1,243,920	19.36			
5.079	1854	1,241,883	19.33			
5.082	1855	1,239,847	19.30			
5.085	1856	1,237,810	19.27			
5.088	1857	1,235,774	19.24			
5.090	1858	1,233,737	19.21			
5.093	1859	1,231,701	19.18			
5.096	1860	1,229,664	19.15			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
5.099	1861	1,227,628	19.12			
5.101	1862	1,225,591	19.09			
5.104	1863	1,223,555	19.06			
5.107	1864	1,221,519	19.03			
5.110	1865	1,219,482	19.00			
5.112	1866	1,217,446	18.97			
5.115	1867	1,215,409	18.94			
5.118	1868	1,213,373	18.91			
5.121	1869	1,211,336	18.88			
5.123	1870	1,209,300	18.85			
5.126	1871	1,207,263	18.82			
5.129	1872	1,205,227	18.79			
5.132	1873	1,203,190	18.76			
5.134	1874	1,201,154	18.73			
5.137	1875	1,199,117	18.70			
5.140	1876	1,197,081	18.67			
5.142	1877	1,195,044	18.64			
5.145	1878	1,193,008	18.61			
5.148	1879	1,190,971	18.58			
5.151	1880	1,188,935	18.55			
5.153	1881	1,186,898	18.52			
5.156	1882	1,184,862	18.49			
5.159	1883	1,182,825	18.46			
5.162	1884	1,180,789	18.43			
5.164	1885	1,178,752	18.40			
5.167	1886	1,176,716	18.37			
5.170	1887	1,174,679	18.34			
5.173	1888	1,172,643	18.31			
5.175	1889	1,170,606	18.28			
5.178	1890	1,168,570	18.25			
5.181	1891	1,166,533	18.22			
5.184	1892	1,164,497	18.19			
5.186	1893	1,162,461	18.16			
5.189	1894	1,160,424	18.13			
5.192	1895	1,158,388	18.10			
5.195	1896	1,156,351	18.07			
5.197	1897	1,154,315	18.04			
5.200	1898	1,152,278	18.01			
5.203	1899	1,150,242	17.98			
5.205	1900	1,148,205	17.95			
5.208	1901	1,146,169	17.92			
5.211	1902	1,144,132	17.89			
5.214	1903	1,142,096	17.86			
5.216	1904	1,140,059	17.83			
5.219	1905	1,138,023	17.79			
5.222	1906	1,135,986	17.76			
5.225	1907	1,133,950	17.73			
5.227	1908	1,131,913	17.70			
5.230	1909	1,129,877	17.67			
5.233	1910	1,127,840	17.64			
5.236	1911	1,125,804	17.61			
5.238	1912	1,123,767	17.58			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
5.241	1913	1,121,731	17.55			
5.244	1914	1,119,694	17.52			
5.247	1915	1,117,658	17.49			
5.249	1916	1,115,621	17.46			
5.252	1917	1,113,585	17.43			
5.255	1918	1,111,548	17.40			
5.258	1919	1,109,512	17.37			
5.260	1920	1,107,475	17.34			
5.263	1921	1,105,439	17.31			
5.266	1922	1,103,403	17.28			
5.268	1923	1,101,366	17.25			
5.271	1924	1,099,330	17.22			
5.274	1925	1,097,293	17.19			
5.277	1926	1,095,257	17.16			
5.279	1927	1,093,220	17.13			
5.282	1928	1,091,184	17.10			
5.285	1929	1,089,147	17.07			
5.288	1930	1,087,111	17.04			
5.290	1931	1,085,074	17.01			
5.293	1932	1,083,038	16.98			
5.296	1933	1,081,001	16.95			
5.299	1934	1,078,965	16.92			
5.301	1935	1,076,928	16.89			
5.304	1936	1,074,892	16.86			
5.307	1937	1,072,855	16.83			
5.310	1938	1,070,819	16.80			
5.312	1939	1,068,782	16.77			
5.315	1940	1,066,746	16.74			
5.318	1941	1,064,709	16.71			
5.321	1942	1,062,673	16.68			
5.323	1943	1,060,636	16.65			
5.326	1944	1,058,600	16.62			
5.329	1945	1,056,563	16.59			
5.332	1946	1,054,527	16.56			
5.334	1947	1,052,490	16.53			
5.337	1948	1,050,454	16.50			
5.340	1949	1,048,418	16.47			
5.342	1950	1,046,381	16.44			
5.345	1951	1,044,345	16.41			
5.348	1952	1,042,308	16.38			
5.351	1953	1,040,272	16.35			
5.353	1954	1,038,235	16.32			
5.356	1955	1,036,199	16.29			
5.359	1956	1,034,162	16.26			
5.362	1957	1,032,126	16.23			
5.364	1958	1,030,089	16.20			
5.367	1959	1,028,053	16.17			
5.370	1960	1,026,016	16.14			
5.373	1961	1,023,980	16.11			
5.375	1962	1,021,943	16.08			
5.378	1963	1,019,907	16.05			
5.381	1964	1,017,870	16.02			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
5.384	1965	1,015,834	15.99			
5.386	1966	1,013,797	15.96			
5.389	1967	1,011,761	15.93			
5.392	1968	1,009,724	15.90			
5.395	1969	1,007,688	15.87			
5.397	1970	1,005,651	15.84			
5.400	1971	1,003,615	15.81			
5.403	1972	1,001,578	15.78			
5.405	1973	999,542	15.75			
5.408	1974	997,505	15.72			
5.411	1975	995,469	15.69			
5.414	1976	993,432	15.66			
5.416	1977	991,396	15.63			
5.419	1978	989,360	15.60			
5.422	1979	987,323	15.57			
5.425	1980	985,287	15.54			
5.427	1981	983,250	15.51			
5.430	1982	981,214	15.48			
5.433	1983	979,177	15.45			
5.436	1984	977,141	15.42			
5.438	1985	975,104	15.39			
5.441	1986	973,068	15.36			
5.444	1987	971,031	15.33			
5.447	1988	968,995	15.30			
5.449	1989	966,958	15.27			
5.452	1990	964,922	15.24			
5.455	1991	962,885	15.21			
5.458	1992	960,849	15.18			
5.460	1993	958,812	15.15			
5.463	1994	956,776	15.12			
5.466	1995	954,739	15.09			
5.468	1996	952,703	15.06			
5.471	1997	950,666	15.03			
5.474	1998	948,630	15.00			
5.477	1999	946,593	14.97			
5.479	2000	944,557	14.94			
5.482	2001	942,520	14.91			
5.485	2002	940,484	14.88			
5.488	2003	938,447	14.85			
5.490	2004	936,411	14.82			
5.493	2005	934,375	14.79			
5.496	2006	932,338	14.76			
5.499	2007	930,302	14.73			
5.501	2008	928,265	14.70			
5.504	2009	926,229	14.67			
5.507	2010	924,192	14.64			
5.510	2011	922,156	14.61			
5.512	2012	920,119	14.58			
5.515	2013	918,083	14.55			
5.518	2014	916,046	14.52			
5.521	2015	914,010	14.49			
5.523	2016	911,973	14.46			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
5.526	2017	909,937	14.43			
5.529	2018	907,900	14.40			
5.532	2019	905,864	14.37			
5.534	2020	903,827	14.34			
5.537	2021	901,791	14.31			
5.540	2022	899,754	14.28			
5.542	2023	897,718	14.25			
5.545	2024	895,681	14.22			
5.548	2025	893,645	14.19			
5.551	2026	891,608	14.16			
5.553	2027	889,572	14.13			
5.556	2028	887,535	14.10			
5.559	2029	885,499	14.07			
5.562	2030	883,462	14.04			
5.564	2031	881,426	14.01			
5.567	2032	879,389	13.98			
5.570	2033	877,353	13.95			
5.573	2034	875,317	13.92			
5.575	2035	873,280	13.89			
5.578	2036	871,244	13.86			
5.581	2037	869,207	13.83			
5.584	2038	867,171	13.80			
5.586	2039	865,134	13.77			
5.589	2040	863,098	13.74			
5.592	2041	861,061	13.71			
5.595	2042	859,025	13.68			
5.597	2043	856,988	13.65			
5.600	2044	854,952	13.62			
5.603	2045	852,915	13.59			
5.605	2046	850,879	13.56			
5.608	2047	848,842	13.53			
5.611	2048	846,806	13.50			
5.614	2049	844,769	13.47			
5.616	2050	842,733	13.44			
5.619	2051	840,696	13.41			
5.622	2052	838,660	13.38			
5.625	2053	836,623	13.35			
5.627	2054	834,587	13.32			
5.630	2055	832,550	13.29			
5.633	2056	830,514	13.26			
5.636	2057	828,477	13.23			
5.638	2058	826,441	13.20			
5.641	2059	824,404	13.17			
5.644	2060	822,368	13.14			
5.647	2061	820,332	13.11			
5.649	2062	818,295	13.08			
5.652	2063	816,259	13.05			
5.655	2064	814,222	13.02			
5.658	2065	812,186	12.99			
5.660	2066	810,149	12.96			
5.663	2067	808,113	12.93			
5.666	2068	806,076	12.90			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
5.668	2069	804,040	12.87			
5.671	2070	802,003	12.84			
5.674	2071	799,967	12.81			
5.677	2072	797,930	12.78			
5.679	2073	795,894	12.75			
5.682	2074	793,857	12.72			
5.685	2075	791,821	12.69			
5.688	2076	789,784	12.66			
5.690	2077	787,748	12.63			
5.693	2078	785,711	12.60			
5.696	2079	783,675	12.57			
5.699	2080	781,638	12.54			
5.701	2081	779,602	12.51			
5.704	2082	777,565	12.48			
5.707	2083	775,529	12.45			
5.710	2084	773,492	12.42			
5.712	2085	771,456	12.39			
5.715	2086	769,419	12.36			
5.718	2087	767,383	12.33			
5.721	2088	765,346	12.30			
5.723	2089	763,310	12.27			
5.726	2090	761,274	12.24			
5.729	2091	759,237	12.21			
5.732	2092	757,201	12.18			
5.734	2093	755,164	12.15			
5.737	2094	753,128	12.12			
5.740	2095	751,091	12.09			
5.742	2096	749,055	12.06			
5.745	2097	747,018	12.03			
5.748	2098	744,982	12.00			
5.751	2099	742,945	11.97			
5.753	2100	740,909	11.94			
5.756	2101	738,872	11.91			
5.759	2102	736,836	11.88			
5.762	2103	734,799	11.85			
5.764	2104	732,763	11.82			
5.767	2105	730,726	11.79			
5.770	2106	728,690	11.76			
5.773	2107	726,653	11.73			
5.775	2108	724,617	11.70			
5.778	2109	722,580	11.67			
5.781	2110	720,544	11.64			
5.784	2111	718,507	11.61			
5.786	2112	716,471	11.58			
5.789	2113	714,434	11.55			
5.792	2114	712,398	11.52			
5.795	2115	710,361	11.49			
5.797	2116	708,325	11.46			
5.800	2117	706,289	11.43			
5.803	2118	704,252	11.40			
5.805	2119	702,216	11.37			
5.808	2120	700,179	11.34			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
5.811	2121	698,143	11.31			
5.814	2122	696,106	11.28			
5.816	2123	694,070	11.25			
5.819	2124	692,033	11.22			
5.822	2125	689,997	11.19			
5.825	2126	687,960	11.16			
5.827	2127	685,924	11.13			
5.830	2128	683,887	11.10			
5.833	2129	681,851	11.06			
5.836	2130	679,814	11.03			
5.838	2131	677,778	11.00			
5.841	2132	675,741	10.97			
5.844	2133	673,705	10.94			
5.847	2134	671,668	10.91			
5.849	2135	669,632	10.88			
5.852	2136	667,595	10.85			
5.855	2137	665,559	10.82			
5.858	2138	663,522	10.79			
5.860	2139	661,486	10.76			
5.863	2140	659,449	10.73			
5.866	2141	657,413	10.70			
5.868	2142	655,376	10.67			
5.871	2143	653,340	10.64			
5.874	2144	651,303	10.61			
5.877	2145	649,267	10.58			
5.879	2146	647,231	10.55			
5.882	2147	645,194	10.52			
5.885	2148	643,158	10.49			
5.888	2149	641,121	10.46			
5.890	2150	639,085	10.43			
5.893	2151	637,048	10.40			
5.896	2152	635,012	10.37			
5.899	2153	632,975	10.34			
5.901	2154	630,939	10.31			
5.904	2155	628,902	10.28			
5.907	2156	626,866	10.25			
5.910	2157	624,829	10.22			
5.912	2158	622,793	10.19			
5.915	2159	620,756	10.16			
5.918	2160	618,720	10.13			
5.921	2161	616,683	10.10			
5.923	2162	614,647	10.07			
5.926	2163	612,610	10.04			
5.929	2164	610,574	10.01			
5.932	2165	608,537	9.98			
5.934	2166	606,501	9.95			
5.937	2167	604,464	9.92			
5.940	2168	602,428	9.89			
5.942	2169	600,391	9.86			
5.945	2170	598,355	9.83			
5.948	2171	596,318	9.80			
5.951	2172	594,282	9.77			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
5.953	2173	592,246	9.74			
5.956	2174	590,209	9.71			
5.959	2175	588,173	9.68			
5.962	2176	586,136	9.65			
5.964	2177	584,100	9.62			
5.967	2178	582,063	9.59			
5.970	2179	580,027	9.56			
5.973	2180	577,990	9.53			
5.975	2181	575,954	9.50			
5.978	2182	573,917	9.47			
5.981	2183	571,881	9.44			
5.984	2184	569,844	9.41			
5.986	2185	567,808	9.38			
5.989	2186	565,771	9.35			
5.992	2187	563,735	9.32			
5.995	2188	561,698	9.29			
5.997	2189	559,662	9.26			
6.000	2190	557,625	9.23			
6.003	2191	555,589	9.20			
6.005	2192	553,552	9.17			
6.008	2193	551,516	9.14			
6.011	2194	549,479	9.11			
6.014	2195	547,443	9.08			
6.016	2196	545,406	9.05			
6.019	2197	543,370	9.02			
6.022	2198	541,333	8.99			
6.025	2199	539,297	8.96			
6.027	2200	537,260	8.93			
6.030	2201	535,224	8.90			
6.033	2202	533,188	8.87			
6.036	2203	531,151	8.84			
6.038	2204	529,115	8.81			
6.041	2205	527,078	8.78			
6.044	2206	525,042	8.75			
6.047	2207	523,005	8.72			
6.049	2208	520,969	8.69			
6.052	2209	518,932	8.66			
6.055	2210	516,896	8.63			
6.058	2211	514,859	8.60			
6.060	2212	512,823	8.57			
6.063	2213	510,786	8.54			
6.066	2214	508,750	8.51			
6.068	2215	506,713	8.48			
6.071	2216	504,677	8.45			
6.074	2217	502,640	8.42			
6.077	2218	500,604	8.39			
6.079	2219	498,567	8.36			
6.082	2220	496,531	8.33			
6.085	2221	494,494	8.30			
6.088	2222	492,458	8.27			
6.090	2223	490,421	8.24			
6.093	2224	488,385	8.21			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
6.096	2225	486,348	8.18			
6.099	2226	484,312	8.15			
6.101	2227	482,275	8.12			
6.104	2228	480,239	8.09			
6.107	2229	478,203	8.06			
6.110	2230	476,166	8.03			
6.112	2231	474,130	8.00			
6.115	2232	472,093	7.97			
6.118	2233	470,057	7.94			
6.121	2234	468,020	7.91			
6.123	2235	465,984	7.88			
6.126	2236	463,947	7.85			
6.129	2237	461,911	7.82			
6.132	2238	459,874	7.79			
6.134	2239	457,838	7.76			
6.137	2240	455,801	7.73			
6.140	2241	453,765	7.70			
6.142	2242	451,728	7.67			
6.145	2243	449,692	7.64			
6.148	2244	447,655	7.61			
6.151	2245	445,619	7.58			
6.153	2246	443,582	7.55			
6.156	2247	441,546	7.52			
6.159	2248	439,509	7.49			
6.162	2249	437,473	7.46			
6.164	2250	435,436	7.43			
6.167	2251	433,400	7.40			
6.170	2252	431,363	7.37			
6.173	2253	429,327	7.34			
6.175	2254	427,290	7.31			
6.178	2255	425,254	7.28			
6.181	2256	423,217	7.25			
6.184	2257	421,181	7.22			
6.186	2258	419,145	7.19			
6.189	2259	417,108	7.16			
6.192	2260	415,072	7.13			
6.195	2261	413,035	7.10			
6.197	2262	410,999	7.07			
6.200	2263	408,962	7.04			
6.203	2264	406,926	7.01			
6.205	2265	404,889	6.98			
6.208	2266	402,853	6.95			
6.211	2267	400,816	6.92			
6.214	2268	398,780	6.89			
6.216	2269	396,743	6.86			
6.219	2270	394,707	6.83			
6.222	2271	392,670	6.80			
6.225	2272	390,634	6.77			
6.227	2273	388,597	6.74			
6.230	2274	386,561	6.71			
6.233	2275	384,524	6.68			
6.236	2276	382,488	6.65			

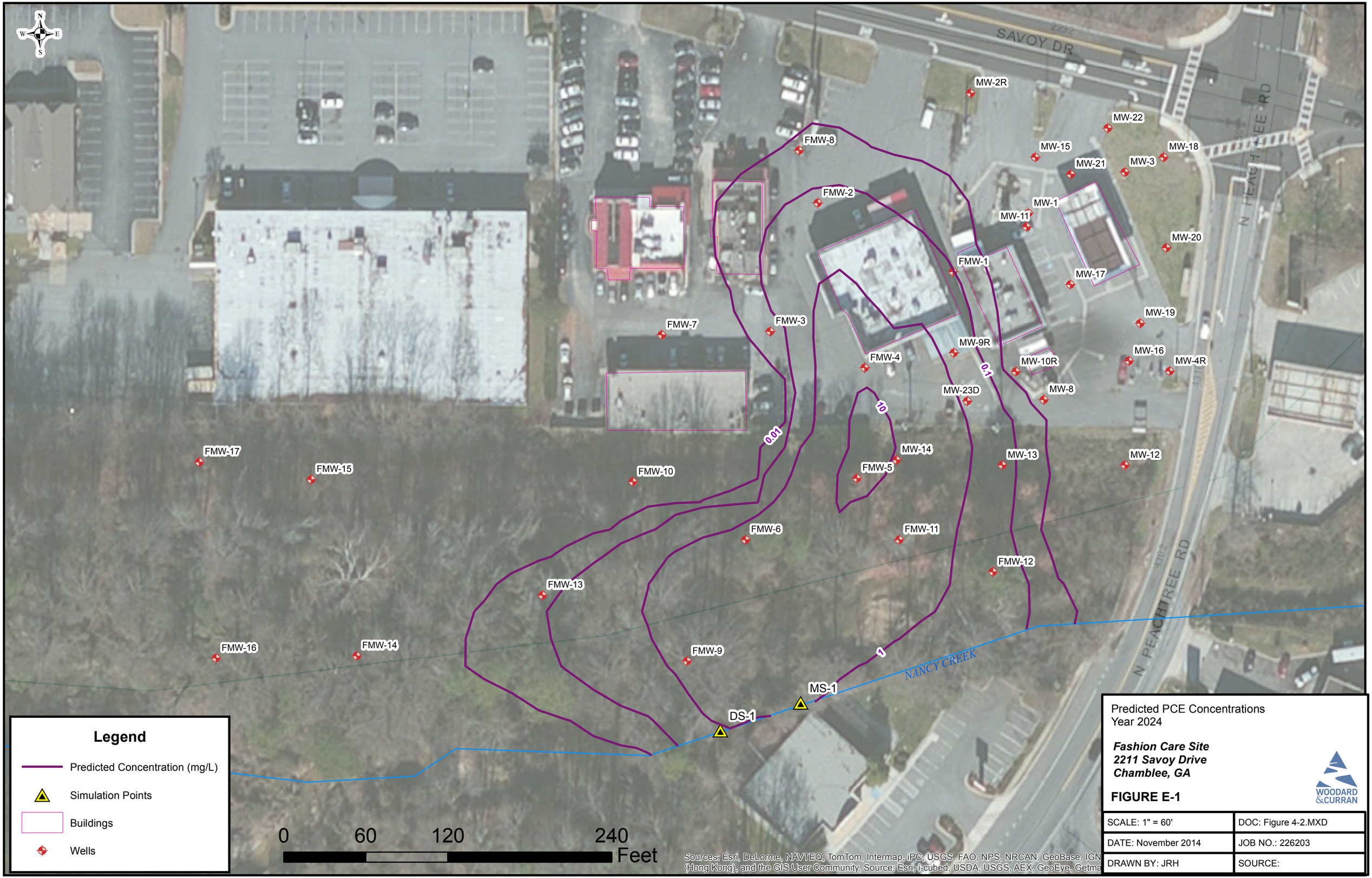
Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
6.238	2277	380,451	6.62			
6.241	2278	378,415	6.59			
6.244	2279	376,378	6.56			
6.247	2280	374,342	6.53			
6.249	2281	372,305	6.50			
6.252	2282	370,269	6.47			
6.255	2283	368,232	6.44			
6.258	2284	366,196	6.41			
6.260	2285	364,159	6.38			
6.263	2286	362,123	6.35			
6.266	2287	360,087	6.32			
6.268	2288	358,050	6.29			
6.271	2289	356,014	6.26			
6.274	2290	353,977	6.23			
6.277	2291	351,941	6.20			
6.279	2292	349,904	6.17			
6.282	2293	347,868	6.14			
6.285	2294	345,831	6.11			
6.288	2295	343,795	6.08			
6.290	2296	341,758	6.05			
6.293	2297	339,722	6.02			
6.296	2298	337,685	5.99			
6.299	2299	335,649	5.96			
6.301	2300	333,612	5.93			
6.304	2301	331,576	5.90			
6.307	2302	329,539	5.87			
6.310	2303	327,503	5.84			
6.312	2304	325,466	5.81			
6.315	2305	323,430	5.78			
6.318	2306	321,393	5.75			
6.321	2307	319,357	5.72			
6.323	2308	317,320	5.69			
6.326	2309	315,284	5.66			
6.329	2310	313,247	5.63			
6.332	2311	311,211	5.60			
6.334	2312	309,174	5.57			
6.337	2313	307,138	5.54			
6.340	2314	305,102	5.51			
6.342	2315	303,065	5.48			
6.345	2316	301,029	5.45			
6.348	2317	298,992	5.42			
6.351	2318	296,956	5.39			
6.353	2319	294,919	5.36			
6.356	2320	292,883	5.33			
6.359	2321	290,846	5.30			
6.362	2322	288,810	5.27			
6.364	2323	286,773	5.24			
6.367	2324	284,737	5.21			
6.370	2325	282,700	5.18			
6.373	2326	280,664	5.15			
6.375	2327	278,627	5.12			
6.378	2328	276,591	5.09			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
6.381	2329	274,554	5.06			
6.384	2330	272,518	5.03			
6.386	2331	270,481	5.00			
6.389	2332	268,445	4.97			
6.392	2333	266,408	4.94			
6.395	2334	264,372	4.91			
6.397	2335	262,335	4.88			
6.400	2336	260,299	4.85			
6.403	2337	258,262	4.82			
6.405	2338	256,226	4.79			
6.408	2339	254,189	4.76			
6.411	2340	252,153	4.73			
6.414	2341	250,116	4.70			
6.416	2342	248,080	4.67			
6.419	2343	246,044	4.64			
6.422	2344	244,007	4.61			
6.425	2345	241,971	4.58			
6.427	2346	239,934	4.55			
6.430	2347	237,898	4.52			
6.433	2348	235,861	4.49			
6.436	2349	233,825	4.46			
6.438	2350	231,788	4.43			
6.441	2351	229,752	4.40			
6.444	2352	227,715	4.37			
6.447	2353	225,679	4.33			
6.449	2354	223,642	4.30			
6.452	2355	221,606	4.27			
6.455	2356	219,569	4.24			
6.458	2357	217,533	4.21			
6.460	2358	215,496	4.18			
6.463	2359	213,460	4.15			
6.466	2360	211,423	4.12			
6.468	2361	209,387	4.09			
6.471	2362	207,350	4.06			
6.474	2363	205,314	4.03			
6.477	2364	203,277	4.00			
6.479	2365	201,241	3.97			
6.482	2366	199,204	3.94			
6.485	2367	197,168	3.91			
6.488	2368	195,131	3.88			
6.490	2369	193,095	3.85			
6.493	2370	191,059	3.82			
6.496	2371	189,022	3.79			
6.499	2372	186,986	3.76			
6.501	2373	184,949	3.73			
6.504	2374	182,913	3.70			
6.507	2375	180,876	3.67			
6.510	2376	178,840	3.64			
6.512	2377	176,803	3.61			
6.515	2378	174,767	3.58			
6.518	2379	172,730	3.55			
6.521	2380	170,694	3.52			

Year	Day	Mass Remaining	Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
6.523	2381	168,657	3.49			
6.526	2382	166,621	3.46			
6.529	2383	164,584	3.43			
6.532	2384	162,548	3.40			
6.534	2385	160,511	3.37			
6.537	2386	158,475	3.34			
6.540	2387	156,438	3.31			
6.542	2388	154,402	3.28			
6.545	2389	152,365	3.25			
6.548	2390	150,329	3.22			
6.551	2391	148,292	3.19			
6.553	2392	146,256	3.16			
6.556	2393	144,219	3.13			
6.559	2394	142,183	3.10			
6.562	2395	140,146	3.07			
6.564	2396	138,110	3.04			
6.567	2397	136,073	3.01			
6.570	2398	134,037	2.98			
6.573	2399	132,001	2.95			
6.575	2400	129,964	2.92			
6.578	2401	127,928	2.89			
6.581	2402	125,891	2.86			
6.584	2403	123,855	2.83			
6.586	2404	121,818	2.80			
6.589	2405	119,782	2.77			
6.592	2406	117,745	2.74			
6.595	2407	115,709	2.71			
6.597	2408	113,672	2.68			
6.600	2409	111,636	2.65			
6.603	2410	109,599	2.62			
6.605	2411	107,563	2.59			
6.608	2412	105,526	2.56			
6.611	2413	103,490	2.53			
6.614	2414	101,453	2.50			
6.616	2415	99,417	2.47			
6.619	2416	97,380	2.44			
6.622	2417	95,344	2.41			
6.625	2418	93,307	2.38			
6.627	2419	91,271	2.35			
6.630	2420	89,234	2.32			
6.633	2421	87,198	2.29			
6.636	2422	85,161	2.26			
6.638	2423	83,125	2.23			
6.641	2424	81,088	2.20			
6.644	2425	79,052	2.17			
6.647	2426	77,016	2.14			
6.649	2427	74,979	2.11			
6.652	2428	72,943	2.08			
6.655	2429	70,906	2.05			
6.658	2430	68,870	2.02			
6.660	2431	66,833	1.99			
6.663	2432	64,797	1.96			

Year	Day	Mass Remaining		Conc. mg/L	Year Post Remediation	Days Post Remediation	Conc. (mg/L)
6.666	2433	62,760		1.93			
6.668	2434	60,724		1.90			
6.671	2435	58,687		1.87			
6.674	2436	56,651		1.84			
6.677	2437	54,614		1.81			
6.679	2438	52,578		1.78			
6.682	2439	50,541		1.75			
6.685	2440	48,505		1.72			
6.688	2441	46,468		1.69			
6.690	2442	44,432		1.66			
6.693	2443	42,395		1.63			
6.696	2444	40,359		1.60			
6.699	2445	38,322		1.57			
6.701	2446	36,286		1.54			
6.704	2447	34,249		1.51			
6.707	2448	32,213		1.48			
6.710	2449	30,176		1.45			
6.712	2450	28,140		1.42			
6.715	2451	26,103		1.39			
6.718	2452	24,067		1.36			
6.721	2453	22,030		1.33			
6.723	2454	19,994		1.30			
6.726	2455	17,958		1.27			
6.729	2456	15,921		1.24			
6.732	2457	13,885		1.21			
6.734	2458	11,848		1.18			
6.737	2459	9,812		1.15			
6.740	2460	7,775		1.12			
6.742	2461	5,739		1.09			
6.745	2462	3,702		1.06			
6.748	2463	1,666	1	1.03	0.03004466		
6.751	2464	(371)		1			

APPENDIX E: PLUME PREDICTION MAPS



Predicted PCE Concentrations
Year 2024

Fashion Care Site
2211 Savoy Drive
Chamblee, GA

FIGURE E-1

WOODARD &CURRAN

SCALE: 1" = 60'	DOC: Figure 4-2.MXD
DATE: November 2014	JOB NO.: 226203
DRAWN BY: JRH	SOURCE:

N
W
E
S

SAVOY DR

2232

N PEACHTREE RD

MW-2R
MW-22
FMW-8
MW-15
MW-18
MW-21
MW-3
FMW-2
MW-1
MW-11
MW-20
FMW-1
MW-17
FMW-7
FMW-3
MW-19
MW-9R
MW-16
FMW-4
MW-10R
MW-4R
MW-23D
MW-8
FMW-17
FMW-15
MW-14
MW-13
MW-12
FMW-10
FMW-5
0.01
0.1
FMW-6
FMW-11
FMW-12
FMW-13
FMW-16
FMW-14
FMW-9
NANCY CREEK
MS-1
DS-1

Legend

- Predicted Concentration (mg/L)
- Simulation Points
- Buildings
- Wells

0 60 120 240 Feet

Predicted PCE Concentrations
Year 2034

Fashion Care Site
2211 Savoy Drive
Chamblee, GA

FIGURE E-2

WOODARD &CURRAN

SCALE: 1" = 60'	DOC: Figure 4-2.MXD
DATE: November 2014	JOB NO.: 226203
DRAWN BY: JRH	SOURCE:

N
W
E
S

SAVOY DR

2232

N PEACHTREE RD

MW-2R
MW-22
FMW-8
MW-15
MW-18
MW-21
MW-3
0.01
FMW-2
MW-1
MW-11
MW-20
FMW-1
MW-17
FMW-7
FMW-3
MW-19
MW-9R
MW-16
FMW-4
MW-10R
MW-4R
0.1
1
MW-23D
MW-8
FMW-17
FMW-15
FMW-10
MW-14
FMW-5
MW-13
MW-12
FMW-6
FMW-11
FMW-12
FMW-13
FMW-16
FMW-14
FMW-9
NANCY CREEK
MS-1
DS-1

Legend

- Predicted Concentration (mg/L)
- Simulation Points
- Buildings
- Wells

0 60 120 240 Feet

Predicted PCE Concentrations
Year 2044

Fashion Care Site
2211 Savoy Drive
Chamblee, GA

FIGURE E-3

WOODARD &CURRAN

SCALE: 1" = 60'	DOC: Figure 4-2.MXD
DATE: November 2014	JOB NO.: 226203
DRAWN BY: JRH	SOURCE:

APPENDIX F: BIOCHLOR SCREEN CAPTURES

BIOCHLOR22 Benchmarking Screen Captures

BIOCHLOR Natural Attenuation Decision Support System

Version 2.2
Excel 2000

Fashion Care Site
Chamblee Georgia
Run Name

Data Input Instructions:
115 → 1. Enter value directly....or
↑ or
0.02 → 2. Calculate by filling in gray cells. Press Enter, then C
(To restore formulas, hit "Restore Formulas" button)
Variable* → Data used directly in model.

Test if Biotransformation is Occurring → Natural Attenuation

TYPE OF CHLORINATED SOLVENT: Ethenes ◉ Ethanes ○

1. ADVECTION

Seepage Velocity*	Vs	366.3	(ft/yr)
or			
Hydraulic Conductivity	K	6.8E-03	(cm/sec)
Hydraulic Gradient	i	0.005192	(ft/ft)
Effective Porosity	n	0.1	(-)

2. DISPERSION

Alpha x*	22	(ft)
(Alpha y) / (Alpha x)*	0.32	(-)
(Alpha z) / (Alpha x)*	2.E-03	(-)

Calc.

3. ADSORPTION

Retardation Factor* → R

or

Soil Bulk Density, rho	1.75	(kg/L)		
FractionOrganicCarbon, foc	2.0E-3	(-)		
Partition Coefficient	Koc			
PCE	95	(L/kg)	4.33	(-)
TCE	61	(L/kg)	3.12	(-)
DCE	40	(L/kg)	2.39	(-)
VC	22	(L/kg)	1.76	(-)
ETH	302	(L/kg)	11.57	(-)
Common R (used in model)* =			**3.12**	

4. BIOTRANSFORMATION

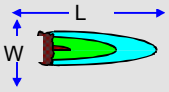
-1st Order Decay Coefficient*

	λ (1/yr)	half-life (yrs)	Yield
Zone 1			
PCE → TCE	0.180		0.79
TCE → DCE	2.600		0.74
DCE → VC	2.500		0.64
VC → ETH	40.000		0.45
Zone 2	λ (1/yr)	half-life (yrs)	
PCE → TCE	0.000		
TCE → DCE	0.000		
DCE → VC	0.000		
VC → ETH	0.000		

λ HELP

5. GENERAL

Simulation Time*	41	(yr)
Modeled Area Width*	190	(ft)
Modeled Area Length*	520	(ft)
Zone 1 Length*	520	(ft)
Zone 2 Length*	0	(ft)



Zone 2= L - Zone 1

6. SOURCE DATA

TYPE: Decaying Single Planar

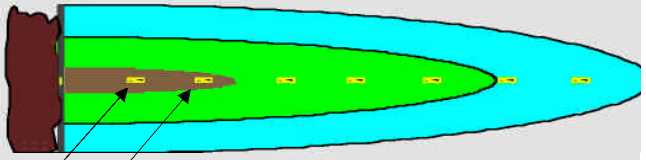
Source Options

Source Thickness in Sat. Zone* 15 (ft)

Width* (ft) Y1: 25

Conc. (mg/L)*	C1	k_s* (1/yr)
PCE	190.0	0.08
TCE	75.0	0.08
DCE	1100.0	0.08
VC	50.0	0.08
ETH	1.8	0.08

Vertical Plane Source: Determine Source Well Location and Input Solvent Concentrations



View of Plume Looking Down

Observed Centerline Conc. at Monitoring Wells

7. FIELD DATA FOR COMPARISON

PCE Conc. (mg/L)	7.0	4.9	3.1	2.3							
TCE Conc. (mg/L)	3.0	1.8	.26	.25							
DCE Conc. (mg/L)	48.0	40.3	.92	.82							
VC Conc. (mg/L)	1.6	1.6	.001	.02							
ETH Conc. (mg/L)	0	0	.0	.0							
Distance from Source (ft)	0	15	264	305							
Date Data Collected	2014										

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE | **RUN ARRAY**

Help | Restore | RESET

SEE | Paste

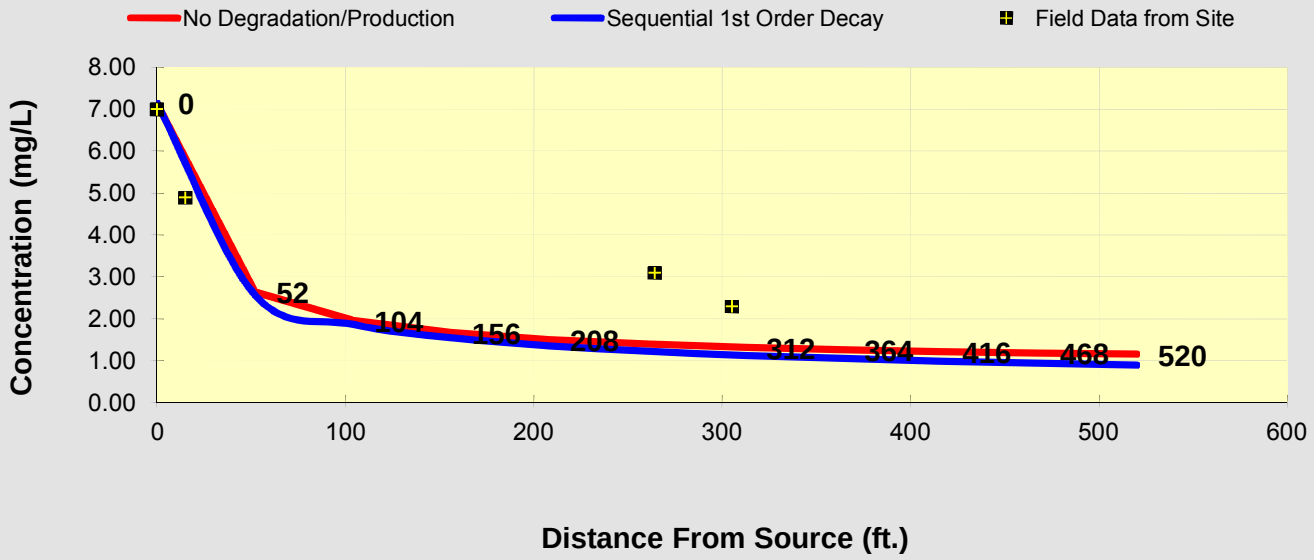
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

PCE	0	52	104	156	208	260	312	364	416	468	520
No Degradation	7.149	2.638	1.968	1.675	1.508	1.399	1.322	1.265	1.221	1.187	1.159
Biotransformation	7.1494	2.570	1.868	1.549	1.359	1.228	1.131	1.054	0.991	0.939	0.893

Monitoring Well Locations (ft)

	0	15	264	305							
Field Data from Site	7.000	4.900	3.100	2.300							



See PCE

See TCE

See DCE

See VC

See ETH

Prepare Animation

Time:

41.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

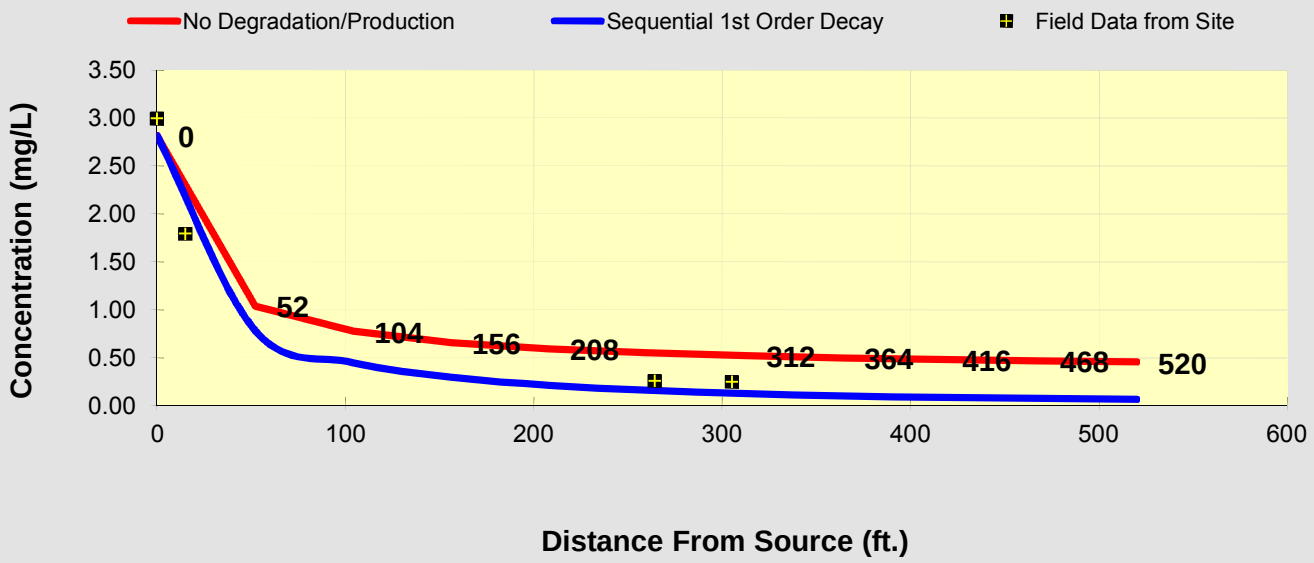
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

TCE	0	52	104	156	208	260	312	364	416	468	520
No Degradation	2.822	1.041	0.777	0.661	0.595	0.552	0.522	0.499	0.482	0.468	0.457
Biotransformation	2.8221	0.787	0.450	0.299	0.214	0.162	0.127	0.104	0.087	0.075	0.067

Monitoring Well Locations (ft)

	0	15	264	305							
Field Data from Site	3.000	1.800	0.260	0.250							



See PCE

See TCE

See DCE

See VC

See ETH

Prepare Animation

Time:

41.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

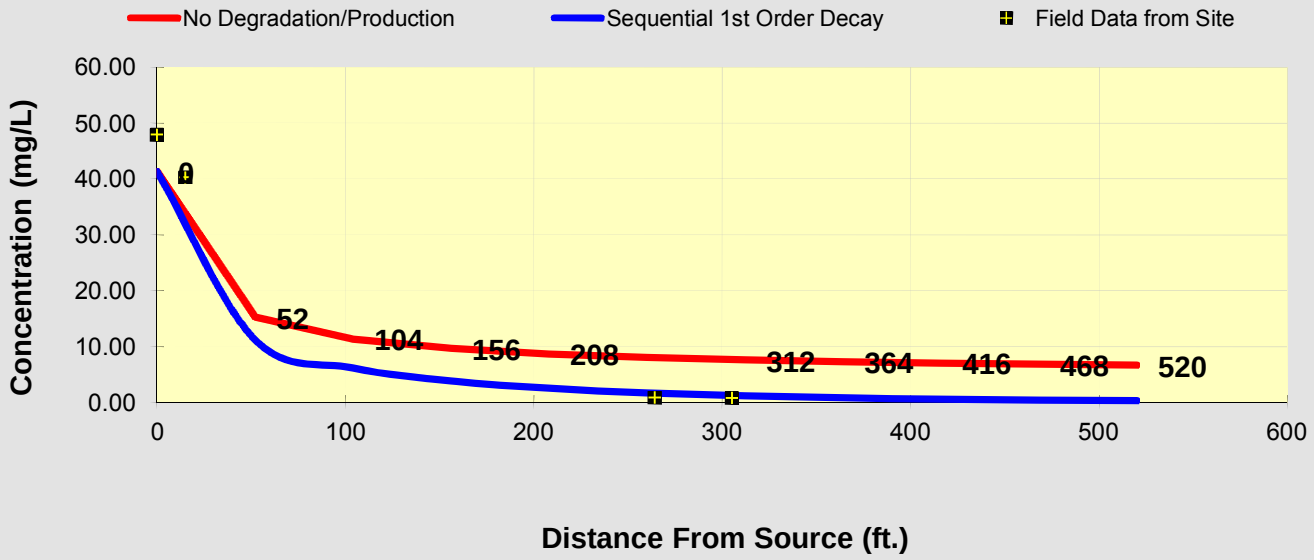
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

DCE	0	52	104	156	208	260	312	364	416	468	520
No Degradation	41.391	15.271	11.391	9.698	8.729	8.098	7.654	7.324	7.070	6.870	6.710
Biotransformation	41.3911	11.249	6.184	3.884	2.582	1.773	1.243	0.885	0.638	0.466	0.344

Monitoring Well Locations (ft)

	0	15	264	305							
Field Data from Site	48.000	40.300	0.920	0.820							



See PCE

See TCE

See DCE

See VC

See ETH

Prepare Animation

Time:

41.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

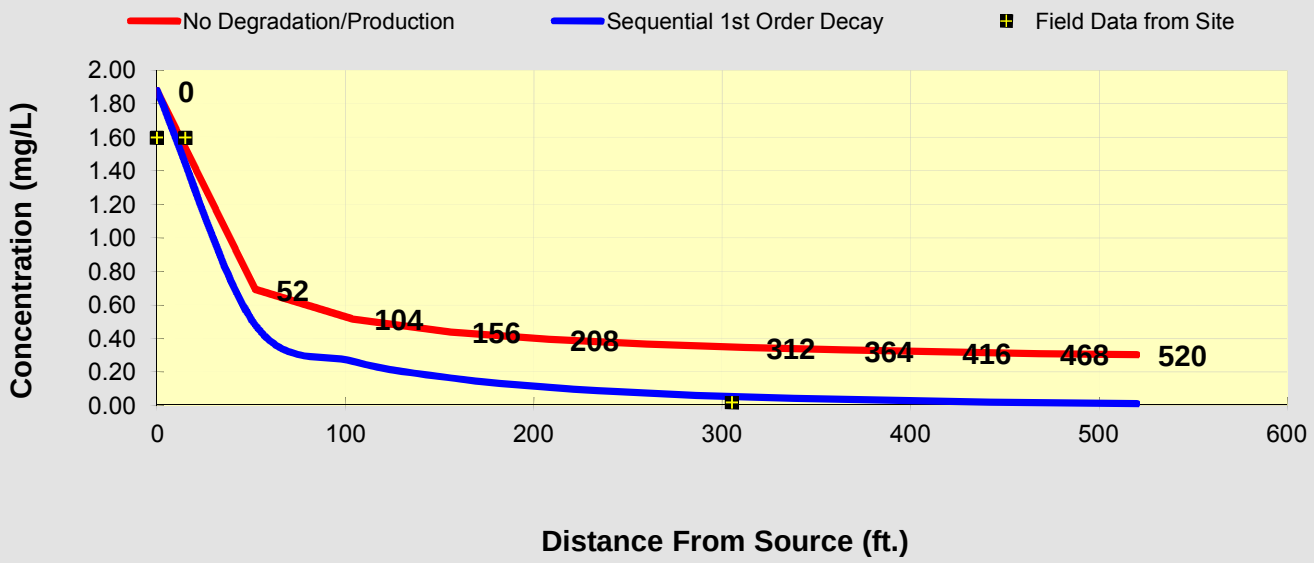
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

VC	0	52	104	156	208	260	312	364	416	468	520
No Degradation	1.881	0.694	0.518	0.441	0.397	0.368	0.348	0.333	0.321	0.312	0.305
Biotransformation	1.8814	0.485	0.265	0.166	0.111	0.076	0.053	0.038	0.027	0.020	0.015

Monitoring Well Locations (ft)

	0	15	264	305							
Field Data from Site	1.600	1.600	0.001	0.020							



See PCE

See TCE

See DCE

See VC

See ETH

Prepare Animation

Time:

41.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

BIOCHLOR22 Forward Projection Screen Captures

BIOCHLOR Natural Attenuation Decision Support System

Version 2.2
Excel 2000

Fashion Care Site
Chamblee Georgia
Run Name

Data Input Instructions:
115 → 1. Enter value directly....or
↑ or
0.02 → 2. Calculate by filling in gray cells. Press Enter, then C
(To restore formulas, hit "Restore Formulas" button)
Variable* → Data used directly in model.

Test if Biotransformation is Occurring → Natural Attenuation

TYPE OF CHLORINATED SOLVENT: Ethenes ◉ Ethanes ○

1. ADVECTION

Seepage Velocity*	Vs	407.0	(ft/yr)
or			
Hydraulic Conductivity	K	6.8E-03	(cm/sec)
Hydraulic Gradient	i	0.005192	(ft/ft)
Effective Porosity	n	0.09	(-)

2. DISPERSION

Alpha x*	22	(ft)
(Alpha y) / (Alpha x)*	0.32	(-)
(Alpha z) / (Alpha x)*	2.E-03	(-)

Calc.

3. ADSORPTION

Retardation Factor* → R

or

Soil Bulk Density, rho	1.75	(kg/L)		
FractionOrganicCarbon, foc	2.0E-3	(-)		
Partition Coefficient	Koc			
PCE	95	(L/kg)	4.69	(-)
TCE	61	(L/kg)	3.36	(-)
DCE	40	(L/kg)	2.54	(-)
VC	22	(L/kg)	1.85	(-)
ETH	302	(L/kg)	12.74	(-)
Common R (used in model)* =			**3.36**	

4. BIOTRANSFORMATION

-1st Order Decay Coefficient*

Zone 1	λ (1/yr)	half-life (yrs)	Yield
PCE → TCE	0.180		0.79
TCE → DCE	2.600		0.74
DCE → VC	2.500		0.64
VC → ETH	40.000		0.45

Zone 2	λ (1/yr)	half-life (yrs)
PCE → TCE	0.000	
TCE → DCE	0.000	
DCE → VC	0.000	
VC → ETH	0.000	

λ HELP

5. GENERAL

Simulation Time*	40	(yr)
Modeled Area Width*	190	(ft)
Modeled Area Length*	520	(ft)
Zone 1 Length*	520	(ft)
Zone 2 Length*	0	(ft)

Zone 2= L - Zone 1

6. SOURCE DATA

TYPE: Continuous Single Planar

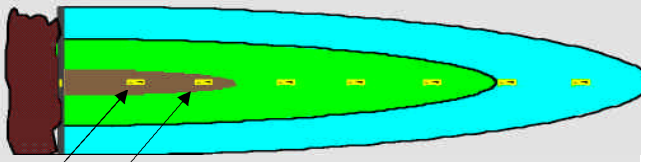
Source Options

Source Thickness in Sat. Zone* 15 (ft)

Width* (ft) Y1: 25

Conc. (mg/L)*	C1	k_s* (1/yr)
PCE	16.0	0
TCE	22.0	0
DCE	75.0	0
VC	2.4	0
ETH	1	0

Vertical Plane Source: Determine Source Well Location and Input Solvent Concentrations



View of Plume Looking Down

Observed Centerline Conc. at Monitoring Wells

7. FIELD DATA FOR COMPARISON

PCE Conc. (mg/L)	17.0	2.42										
TCE Conc. (mg/L)	22.0											
DCE Conc. (mg/L)	75.0											
VC Conc. (mg/L)	2.4											
ETH Conc. (mg/L)	1											
Distance from Source (ft)	0	245										
Date Data Collected	2057											

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE | RUN ARRAY | Help | Restore | RESET | SEE | Paste

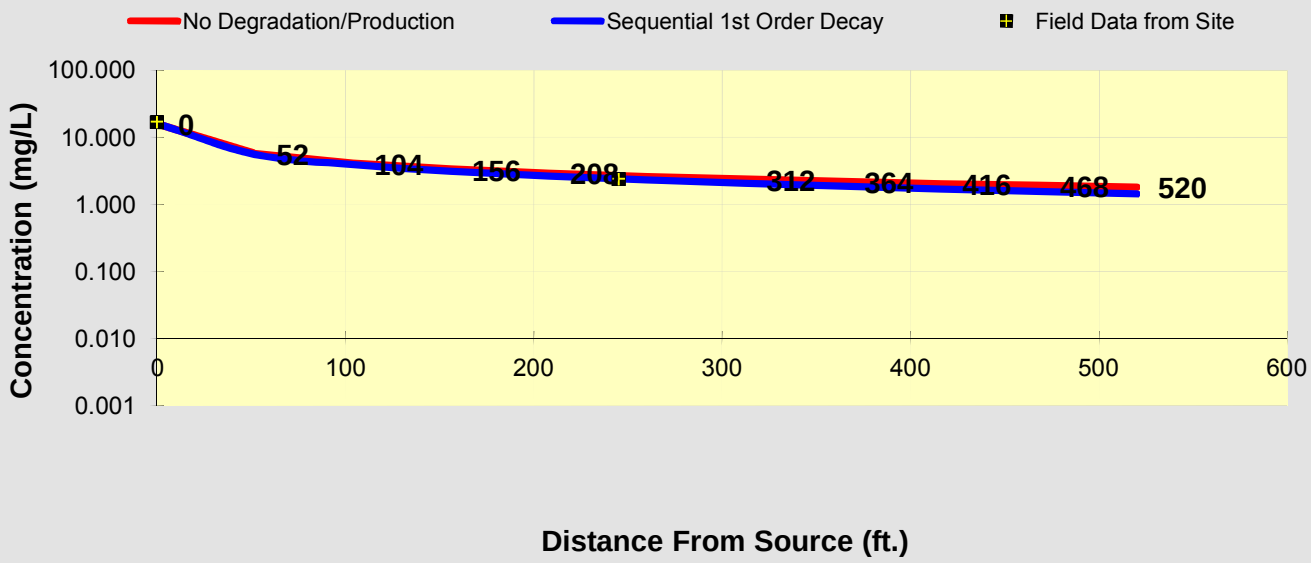
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

PCE	0	52	104	156	208	260	312	364	416	468	520
No Degradation	16.000	5.694	4.097	3.365	2.921	2.614	2.383	2.200	2.049	1.920	1.809
Biotransformation	16.0000	5.566	3.915	3.143	2.667	2.333	2.079	1.876	1.707	1.564	1.440

Monitoring Well Locations (ft)

	0	245									
Field Data from Site	17.000	2.420									



See PCE

See TCE

See DCE

See VC

See ETH

Prepare Animation

Time:

40.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

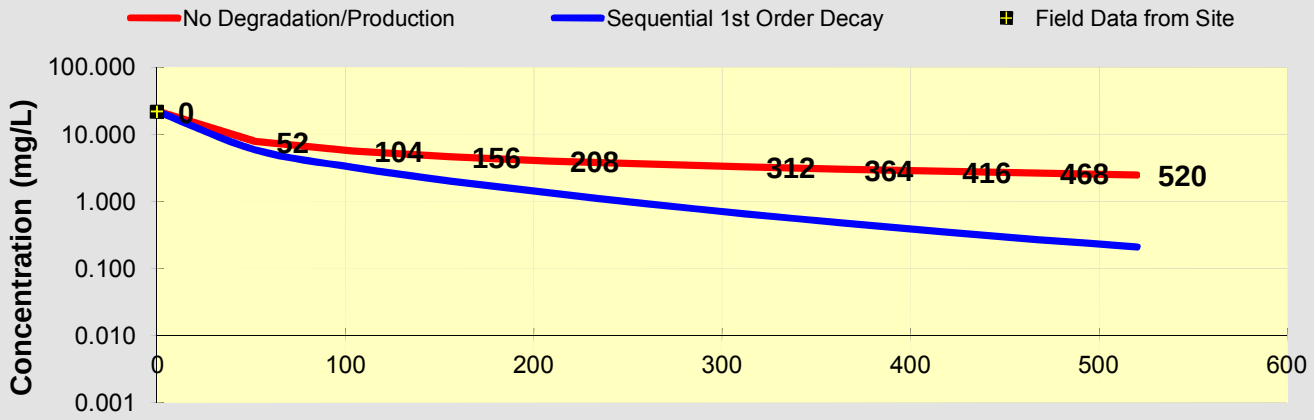
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

TCE	0	52	104	156	208	260	312	364	416	468	520
No Degradation	22.000	7.830	5.634	4.627	4.017	3.595	3.277	3.025	2.817	2.640	2.487
Biotransformation	22.0000	5.906	3.218	2.012	1.338	0.924	0.656	0.477	0.355	0.270	0.209

Monitoring Well Locations (ft)

	0	245									
Field Data from Site	22.000										



See PCE

See TCE

See DCE

See VC

See ETH

Prepare Animation

Time:

40.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

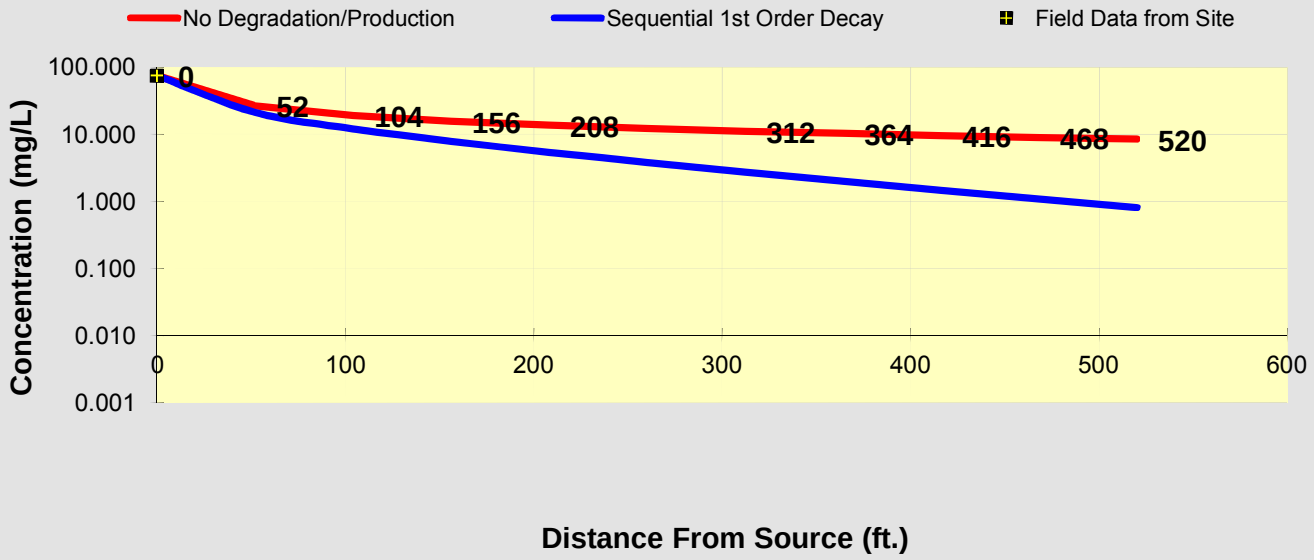
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

DCE	0	52	104	156	208	260	312	364	416	468	520
No Degradation	75.000	26.692	19.205	15.773	13.694	12.255	11.172	10.312	9.602	9.000	8.479
Biotransformation	75.0000	21.237	12.126	7.885	5.411	3.823	2.750	2.002	1.472	1.090	0.813

Monitoring Well Locations (ft)

	0	245									
Field Data from Site	75.000										



See PCE

See TCE

See DCE

See VC

See ETH

Prepare Animation

Time:

40.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

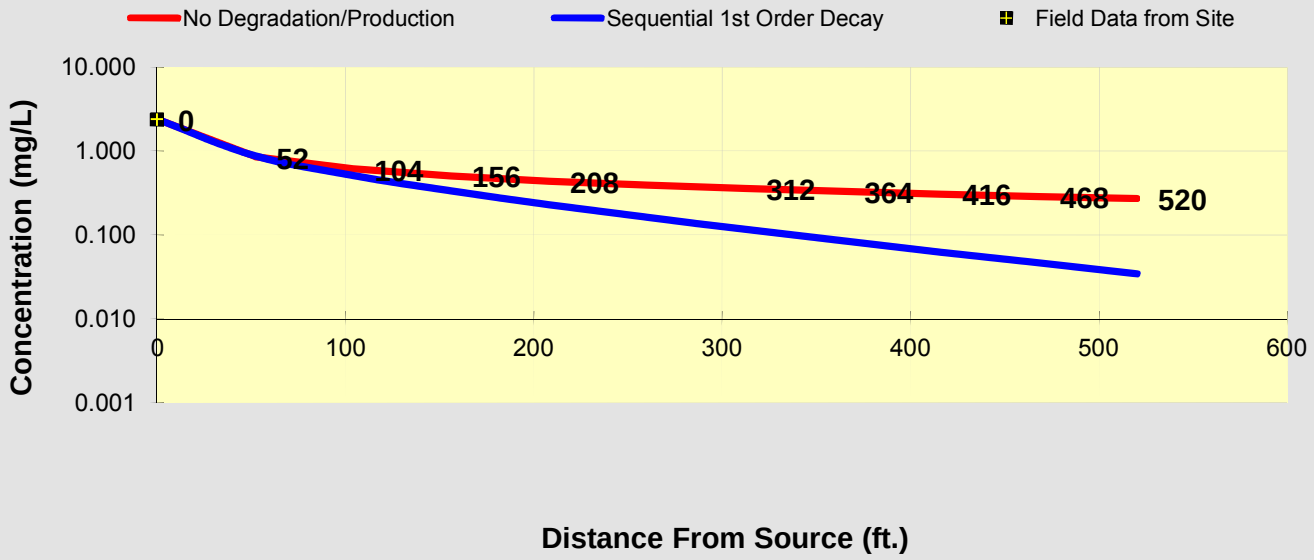
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

VC	0	52	104	156	208	260	312	364	416	468	520
No Degradation	2.400	0.854	0.615	0.505	0.438	0.392	0.358	0.330	0.307	0.288	0.271
Biotransformation	2.4000	0.877	0.513	0.335	0.230	0.162	0.117	0.085	0.063	0.046	0.035

Monitoring Well Locations (ft)

	0	245									
Field Data from Site	2.400										



See PCE

See TCE

See DCE

See VC

See ETH

Prepare Animation

Time:

40.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

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