Prepared for

MSC Naples, LLC

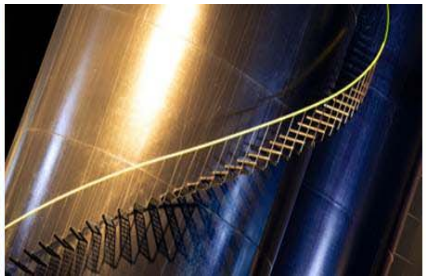
Final Compliance Status Report
Corners Shopping Center
HSI No. 10326

August 2017

Prepared By

Ramboll Environ US Corporation

Atlanta, Georgia USA


Project Number:

0735252D

Certification of Compliance

I certify under penalty of law that this report and all attachments were prepared under my direction in accordance with a system designated to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Based on my review of this report with respect to the risk reduction standards of the Rules for Hazardous Site Response, Rule 391-3-19-.07, I have determined that the groundwater at the Corners Shopping Center Site is in compliance with Type 4 Risk Reduction Standards.

Signature: Steven Howell Date: 8/11/2017

Name: Steven Howell

Title: Authorized Signatory

Company: MSG Naples LLC

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 the groundwater portions of this report were prepared by myself and appropriately qualified subordinates working under my direction.

Keith Cole, P.E., CHMM
Georgia Professional Engineer No. 21809

11 2017

Professional Engineer Seal and Date

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Acronyms and Abbreviations

ART	Accelerated Remediation Technology
CAP	Corrective Action Plan
COC	constituent of concern
Corners	Corners Shopping Center
CSF	cancer slope factor
CSR	Compliance Status Report
CSM	Conceptual Site Model
CVOCs	chlorinated volatile organic compounds
DPVE	Dual Phase Vapor Extraction
ESE	Environmental Science and Engineering, Inc.
ft bgs	feet below ground surface
ft/day	feet per day
GAC	granular activated carbon
GA EPD	Georgia Environmental Protection Division
HSI	Hazardous Site Inventory
HSRA	Hazardous Site Response Act
IRIS	Integrated Risk Information System
ISCO	in situ chemical oxidation
kg	kilograms
L	liters
LLMC	Laura Lake Mafic Complex
ug	micrograms
m^3	cubic meters
MCL	Maximum Contaminant Level
MetLife	Metropolitan Life Insurance Company
MSC	MSC Naples, Inc.
PCE	tetrachloroethylene
ppb	parts per billion
Ramboll Environ	Ramboll Environ US Corporation
RAGS	Risk Assessment Guidance for Superfund
RfD	reference dose
RRS	Risk Reduction Standards
SVE	soil vapor extraction
TCE	trichloroethylene
USEPA	United States Environmental Protection Agency
VIRP	Voluntary Investigation and Remediation Plan
VISL	Vapor Instrusion Screening Level
VOC	volatile organic compound
VRP	Georgia Voluntary Remediation Program

1. INTRODUCTION

Ramboll Environ US Corporation (Ramboll Environ) has prepared this Final Compliance Status Report (CSR) for the Corners Shopping Center (Corners) site in accordance with the Georgia Voluntary Remediation Program (VRP). The Corners site is listed on the Georgia Environmental Protection Division (GA EPD) Hazardous Site Inventory (HSI) as Site No. 10326 and is located at 2475 Sandy Plains Road, Marietta, Cobb County, Georgia, near the intersection of Sandy Plains Road and Post Oak Tritt Road (**Figure 1**). A Voluntary Investigation and Remediation Plan (VIRP) was submitted to GA EPD in July 2015, and the site was accepted into the VRP in February 2016. The site is owned by MSC Naples, LLC (MSC).

As stated in the VRP application, GA EPD listed the site on the HSI due to the presence of tetrachloroethylene (PCE) and related volatile organic compounds (VOCs) in the soil and groundwater. However, the soil on the property was certified to meet Type 1 Risk Reduction Standards (RRS) in August 2005. In accordance with the VRP approval letter, the corrective action approved by GA EPD consisted of protecting human health via implementation of environmental covenants restricting groundwater use.

This report summarizes the activities that have been conducted for the site since the VIRP was submitted and approved, and recommends that the site be removed from the HSI.

1.1 Site Description

The Corners site consists of four contiguous parcels and was previously owned by Metropolitan Life Insurance Company (MetLife). The Corners Shopping Center is the largest of the parcels, and consists of three tenant spaces and surrounding paved areas. The remainder of the Corners Shopping Center parcel consists of wooded land located north-northwest of the developed property. This portion of the property was acquired from the Sandy Plains Baptist Church in 1999. The Corners site also includes one residential parcel that was acquired by MetLife in 1995 (**Figure 2**). The fourth parcel consists of the southeastern end of the shopping center. MSC then purchased the property in September 2005.

The site is classified as a non-residential property as defined in the HSRA regulations [Chapter 39-3-19-.02(2)(i)].

Legal Description: Parcel ID Number:

- 16055700120;
- 16055700200;
- 16055700390; and,
- 16055700530.

Property Owner: MSC Naples, LLC
1825 Manzanita Circle
Reno, NV 89509

Responsible Party: 1825 Manzanita Circle
Reno, NV 89509

The legal description of the property is included in **Appendix A**. Properties to the south and east of the Corners site are primarily commercial, while the areas to the west of Corners is primarily residential and to the north is wooded, undeveloped land. The commercial properties include restaurants, a gas station, a bank, and additional retail shopping centers. The area to the west of the property includes the Sandy Mill and Kerry Creek residential subdivisions located along Macby Avenue and Kerry Creek Drive, respectively. A site layout, including the subject and surrounding properties, is provided as **Figure 2**.

1.2 Site History

The commercially-developed portion of the Corners site was constructed in the late 1970s. Prior to that time the land was primarily agricultural and residential. A dry cleaner business, located in the northernmost retail space, began operations in 1978 and continued until 1994. Numerous releases of dry cleaning chemicals were documented to have occurred from storage tank overfills and equipment leaks. A PCE release due to a ruptured line/hose resulted in dry cleaning solvent being released to the floor of the building. The release occurred in 1984 and was reported to GA EPD.

The site was listed on GA EPD's HSI on June 29, 1994, as HSI No. 10326 due to the presence of PCE and related VOCs in the soil and groundwater. Following 10 years of site investigation and remediation work, the soil at the site was in compliance with residential RRS and the site was accepted into Georgia's Brownfields Program in August 2005 (**Appendix B**). In September 2005, the property was purchased by MSC. The historical investigations and corrective actions conducted at the site are discussed below.

1.3 Summary of Previous Activities

The following activities have occurred at the Corners site since 1993:

- November 1993: Phase II investigation identified PCE in shallow soils and groundwater (Boykin & Associates)
- December 1993: Subsurface investigation identified PCE in deeper soils and in the groundwater (Environmental Science and Engineering, Inc. [ESE])
- March 1994: Subsurface investigation continued (ESE)
- December 1994 through April 1995: Delineation investigation and remediation system design/implementation for the soil; groundwater assessment, soil gas survey (LAW/MACTEC)
- 1998: Remediation system effectiveness study and further delineation evaluation for soil; groundwater assessment (MACTEC)
- 1999: Revised Compliance Status Report submitted (MACTEC)
- May 2002: Additional subsurface investigation in the former dry cleaners space and in the detention pond (MACTEC). Results indicated VOCs in the soil adjacent to the former dry cleaning machine were below detection limits and VOCs within the detention pond area were less than the Type 1 RRS.
- December 2003: Correction Action Plan (CAP)
- December 2010: Begin in-situ chemical oxidation (ISCO) treatment in the groundwater (treatments reported in December 2010, July 2011, February 2012, and late 2013)
- July 2014: Groundwater sampling event (ENVIRON)
- February 2015: Groundwater and soil vapor sampling event (ENVIRON)

1.4 Summary of Corrective Actions – Soil

The soil was characterized during assessment and remediation activities performed between 1993 through 2005. The remediation activities included capping a detention pond with a concrete cover, installing a security fence around the detention pond where contaminated soil was found, excavating and removing contaminated soil from the site, and designing and installing a soil (and groundwater) treatment system in February 1997. The treatment system consisted of a combination of groundwater recovery and vapor extraction wells to remove VOCs from the soil and groundwater. GA EPD stated that the soil on the property was in compliance with residential RRS in August 2005.

1.5 Summary of Corrective Actions – Groundwater

Groundwater remediation was implemented in 1997 and consisted of a groundwater pump and treat system that included groundwater recovery wells, dual phase vacuum extraction (DPVE), and air sparge injection. Extracted groundwater was treated through a low-profile air-stripper and polished with granular activated carbon (GAC). The vapors collected in the DPVE system were combined with the off-gas from the air stripper and treated using a vapor phase GAC vessel. The system was operated in this configuration until the last quarter of 2005, when it was discontinued and replaced with a groundwater remediation technology called Accelerated Remediation Technology (ART), which combined in situ air stripping, air sparging, SVE, enhanced bioremediation/oxidation, and subsurface groundwater recirculation.

After it was determined that the ART system would not bring groundwater at the site into compliance in 2010, a more aggressive and focused remediation technology was employed. Specifically, in situ chemical oxidation (ISCO) was initiated at the site in December 2010. Historical records show that injection events were conducted in December 2010, July 2011, and February 2012. Additionally, based on a figure provided to ENVIRON and observations made in the field, it appears as though an additional injection was conducted in late 2013 or early 2014. Since the implementation of the ISCO events, groundwater concentrations at the site continue to be greater than the Type 1 RRS.

1.6 Release History

As described previously, the activities at the Corners site consisted of dry cleaning. The dry cleaners began operations in 1978 and continued until 1994 with numerous releases of dry cleaning chemicals reported to have occurred from storage tank overfills and equipment leaks. A PCE spill was reported in 1984 due to a ruptured line/hose, although the volume of the release was not known.

2. GEOLOGIC SETTING

2.1 Regional Geology

The site is located in the Piedmont Physiographic Province. The Piedmont parallels the eastern edge of the North American continent south of New England and east of the Blue Ridge Province. The Piedmont is the non-mountainous part of the Appalachians, and slopes generally from the mountains toward the Coastal Plain. In general, the northwest boundary of the Piedmont is at the foot of the mountains. The southeastern boundary is located where the crystalline rocks of the Piedmont are overlain by the younger sediments of the Coastal Plain.

The site is underlain by late Precambrian to early Paleozoic bedrock of the Laura Lake Mafic Complex (LLMC). The LLMC is the largest intrusive-extrusive complex in the Piedmont portion of the greater Atlanta region. The LLMC describes a large body of amphibolite, meta-gabbro and meta-ultramafic rocks in eastern Cobb and southern Cherokee counties. The LLMC is composed predominantly of migmatitic garnet amphibolite with smaller amounts of clinopyroxene-bearing meta-gabbro, felsic gneiss, meta-ultramafic lithologies and banded iron formation (McConnel and Abrams, 1984).
The Piedmont landscape typically consists of rolling terrain of gentle slope, cut or bounded by valleys of steeper slope and greater depth. The Property is located at the head of a northwest-trending valley, typical of the surrounding area. This valley contains the headwaters of a small creek, an unnamed tributary of Little Noonday Creek. Little Noonday Creek eventually intersects Noonday Creek which enters Lake Allatoona approximately ten miles north-northwest of the site. The southeastern end of the valley abuts Sandy Plains Road immediately southeast of the site. Sandy Plains Road is located on a ridgeline which forms a local drainage divide. The area east of Sandy Plains Road drains generally eastward and is located within the Chattahoochee River watershed.

2.2 Site Geology

The property is underlain primarily by residual soil consisting of micaceous sandy silt and silty fine to medium sand. Some fill soil is also present, especially near the northern corner of the shopping center building. The residual soils on the property were formed from the in-place weathering of the older rock. The shallow soils in the wooded area of the property near the stream consist of alluvial sandy clays to a depth of approximately six feet, below which are residual soils.

Partially weathered bedrock was encountered at depths ranging from 25 to 60 feet below ground surface (ft bgs). The partially weathered rock was generally characterized as silty fine to course sand which exhibited standard penetration resistances of greater than 100 blows per foot. Bedrock is distinguished from the overlying partially weathered rock by its greater density, generally resulting in hollow-stem auger refusal. The contact between the bedrock and the overlying partially weathered rock is gradational and was selected as the depth of auger refusal. The rock/partially weathered rock contact, as defined by auger refusal, was encountered in several borings installed by MACTEC at depths ranging from 29 to 68 ft. bgs.

The rock/partially weathered rock contact occurred at the highest elevation in the south-central portion of the study area near the northern end of the shopping center building and the lowest elevation in the west-central portion of the study area, in the vicinity of GRW-5. The rock elevation data indicates a general downward sloping of the rock surface from south to north, toward the area of GRW-5. A north to northwest-trending trough shaped feature is apparent in this portion of the Property. This trough slopes in a direction consistent with the direction of groundwater flow.

Rock core samples obtained from monitoring wells MW-24 and MW-25 indicate that the underlying bedrock on the property consists predominantly of interlayered muscovite-biotite-hornblende gneiss and hornblende amphibolite. The rock obtained from MW-24 tended to alternate between highly

weathered amphibolite and lightly weathered gneiss. This pattern of weathering was less prevalent in the samples obtained from MW-25 although several small zones of highly weathered rock were encountered. A number of moderate to high angle fractures were also noted throughout the core samples, particularly in the amphibolite. Numerous breaks were also observed in the gneiss, parallel to the foliation. Although many of these likely occurred during drilling, they do represent planes of weakness which could potentially influence groundwater flow. We note that the two borings exhibited relatively similar hydraulic conductivities based on the results of the slug tests. This information indicates that, although the rock core samples appear somewhat different, their hydrogeologic properties are similar to one another.

2.3 Site Hydrogeology

Well yield tests performed during investigations activities in January 1998 indicated monitoring wells would produce an estimated 0.5 to 1.5 gallons per minute. A sodium bromide injection study performed in 2000 yielded an estimated groundwater flow velocity range of 0.1 to 12 feet per day (ft/day). The average hydraulic conductivity calculated from rising head tests in 2001 is 4.19 ft/day.

Groundwater elevations have shown little fluctuation since the submittal of the 2005 O&M Report. Depth to groundwater measurements and corresponding groundwater elevations are presented for the July 2014 and February 2015 sampling events in **Table 1**.

Static water levels in 32 monitoring wells were measured using an electronic water level meter and recorded from the top of the casing prior to sampling the wells during the monitoring events. The water level measurements were used to determine the groundwater elevation at each location and to define the potentiometric surface and groundwater flow direction. Monitoring well locations and general site features are shown on the site layout provided as **Figure 2**.

Based on current and historic groundwater sampling events, the groundwater flows generally to the north-northwest, consistent with the surface topography, and is expected to discharge to a small tributary of Noonday Creek located in the wooded portion of the site. The groundwater gradient for these events was approximately 0.006 ft/ft as measured between wells DVEW-03 and DVEW-10, which is consistent with the historic data. The potentiometric surface maps based on the February 2015 gauging data is presented as **Figure 3** and **Figure 4**.

3. SOIL ASSESSMENT

3.1 Summary of Soil Assessments

The soil at the site was investigated between November 1993 and January 1999. The initial investigation in November 1993 was conducted by Boykin & Associates, Inc. Contaminant concentrations of PCE were detected in the shallow soil at concentrations up to 14,000 ug/kg (analysis for constituents other than PCE was not conducted). Subsurface investigations were conducted in December 1993 and March 1994 by Environmental Science and Engineering, Inc. (ESE). Tetrachloroethylene was detected in the deeper soil, but at concentrations less than were detected in the shallow soil during the 1993 investigation. Between December 1994 and April 1995, LAW/MACTEC conducted a soil investigation to delineate the extent of soil contamination. The results of the LAW/MACTEC investigations allowed for estimations to be made regarding the extent of the bulk contamination on the property, which was subsequently used to design and install a remediation system as part of the corrective action for the site.

3.2 Nature and Extent of Soil Contamination

Based on data presented in the "Application for Limitation of Liability and Compliance Status Report" (MACTEC, 2005), the soil in the source area has been characterized and delineated (both vertically and horizontally), and remediated such that constituent concentrations are less than residential risk reduction standards.

3.2.1 Potential Sources

The historical source of impacts at the former dry cleaning facility (located at the northern end of the shopping center building) is the release of PCE due to overfilling a storage tank, and the incidental releases due to dripping from leaking equipment. A significant release of PCE occurred in 1984 due to the breakage of high pressure hosing. These releases resulted in impacts to the soil at the site.

3.2.2 Soil Remediation

The soil was characterized during assessment and remediation activities performed between 1993 through 2005. The remediation activities included excavation and disposal of PCE-impacted soil in a stormwater detention pond at the rear of the site. The pond was subsequently capped with concrete after which a security fence was installed around it. A soil and groundwater treatment system was designed and installed in February 1997. The treatment system consisted of a combination of groundwater recovery and vapor extraction wells to remove VOCs from the soil and groundwater. Georgia EPD concurred with the certification that the soil on the property was in compliance with residential RRS in August 2005.

4. GROUNDWATER AND SURFACE WATER ASSESSMENT

4.1 Summary of Groundwater Assessments

Groundwater at the site has been evaluated since November 1993. A total of 26 groundwater monitoring wells were installed between 1993 and 1999. The initial investigation conducted in November 1993 detected PCE in the groundwater. ESE conducted an additional investigation in March 1994 to assess the parking area behind the dry cleaning premises and along the northern and western property boundaries. Tetrachloroethylene was detected at concentrations up to 4,600 ug/L. In April 1994, LAW/MACTEC installed a deep monitoring well (MW-6) approximately 100 ft northwest of the dry cleaning building which indicated PCE was present at a concentration of 6.2 ug/L. LAW/MACTEC conducted an additional assessment using Geoprobe® borings as well as installing additional monitoring wells to vertically assess the extent of groundwater contamination.

Most recently, the groundwater wells were sampled by ENVIRON in July 2014 and February 2015. Based on the data from the February sampling event, PCE was the only VOC present in the groundwater. In the February 2015 sampling event, PCE was detected in 11 wells at concentrations that ranged from 5.6 ug/L in DVEW-08 to 250 ug/L in DVEW-07 (PCE was not detected in the deep well, MW-06). The groundwater analytical results collected since June 2013 are summarized in **Table 2.** The PCE concentrations detected in the February 2015 sampling event are presented on **Figure 5**. **Figure 6** is a cross section along the plume axis that presents the February 2015 groundwater PCE concentrations. The groundwater data from the July 2014 and February 2015 sampling events are provided in **Appendix C.**

4.2 Nature and Extent of Groundwater Contamination

Based on the results of the most recent groundwater sampling event (February 2015), the concentration of PCE in the most downgradient well (7.4 ug/L in MW-28) doesn't exceed the Type 2 RRS of 19 ug/L. Based on these results, GA EPD has stated that the release has been sufficiently delineated (GA EPD, 2017).

The designated points of exposure (POEs) are the hydraulically downgradient residences that are closest to the site. Based on this, the POEs for the site are the property lines located approximately 15 feet north of MW-17, 49 feet north of MW-19, and 745 feet north of DVEW-7 (as shown on **Figure 5**). In February 2017, these three monitoring wells had PCE concentrations greater than the Type 2 RRS (53 ug/L in MW-17, 69 ug/L in MW-19, and 230 ug/L in DVEW-7). While these wells are not considered the actual source of the PCE plume, the concentrations in these discrete areas do not conform to what might be expected of PCE concentrations under typical conditions (i.e., following Darcy's Law for a fluid in a porous medium). The current concentrations at these three locations are not what is expected in groundwater migrating under standard fate and transport mechanisms but rather most likely the result of over 20 years of various remediation work employed at the site. At times the groundwater had been drawn toward these wells during extraction events, often under high vacuum conditions and in other times, groundwater had been forced away from these wells under the multiple injection technologies employed. This type of erratic, inconsistent, and variable manipulation of groundwater flow regimes throughout the past 20 years is very difficult, if not impossible, to simulate using conventional fate and transport models. Consequently, the PCE concentrations in groundwater at these three locations were considered pseudo-source locations for the purpose of fate and transport modeling activities.

4.2.1 Groundwater Modeling

In an attempt to estimate the time it would take for concentrations of PCE in the groundwater at the three POEs to meet the Type 2 RRS (19 ug/L), Ramboll Environ performed a two-dimensional fate and transport model using the commercially available software, Biochlor. The model simulations

were run using these wells as source wells and the downgradient exposure points identified as ultimate boundaries for plume migration.

The results of the groundwater model indicated that:

- DVEW-7: The extent of the exceedances of the Type 2 RRS is less than 300 ft in the downgradient direction (i.e., to the north). This is in agreement with the available site data; that is, the concentrations in downgradient wells MW-11 and MW-20 are less than the Type 2 RRS in the latest sampling event.
- MW-17: The extent of the exceedances of the Type 2 RRS is less than 75 ft in the downgradient direction. The model indicates that the PCE concentrations at the POE (property line north of the well) will be less than the Type 2 RRS in less than 15 years.
- MW-19: Like MW-17, the extent of the exceedances of the Type 2 RRS is less than 75 ft in the downgradient direction and the model indicates that the PCE concentrations at the POE (property line north of the well) will be less than the Type 2 RRS in less than 15 years. In addition, the most recent concentration of PCE in GRW-05, which is downgradient of MW-19 and just south of the property line, is less than the Type 2 RRS.

A more detailed discussion of the model used to predict this concentration is presented in **Appendix D**.

4.3 Surface Water

A surface water sample (SW-01) was collected on July 16, 2014, from a small stream that is several inches deep that flows behind the houses on the east side of Kerry Creek Drive at the northern end of the site (**Figure 2**). No VOCs were detected in the surface water sample, indicating that constituents in the groundwater are not impacting the surface water downgradient of the site. The surface water data are provided in **Appendix C**.

5. SOIL VAPOR ASSESSMENT

5.1 Summary of Soil Vapor Field Investigation

In February 2015, four soil borings were advanced at the site using hand augers for the purpose of installing temporary soil vapor points and subsequently collecting soil vapor samples. The resultant data was used to evaluate potential exposures of residential receptors to vapor phase contaminants that might migrate into buildings from impacted groundwater. The four sampling locations (SV-01 through SV-04) are shown on **Figure 2**. The soil borings at each location were advanced to approximately 3 feet bgs, after which a soil vapor point was installed. The soil vapor samples were collected as follows:

- The samples were collected via a temporary soil vapor sampling point installed in a borehole advanced to approximately 3 feet below the ground surface using hand augers. Each soil vapor point was constructed of an expendable vapor implant attached to disposable, ¼-inch I.D. tubing. The annulus space around and immediately above the vapor implant was filled with coarse grained, chemically inert, clean, silica (quartz) sand. The remaining annulus space was sealed using bentonite granules and hydrated in 6-inch lifts to the ground surface.
- Each soil vapor point was left in place for at least 1 hour to allow the bentonite to swell and seal the borehole from the surface/ambient air. The soil vapor samples were then collected from the vapor points using laboratory provided, evacuated, clean, 1-Liter stainless steel, Summa® canisters at a flow rate of approximately 15 mL/min. The canister was equipped with a flow controller that was pre-set by the laboratory to correspond to an approximate 60-minute sampling time. The sampling was discontinued when the regulator showed negative pressure to ensure the presence of a residual vacuum.

The Summa® canisters with the soil vapor samples were protected with bubble-wrap, sealed in a heavy duty cardboard box, and shipped via FedEx overnight service to ALS Environmental in Simi Valley, California, under chain-of-custody protocol for analysis of the following chlorinated volatile organic compounds (CVOCs) using USEPA Method TO-15:

- 1,1-dichloroethene;
- cis-1,2-dichloroethene;
- trans-1,2-dichloroethene;
- PCE;
- TCE; and,
- vinyl chloride.

Down-hole tooling was decontaminated between use at each boring location using a Liquinox and potable water solution followed by a potable water rinse. After completing the sampling activities, each borehole was abandoned by removing the soil vapor tubing from the borehole and restoring the ground surface.

5.2 Summary of Results

The analytical results of the soil vapor sampling are summarized in **Table 3,** and the complete laboratory analytical report is provided in **Appendix C**. PCE was detected in three of the four soil vapor samples collected at concentrations ranging from 10 to 150 micrograms per cubic meter (ug/m^3); PCE was not detected in the sample from the residential property (SV-02). No other CVOCs were detected in the soil vapor samples.

6. RISK EVALUATION

Tetrachloroethylene is the only constituent of concern (COC) identified in the groundwater and soil gas at the site. The concentrations of PCE that were detected in the groundwater were compared to appropriate RRS developed in accordance with the HSRA regulations and vapor intrusion screening levels calculated using the USEPA Vapor Intrusion Screening Level (VISL) Calculator (USEPA, 2016). Detected concentrations of PCE in the soil gas were compared to soil gas screening levels calculated using the USEPA VISL Calculator. The groundwater data used in this risk assessment (the last round of sampling data for each well) are provided in **Table 2**. The soil gas data is provided on **Table 3**.

This risk evaluation presents a summary of the potential human receptors, an exposure assessment, a toxicity assessment, a description of the groundwater RRS, a description of the VISL, and a comparison of site data to the applicable RRS or VISL.

6.1 Potential Receptors

The evaluation of risks to potential receptors from exposure to regulated substances at the site was prepared after review of the available site-specific environmental reports and related information. A conceptual site model (CSM) presenting the potential exposure pathways is provided in **Figure 7** and **Figure 8**.

6.1.1 Drinking Water Wells and Surface Water

Groundwater at the site is not used as a drinking water source and there is no evidence of public or private drinking water wells within 1,000 feet of the site. According to the Application for Limitation of Liability and Compliance Status Report (MACTEC, 2005; approved by GA EPD in a letter dated August 24, 2005), the properties (both residential and non-residential) within the vicinity of the site are all connected to municipal water supplies. Therefore, the ingestion of groundwater pathway is not a complete exposure pathway. In addition, Cobb County has established an ordinance (Cobb County Code of Ordinance Section 122-221 (b)(8)) that prevents the installation of a drinking water well on private or public property and requires the disconnection of existing private wells when existing public water is connected to the premises.

The nearest surface water feature is a small stream that is several inches deep that flows to the north behind the houses on the east side of Kerry Creek Drive. As discussed in **Section 4.13**, the results of the surface water samples collected in July 2014 indicated that VOCs were not present; therefore, groundwater does not appear to be impacting the stream.

6.1.2 Groundwater

Although groundwater isn't currently used as a drinking water source and Cobb County has an established ordinance that prevents the installation of drinking water wells, there is a potential for groundwater to be used as a drinking water source in the future. The depth to groundwater at the site ranges from approximately 3.5 bgs to 20 feet bgs, indicating there is also a potential for construction or utility work to contact the groundwater in certain areas of the site. As such, there is potential for exposure to groundwater by future residents and commercial/industrial workers, as well as construction workers or utility workers in areas where the groundwater is less than 10 feet bgs. The groundwater elevations are provided on **Table 1**. Wells with water at a depth of less than 10 feet bgs are highlighted on the table.

6.1.3 Indoor Air

There is a potential for receptors to inhale airborne, vapor phase contaminants that migrate into buildings from impacted groundwater; therefore, vapor intrusion is considered to be a complete exposure pathway for on-site retail (commercial/industrial) workers and off-site residential receptors at the site.

6.1.4 Ecological Receptors

The Corners Shopping Center site is bordered to the north and northeast by 15-20 acres of undeveloped forested land. This area consists of a degraded patch of urban forest populated with invasive species (such as privet and kudzu). The canopy of hardwood forest is approximately 50-70 feet overhead, and many trees are 12-24 inches in diameter at breast height. The understory includes kudzu, thickly-grown privet, blackberry, green briar, and other herbaceous plants. The terrestrial areas are frequented by small mammals, insects and other invertebrates, and song birds.

A drainage ditch originates from the outflow of a detention pond located at the northwestern corner of the shopping center, and traverses into the wooded area (this ditch typically does not contain water). Downgradient of a concrete retention pond constructed behind the site for storm water management, the ditch contains gravel-to-cobble sized stones for stabilization. Beyond the concrete retention pond, the ditch widens and flattens out as it enters a low area. The urban forest shows signs that water movement may occur in this area, but it is not an aquatic habitat, but rather an ephemeral drainage feature.

Several hundred feet north of this area, a small stream flows north along the east side of Kerry Creek Drive. This channel is incised to 4-6' below ground surface, and the water in the channel is several inches deep. This appears to be perennial aquatic habitat, and water striders, dragonflies, and frogs were observed. The water depth is likely too shallow for a fish community. One water sample was taken from this area on July 16, 2014, near where the stream first appears to be perennially flowing behind the houses on the east side of Kerry Creek Drive (**Figure 2**). The water sample was analyzed for VOCs. No VOCs were detected in this sample. Consequently, the ecological habitat that exists immediately downgradient of the site does not appear to be impacted by the groundwater contamination associated with the site.

6.1.5 Summary

Based on the nature of current and expected future site activities, the potential receptors exposed to groundwater at the site include:

- Residents and commercial/industrial workers via ingestion and inhalation; and,
- Construction and utility workers via incidental ingestion of shallow groundwater.

6.2 Exposure Assessment

In accordance with GA EPD guidance, default criteria for Types 1 and 3 RRS were used. For Types 2 and 4 RRS, exposure factors from GA EPD guidance (GA EPD, 2009) were used to calculate and/or determine the RRS. These RRS values are therefore considered to be conservative (i.e., protective of human health) in that exposure to the RRS is considered unlikely to be associated with significant carcinogenic or noncarcinogenic effects.

6.2.1 Groundwater Exposure

The exposure parameters for the potential receptors exposed to groundwater are discussed below.

Groundwater via Ingestion and Inhalation Exposure

1. Off-Site Resident – The Type 2 RRS (i.e., residential) for carcinogenic and noncarcinogenic effects from potential exposure to groundwater were calculated using Equations 1 and 2, respectively, from Risk Assessment Guidance for Superfund (RAGS) Part B (USEPA, 1991). The lowest criterion from Equation 1 or 2 was used as the Type 2 RRS.

The exposure factors used to calculate the Type 2 RRS include 70 kilogram (kg) body weight for an adult and 15 kg for a child, 30 years of exposure duration for an adult and six years for a child, 2 liters per day (L/day) water intake rate for an adult and 1 L/day for a child, and an exposure period of 350 days per year. The target hazard index (noncarcinogens) was 1 and the target cancer risk was 1E-05 for carcinogens.

The equations and parameter values used to calculate the Type 2 RRS for exposure to groundwater are presented in **Table 4**.

2. On-Site Commercial/Industrial Worker - The Type 4 (i.e., commercial/industrial) RRS for carcinogenic and noncarcinogenic effects from potential exposure to groundwater were calculated using Equations 1 and 2, respectively, from Risk Assessment Guidance for Superfund (RAGS) Part B (USEPA, 1991). The lowest criterion from Equation 1 or 2 was used as the Type 4 RRS.

The exposure factors used to calculate the Type 4 RRS include 70 kilogram (kg) body weight, 25 years of exposure duration, 1 liter per day (L/day) water intake rate, and an exposure period of 250 days per year. The target hazard index (noncarcinogens) was 1 and the target cancer risk was 1E-05 for carcinogens.

The equations and parameter values used to calculate the Type 4 RRS for exposure to groundwater are presented in **Table 5**.

Groundwater via Incidental Ingestion Exposure

1. Construction Worker – The exposure factors used to calculate Type 4 (i.e., construction worker) RRS are based on potential industrial exposures. Future construction workers were assumed to have a body weight of 70 kg and incidentally ingest 10 ml/event of groundwater (USEPA, 2014) for 1 event per year over the course of 180 days per year for 1 year (i.e., 6 months; professional judgment). The target hazard index (noncarcinogens) was 1 and the target cancer risk was 1E-05 for carcinogens.

The equations and parameter values used to calculate the Construction Worker Type 4 RRS for exposure to shallow groundwater are presented in **Table 6**.

2. Utility Worker – The exposure factors used to calculate Type 4 (i.e., utility worker) RRS are based on potential industrial exposures. Future utility workers were assumed to have a body weight of 70 kg and incidentally ingest 10 ml/event of groundwater (USEPA, 2014) for 1 event per day over the course of 10 days per year (professional judgment) for 25 years (GA EPD, 2009). The target hazard index (noncarcinogens) was 1 and the target cancer risk was 1E-05 for carcinogens.

The equations and parameter values used to calculate the Utility Worker Type 4 RRS for exposure to shallow groundwater are presented in **Table 7**.

Vapor Intrusion/Indoor Air via Inhalation Exposure

1. Off-Site Resident – Residents were assumed to have a body weight of 70 kg and be at home for 24 hours per day over the course of 350 days per year for 26 years (USEPA, 2016). To be consistent with HSRA, the target hazard index (noncarcinogens) was 1 and the target cancer risk was 1E-05 for carcinogens. The exposure factors, target hazard index, and target cancer risk were used in the USEPA's VISL Calculator (USEPA, 2016) to calculate the screening levels for groundwater and soil gas that are protective of off-site residents exposed to vapors that may migrate into the residence. The input for and output of the VISL Calculator and the generated screening levels are provided in **Table 8**.

2. On-Site Commercial/Industrial Worker – Commercial/industrial workers were assumed to have a body weight of 70 kilograms (kg) and be present at work for 8 hours per day over the course of 250 days per year for 25 years (GA EPD, 2009; USEPA, 2014; USEPA, 2016). The target hazard index (noncarcinogens) was 1 and the target cancer risk was 1E-05. The exposure factors, target hazard index, and target cancer risk were used in USEPA's VISL Calculator (USEPA, 2016) which calculates the screening levels for groundwater that are

protective of the commercial/industrial worker exposed to vapors that may migrate into the building. The input for and output of the VISL Calculator and the generated cleanup standards for groundwater are provided in **Table 9**.

6.3 Toxicity Assessment

The toxicity values used to calculate Type 2 and Type 4 RRS and the VISL (i.e., cancer slope factors [CSF] and reference doses [RFD]) were obtained first from the USEPA Integrated Risk Information System (IRIS) database (IRIS, 2017) and, secondly, from the USEPA Regional Screening Level table (USEPA, 2016). The toxicity values and the sources of these values are provided in **Table 10**.

6.4 Comparison of Groundwater Concentrations to RRS and VISL

The calculation of RRS and VISL for groundwater involved the integration of the exposure and toxicity assessment. Information on potential exposures and toxicity values was combined to generate the Type 2 and Type 4 RRS as well as the residential and commercial/industrial VISL. These criteria, as well as the default criteria for Type 1 and Type 3, were then compared to the detected concentrations of the PCE in the groundwater at the site from the last sampling event for each well. **Table 11** presents a comparison of the maximum detected PCE concentrations in the groundwater and soil gas to the applicable RRS and VISL.

6.4.1 Residential Risk Reduction Standards

The following sections describe the Type 1 and Type 2 RRS.

Type 1 RRS

The Type 1 RRS (default residential criteria) for groundwater are defined in Rule 391-3-19-.07(6)(b) (GA EPD, 2009) to be the concentrations listed in Table 1 of Appendix III (if available). The comparison of the PCE concentration detected in groundwater from the last sampling event for the off-site well, MW-28, to the Type 1 RRS is presented in **Table 11**. The detected concentration of PCE (7.4 ug/l) in MW-28 slightly exceeds the Type 1 RRS of 5 ug/l.

Type 2 RRS

The Type 2 carcinogenic and noncarcinogenic criteria for groundwater were calculated for adults and children. The least of the carcinogenic and noncarcinogenic criteria was then selected as the criterion for each receptor (adults and children), and the lower of the adult or children criterion was selected as the Type 2 RRS. However, if the Type 1 RRS was greater than the calculated Type 2 RRS, the Type 1 RRS was used as the Type 2 RRS. The comparison of the PCE concentration detected groundwater from the last sampling event for the off-site well, MW-28, to the Type 2 RRS is presented in **Table 11**. The detected concentration of PCE (7.4 ug/l) is less than the Type 2 RRS of 19 ug/l.

6.4.2 Non-residential Risk Reduction Standards

Non-residential RRS were calculated for groundwater as described previously. The following sections further describe the Type 3 and Type 4 RRS.

Type 3 RRS

The Type 3 RRS for groundwater are identical to the Type 1 RRS used for the residential scenario, according to GA EPD guidance (GA EPD 2009). The comparison of the maximum detected concentration of PCE from the last sampling event for each on-site well to the Type 3 RRS for groundwater are presented in **Table 11**. The detected concentrations of PCE exceed the Type 3 RRS of 5 ug/L in 14 of the on-site wells:

Type 4 RRS

The Type 4 carcinogenic and noncarcinogenic criteria for groundwater were calculated for commercial/industrial workers, construction workers, and utility workers. The least of the carcinogenic and noncarcinogenic criteria was then selected as the Type 4 RRS for each receptor.

The comparison of the maximum detected groundwater concentration of PCE from the last sampling event for each on-site well to the Type 4 RRS is presented in **Table 11**. The maximum detected concentration of PCE (250 ug/l) exceeds the Type 4 RRS for a commercial/industrial worker (98 ug/L) but does not exceed the Type 4 RRS of 1,500,000 ug/L for a construction worker or 85,000 µg/l for a utility worker. The only other monitoring location that had a PCE concentration greater than 98 ug/L was TW-02 (210 ug/L), which is also less than the Type 4 RRS for construction and utility workers.

6.4.3 Off-Site Residential Vapor Intrusion

The comparison of the maximum detected groundwater concentration of PCE from the last sampling event in MW-28, the only off-site well, to the groundwater VISL for a resident is presented in **Table 11**. The detected PCE concentration of 7.4 ug/L in the groundwater does not exceed the screening level of 58 ug/L.

6.4.4 On-Site Commercial/Industrial Worker Vapor Intrusion

The comparison of the maximum detected groundwater concentration of PCE from the last sampling event in the on-site wells, to the groundwater VISL for a commercial/industrial worker is presented in **Table 11**. The maximum detected PCE concentration of 250 ug/L in the groundwater slightly exceeds the screening level of 240 ug/L. However, this concentration was detected in monitoring well DVEW-07, which is located approximately 150 feet north of the site buildings and therefore not under or in immediate proximity to current site structures where workers might be exposed to indoor air. PCE wasn't detected in any other locations at a concentration exceeding 240 ug/L.

6.4.5 Soil Gas Screening Criteria

To be conservative, three soil gas samples were collected along the property line on the western side of the site nearest the adjacent residential property and one soil gas sample was collected within the retail space where the dry cleaner was previously located. A comparison of the maximum detected soil gas concentrations to the soil gas VISL is presented in **Table 11**. The maximum detected concentration of PCE at 150 ug/m^3 (SV-01 located inside the retail space) does not exceed the residential screening level of 1,400 ug/m^3. This indicates that exposure of residential and non-residential receptors to indoor vapors associated with the groundwater is not likely to result in adverse health effects.

7. SUMMARY AND CONCLUSIONS

Based on current site conditions and the risk evaluation performed, the following are proposed for the site:

Groundwater: There is currently no direct exposure to groundwater via ingestion at or within 1,000 feet of the site, with the potential exception of construction or utility workers in areas where groundwater is less than 10 feet below the ground surface. However, concentrations of PCE, the only VOC detected in the groundwater, do not exceed the RRS for exposure to a utility or construction workers (regardless of depth). In addition, PCE in the off-site groundwater monitoring well does not exceed the Type 2 RRS for residents although PCE concentrations in the on-site groundwater does exceed the Type 4 RRS for a commercial/industrial worker if groundwater is used as a drinking water source in the future (currently there is an ordinance preventing such use). In addition, fate and transport modeling of the site groundwater plume shows that the PCE concentrations will continue to degrade throughout the site to concentrations less than the Type 2 RRS in less than 15 years.

Vapor Intrusion (Inhalation): Based on current site conditions, PCE concentrations in the on-site groundwater are not expected to result in adverse health effects for the commercial/ industrial worker or nearby residents. The one location where the concentration of PCE in the groundwater exceeded the commercial/industrial worker screening level is not under or in immediate proximity to current site structures where workers might be exposed to indoor air. PCE concentrations in the off-site groundwater did not exceed the residential screening level for vapor intrusion and are therefore not expected to result in adverse health effects. And finally, concentrations of PCE in the soil gas samples did not exceed the residential screening levels. Based on this information, corrective action related to the groundwater based on potential risks associated with exposure to vapor-phase contaminants is not required.

MSC Naples, LLC, is taking actions to restrict the use of groundwater on the property through land use restrictions and environmental covenants on the property deed. The environmental covenants will be used to ensure that the future use of the site with respect to potential exposure to site-related impacts does not change. The environmental covenant will be executed on the site in conformance with O.C.G.A. 44-61-1, et seq., the “Georgia Uniform Environmental Covenants Act.” This covenant will require that the land use of the site remains commercial, prohibit drinking water wells from being installed on the site, and specify that any future construction plans for a building on the site will be evaluated for vapor intrusion.

Therefore, based on the groundwater exposure limitations, groundwater modeling, and future use restrictions, further corrective action for groundwater at the site is not warranted. The property should be considered to have met the criteria set forth in the VRP Application and released of continued monitoring responsibilities. It is requested that this site be removed from the HSI list and that a No Further Action status be conveyed to the site.

8. REFERENCES

Georgia Environmental Protection Division (GA EPD), 2009. Hazardous Site Response Act, Chapter 391-3-19. Georgia Department of Natural Resources.

GA EPD, 2017. GA EPD Comments on VRP Semiannual Report 1, Corners Shopping Center, HSI Site Number 10326, February 1.

MACTEC, 2005. Application for Limitation of Liability and Compliance Status Report, The Corners Shopping Center North, HSI Site No. 10326, July 11.

USEPA, 2014. Region 4 Human Health Risk Assessment Supplemental Guidance, Technical Services Section, Superfund Division, January. Draft Final.

USEPA, 2016. Vapor Intrusion Screening Level Calculator Version 3.4, June 2015 RSLs. OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Soil Vapor Sources to Indoor Air (OSWER Publication 9200.2-154), June.

Tables

Table 1 - Summary of Groundwater Elevations
Corners Shopping Center Site
Marietta, Georgia

Well ID	Total Depth (ft BTOC)	Screened Interval (ft BTOC)	TOC Elevation (ft amsl)	Date	Depth to Water (ft BTOC)	Groundwater Elevation (ft amsl)
AIW-01	52.49	47.49-52.49	1101.03	7/7/2014	19.09	1081.94
	DW	DW	DW	DW	DW	DW
AIW-02	53.50	48.50-53.50	1100.80	7/8/2014	15.12	1085.68
	DW	DW	DW	DW	DW	DW
AIW-03	49.50	44.50-49.50	1100.46	2/6/2015	19.53	1080.93
AIW-05	48.50	43.50-48.50	1085.31	NA	NA	NA
	DW	DW	DW	DW	DW	DW
ART-01	NA	NA	NA	7/7/2014	20.79	NA
			NA	2/6/2015	19.51	NA
ART-02	30.00	NA	NA	7/8/2014	15.12	NA
			NA	2/6/2015	7.05	NA
ART-03	NA	NA	NA	7/8/2014	12.32	NA
			NA	2/6/2015	7.55	NA
DVEW-01	42.00	7.00-42.00	1102.03	7/7/2014	18.92	1083.11
	DW	DW	DW	DW	DW	DW
DVEW-02	35.00	10.00-35.00	1100.36	7/8/2014	18.05	1082.31
	DW	DW	DW	DW	DW	DW
DVEW-03	48.00	8.00-48.00	1100.57	7/7/2014	19.50	1081.07
			1100.57	2/6/2015	19.44	1081.13
DVEW-04	43.50	3.50-43.50	1090.73	7/8/2014	6.30	1084.43
	DW	DW	DW	DW	DW	DW
DVEW-05	48.50	3.50-48.50	1085.36	7/8/2014	5.80	1079.56
	DW	DW	DW	DW	DW	DW
DVEW-06	64.00	4.00-64.00	1089.16	7/8/2014	11.26	1077.90
			1089.16	2/6/2015	9.22	1079.94
DVEW-07	57.00	7.00-57.00	1095.19	7/8/2014	13.69	1081.50
			1095.19	2/6/2015	12.07	1083.12
DVEW-08	62.00	7.00-62.00	1098.39	7/8/2014	17.83	1080.56
			1098.39	2/6/2015	17.10	1081.29
DVEW-09	63.00	3.00-63.00	1094.34	7/8/2014	15.88	1078.46
			1094.34	2/6/2015	14.85	1079.49
DVEW-10 [1]	53.50	3.50-53.50	1083.27	7/8/2014	6.20	1077.07
			1087.02	2/6/2015	7.27	1079.75
GRW-01	29.00	4.00-29.00	1070.44	7/7/2014	CNL	CNL
			1070.44	2/6/2015	CNL	CNL
GRW-02 [1]	33.50	3.50-33.50	1075.07	7/8/2014	5.20	1069.87
			1079.01	2/6/2015	7.58	1071.43
GRW-03 [1]	39.50	4.50-39.50	1077.45	7/8/2014	4.74	1072.71
			1081.74	2/6/2015	7.03	1074.71
GRW-04 [1]	40.00	5.00-40.00	1079.05	7/8/2014	5.61	1073.44
			1083.37	2/6/2015	7.85	1075.52
GRW-05 [1]	65.00	5.00-65.00	1085.01	7/8/2014	10.45	1074.56
			1089.49	2/6/2015	13.10	1076.39
GRW-06 [1]	48.50	3.50-48.50	1080.27	7/8/2014	5.05	1075.22
			1084.02	2/6/2015	7.55	1076.47
GRW-07 [1]	53.50	8.50-53.50	1084.11	NA	NA	NA
			1088.96	2/6/2015	10.50	1078.46

Table 1 - Summary of Groundwater Elevations
Corners Shopping Center Site
Marietta, Georgia

Well ID	Total Depth (ft BTOC)	Screened Interval (ft BTOC)	TOC Elevation (ft amsl)	Date	Depth to Water (ft BTOC)	Groundwater Elevation (ft amsl)
GRW-08 [1]	46.00	6.00-46.00	1082.54	7/8/2014	5.17	1077.37
			1086.57	2/6/2015	7.10	1079.47
GRW-09 [1]	39.00	9.00-39.00	1086.69	7/8/2014	10.63	1076.06
			1090.94	2/6/2015	12.58	1078.36
MW-01	24.88	9.88-24.88	1099.22	7/7/2014	18.92	1080.30
			1099.22	2/6/2015	CNL	CNL
MW-01A	36.50	31.50-36.50	1098.66	7/7/2014	CNL	CNL
			1098.66	2/6/2015	CNL	CNL
MW-02	22.50	12.50-22.50	NA	7/7/2014	NA	NA
	DW	DW	DW	2/6/2015	DW	DW
MW-06	67.68	62.68-67.68	1099.71	7/7/2014	20.39	1079.32
			1099.71	2/6/2015	19.14	1080.57
MW-07	8.50	3.50-8.50	NA	7/7/2014	CNL	CNL
			NA	2/6/2015	CNL	CNL
MW-08	7.00	2.00-7.00	1082.46	7/7/2014	CNL	CNL
			1082.46	2/6/2015	CNL	CNL
MW-09	10.00	5.00-10.00	NA	7/7/2014	CNL	CNL
			NA	2/6/2015	CNL	CNL
MW-10	11.00	6.00-11.00	1077.96	7/7/2014	7.79	1070.17
			1079.22	2/6/2015	6.79	1072.43
MW-11	58.00	8.00-58.00	1082.79	7/7/2014	NA	NA
			1082.79	2/6/2015	4.70	1078.09
MW-12	48.50	43.50-48.50	1077.96	7/7/2014	NA	NA
			1077.96	2/6/2015	4.40	1073.56
MW-13	44.00	39.00-44.00	1071.04	7/7/2014	NA	NA
			1071.04	2/6/2015	NA	NA
MW-14	39.00	34.00-39.00	1089.45	7/7/2014	10.81	1078.64
			1089.45	2/6/2015	9.10	1080.35
MW-16	55.00	40.00-55.00	1085.35	CNL	CNL	CNL
			1085.35	CNL	CNL	CNL
MW-17	60.00	45.00-60.00	1093.28	7/8/2014	16.45	1076.83
			1093.28	2/6/2015	15.50	1077.78
MW-18	51.00	36.00-51.00	1084.62	7/8/2014	9.62	1075.00
			1084.62	2/6/2015	7.88	1076.74
MW-19	64	49.00-64.00	1085.61	7/8/2014	11.84	1073.77
			1085.61	2/6/2015	10.28	1075.33
MW-20	40	25.00-40.00	1081.89	7/8/2014	7.38	1074.51
			1081.89	2/6/2015	5.77	1076.12
MW-21	65	50.00-65.00	1073.70	7/8/2014	4.68	1069.02
			1073.70	2/6/2015	3.48	1070.22
MW-22	20	5.00-20.00	1082.68	CNL	CNL	CNL
			1082.68	CNL	CNL	CNL
MW-23	30	15.00-30.00	1099.10	NA	NA	NA
			1099.10	2/6/2015	18.10	1081.00
MW-24	87.00	77-87	1100.73	7/8/2014	19.29	1081.44
			1100.73	2/6/2015	19.72	1081.01
MW-25	75.00	70-75	1082.84	CNL	CNL	CNL
			1082.84	CNL	CNL	CNL

Table 1 - Summary of Groundwater Elevations
Corners Shopping Center Site
Marietta, Georgia

Well ID	Total Depth (ft BTOC)	Screened Interval (ft BTOC)	TOC Elevation (ft amsl)	Date	Depth to Water (ft BTOC)	Groundwater Elevation (ft amsl)
MW-27	20.18	NA	1074.37	7/7/2014	5.72	1068.65
			1074.37	2/6/2015	4.59	1069.78
MW-28	68.00	NA	1086.62	NA	NA	NA
			1086.62	2/6/2015	12.91	1073.71
VEW-01	13.61	3.61-13.61	NA	7/7/2014	NA	NA
	DW	DW	DW	DW	DW	DW
VEW-02	15.10	5.10-15.10	NA	7/7/2014	14.66 [2]	NA
	DW	DW	DW	DW	DW	DW
VEW-03	15.24	5.24-15.24	NA	7/7/2014	14.78 [2]	NA
	DW	DW	DW	DW	DW	DW
VEW-04	15.06	5.06-15.06	NA	7/7/2014	14.49 [2]	NA
	DW	DW	DW	DW	DW	DW
VEW-05	15.50	5.50-15.50	NA	NA	NA	NA
	DW	DW	DW	DW	DW	DW

Notes:
ft BTOC - feet below top of casing
ft amsl - feet above mean sea level
DW - Decommissioned Well
NA - Not Available
CNL - Could Not Locate
Blue highlighting indicates well was used to evaulate construction and utility worker exposure
[1] Former system well converted to a monitoring well
[2] Cap water present (insufficient water for sampling)
Elevations relative to mean sea level (msl) using the NAVD-88 Trans datum

Table 2 - Summary of Detected CVOCs in Groundwater
Corners Shopping Center Site
February 2015

		Analyte	1,2-DCA	c12DCE	PCE	TCE
		CAS No.	107-06-2	156-59-2	127-18-4	79-01-6
		Type 1/3 RRS [1]	5	--	5	5
Well ID	Date Sampled	Units				
AIW-03	7/11/2014	ug/l	< 5.0	< 5.0	**5.2**	< 5.0
	2/6/2015	ug/l	< 5.0	< 5.0	**8.5**	< 5.0
AIW-04	2/18/2015	ug/l	< 5.0	< 5.0	< 5.0	< 5.0
ART-02	6/12/2013	ug/l	< 1.0	< 1.0	**6.5**	< 1.0
	12/3/2013	ug/l	< 5.0	< 5.0	**6.6**	< 5.0
	5/26/2014	ug/l	--	< 5.0	**45**	< 5.0
	2/5/2015	ug/l	< 5.0	< 5.0	**7.7**	< 5.0
DVEW-06	6/14/2013	ug/l	< 1.0	< 1.0	**10**	1.1
	12/6/2013	ug/l	< 5.0	< 5.0	**6.7**	< 5.0
	5/27/2014	ug/l	--	< 5.0	**110**	**17**
	7/9/2014	ug/l	< 5.0	< 5.0	**44**	**5.9**
DUP-01	7/9/2014	ug/l	< 5.0	< 5.0	**50**	**6.2**
	2/3/2015	ug/l	< 5.0	< 5.0	**14**	< 5.0
DUP-02	2/3/2015	ug/l	< 5.0	< 5.0	**18**	< 5.0
DVEW-07	6/19/2013	ug/l	**5.8**	1.8	**153**	0.91 J
	8/19/2013	ug/l	< 5.0	6	**360**	< 5.0
	9/13/2013	ug/l	< 5.0	< 5.0	**400**	< 5.0
	10/9/2013	ug/l	< 5.0	< 5.0	**650**	< 5.0
	12/6/2013	ug/l	< 5.0	< 5.0	**450**	< 5.0
	5/27/2014	ug/l	--	< 5.0	**630**	< 5.0
	2/2/2015	ug/l	< 5.0	< 5.0	**250**	< 5.0
DUP-01	2/2/2015	ug/l	< 5.0	< 5.0	**230**	< 5.0
DVEW-08	7/9/2014	ug/l	< 5.0	< 5.0	**7.8**	< 5.0
	2/3/2015	ug/l	< 5.0	< 5.0	**5.6**	< 5.0
GRW-04	6/19/2013	ug/l	**5.9**	< 1.0	1.5	< 1.0
	12/5/2013	ug/l	< 5.0	< 5.0	< 5.0	< 5.0
	5/26/2014	ug/l	--	< 5.0	< 5.0	< 5.0
	2/6/2015	ug/l	< 5.0	< 5.0	< 5.0	< 5.0
GRW-05	6/13/2013	ug/l	< 1.0	1.3	**23.3**	1.2
	12/5/2013	ug/l	< 5.0	< 5.0	**12**	< 5.0
	5/27/2014	ug/l	--	< 5.0	**29**	< 5.0
	2/5/2015	ug/l	< 5.0	< 5.0	**6.1**	< 5.0
GRW-09	6/13/2013	ug/l	< 1.0	< 1.0	0.94 J	< 1.0
	12/3/2013	ug/l	< 5.0	< 5.0	< 5.0	< 5.0
	5/26/2014	ug/l	--	< 5.0	< 5.0	< 5.0
	2/6/2015	ug/l	< 5.0	< 5.0	< 5.0	< 5.0
MW-06	6/12/2013	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
	12/3/2013	ug/l	< 5.0	< 5.0	**5.7**	**9.1**
	5/26/2014	ug/l	--	< 5.0	< 5.0	< 5.0
	2/2/2015	ug/l	< 5.0	< 5.0	< 5.0	< 5.0
MW-11	7/9/2014	ug/l	< 5.0	< 5.0	**5.9**	< 5.0
	2/3/2015	ug/l	< 5.0	< 5.0	< 5.0	< 5.0
MW-12	2/5/2015	ug/l	< 5.0	< 5.0	< 5.0	< 5.0
MW-14	6/14/2013	ug/l	< 1.0	< 1.0	**12.6**	< 1.0
	12/6/2013	ug/l	< 5.0	< 5.0	**25**	< 5.0
	5/27/2014	ug/l	--	< 5.0	**8.2**	< 5.0
	2/2/2015	ug/l	< 5.0	< 5.0	< 5.0	< 5.0
MW-17	7/9/2014	ug/l	< 5.0	< 5.0	**70**	< 5.0
	2/3/2015	ug/l	< 5.0	< 5.0	**53**	< 5.0
MW-18	6/14/2013	ug/l	< 1.0	< 1.0	**11.3**	< 1.0
	12/5/2013	ug/l	< 5.0	< 5.0	**14**	< 5.0
	5/27/2014	ug/l	--	< 5.0	**11**	< 5.0
	2/5/2015	ug/l	< 5.0	< 5.0	< 5.0	< 5.0

Table 2 - Summary of Detected CVOCs in Groundwater
Corners Shopping Center Site
February 2015

		Analyte	1,2-DCA	c12DCE	PCE	TCE
		CAS No.	107-06-2	156-59-2	127-18-4	79-01-6
		Type 1/3 RRS [1]	5	--	5	5
Well ID	Date Sampled	Units				
MW-19	6/14/2013	ug/l	< 1.0	1.5	**16.9**	0.62 J
	12/5/2013	ug/l	< 5.0	< 5.0	**13**	< 5.0
	5/27/2014	ug/l	--	< 5.0	**42**	< 5.0
	2/5/2015	ug/l	< 5.0	< 5.0	**69**	< 5.0
MW-20	7/9/2014	ug/l	< 5.0	< 5.0	**13**	< 5.0
	2/5/2015	ug/l	< 5.0	< 5.0	**13**	< 5.0
MW-27	7/10/2014	ug/l	< 5.0	< 5.0	**7.9**	< 5.0
	2/5/2015	ug/l	< 5.0	< 5.0	**17**	< 5.0
MW-28	2/18/2015	ug/l	< 5.0	< 5.0	**7.4**	< 5.0
TW-01	2/4/2015	ug/l	< 5.0	< 5.0	< 5.0	< 5.0
TW-02	2/4/2015	ug/l	< 5.0	5.5	**210**	**20**
TW-03	2/4/2015	ug/l	< 5.0	< 5.0	5	< 5.0
TW-04	2/4/2015	ug/l	< 5.0	< 5.0	< 5.0	< 5.0
TW-05	2/5/2015	ug/l	< 5.0	< 5.0	< 5.0	< 5.0

Notes:
(1) Georgia EPD (2009)
ug/l -- Micrograms per liter (parts per billion)
< -- Analyte was not detected at the laboratory reporting limit indicated
Bold and highlighted values indicate an exceedance of the Type 1/3 RRS

Table 3 - Summary of Detected CVOCs in Soil Gas
Corners Shopping Center Site
February 2015

Analyte	Target Soil Gas Concentration (Residential)	Sample Identificaton			
		SV-01	SV-02	SV-03	SV-04
Tetrachloroethene	1,400	150	<29	2.5	10

Notes:
Samples collected on 2/5/2015
Units in $\mu g/m^3$

Table 4 - Calculation of Type 2 RRS for Groundwater - Residents
Corners Shopping Center Site
Marietta, Georgia

ROUTE-SPECIFIC RRSs:

Oral:

$$(RRS_o)_{C\ or\ NC} = \frac{(TCR\ or\ THI)\ x\ BW\ x\ (AT_C\ or\ AT_{NC})}{IR_w\ x\ EF\ x\ ED\ x\ [SF_O\ or\ (1/RfD_O)]}$$

Inhalation:

$$(RRS_i)_{C\ or\ NC} = \frac{(TCR\ or\ THI)\ x\ (AT_C\ or\ AT_{NC})\ x\ BW}{K\ x\ IR_a\ x\ EF\ x\ ED\ x\ [SF_i\ or\ (1/RfD_I)]}$$

Cancer Effects RRS:

$$RRS_C = \frac{1}{\frac{1}{(RRS_O)_C} + \frac{1}{(RRS_I)_C}}$$

Non-Cancer Effects RRS:

$$RRS_{NC} = \frac{1}{\frac{1}{(RRS_O)_{NC}} + \frac{1}{(RRS_I)_{NC}}}$$

RRS = Minimum result of RRS_C and RRS_{NC}.

where:

AT_C	Averaging time for cancer effects (25,550 days).
AT_{NC}	Averaging time for non-cancer effects; ED x 365 days/year.
BW	Body weight (70 kg adult; 15 kg child) (GAEPD, 2003).
ED	Exposure duration (30 years adult; 6 years child) (GAEPD, 2003).
EF	Exposure frequency (350 days/year) (GAEPD, 2003).
IR_{air}	Inhalation rate (15 m^3/day) (GAEPD, 2003).
IR_w	Ingestion rate of drinking water (2 L/day adult; 1 L/day child).
K	Volatilization factor for volatile organic compounds (VOCs) from household tap water (0.5 L/m^3) (USEPA, 1991).
RfDi	Reference dose for inhalation (1.14E-02 mg/kg-day).
RfDo	Reference dose for ingestion (6.0E-03 mg/kg-day).
RRS	Risk reduction standard for groundwater (mg/L); minimum of the RRS_C (based on cancer effects) and the RRS_{NC} (based on non-cancer effects), which are based on the route-specfic RRSs (RRSo for the oral route and RRSi for the inhalation route).
SFi	Slope factor for inhalation (9.1E-04 mg/kg-day^{-1}).
SFo	Slope factor for ingestion (2.1E-03 mg/kg-day^{-1}).
TCR	Target cancer risk (unitless); results presented for TCR value of 10^{-5}.
THI	Target hazard index (unitless); results presented for THI value of 1.

SAMPLE CALCULATIONS:

Tetrachloroethene Adult Exposure (Type 2)

CANCER EFFECTS:

Oral:

$$(RRS_O)_C = \frac{10^{-5}\ x\ 70\ kg\ x\ 25{,}550\ days}{2\ L/day\ x\ 350\ days/yr\ x\ 30\ yrs\ x\ (2.4E\text{-}03\ kg\text{-}day/mg)}$$

$$= 0.41\ mg/L$$

Inhalation:

$$(RRS_I)_C = \frac{10^{-5}\ x\ 70\ kg\ x\ 25{,}550\ days}{0.5\ L/m^3\ x\ 350\ days/yr\ x\ 30\ yrs\ x\ 15\ m^3/day\ x\ (9.1E\text{-}04\ kg\text{-}day/mg)}$$

$$= 0.25\ mg/L$$

Table 4 - Calculation of Type 2 RRS for Groundwater - Residents
Corners Shopping Center
Marietta, Georgia

CANCER EFFECTS RRS:

$$RRS_C = \frac{1}{\frac{1}{0.41\ mg/L} + \frac{1}{0.25\ mg/L}} = 0.15\ mg/L$$

NON-CANCER EFFECTS:

Oral:

$$(RRS_o)_{NC} = \frac{1\ x\ 70\ kg\ x\ 9{,}125\ days}{1\ L/day\ x\ 250\ days/yr\ x\ 25\ yrs\ x\ [1/6E\text{-}03\ mg/kg\text{-}day]}$$

$$= 0.61\ mg/L$$

Inhalation:

$$(RRS_I)_{NC} = \frac{1\ x\ 70\ kg\ x\ 10{,}950\ days}{0.5\ L/m^3\ x\ 350\ days/yr\ x\ 30\ yrs\ x\ 15\ m^3/day\ x\ [1/1.14E\text{-}02\ mg/kg\text{-}day]}$$

$$= 0.11\ mg/L$$

NON-CANCER EFFECTS RRS:

$$RRS_{NC} = \frac{1}{\frac{1}{0.22\ mg/L} + \frac{1}{0.11\ mg/L}} = 0.094\ mg/L$$

$$= 0.6\ mg/L$$

Tetrachloroethene Child Exposure (Type 2)

CANCER EFFECTS:

Oral:

$$(RRS_O)_C = \frac{10^{-5}\ x\ 15\ kg\ x\ 25{,}550\ days}{1\ L/day\ x\ 350\ days/yr\ x\ 6\ yrs\ x\ (2.4E\text{-}03\ kg\text{-}day/mg)}$$

$$= 0.87\ mg/L$$

Inhalation:

$$(RRS_I)_C = \frac{10^{-5}\ x\ 15\ kg\ x\ 25{,}550\ days}{0.5\ L/m^3\ x\ 350\ days/yr\ x\ 6\ yrs\ x\ 15\ m^3/day\ x\ (9.1E\text{-}04\ kg\text{-}day/mg)}$$

$$= 0.27\ mg/L$$

CANCER EFFECTS RRS:

$$RRS_C = \frac{1}{\frac{1}{0.87\ mg/L} + \frac{1}{0.27\ mg/L}} = 0.20\ mg/L$$

Table 4 - Calculation of Type 2 RRS for Groundwater - Residents
Corners Shopping Center
Marietta, Georgia

NON-CANCER EFFECTS:

Oral:

$$(RRS_o)_{NC} = \frac{1 \text{ x } 15 \text{ kg x } 2{,}190 \text{ days}}{1 \text{ L/day x } 350 \text{ days/yr x } 6 \text{ yrs x } [1/6E\text{-}03 \text{ mg/kg-day}]}$$

$$= 0.094 \text{ mg/L}$$

Inhalation:

$$= \frac{1 \text{ x } 15 \text{ kg x } 2{,}190 \text{ days}}{0.5 \text{ L/m}^3 \text{ x } 350 \text{ days/yr x } 30 \text{ yrs x } 15 \text{ m}^3\text{/day x } [1/1.14E\text{-}02 \text{ mg/kg-day}]}$$

$$= 0.024 \text{ mg/L}$$

NON-CANCER EFFECTS RRS:

$$RRS_{NC} = \frac{1}{\frac{1}{0.094 \text{ mg/L}} + \frac{1}{0.024 \text{ mg/L}}} = 0.019 \text{ mg/L}$$

Type 2 RRS = Minumum result of Adult and Child RRS_C (0.15 mg/L and 0.074 mg/L, respectively) and Adult and Child RRS_{NC} (0.20 mg/L and 0.019 mg/L, respectively) = 0.019 mg/L

Table 5 - Calculation of Type 4 RRS for Groundwater - Industrial Worker
Corners Shopping Center Site
Marietta, Georgia

ROUTE-SPECIFIC RRSs:

Oral:

$$(RRS_o)_{C\ or\ NC} = \frac{(TCR\ or\ THI)\ x\ BW\ x\ (AT_C\ or\ AT_{NC})}{IR_w\ x\ EF\ x\ ED\ x\ [SF_O\ or\ (1/RfD_O)]}$$

Inhalation:

$$(RRS_i)_{C\ or\ NC} = \frac{(TCR\ or\ THI)\ x\ (AT_C\ or\ AT_{NC})\ x\ BW}{K\ x\ IR_a\ x\ EF\ x\ ED\ x\ [SF_i\ or\ (1/RfD_i)]}$$

Cancer Effects RRS:

$$RRS_C = \frac{1}{\frac{1}{(RRS_O)_C} + \frac{1}{(RRS_I)_C}}$$

Non-Cancer Effects RRS:

$$RRS_{NC} = \frac{1}{\frac{1}{(RRS_O)_{NC}} + \frac{1}{(RRS_I)_{NC}}}$$

RRS = Minimum result of RRS_C and RRS_{NC}.

where:

AT_C	Averaging time for cancer effects (25,550 days).
AT_{NC}	Averaging time for non-cancer effects; ED x 365 days/year.
BW	Body weight (70 kg adult) (GAEPD, 2003).
ED	Exposure duration (25 year) (GAEPD, 2003).
EF	Exposure frequency (250 days/year) (GAEPD, 2003).
IR_{air}	Inhalation rate (20 m^3/day) (GAEPD, 2003).
IR_w	Ingestion rate of drinking water (1 L/day).
K	Volatilization factor for volatile organic compounds (VOCs) from household tap water (0.5 L/m^3) (USEPA, 1991).
RfDi	Reference dose for inhalation (mg/kg/day).
RfDo	Reference dose for ingestion (mg/kg/day).
RRS	Risk reduction standard for groundwater (mg/L); minimum of the RRS_C (based on cancer effects) and the RRS_{NC} (based on non-cancer effects), which are based on the route-specfic RRSs (RRSo for the oral route and RRSi for the inhalation route).
TCR	Target cancer risk (unitless); results presented for TCR value of 10^{-5} (10^{-4} for Class C carcinogens).
THI	Target hazard index (unitless); results presented for THI value of 1.

SAMPLE CALCULATIONS, Tetrachloroethene, Industrial Exposure (Type 4).

CANCER EFFECTS:

Oral:

$$(RRS_O)_C = \frac{10^{-5}\ x\ 70\ kg\ x\ 25{,}550\ days}{1\ L/day\ x\ 250\ days/yr\ x\ 25\ yrs\ x\ (0.0021\ kg\text{-}day/mg)}$$

$$= 1.4\ mg/L$$

Inhalation:

$$(RRS_I)_C = \frac{10^{-5}\ x\ 70\ kg\ x\ 25{,}550\ days}{0.5\ L/m^3\ x\ 250\ days/yr\ x\ 25\ yrs\ x\ 20\ m^3/day\ x\ (0.00091\ kg\text{-}day/mg)}$$

$$= 0.31\ mg/L$$

CANCER EFFECTS RRS:

$$RRS_C = \frac{1}{\frac{1}{1.4\ mg/L} + \frac{1}{0.31\ mg/L}} = \mathbf{0.26\ mg/L}$$

Table 5 - Calculation of Type 4 RRS for Groundwater - Industrial Worker
Corners Shopping Center
Marietta, Georgia

NON-CANCER EFFECTS:

Oral:

$$(RRS_o)_{NC} = \frac{1 \text{ x } 70 \text{ kg x } 9{,}125 \text{ days}}{1 \text{ L/day x } 250 \text{ days/yr x } 25 \text{ yrs x } (1/0.006 \text{ mg/kg-day})}$$

$$= 0.61 \text{ mg/L}$$

Inhalation:

$$(RRS_I)_{NC} = \frac{1 \text{ x } 70 \text{ kg x } 9{,}125 \text{ days}}{0.5 \text{ L/m}^3 \text{ x } 250 \text{ days/yr x } 25 \text{ yrs x } 20 \text{ m}^3\text{/day x } (1/0.0114 \text{ mg/kg-day})}$$

$$= 0.12 \text{ mg/L}$$

NON-CANCER EFFECTS RRS:

$$RRS_{NC} = \frac{1}{\frac{1}{0.61 \text{ mg/L}} + \frac{1}{0.11 \text{ mg/L}}} = \textbf{0.098 mg/L}$$

$$=$$

RRS = Minumum result of RRS_C (0.26 mg/L) and RRS_{NC} (0.098 mg/L) = 0.098 mg/L

Table 6 - Calculation of Type 4 RRS for Groundwater - Construction Worker
Corners Shopping Center Site
Marietta, Georgia

ROUTE-SPECIFIC RRSs:

Oral:

$$(RRS_o)_{C\ or\ NC} = \frac{(TCR\ or\ THI)\ x\ BW\ x\ (AT_C\ or\ AT_{NC})}{IR_w\ x\ EF\ x\ ED\ x\ [SF_O\ or\ (1/RfD_O)]}$$

Cancer Effects RRS: RRS_C

Non-Cancer Effects RRS: RRS_{NC}

RRS = Minimum result of RRS_C and RRS_{NC}.

where:

AT_C	Averaging time for cancer effects (25,550 days).
AT_{NC}	Averaging time for non-cancer effects; ED x 365 days/year.
BW	Body weight (70 kg adult) (GAEPD, 2003).
ED	Exposure duration (1 year) (GAEPD, 2003).
EF	Exposure frequency (180 days/year) (GAEPD, 2003).
IR_w	Ingestion rate of drinking water (0.01 L/day).
RfDo	Reference dose for ingestion (mg/kg/day).
RRS	Risk reduction standard for groundwater (mg/L); minimum of the RRS_C (based on cancer effects) and the RRS_{NC} (based on non-cancer effects)
TCR	Target cancer risk (unitless); results presented for TCR value of 10^{-5} (10^{-4} for Class C carcinogens).
THI	Target hazard index (unitless); results presented for THI value of 1.

SAMPLE CALCULATIONS, Tetrachloroethene, Construction Exposure (Type 4).

CANCER EFFECTS:

Oral:

$$(RRS_O)_C = \frac{10^{-5}\ x\ 70\ kg\ x\ 25{,}550\ days}{0.01\ L/day\ x\ 180\ days/yr\ x\ 1\ yr\ x\ (0.0021\ kg\text{-}day/mg)}$$

$$= 4{,}700\ mg/L$$

CANCER EFFECTS RRS:

RRS_C = **4,700 mg/L**

NON-CANCER EFFECTS:

Oral:

$$(RRS_o)_{NC} = \frac{1\ x\ 70\ kg\ x\ 365\ days}{0.01\ L/day\ x\ 180\ days/yr\ x\ 1\ yrs\ x\ (1/0.006\ mg/kg\text{-}day)}$$

$$= 85\ mg/L$$

NON-CANCER EFFECTS RRS:

RRS_{NC} = **85 mg/L**

RRS = Minumum result of RRS_C (4,700 mg/L) and RRS_{NC} (85 mg/L) = 85 mg/L

Table 7 - Calculation of Type 4 RRS for Groundwater - Utility Worker
Corners Shopping Center Site
Marietta, Georgia

ROUTE-SPECIFIC RRSs:

Oral:

$$(RRS_o)_{C\ or\ NC} = \frac{(TCR\ or\ THI)\ x\ BW\ x\ (AT_C\ or\ AT_{NC})}{IR_w\ x\ EF\ x\ ED\ x\ EV\ x\ [SF_O\ or\ (1/RfD_O)]}$$

Cancer Effects RRS: RRS_C

Non-Cancer Effects RRS: RRS_{NC}

RRS = Minimum result of RRS_C and RRS_{NC}.

where:

AT_C	Averaging time for cancer effects (25,550 days).
AT_{NC}	Averaging time for non-cancer effects; ED x 365 days/year.
BW	Body weight (70 kg adult) (GAEPD, 2003).
ED	Exposure duration (25 years) (GAEPD, 2003).
EF	Exposure frequency (10 days/year) (GAEPD, 2003).
IR_w	Ingestion rate of drinking water (0.01 L/day).
RfDo	Reference dose for ingestion (mg/kg/day).
RRS	Risk reduction standard for groundwater (mg/L); minimum of the RRS_C (based on cancer effects) and the RRS_{NC} (based on non-cancer effects)
TCR	Target cancer risk (unitless); results presented for TCR value of 10^{-5} (10^{-4} for Class C carcinogens).
THI	Target hazard index (unitless); results presented for THI value of 1.

SAMPLE CALCULATIONS, Tetrachloroethene, Utility Exposure (Type 4).

CANCER EFFECTS:

Oral:

$$(RRS_O)_C = \frac{10^{-5}\ x\ 70\ kg\ x\ 25{,}550\ days}{0.01\ L/day\ x\ 10\ days/yr\ x\ 25\ yrs\ x\ (0.0021\ kg\text{-}day/mg)}$$

$$= 3{,}400\ mg/L$$

CANCER EFFECTS RRS:

RRS_C = **3,400 mg/L**

NON-CANCER EFFECTS:

Oral:

$$(RRS_o)_{NC} = \frac{1\ x\ 70\ kg\ x\ 9{,}125\ days}{0.01\ L/day\ x\ 10\ days/yr\ x\ 25\ yrs\ x\ (1/0.006\ mg/kg\text{-}day)}$$

$$= 1{,}500\ mg/L$$

NON-CANCER EFFECTS RRS:

RRS_{NC} = **1,500 mg/L**

RRS = Minumum result of RRS_C (3,400 mg/L) and RRS_{NC} (1,500 mg/L) = 1,500 mg/L

Table 8 - Vapor Intrusion Screening Level Calculator - Resident
Corners Shopping Center Site
Marietta, Georgia

OSWER VAPOR INTRUSION ASSESSMENT
Vapor Intrusion Screening Level (VISL) Calculator Version 3.4, November 2015 RSLs

The primary objective of risk-based screening is to identify sites or buildings unlikely to pose a health concern through the vapor intrusion pathway. Generally, at properties where subsurface concentrations of vapor-forming chemicals (e.g., groundwater or "near source" soil gas concentrations) fall below screening levels (i.e., VISLs), no further action or study is warranted, so long as the exposure assumptions match those taken into account by the calculations and the site fulfills the conditions and assumptions of the generic conceptual model underlying the screening levels. In a similar fashion, the results of risk-based screening can help the data review team identify areas, buildings, and/or chemicals that can be eliminated from further assessment. The generic conceptual model underlying these screening levels is described in OSWER Publication 9200.2-154 (OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway From Subsurface Vapor Sources to Indoor Air) (EPA 2015; Section 6.5)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-05	Enter target risk for carcinogens
Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens
Average Groundwater Temperature (°C)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

		Does the chemical meet the definition for volatility?	Does chemical have inhalation toxicity data?	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source?	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source?	Target Indoor Air Conc. @ TCR = 10E-06 or THQ = 1	Toxicity Basis	Target Sub-Slab and Exterior Soil Gas Conc. @ TCR = 10E-06 or THQ = 1	Target Ground Water Conc. @ TCR = 10E-06 or THQ = 1	Is Target Ground Water Conc. < MCL?	Pure Phase Vapor Conc. @ 25°C	Maximum Groundwater Vapor Conc.	Temperature for Max. Groundwater Vapor Conc.	Lower Explosive Limit**	LEL Source		Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator	Target Indoor Air Conc. for Carcinogens @ TCR = 10E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 1
		(HLC>1E-5 or VP>1)	(IUR and/or RfC)	Cvp > Cia,target?	Chc > Cia,target?	MIN(Cia,c;Cia,nc)		Csg	Cgw	Cgw<MCL?	Cvp	Chc	Tgw or 25	LEL			IUR		RfC		i	Cia,c	Cia,nc
127-18-4	Tetrachloroethylene	Yes	Yes	Yes	Yes	4.2E+01	NC	1.4E+03	5.8E+01	No (5)	1.65E+08	1.49E+08	25				2.60E-07	I	4.00E-02	I		1.1E+02	4.2E+01

Notes:

(1) **Inhalation Pathway Exposure Parameters (RME):**

Exposure Scenario	Units	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G14) Symbol	Selected Value
Averaging time for carcinogens	(yrs)	ATc_R	70	ATc_C	70	ATc	70
Averaging time for non-carcinogens	(yrs)	ATnc_R	26	ATnc_C	25	ATnc	26
Exposure duration	(yrs)	ED_R	26	ED_C	25	ED	26
Exposure frequency	(days/yr)	EF_R	350	EF_C	250	EF	350
Exposure time	(hr/day)	ET_R	24	ET_C	8	ET	24

(2) **Generic Attenuation Factors:**

Source Medium of Vapors	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G14) Symbol	Selected Value
Groundwater	AFgw_R	0.001	AFgw_C	0.001	AFgw	0.001
Sub-Slab and Exterior Soil Gas	AFss_R	0.03	AFss_C	0.03	AFss	0.03

(3) **Formulas**

Cia, target = MIN(Cia,c; Cia,nc)
Cia,c (ug/m3) = TCR x ATc x (365 days/yr) x (24 hrs/day) / (ED x EF x ET x IUR)
Cia,nc (ug/m3) = THQ x ATnc x (365 days/yr) x (24 hrs/day) x RfC x (1000 ug/mg) / (ED x EF x ET)

(4) **Special Case Chemicals**

Trichloroethylene

	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G14) Symbol	Selected Value
mIURTCE_R	1.00E-06	mIURTCE_C	0.00E+00	mIURTCE	1.00E-06
IURTCE_R	3.10E-06	IURTCE_C	4.10E-06	IURTCE	3.10E-06

Mutagenic Chemicals

Note: This section applies to trichloroethylene and other mutagenic chemicals, but not to vinyl chloride.

The exposure durations and age-dependent adjustment factors for mutagenic-mode-of-action are listed in the table below:

Age Cohort	Exposure Duration (years)	Age-dependent adjustment factor
0 - 2 years	2	10
2 - 6 years	4	3
6 - 16 years	10	3
16 - 26 years	10	1

Mutagenic-mode-of-action (MMOA) adjustment factor 72 This factor is used in the equations for mutagenic chemicals.

See the Navigation Guide equation for Cia,c for vinyl chloride.

Notation:
NVT = Not sufficiently volatile and/or toxic to pose inhalation risk in selected exposure scenario for the indicated medium
C = Carcinogenic
NC = Non-carcinogenic
I = IRIS: EPA Integrated Risk Information System (IRIS). Available online at: http://www.epa.gov/iris/subst/index.html
P = PPRTV. EPA Provisional Peer Reviewed Toxicity Values (PPRTVs). Available online at: http://hhpprtv.ornl.gov/pprtv.shtml
A = Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs). Available online at: http://www.atsdr.cdc.gov/mrls/index.html
CA = California Environmental Protection Agency/Office of Environmental Health Hazard Assessment assessments. Available online at: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp
H = HEAST. EPA Superfund Health Effects Assessment Summary Tables (HEAST) database. Available online at: http://epa-heast.ornl.gov/heast.shtml
S = See RSL User Guide, Section 5
X = PPRTV Appendix
E = The Engineering ToolBox. Available online at http://www.engineeringtoolbox.com/explosive-concentration-limits-d 423.html
N = Centers for Disease Control and Prevention (CDC) National Institute for Occupational Safety and Health (NIOSH). Pocket Guide to Chemical Hazards. Available online at: http://www.cdc.gov/niosh/npg/default.html http://www.cdc.gov/niosh/npg/default.html
M = Chemical-specific MSDS
Mut = Chemical acts according to the mutagenic-mode-of-action, special exposure parameters apply (see footnote (4) above).
VC = Special exposure equation for vinyl chloride applies (see Navigation Guide for equation).
TCE = Special mutagenic and non-mutagenic IURs for trichloroethylene apply (see footnote (4) above).
Yellow highlighting indicates site-specific parameters that may be edited by the user.
Blue highlighting indicates exposure factors that are based on Risk Assessment Guidance for Superfund (RAGS) or EPA vapor intrusion guidance, which generally should not be changed.
**Lower explosive limit is the minimum concentration of the compound in air (% by volume) that is needed for the gas to ignite and explode.

Table 9 - Vapor Intrusion Screening Level Calculator - Commercial/Industrial
Corners Shopping Center Site
Marietta, Georgia

OSWER VAPOR INTRUSION ASSESSMENT
Vapor Intrusion Screening Level (VISL) Calculator Version 3.4, November 2015 RSLs

The primary objective of risk-based screening is to identify sites or buildings unlikely to pose a health concern through the vapor intrusion pathway. Generally, at properties where subsurface concentrations of vapor-forming chemicals (e.g., groundwater or "near source" soil gas concentrations) fall below screening levels (i.e., VISLs), no further action or study is warranted, so long as the exposure assumptions match those taken into account by the calculations and the site fulfills the conditions and assumptions of the generic conceptual model underlying the screening levels. In a similar fashion, the results of risk-based screening can help the data review team identify areas, buildings, and/or chemicals that can be eliminated from further assessment. The generic conceptual model underlying these screening levels is described in OSWER Publication 9200.2-154 (OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway From Subsurface Vapor Sources to Indoor Air) (EPA 2015; Section 6.5)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-05	Enter target risk for carcinogens
Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens
Average Groundwater Temperature (°C)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

		Does the chemical meet the definition for volatility?	Does chemical have inhalation toxicity data?	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source?	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source?	Target Indoor Air Conc. @ TCR = 10E-06 or THQ = 1	Toxicity Basis	Target Sub-Slab and Exterior Soil Gas Conc. @ TCR = 10E-06 or THQ = 1	Target Ground Water Conc. @ TCR = 10E-06 or THQ = 1	Is Target Ground Water Conc. < MCL?	Pure Phase Vapor Conc. @ 25°C	Maximum Groundwater Vapor Conc.	Temperature for Max. Groundwater Vapor Conc.	Lower Explosive Limit**	LEL Source		Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator	Target Indoor Air Conc. for Carcinogens @ TCR = 10E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 1
		(HLC>1E-5 or VP>1)	(IUR and/or RfC)	Cvp > Cia,target?	Chc > Cia,target?	MIN(Cia,c;Cia,nc)		Csg	Cgw	Cgw<MCL?	Cvp	Chc	Tgw or 25	LEL			IUR		RfC		i	Cia,c	Cia,nc
127-18-4	Tetrachloroethylene	Yes	Yes	Yes	Yes	1.8E+02	NC	5.8E+03	2.4E+02	No (5)	1.65E+08	1.49E+08	25				2.60E-07	I	4.00E-02	I		4.7E+02	1.8E+02

Notes:

(1) **Inhalation Pathway Exposure Parameters (RME):**

Exposure Scenario	Units	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G14) Symbol	Selected Value
Averaging time for carcinogens	(yrs)	ATc_R	70	ATc_C	70	ATc	70
Averaging time for non-carcinogens	(yrs)	ATnc_R	26	ATnc_C	25	ATnc	25
Exposure duration	(yrs)	ED_R	26	ED_C	25	ED	25
Exposure frequency	(days/yr)	EF_R	350	EF_C	250	EF	250
Exposure time	(hr/day)	ET_R	24	ET_C	8	ET	8

(2) **Generic Attenuation Factors:**

Source Medium of Vapors	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G14) Symbol	Selected Value
Groundwater	AFgw_R	0.001	AFgw_C	0.001	AFgw	0.001
Sub-Slab and Exterior Soil Gas	AFss_R	0.03	AFss_C	0.03	AFss	0.03

(3) **Formulas**
Cia, target = MIN(Cia,c; Cia,nc)
Cia,c (ug/m3) = TCR x ATc x (365 days/yr) x (24 hrs/day) / (ED x EF x ET x IUR)
Cia,nc (ug/m3) = THQ x ATnc x (365 days/yr) x (24 hrs/day) x RfC x (1000 ug/mg) / (ED x EF x ET)

(4) **Special Case Chemicals**
Trichloroethylene

	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G14) Symbol	Selected Value
	mIURTCE_R	1.00E-06	mIURTCE_C	0.00E+00	mIURTCE	0.00E+00
	IURTCE_R	3.10E-06	IURTCE_C	4.10E-06	IURTCE	4.10E-06

Mutagenic Chemicals

Note: This section applies to trichloroethylene and other mutagenic chemicals, but not to vinyl chloride.

The exposure durations and age-dependent adjustment factors for mutagenic-mode-of-action are listed in the table below:

Age Cohort	Exposure Duration (years)	Age-dependent adjustment factor
0 - 2 years	2	10
2 - 6 years	4	3
6 - 16 years	10	3
16 - 26 years	10	1

Mutagenic-mode-of-action (MMOA) adjustment factor 25 This factor is used in the equations for mutagenic chemicals.

See the Navigation Guide equation for Cia,c for vinyl chloride.

Notation:
NVT = Not sufficiently volatile and/or toxic to pose inhalation risk in selected exposure scenario for the indicated medium
C = Carcinogenic
NC = Non-carcinogenic
I = IRIS: EPA Integrated Risk Information System (IRIS). Available online at: http://www.epa.gov/iris/subst/index.html
P = PPRTV. EPA Provisional Peer Reviewed Toxicity Values (PPRTVs). Available online at: http://hhpprtv.ornl.gov/pprtv.shtml
A = Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs). Available online at: http://www.atsdr.cdc.gov/mrls/index.html
CA = California Environmental Protection Agency/Office of Environmental Health Hazard Assessment assessments. Available online at: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp
H = HEAST. EPA Superfund Health Effects Assessment Summary Tables (HEAST) database. Available online at: http://epa-heast.ornl.gov/heast.shtml
S = See RSL User Guide, Section 5
X = PPRTV Appendix
E = The Engineering ToolBox. Available online at http://www.engineeringtoolbox.com/explosive-concentration-limits-d 423.html
N = Centers for Disease Control and Prevention (CDC) National Institute for Occupational Safety and Health (NIOSH). Pocket Guide to Chemical Hazards. Available online at: http://www.cdc.gov/niosh/npg/default.html http://www.cdc.gov/niosh/npg/default.html
M = Chemical-specific MSDS
Mut = Chemical acts according to the mutagenic-mode-of-action, special exposure parameters apply (see footnote (4) above).
VC = Special exposure equation for vinyl chloride applies (see Navigation Guide for equation).
TCE = Special mutagenic and non-mutagenic IURs for trichloroethylene apply (see footnote (4) above).
Yellow highlighting indicates site-specific parameters that may be edited by the user.
Blue highlighting indicates exposure factors that are based on Risk Assessment Guidance for Superfund (RAGS) or EPA vapor intrusion guidance, which generally should not be changed.
**Lower explosive limit is the minimum concentration of the compound in air (% by volume) that is needed for the gas to ignite and explode.

Table 10 - Toxicity Values
Corners Shopping Center Site
Marietta, Georgia

Constituent	Cancer Slope Factors (kg-day/mg)					Reference Doses (mg/kg/day)				
	CSFo Oral	(ref)	CSFi Inhalation	(ref)	Weight of Evidence		RfDo Oral	(ref)	RfDi Inhalation	(ref)
Tetrachloroethene	2.1E-03	1	9.1E-04	1	B2		6.0E-03	1	1.1E-02	1

A	Known human carcinogen
B2	Probable human carcinogen
C	Possible human carcinogen
D	Not classifiable as to human carcinogenicity

1. IRIS, 2016.

Table 11 - Comparison of PCE Concentrations Detected in Groundwater and Soil Gas to RRS and VISLs (February 2015)
Corners Shopping Center Site
Marietta, Georgia

On-Site Groundwater Concentration (ug/L)	Type 3 RRS Commercial/ Industrial Worker (ug/L)	Type 4 RRS Commercial/ Industrial Worker (ug/L)	Type 4 RRS Construction Worker (ug/L)	Type 4 RRS Utility Worker (ug/L)	VISL Commercial/ Industrial (ug/L)
8.5	5	98	85,000	1,500,000	240
7.7	5	98	85,000	1,500,000	240
18	5	98	85,000	1,500,000	240
250	5	98	85,000	1,500,000	240
5.6	5	98	85,000	1,500,000	240
6.1	5	98	85,000	1,500,000	240
69	5	98	85,000	1,500,000	240
13	5	98	85,000	1,500,000	240
17	5	98	85,000	1,500,000	240
210	5	98	85,000	1,500,000	240

Off-Site Groundwater Concentration (ug/L)	Type 1 RRS Residential (ug/L)	Type 2 RRS Residential (ug/L)	Type 4 RRS Construction Worker	Type 4 RRS Utility Worker	VISL Residential (ug/L)
7.4	5	19	85,000	1,500,000	58

On-Site Soil Gas Concentration (ug/m^3)	VISL Residential (ug/m^3)
150	1,400
10	1,400

the USEPA's Vapor Instrusion Screening Calculator (USEPA, 2016)
criterion exceeded.

Figures

RAMBOLL ENVIRON

Site Location

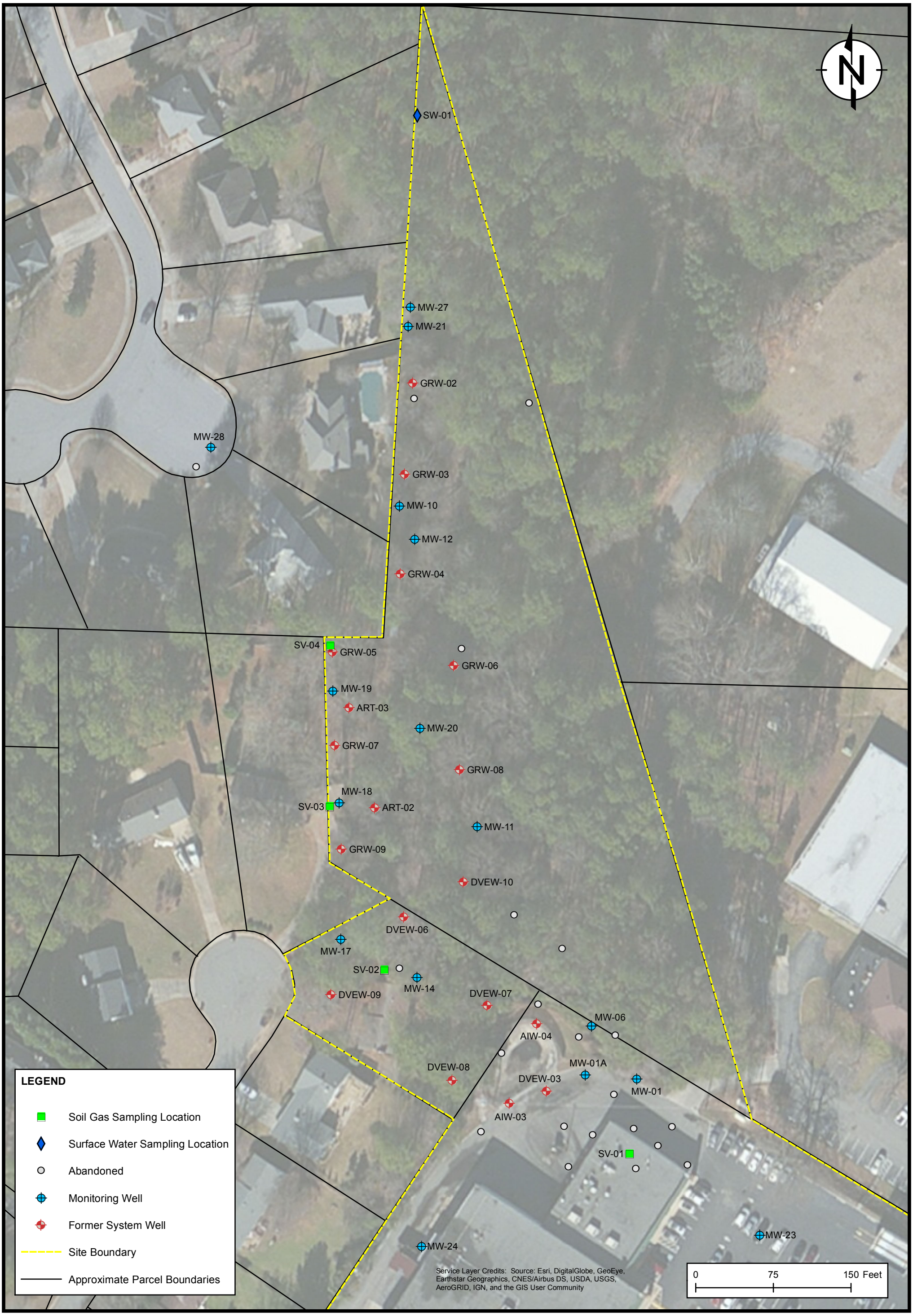
Corners Shopping Center Site
Marietta, Georgia

Figure
1

DRAFTED BY: hthompson

DATE: 7/19/2017

07-35252C



RAMBOLL ENVIRON

DRAFTED BY: hthompson

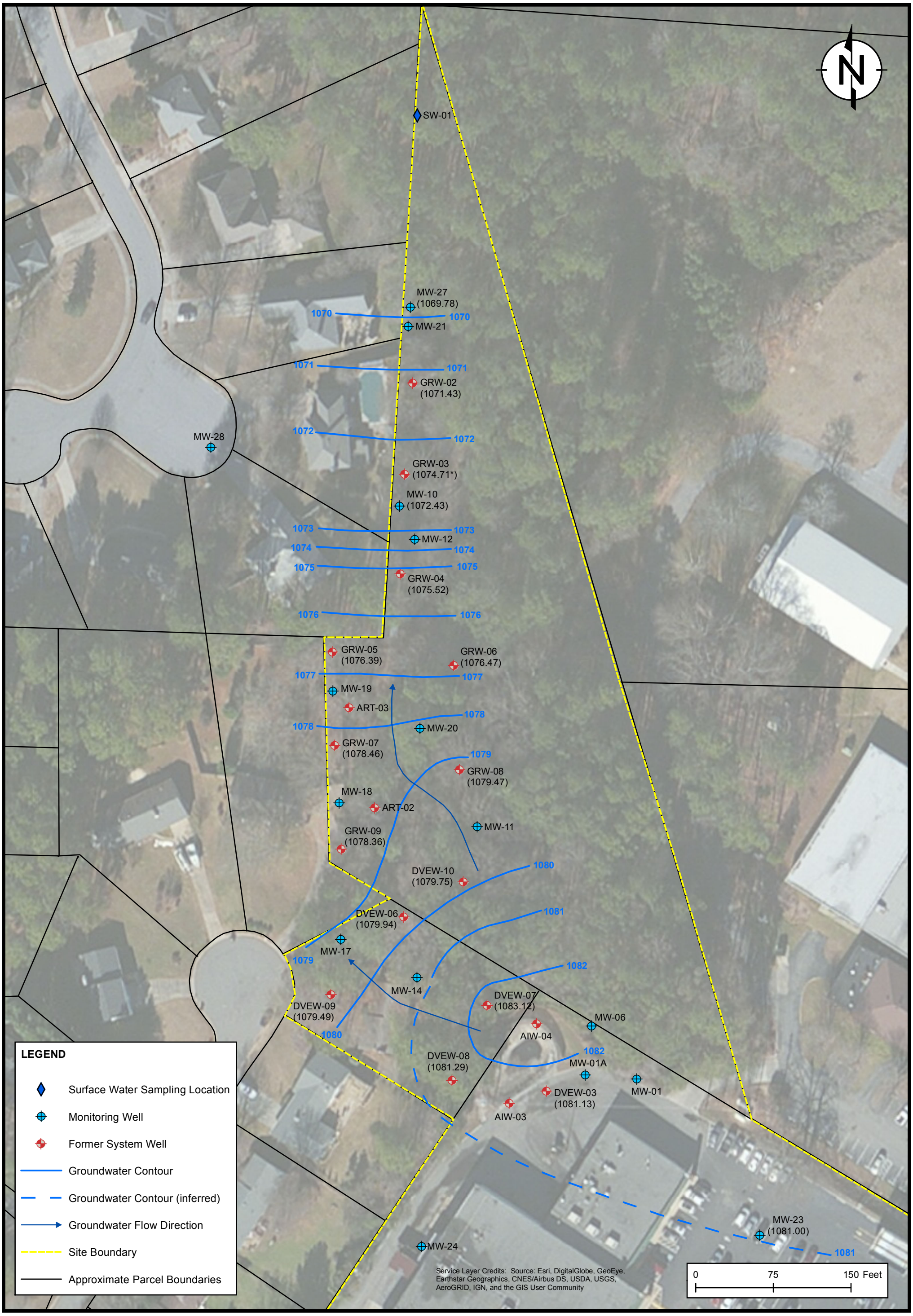
DATE: 7/19/2017

Site Layout

Corners Shopping Center Site
Marietta, Georgia

Figure
2

07-35252C



RAMBOLL ENVIRON

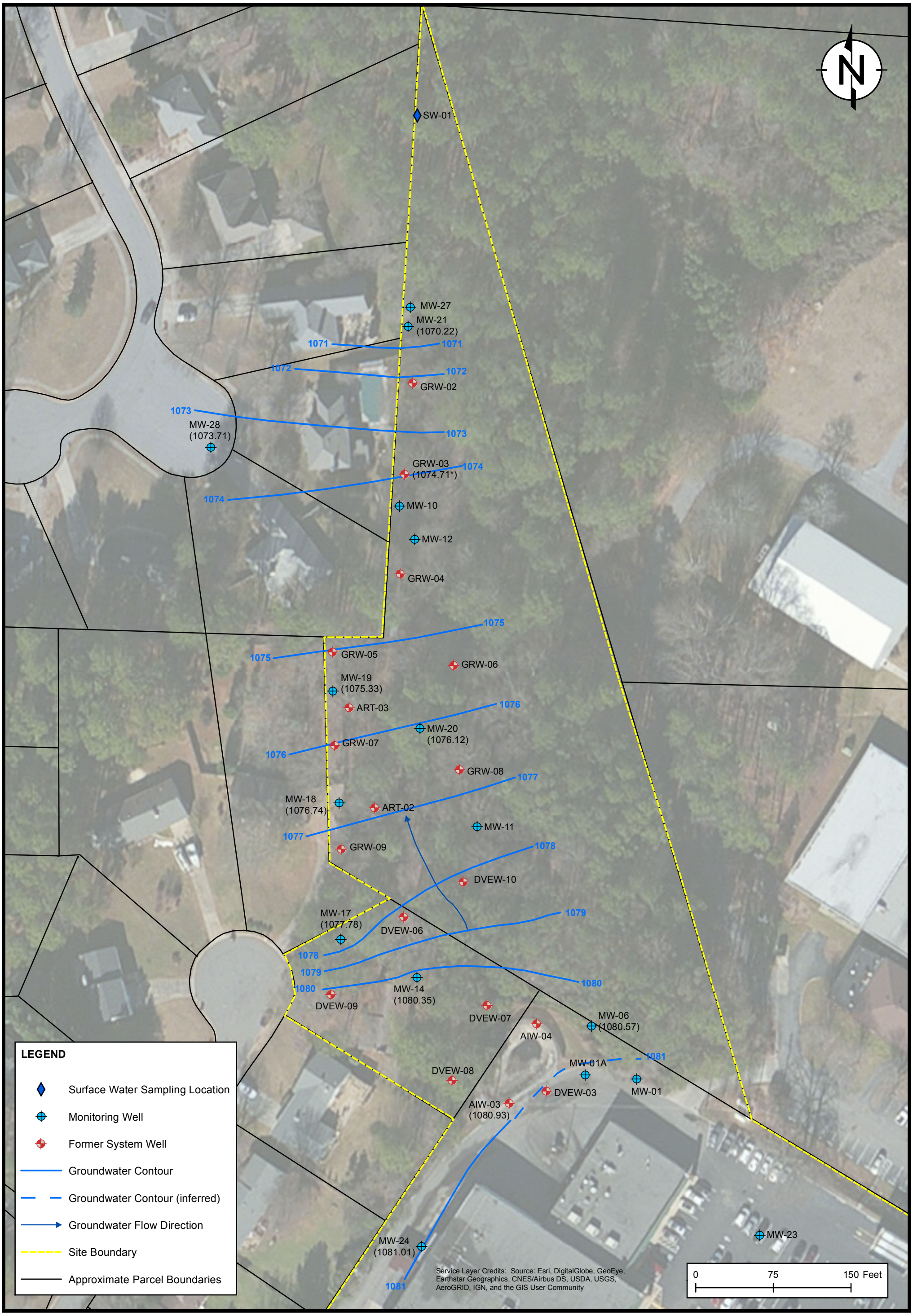
Shallow Potentiometric Surface
February 2015
Corners Shopping Center Site
Marietta, Georgia

Figure
3

DRAFTED BY: hthompson

DATE: 7/20/2017

07-35252C



RAMBOLL ENVIRON

DRAFTED BY: hthompson

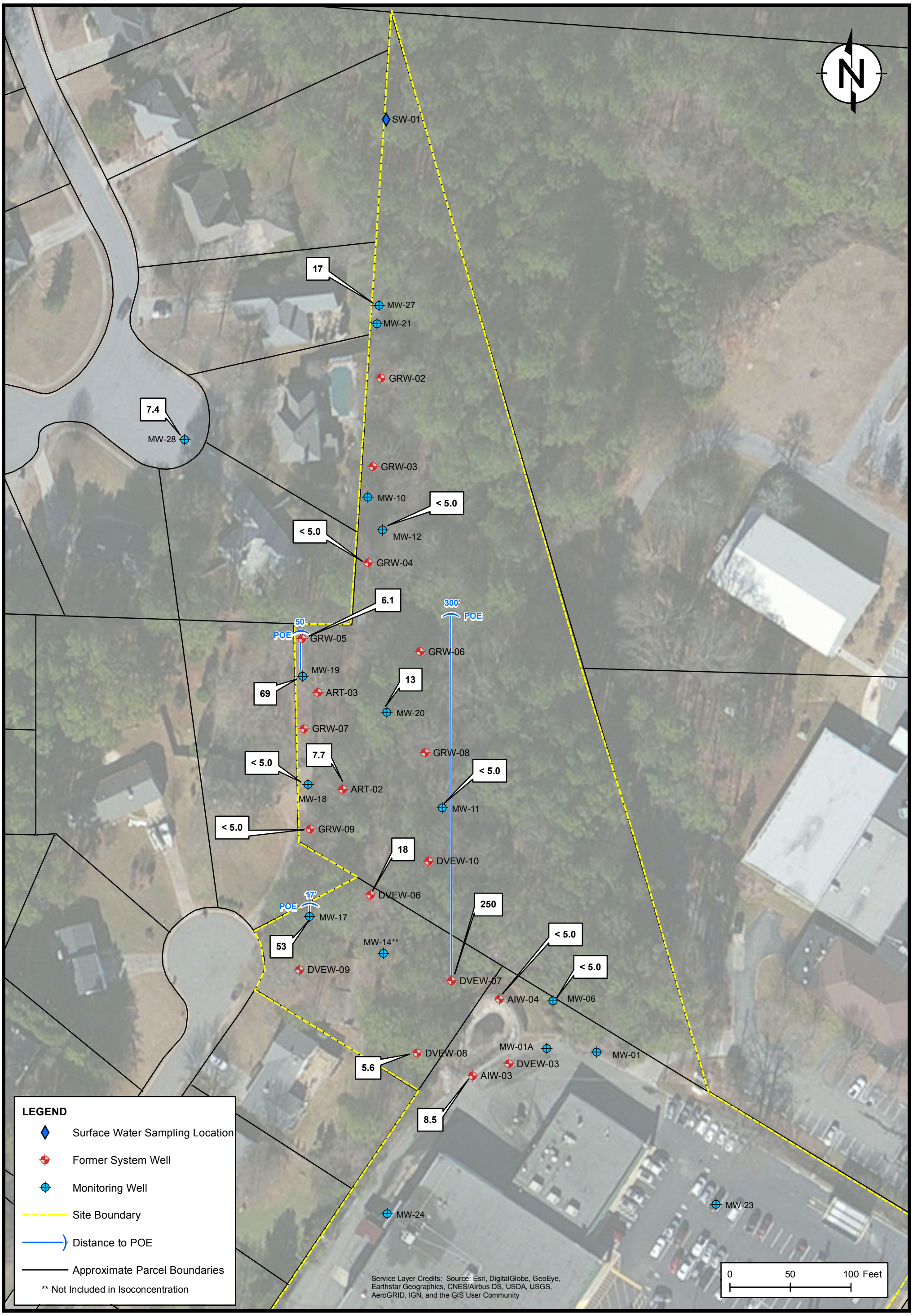
DATE: 7/20/2017

Deep Potentiometric Surface February 2015

Corners Shopping Center Site
Marietta, Georgia

Figure
4

07-35252C



RAMBOLL ENVIRON

Shallow PCE Concentration February 2015

Corners Shopping Center Site
Marietta, Georgia

Figure 5

DRAFTED BY: hthompson

DATE: 8/11/2017

07-35252C

A

A'

MW-23
DVEW-2*
AIW-2*
MW-1A
MW-6
MW-16
AIW-5*
MW-11
MW-20
GRW-4
MW-12
GRW-3
TW-4
MW-27
GRW-1
MW-13

1100
1090
1080
1070
1060
1050
1040
1030
1020

PCE - ND
TCE - ND
DCE - ND

PCE - ND
TCE - ND
DCE - ND

PCE - 13
TCE - ND
DCE - ND

PCE - ND
TCE - ND
DCE - ND

PCE - ND
TCE - ND
DCE - ND

PCE - 17
TCE - ND
DCE - ND

LEGEND

* - ABANDONED WELL

PCE - TETRACHLOROETHENE

TCE - TRICHLOROETHENE

DCE - DICHLOROETHENE

- SCREENED INTERVAL

10
SCALE
IN
FEET
0
75

NOTE: LABORATORY TESTING DATA PRESENTED REPRESENTS THE MOST RECENT SAMPLING EVENT FOR EACH WELL.

RAMBOLL ENVIRON

DRAFTED BY: APR | DATE: 6/4/15

CROSS-SECTION A-A', FEBRUARY 2015

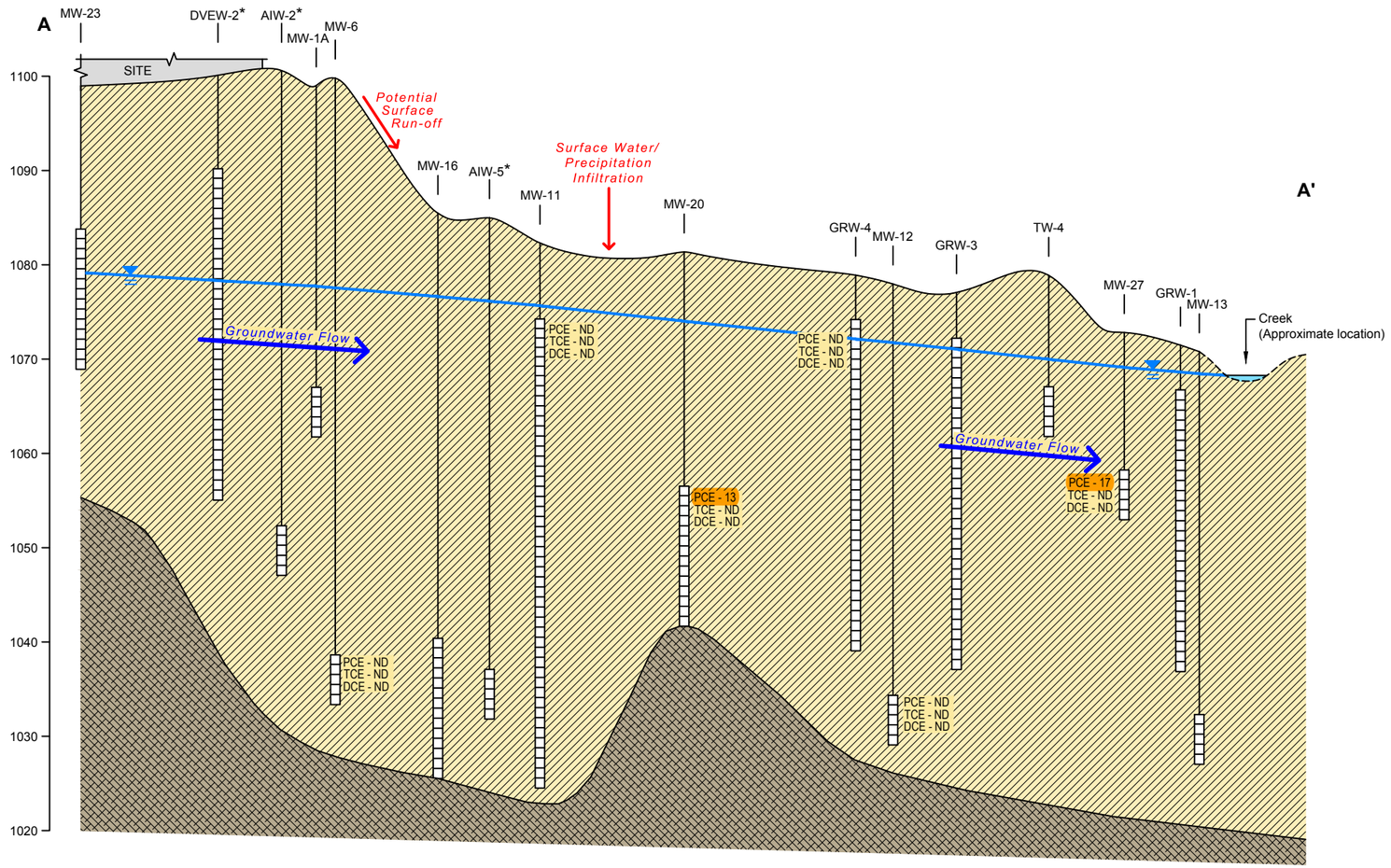
CORNERS SHOPPING CENTER SITE

MARIETTA, GEORGIA

FIGURE
6

0735252C

PRAMIREZ 6/4/15 C:\USERS\PRODRIGUEZ.ENVIRONCORP\DESKTOP\PROJECTS\07\CORNERS_SG SURVEY, VRP, & GW MON 0735252C < 06_CROSS-SECTION A-A', FEB 2015 >



LEGEND

- * - ABANDONED WELL
- PCE - TETRACHLOROETHENE
- TCE - TRICHLOROETHENE
- DCE - DICHLOROETHENE
- - SCREENED INTERVAL
- WATER TABLE
- SOIL / SAPROLITE
- BEDROCK

NOTE:

LABORATORY TESTING DATA PRESENTED REPRESENTS THE MOST RECENT SAMPLING EVENT FOR EACH WELL.

15

SCALE IN FEET

0 112.5

RAMBOLL ENVIRON

DRAFTED BY: APR | DATE: 6/17/15

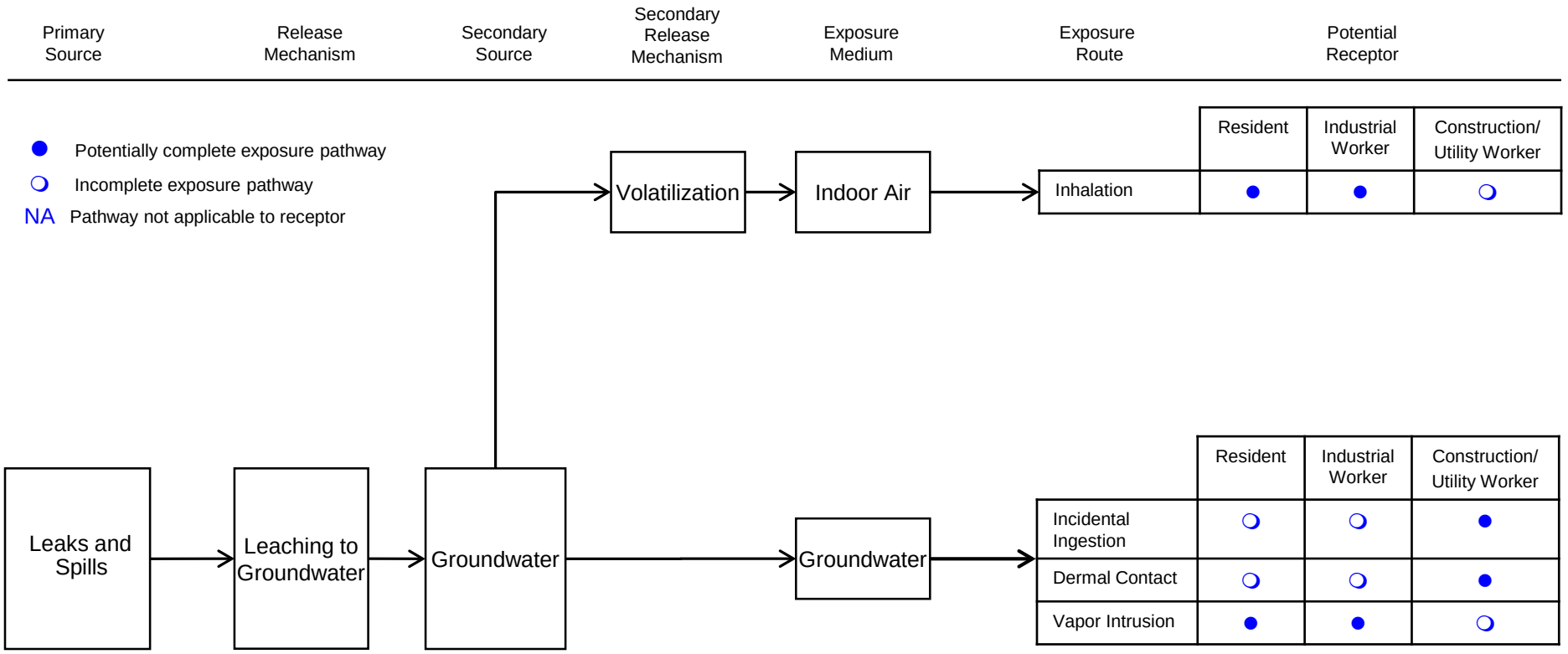
CONCEPTUAL SITE MODEL (3D)

CORNERS SHOPPING CENTER SITE
MARIETTA, GEORGIA

FIGURE
7

0735252C

C:\Users\prodriguez.ENVIRONCORP\Desktop\Projects\07\Corners_SG Survey, VRP, & GW Mon 0735252C <



CONCEPTUAL SITE MODEL

CORNERS SHOPPING CENTER SITE

MARIETTA, GEORGIA

Figure 8

RAMBOLL ENVIRON

DRAFTED BY: MJA

DATE: 6/10/15

Attachment A

VRP Application Form and Checklist

Voluntary Investigation and Remediation Plan Application Form and Checklist

VRP APPLICANT INFORMATION					
COMPANY NAME	MSC Naples, LLC				
CONTACT PERSON/TITLE	Mr. Glen Howell				
ADDRESS	4000 Blue Ridge Rd.; Suite 100, Raleigh, NC 27612				
PHONE	919-247-6354	**FAX**		**E-MAIL**	howell.glenn@gmail.com

GEORGIA CERTIFIED PROFESSIONAL GEOLOGIST OR PROFESSIONAL ENGINEER OVERSEEING CLEANUP					
NAME	Keith Cole			**GA PE/PG NUMBER**	PE #21809
COMPANY	Ramboll Environ US				
ADDRESS	1600 Parkwood Circle, Suite 310, Atlanta, Georgia 30339				
PHONE	678-388-1648	**FAX**	770-874-5011	**E-MAIL**	kcole@environcorp.com

APPLICANT'S CERTIFICATION

In order to be considered a qualifying property for the VRP:

(1) The property must have a release of regulated substances into the environment;
(2) The property shall not be:
- (A) Listed on the federal National Priorities List pursuant to the federal Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. Section 9601.
- (B) Currently undergoing response activities required by an order of the regional administrator of the federal Environmental Protection Agency; or
- (C) A facility required to have a permit under Code Section 12-8-66.

(3) Qualifying the property under this part would not violate the terms and conditions under which the division operates and administers remedial programs by delegation or similar authorization from the United States Environmental Protection Agency.
(4) Any lien filed under subsection (e) of Code Section 12-8-96 or subsection (b) of Code Section 12-13-12 against the property shall be satisfied or settled and released by the director pursuant to Code Section 12-8-94 or Code Section 12-13-6.

In order to be considered a participant under the VRP:
- (1) The participant must be the property owner of the voluntary remediation property or have express permission to enter another's property to perform corrective action.
- (2) The participant must not be in violation of any order, judgment, statute, rule, or regulation subject to the enforcement authority of the director.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I also certify that this property is eligible for the Voluntary Remediation Program (VRP) as defined in Code Section 12-8-105 and I am eligible as a participant as defined in Code Section 12-8-106.

APPLICANT'S SIGNATURE	Glenn Howell		
APPLICANT'S NAME/TITLE (PRINT)	Glenn Howell, Member	**DATE**	July 10, 2015

QUALIFYING PROPERTY INFORMATION (For additional qualifying properties, please refer to the last page of application form)			
HAZARDOUS SITE INVENTORY INFORMATION (if applicable)			
HSI Number	10326	Date HSI Site listed	June 29, 1994
HSI Facility Name	Corners Shopping Center	NAICS CODE	
PROPERTY INFORMATION			
TAX PARCEL ID	16055700530,16055700120,16055700200	PROPERTY SIZE (ACRES)	2.7, 1.14, 0.42 (total 4.26)
PROPERTY ADDRESS	2745 Sandy Plains Road		
CITY	Marietta	COUNTY	Cobb
STATE	Georgia	ZIPCODE	30060
LATITUDE (decimal format)	34° 01' 04" N	LONGITUDE (decimal format)	84° 29' 33"W
PROPERTY OWNER INFORMATION			
PROPERTY OWNER(S)	MSC Naples, LLC	PHONE #	919-247-6354
MAILING ADDRESS	4000 Blue Ridge Rd.		
CITY	Raleigh	STATE/ZIPCODE	NC 27612

ITEM #	DESCRIPTION OF REQUIREMENT	Location in VRP (i.e. pg., Table #, Figure #, etc.)	For EPD Comment Only (Leave Blank)
1.	**$5,000 APPLICATION FEE** IN THE FORM OF A CHECK PAYABLE TO THE GEORGIA DEPARTMENT OF NATURAL RESOURCES. (PLEASE LIST CHECK DATE AND CHECK NUMBER IN COLUMN TITLED "LOCATION IN VRP." PLEASE DO NOT INCLUDE A SCANNED COPY OF CHECK IN ELECTRONIC COPY OF APPLICATION.)		
2.	**WARRANTY DEED(S)** FOR QUALIFYING PROPERTY.	Attachment A	
3.	**TAX PLAT** OR OTHER FIGURE INCLUDING QUALIFYING PROPERTY BOUNDARIES, ABUTTING PROPERTIES, AND TAX PARCEL IDENTIFICATION NUMBER(S).	Appendix A	
4.	**ONE (1) PAPER COPY AND TWO (2) COMPACT DISC (CD) COPIES** OF THE VOLUNTARY REMEDIATION PLAN IN A SEARCHABLE PORTABLE DOCUMENT FORMAT (PDF).	Included	
5.	The VRP participant's initial plan and application must include, using all reasonably available current information to the extent known at the time of application, a graphic three-dimensional preliminary conceptual site model (CSM) including a preliminary remediation plan with a table of delineation standards, brief supporting text, charts, and figures (no more than 10 pages, total) that illustrates the site's surface and subsurface setting, the known or suspected source(s) of contamination, how contamination might move within the environment, the potential human health and ecological receptors, and the complete or incomplete exposure pathways that may exist at the site; the preliminary CSM must be updated as the investigation and remediation progresses and an up-to-date CSM must be included in each semi-annual status report submitted to the director by the participant; a **PROJECTED MILESTONE SCHEDULE** for investigation and remediation of the site, and after enrollment as a participant, must update the schedule in each semi-annual status report to the director describing implementation of the plan	CSM - Figure 7 Delineation Standard for PCE = 5 ug/L (Table 2) Text, charts, and figures - Attached Projected Milestone Schedule - Section 7	

	during the preceding period. A Gantt chart format is preferred for the milestone schedule. The following four (4) generic milestones are required in all initial plans with the results reported in the participant's next applicable semi-annual reports to the director. The director may extend the time for or waive these or other milestones in the participant's plan where the director determines, based on a showing by the participant, that a longer time period is reasonably necessary:		
5.a.	Within the first 12 months after enrollment, the participant must complete horizontal delineation of the release and associated constituents of concern on property where access is available at the time of enrollment;	Completed - Section 4	
5.b.	Within the first 24 months after enrollment, the participant must complete horizontal delineation of the release and associated constituents of concern extending onto property for which access was not available at the time of enrollment;	Completed - Section 4	
5.c.	Within 30 months after enrollment, the participant must update the site CSM to include vertical delineation, finalize the remediation plan and provide a preliminary cost estimate for implementation of remediation and associated continuing actions; and		
5.d.	Within 60 months after enrollment, the participant must submit the compliance status report required under the VRP, including the requisite certifications.		
6.	**SIGNED AND SEALED PE/PG CERTIFICATION** AND SUPPORTING DOCUMENTATION: "I certify under penalty of law that this report and all attachments were prepared by me or under my direct supervision in accordance with the Voluntary Remediation Program Act (O.C.G.A. Section 12-8-101, et seq.). I am a professional engineer/professional geologist who is registered with the Georgia State Board of Registration for Professional Engineers and Land Surveyors/Georgia State Board of Registration for Professional Geologists and I have the necessary experience and am in charge of the investigation and remediation of this release of regulated substances. Furthermore, to document my direct oversight of the Voluntary Remediation Plan development, implementation of corrective action, and long term monitoring, I have attached a monthly summary of hours invoiced and description of services provided by me to the Voluntary Remediation Program participant since the previous submittal to the Georgia Environmental Protection Division. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." Keith Cole #21809 Printed Name and GA PE/PG Number 7/10/15 Signature and Stamp 7/10/15 Date		

ADDITIONAL QUALIFYING PROPERTIES (COPY THIS PAGE AS NEEDED)

PROPERTY INFORMATION			
TAX PARCEL ID		PROPERTY SIZE (ACRES)	
PROPERTY ADDRESS			
CITY		COUNTY	
STATE		ZIPCODE	
LATITUDE (decimal format)		LONGITUDE (decimal format)	
PROPERTY OWNER INFORMATION			
PROPERTY OWNER(S)		PHONE #	
MAILING ADDRESS			
CITY		STATE/ZIPCODE	

PROPERTY INFORMATION			
TAX PARCEL ID		PROPERTY SIZE (ACRES)	
PROPERTY ADDRESS			
CITY		COUNTY	
STATE		ZIPCODE	
LATITUDE (decimal format)		LONGITUDE (decimal format)	
PROPERTY OWNER INFORMATION			
PROPERTY OWNER(S)		PHONE #	
MAILING ADDRESS			
CITY		STATE/ZIPCODE	

PROPERTY INFORMATION			
TAX PARCEL ID		PROPERTY SIZE (ACRES)	
PROPERTY ADDRESS			
CITY		COUNTY	
STATE		ZIPCODE	
LATITUDE (decimal format)		LONGITUDE (decimal format)	
PROPERTY OWNER INFORMATION			
PROPERTY OWNER(S)		PHONE #	
MAILING ADDRESS			
CITY		STATE/ZIPCODE	

Appendix A

Legal Description

LEGAL DESCRIPTION

ALL THAT TRACT OR PARCEL LYING AND BEING IN LAND LOTS 524 AND 557, OF THE 16TH DISTRICT, 2ND SECTION, COBB COUNTY, GEORGIA AND BEING MORE PARTICULARLY DESCRIBED AS:

COMMENCING AT THE NORTHWEST CORNER OF LAND LOT 557; THENCE ALONG THE NORTH LINE OF LAND LOT 557, S87°36'36"E A DISTANCE OF 444.61 FEET TO THE TRUE POINT OF BEGINNING; THENCE, S87°36'36"E A DISTANCE OF 47.39 FEET TO A POINT; THENCE, N 4°52'18" E A DISTANCE OF 506.36 FEET TO A POINT;THENCE, S 14°41'27" E A DISTANCE OF 928.35 FEET TO A POINT; THENCE, S 56°29'2" E A DISTANCE OF 215.38 FEET TO A POINT ON THE WEST RIGHT OF WAY OF SANDY PLAINS ROAD (RIGHT OF WAY VARIES); THENCE ALONG SAID RIGHT OF WAY, S 33°27'24" W A DISTANCE OF 55.70 FEET TO A POINT; THENCE LEAVING SAID RIGHT OF WAY, N 56°32'36" W A DISTANCE OF 151.23 FEET TO A POINT; THENCE, S 34°27'46" W A DISTANCE OF 96.01 FEET TO A POINT; THENCE, N 55°32'14" W A DISTANCE OF 265.11 FEET TO A POINT; THENCE, N 33°54'21" E A DISTANCE OF 28.28 FEET TO A POINT; THENCE, N 55°56'14.169 W A DISTANCE OF 158.33 FEET TO A POINT; THENCE, ALONG A CURVE TO THE LEFT, SAID CURVE HAVING A RADIUS OF 50.39 FEET, A DELTA ANGLE OF 61.63, AND A CHORD OF N 2°54'60" E A CHORD DISTANCE OF 51.62 FEET TO A POINT; THENCE, N 61°58'47" E A DISTANCE OF 83.65 FEET TO A POINT; THENCE, N 56°22'13" W A DISTANCE OF 53.61 FEET TO A POINT; THENCE, N 2°37'52" E A DISTANCE OF 174.10 FEET TO THE POINT; OF BEGINNING.

SAID DESCRIBED BEING SHOWN ON A SURVEY BY LCE ENGINEERS INC. DATED 11/18/88, SAID PARCEL CONTAINS 185512.68 SQUARE FEET (4.26 ACRES), MORE OR LESS, SUBJECT TO ANY AND ALL EASEMENTS, RESERVATIONS, RESTRICTIONS AND CONVEYANCES OF RECORD.

Appendix B

Georgia Brownfield's Program Acceptance Letter

Ge rgia Department of 'atural Resources
2 Martin Luther King, Jr. Drive, SE, Suite 1462 East, Atlanta, Georgia 30334-9000
Noel Holcomb, Commissioner
Environmental Protection Division
Carol A. Couch, Ph.D., Director
Hazardous Waste Management Branch
404/657-8600

August 24, 2005

CERTIFIED MAIL
Return Receipt Requested

FILE COPY

Mr. Glen Howell
MSC Naples, LLC
4000 Blue Ridge Road, Suite 100
Raleigh, North Carolina 27612

RE: Limitation of Liability
Map 16-524 and 16-557
Tax Parcels 20, 53, and a portion of 12
Corners Shopping Center
HSI No. 10326

Dear Mr. Howell:

Per your request, this letter replaces the Georgia Environmental Protection Division's (EPD) letter dated August 12, 2005 granting a limitation of liability to Mill Source Capital, LLC. The application for a limitation of liability you submitted on July 11, 2005 named Mill Source Capital, LLC as the prospective purchaser and you have requested that the letter be reissued to MSC Naples, LLC. EPD has completed its review of the prospective purchaser Compliance Status Report (PPCSR) for the Corners Shopping Center Site submitted July 11, 2005, revisions submitted July 28, 2005, legal description submitted August 1, 2005, revised certification statement submitted August 6, 2005, and documentation of prospective purchaser eligibility submitted August 19, 2005 and has determined that MSC Naples, LLC is eligible to receive a limitation of liability for preexisting releases at the above-referenced qualifying property. The property is identified as tax parcels 20, 53, and a portion of tax parcel 12 lying in land lots 557 and 524 (Cobb County) as described in the enclosed tax maps and legal description marked Exhibit A and Exhibit B, respectively.

The PPCSR was submitted to serve as an application for a limitation of liability pursuant to O.C.G.A. 12-8-200 et seq., the Hazardous Site Reuse and Redevelopment Act (Act). EPD has determined that the PPCSR is complete and soil is in compliance with residential risk reduction standards. EPD hereby approves the PPCSR subject to the following conditions:

1. MSC Naples, LLC must submit a notice of the purchase of the above-referenced property by no later than ten (10) days after closing to EPD.

2. Within fifteen (15) days of receipt of this letter, MSC Naples, LLC must publish the notice specified in Section 391-3-19-.06(5) of the Rules for Hazardous Site Response in both a major local newspaper of general circulation and the legal organ of the local governments in whose jurisdiction the property is located announcing the PPCSR is available for review by the general public at a location in Marietta such as a public library. The same notice must be provided to the governments of the City of Marietta and Cobb County. Within fifteen (15) days of publishing the notice, MSC Naples, LLC must provide exact copies of the notice and letters to the local governments to EPD.

3. In the event public comment is received regarding the PPCSR for which EPD requires modification to the PPCSR, MSC Naples, LLC will submit the required modifications to EPD in a timeframe specified by EPD.

4. MSC Naples, LLC must file a Real Property Tax Return to the Cobb County Tax Assessors requesting that the portion of tax parcel 12 be split according to the legal description of the property and be given its own separate tax parcel designation (e.g., Tax Parcel 12a). The Real Property Tax Return must be filed with the Tax Assessors Office between January 1 and April 1, 2006. MSC Naples, LLC shall provide EPD with a copy of the revised tax map(s) within thirty (30) days of publication.

5. In the event that MSC Naples, LLC wishes to sell the property, MSC Naples, LLC must provide sixty (60) days notice to EPD of its intent to offer for sale the property or any portion thereof. All documents offering the property for sale will include a copy of the PPCSR, certification of compliance, the notice described in Section 12-8-97(b) of the Act, and a copy of this letter. MSC Naples, LLC shall provide EPD with the name, address, phone number, and contact person for the new property owner within ten (10) days of sale.

6. MSC Naples, LLC will give any responsible party for HSI Site 10326 and/or EPD access to the property to implement an EPD-approved corrective action plan for groundwater.

Section 12-8-207 of the Hazardous Waste Management Act (Act) states that upon EPD's approval of a prospective purchaser Compliance Status Report, a prospective purchaser shall not be liable to the state or any third party for costs incurred in the remediation of, equitable relief relating to, or damages resulting from preexisting releases. Further, the prospective purchaser shall not be required to certify compliance with the risk reduction standards for groundwater, perform corrective action, or otherwise be liable for any preexisting releases to groundwater associated with the property. For the purpose of determining liability for continuing or future releases of regulated substances upon or from the property, the background or baseline concentration for any and all releases will be based on the information provided in the CSR pursuant to Section 12-8-208(d) of the Act.

EPD hereby grants MSC Naples, LLC the limitation of liability provided for in Section 12-8-207 of the Act for the preexisting releases at the above referenced property. This limitation of liability is subject to all conditions as set forth in the Act.

Should you have any questions, please contact Ms. Carrie Williams at (404) 657-8600.

Sincerely,

Carol A. Couch, Ph.D.
Director

c: Steve Foley, MACTEC
Exhibit A – Tax Map
Exhibit B – Legal Property Description
File: HSI #10326
S:\RDRIVE\CWilliams\HSI\Corners Shopping\PPCSR Approval Letter_revision 1.doc

Appendix C

Groundwater and Surface Water Data

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

July 18, 2014

Ken Nye
ENVIRON International Corp.
1600 Parkwood Circle
Atlanta GA 30339

TEL: (770) 874-5010
FAX: (770) 874-8011

RE: Corners Shopping Center

Dear Ken Nye: Order No: 1407B83

Analytical Environmental Services, Inc. received 28 samples on 7/14/2014 2:08:00 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' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Tara Esbeck

Tara Esbeck
Project Manager

ANALYTICAL ENVIRONMENTAL SERVICES, INC

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

CHAIN OF CUSTODY

Work Order: 1407883

Date: 07/14/2014 Page 1 of 2

COMPANY:	ADDRESS:
ENVIRON	1600 Parkwood Circle Suite 310 Atlanta, GA 30339
PHONE: 770-874-5010	FAX: 770-874-5011
SAMPLED BY: K. Nye, H. Thompson, J. Rose, K. Hade	SIGNATURE:

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	Chlorinated VOCs (8260)	No # of Containers
							PRESERVATION (See codes)	
							H+I	
1	AIW-01 20140711	07/11/2014	1242	X		GW	X	2
2	AIW-02 20140711	07/11/2014	1404	X		GW	X	2
3	AIW-03 20140711	07/11/2014	1118	X		GW	X	2
4	AIW-05 20140710	07/10/2014	1940	X		GW	X	2
5	DVEW-01 20140708	07/08/2014	1750	X		GW	X	2
6	DVEW-02 20140708	07/08/2014	1852	X		GW	X	2
7	DVEW-03 20140708	07/08/2014	1650	X		GW	X	2
8	DVEW-04 20140710	07/10/2014	1613	X		GW	X	2
9	DVEW-05 20140710	07/10/2014	1647	X		GW	X	2
10	DVEW-06 20140709	07/09/2014	1745	X		GW	X	2
11	DVEW-08 20140709	07/09/2014	1925	X		GW	X	2
12	DVEW-09 20140709	07/09/2014	1500	X		GW	X	2
13	DVEW-10 20140709	07/09/2014	1112	X		GW	X	2
14	GRW-02 20140710	07/10/2014	1103	X		GW	X	2

ANALYSIS REQUESTED

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

REMARKS

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1:	7-14-14/1130	1:	7-14-14 11:30
2:	7-14-14 14:08	2:	7/14/14 14:08
3:		3:	

SPECIAL INSTRUCTIONS/COMMENTS:

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

PROJECT INFORMATION

PROJECT NAME: CSC
PROJECT #: 07-35252B
SITE ADDRESS: Marietta, Georgia
SEND REPORT TO: K. Nye
INVOICE TO:
(IF DIFFERENT FROM ABOVE)
QUOTE #:_____ PO#:_____

RECEIPT

Total # of Containers: 28

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

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

SAMPLES RECEIVED AFTER 3PM OR 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
3080 Presidential Drive; Atlanta, GA 30340
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1407B83

Date: 07/14/2014 Page 2 of 2

COMPANY:	ADDRESS:
ENVIRON	1600 Parkwood Circle Suite 310 Atlanta, GA 30339
PHONE: 770-874-5010	FAX: 770-874-5011
SAMPLED BY: K. Nye, H. Thompson, J. Rose, K. Hade	SIGNATURE:

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	Chlorinated VOCs (8260)	PRESERVATION (See codes) H+I	REMARKS	No # of Containers
1	GRW-03 20140709	07/09/2014	2003	X		GW	X	X		2
2	GRW-06 20140709	07/09/2014	1740	X		GW	X	X		2
3	GRW-07 20140709	07/09/2014	1551	X		GW	X	X		2
4	GRW-08 20140709	07/09/2014	1243	X		GW	X	X		2
5	MW-01 20140708	07/08/2014	1540	X		GW	X	X		2
6	MW-11 20140709	07/09/2014	1252	X		GW	X	X		2
7	MW-17 20140709	07/09/2014	1615	X		GW	X	X		2
8	MW-20 20140709	07/09/2014	1126	X		GW	X	X		2
9	MW-21 20140710	07/10/2014	1244	X		GW	X	X		2
10	MW-24 20140711	07/11/2014	1044	X		GW	X	X		2
11	MW-27 20140710	07/10/2014	1118	X		GW	X	X		2
12	DUP-01 20140709	07/09/2014	---	X		GW	X	X		2
13	DUP-02 20140710	07/10/2014	---	X		GW	X	X		2
14	Trip Blank	---	---			W	X	X		2

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

ANALYSIS REQUESTED

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1:	7-14-14 / 1130	1:	7-14-14 11:30
2:	7-14-14 14:08	2:	7/14/14 14.08
3:		3:	

SPECIAL INSTRUCTIONS/COMMENTS:

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

PROJECT INFORMATION
PROJECT NAME: CSC
PROJECT #: 07-35252B
SITE ADDRESS: Marietta, Georgia
SEND REPORT TO: K. Nye
INVOICE TO:
(IF DIFFERENT FROM ABOVE)
QUOTE #:_____ PO#:_____

RECEIPT
Total # of Containers: 28

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

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

SAMPLES RECEIVED AFTER 3PM OR 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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	AIW-01 20140711
Project Name:	Corners Shopping Center	**Collection Date:**	7/11/2014 12:42:00 PM
Lab ID:	1407B83-001	**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	193732	1	07/17/2014 01:13	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 01:13	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 01:13	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 01:13	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 01:13	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 01:13	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 01:13	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 01:13	GK
Surr: 4-Bromofluorobenzene	93.5	66.2-120		%REC	193732	1	07/17/2014 01:13	GK
Surr: Dibromofluoromethane	93.6	79.5-121		%REC	193732	1	07/17/2014 01:13	GK
Surr: Toluene-d8	96.1	77-117		%REC	193732	1	07/17/2014 01:13	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	AIW-02 20140711
Project Name:	Corners Shopping Center	**Collection Date:**	7/11/2014 2:04:00 PM
Lab ID:	1407B83-002	**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	193732	1	07/17/2014 02:36	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 02:36	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 02:36	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 02:36	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 02:36	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 02:36	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 02:36	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 02:36	GK
Surr: 4-Bromofluorobenzene	93.4	66.2-120		%REC	193732	1	07/17/2014 02:36	GK
Surr: Dibromofluoromethane	92.3	79.5-121		%REC	193732	1	07/17/2014 02:36	GK
Surr: Toluene-d8	95.4	77-117		%REC	193732	1	07/17/2014 02:36	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	AIW-03 20140711
Project Name:	Corners Shopping Center	**Collection Date:**	7/11/2014 11:18:00 AM
Lab ID:	1407B83-003	**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	193732	1	07/17/2014 03:04	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 03:04	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 03:04	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 03:04	GK
Tetrachloroethene	5.2	5.0		ug/L	193732	1	07/17/2014 03:04	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 03:04	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 03:04	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 03:04	GK
Surr: 4-Bromofluorobenzene	93.3	66.2-120		%REC	193732	1	07/17/2014 03:04	GK
Surr: Dibromofluoromethane	92.8	79.5-121		%REC	193732	1	07/17/2014 03:04	GK
Surr: Toluene-d8	93.9	77-117		%REC	193732	1	07/17/2014 03:04	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	AIW-05 20140710
Project Name:	Corners Shopping Center	**Collection Date:**	7/10/2014 7:40:00 PM
Lab ID:	1407B83-004	**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	193732	1	07/17/2014 03:32	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 03:32	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 03:32	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 03:32	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 03:32	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 03:32	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 03:32	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 03:32	GK
Surr: 4-Bromofluorobenzene	93.8	66.2-120		%REC	193732	1	07/17/2014 03:32	GK
Surr: Dibromofluoromethane	93.1	79.5-121		%REC	193732	1	07/17/2014 03:32	GK
Surr: Toluene-d8	95.3	77-117		%REC	193732	1	07/17/2014 03:32	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	DVEW-01 20140708
Project Name:	Corners Shopping Center	**Collection Date:**	7/8/2014 5:50:00 PM
Lab ID:	1407B83-005	**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	193732	1	07/17/2014 04:00	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:00	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 04:00	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:00	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:00	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:00	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:00	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 04:00	GK
Surr: 4-Bromofluorobenzene	95.3	66.2-120		%REC	193732	1	07/17/2014 04:00	GK
Surr: Dibromofluoromethane	92.9	79.5-121		%REC	193732	1	07/17/2014 04:00	GK
Surr: Toluene-d8	94.4	77-117		%REC	193732	1	07/17/2014 04:00	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	DVEW-02 20140708
Project Name:	Corners Shopping Center	**Collection Date:**	7/8/2014 6:52:00 PM
Lab ID:	1407B83-006	**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	193732	1	07/17/2014 04:28	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:28	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 04:28	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:28	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:28	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:28	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:28	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 04:28	GK
Surr: 4-Bromofluorobenzene	97.2	66.2-120		%REC	193732	1	07/17/2014 04:28	GK
Surr: Dibromofluoromethane	92.6	79.5-121		%REC	193732	1	07/17/2014 04:28	GK
Surr: Toluene-d8	94.5	77-117		%REC	193732	1	07/17/2014 04:28	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	DVEW-03 20140708
Project Name:	Corners Shopping Center	**Collection Date:**	7/8/2014 4:50:00 PM
Lab ID:	1407B83-007	**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	193732	1	07/17/2014 04:55	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:55	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 04:55	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:55	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:55	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:55	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 04:55	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 04:55	GK
Surr: 4-Bromofluorobenzene	94	66.2-120		%REC	193732	1	07/17/2014 04:55	GK
Surr: Dibromofluoromethane	91.4	79.5-121		%REC	193732	1	07/17/2014 04:55	GK
Surr: Toluene-d8	96.3	77-117		%REC	193732	1	07/17/2014 04:55	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	DVEW-04 20140708
Project Name:	Corners Shopping Center	**Collection Date:**	7/10/2014 4:13:00 PM
Lab ID:	1407B83-008	**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	193732	1	07/17/2014 05:23	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 05:23	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 05:23	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 05:23	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 05:23	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 05:23	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 05:23	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 05:23	GK
Surr: 4-Bromofluorobenzene	94	66.2-120		%REC	193732	1	07/17/2014 05:23	GK
Surr: Dibromofluoromethane	92.2	79.5-121		%REC	193732	1	07/17/2014 05:23	GK
Surr: Toluene-d8	94.3	77-117		%REC	193732	1	07/17/2014 05:23	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	DVEW-05 20140710
Project Name:	Corners Shopping Center	**Collection Date:**	7/10/2014 4:47:00 PM
Lab ID:	1407B83-009	**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	193732	1	07/17/2014 05:51	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 05:51	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 05:51	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 05:51	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 05:51	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 05:51	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 05:51	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 05:51	GK
Surr: 4-Bromofluorobenzene	93.7	66.2-120		%REC	193732	1	07/17/2014 05:51	GK
Surr: Dibromofluoromethane	91.6	79.5-121		%REC	193732	1	07/17/2014 05:51	GK
Surr: Toluene-d8	95.6	77-117		%REC	193732	1	07/17/2014 05:51	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	DVEW-06 20140709
Project Name:	Corners Shopping Center	**Collection Date:**	7/9/2014 5:45:00 PM
Lab ID:	1407B83-010	**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	193732	1	07/17/2014 06:19	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 06:19	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 06:19	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 06:19	GK
Tetrachloroethene	44	5.0		ug/L	193732	1	07/17/2014 06:19	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 06:19	GK
Trichloroethene	5.9	5.0		ug/L	193732	1	07/17/2014 06:19	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 06:19	GK
Surr: 4-Bromofluorobenzene	95.3	66.2-120		%REC	193732	1	07/17/2014 06:19	GK
Surr: Dibromofluoromethane	92	79.5-121		%REC	193732	1	07/17/2014 06:19	GK
Surr: Toluene-d8	95.5	77-117		%REC	193732	1	07/17/2014 06:19	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	DVEW-08 20140709
Project Name:	Corners Shopping Center	**Collection Date:**	7/9/2014 7:25:00 PM
Lab ID:	1407B83-011	**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	193732	1	07/17/2014 06:47	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 06:47	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 06:47	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 06:47	GK
Tetrachloroethene	7.8	5.0		ug/L	193732	1	07/17/2014 06:47	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 06:47	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 06:47	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 06:47	GK
Surr: 4-Bromofluorobenzene	94.6	66.2-120		%REC	193732	1	07/17/2014 06:47	GK
Surr: Dibromofluoromethane	93.1	79.5-121		%REC	193732	1	07/17/2014 06:47	GK
Surr: Toluene-d8	95.4	77-117		%REC	193732	1	07/17/2014 06:47	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	DVEW-09 20140709
Project Name:	Corners Shopping Center	**Collection Date:**	7/9/2014 3:00:00 PM
Lab ID:	1407B83-012	**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	193732	1	07/17/2014 07:14	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 07:14	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 07:14	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 07:14	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 07:14	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 07:14	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 07:14	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 07:14	GK
Surr: 4-Bromofluorobenzene	94.6	66.2-120		%REC	193732	1	07/17/2014 07:14	GK
Surr: Dibromofluoromethane	94.2	79.5-121		%REC	193732	1	07/17/2014 07:14	GK
Surr: Toluene-d8	95.2	77-117		%REC	193732	1	07/17/2014 07:14	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	DVEW-10 20140709
Project Name:	Corners Shopping Center	**Collection Date:**	7/9/2014 11:12:00 AM
Lab ID:	1407B83-013	**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	193732	1	07/17/2014 07:42	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 07:42	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 07:42	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 07:42	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 07:42	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 07:42	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 07:42	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 07:42	GK
Surr: 4-Bromofluorobenzene	93.8	66.2-120		%REC	193732	1	07/17/2014 07:42	GK
Surr: Dibromofluoromethane	92.7	79.5-121		%REC	193732	1	07/17/2014 07:42	GK
Surr: Toluene-d8	95.5	77-117		%REC	193732	1	07/17/2014 07:42	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	GRW-02 20140710
Project Name:	Corners Shopping Center	**Collection Date:**	7/10/2014 11:03:00 AM
Lab ID:	1407B83-014	**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	193732	1	07/17/2014 08:10	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 08:10	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 08:10	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 08:10	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 08:10	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 08:10	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 08:10	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 08:10	GK
Surr: 4-Bromofluorobenzene	95.1	66.2-120		%REC	193732	1	07/17/2014 08:10	GK
Surr: Dibromofluoromethane	94.1	79.5-121		%REC	193732	1	07/17/2014 08:10	GK
Surr: Toluene-d8	95.1	77-117		%REC	193732	1	07/17/2014 08:10	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	GRW-03 20140709
Project Name:	Corners Shopping Center	**Collection Date:**	7/9/2014 8:03:00 PM
Lab ID:	1407B83-015	**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	193732	1	07/17/2014 08:38	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 08:38	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 08:38	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 08:38	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 08:38	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 08:38	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 08:38	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 08:38	GK
Surr: 4-Bromofluorobenzene	94.8	66.2-120		%REC	193732	1	07/17/2014 08:38	GK
Surr: Dibromofluoromethane	94.5	79.5-121		%REC	193732	1	07/17/2014 08:38	GK
Surr: Toluene-d8	94.8	77-117		%REC	193732	1	07/17/2014 08:38	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	GRW-06 20140709
Project Name:	Corners Shopping Center	**Collection Date:**	7/9/2014 5:40:00 PM
Lab ID:	1407B83-016	**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	193732	1	07/17/2014 09:06	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 09:06	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 09:06	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 09:06	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 09:06	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 09:06	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 09:06	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 09:06	GK
Surr: 4-Bromofluorobenzene	92.3	66.2-120		%REC	193732	1	07/17/2014 09:06	GK
Surr: Dibromofluoromethane	92.7	79.5-121		%REC	193732	1	07/17/2014 09:06	GK
Surr: Toluene-d8	95.9	77-117		%REC	193732	1	07/17/2014 09:06	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	GRW-07 20140709
Project Name:	Corners Shopping Center	**Collection Date:**	7/9/2014 3:51:00 PM
Lab ID:	1407B83-017	**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	193732	1	07/17/2014 09:33	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 09:33	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 09:33	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 09:33	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 09:33	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 09:33	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 09:33	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 09:33	GK
Surr: 4-Bromofluorobenzene	93	66.2-120		%REC	193732	1	07/17/2014 09:33	GK
Surr: Dibromofluoromethane	94.3	79.5-121		%REC	193732	1	07/17/2014 09:33	GK
Surr: Toluene-d8	96.6	77-117		%REC	193732	1	07/17/2014 09:33	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	GRW-08 20140709
Project Name:	Corners Shopping Center	**Collection Date:**	7/9/2014 12:43:00 PM
Lab ID:	1407B83-018	**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	193732	1	07/17/2014 10:01	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 10:01	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 10:01	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 10:01	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 10:01	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 10:01	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 10:01	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 10:01	GK
Surr: 4-Bromofluorobenzene	96.4	66.2-120		%REC	193732	1	07/17/2014 10:01	GK
Surr: Dibromofluoromethane	94.7	79.5-121		%REC	193732	1	07/17/2014 10:01	GK
Surr: Toluene-d8	95.7	77-117		%REC	193732	1	07/17/2014 10:01	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-01 20140708
Project Name:	Corners Shopping Center	**Collection Date:**	7/8/2014 3:40:00 PM
Lab ID:	1407B83-019	**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	193732	1	07/17/2014 10:28	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 10:28	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193732	1	07/17/2014 10:28	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 10:28	GK
Tetrachloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 10:28	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 10:28	GK
Trichloroethene	BRL	5.0		ug/L	193732	1	07/17/2014 10:28	GK
Vinyl chloride	BRL	2.0		ug/L	193732	1	07/17/2014 10:28	GK
Surr: 4-Bromofluorobenzene	94.8	66.2-120		%REC	193732	1	07/17/2014 10:28	GK
Surr: Dibromofluoromethane	94.4	79.5-121		%REC	193732	1	07/17/2014 10:28	GK
Surr: Toluene-d8	95.4	77-117		%REC	193732	1	07/17/2014 10:28	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-11 20140709
Project Name:	Corners Shopping Center	**Collection Date:**	7/9/2014 12:52:00 PM
Lab ID:	1407B83-020	**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	193683	1	07/17/2014 10:56	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193683	1	07/17/2014 10:56	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193683	1	07/17/2014 10:56	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/17/2014 10:56	GK
Tetrachloroethene	5.9	5.0		ug/L	193683	1	07/17/2014 10:56	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/17/2014 10:56	GK
Trichloroethene	BRL	5.0		ug/L	193683	1	07/17/2014 10:56	GK
Vinyl chloride	BRL	2.0		ug/L	193683	1	07/17/2014 10:56	GK
Surr: 4-Bromofluorobenzene	96.5	66.2-120		%REC	193683	1	07/17/2014 10:56	GK
Surr: Dibromofluoromethane	95.9	79.5-121		%REC	193683	1	07/17/2014 10:56	GK
Surr: Toluene-d8	96.5	77-117		%REC	193683	1	07/17/2014 10:56	GK

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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-17 20140709
Project Name:	Corners Shopping Center	**Collection Date:**	7/9/2014 4:15:00 PM
Lab ID:	1407B83-021	**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	193683	1	07/16/2014 17:47	NP
1,1-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 17:47	NP
1,2-Dichloroethane	BRL	5.0		ug/L	193683	1	07/16/2014 17:47	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 17:47	NP
Tetrachloroethene	70	5.0		ug/L	193683	1	07/16/2014 17:47	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 17:47	NP
Trichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 17:47	NP
Vinyl chloride	BRL	2.0		ug/L	193683	1	07/16/2014 17:47	NP
Surr: 4-Bromofluorobenzene	94.2	66.2-120		%REC	193683	1	07/16/2014 17:47	NP
Surr: Dibromofluoromethane	92.3	79.5-121		%REC	193683	1	07/16/2014 17:47	NP
Surr: Toluene-d8	97.3	77-117		%REC	193683	1	07/16/2014 17:47	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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-20 20140709
Project Name:	Corners Shopping Center	**Collection Date:**	7/9/2014 11:26:00 AM
Lab ID:	1407B83-022	**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	193683	1	07/16/2014 19:10	NP
1,1-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 19:10	NP
1,2-Dichloroethane	BRL	5.0		ug/L	193683	1	07/16/2014 19:10	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 19:10	NP
Tetrachloroethene	13	5.0		ug/L	193683	1	07/16/2014 19:10	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 19:10	NP
Trichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 19:10	NP
Vinyl chloride	BRL	2.0		ug/L	193683	1	07/16/2014 19:10	NP
Surr: 4-Bromofluorobenzene	94.8	66.2-120		%REC	193683	1	07/16/2014 19:10	NP
Surr: Dibromofluoromethane	89.8	79.5-121		%REC	193683	1	07/16/2014 19:10	NP
Surr: Toluene-d8	95.8	77-117		%REC	193683	1	07/16/2014 19:10	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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-21 20140710
Project Name:	Corners Shopping Center	**Collection Date:**	7/10/2014 12:44:00 PM
Lab ID:	1407B83-023	**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	193683	1	07/16/2014 19:38	NP
1,1-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 19:38	NP
1,2-Dichloroethane	BRL	5.0		ug/L	193683	1	07/16/2014 19:38	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 19:38	NP
Tetrachloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 19:38	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 19:38	NP
Trichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 19:38	NP
Vinyl chloride	BRL	2.0		ug/L	193683	1	07/16/2014 19:38	NP
Surr: 4-Bromofluorobenzene	94.9	66.2-120		%REC	193683	1	07/16/2014 19:38	NP
Surr: Dibromofluoromethane	90.7	79.5-121		%REC	193683	1	07/16/2014 19:38	NP
Surr: Toluene-d8	95.5	77-117		%REC	193683	1	07/16/2014 19:38	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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-24 20140711
Project Name:	Corners Shopping Center	**Collection Date:**	7/11/2014 10:44:00 AM
Lab ID:	1407B83-024	**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	193683	1	07/16/2014 20:06	NP
1,1-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 20:06	NP
1,2-Dichloroethane	BRL	5.0		ug/L	193683	1	07/16/2014 20:06	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 20:06	NP
Tetrachloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 20:06	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 20:06	NP
Trichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 20:06	NP
Vinyl chloride	BRL	2.0		ug/L	193683	1	07/16/2014 20:06	NP
Surr: 4-Bromofluorobenzene	94.4	66.2-120		%REC	193683	1	07/16/2014 20:06	NP
Surr: Dibromofluoromethane	91.3	79.5-121		%REC	193683	1	07/16/2014 20:06	NP
Surr: Toluene-d8	96.7	77-117		%REC	193683	1	07/16/2014 20:06	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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-27 20140710
Project Name:	Corners Shopping Center	**Collection Date:**	7/10/2014 11:18:00 AM
Lab ID:	1407B83-025	**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	193683	1	07/16/2014 20:34	NP
1,1-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 20:34	NP
1,2-Dichloroethane	BRL	5.0		ug/L	193683	1	07/16/2014 20:34	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 20:34	NP
Tetrachloroethene	7.9	5.0		ug/L	193683	1	07/16/2014 20:34	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 20:34	NP
Trichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 20:34	NP
Vinyl chloride	BRL	2.0		ug/L	193683	1	07/16/2014 20:34	NP
Surr: 4-Bromofluorobenzene	94.6	66.2-120		%REC	193683	1	07/16/2014 20:34	NP
Surr: Dibromofluoromethane	91.6	79.5-121		%REC	193683	1	07/16/2014 20:34	NP
Surr: Toluene-d8	94.6	77-117		%REC	193683	1	07/16/2014 20:34	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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	DUP-01 20140709
Project Name:	Corners Shopping Center	**Collection Date:**	7/9/2014
Lab ID:	1407B83-026	**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	193683	1	07/16/2014 21:02	NP
1,1-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 21:02	NP
1,2-Dichloroethane	BRL	5.0		ug/L	193683	1	07/16/2014 21:02	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 21:02	NP
Tetrachloroethene	50	5.0		ug/L	193683	1	07/16/2014 21:02	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 21:02	NP
Trichloroethene	6.2	5.0		ug/L	193683	1	07/16/2014 21:02	NP
Vinyl chloride	BRL	2.0		ug/L	193683	1	07/16/2014 21:02	NP
Surr: 4-Bromofluorobenzene	93.2	66.2-120		%REC	193683	1	07/16/2014 21:02	NP
Surr: Dibromofluoromethane	89.6	79.5-121		%REC	193683	1	07/16/2014 21:02	NP
Surr: Toluene-d8	95.6	77-117		%REC	193683	1	07/16/2014 21:02	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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	DUP-02 20140710
Project Name:	Corners Shopping Center	**Collection Date:**	7/9/2014
Lab ID:	1407B83-027	**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	193683	1	07/16/2014 21:30	NP
1,1-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 21:30	NP
1,2-Dichloroethane	BRL	5.0		ug/L	193683	1	07/16/2014 21:30	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 21:30	NP
Tetrachloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 21:30	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 21:30	NP
Trichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 21:30	NP
Vinyl chloride	BRL	2.0		ug/L	193683	1	07/16/2014 21:30	NP
Surr: 4-Bromofluorobenzene	94.5	66.2-120		%REC	193683	1	07/16/2014 21:30	NP
Surr: Dibromofluoromethane	91.9	79.5-121		%REC	193683	1	07/16/2014 21:30	NP
Surr: Toluene-d8	94.8	77-117		%REC	193683	1	07/16/2014 21:30	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:** 18-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	TRIP BLANK
Project Name:	Corners Shopping Center	**Collection Date:**	7/11/2014
Lab ID:	1407B83-028	**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	193683	1	07/16/2014 16:24	NP
1,1-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 16:24	NP
1,2-Dichloroethane	BRL	5.0		ug/L	193683	1	07/16/2014 16:24	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 16:24	NP
Tetrachloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 16:24	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 16:24	NP
Trichloroethene	BRL	5.0		ug/L	193683	1	07/16/2014 16:24	NP
Vinyl chloride	BRL	2.0		ug/L	193683	1	07/16/2014 16:24	NP
Surr: 4-Bromofluorobenzene	96.5	66.2-120		%REC	193683	1	07/16/2014 16:24	NP
Surr: Dibromofluoromethane	90.1	79.5-121		%REC	193683	1	07/16/2014 16:24	NP
Surr: Toluene-d8	94.5	77-117		%REC	193683	1	07/16/2014 16:24	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.

Sample/Cooler Receipt Checklist

Client Environ Work Order Number 1407B83

Checklist completed by [signature] 7/14/14
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? (4°C±2)* Yes ✓ No __

Cooler #1 3.5° 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.

\L\Quality Assurance\Checklists Procedures Sign-Off Templates\Checklists\Sample Receipt Checklists\Sample_Cooler_Receipt_Checklist

Client: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1407B83

ANALYTICAL QC SUMMARY REPORT

BatchID: 193683

Sample ID: **MB-193683**	Client ID:	Units: **ug/L**	Prep Date: **07/16/2014**	Run No: **271787**
SampleType: **MBLK**	TestCode: **TCL VOLATILE ORGANICS SW8260B**	BatchID: **193683**	Analysis Date: **07/16/2014**	Seq No: **5735054**

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-Dichloroethane	BRL	5.0									
cis-1,2-Dichloroethene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
Trichloroethene	BRL	5.0									
Vinyl chloride	BRL	2.0									
Surr: 4-Bromofluorobenzene	47.79	0	50.00		95.6	66.2	120				
Surr: Dibromofluoromethane	46.91	0	50.00		93.8	79.5	121				
Surr: Toluene-d8	47.34	0	50.00		94.7	77	117				

Sample ID: **LCS-193683**	Client ID:	Units: **ug/L**	Prep Date: **07/16/2014**	Run No: **271787**
SampleType: **LCS**	TestCode: **TCL VOLATILE ORGANICS SW8260B**	BatchID: **193683**	Analysis Date: **07/16/2014**	Seq No: **5735052**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	33.87	5.0	50.00		67.7	63.1	140				
Trichloroethene	47.30	5.0	50.00		94.6	71.2	135				
Surr: 4-Bromofluorobenzene	47.68	0	50.00		95.4	66.2	120				
Surr: Dibromofluoromethane	45.58	0	50.00		91.2	79.5	121				
Surr: Toluene-d8	47.43	0	50.00		94.9	77	117				

Sample ID: **1407B83-021AMS**	Client ID: **MW-17 20140709**	Units: **ug/L**	Prep Date: **07/16/2014**	Run No: **271787**
SampleType: **MS**	TestCode: **TCL VOLATILE ORGANICS SW8260B**	BatchID: **193683**	Analysis Date: **07/16/2014**	Seq No: **5736605**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	33.97	5.0	50.00		67.9	60.2	159				
Trichloroethene	51.05	5.0	50.00	4.280	93.5	70.1	144				

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: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1407B83

ANALYTICAL QC SUMMARY REPORT

BatchID: 193683

Sample ID: **1407B83-021AMS** Client ID: **MW-17 20140709** Units: **ug/L** Prep Date: **07/16/2014** Run No: **271787**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **193683** Analysis Date: **07/16/2014** Seq No: **5736605**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: 4-Bromofluorobenzene	46.88	0	50.00		93.8	66.2	120				
Surr: Dibromofluoromethane	44.72	0	50.00		89.4	79.5	121				
Surr: Toluene-d8	48.13	0	50.00		96.3	77	117				

Sample ID: **1407B83-021AMSD** Client ID: **MW-17 20140709** Units: **ug/L** Prep Date: **07/16/2014** Run No: **271787**
SampleType: **MSD** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **193683** Analysis Date: **07/16/2014** Seq No: **5736607**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	34.33	5.0	50.00		68.7	60.2	159	33.97	1.05	19.2	
Trichloroethene	48.99	5.0	50.00	4.280	89.4	70.1	144	51.05	4.12	20	
Surr: 4-Bromofluorobenzene	47.08	0	50.00		94.2	66.2	120	46.88	0	0	
Surr: Dibromofluoromethane	44.11	0	50.00		88.2	79.5	121	44.72	0	0	
Surr: Toluene-d8	47.75	0	50.00		95.5	77	117	48.13	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		

Client: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1407B83

ANALYTICAL QC SUMMARY REPORT

BatchID: 193732

Sample ID: **MB-193732** Client ID: Units: **ug/L** Prep Date: **07/16/2014** Run No: **271866**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **193732** Analysis Date: **07/17/2014** Seq No: **5736731**

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-Dichloroethane	BRL	5.0									
cis-1,2-Dichloroethene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
Trichloroethene	BRL	5.0									
Vinyl chloride	BRL	2.0									
Surr: 4-Bromofluorobenzene	47.43	0	50.00		94.9	66.2	120				
Surr: Dibromofluoromethane	47.36	0	50.00		94.7	79.5	121				
Surr: Toluene-d8	48.16	0	50.00		96.3	77	117				

Sample ID: **LCS-193732** Client ID: Units: **ug/L** Prep Date: **07/16/2014** Run No: **271866**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **193732** Analysis Date: **07/16/2014** Seq No: **5736729**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	33.12	5.0	50.00		66.2	63.1	140				
Trichloroethene	45.98	5.0	50.00		92.0	71.2	135				
Surr: 4-Bromofluorobenzene	47.23	0	50.00		94.5	66.2	120				
Surr: Dibromofluoromethane	46.16	0	50.00		92.3	79.5	121				
Surr: Toluene-d8	47.60	0	50.00		95.2	77	117				

Sample ID: **1407B83-001AMS** Client ID: **AIW-01 20140711** Units: **ug/L** Prep Date: **07/16/2014** Run No: **271866**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **193732** Analysis Date: **07/17/2014** Seq No: **5736737**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	34.21	5.0	50.00		68.4	60.2	159				
Trichloroethene	47.16	5.0	50.00		94.3	70.1	144				

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: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1407B83

ANALYTICAL QC SUMMARY REPORT

BatchID: 193732

Sample ID: **1407B83-001AMS** Client ID: **AIW-01 20140711** Units: **ug/L** Prep Date: **07/16/2014** Run No: **271866**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **193732** Analysis Date: **07/17/2014** Seq No: **5736737**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: 4-Bromofluorobenzene	47.51	0	50.00		95.0	66.2	120				
Surr: Dibromofluoromethane	45.84	0	50.00		91.7	79.5	121				
Surr: Toluene-d8	47.96	0	50.00		95.9	77	117				

Sample ID: **1407B83-001AMSD** Client ID: **AIW-01 20140711** Units: **ug/L** Prep Date: **07/16/2014** Run No: **271866**
SampleType: **MSD** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **193732** Analysis Date: **07/17/2014** Seq No: **5736739**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	33.78	5.0	50.00		67.6	60.2	159	34.21	1.26	19.2	
Trichloroethene	46.86	5.0	50.00		93.7	70.1	144	47.16	0.638	20	
Surr: 4-Bromofluorobenzene	47.33	0	50.00		94.7	66.2	120	47.51	0	0	
Surr: Dibromofluoromethane	45.51	0	50.00		91.0	79.5	121	45.84	0	0	
Surr: Toluene-d8	47.80	0	50.00		95.6	77	117	47.96	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		

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

July 22, 2014

Ken Nye
ENVIRON International Corp.
1600 Parkwood Circle
Atlanta GA 30339

TEL: (770) 874-5010
FAX: (770) 874-8011

RE: Corners Shopping Center

Dear Ken Nye: Order No: 1407G27

Analytical Environmental Services, Inc. received 1 samples on 7/17/2014 4:25:00 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' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Tara Esbeck

Tara Esbeck
Project Manager

ANALYTICAL ENVIRONMENTAL SERVICES, INC

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

CHAIN OF CUSTODY

Work Order: 1407G27

Date: 07/17/2014 Page 1 of 1

COMPANY:	ADDRESS:
ENVIRON	1600 Parkwood Circle Suite 310 Atlanta, GA 30339
PHONE: 770-874-5010	FAX: 770-874-5011
SAMPLED BY: K. Nye	SIGNATURE: K. E. N

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	Chlorinated VOCs (8260)	No # of Containers	REMARKS
							PRESERVATION (See codes) H+I		
1	SW-01 20140716	07/16/2014	1448	X		SW	X	2	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									

ANALYSIS REQUESTED

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

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1: K. E. N	7-17-14/1535	1:	7-17-14 5:35
2:	7-17-14 16:25	2: IOANA P.	7/17/14 16:25
3:		3:	

PROJECT INFORMATION

PROJECT NAME: CSC
PROJECT #: 07-35252B
SITE ADDRESS: Marietta, Georgia
SEND REPORT TO: K. Nye
INVOICE TO: (IF DIFFERENT FROM ABOVE)
QUOTE #: PO#:

SPECIAL INSTRUCTIONS/COMMENTS:

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

RECEIPT
Total # of Containers: 2

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

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

SAMPLES RECEIVED AFTER 3PM OR 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:** 22-Jul-14

Client:	ENVIRON International Corp.	**Client Sample ID:**	SW-01 20140716
Project Name:	Corners Shopping Center	**Collection Date:**	7/16/2014 2:48:00 PM
Lab ID:	1407G27-001	**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	193939	1	07/22/2014 06:43	GK
1,1-Dichloroethene	BRL	5.0		ug/L	193939	1	07/22/2014 06:43	GK
1,2-Dichloroethane	BRL	5.0		ug/L	193939	1	07/22/2014 06:43	GK
cis-1,2-Dichloroethene	BRL	5.0		ug/L	193939	1	07/22/2014 06:43	GK
Tetrachloroethene	BRL	5.0		ug/L	193939	1	07/22/2014 06:43	GK
trans-1,2-Dichloroethene	BRL	5.0		ug/L	193939	1	07/22/2014 06:43	GK
Trichloroethene	BRL	5.0		ug/L	193939	1	07/22/2014 06:43	GK
Vinyl chloride	BRL	2.0		ug/L	193939	1	07/22/2014 06:43	GK
Surr: 4-Bromofluorobenzene	92.6	66.2-120		%REC	193939	1	07/22/2014 06:43	GK
Surr: Dibromofluoromethane	99.2	79.5-121		%REC	193939	1	07/22/2014 06:43	GK
Surr: Toluene-d8	99.5	77-117		%REC	193939	1	07/22/2014 06:43	GK

Qualifiers:

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

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Environ-Atlanta Work Order Number 1407627

Checklist completed by JOANA P. 7/18/14
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? (4°C±2)* Yes ✓ No __

Cooler #1 3.4 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.

\L\Quality Assurance\Checklists Procedures Sign-Off Templates\Checklists\Sample Receipt Checklists\Sample_Cooler_Receipt_Checklist

Client: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1407G27

ANALYTICAL QC SUMMARY REPORT

BatchID: 193939

Sample ID: **MB-193939** Client ID: Units: **ug/L** Prep Date: **07/21/2014** Run No: **272147**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **193939** Analysis Date: **07/22/2014** Seq No: **5743154**

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-Dichloroethane	BRL	5.0									
cis-1,2-Dichloroethene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
Trichloroethene	BRL	5.0									
Vinyl chloride	BRL	2.0									
Surr: 4-Bromofluorobenzene	47.86	0	50.00		95.7	66.2	120				
Surr: Dibromofluoromethane	49.75	0	50.00		99.5	79.5	121				
Surr: Toluene-d8	48.41	0	50.00		96.8	77	117				

Sample ID: **LCS-193939** Client ID: Units: **ug/L** Prep Date: **07/21/2014** Run No: **272147**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **193939** Analysis Date: **07/21/2014** Seq No: **5743151**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	43.85	5.0	50.00		87.7	63.1	140				
Trichloroethene	48.54	5.0	50.00		97.1	71.2	135				
Surr: 4-Bromofluorobenzene	47.44	0	50.00		94.9	66.2	120				
Surr: Dibromofluoromethane	48.63	0	50.00		97.3	79.5	121				
Surr: Toluene-d8	48.31	0	50.00		96.6	77	117				

Sample ID: **1407H03-008AMS** Client ID: Units: **ug/L** Prep Date: **07/21/2014** Run No: **272147**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **193939** Analysis Date: **07/22/2014** Seq No: **5743159**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	23330	2500	25000	1505	87.3	60.2	159				
Trichloroethene	24890	2500	25000		99.6	70.1	144				

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: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1407G27

ANALYTICAL QC SUMMARY REPORT

BatchID: 193939

Sample ID: **1407H03-008AMS** Client ID: Units: **ug/L** Prep Date: **07/21/2014** Run No: **272147**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **193939** Analysis Date: **07/22/2014** Seq No: **5743159**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: 4-Bromofluorobenzene	23730	0	25000		94.9	66.2	120				
Surr: Dibromofluoromethane	25110	0	25000		100	79.5	121				
Surr: Toluene-d8	24250	0	25000		97.0	77	117				

Sample ID: **1407H03-008AMSD** Client ID: Units: **ug/L** Prep Date: **07/21/2014** Run No: **272147**
SampleType: **MSD** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **193939** Analysis Date: **07/22/2014** Seq No: **5743161**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	22470	2500	25000	1505	83.9	60.2	159	23330	3.76	19.2	
Trichloroethene	23560	2500	25000		94.2	70.1	144	24890	5.49	20	
Surr: 4-Bromofluorobenzene	23760	0	25000		95.0	66.2	120	23730	0	0	
Surr: Dibromofluoromethane	24450	0	25000		97.8	79.5	121	25110	0	0	
Surr: Toluene-d8	24100	0	25000		96.4	77	117	24250	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		

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

February 26, 2015

Ken Nye
ENVIRON International Corp.
1600 Parkwood Circle
Atlanta GA 30339

TEL: (770) 874-5010
FAX: (770) 874-8011

RE: Corners Shopping Center

Dear Ken Nye: Order No: 1502G87

Analytical Environmental Services, Inc. received 2 samples on 2/19/2015 5:41:00 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' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Tara Esbeck

Tara Esbeck
Project Manager

ANALYTICAL ENVIRONMENTAL SERVICES, INC

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

CHAIN OF CUSTODY

Work Order: 1502687

Date: 02/19/2015 Page 1 of 1

COMPANY:	ADDRESS:
ENVIRON	1600 Parkwood Circle Suite 310 Atlanta, GA 30339
PHONE: 770-874-5010	FAX: 770-874-5011
SAMPLED BY: K. Nye	SIGNATURE:

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	Chlorinated VOCs (8260)	PRESERVATION (See codes) H+I	REMARKS	No # of Containers
1	AIW-04 20150218	02/18/2015	1240	X		GW	X			3
2	MW-28 20150218	02/18/2015	1622	X		GW	X			3
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										

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

ANALYSIS REQUESTED

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1:	02/19/2015 1630	1:	2-19-2015 4:30PM
2:	2-19-2015 5:41	2:	2/19/15 5:41
3:		3:	

SPECIAL INSTRUCTIONS/COMMENTS:

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

PROJECT INFORMATION
PROJECT NAME: CSC
PROJECT #: 07-35252C
SITE ADDRESS: Marietta, Georgia
SEND REPORT TO: K. Nye
INVOICE TO:
(IF DIFFERENT FROM ABOVE)
QUOTE #:_____ PO#:_____

RECEIPT
Total # of Containers: 6

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

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

SAMPLES RECEIVED AFTER 3PM OR 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:** 26-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	AIW-04 20150218
Project Name:	Corners Shopping Center	**Collection Date:**	2/18/2015 12:40:00 PM
Lab ID:	1502G87-001	**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	203683	1	02/25/2015 10:36	NP
1,1-Dichloroethene	BRL	5.0		ug/L	203683	1	02/25/2015 10:36	NP
1,2-Dichloroethane	BRL	5.0		ug/L	203683	1	02/25/2015 10:36	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	203683	1	02/25/2015 10:36	NP
Tetrachloroethene	BRL	5.0		ug/L	203683	1	02/25/2015 10:36	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	203683	1	02/25/2015 10:36	NP
Trichloroethene	BRL	5.0		ug/L	203683	1	02/25/2015 10:36	NP
Vinyl chloride	BRL	2.0		ug/L	203683	1	02/25/2015 10:36	NP
Surr: 4-Bromofluorobenzene	94	70.6-123		%REC	203683	1	02/25/2015 10:36	NP
Surr: Dibromofluoromethane	99.2	78.7-124		%REC	203683	1	02/25/2015 10:36	NP
Surr: Toluene-d8	96.8	81.3-120		%REC	203683	1	02/25/2015 10:36	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:** 26-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-28 20150218
Project Name:	Corners Shopping Center	**Collection Date:**	2/18/2015 4:22:00 PM
Lab ID:	1502G87-002	**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	203683	1	02/25/2015 11:00	NP
1,1-Dichloroethene	BRL	5.0		ug/L	203683	1	02/25/2015 11:00	NP
1,2-Dichloroethane	BRL	5.0		ug/L	203683	1	02/25/2015 11:00	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	203683	1	02/25/2015 11:00	NP
Tetrachloroethene	7.4	5.0		ug/L	203683	1	02/25/2015 11:00	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	203683	1	02/25/2015 11:00	NP
Trichloroethene	BRL	5.0		ug/L	203683	1	02/25/2015 11:00	NP
Vinyl chloride	BRL	2.0		ug/L	203683	1	02/25/2015 11:00	NP
Surr: 4-Bromofluorobenzene	94.4	70.6-123		%REC	203683	1	02/25/2015 11:00	NP
Surr: Dibromofluoromethane	101	78.7-124		%REC	203683	1	02/25/2015 11:00	NP
Surr: Toluene-d8	97.1	81.3-120		%REC	203683	1	02/25/2015 11:00	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 Environ - Atlanta Work Order Number 1502G87

Checklist completed by Katie Forum 2/19/15
Signature Date

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

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

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

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

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

Cooler #1 3.4°C Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

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

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

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

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

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

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

Adjusted? _____ Checked by _____

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: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1502G87

ANALYTICAL QC SUMMARY REPORT

BatchID: 203683

Sample ID: **MB-203683** Client ID: Units: **ug/L** Prep Date: **02/25/2015** Run No: **286494**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **203683** Analysis Date: **02/25/2015** Seq No: **6081592**

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-Dichloroethane	BRL	5.0									
cis-1,2-Dichloroethene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
Trichloroethene	BRL	5.0									
Vinyl chloride	BRL	2.0									
Surr: 4-Bromofluorobenzene	47.06	0	50.00		94.1	70.6	123				
Surr: Dibromofluoromethane	48.37	0	50.00		96.7	78.7	124				
Surr: Toluene-d8	48.37	0	50.00		96.7	81.3	120				

Sample ID: **LCS-203683** Client ID: Units: **ug/L** Prep Date: **02/25/2015** Run No: **286494**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **203683** Analysis Date: **02/25/2015** Seq No: **6081590**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	50.44	5.0	50.00		101	64.2	137				
Trichloroethene	53.25	5.0	50.00		106	70.5	134				
Surr: 4-Bromofluorobenzene	48.51	0	50.00		97.0	70.6	123				
Surr: Dibromofluoromethane	48.60	0	50.00		97.2	78.7	124				
Surr: Toluene-d8	48.15	0	50.00		96.3	81.3	120				

Sample ID: **1502H40-001AMS** Client ID: Units: **ug/L** Prep Date: **02/25/2015** Run No: **286494**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **203683** Analysis Date: **02/25/2015** Seq No: **6082329**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	2484	250	2500		99.4	60.5	156				
Trichloroethene	2493	250	2500		99.7	71.8	139				

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: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1502G87

ANALYTICAL QC SUMMARY REPORT

BatchID: 203683

Sample ID: **1502H40-001AMS** Client ID: Units: **ug/L** Prep Date: **02/25/2015** Run No: **286494**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **203683** Analysis Date: **02/25/2015** Seq No: **6082329**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: 4-Bromofluorobenzene	2431	0	2500		97.2	70.6	123				
Surr: Dibromofluoromethane	2476	0	2500		99.0	78.7	124				
Surr: Toluene-d8	2404	0	2500		96.1	81.3	120				

Sample ID: **1502H40-001AMSD** Client ID: Units: **ug/L** Prep Date: **02/25/2015** Run No: **286494**
SampleType: **MSD** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **203683** Analysis Date: **02/25/2015** Seq No: **6082330**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	2322	250	2500		92.9	60.5	156	2484	6.72	20	
Trichloroethene	2434	250	2500		97.4	71.8	139	2493	2.37	20	
Surr: 4-Bromofluorobenzene	2387	0	2500		95.5	70.6	123	2431	0	0	
Surr: Dibromofluoromethane	2453	0	2500		98.1	78.7	124	2476	0	0	
Surr: Toluene-d8	2402	0	2500		96.1	81.3	120	2404	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		

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

February 09, 2015

Ken Nye
ENVIRON International Corp.
1600 Parkwood Circle
Atlanta GA 30339

TEL: (770) 874-5010
FAX: (770) 874-8011

RE: Corners Shopping Center

Dear Ken Nye: Order No: 1502215

Analytical Environmental Services, Inc. received 9 samples on 2/3/2015 4:20:00 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' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Tara Esbeck

Tara Esbeck
Project Manager

ANALYTICAL ENVIRONMENTAL SERVICES, INC

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

CHAIN OF CUSTODY

Work Order: 1502215

Date: 2-3-15 Page 1 of 1

Page 2 of 4

COMPANY:	ADDRESS:
ENVIRON International Corp.	1600 Parkwood Circle Suite 310 Atlanta, GA 30339
PHONE: ~~770 431~~ 770-874-5010	FAX: 770-874-5011
SAMPLED BY: Aaron D. Hottenstein	SIGNATURE: Aaron D Hottenstein

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	Chlorinated VOCs	No # of Containers	REMARKS
1	DVEW-06 20150203	02/03/2015	0953	X		GW	X	2	
2	DVEW-07 20150202	02/02/2015	1545	X		GW	X	2	
3	MW-06 20150202	02/02/2015	1310	X		GW	X	2	
4	MW-14 20150202	02/02/2015	1705	X		GW	X	2	
5	MW-17 20150203	02/03/2015	1132	X		GW	X	2	
6	DUP-01 20150202	02/02/2015	—	X		GW	X	2	
7	DUP-02 20150203	02/03/2015	—	X		GW	X	2	
8	DVEW-08 20150203	02/03/2015	1540	X		GW	X	2	
9	Trip Blank	—	—			W	X	2	
10									
11									
12									
13									
14									

PRESERVATION (See codes): #1

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

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1: Aaron D Hottenstein	02/03/15 1548	1:	2-3-15 15:18
2:	2-3-15 16:20	2: Aaron D	2/3/15 16:20
3:		3:	

PROJECT INFORMATION

PROJECT NAME: Corners Shopping Center
PROJECT #: 07-35252C
SITE ADDRESS: Marietta, GA
SEND REPORT TO: knyc@environcorp.com
INVOICE TO: (IF DIFFERENT FROM ABOVE)
QUOTE #: PO#:

RECEIPT

Total # of Containers: 18

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

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

SPECIAL INSTRUCTIONS/COMMENTS:

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

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

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

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

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc **Date:** 9-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	DVEW-06 20150203
Project Name:	Corners Shopping Center	**Collection Date:**	2/3/2015 9:53:00 AM
Lab ID:	1502215-001	**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	202738	1	02/05/2015 14:28	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 14:28	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202738	1	02/05/2015 14:28	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 14:28	CH
Tetrachloroethene	14	5.0		ug/L	202738	1	02/05/2015 14:28	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 14:28	CH
Trichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 14:28	CH
Vinyl chloride	BRL	2.0		ug/L	202738	1	02/05/2015 14:28	CH
Surr: 4-Bromofluorobenzene	92.2	70.6-123		%REC	202738	1	02/05/2015 14:28	CH
Surr: Dibromofluoromethane	104	78.7-124		%REC	202738	1	02/05/2015 14:28	CH
Surr: Toluene-d8	97.3	81.3-120		%REC	202738	1	02/05/2015 14:28	CH

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:** 9-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	DVEW-07 20150202
Project Name:	Corners Shopping Center	**Collection Date:**	2/2/2015 3:45:00 PM
Lab ID:	1502215-002	**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	202738	1	02/05/2015 15:39	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 15:39	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202738	1	02/05/2015 15:39	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 15:39	CH
Tetrachloroethene	250	50		ug/L	202738	10	02/06/2015 13:36	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 15:39	CH
Trichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 15:39	CH
Vinyl chloride	BRL	2.0		ug/L	202738	1	02/05/2015 15:39	CH
Surr: 4-Bromofluorobenzene	89.3	70.6-123		%REC	202738	1	02/05/2015 15:39	CH
Surr: 4-Bromofluorobenzene	92.5	70.6-123		%REC	202738	10	02/06/2015 13:36	CH
Surr: Dibromofluoromethane	102	78.7-124		%REC	202738	10	02/06/2015 13:36	CH
Surr: Dibromofluoromethane	107	78.7-124		%REC	202738	1	02/05/2015 15:39	CH
Surr: Toluene-d8	95.3	81.3-120		%REC	202738	1	02/05/2015 15:39	CH
Surr: Toluene-d8	95.6	81.3-120		%REC	202738	10	02/06/2015 13:36	CH

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:** 9-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-06 20150202
Project Name:	Corners Shopping Center	**Collection Date:**	2/2/2015 1:10:00 PM
Lab ID:	1502215-003	**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	202738	1	02/05/2015 16:51	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 16:51	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202738	1	02/05/2015 16:51	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 16:51	CH
Tetrachloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 16:51	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 16:51	CH
Trichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 16:51	CH
Vinyl chloride	BRL	2.0		ug/L	202738	1	02/05/2015 16:51	CH
Surr: 4-Bromofluorobenzene	88.4	70.6-123		%REC	202738	1	02/05/2015 16:51	CH
Surr: Dibromofluoromethane	109	78.7-124		%REC	202738	1	02/05/2015 16:51	CH
Surr: Toluene-d8	97.9	81.3-120		%REC	202738	1	02/05/2015 16:51	CH

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:** 9-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-14 20150202
Project Name:	Corners Shopping Center	**Collection Date:**	2/2/2015 5:05:00 PM
Lab ID:	1502215-004	**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	202738	1	02/05/2015 17:15	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 17:15	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202738	1	02/05/2015 17:15	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 17:15	CH
Tetrachloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 17:15	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 17:15	CH
Trichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 17:15	CH
Vinyl chloride	BRL	2.0		ug/L	202738	1	02/05/2015 17:15	CH
Surr: 4-Bromofluorobenzene	88.1	70.6-123		%REC	202738	1	02/05/2015 17:15	CH
Surr: Dibromofluoromethane	106	78.7-124		%REC	202738	1	02/05/2015 17:15	CH
Surr: Toluene-d8	91.6	81.3-120		%REC	202738	1	02/05/2015 17:15	CH

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:** 9-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-17 20150203
Project Name:	Corners Shopping Center	**Collection Date:**	2/3/2015 11:32:00 AM
Lab ID:	1502215-005	**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	202738	1	02/05/2015 17:39	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 17:39	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202738	1	02/05/2015 17:39	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 17:39	CH
Tetrachloroethene	53	5.0		ug/L	202738	1	02/05/2015 17:39	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 17:39	CH
Trichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 17:39	CH
Vinyl chloride	BRL	2.0		ug/L	202738	1	02/05/2015 17:39	CH
Surr: 4-Bromofluorobenzene	87.5	70.6-123		%REC	202738	1	02/05/2015 17:39	CH
Surr: Dibromofluoromethane	109	78.7-124		%REC	202738	1	02/05/2015 17:39	CH
Surr: Toluene-d8	98	81.3-120		%REC	202738	1	02/05/2015 17:39	CH

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:** 9-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	DUP-01 20150202
Project Name:	Corners Shopping Center	**Collection Date:**	2/2/2015
Lab ID:	1502215-006	**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	202738	1	02/05/2015 18:03	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 18:03	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202738	1	02/05/2015 18:03	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 18:03	CH
Tetrachloroethene	230	50		ug/L	202738	10	02/06/2015 14:00	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 18:03	CH
Trichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 18:03	CH
Vinyl chloride	BRL	2.0		ug/L	202738	1	02/05/2015 18:03	CH
Surr: 4-Bromofluorobenzene	83.3	70.6-123		%REC	202738	1	02/05/2015 18:03	CH
Surr: 4-Bromofluorobenzene	92.1	70.6-123		%REC	202738	10	02/06/2015 14:00	CH
Surr: Dibromofluoromethane	102	78.7-124		%REC	202738	10	02/06/2015 14:00	CH
Surr: Dibromofluoromethane	109	78.7-124		%REC	202738	1	02/05/2015 18:03	CH
Surr: Toluene-d8	96.4	81.3-120		%REC	202738	1	02/05/2015 18:03	CH
Surr: Toluene-d8	96.3	81.3-120		%REC	202738	10	02/06/2015 14:00	CH

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:** 9-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	DUP-02 20150203
Project Name:	Corners Shopping Center	**Collection Date:**	2/3/2015
Lab ID:	1502215-007	**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	202738	1	02/05/2015 18:51	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 18:51	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202738	1	02/05/2015 18:51	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 18:51	CH
Tetrachloroethene	18	5.0		ug/L	202738	1	02/05/2015 18:51	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 18:51	CH
Trichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 18:51	CH
Vinyl chloride	BRL	2.0		ug/L	202738	1	02/05/2015 18:51	CH
Surr: 4-Bromofluorobenzene	86.5	70.6-123		%REC	202738	1	02/05/2015 18:51	CH
Surr: Dibromofluoromethane	112	78.7-124		%REC	202738	1	02/05/2015 18:51	CH
Surr: Toluene-d8	98	81.3-120		%REC	202738	1	02/05/2015 18:51	CH

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:** 9-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	DVEW-08 20150203
Project Name:	Corners Shopping Center	**Collection Date:**	2/3/2015 3:40:00 PM
Lab ID:	1502215-008	**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	202738	1	02/05/2015 18:27	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 18:27	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202738	1	02/05/2015 18:27	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 18:27	CH
Tetrachloroethene	5.6	5.0		ug/L	202738	1	02/05/2015 18:27	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 18:27	CH
Trichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 18:27	CH
Vinyl chloride	BRL	2.0		ug/L	202738	1	02/05/2015 18:27	CH
Surr: 4-Bromofluorobenzene	87.1	70.6-123		%REC	202738	1	02/05/2015 18:27	CH
Surr: Dibromofluoromethane	110	78.7-124		%REC	202738	1	02/05/2015 18:27	CH
Surr: Toluene-d8	96.7	81.3-120		%REC	202738	1	02/05/2015 18:27	CH

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:** 9-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	TRIP BLANK
Project Name:	Corners Shopping Center	**Collection Date:**	2/3/2015
Lab ID:	1502215-009	**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	202738	1	02/05/2015 11:18	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 11:18	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202738	1	02/05/2015 11:18	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 11:18	CH
Tetrachloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 11:18	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 11:18	CH
Trichloroethene	BRL	5.0		ug/L	202738	1	02/05/2015 11:18	CH
Vinyl chloride	BRL	2.0		ug/L	202738	1	02/05/2015 11:18	CH
Surr: 4-Bromofluorobenzene	83.9	70.6-123		%REC	202738	1	02/05/2015 11:18	CH
Surr: Dibromofluoromethane	110	78.7-124		%REC	202738	1	02/05/2015 11:18	CH
Surr: Toluene-d8	99.4	81.3-120		%REC	202738	1	02/05/2015 11:18	CH

Qualifiers:

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

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Environ International Corp Work Order Number 1502215

Checklist completed by Signature Jason B Date 2/3/15

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

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

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

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

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

Cooler #1 3.2 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: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1502215

ANALYTICAL QC SUMMARY REPORT

BatchID: 202738

Sample ID: **MB-202738** Client ID: Units: **ug/L** Prep Date: **02/05/2015** Run No: **285233**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **202738** Analysis Date: **02/05/2015** Seq No: **6050381**

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-Dichloroethane	BRL	5.0									
cis-1,2-Dichloroethene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
Trichloroethene	BRL	5.0									
Vinyl chloride	BRL	2.0									
Surr: 4-Bromofluorobenzene	44.96	0	50.00		89.9	70.6	123				
Surr: Dibromofluoromethane	54.14	0	50.00		108	78.7	124				
Surr: Toluene-d8	49.18	0	50.00		98.4	81.3	120				

Sample ID: **LCS-202738** Client ID: Units: **ug/L** Prep Date: **02/05/2015** Run No: **285233**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **202738** Analysis Date: **02/05/2015** Seq No: **6051796**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	63.91	5.0	50.00		128	64.2	137				
Trichloroethene	55.54	5.0	50.00		111	70.5	134				
Surr: 4-Bromofluorobenzene	45.79	0	50.00		91.6	70.6	123				
Surr: Dibromofluoromethane	52.56	0	50.00		105	78.7	124				
Surr: Toluene-d8	47.96	0	50.00		95.9	81.3	120				

Sample ID: **1502215-001AMS** Client ID: **DVEW-06 20150203** Units: **ug/L** Prep Date: **02/05/2015** Run No: **285233**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **202738** Analysis Date: **02/05/2015** Seq No: **6051792**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	61.84	5.0	50.00		124	60.5	156				
Trichloroethene	58.14	5.0	50.00	2.830	111	71.8	139				

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: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1502215

ANALYTICAL QC SUMMARY REPORT

BatchID: 202738

Sample ID: **1502215-001AMS**	Client ID: **DVEW-06 20150203**	Units: **ug/L**	Prep Date: **02/05/2015**	Run No: **285233**
SampleType: **MS**	TestCode: **TCL VOLATILE ORGANICS SW8260B**	BatchID: **202738**	Analysis Date: **02/05/2015**	Seq No: **6051792**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: 4-Bromofluorobenzene	46.35	0	50.00		92.7	70.6	123				
Surr: Dibromofluoromethane	51.19	0	50.00		102	78.7	124				
Surr: Toluene-d8	47.11	0	50.00		94.2	81.3	120				

Sample ID: **1502215-001AMSD**	Client ID: **DVEW-06 20150203**	Units: **ug/L**	Prep Date: **02/05/2015**	Run No: **285233**
SampleType: **MSD**	TestCode: **TCL VOLATILE ORGANICS SW8260B**	BatchID: **202738**	Analysis Date: **02/05/2015**	Seq No: **6051793**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	59.59	5.0	50.00		119	60.5	156	61.84	3.71	20	
Trichloroethene	56.25	5.0	50.00	2.830	107	71.8	139	58.14	3.30	20	
Surr: 4-Bromofluorobenzene	46.37	0	50.00		92.7	70.6	123	46.35	0	0	
Surr: Dibromofluoromethane	51.24	0	50.00		102	78.7	124	51.19	0	0	
Surr: Toluene-d8	47.99	0	50.00		96.0	81.3	120	47.11	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		

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

February 13, 2015

Ken Nye
ENVIRON International Corp.
1600 Parkwood Circle
Atlanta GA 30339

TEL: (770) 874-5010
FAX: (770) 874-8011

RE: Corners Shopping Center

Dear Ken Nye: Order No: 1502650

Analytical Environmental Services, Inc. received 12 samples on 2/6/2015 4:25:00 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' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Tara Esbeck

Tara Esbeck
Project Manager

ANALYTICAL ENVIRONMENTAL SERVICES, INC

3080 Presidential Drive, Atlanta GA 30340-3704

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

CHAIN OF CUSTODY

Work Order: 1502L050

Date: 02/06/15 Page 1 of 1

COMPANY: ENVIRON International Corp.

ADDRESS: 1600 Parkwood Circle Suite 310 Atlanta, GA 30339

PHONE: 770-874-5010

FAX: 770-874-5011

SAMPLED BY: Aaron Hotterstein / Patrick Cores

SIGNATURE: [signature]

ANALYSIS REQUESTED: chlorinated 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)	chlorinated VOCs (Preservation: H+I)	REMARKS	No # of Containers
1	ART-02 20150205	02/05/15	1400	X		GW	X		2
2	GRW-04 20150206	02/06/15	1315	X		GW	X		2
3	GRW-05 20150205	02/05/15	1655	X		GW	X		2
4	GRW-09 20150206	02/06/15	1309	X		GW	X		2
5	MW-11 20150203	02/03/15	1654	X		GW	X		2
6	MW-12 20150205	02/05/15	1157	X		GW	X		2
7	MW-18 20150205	02/05/15	1512	X		GW	X		2
8	MW-19 20150205	02/05/15	1027	X		GW	X		2
9	MW-20 20150205	02/05/15	1105	X		GW	X		2
10	MW-27 20150205	02/05/15	1437	X		GW	X		2
11	AIW-03 20150206	02/06/15	1010	X		GW	X	TB (2 vials) on	2
12	Trip Blank	—	—			W	X	other COC too.	2
13									
14									

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1: [signature]	02/06/15 1550	1: [signature]	2-6-15 15:50
2: [signature]	2-6-15 16:25	2: [signature]	2/6/15 1625
3:		3:	

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD
OUT / / VIA:
IN / / VIA:
CLIENT FedEx UPS MAIL COURIER (circled)
GREYHOUND OTHER______

PROJECT INFORMATION

PROJECT NAME: Corners Shopping Center

PROJECT #: 07-35252C

SITE ADDRESS: Marietta, GA

SEND REPORT TO: knye@environcorp.com

INVOICE TO: (IF DIFFERENT FROM ABOVE)

QUOTE #:______ PO#:______

RECEIPT

Total # of Containers: 24

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

STATE PROGRAM (if any): ______

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

DATA PACKAGE: I II III IV

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

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

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

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc **Date:** 12-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	ART-02 20150205
Project Name:	Corners Shopping Center	**Collection Date:**	2/5/2015 2:00:00 PM
Lab ID:	1502650-001	**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	202868	1	02/09/2015 18:42	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 18:42	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/09/2015 18:42	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 18:42	CH
Tetrachloroethene	7.7	5.0		ug/L	202868	1	02/09/2015 18:42	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 18:42	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 18:42	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/09/2015 18:42	CH
Surr: 4-Bromofluorobenzene	90	70.6-123		%REC	202868	1	02/09/2015 18:42	CH
Surr: Dibromofluoromethane	107	78.7-124		%REC	202868	1	02/09/2015 18:42	CH
Surr: Toluene-d8	104	81.3-120		%REC	202868	1	02/09/2015 18:42	CH

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:** 12-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	GRW-04 20150206
Project Name:	Corners Shopping Center	**Collection Date:**	2/6/2015 1:15:00 PM
Lab ID:	1502650-002	**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	202868	1	02/09/2015 19:06	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:06	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/09/2015 19:06	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:06	CH
Tetrachloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:06	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:06	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:06	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/09/2015 19:06	CH
Surr: 4-Bromofluorobenzene	84.7	70.6-123		%REC	202868	1	02/09/2015 19:06	CH
Surr: Dibromofluoromethane	107	78.7-124		%REC	202868	1	02/09/2015 19:06	CH
Surr: Toluene-d8	102	81.3-120		%REC	202868	1	02/09/2015 19:06	CH

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:** 12-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	GRW-05 20150205
Project Name:	Corners Shopping Center	**Collection Date:**	2/5/2015 4:55:00 PM
Lab ID:	1502650-003	**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	202868	1	02/09/2015 19:30	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:30	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/09/2015 19:30	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:30	CH
Tetrachloroethene	6.1	5.0		ug/L	202868	1	02/09/2015 19:30	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:30	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:30	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/09/2015 19:30	CH
Surr: 4-Bromofluorobenzene	88.6	70.6-123		%REC	202868	1	02/09/2015 19:30	CH
Surr: Dibromofluoromethane	106	78.7-124		%REC	202868	1	02/09/2015 19:30	CH
Surr: Toluene-d8	104	81.3-120		%REC	202868	1	02/09/2015 19:30	CH

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:** 12-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	GRW-09 20150206
Project Name:	Corners Shopping Center	**Collection Date:**	2/6/2015 1:09:00 PM
Lab ID:	1502650-004	**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	202868	1	02/09/2015 19:53	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:53	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/09/2015 19:53	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:53	CH
Tetrachloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:53	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:53	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 19:53	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/09/2015 19:53	CH
Surr: 4-Bromofluorobenzene	89	70.6-123		%REC	202868	1	02/09/2015 19:53	CH
Surr: Dibromofluoromethane	113	78.7-124		%REC	202868	1	02/09/2015 19:53	CH
Surr: Toluene-d8	105	81.3-120		%REC	202868	1	02/09/2015 19:53	CH

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:** 12-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-11 20150203
Project Name:	Corners Shopping Center	**Collection Date:**	2/3/2015 4:54:00 PM
Lab ID:	1502650-005	**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	202868	1	02/09/2015 20:17	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 20:17	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/09/2015 20:17	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 20:17	CH
Tetrachloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 20:17	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 20:17	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 20:17	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/09/2015 20:17	CH
Surr: 4-Bromofluorobenzene	91	70.6-123		%REC	202868	1	02/09/2015 20:17	CH
Surr: Dibromofluoromethane	110	78.7-124		%REC	202868	1	02/09/2015 20:17	CH
Surr: Toluene-d8	106	81.3-120		%REC	202868	1	02/09/2015 20:17	CH

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:** 12-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-12 20150205
Project Name:	Corners Shopping Center	**Collection Date:**	2/5/2015 11:57:00 AM
Lab ID:	1502650-006	**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	202868	1	02/09/2015 20:41	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 20:41	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/09/2015 20:41	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 20:41	CH
Tetrachloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 20:41	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 20:41	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 20:41	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/09/2015 20:41	CH
Surr: 4-Bromofluorobenzene	89.3	70.6-123		%REC	202868	1	02/09/2015 20:41	CH
Surr: Dibromofluoromethane	114	78.7-124		%REC	202868	1	02/09/2015 20:41	CH
Surr: Toluene-d8	103	81.3-120		%REC	202868	1	02/09/2015 20:41	CH

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:** 12-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-18 20150205
Project Name:	Corners Shopping Center	**Collection Date:**	2/5/2015 3:12:00 PM
Lab ID:	1502650-007	**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	202868	1	02/09/2015 21:05	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 21:05	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/09/2015 21:05	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 21:05	CH
Tetrachloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 21:05	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 21:05	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 21:05	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/09/2015 21:05	CH
Surr: 4-Bromofluorobenzene	91.6	70.6-123		%REC	202868	1	02/09/2015 21:05	CH
Surr: Dibromofluoromethane	115	78.7-124		%REC	202868	1	02/09/2015 21:05	CH
Surr: Toluene-d8	103	81.3-120		%REC	202868	1	02/09/2015 21:05	CH

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:** 12-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-19 20150205
Project Name:	Corners Shopping Center	**Collection Date:**	2/5/2015 10:27:00 AM
Lab ID:	1502650-008	**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	202868	1	02/10/2015 16:28	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/10/2015 16:28	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/10/2015 16:28	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/10/2015 16:28	CH
Tetrachloroethene	69	5.0		ug/L	202868	1	02/10/2015 16:28	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/10/2015 16:28	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/10/2015 16:28	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/10/2015 16:28	CH
Surr: 4-Bromofluorobenzene	86.5	70.6-123		%REC	202868	1	02/10/2015 16:28	CH
Surr: Dibromofluoromethane	106	78.7-124		%REC	202868	1	02/10/2015 16:28	CH
Surr: Toluene-d8	99.2	81.3-120		%REC	202868	1	02/10/2015 16:28	CH

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:** 12-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-20 20150205
Project Name:	Corners Shopping Center	**Collection Date:**	2/5/2015 11:05:00 PM
Lab ID:	1502650-009	**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	202868	1	02/10/2015 17:15	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/10/2015 17:15	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/10/2015 17:15	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/10/2015 17:15	CH
Tetrachloroethene	13	5.0		ug/L	202868	1	02/10/2015 17:15	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/10/2015 17:15	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/10/2015 17:15	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/10/2015 17:15	CH
Surr: 4-Bromofluorobenzene	84.9	70.6-123		%REC	202868	1	02/10/2015 17:15	CH
Surr: Dibromofluoromethane	105	78.7-124		%REC	202868	1	02/10/2015 17:15	CH
Surr: Toluene-d8	99.8	81.3-120		%REC	202868	1	02/10/2015 17:15	CH

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:** 12-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	MW-27 20150205
Project Name:	Corners Shopping Center	**Collection Date:**	2/5/2015 2:37:00 PM
Lab ID:	1502650-010	**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	202868	1	02/11/2015 12:04	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/11/2015 12:04	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/11/2015 12:04	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/11/2015 12:04	CH
Tetrachloroethene	17	5.0		ug/L	202868	1	02/11/2015 12:04	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/11/2015 12:04	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/11/2015 12:04	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/11/2015 12:04	CH
Surr: 4-Bromofluorobenzene	83.9	70.6-123		%REC	202868	1	02/11/2015 12:04	CH
Surr: Dibromofluoromethane	108	78.7-124		%REC	202868	1	02/11/2015 12:04	CH
Surr: Toluene-d8	102	81.3-120		%REC	202868	1	02/11/2015 12:04	CH

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:** 12-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	AIW-03 20150206
Project Name:	Corners Shopping Center	**Collection Date:**	2/6/2015 10:10:00 AM
Lab ID:	1502650-011	**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	202868	1	02/11/2015 12:27	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/11/2015 12:27	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/11/2015 12:27	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/11/2015 12:27	CH
Tetrachloroethene	8.5	5.0		ug/L	202868	1	02/11/2015 12:27	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/11/2015 12:27	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/11/2015 12:27	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/11/2015 12:27	CH
Surr: 4-Bromofluorobenzene	90.1	70.6-123		%REC	202868	1	02/11/2015 12:27	CH
Surr: Dibromofluoromethane	108	78.7-124		%REC	202868	1	02/11/2015 12:27	CH
Surr: Toluene-d8	97	81.3-120		%REC	202868	1	02/11/2015 12:27	CH

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:** 12-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	TRIP BLANK
Project Name:	Corners Shopping Center	**Collection Date:**	2/6/2015
Lab ID:	1502650-012	**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	202868	1	02/09/2015 13:16	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 13:16	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/09/2015 13:16	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 13:16	CH
Tetrachloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 13:16	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 13:16	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 13:16	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/09/2015 13:16	CH
Surr: 4-Bromofluorobenzene	91	70.6-123		%REC	202868	1	02/09/2015 13:16	CH
Surr: Dibromofluoromethane	102	78.7-124		%REC	202868	1	02/09/2015 13:16	CH
Surr: Toluene-d8	96.8	81.3-120		%REC	202868	1	02/09/2015 13:16	CH

Qualifiers:

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

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Environ International Corp Work Order Number 1502660

Checklist completed by Tanya DeBos 2/6/2015
Signature Date

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

Shipping container/cooler in good condition?	Yes ✓	No __	Not Present __
Custody seals intact on shipping container/cooler?	Yes __	No __	Not Present ✓
Custody seals intact on sample bottles?	Yes __	No __	Not Present ✓
Container/Temp Blank temperature in compliance? (0°≤6°C)*	Yes ✓	No __	

Cooler #1 3.2°C Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present?	Yes ✓	No __
Chain of custody signed when relinquished and received?	Yes ✓	No __
Chain of custody agrees with sample labels?	Yes ✓	No __
Samples in proper container/bottle?	Yes ✓	No __
Sample containers intact?	Yes ✓	No __
Sufficient sample volume for indicated test?	Yes ✓	No __
All samples received within holding time?	Yes ✓	No __
Was TAT marked on the COC?	Yes ✓	No __
Proceed with Standard TAT as per project history?	Yes __	No __ Not Applicable ✓
Water - VOA vials have zero headspace?	No VOA vials submitted __	Yes ✓ No __
Water - pH acceptable upon receipt?	Yes ✓	No __ Not Applicable __

Adjusted? _____ Checked by _____

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: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1502650

ANALYTICAL QC SUMMARY REPORT

BatchID: 202868

Sample ID: **MB-202868** Client ID: Units: **ug/L** Prep Date: **02/09/2015** Run No: **285433**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **202868** Analysis Date: **02/09/2015** Seq No: **6055439**

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-Dichloroethane	BRL	5.0									
cis-1,2-Dichloroethene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
Trichloroethene	BRL	5.0									
Vinyl chloride	BRL	2.0									
Surr: 4-Bromofluorobenzene	48.29	0	50.00		96.6	70.6	123				
Surr: Dibromofluoromethane	52.38	0	50.00		105	78.7	124				
Surr: Toluene-d8	48.94	0	50.00		97.9	81.3	120				

Sample ID: **LCS-202868** Client ID: Units: **ug/L** Prep Date: **02/09/2015** Run No: **285433**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **202868** Analysis Date: **02/09/2015** Seq No: **6055438**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	67.83	5.0	50.00		136	64.2	137				
Trichloroethene	59.06	5.0	50.00		118	70.5	134				
Surr: 4-Bromofluorobenzene	47.85	0	50.00		95.7	70.6	123				
Surr: Dibromofluoromethane	49.21	0	50.00		98.4	78.7	124				
Surr: Toluene-d8	47.75	0	50.00		95.5	81.3	120				

Sample ID: **1502653-001AMS** Client ID: Units: **ug/L** Prep Date: **02/09/2015** Run No: **285433**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **202868** Analysis Date: **02/09/2015** Seq No: **6056668**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	78.34	5.0	50.00		157	60.5	156				S
Trichloroethene	62.78	5.0	50.00		126	71.8	139				

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: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1502650

ANALYTICAL QC SUMMARY REPORT

BatchID: 202868

Sample ID: **1502653-001AMS** Client ID: Units: **ug/L** Prep Date: **02/09/2015** Run No: **285433**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **202868** Analysis Date: **02/09/2015** Seq No: **6056668**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: 4-Bromofluorobenzene	45.98	0	50.00		92.0	70.6	123				
Surr: Dibromofluoromethane	50.97	0	50.00		102	78.7	124				
Surr: Toluene-d8	49.85	0	50.00		99.7	81.3	120				

Sample ID: **1502653-001AMSD** Client ID: Units: **ug/L** Prep Date: **02/09/2015** Run No: **285433**
SampleType: **MSD** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **202868** Analysis Date: **02/09/2015** Seq No: **6056671**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	67.94	5.0	50.00		136	60.5	156	78.34	14.2	20	
Trichloroethene	58.18	5.0	50.00		116	71.8	139	62.78	7.61	20	
Surr: 4-Bromofluorobenzene	45.76	0	50.00		91.5	70.6	123	45.98	0	0	
Surr: Dibromofluoromethane	49.89	0	50.00		99.8	78.7	124	50.97	0	0	
Surr: Toluene-d8	48.84	0	50.00		97.7	81.3	120	49.85	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		

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

February 10, 2015

Ken Nye
ENVIRON International Corp.
1600 Parkwood Circle
Atlanta GA 30339

TEL: (770) 874-5010
FAX: (770) 874-8011

RE: Corners Shopping Center

Dear Ken Nye: Order No: 1502653

Analytical Environmental Services, Inc. received 6 samples on 2/6/2015 4:25:00 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' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Tara Esbeck

Tara Esbeck
Project Manager

ANALYTICAL ENVIRONMENTAL SERVICES, INC

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

CHAIN OF CUSTODY

Work Order: 1502653

Date: 02/06/15 Page 1 of 1

COMPANY:	ADDRESS:
ENVIRON International Corp.	1600 Parkwood Circle Suite 310 Atlanta, GA 30339
PHONE: 770-874-5010	FAX: 770-874-5011
SAMPLED BY: Aaron Hottenstein	SIGNATURE: Aaron Hottenstein

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes) H+I	Chlorinated VOCs	REMARKS	No # of Containers
1	TW-01 20150204	02/04/15	1558	X		GW	X			2
2	TW-02 20150204	02/04/15	1545	X		GW	X			2
3	TW-03 20150204	02/04/15	1702	X		GW	X			2
4	TW-04 20150204	02/04/15	1720	X		GW	X			2
5	TW-05 20150205	02/05/15	0950	X		GW	X			2
6	Trip Blank	—	—			W	X		TB (2 vials total in cooler) on other COC too	2
7										
8										
9										
10										
11										
12										
13										
14										

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

ANALYSIS REQUESTED

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1: Aaron Hottenstein	02/06/15 1550	1:	2-6-15 1550
2:	2-6-15 1655	2: Tanya Tidwell	2/6/15 1625PM
3:		3:	

PROJECT INFORMATION

PROJECT NAME: Corners Shopping Center
PROJECT #: 07-35252C
SITE ADDRESS: Marietta, GA
SEND REPORT TO: knye@environcorp.com
INVOICE TO: (IF DIFFERENT FROM ABOVE)
QUOTE #: PO#:

RECEIPT

Total # of Containers: 12

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

SPECIAL INSTRUCTIONS/COMMENTS:

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

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

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

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

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc **Date:** 10-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	TW-01 20150204
Project Name:	Corners Shopping Center	**Collection Date:**	2/4/2015 3:58:00 PM
Lab ID:	1502653-001	**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	202868	1	02/09/2015 15:41	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 15:41	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/09/2015 15:41	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 15:41	CH
Tetrachloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 15:41	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 15:41	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 15:41	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/09/2015 15:41	CH
Surr: 4-Bromofluorobenzene	94	70.6-123		%REC	202868	1	02/09/2015 15:41	CH
Surr: Dibromofluoromethane	101	78.7-124		%REC	202868	1	02/09/2015 15:41	CH
Surr: Toluene-d8	97.3	81.3-120		%REC	202868	1	02/09/2015 15:41	CH

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:** 10-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	TW-02 20150204
Project Name:	Corners Shopping Center	**Collection Date:**	2/4/2015 3:45:00 PM
Lab ID:	1502653-002	**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	202868	1	02/09/2015 16:53	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 16:53	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/09/2015 16:53	CH
cis-1,2-Dichloroethene	5.5	5.0		ug/L	202868	1	02/09/2015 16:53	CH
Tetrachloroethene	210	50		ug/L	202868	10	02/10/2015 14:28	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 16:53	CH
Trichloroethene	20	5.0		ug/L	202868	1	02/09/2015 16:53	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/09/2015 16:53	CH
Surr: 4-Bromofluorobenzene	88.9	70.6-123		%REC	202868	1	02/09/2015 16:53	CH
Surr: 4-Bromofluorobenzene	110	70.6-123		%REC	202868	10	02/10/2015 14:28	CH
Surr: Dibromofluoromethane	99	78.7-124		%REC	202868	10	02/10/2015 14:28	CH
Surr: Dibromofluoromethane	106	78.7-124		%REC	202868	1	02/09/2015 16:53	CH
Surr: Toluene-d8	95.1	81.3-120		%REC	202868	10	02/10/2015 14:28	CH
Surr: Toluene-d8	99.2	81.3-120		%REC	202868	1	02/09/2015 16:53	CH

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:** 10-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	TW-03 20150204
Project Name:	Corners Shopping Center	**Collection Date:**	2/4/2015 5:02:00 PM
Lab ID:	1502653-003	**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	202868	1	02/10/2015 14:52	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/10/2015 14:52	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/10/2015 14:52	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/10/2015 14:52	CH
Tetrachloroethene	5.0	5.0		ug/L	202868	1	02/10/2015 14:52	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/10/2015 14:52	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/10/2015 14:52	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/10/2015 14:52	CH
Surr: 4-Bromofluorobenzene	95.3	70.6-123		%REC	202868	1	02/10/2015 14:52	CH
Surr: Dibromofluoromethane	108	78.7-124		%REC	202868	1	02/10/2015 14:52	CH
Surr: Toluene-d8	102	81.3-120		%REC	202868	1	02/10/2015 14:52	CH

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:** 10-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	TW-04 20150204
Project Name:	Corners Shopping Center	**Collection Date:**	2/4/2015 5:20:00 PM
Lab ID:	1502653-004	**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	202868	1	02/09/2015 17:47	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 17:47	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/09/2015 17:47	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 17:47	CH
Tetrachloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 17:47	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 17:47	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 17:47	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/09/2015 17:47	CH
Surr: 4-Bromofluorobenzene	91	70.6-123		%REC	202868	1	02/09/2015 17:47	CH
Surr: Dibromofluoromethane	109	78.7-124		%REC	202868	1	02/09/2015 17:47	CH
Surr: Toluene-d8	101	81.3-120		%REC	202868	1	02/09/2015 17:47	CH

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:** 10-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	TW-05 20150205
Project Name:	Corners Shopping Center	**Collection Date:**	2/5/2015 9:50:00 AM
Lab ID:	1502653-005	**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	202868	1	02/09/2015 18:13	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 18:13	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/09/2015 18:13	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 18:13	CH
Tetrachloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 18:13	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 18:13	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 18:13	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/09/2015 18:13	CH
Surr: 4-Bromofluorobenzene	90	70.6-123		%REC	202868	1	02/09/2015 18:13	CH
Surr: Dibromofluoromethane	109	78.7-124		%REC	202868	1	02/09/2015 18:13	CH
Surr: Toluene-d8	105	81.3-120		%REC	202868	1	02/09/2015 18:13	CH

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:** 10-Feb-15

Client:	ENVIRON International Corp.	**Client Sample ID:**	TRIP BLANK
Project Name:	Corners Shopping Center	**Collection Date:**	2/6/2015
Lab ID:	1502653-006	**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	202868	1	02/09/2015 12:52	CH
1,1-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 12:52	CH
1,2-Dichloroethane	BRL	5.0		ug/L	202868	1	02/09/2015 12:52	CH
cis-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 12:52	CH
Tetrachloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 12:52	CH
trans-1,2-Dichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 12:52	CH
Trichloroethene	BRL	5.0		ug/L	202868	1	02/09/2015 12:52	CH
Vinyl chloride	BRL	2.0		ug/L	202868	1	02/09/2015 12:52	CH
Surr: 4-Bromofluorobenzene	90.2	70.6-123		%REC	202868	1	02/09/2015 12:52	CH
Surr: Dibromofluoromethane	106	78.7-124		%REC	202868	1	02/09/2015 12:52	CH
Surr: Toluene-d8	98.2	81.3-120		%REC	202868	1	02/09/2015 12:52	CH

Qualifiers:

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

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Environ International Corp Work Order Number 1502653

Checklist completed by [signature] 2/7/15
Signature Date

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

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

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

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

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

Cooler #1 3.2°C Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

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

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

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

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

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

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

Adjusted? _____ Checked by _____

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: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1502653

ANALYTICAL QC SUMMARY REPORT

BatchID: 202868

Sample ID: **MB-202868** Client ID: Units: **ug/L** Prep Date: **02/09/2015** Run No: **285433**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **202868** Analysis Date: **02/09/2015** Seq No: **6055439**

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-Dichloroethane	BRL	5.0									
cis-1,2-Dichloroethene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
Trichloroethene	BRL	5.0									
Vinyl chloride	BRL	2.0									
Surr: 4-Bromofluorobenzene	48.29	0	50.00		96.6	70.6	123				
Surr: Dibromofluoromethane	52.38	0	50.00		105	78.7	124				
Surr: Toluene-d8	48.94	0	50.00		97.9	81.3	120				

Sample ID: **LCS-202868** Client ID: Units: **ug/L** Prep Date: **02/09/2015** Run No: **285433**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **202868** Analysis Date: **02/09/2015** Seq No: **6055438**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	67.83	5.0	50.00		136	64.2	137				
Trichloroethene	59.06	5.0	50.00		118	70.5	134				
Surr: 4-Bromofluorobenzene	47.85	0	50.00		95.7	70.6	123				
Surr: Dibromofluoromethane	49.21	0	50.00		98.4	78.7	124				
Surr: Toluene-d8	47.75	0	50.00		95.5	81.3	120				

Sample ID: **1502653-001AMS** Client ID: **TW-01 20150204** Units: **ug/L** Prep Date: **02/09/2015** Run No: **285433**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260B** BatchID: **202868** Analysis Date: **02/09/2015** Seq No: **6056668**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	78.34	5.0	50.00		157	60.5	156				S
Trichloroethene	62.78	5.0	50.00		126	71.8	139				

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: ENVIRON International Corp.
Project Name: Corners Shopping Center
Workorder: 1502653

ANALYTICAL QC SUMMARY REPORT

BatchID: 202868

Sample ID: **1502653-001AMS**	Client ID: **TW-01 20150204**	Units: **ug/L**	Prep Date: **02/09/2015**	Run No: **285433**
SampleType: **MS**	TestCode: **TCL VOLATILE ORGANICS SW8260B**	BatchID: **202868**	Analysis Date: **02/09/2015**	Seq No: **6056668**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: 4-Bromofluorobenzene	45.98	0	50.00		92.0	70.6	123				
Surr: Dibromofluoromethane	50.97	0	50.00		102	78.7	124				
Surr: Toluene-d8	49.85	0	50.00		99.7	81.3	120				

Sample ID: **1502653-001AMSD**	Client ID: **TW-01 20150204**	Units: **ug/L**	Prep Date: **02/09/2015**	Run No: **285433**
SampleType: **MSD**	TestCode: **TCL VOLATILE ORGANICS SW8260B**	BatchID: **202868**	Analysis Date: **02/09/2015**	Seq No: **6056671**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	67.94	5.0	50.00		136	60.5	156	78.34	14.2	20	
Trichloroethene	58.18	5.0	50.00		116	71.8	139	62.78	7.61	20	
Surr: 4-Bromofluorobenzene	45.76	0	50.00		91.5	70.6	123	45.98	0	0	
Surr: Dibromofluoromethane	49.89	0	50.00		99.8	78.7	124	50.97	0	0	
Surr: Toluene-d8	48.84	0	50.00		97.7	81.3	120	49.85	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

Groundwater Model

BIOCHLOR Simulation Report for PCE Fate and Transport

Corners Shopping Center

Marietta, Georgia

1. Simulation Tool

BIOCHLOR is a screening tool developed based on the Domenico analytical solute transport model with the ability to simulate contaminant transport with one-dimensional advection, three-dimensional dispersion, linear adsorption, and sequential biodegradation (Aziz et al, 2000). The advantage of BIOCHLOR over other screening models, and other analytic solutions, is that it can simulate sequential decay processes. This report documents the simulation of fate and transport of chlorinated VOCs (CVOCs) at the Corners Shopping Center (Corners) site using BIOCHLOR.

2. Assumptions and Input Parameter Values

2.1 Source Determination

According to the site history in the Voluntary Investigation and Remediation Plan and Application ("VIRPA"; Ramboll Environ, 2015), a dry cleaner business was in operation at the site between 1978 and 1994, during which releases of dry cleaning chemicals were documented to have occurred from storage tank overfills and equipment leaks. In addition, a PCE spill was reported in 1984 due to a ruptured line/hose.

Following site investigations started in 1993, several rounds of groundwater remediation activities were conducted at the site, including (1) a groundwater pump and treat system in operation from 1997 to last quarter of 2005; (2) implementation of Accelerated Remediation Technology (ART) from end of 2005; and (3) ISCO conducted in December 2010, July 2011, February 2012, and possibly late 2013 or early 2014.

Due to the several rounds of remediation activities historically conducted at the site, the current contaminant concentration distribution at the site doesn't reflect the release history for the site. As shown in Figure 5 of the VIRPA, the most recent round of groundwater samples collected from the permanent wells at the site in February 2015 indicated three discrete locations where elevated concentrations are present: DVEW-7, MW-17, and MW-19[1]. Therefore, fate and transport simulations were conducted regarding each one of the three locations.

[1] The analytical results from temporary wells were not included in this analysis since permanent groundwater monitoring wells are known to be more representative of groundwater conditions.

2.2 BIOCHLOR Input Parameters

Input parameters for BIOCHLOR are grouped into six categories: (1) advection; (2) dispersion; (3) adsorption; (4) biotransformation; (5) general; and (6) source data. The input parameter values used in this study are discussed below as they are categorized.

2.2.1 Advection

Hydraulic Conductivity

Slug tests were conducted during April and August 1995 to evaluate the hydraulic conductivities at the site (Law, 1999). The slug test results are summarized in Table 1. As shown in the table, the calculated hydraulic conductivity values vary between 7.47^{-6} cm/s to 2.14^{-3} cm/s, with a geometric mean of 9.10^{-3} cm/s and an arithmetic mean of 4.29^{-4} cm/s. These values in general agree with the site geology description of sandy silt and silty fine to medium sand. For BIOCHLOR simulations documented in this study, a conservative hydraulic conductivity value of 4.29^{-4} cm/s (i.e., the arithmetic mean) was used instead of the geometric mean (i.e., 9.10^{-3} cm/s), which is about one order of magnitude lower.

Table 1. Summary of Slug Test Results

Test Well	Test Method	Test Date	Hydraulic Conductivity	
			(cm/s)	(ft/day)
MW-1	Rising Head	4/14/1995	2.14E-03	6.06
MW-1	Falling Head	4/14/1995	1.48E-03	4.19
MW-1A	Falling Head	4/14/1995	6.64E-04	1.88
MW-1A	Rising Head	4/14/1995	6.19E-04	1.75
MW-6	Falling Head	4/14/1995	1.61E-05	0.05
MW-6	Rising Head	4/14/1995	7.47E-06	0.02
MW-11	Falling Head	8/10/1995	5.58E-05	0.16
MW-11	Rising Head	8/10/1995	2.77E-05	0.08
MW-12	Rising Head	8/10/1995	6.26E-05	0.18
MW-12	Falling Head	8/10/1995	2.10E-05	0.06
MW-13	Falling Head	8/10/1995	3.03E-05	0.09
MW-13	Rising Head	8/10/1995	3.35E-05	0.09
Arithmetic Mean			4.29E-04	1.22
Geometric Mean			9.10E-05	0.26

Hydraulic Gradient

As shown in Figures 3 and 4 of VIRPA, the groundwater flow direction at the site is generally to the north. Hydraulic gradient at the site was determined based on groundwater elevations measured during July 2014 and February 2015. As shown in Table 2, the

hydraulic gradient within each triangular area determined by three monitoring well locations was computed first. Hydraulic gradient at the site was then estimated as the average of these values (i.e., 0.02 ft/ft).

Table 2. Evaluation of Hydraulic Gradient at the Site

Well 1	Well 2	Well 3	Hydraulic Gradient
MW-10	MW-19	MW-20	0.023
MW-18	MW-19	MW-20	0.015
MW-10	MW-21	MW-28	0.020
MW-10	MW-27	MW-28	0.021
MW-11	MW-14	MW-18	0.024
MW-11	MW-14	MW-6	0.018
MW-11	MW-18	MW-20	0.022
MW-12	MW-19	MW-20	0.017
MW-12	MW-21	MW-28	0.022
MW-12	MW-27	MW-28	0.023
Average			0.020

Effective Porosity

As described in *Ground-Water Hydrology and Hydraulic* (McWorter and Sunada, 1977), arithmetic mean of effective porosity is 0.33 for fine sand and 0.20 for silt. Considering that site soil consists of sandy silt and silty fine sand, a conservative effective porosity value of 0.20 was applied in the BIOCHLOR simulations discussed herein.

2.2.2 Dispersion

Longitudinal Dispersivity (α_x)

The longitudinal dispersivity value was calculated based on the modified Xu and Eckstein equation as provided in BIOCHLOR:

$$\alpha_x = 0.82 \times 3.28 \times (\log \frac{L_p}{3.28})^{2.446}$$

where L_p is the estimated plume length in unit of foot. The longitudinal dispersivity values were computed for the three source locations, respectively: 24.9 feet for DVEW-7 based on an assumed plume length of 1000 feet, and 18.2 feet for MW-17 and MW-19 based on an assumed plume length of 500 feet.

Transverse Dispersivity (α_y)

The transverse dispersivity was assumed to be 1/10 of the longitudinal dispersivity.

Vertical Dispersivity (α_z)

The BIOCHLOR simulations in this study assume a two-dimensional model domain so that dilution due to vertical dispersion in the plume is ignored. This is a conservative assumption since in reality dilution due to vertical dispersion would occur. Accordingly, the vertical dispersivity was assumed to be 1^{-99} of longitudinal dispersivity.

2.2.3 Adsorption

Soil Bulk Density

A soil bulk density of 1.75 kg/L was applied in the BIOCHLOR simulations, which is a common value for geology at the site.

Fraction Organic Carbon

For the simulation, a fraction organic carbon of 0.002 was applied.

Partition Coefficient

A PCE partition coefficient of 156 L/kg was adopted from the Soil Screening Guidance (USEPA, 1996).

2.2.4 Biotransformation

First Order Decay Coefficient

Comparison of groundwater sampling results from May and July 2014 to those from February 2015 shows that there is an overall decreasing trend in the PCE concentration. PCE first-order decay coefficients were calculated for various sampling locations, as listed in Table 3. The decay rates vary from 0.486/year to 2.986/year. Considering the effect of ongoing oxidation from historical ISCO events on site, a first order decay rate of 0.486/year was used in the simulations with the following considerations:

(1) the rate of 0.486/year falls between the upper and lower bounds of literature values (i.e., 0.347/year to 0.693/year; Howard et al., 1991) and is biased to the lower end;
(2) the decay rate was derived from the most recent rounds of groundwater sampling and therefore it can represent the current site condition; and
(3) the decay rate is the lowest among all the calculated values and will yield a conservative estimate of the PCE plumes at the site.

The impact of first order decay coefficient variation on simulation results was further evaluated during the sensitivity analysis discussed later in this report.

Table 3. Calculated PCE First Order Decay Rates at Various Sampling Locations

Well	Date of Sampling	PCE Concentration (ppb)	Date of Sampling	PCE Concentration (ppb)	Calculated Decay Rate (1/day)	Calculated Decay Rate (1/year)
MW-17	7/9/2014	70	2/3/2015	53	0.0013	0.486
GRW-5	5/27/2014	29	2/5/2015	6.1	0.0061	2.240
DVEW-6	5/27/2014	110	2/3/2015	14	0.0082	2.986
DVEW-7	5/27/2014	630	2/2/2015	250	0.0037	1.344
DVEW-8	7/9/2014	7.8	2/3/2015	5.6	0.0016	0.579
ART-2	5/26/2014	45	2/5/2015	7.7	0.0069	2.527

2.2.5 General

Simulation Time

To make sure the simulated timeframe spans from the assumed time of release (i.e., 2014/ 2015 for simulation purpose only) to at least 30 years into the future from the current year, a 35-year simulation time was applied in the BIOCHLOR model.

Modeled Area Width

A modeled area width of 100 feet was applied in the BIOCHLOR simulations.

Modeled Area Length

Modeled area length in the BIOCHLOR model varies with different source locations. The lengths were adjusted during the simulation to make sure that (1) the modeled length can cover the point of exposure (POE) associated with each individual source; and (2) the length can cover the portion of plume exceeding the Type 2 RRS (i.e., 19 µg/L). Accordingly, the modeled area length was set to 1000 feet for source location DVEW-7, and 250 feet for source locations MW-17 and MW-19.

2.2.6 Source Data

Source Type

For the simulation, decaying PCE sources were assumed. Given all the other parameter values used in the simulation, a maximum source decay rate of 0.099/year was used for the case of DVEW-7, which is much smaller than the 0.486/year decay rate in aqueous phase. Such a decay rate will provide a conservative estimate of the PCE concentration at the source locations. Therefore, a source decay rate of 0.099/year was applied in all the simulations.

Source Thickness in Saturated Zone

Bedrock was encountered at depths ranging from 29 to 68 feet below ground surface at the site. Depth to water varied between 3.5 to 20 feet. For the BIOCHLOR simulations, source thickness in saturated zone was set to 60 feet. Note that the models conservatively assume no vertical dispersion during the transport and therefore the source thickness in saturated zone has no impact to simulation result.

Source Width

Source width in the BIOCHLOR model was determined based on groundwater sampling results from the 2014 and 2015 sampling events, and was set to 50 feet for all the three source locations.

Source Concentration

Source concentration the BIOCHLOR simulations were determined based on highest concentrations detected in the three source locations from the 2014 and 2015 sampling events as shown in Table 4. As discussed in Section 2.1, due to various rounds of remediation activities conducted at the site, current contaminant concentration distribution at the site doesn't behave as if it was caused by release from a single source location. To simulate the impact from the current hot spots, the times associated with these highest concentrations were assumed to be the source release dates in the BIOCHLOR model, which is for simulation purpose only.

Table 4. Source Concentration and Assumed Source Release Date

Source Location	Source Concentration (ug/L)	Assumed Source Release Date
DVEW-7	630	May 2014
MW-17	70	July 2014
MW-19	69	February 2015

All the input parameters discussed above are summarized in Table 5.

3. BIOCHLOR Simulation Results and Discussion

BIOCHLOR simulations were conducted for all three hot spots: DVEW-7, MW-17, and MW-19 by using the parameter values discussed above. The BIOCHLOR input data sheets are shown in Figures 1A, 2A, and 3A, respectively.

For each of the contaminant sources, model output graphs from years 5, 10, 15, 20, 25, 30, and 35 are included in this appendix (see Figures 1B-1H for DVEW-7, Figures 2B-2H for MW-17, and Figures 3B-3H for MW-19). In addition, a summary graph comparing all the simulation results to the Type 2 RRS is plotted for each individual source location (see Figure 1I for DVEW-7, Figure 2I for MW-17, and Figure 3I for MW-19).

According to the simulation results shown in these figures, maximum extents of PCE plumes exceeding the Type 2 RRS are less than 300 feet, 75 feet, and 75 feet, respectively, for sources at DVEW-7, MW-17, and MW-19. Distances to downgradient POEs are about 750 feet for DVEW-7, 15 feet for MW-17, and 50 feet for MW-19 (see Figure 5 of VIRPA). Therefore, PCE from DVEW-7 will never cause an exceedance of Type 2 RRS at its POE. PCE concentrations at POEs of MW-17 and MW-19 will drop below Type 2 RRS in less than 15 years from the assumed initial release dates (i.e., 2014 for MW-17 and 2015 for MW-19). A summary of these results is shown in Table 6.

Table 6. Summary of BIOCHLOR Simulation Results

Source Location	DVEW-7	MW-17	MW-19
Distance to downgradient POE (ft)	750	15	50
Maximum plume length exceeding Type 2 RRS (ft)	<300	<75	<75
Time to reach compliance at POE (year)	0	<15	<15

4. Model Calibration and Sensitivity Analysis

As discussed in Section 2.1, there is a long PCE release history as the site – a PCE spill was reported for the site in 1984. Historically, several rounds of groundwater remediation activities were conducted from 1997 to as late as early 2014. All these facts determined that the current contaminant plume at the site doesn't behave as a plume originated from a single source location. Therefore, historical sampling results at the site couldn't support a valid BIOCHLOR model calibration.

To evaluate the impact of PCE decay rate on the BIOCHLOR simulation results, sensitivity analyses were conducted for all the three hot spots. For the sensitivity analyses, the aqueous phase PCE decay rate was deceased by half to 0.243/year. This decay rate is below the lower end of literature values (i.e., 0.347/year; Howard et al., 1991) and is therefore a very conservative one. Model input and output graphs from the sensitivity analyses are shown in Figures 4A-4I, 5A-5I, and 6A-6I, in the same manner as those from the original simulation runs.

Simulation results from the sensitivity analyses are compared to the original ones and summarized in Table 7. As shown in the table, the maximum plume length exceeding Type 2 RRS is increased for each source location. However, the time to reach compliance at POE remains unchanged: PCE concentration will never exceed Type 2 RRS at POE of DVEW-7, and will drop below Type 2 RRS within 15 years from the initial release for MW-17 and MW-19.

Table 7. Sensitivity Analysis of BIOCHLOR Simulation Results

Source Location	Decay Rate	DVEW-7	MW-17	MW-19
Maximum plume length exceeding Type 2 RRS (ft)	0.486/year	<300	<75	<75
	0.243/year	<400	<100	<100
Time to reach compliance at POE (year)	0.486/year	0	<15	<15
	0.243/year	0	<15	<15

5. Summary and Conclusion

In this report, the PCE concentration distribution at the site is studied by using BIOCHLOR simulations. For maximum protection, parameter values used in the simulations were selected conservatively. Sensitivity analyses were also conducted to evaluate the impact of PCE decay rate in aqueous phase. According to the simulation results, the maximum length of PCE plume migrating from DVEW-7 is less than 300 feet and will not cause exceedance of Type 2 RRS at the downgradient POE. The maximum PCE plume lengths for MW-17 and MW-19 are less than 75 feet. PCE concentrations at POEs of these two hot spots will drop back to compliance in less than 15 years from the assumed initial release date (i.e., before 2029 for MW-17 and 2030 for MW-19).

6. References

Aziz, C.E., C.J. Newell, J.R. Gonzales, P. Haas, T.P. Clement, and Y. Sun. 2000. BIOCHLOR Natural Attenuation Decision Support System User's Manual. USEPA Office of Research and Development.

Howard et al.. 1991. Handbook of Environmental Degradation Rates. Lewis Publishers.

McWhorter. D.B. and D.K. Sunada. 1977. Ground-Water Hydrology and Hydraulics. Water Resources Publications, Colorado.

Law Engineering and Environmental Services, Inc. 1999. Compliance Status Report. January 1999.

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USEPA. 1996. Soil Screening Guidance: Technical Background Document and User Guide. Office of Emergency and Remedial Response. EPA/540/R-95/128. May.

Figure 1A. Simulation Input for Source at DVEW-7

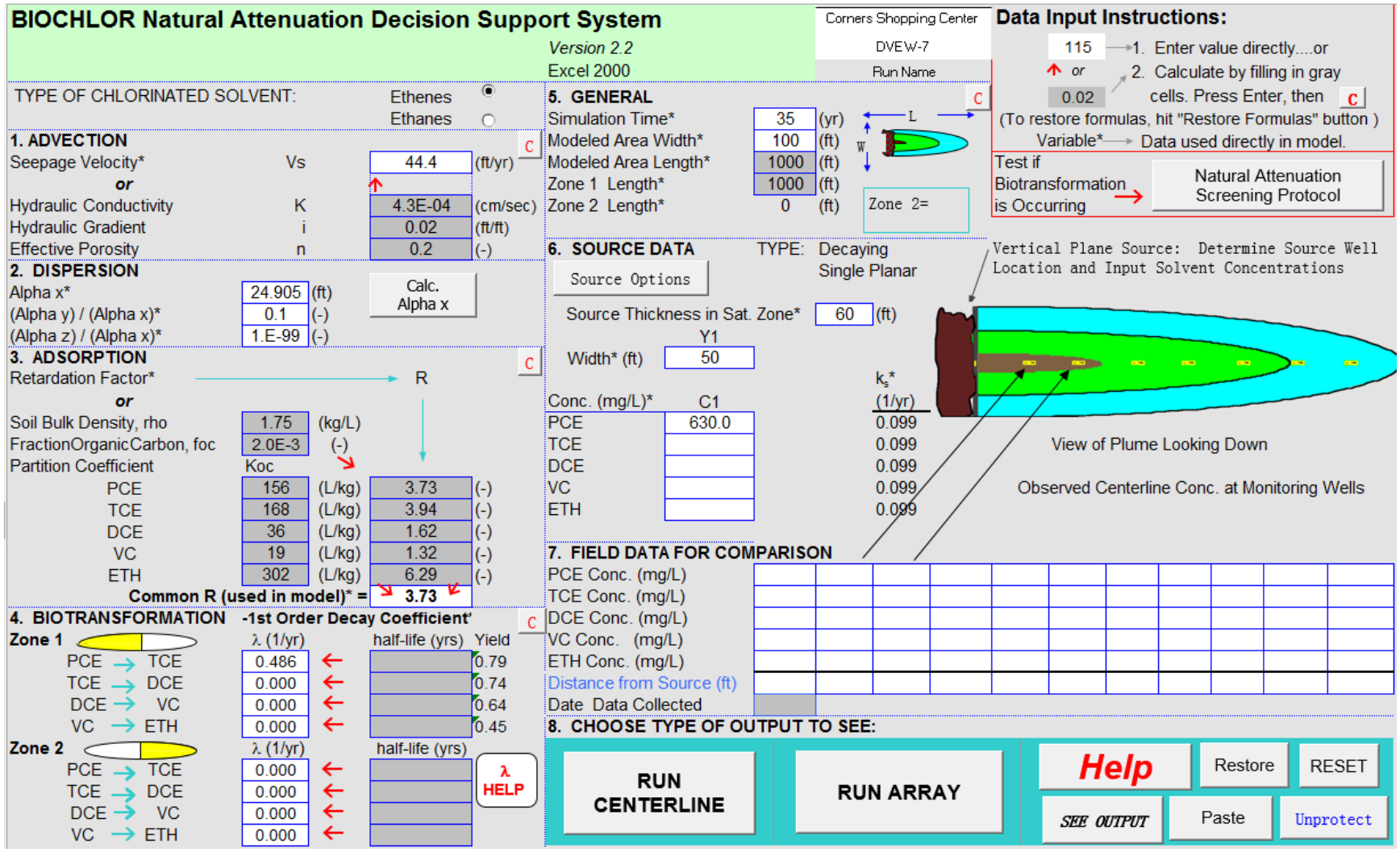


Figure 1B. Simulation Results for Source at DVEW-7 – 5 Years

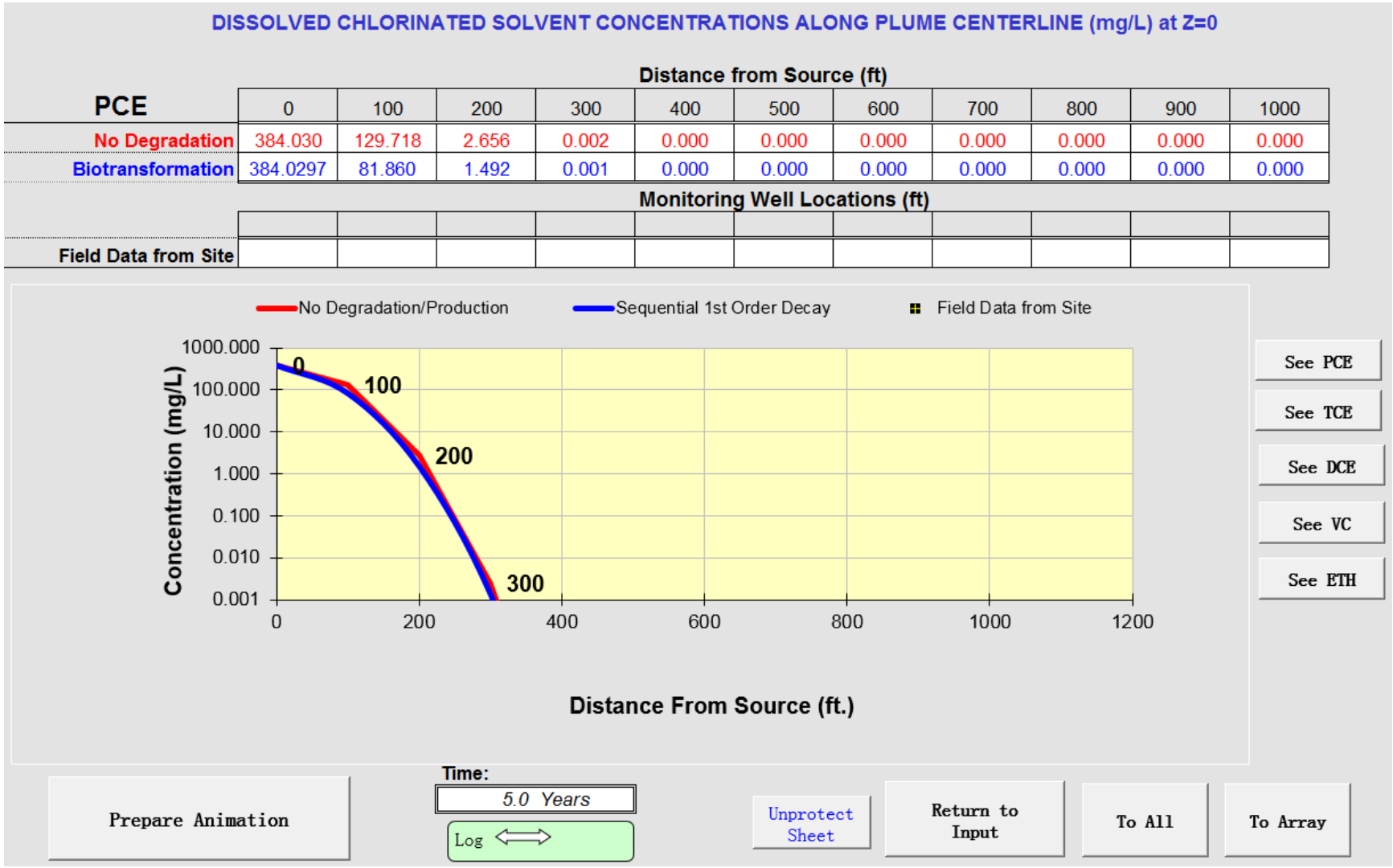


Figure 1C. Simulation Results for Source at DVEW-7 – 10 Years

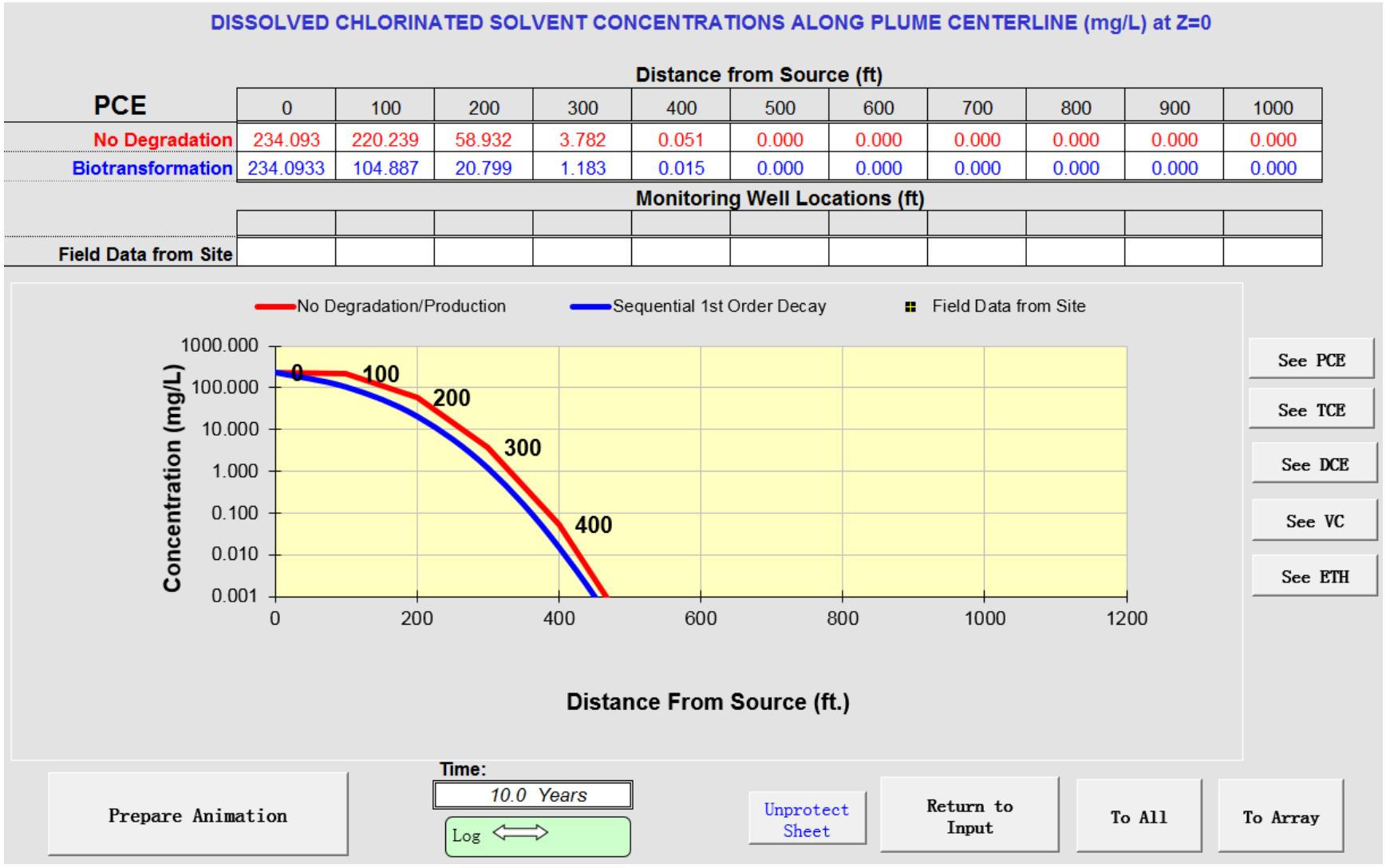


Figure 1D. Simulation Results for Source at DVEW-7 – 15 Years

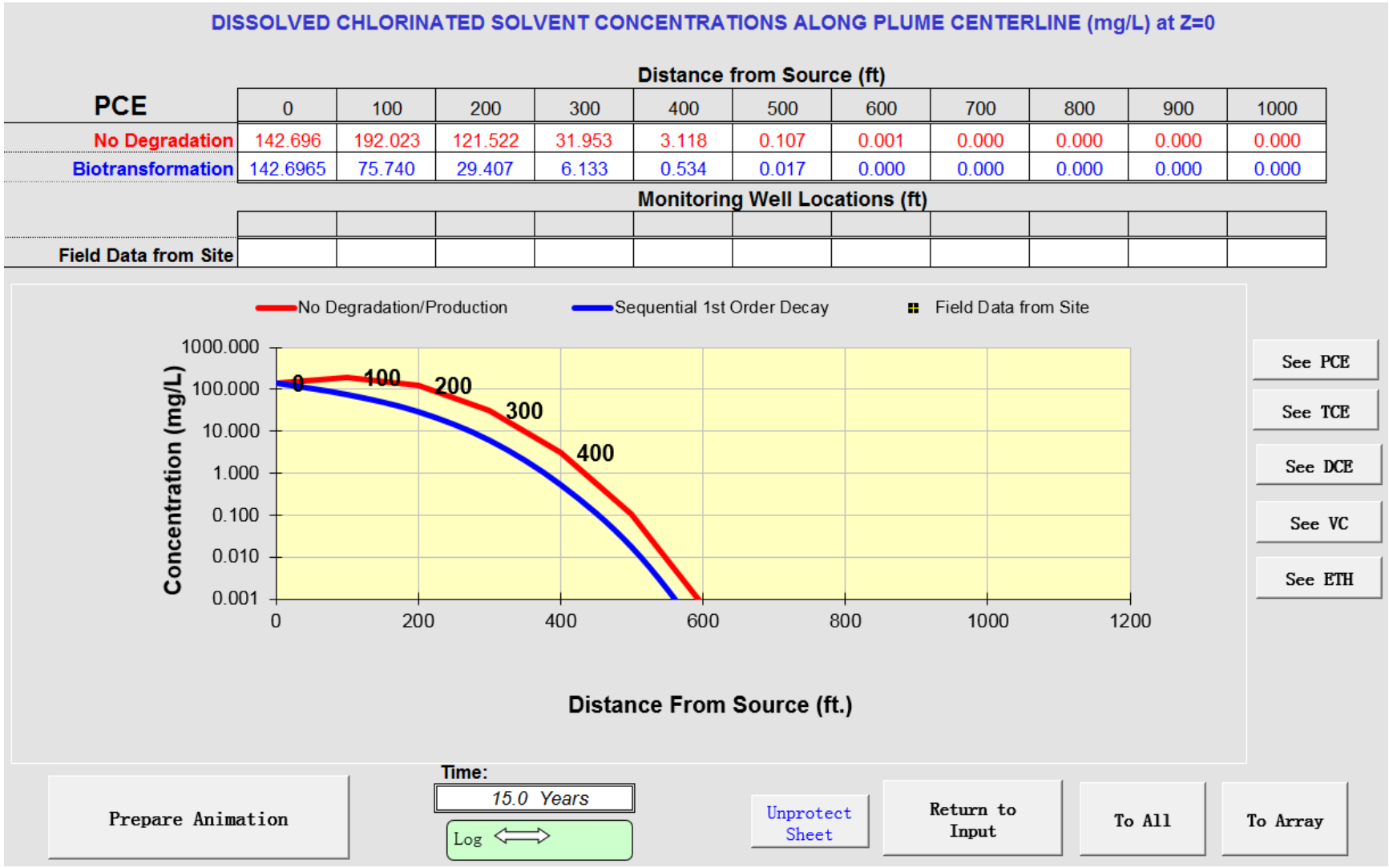


Figure 1E. Simulation Results for Source at DVEW-7 – 20 Years

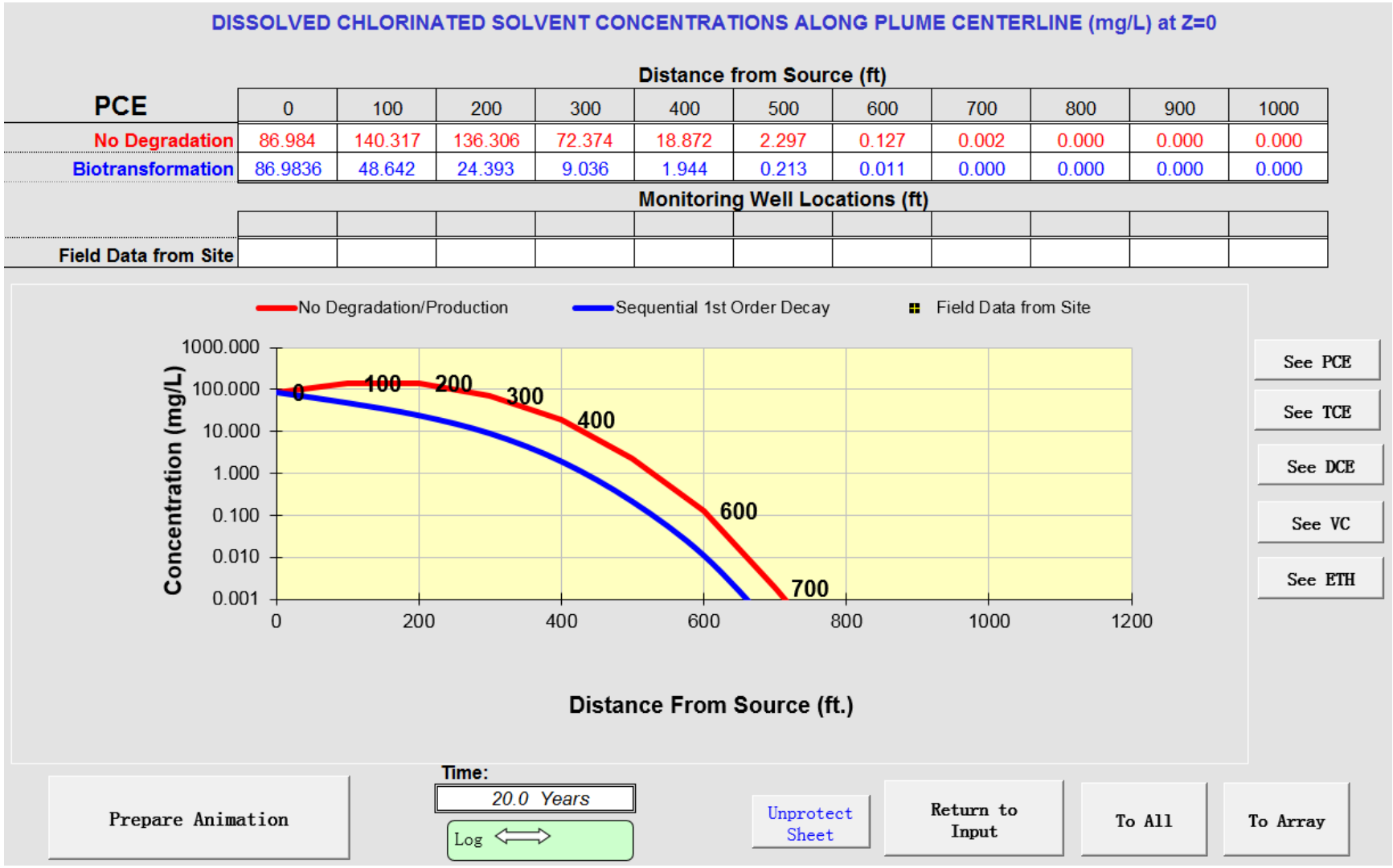


Figure 1F. Simulation Results for Source at DVEW-7 – 25 Years

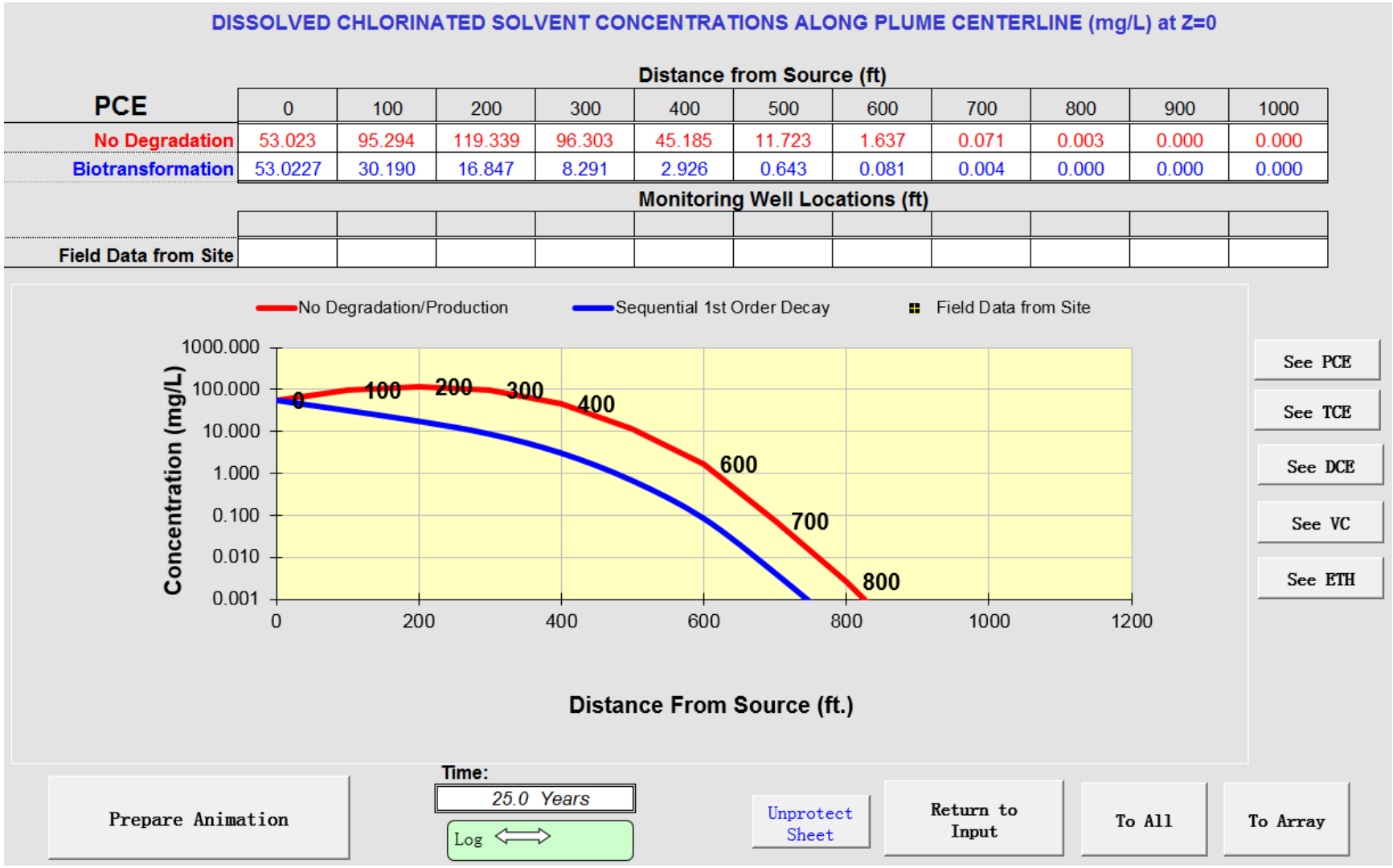


Figure 1G. Simulation Results for Source at DVEW-7 – 30 Years

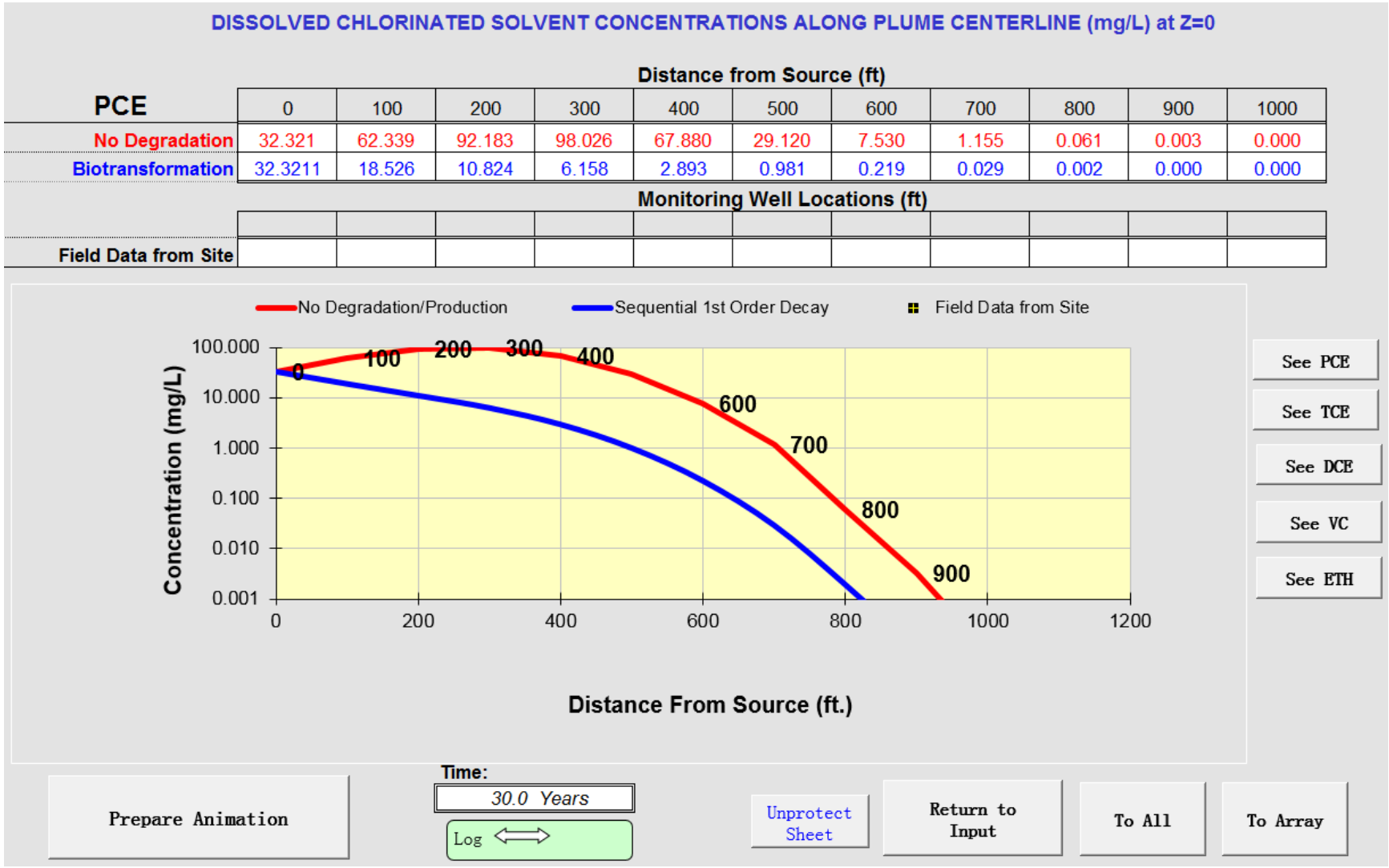


Figure 1H. Simulation Results for Source at DVEW-7 – 35 Years

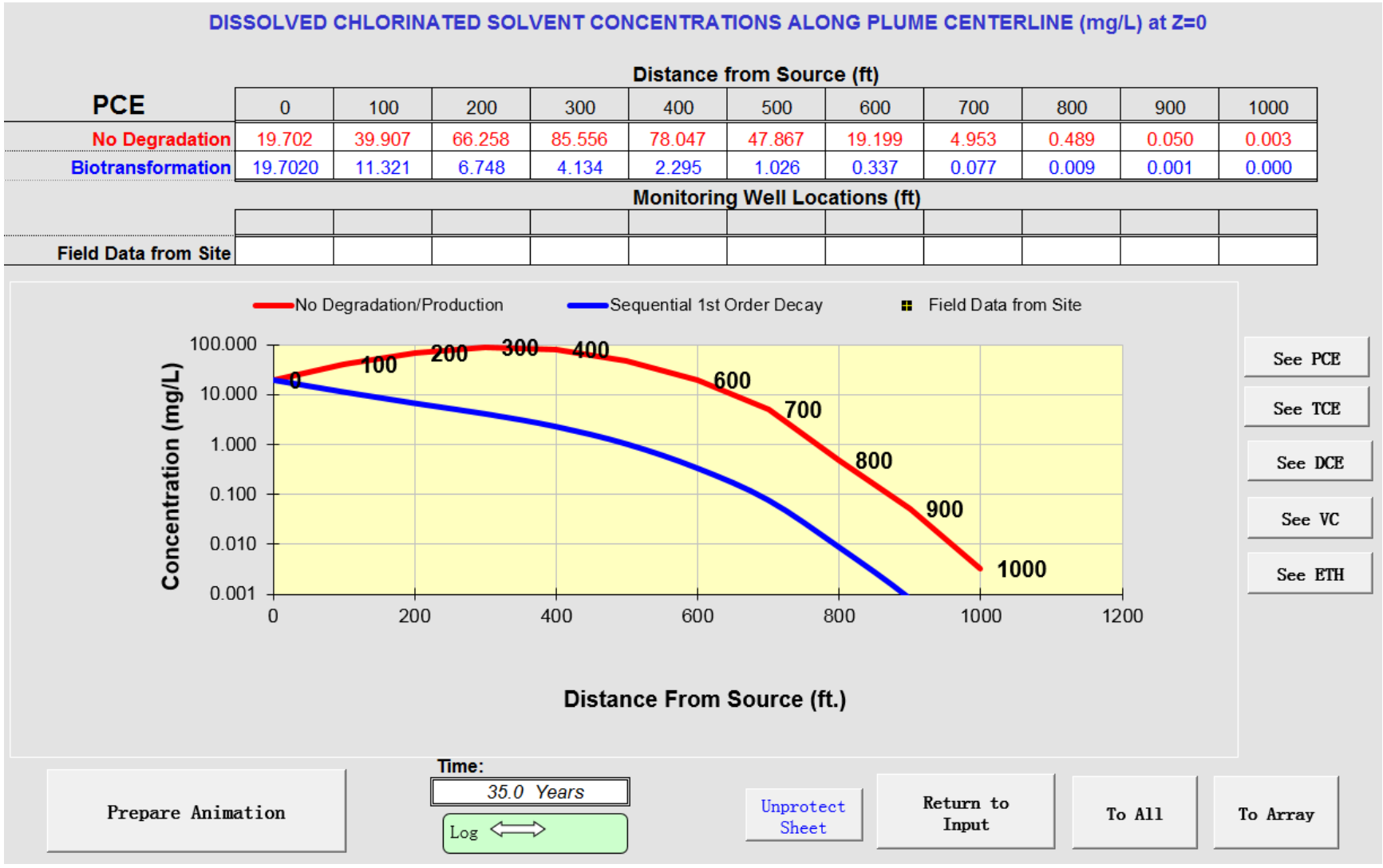


Figure 1I. Simulation Results for Source at DVEW-7 – Summary

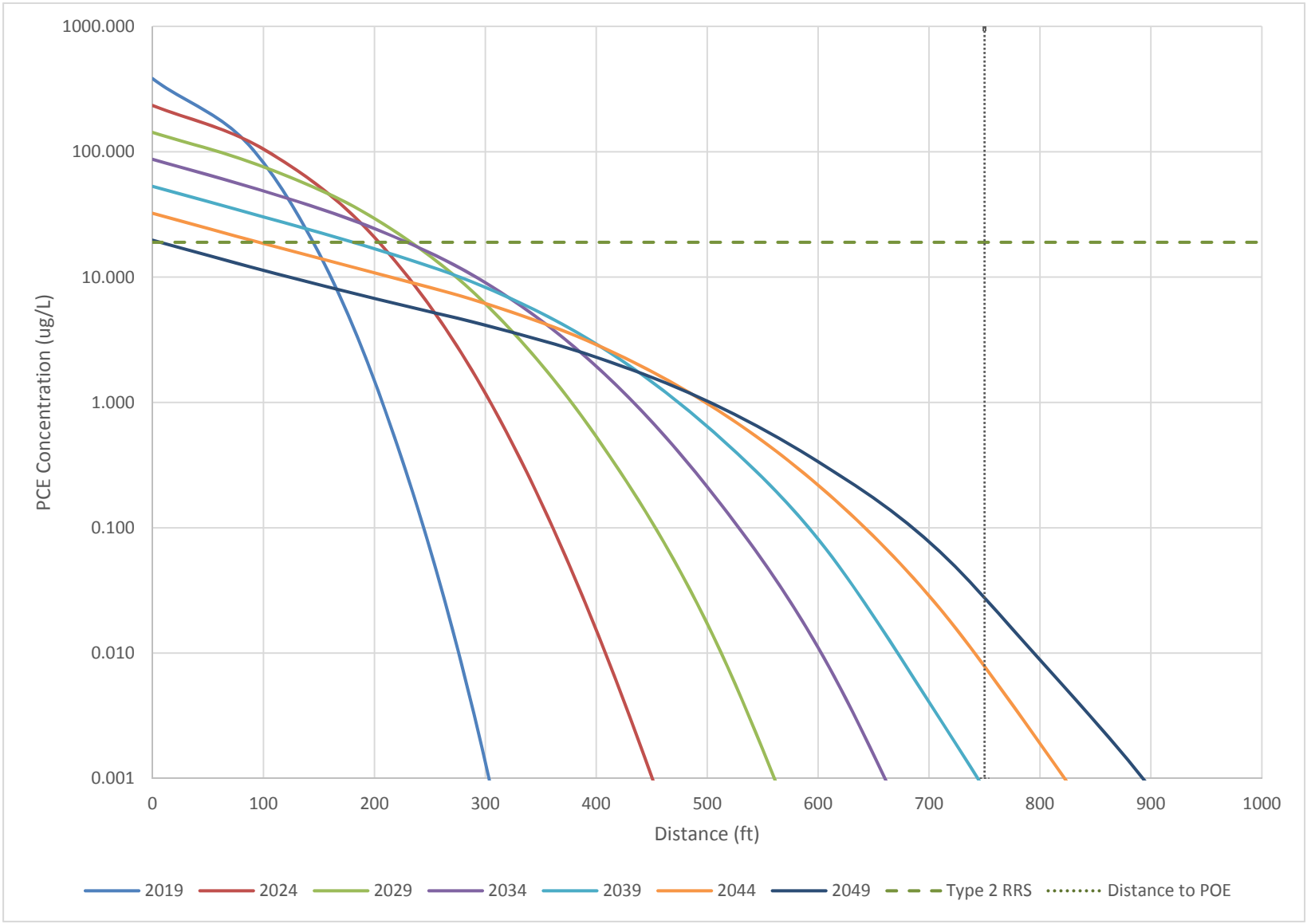


Figure 2A. Simulation Input for Source at MW-17

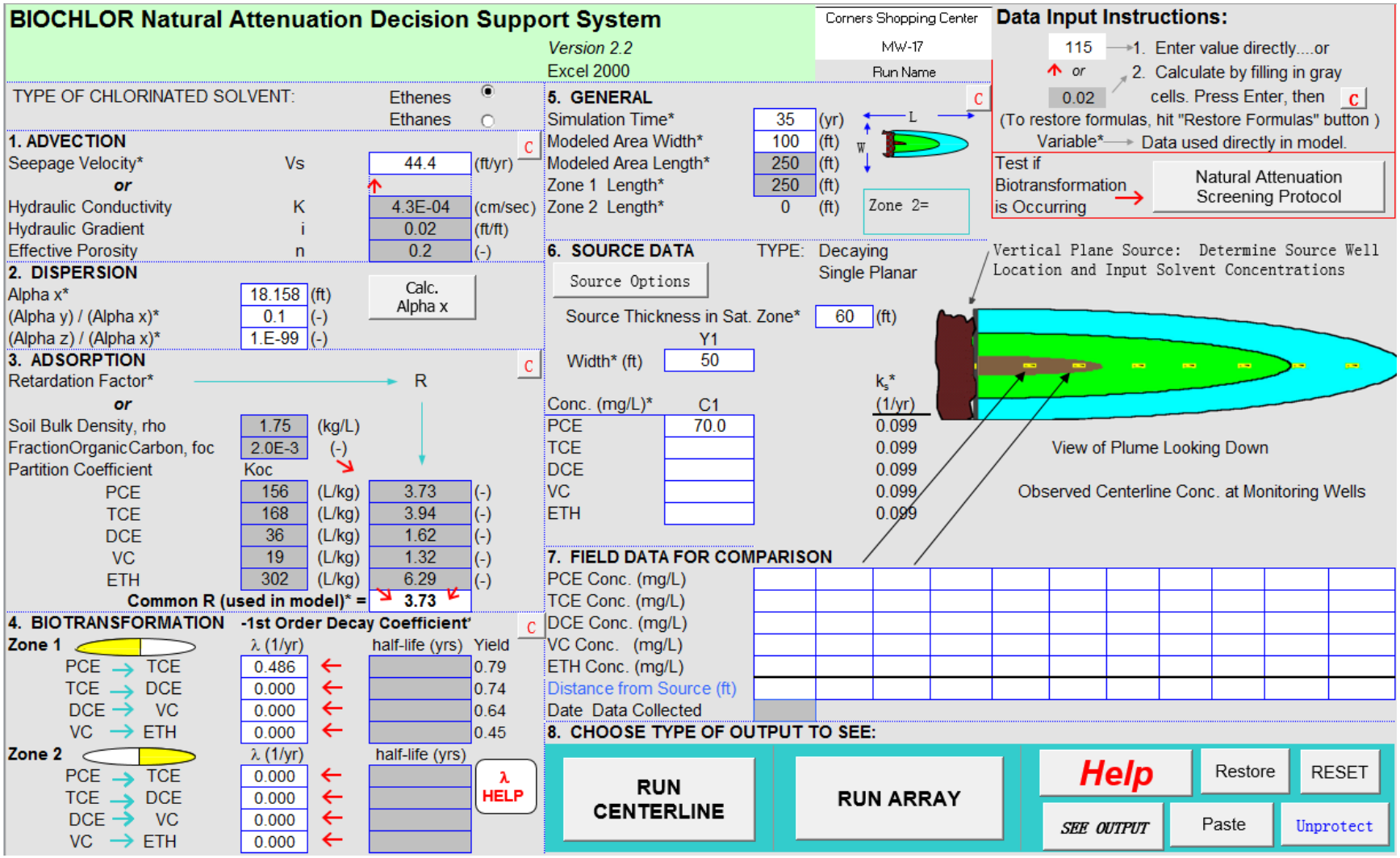


Figure 2B. Simulation Results for Source at MW-17 – 5 Years

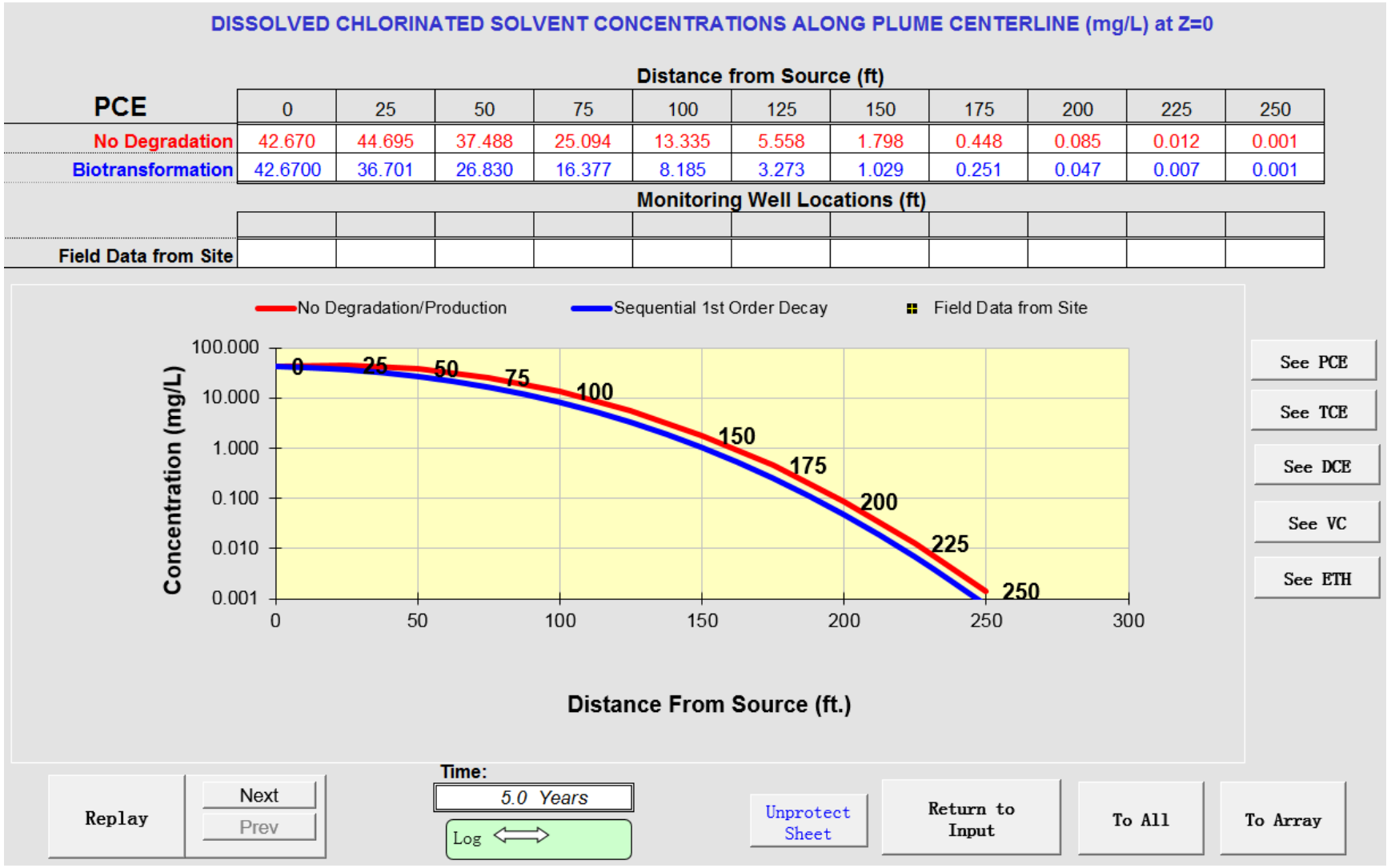


Figure 2C. Simulation Results for Source at MW-17 – 10 Years

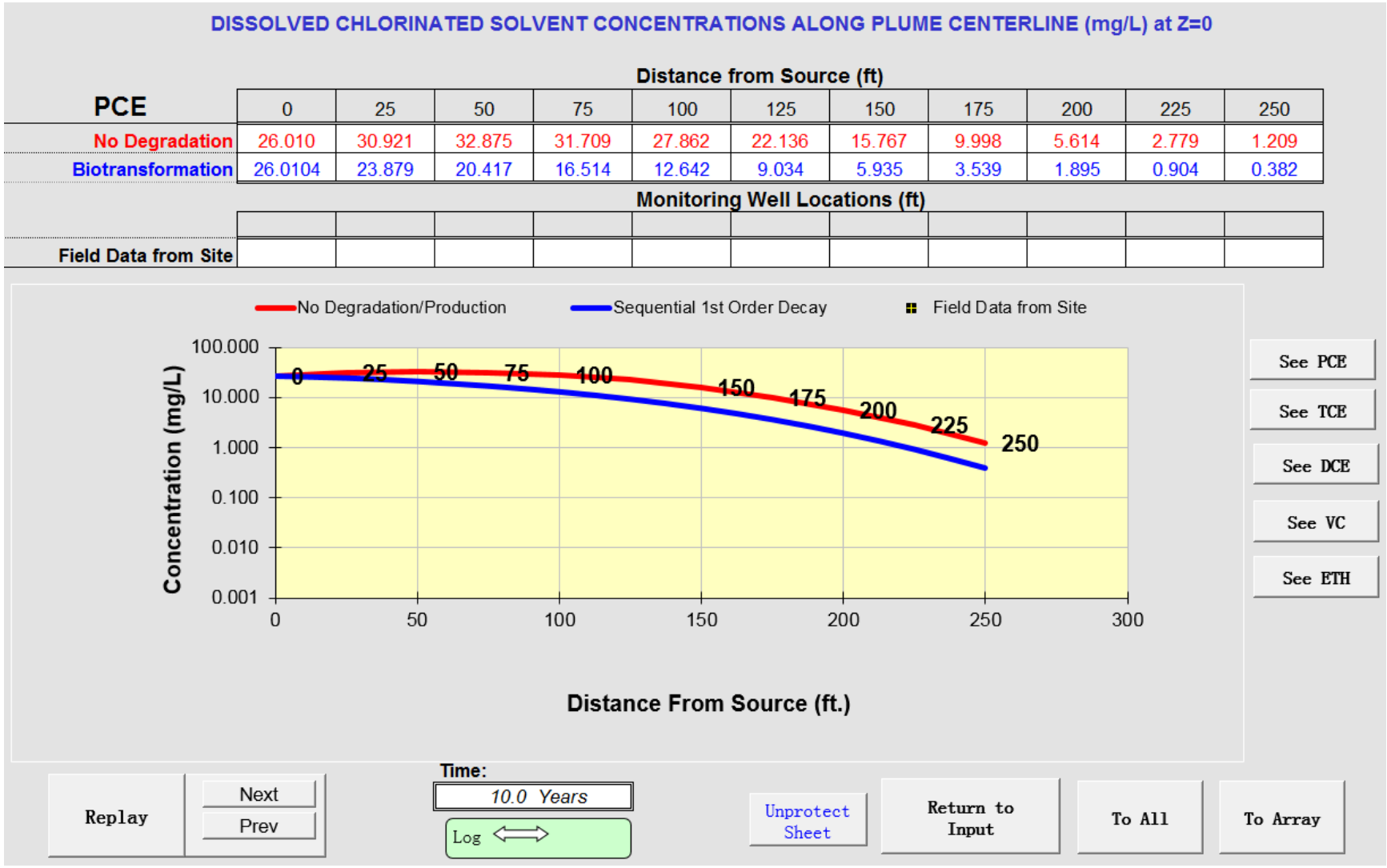


Figure 2D. Simulation Results for Source at MW-17 – 15 Years

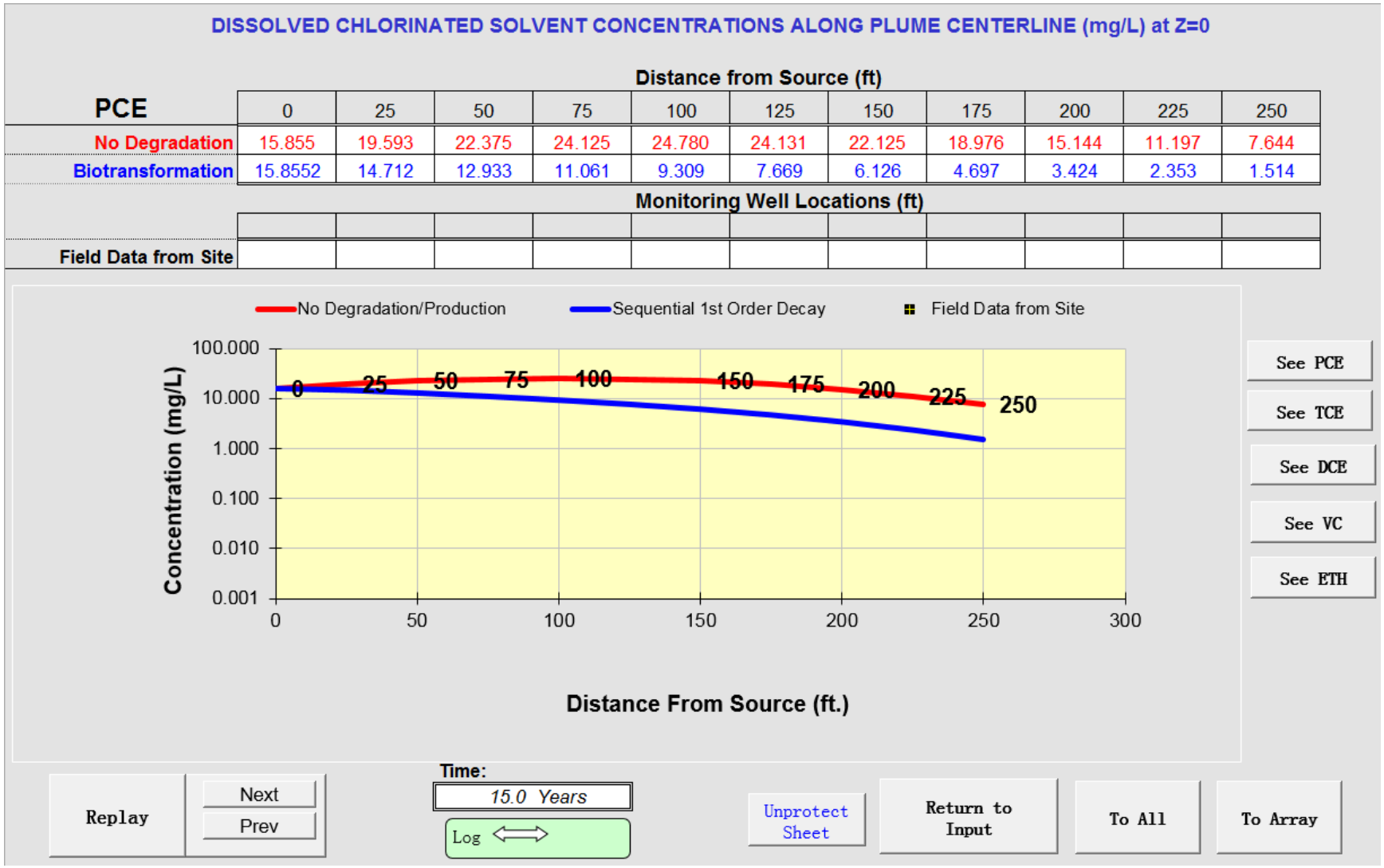


Figure 2E. Simulation Results for Source at MW-17 – 20 Years

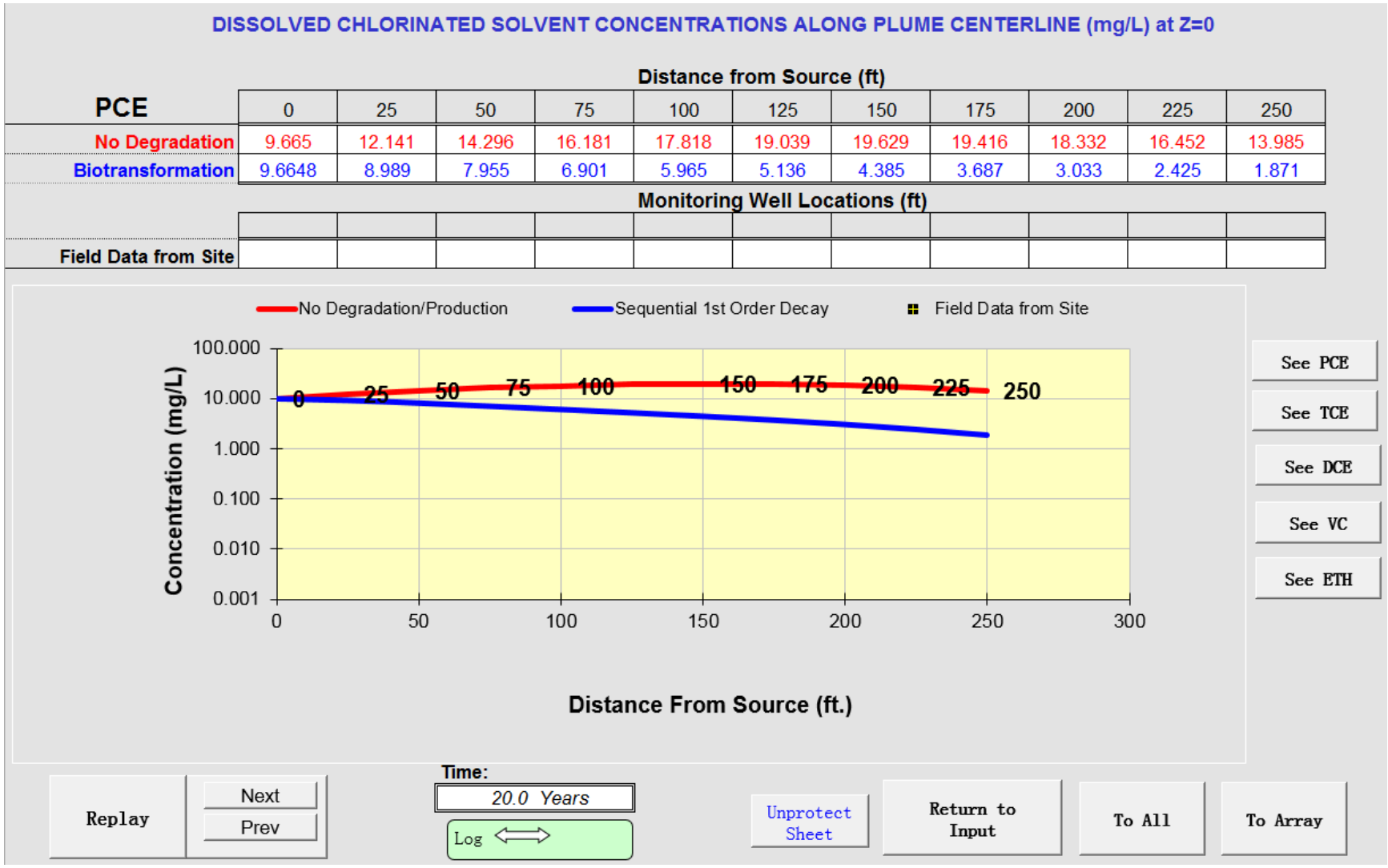


Figure 2F. Simulation Results for Source at MW-17 – 25 Years

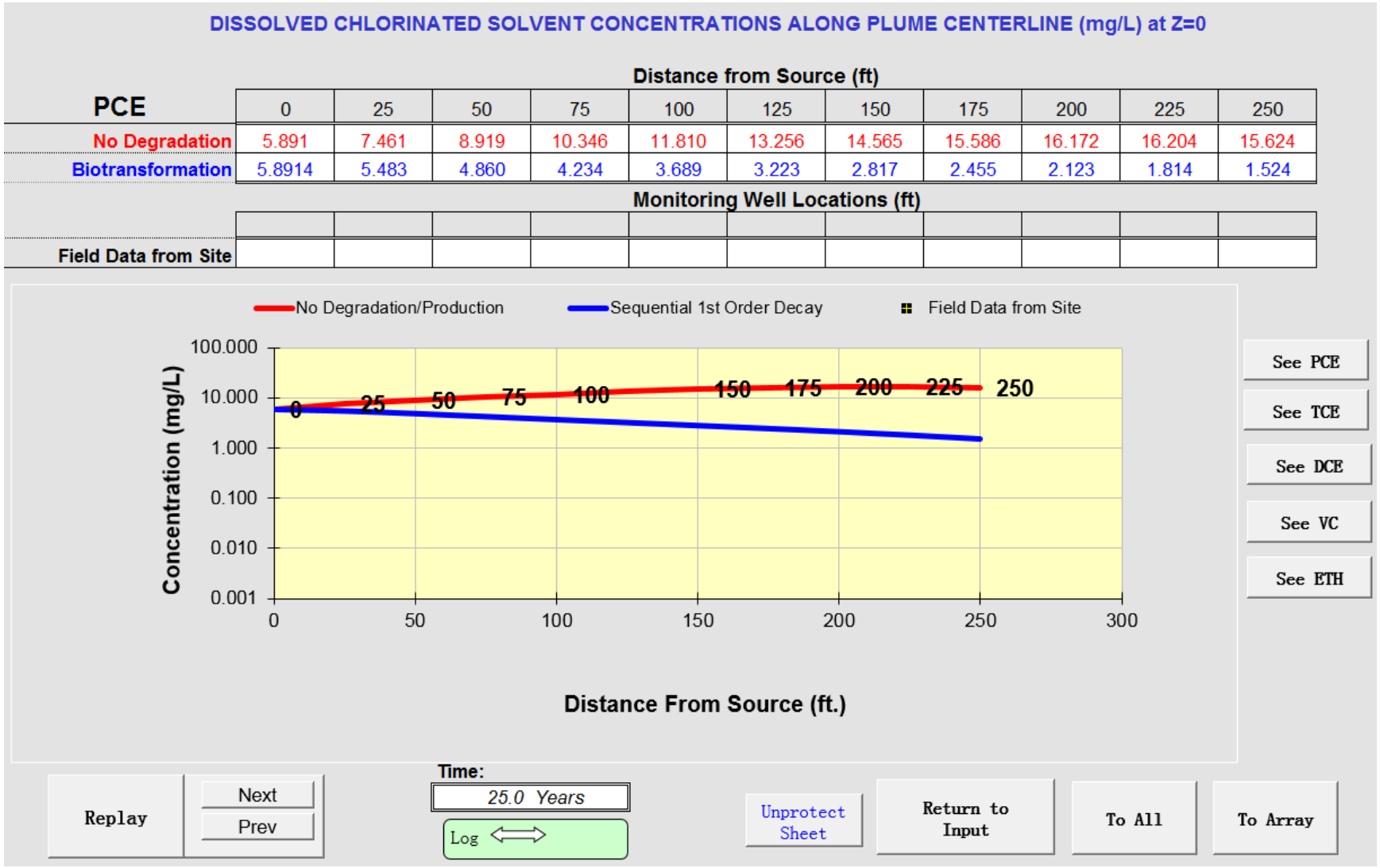


Figure 2G. Simulation Results for Source at MW-17 – 30 Years

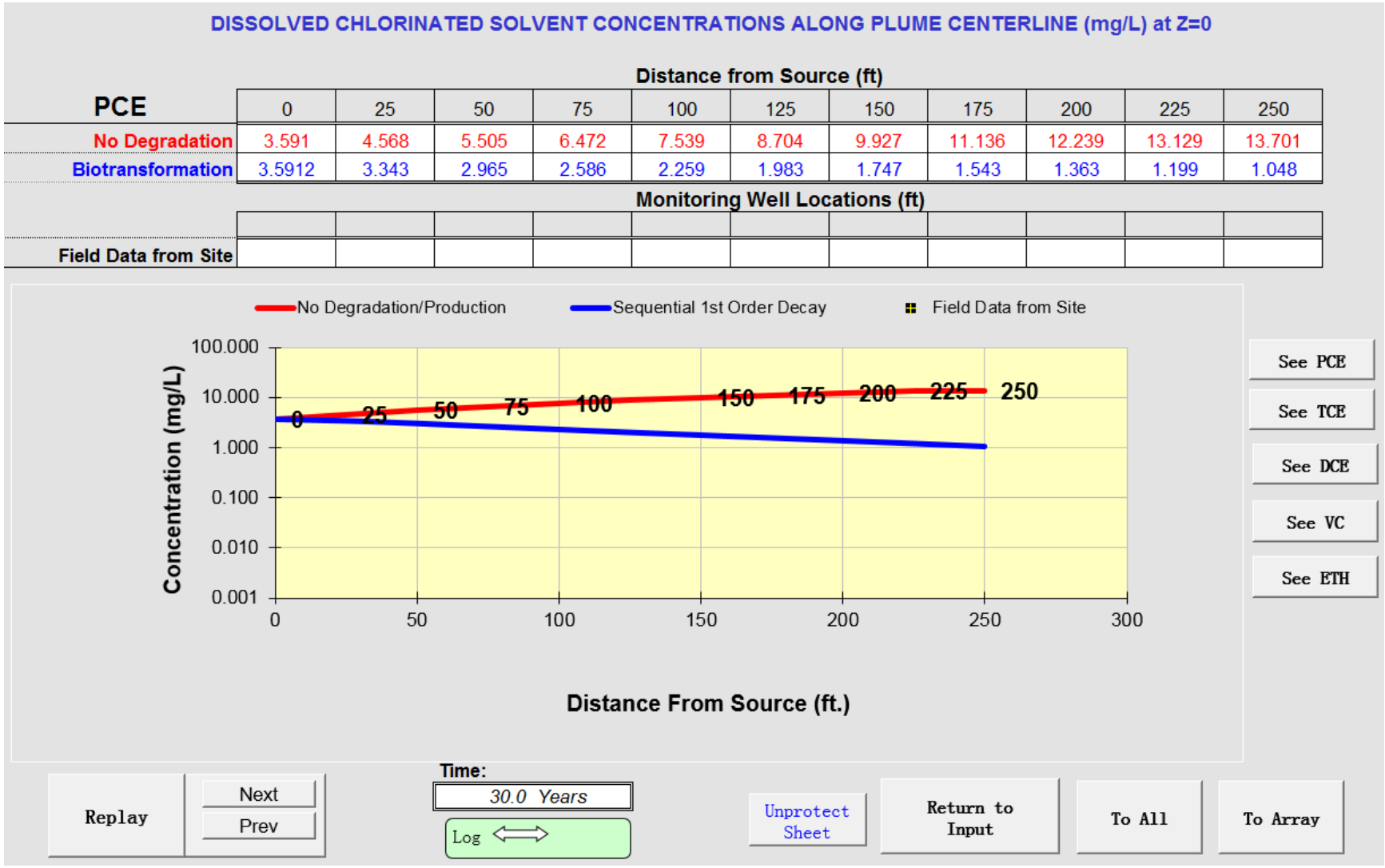


Figure 2H. Simulation Results for Source at MW-17 – 35 Years

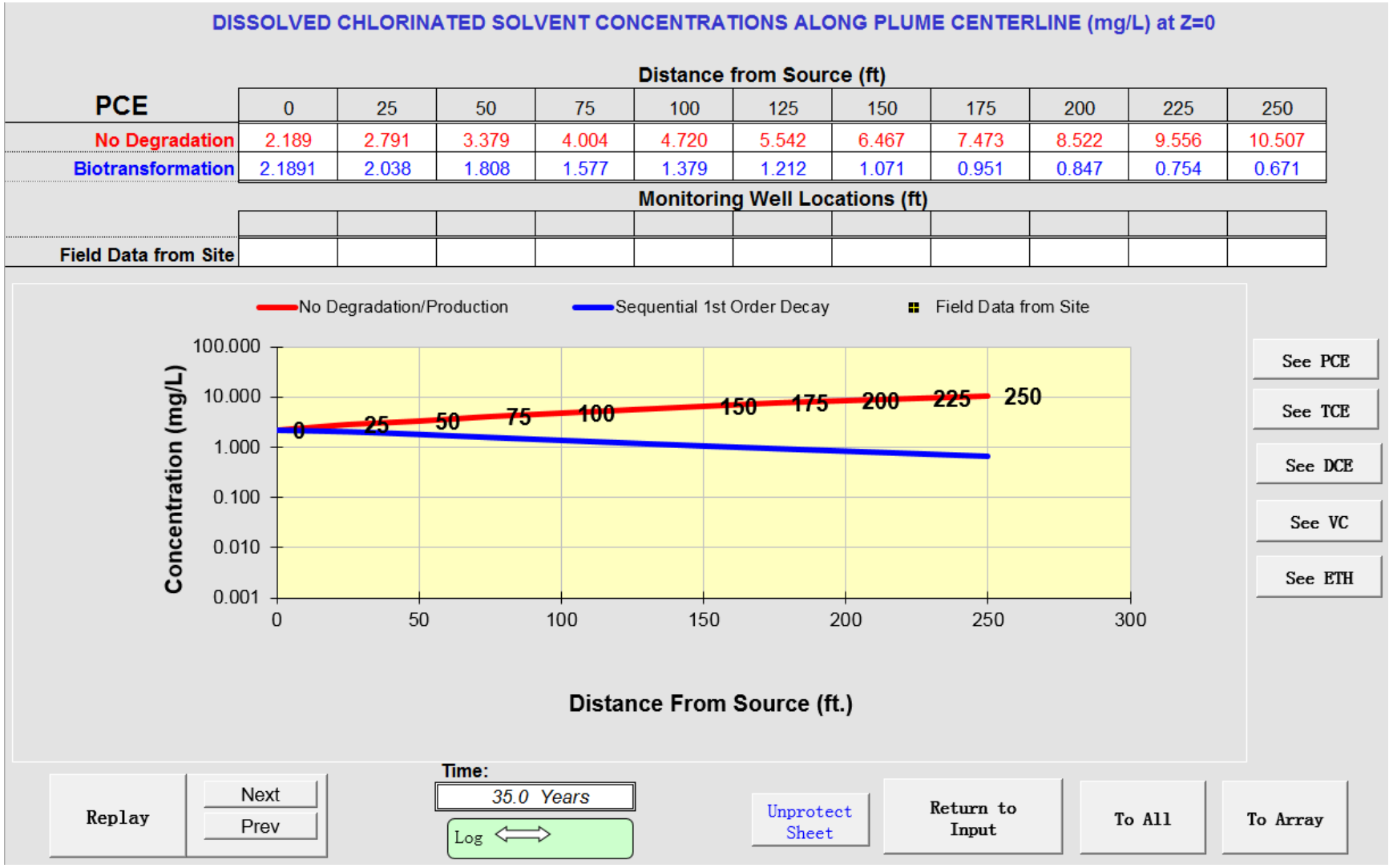


Figure 2I. Simulation Results for Source at MW-17 – Summary

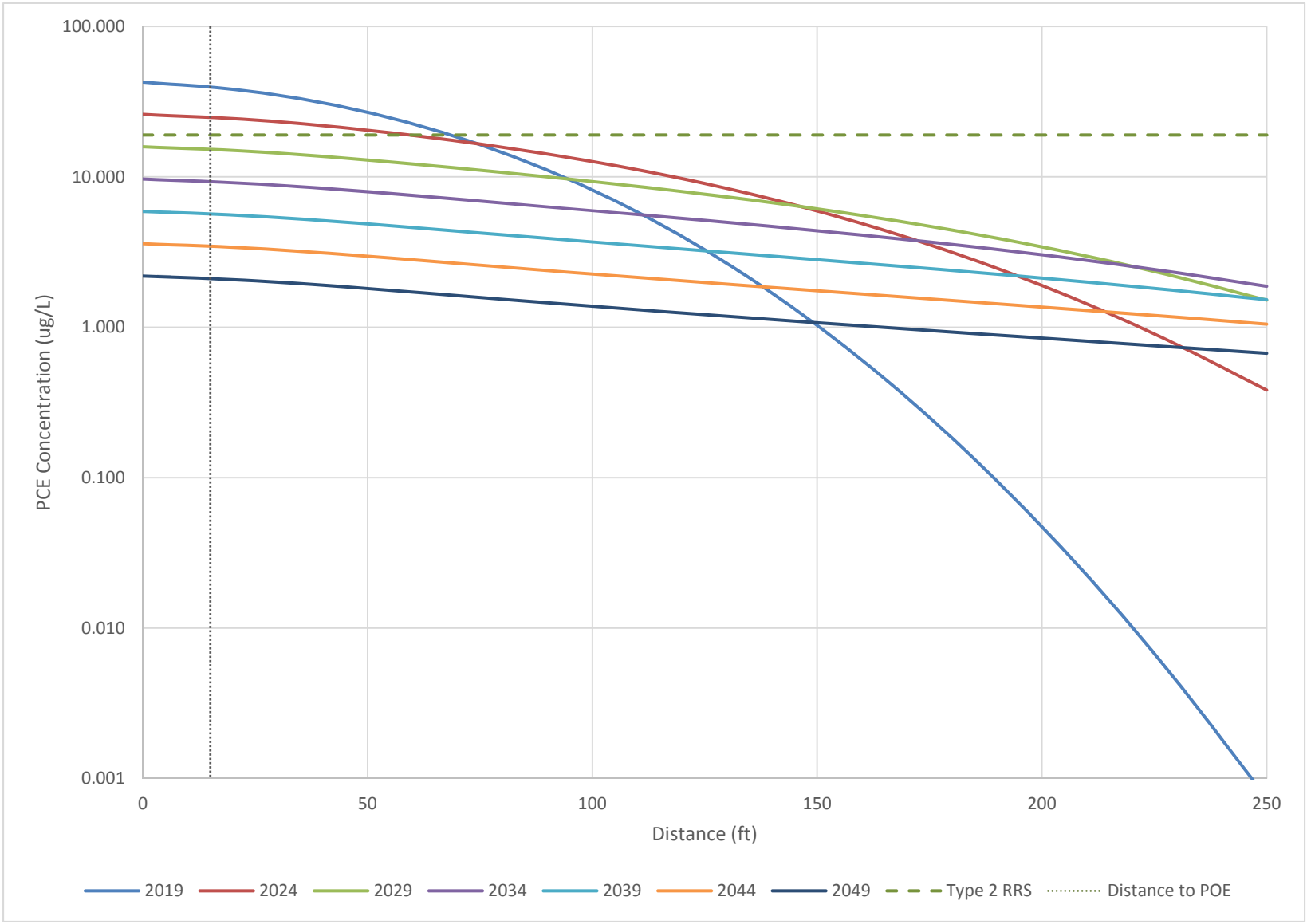


Figure 3A. Simulation Input for Source at MW-19

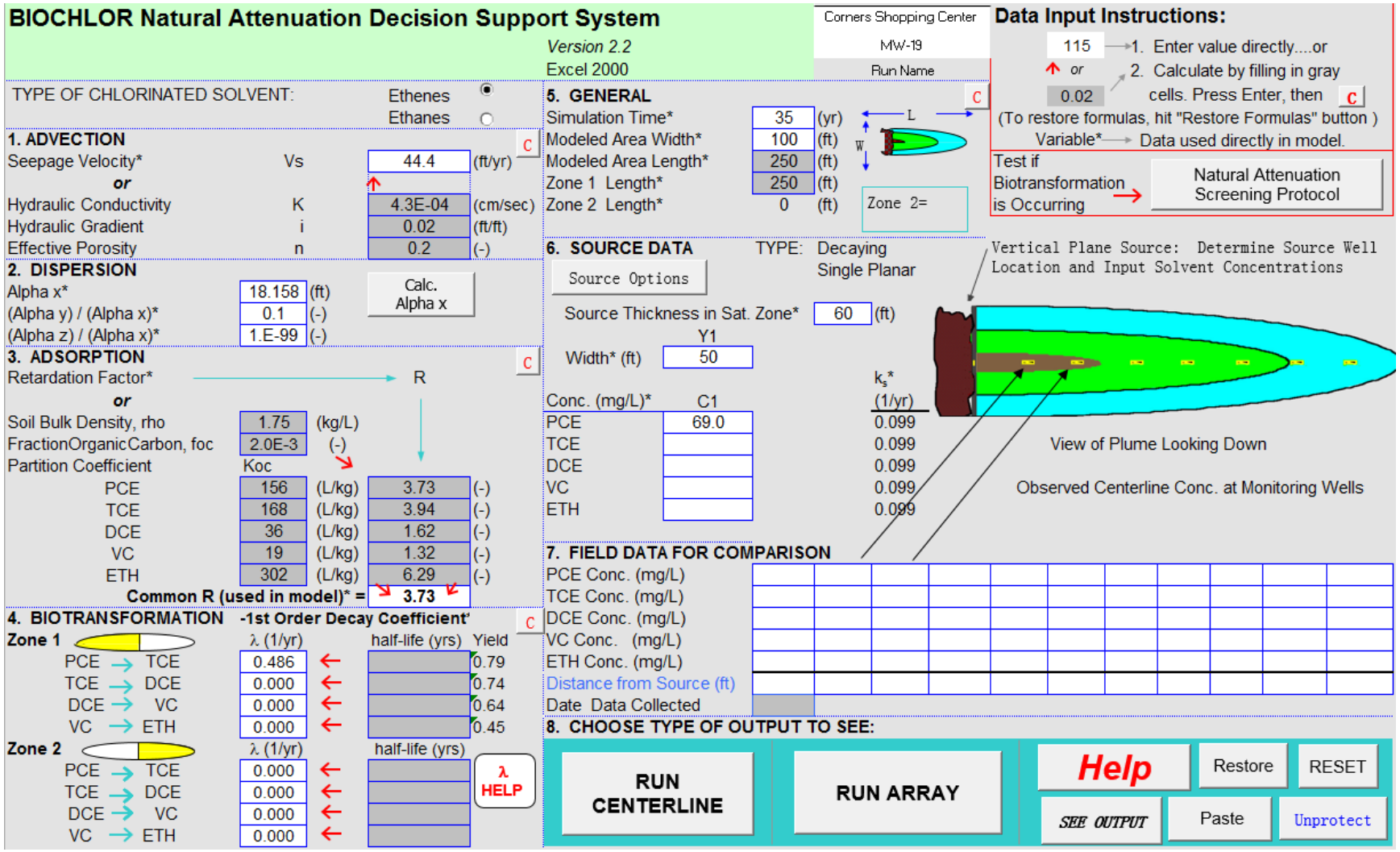


Figure 3B. Simulation Results for Source at MW-19 – 5 Years

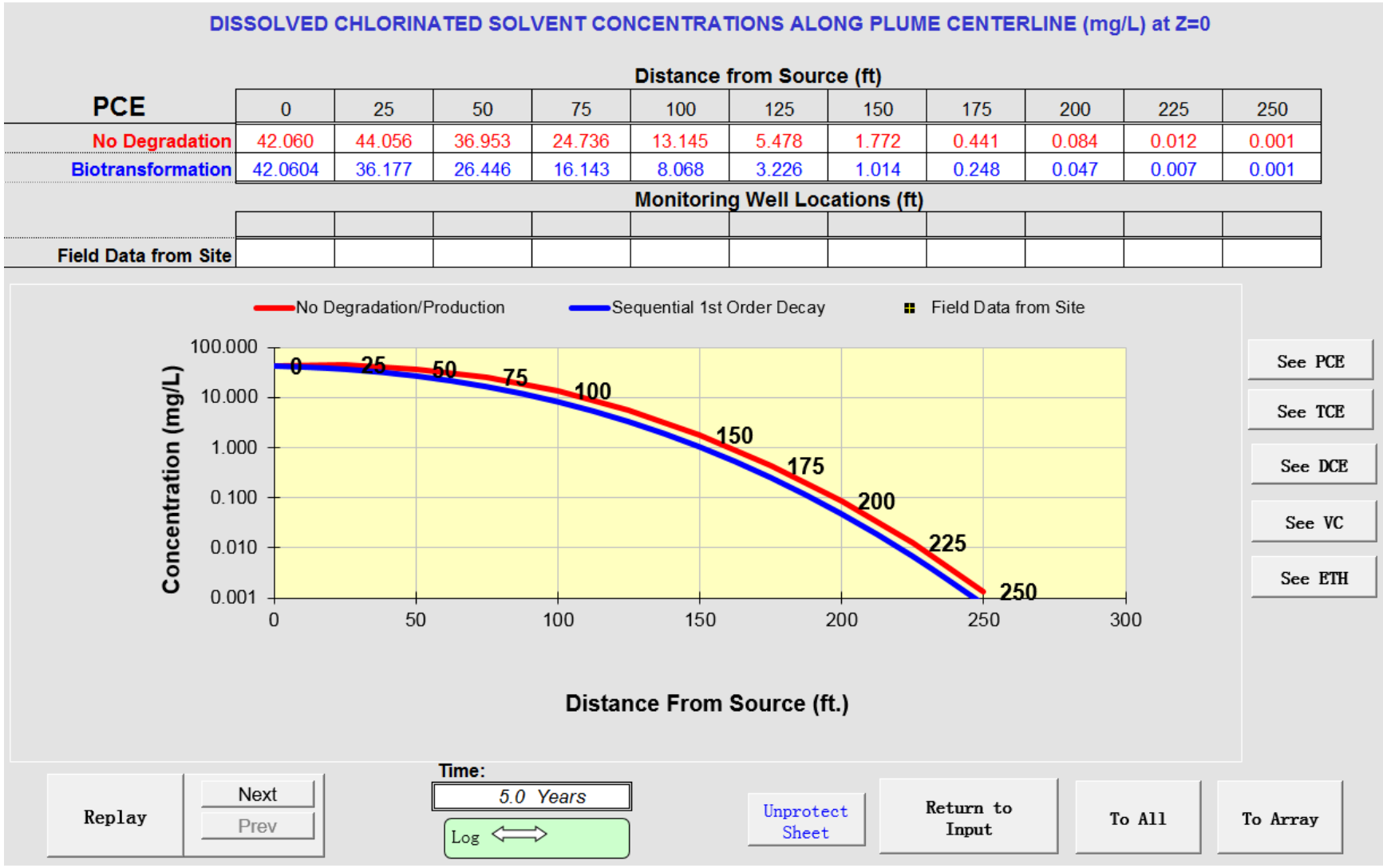


Figure 3C. Simulation Results for Source at MW-19 – 10 Years

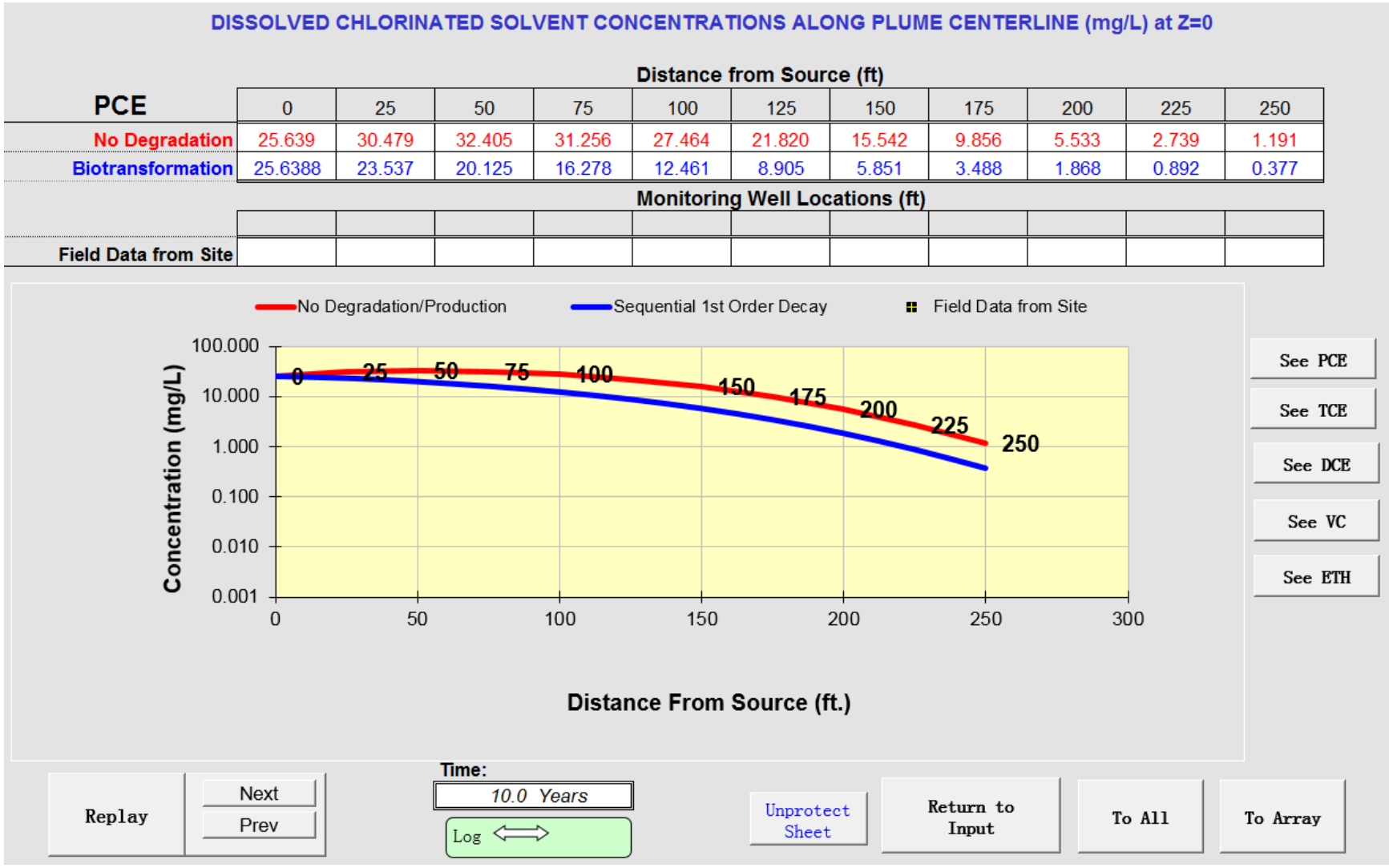


Figure 3D. Simulation Results for Source at MW-19 – 15 Years

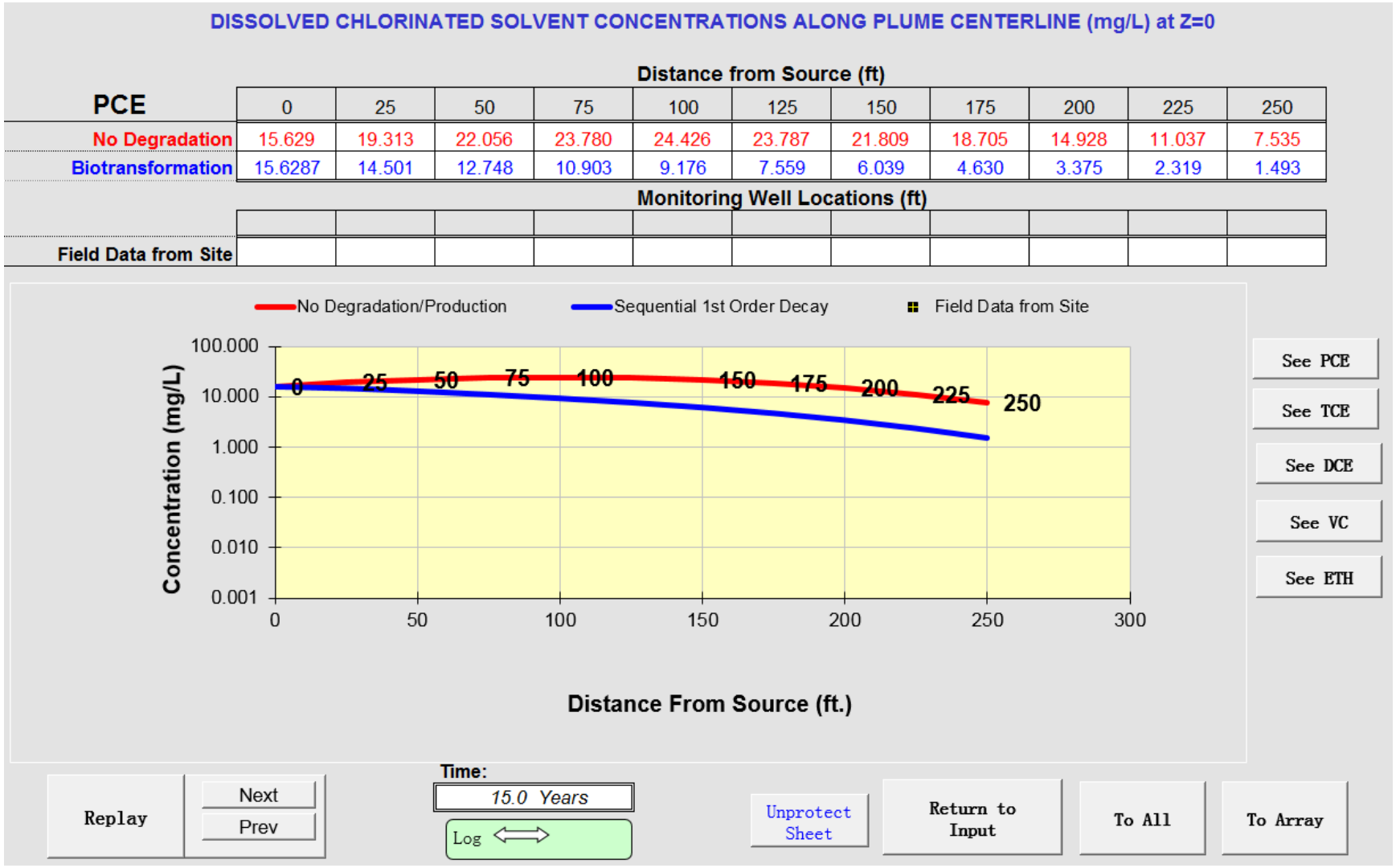


Figure 3E. Simulation Results for Source at MW-19 – 20 Years

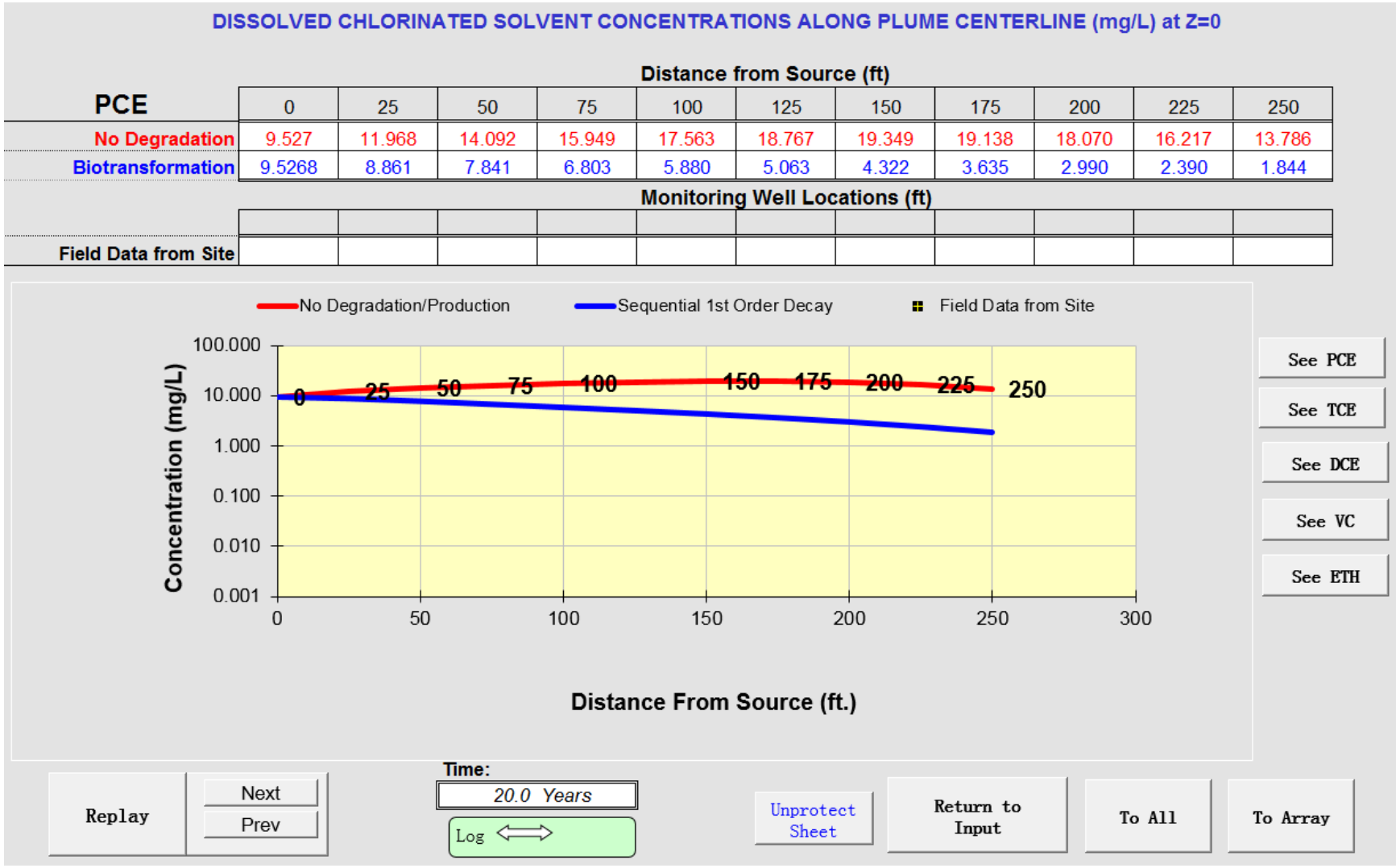


Figure 3F. Simulation Results for Source at MW-19 – 25 Years

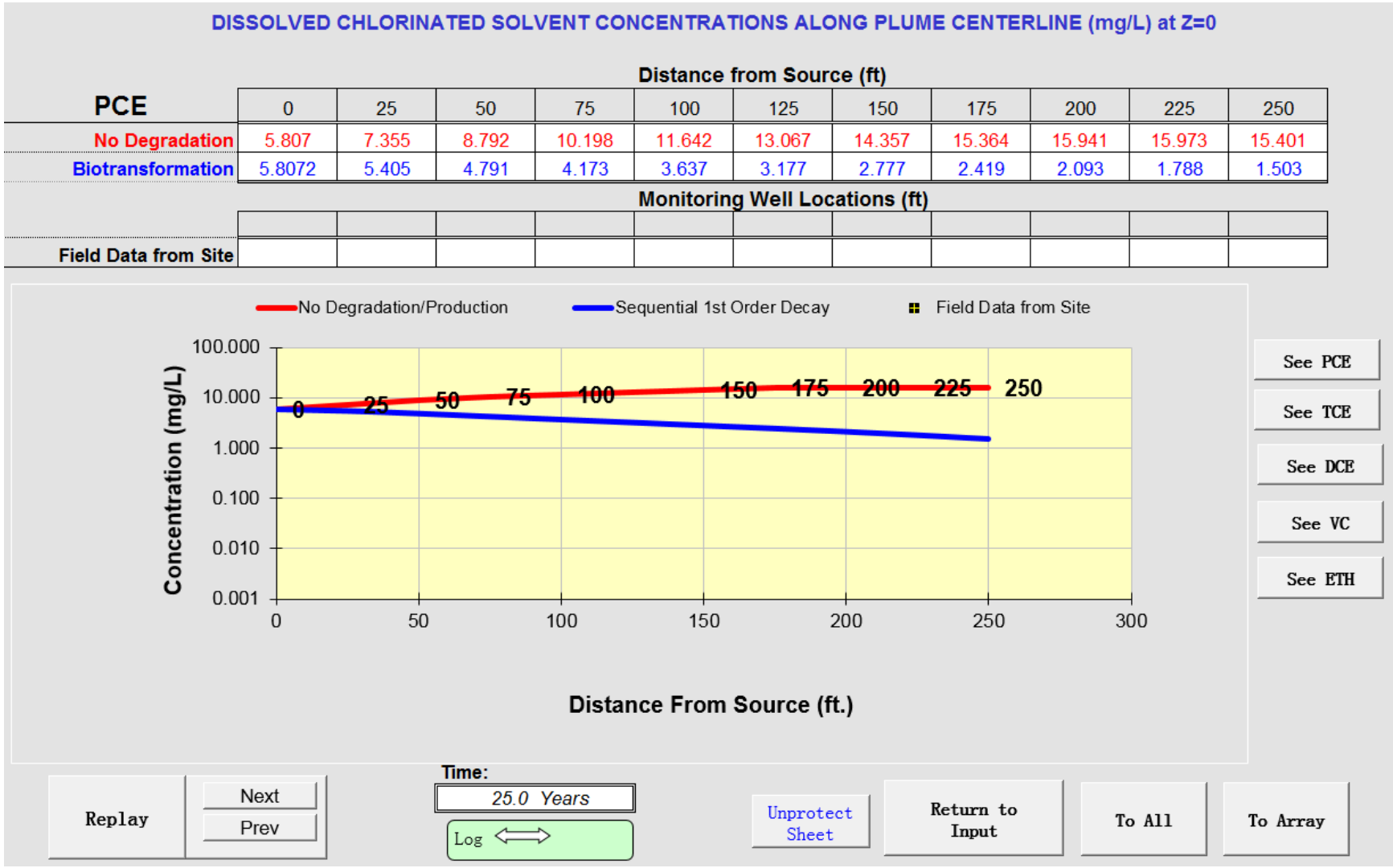


Figure 3G. Simulation Results for Source at MW-19 – 30 Years

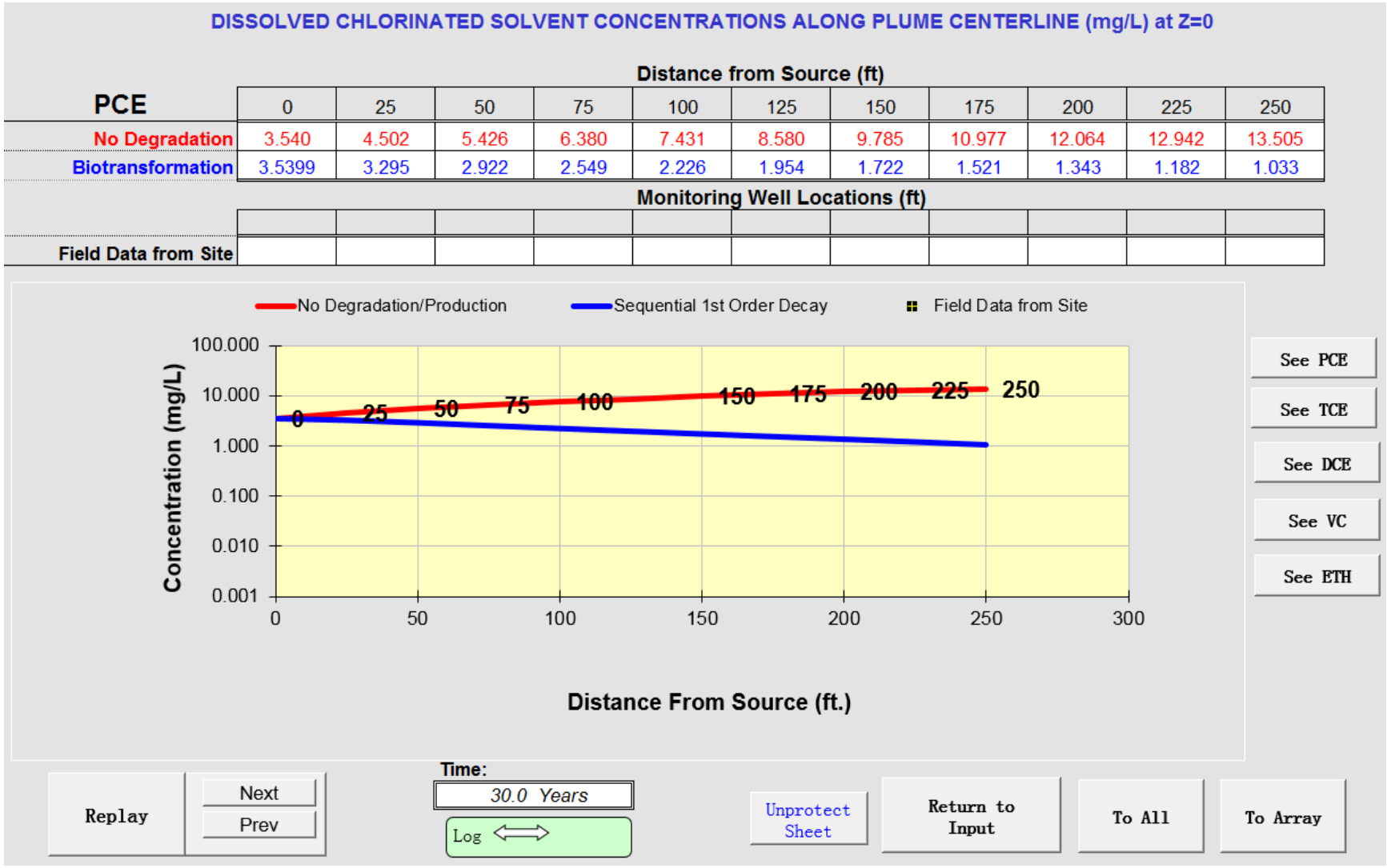


Figure 3H. Simulation Results for Source at MW-19 – 35 Years

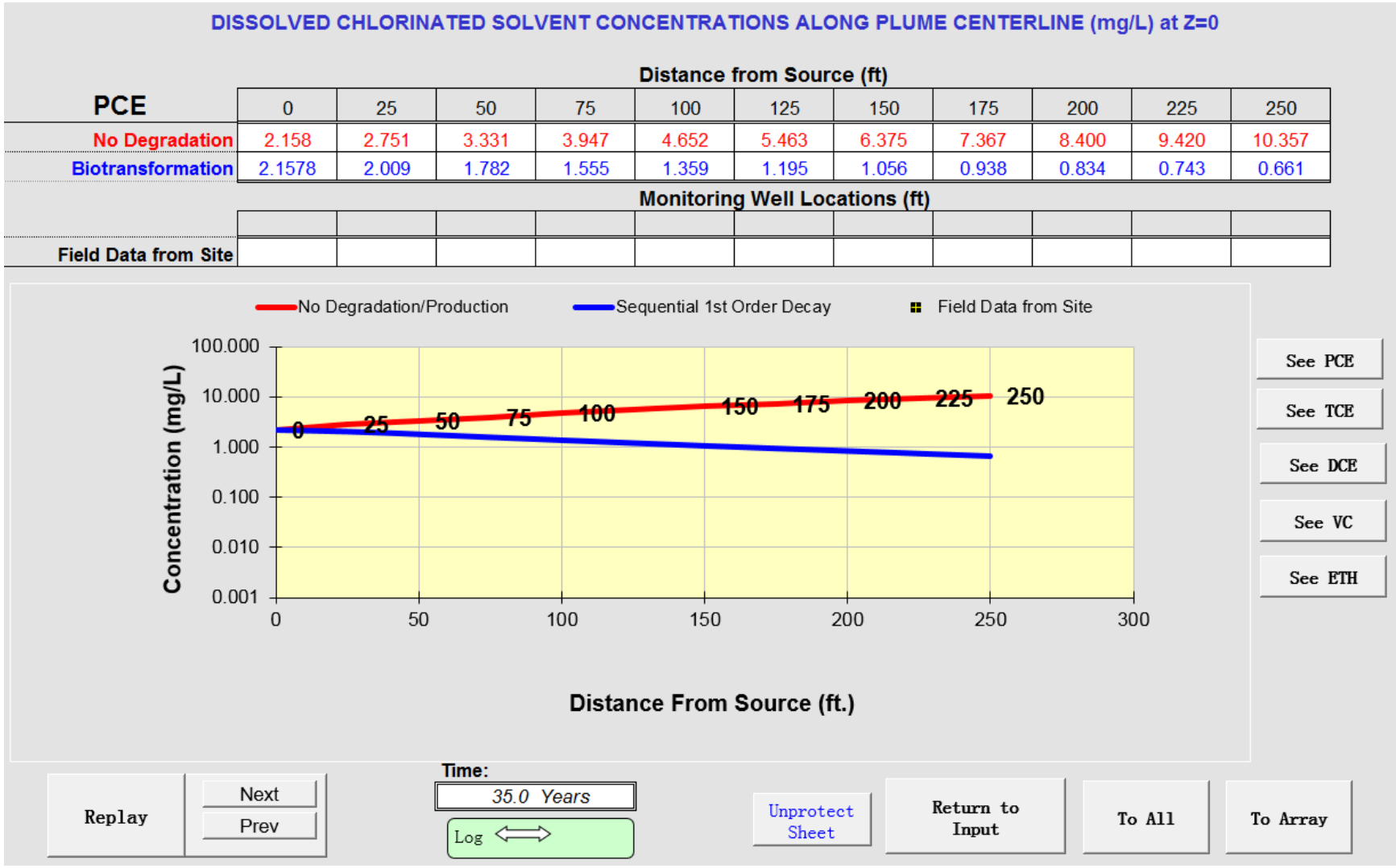


Figure 3I. Simulation Results for Source at MW-19 – Summary

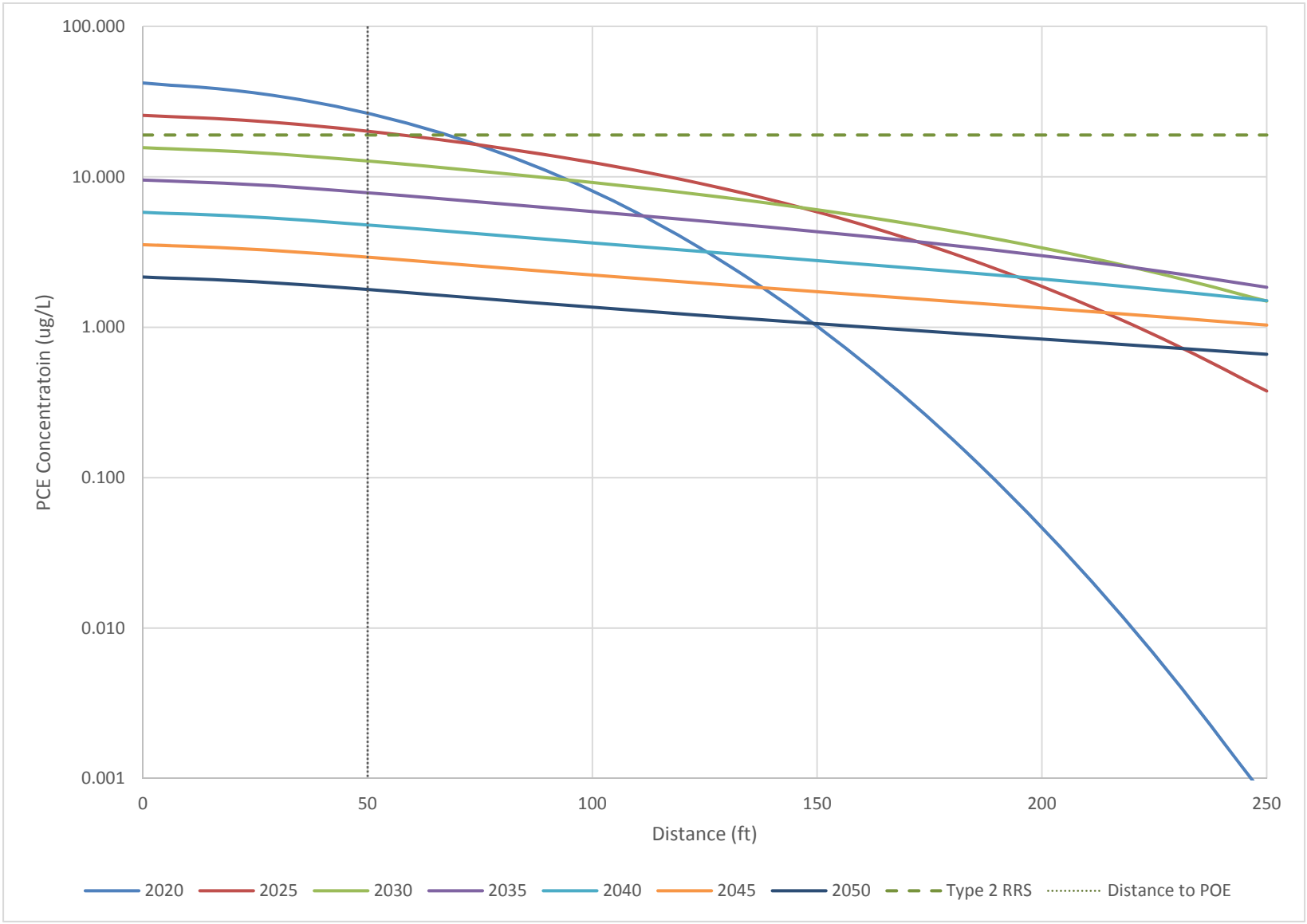


Figure 4A. Simulation Input for Source at DVEW-7 – Sensitivity Analysis

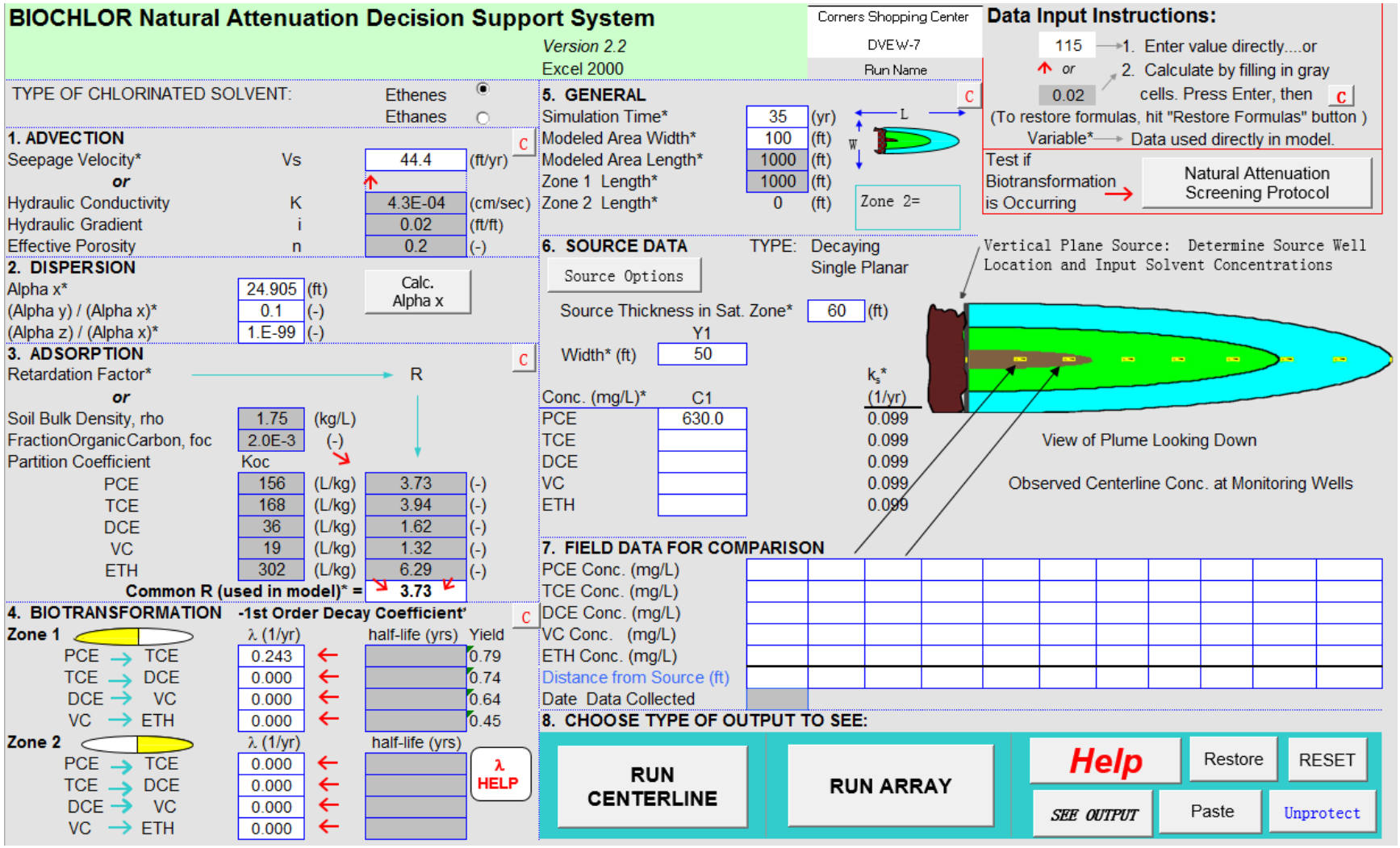


Figure 4B. Simulation Results for Source at DVEW-7 – Sensitivity Analysis – 5 Years

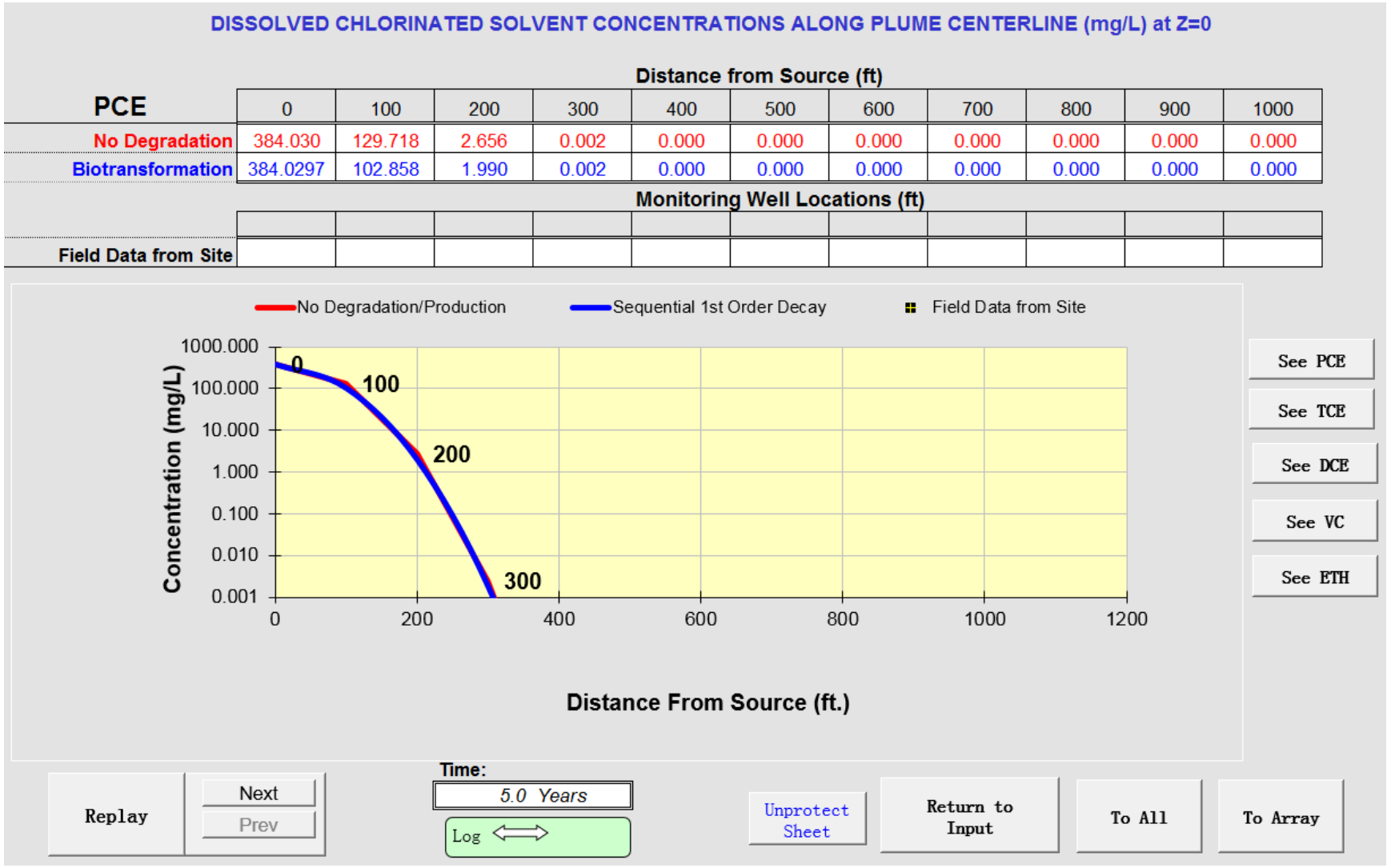


Figure 4C. Simulation Results for Source at DVEW-7 – Sensitivity Analysis – 10 Years

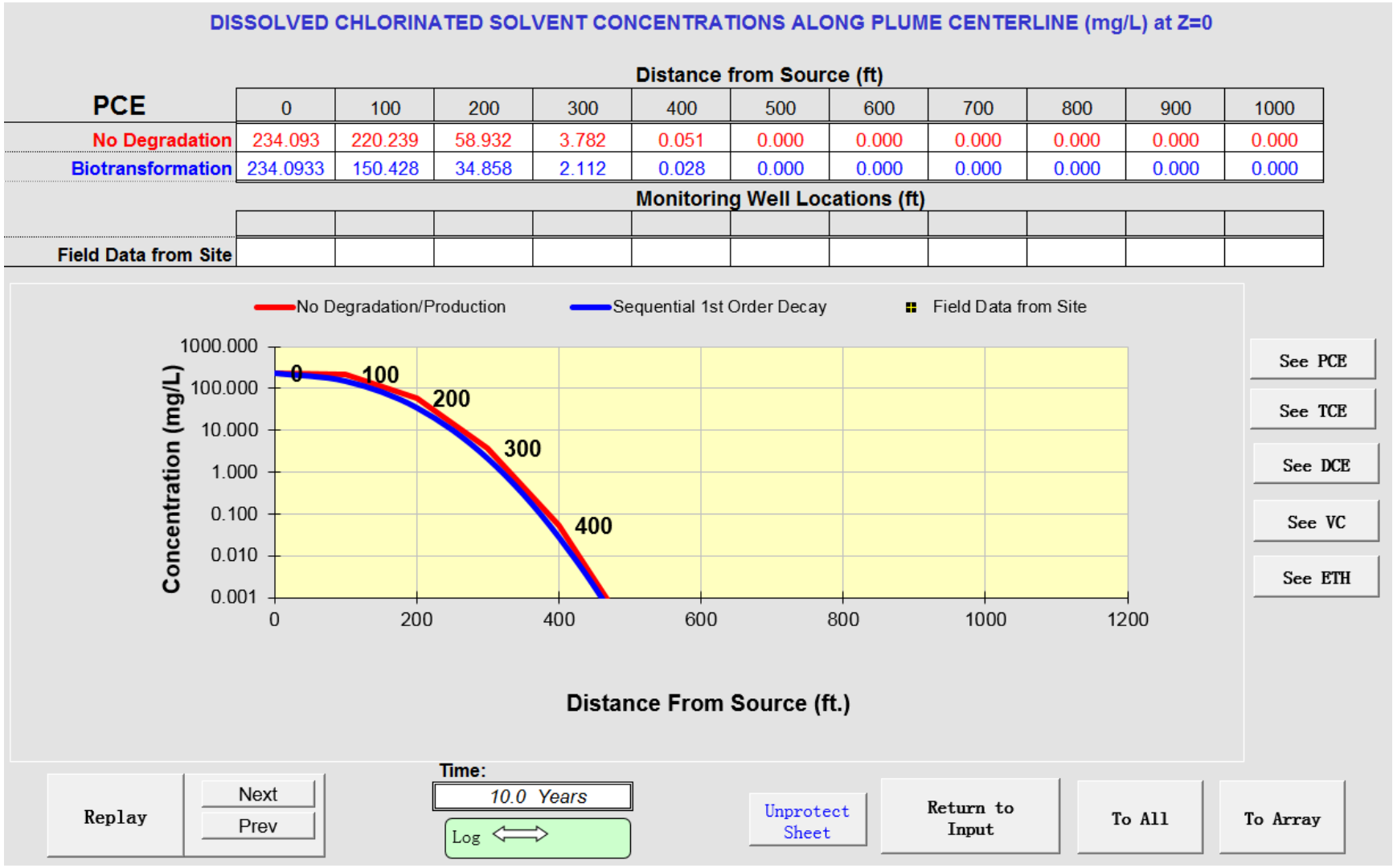
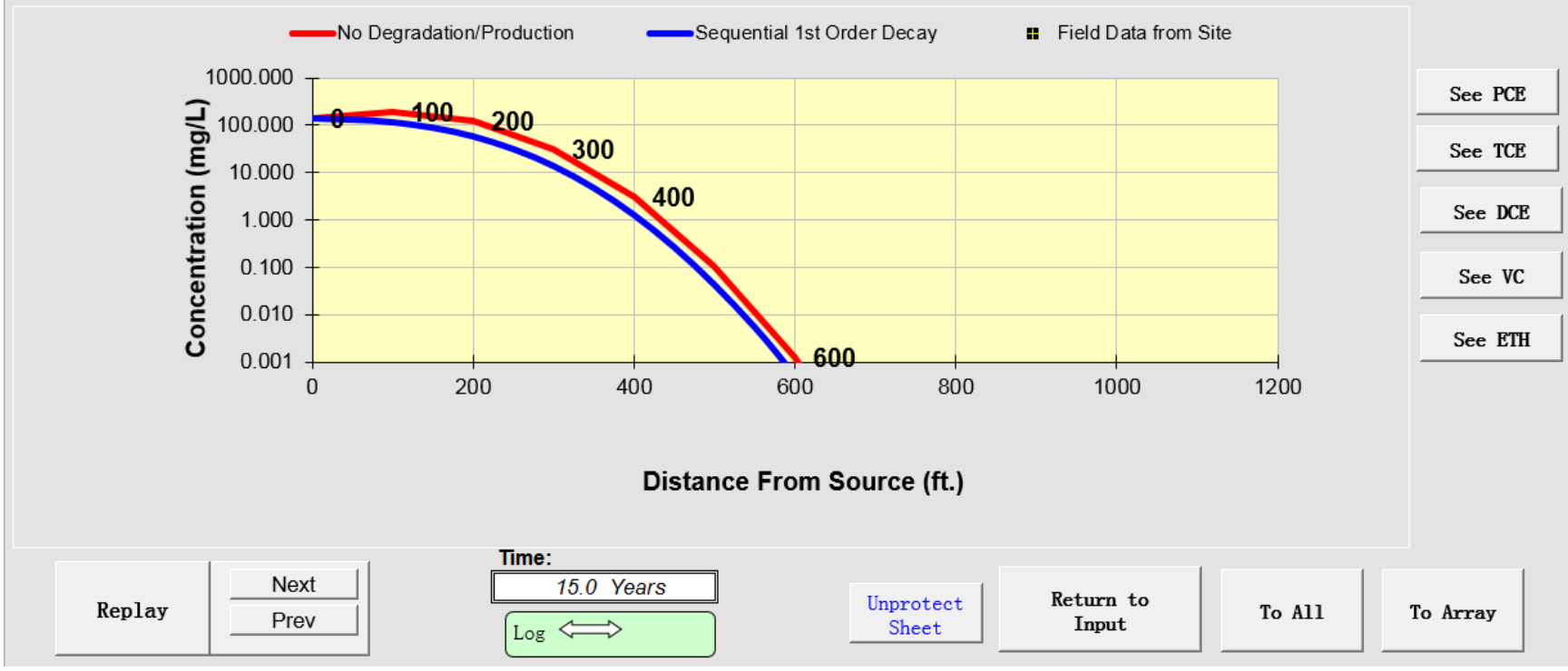


Figure 4D. Simulation Results for Source at DVEW-7 – Sensitivity Analysis – 15 Years

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

PCE	Distance from Source (ft)										
	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	142.696	192.023	121.522	31.953	3.118	0.107	0.001	0.000	0.000	0.000	0.000
Biotransformation	142.6965	117.699	58.926	13.906	1.286	0.043	0.000	0.000	0.000	0.000	0.000
	Monitoring Well Locations (ft)										
Field Data from Site											



Time:
15.0 Years
Log

Replay | Next | Prev | Unprotect Sheet | Return to Input | To All | To Array

Figure 4E. Simulation Results for Source at DVEW-7 – Sensitivity Analysis – 20 Years

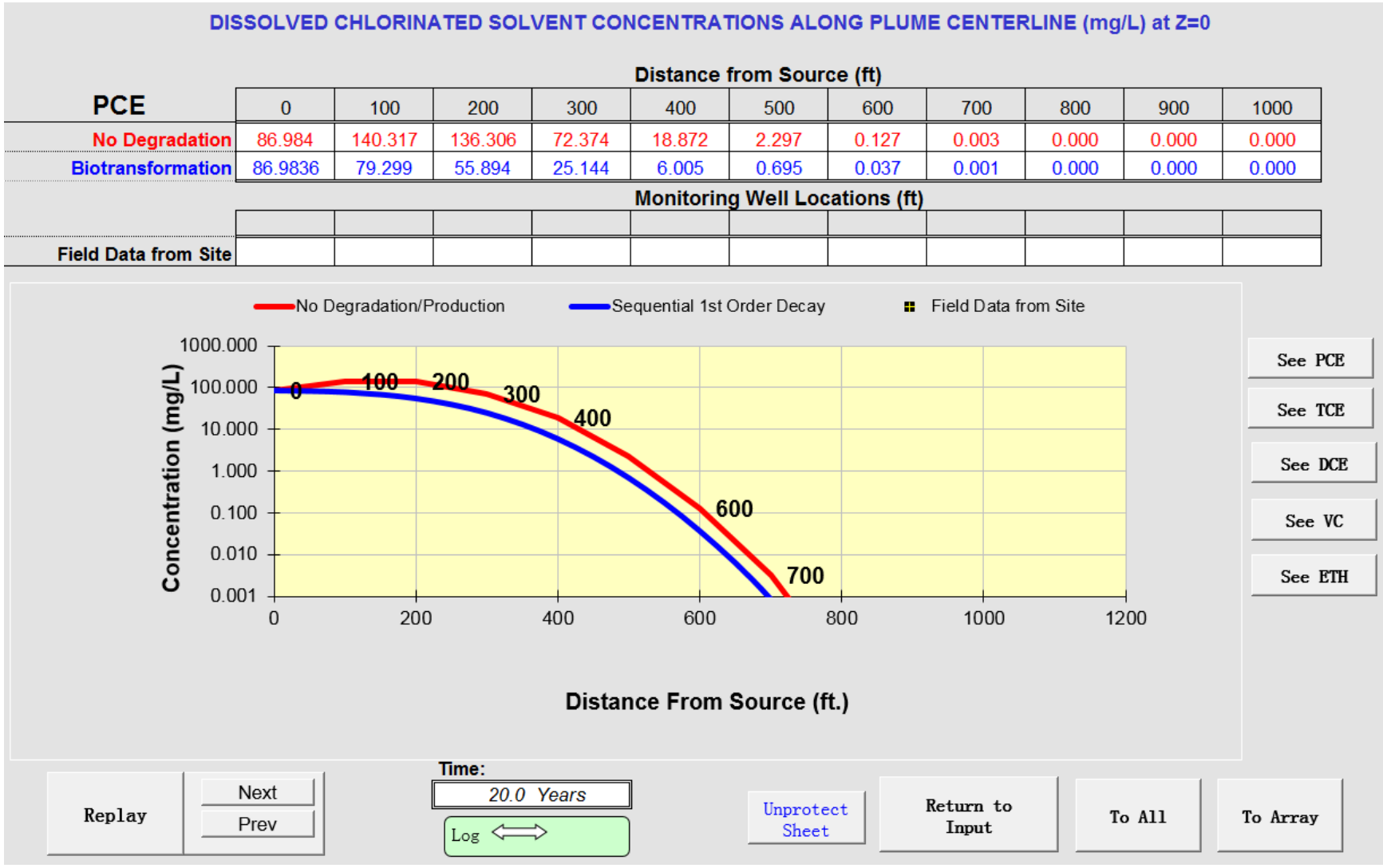


Figure 4F. Simulation Results for Source at DVEW-7 – Sensitivity Analysis – 25 Years

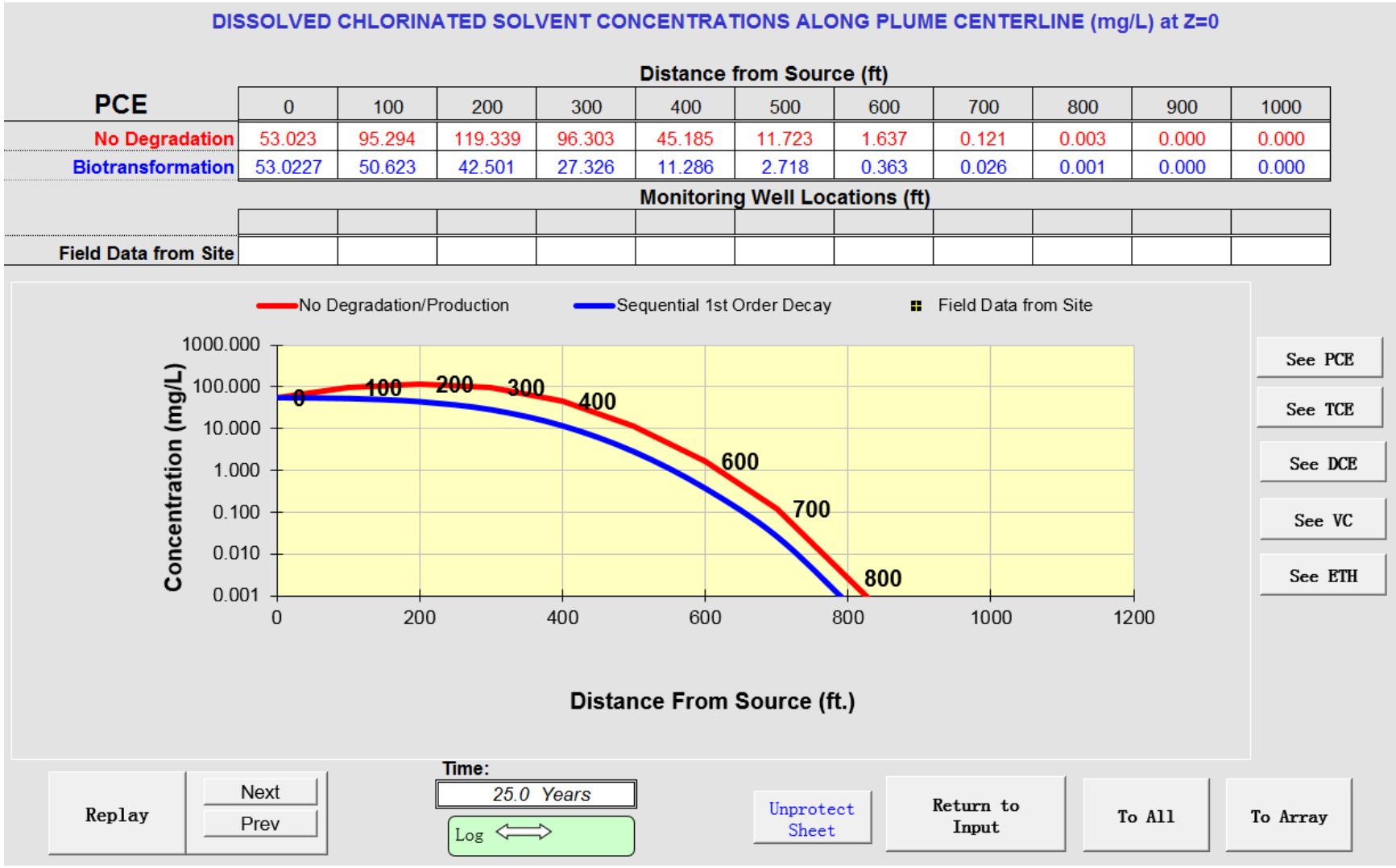


Figure 4G. Simulation Results for Source at DVEW-7 – Sensitivity Analysis – 30 Years

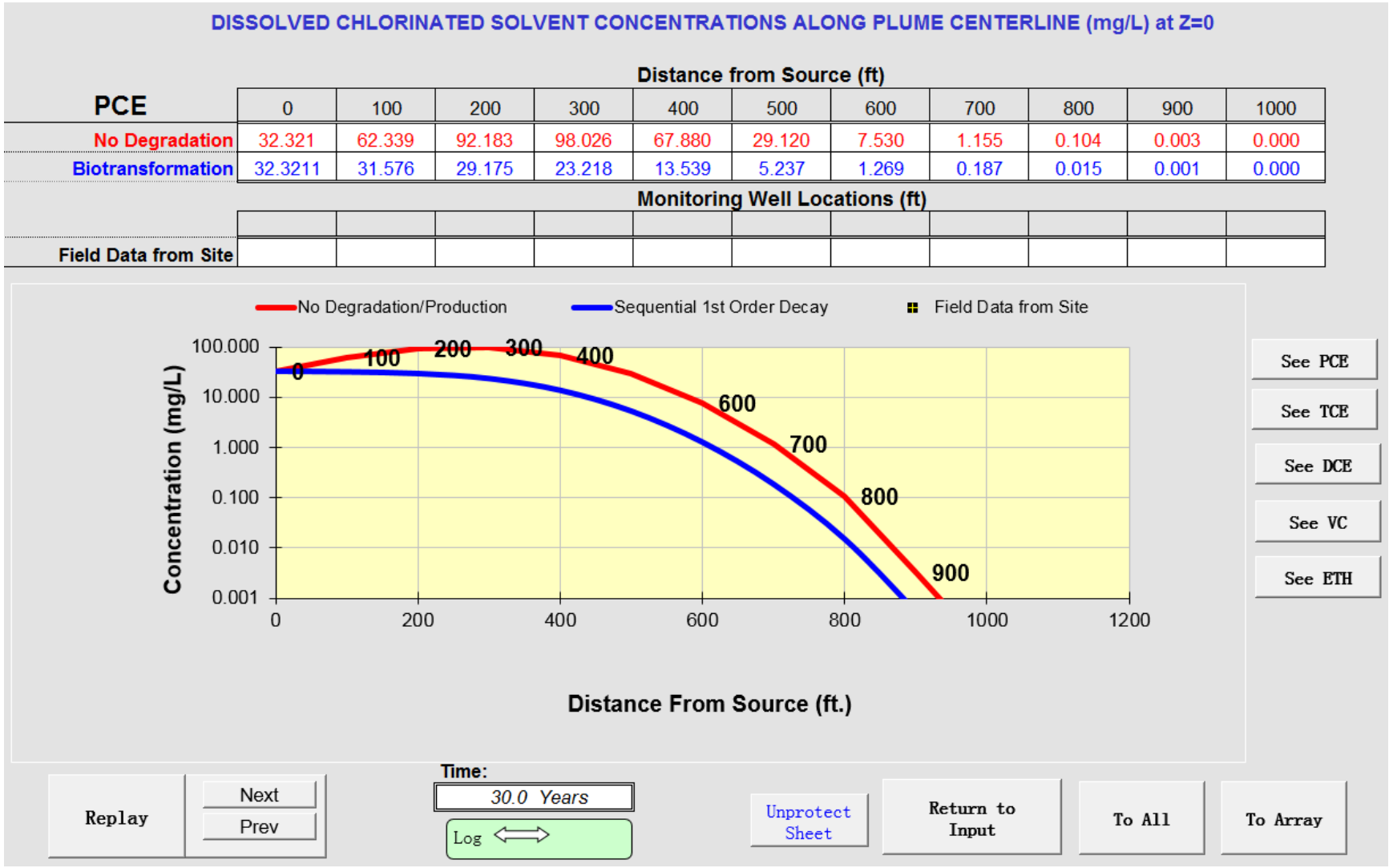


Figure 4H. Simulation Results for Source at DVEW-7 – Sensitivity Analysis – 35 Years

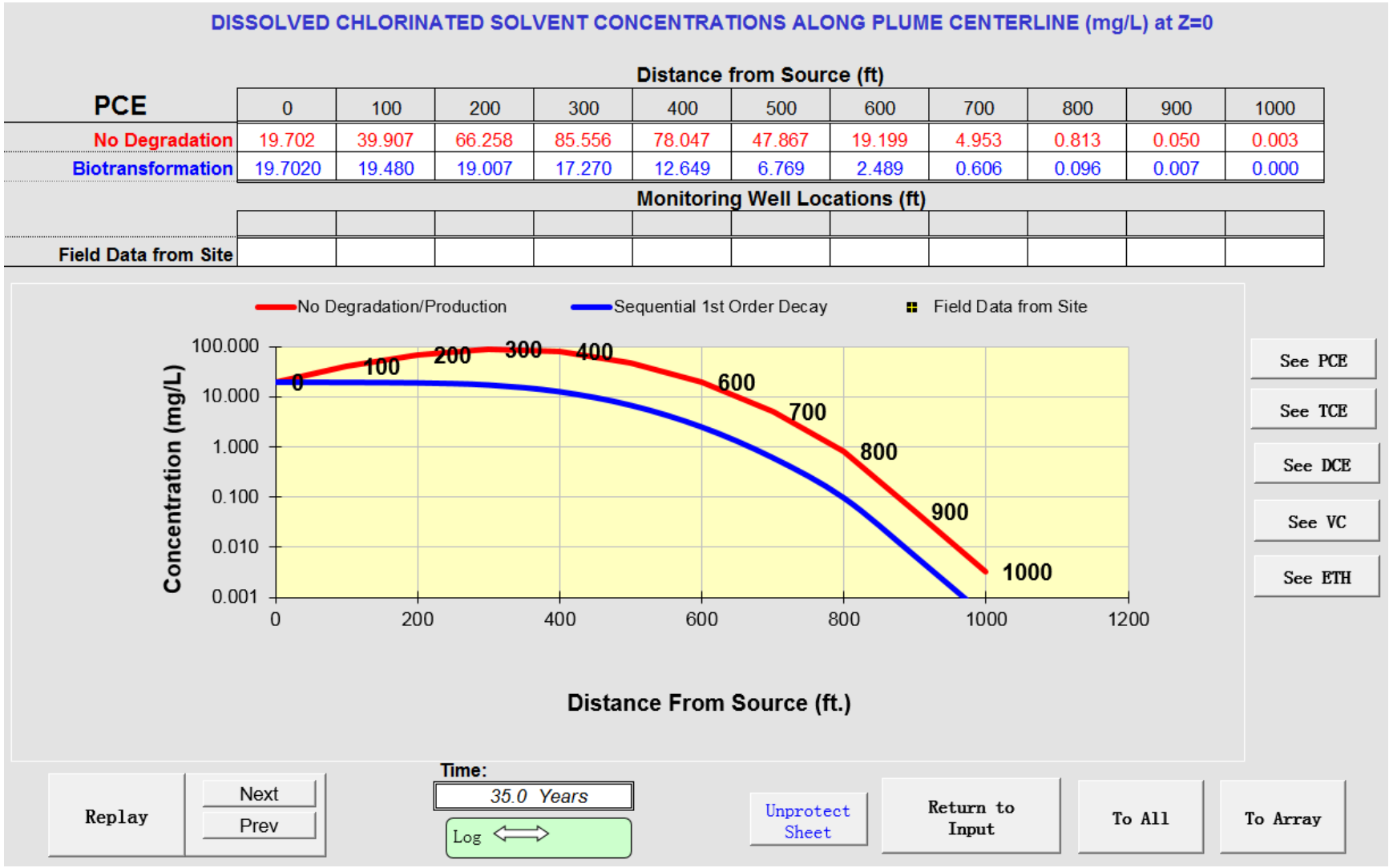


Figure 4I. Simulation Results for Source at DVEW-7 – Sensitivity Analysis – Summary

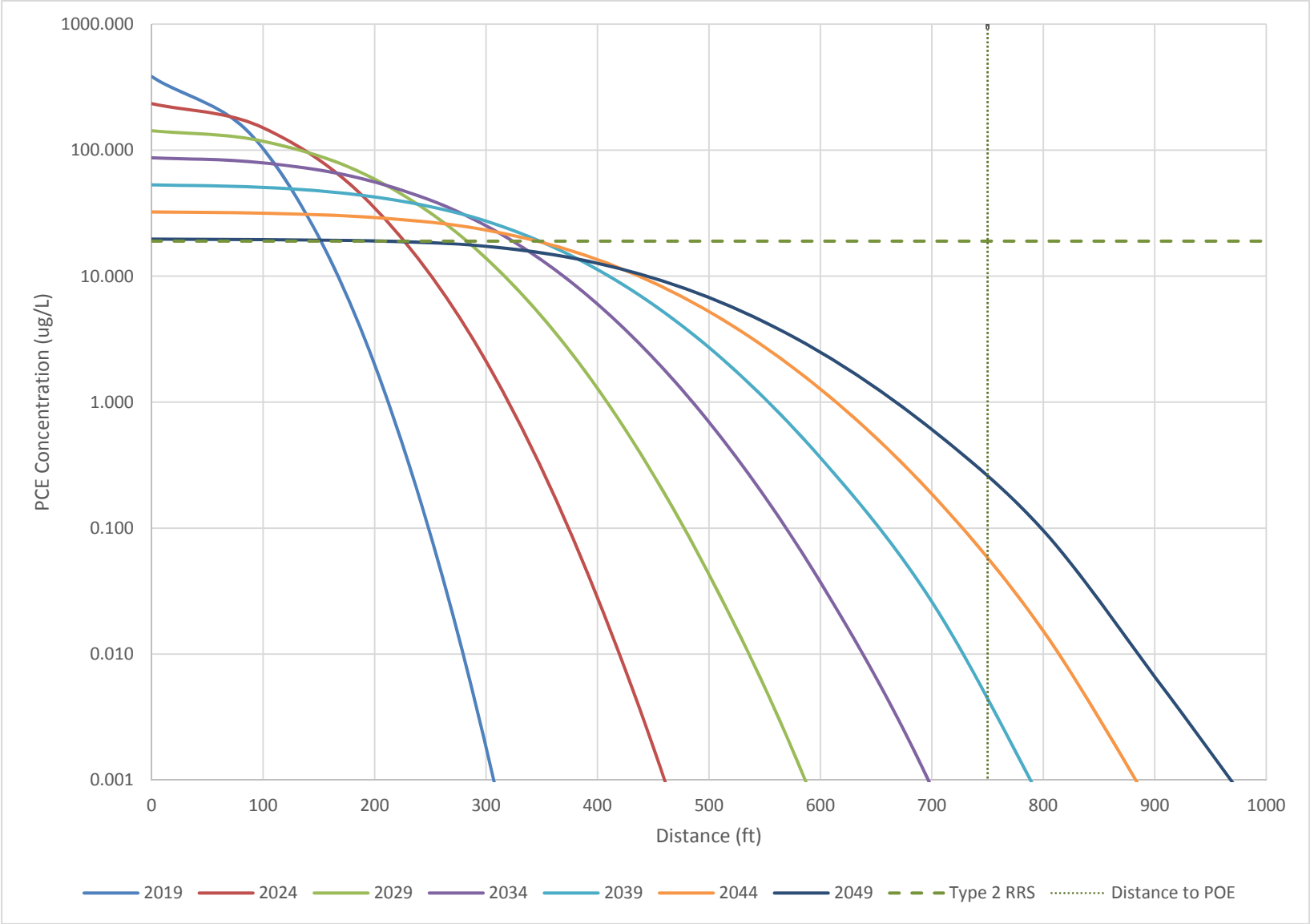


Figure 5A. Simulation Input for Source at MW-17 – Sensitivity Analysis

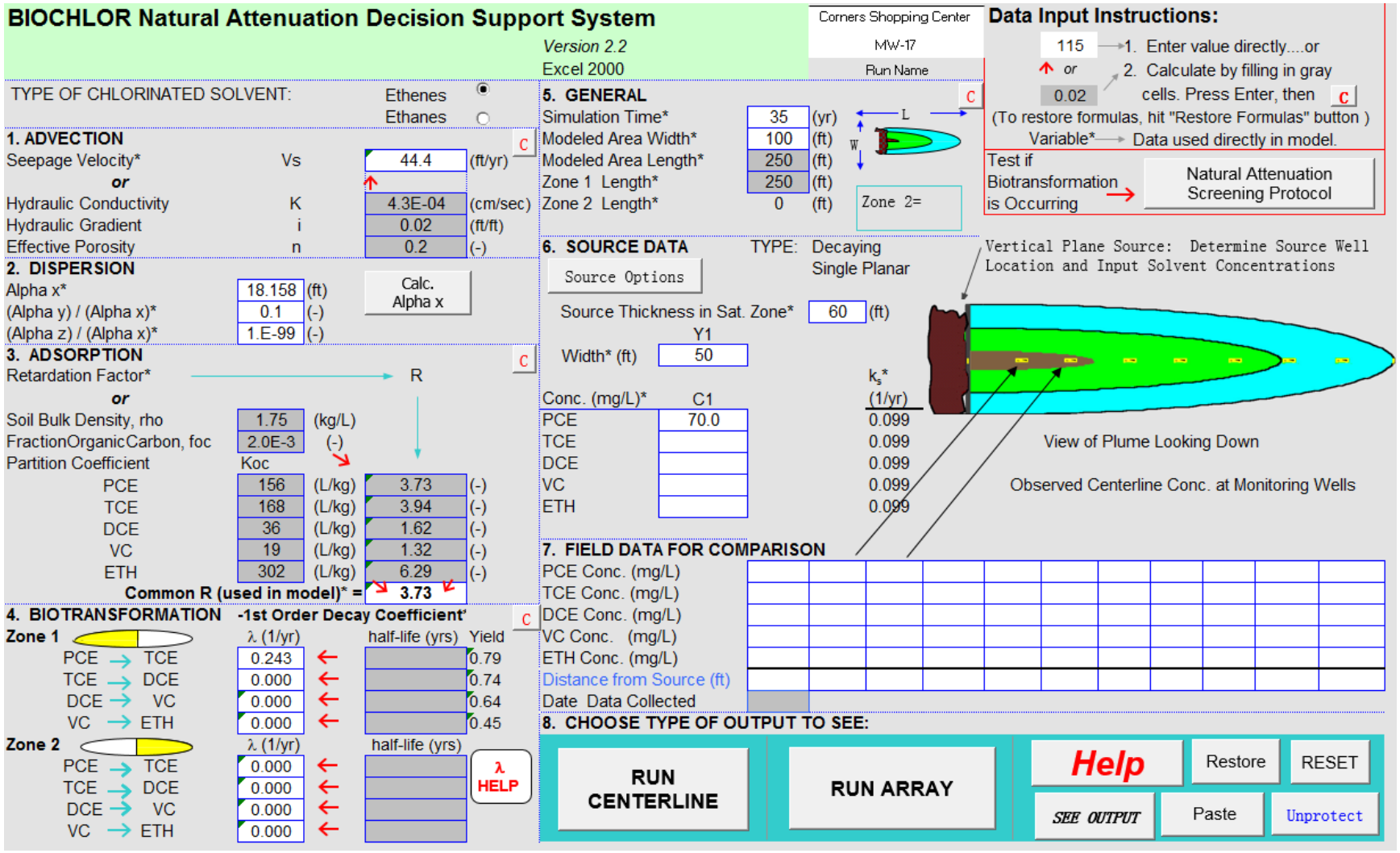


Figure 5B. Simulation Results for Source at MW-17 – Sensitivity Analysis – 5 Years

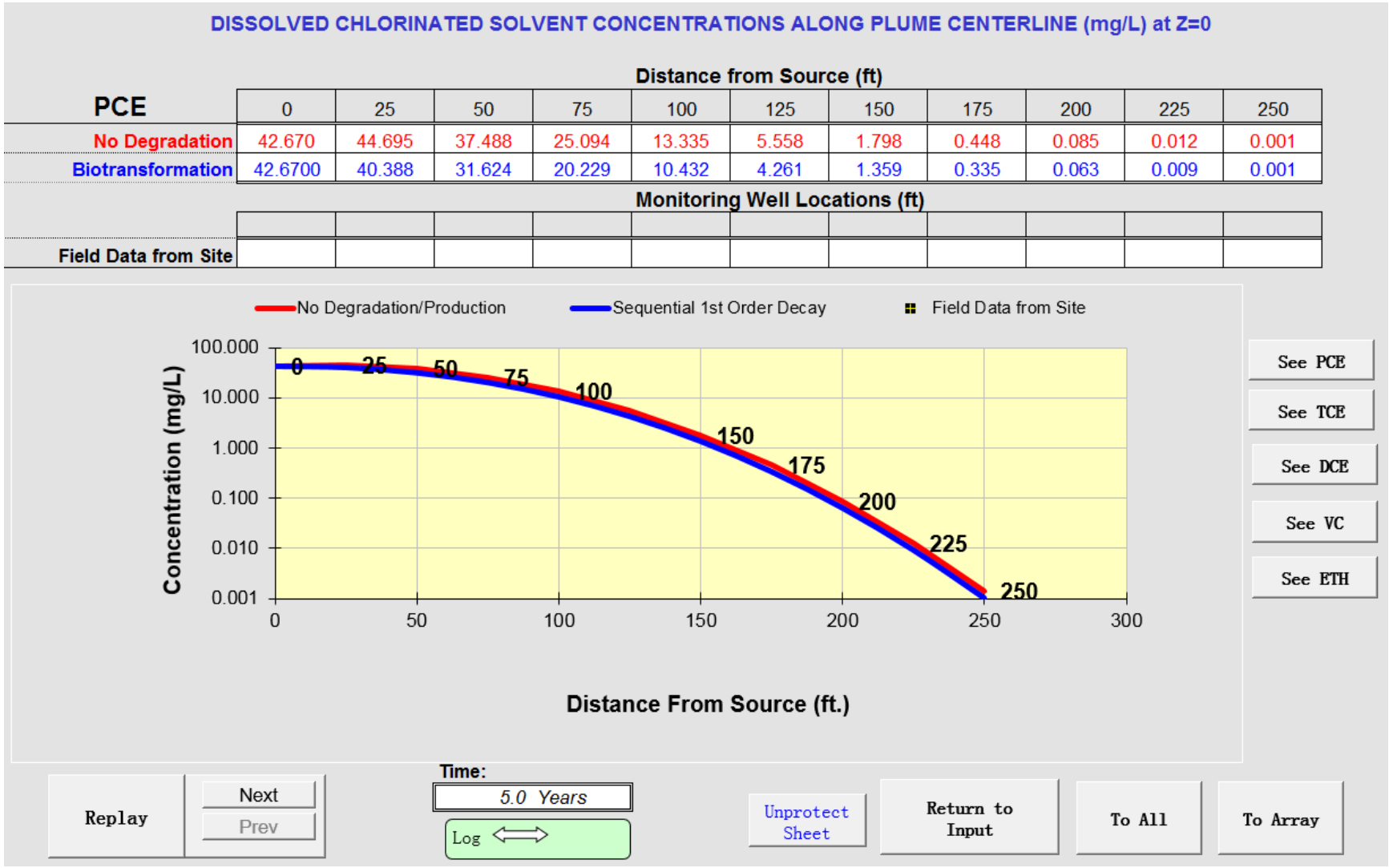


Figure 5C. Simulation Results for Source at MW-17 – Sensitivity Analysis – 10 Years

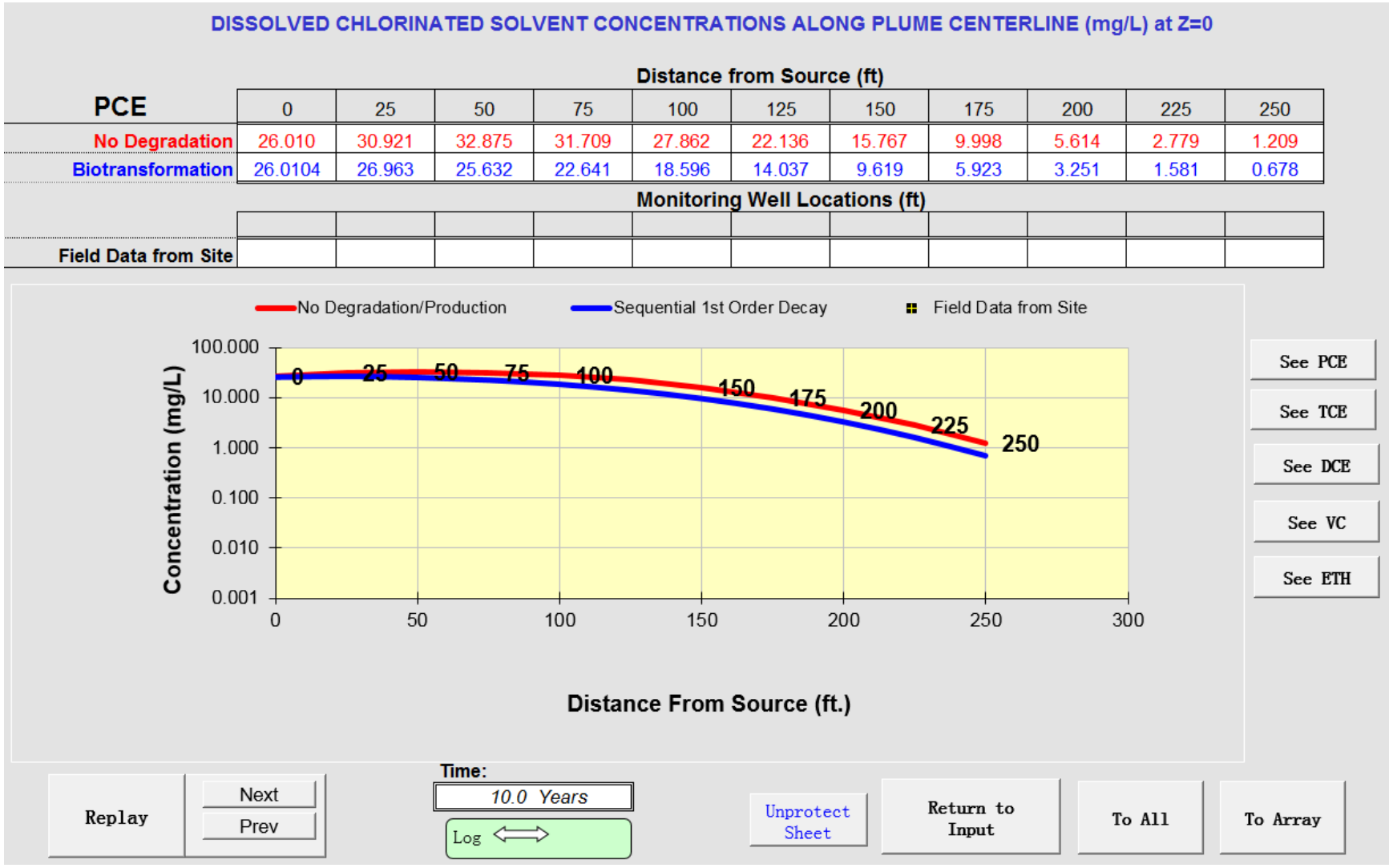


Figure 5D. Simulation Results for Source at MW-17 – Sensitivity Analysis – 15 Years

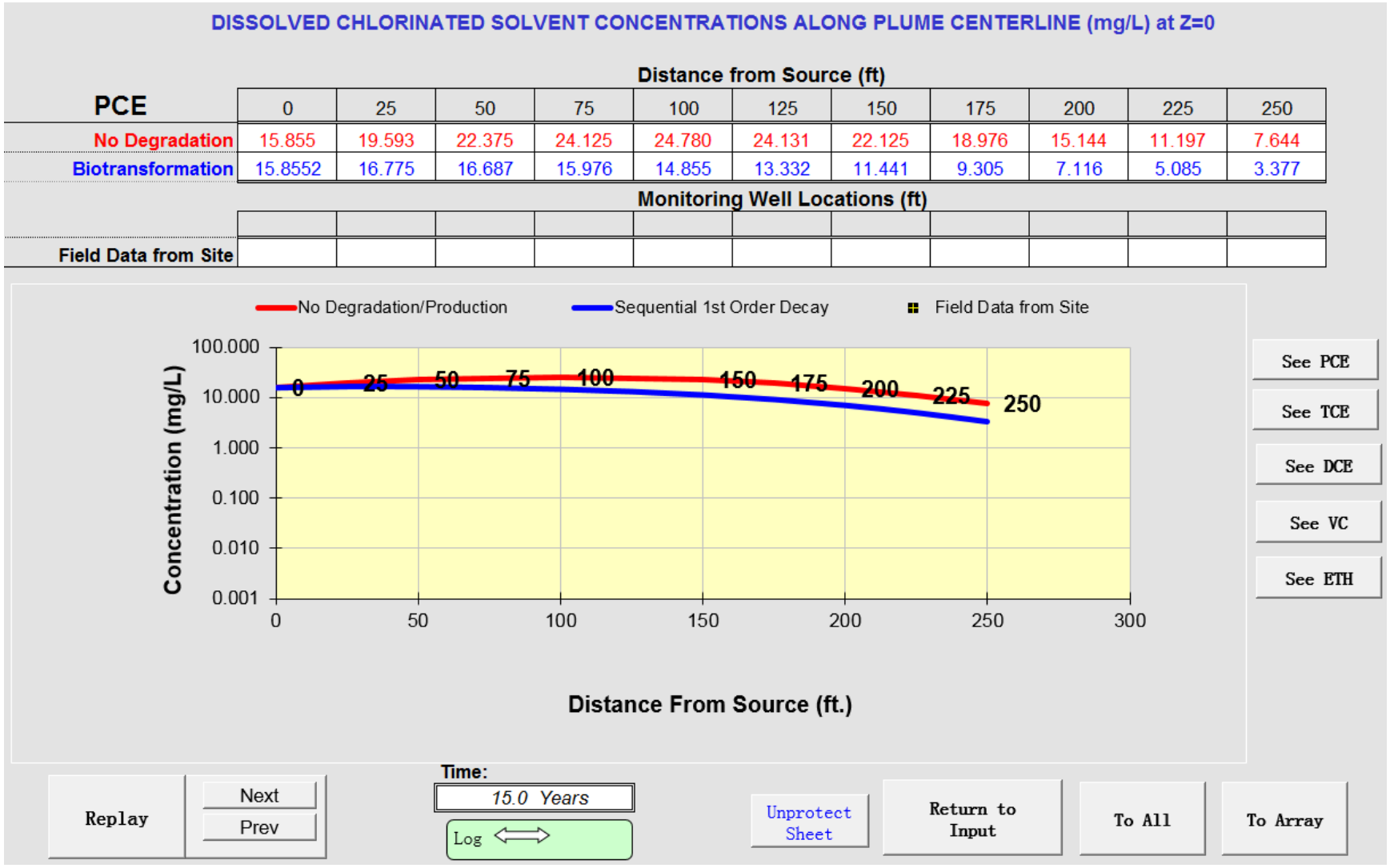


Figure 5E. Simulation Results for Source at MW-17 – Sensitivity Analysis – 20 Years

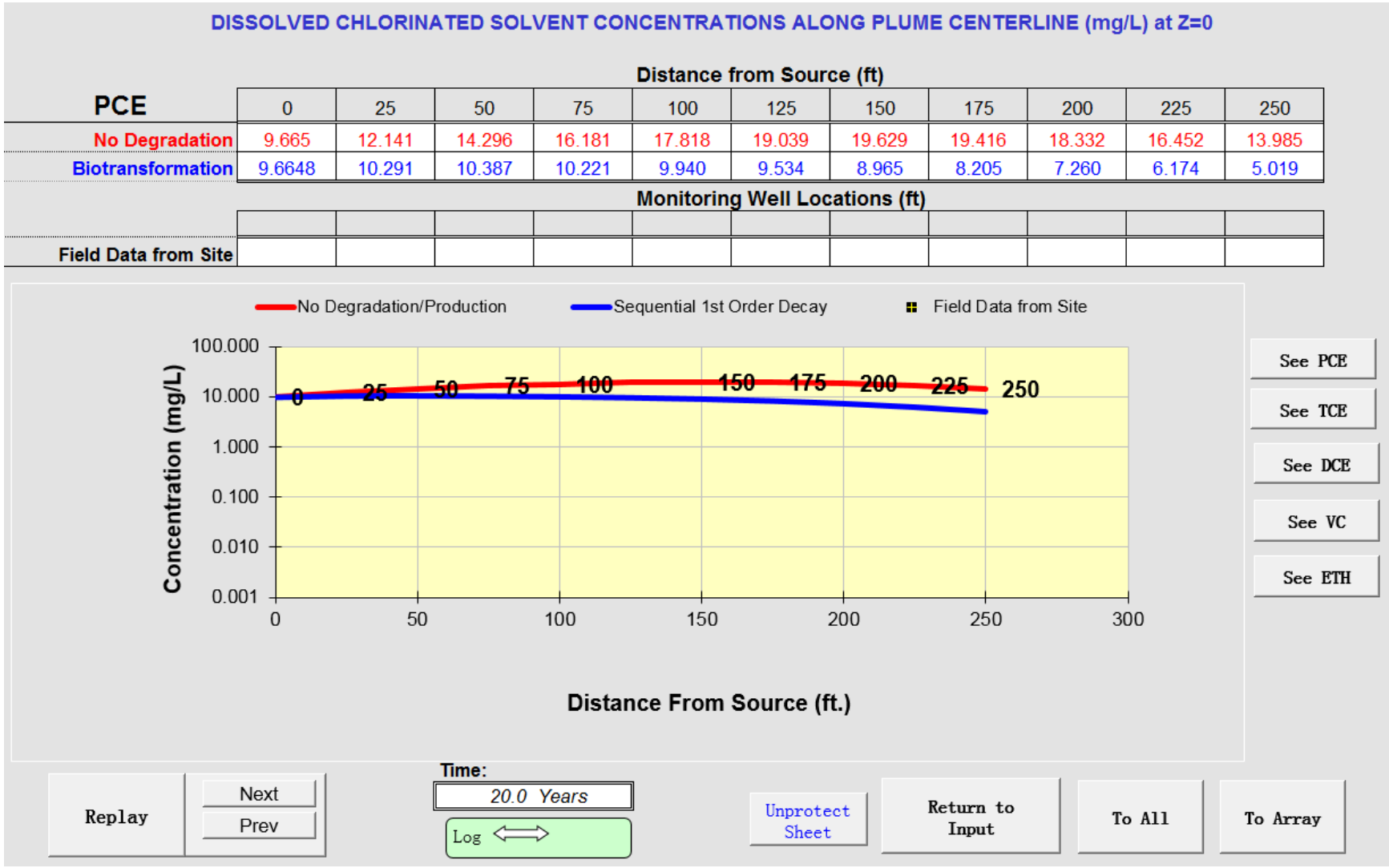


Figure 5F. Simulation Results for Source at MW-17 – Sensitivity Analysis – 25 Years

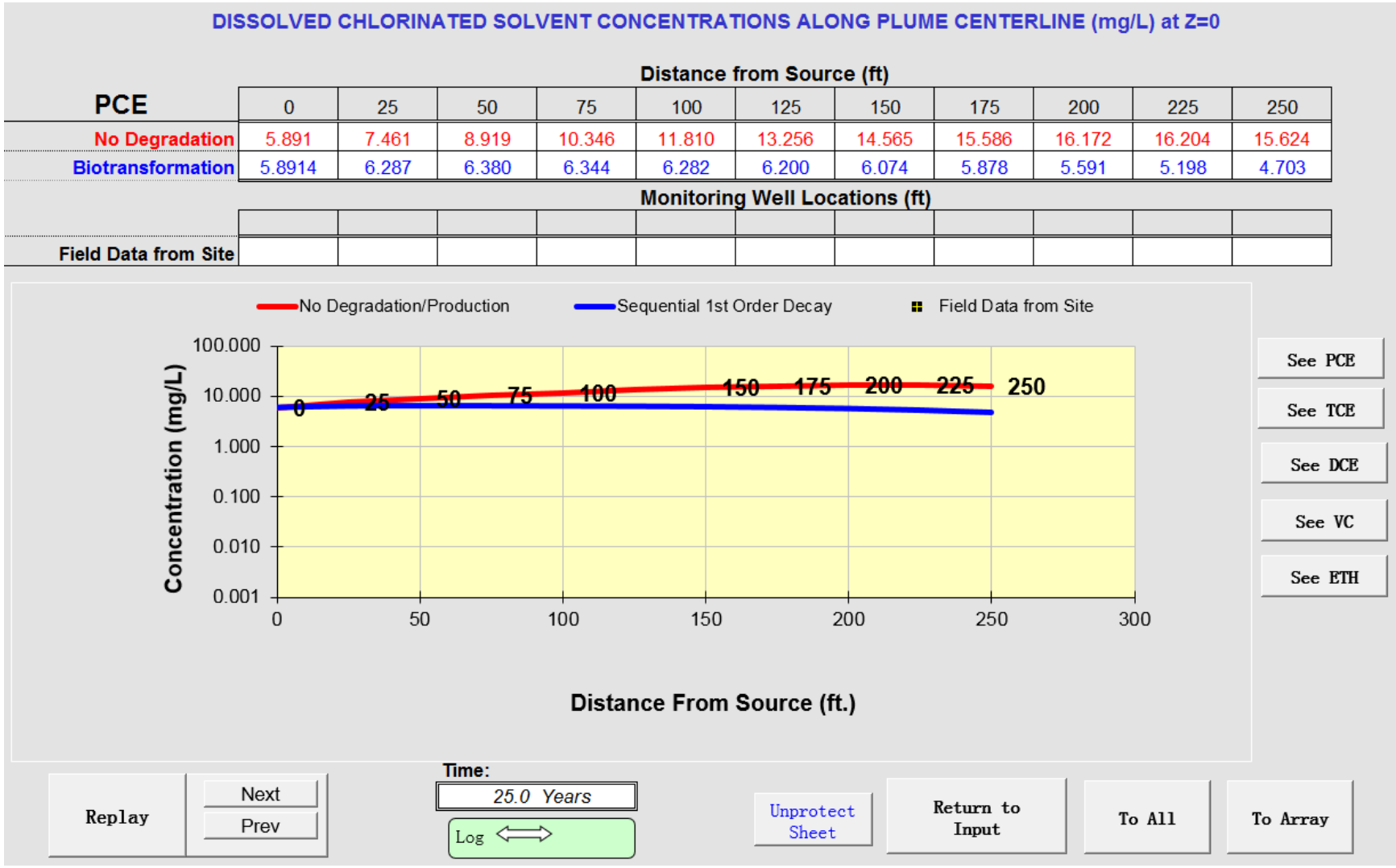


Figure 5G. Simulation Results for Source at MW-17 – Sensitivity Analysis – 30 Years

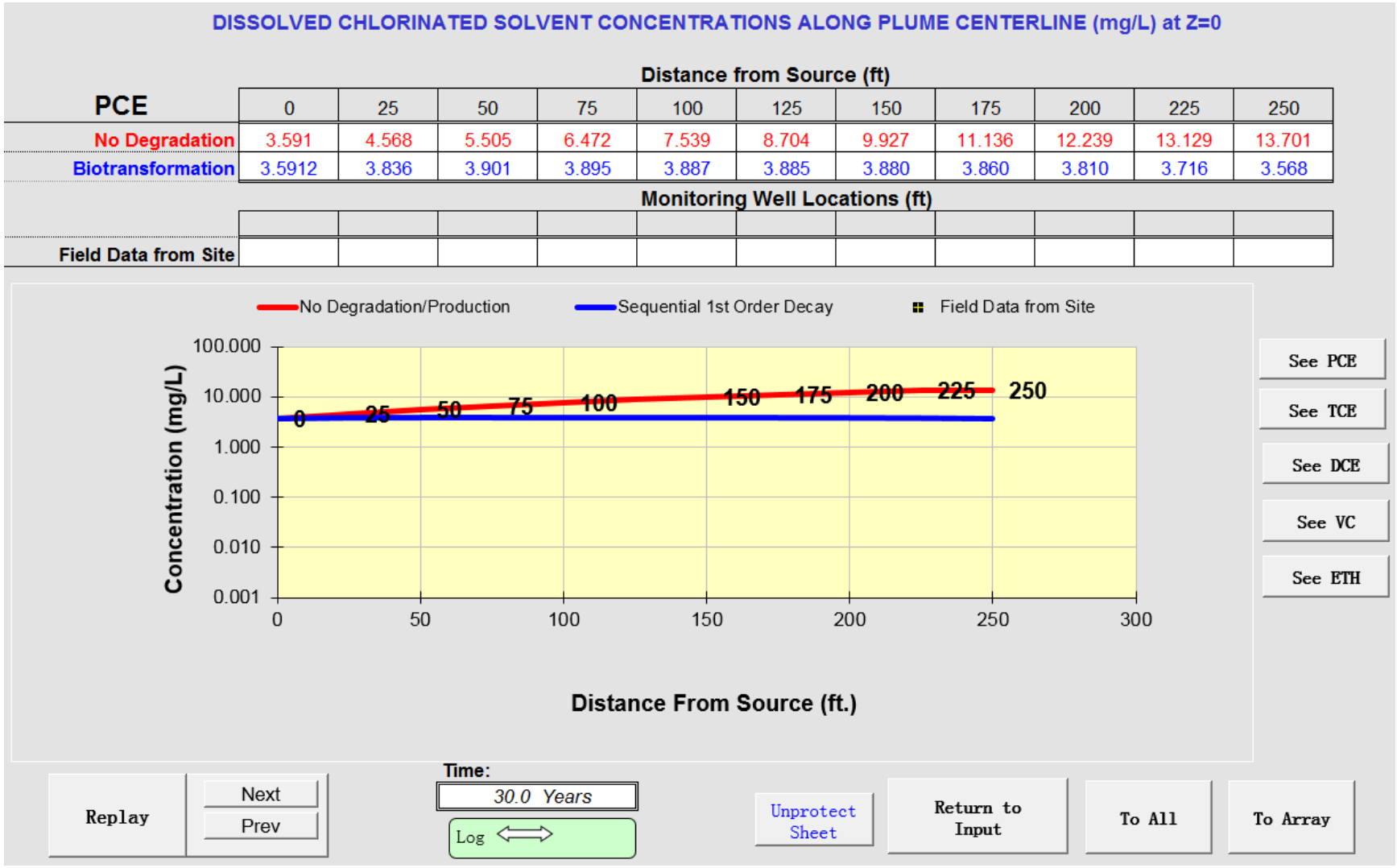


Figure 5H. Simulation Results for Source at MW-17 – Sensitivity Analysis – 35 Years

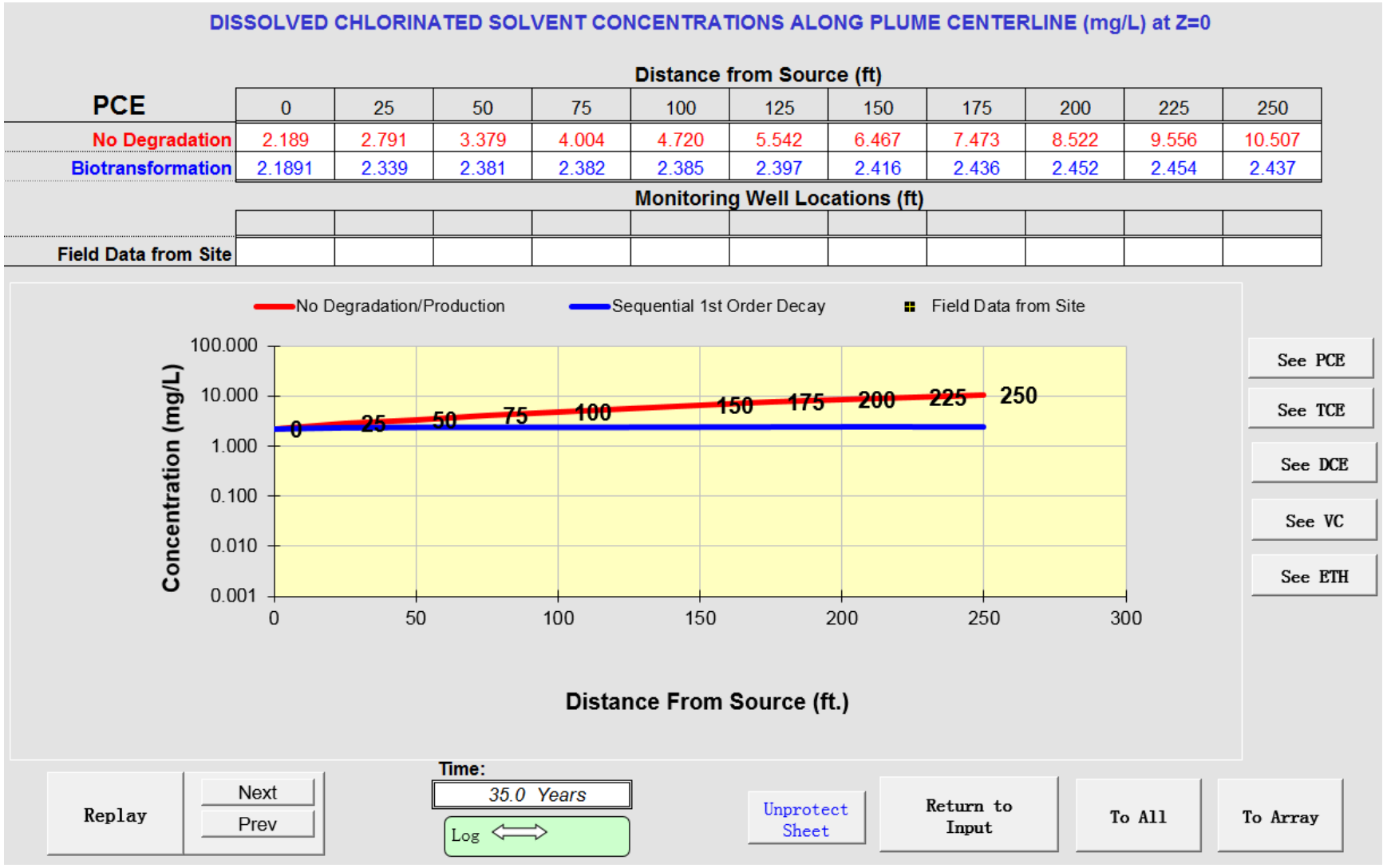


Figure 5I. Simulation Results for Source at MW-17 – Sensitivity Analysis – Summary

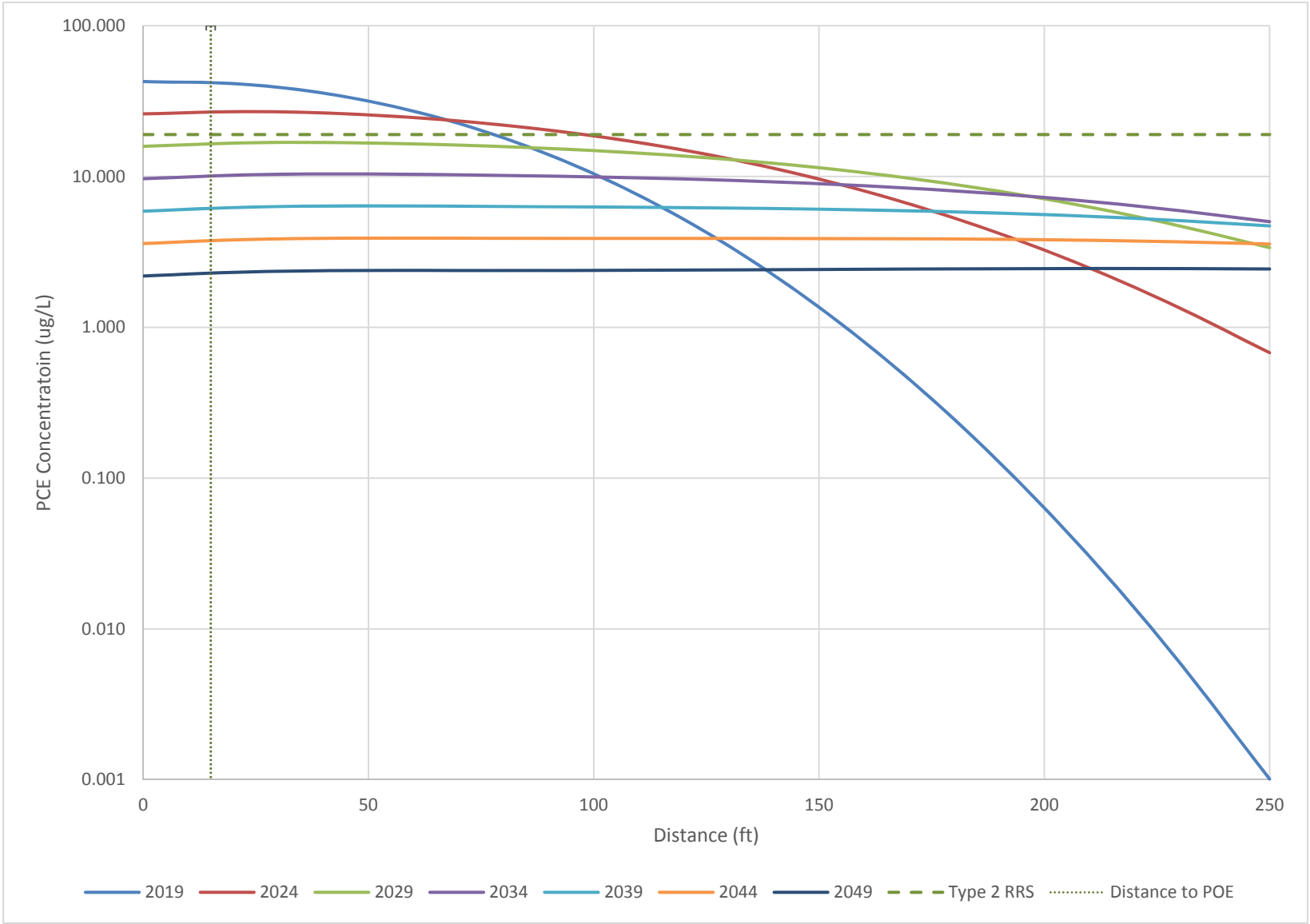


Figure 6A. Simulation Input for Source at MW-19 – Sensitivity Analysis

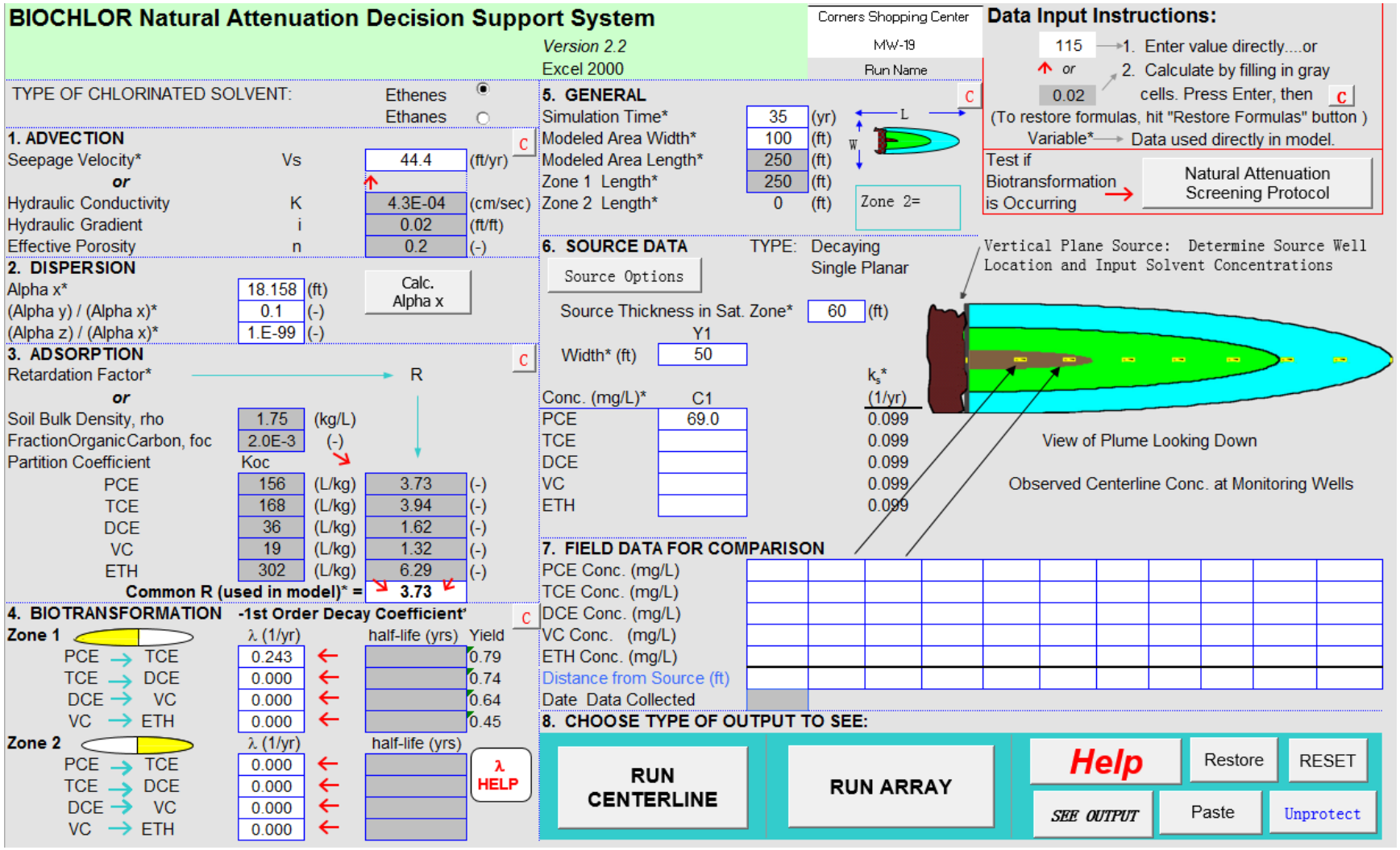


Figure 6B. Simulation Results for Source at MW-19 – Sensitivity Analysis – 5 Years

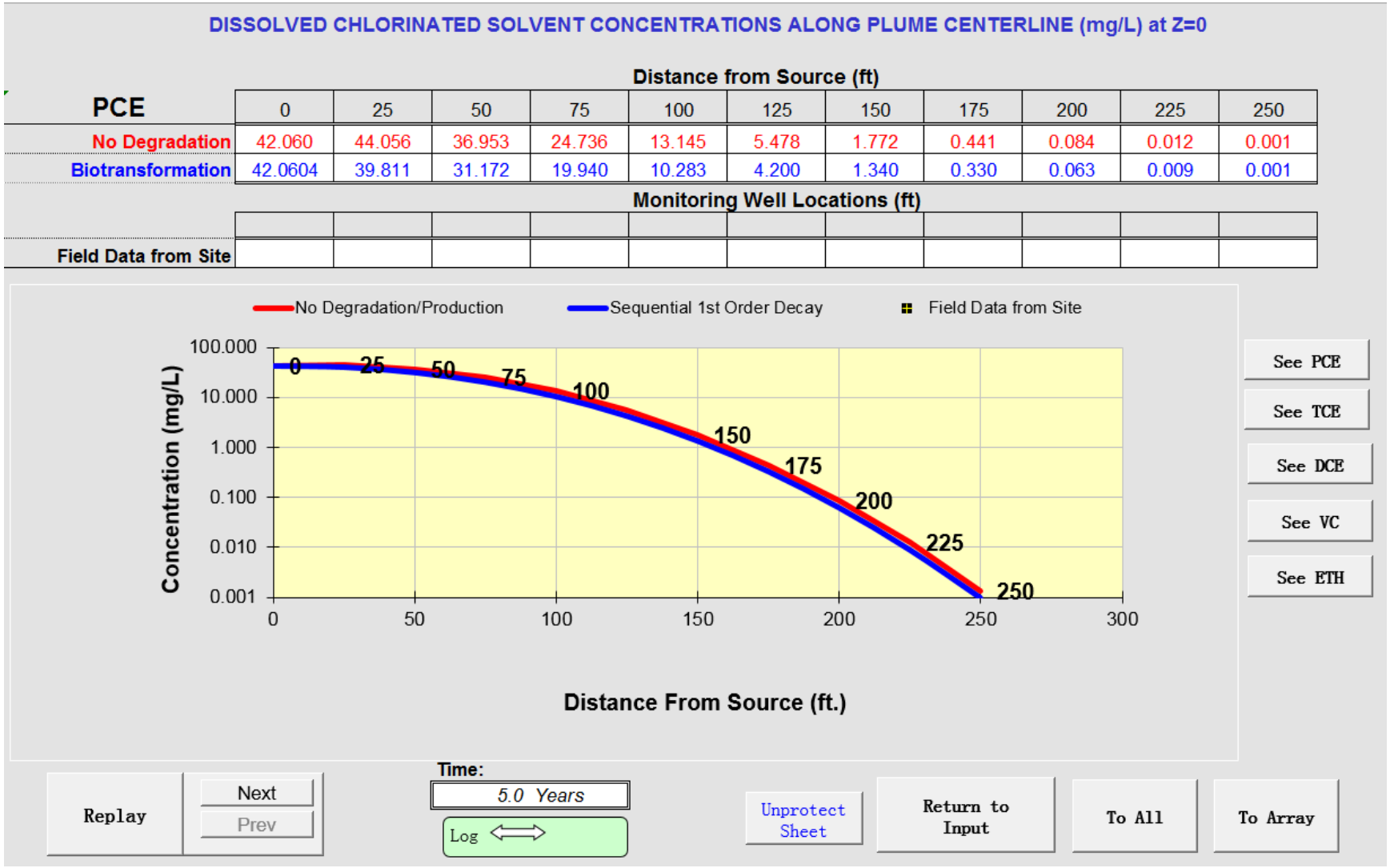


Figure 6C. Simulation Results for Source at MW-19 – Sensitivity Analysis – 10 Years

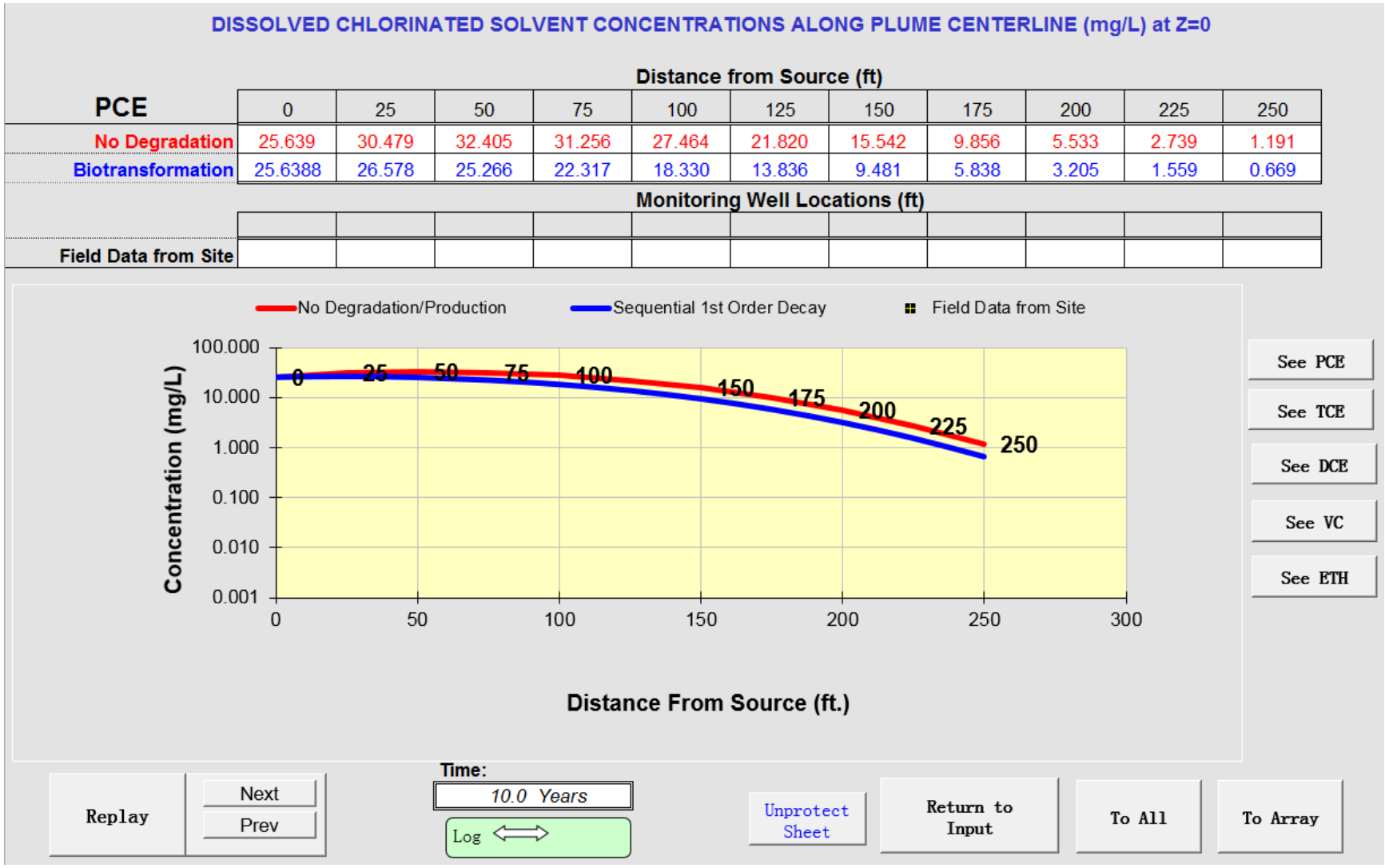


Figure 6D. Simulation Results for Source at MW-19 – Sensitivity Analysis – 15 Years

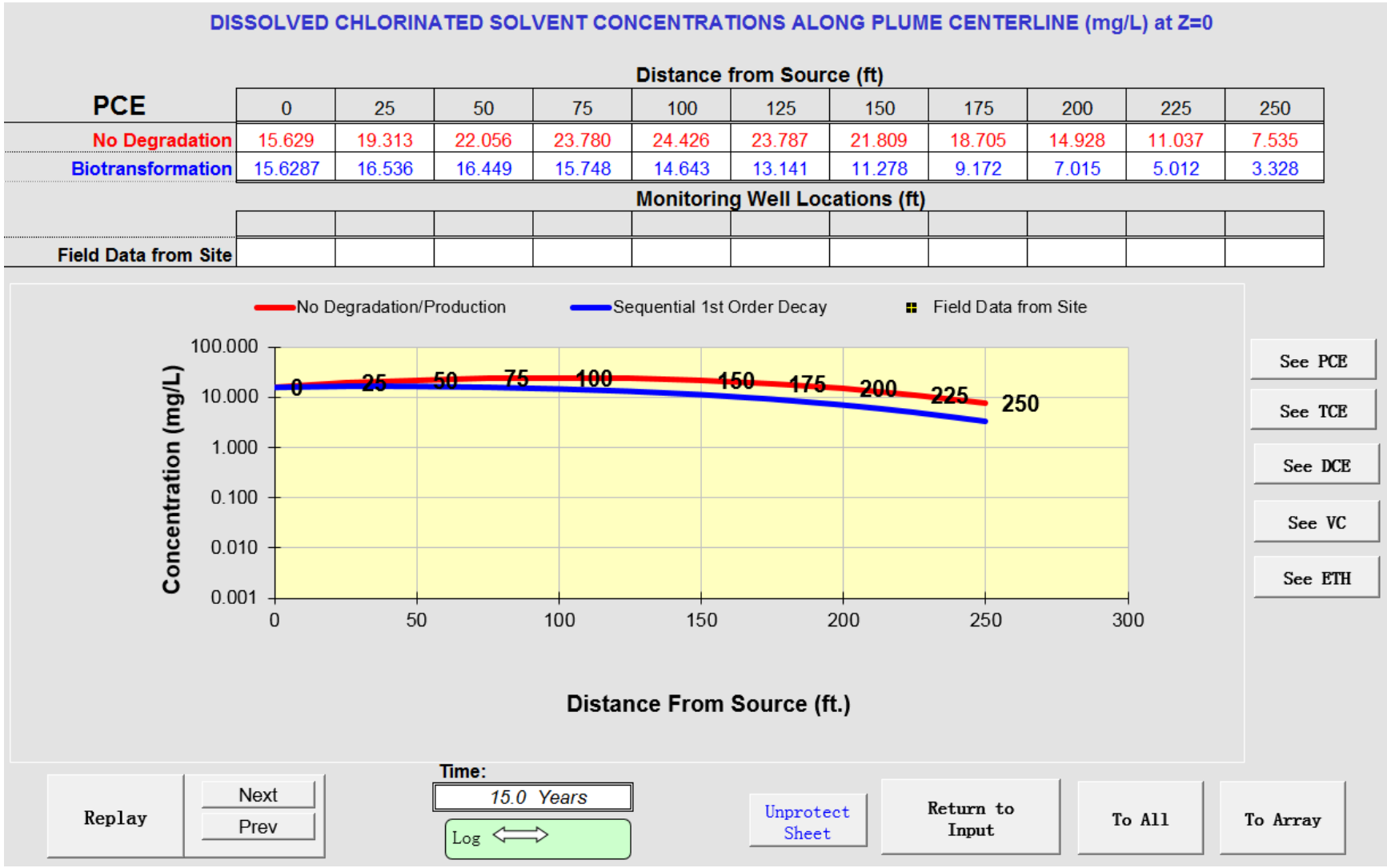


Figure 6E. Simulation Results for Source at MW-19 – Sensitivity Analysis – 20 Years

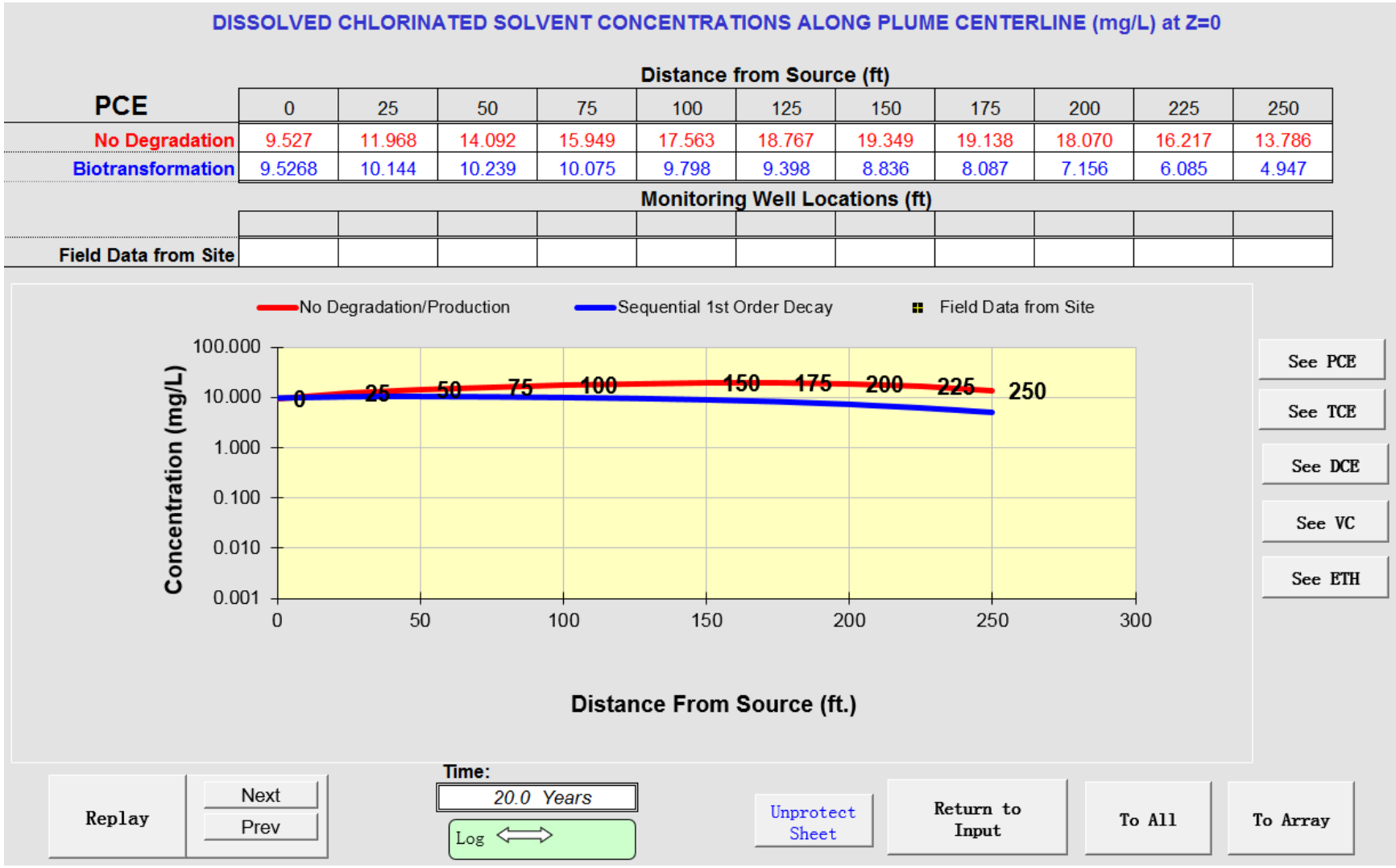


Figure 6F. Simulation Results for Source at MW-19 – Sensitivity Analysis – 25 Years

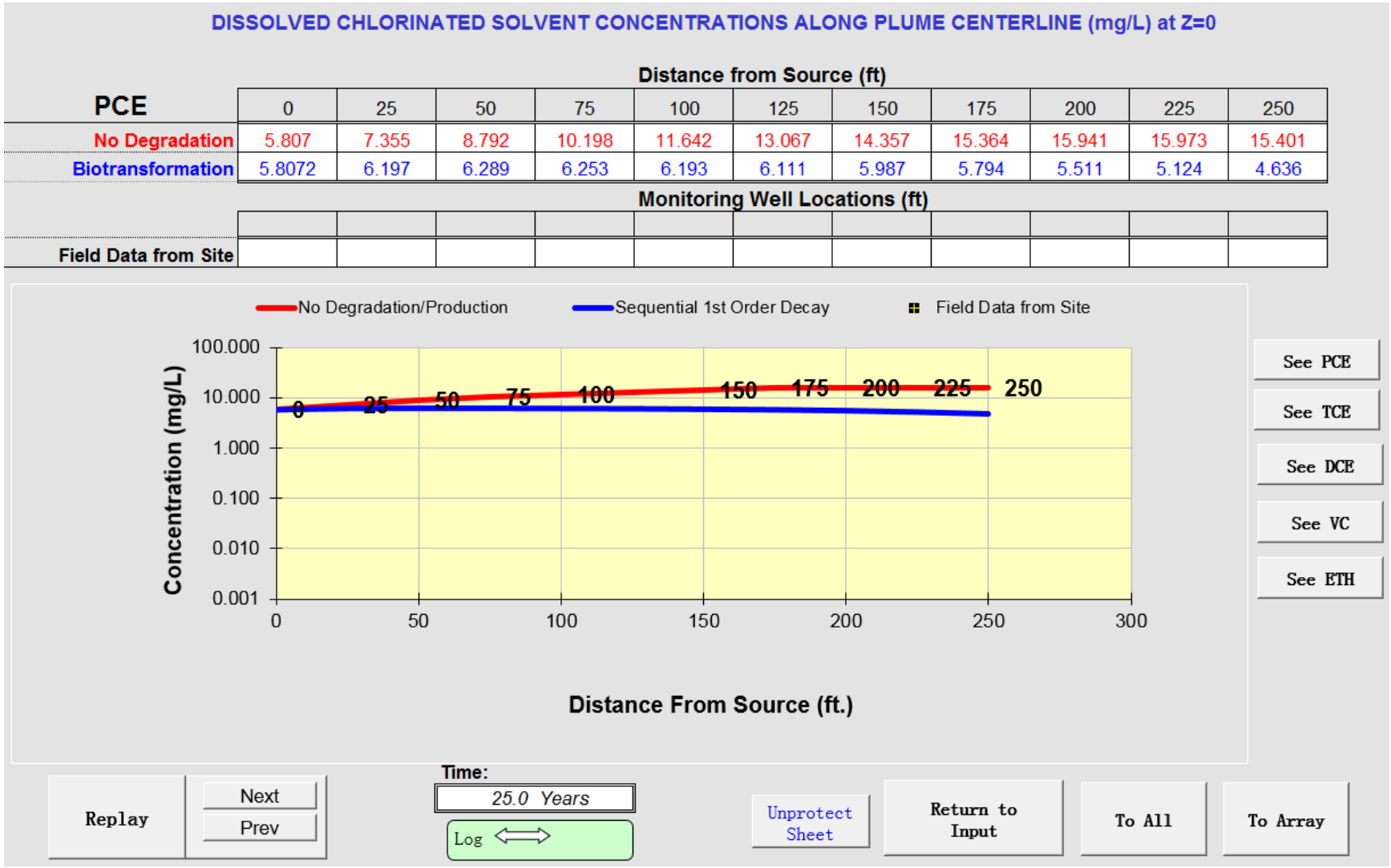


Figure 6G. Simulation Results for Source at MW-19 – Sensitivity Analysis – 30 Years

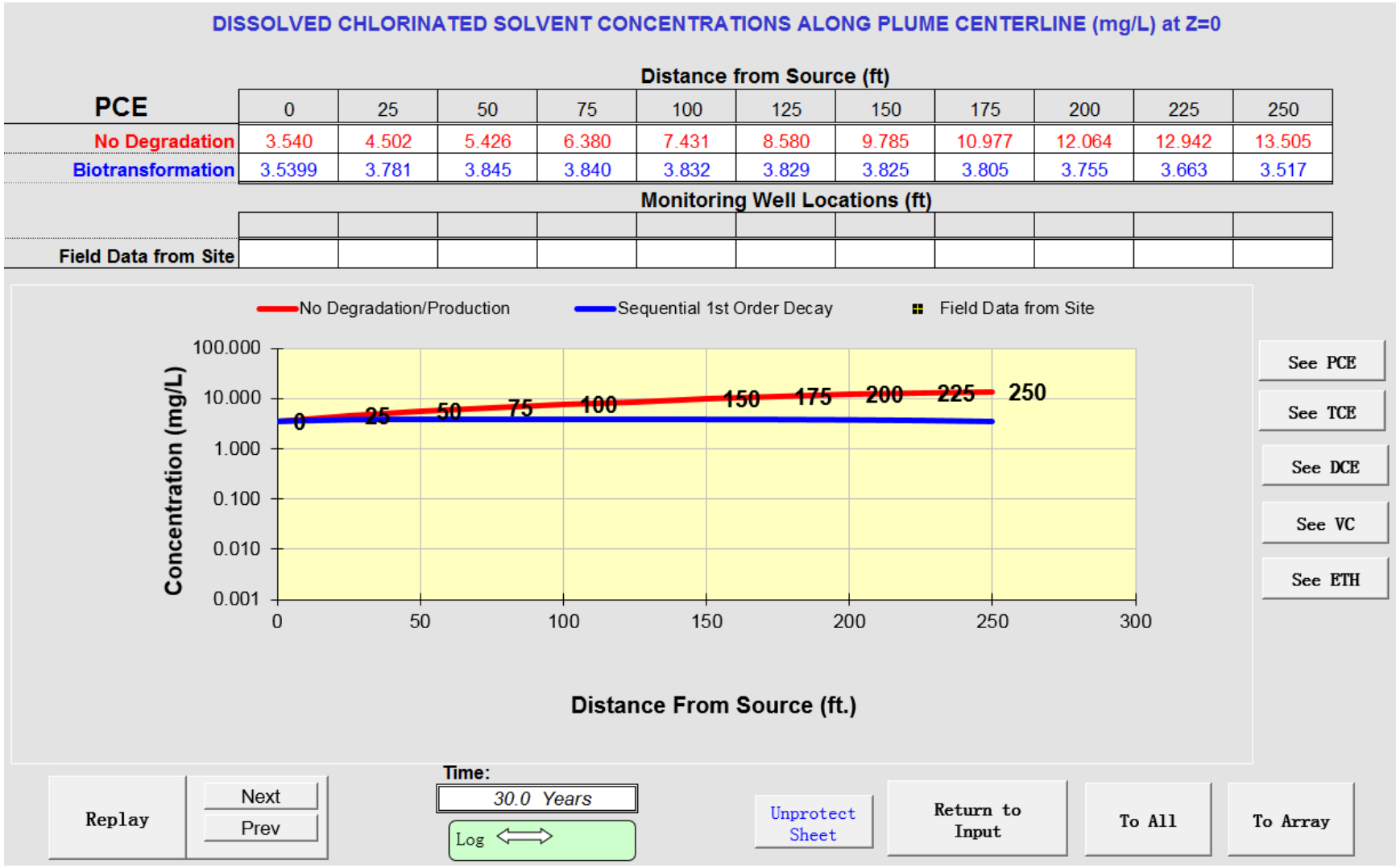


Figure 6H. Simulation Results for Source at MW-19 – Sensitivity Analysis – 35 Years

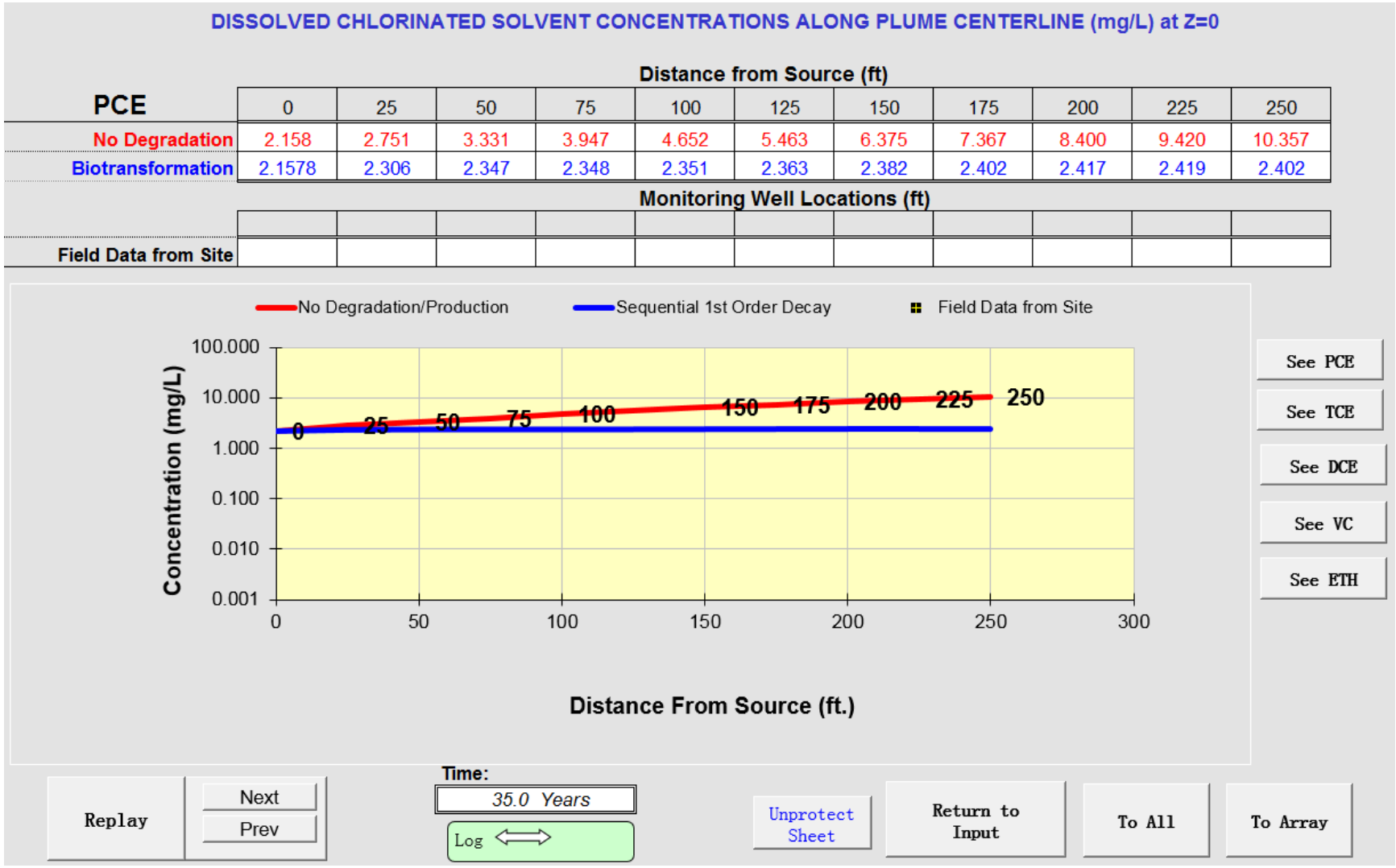


Figure 6I. Simulation Results for Source at MW-19 – Sensitivity Analysis – Summary

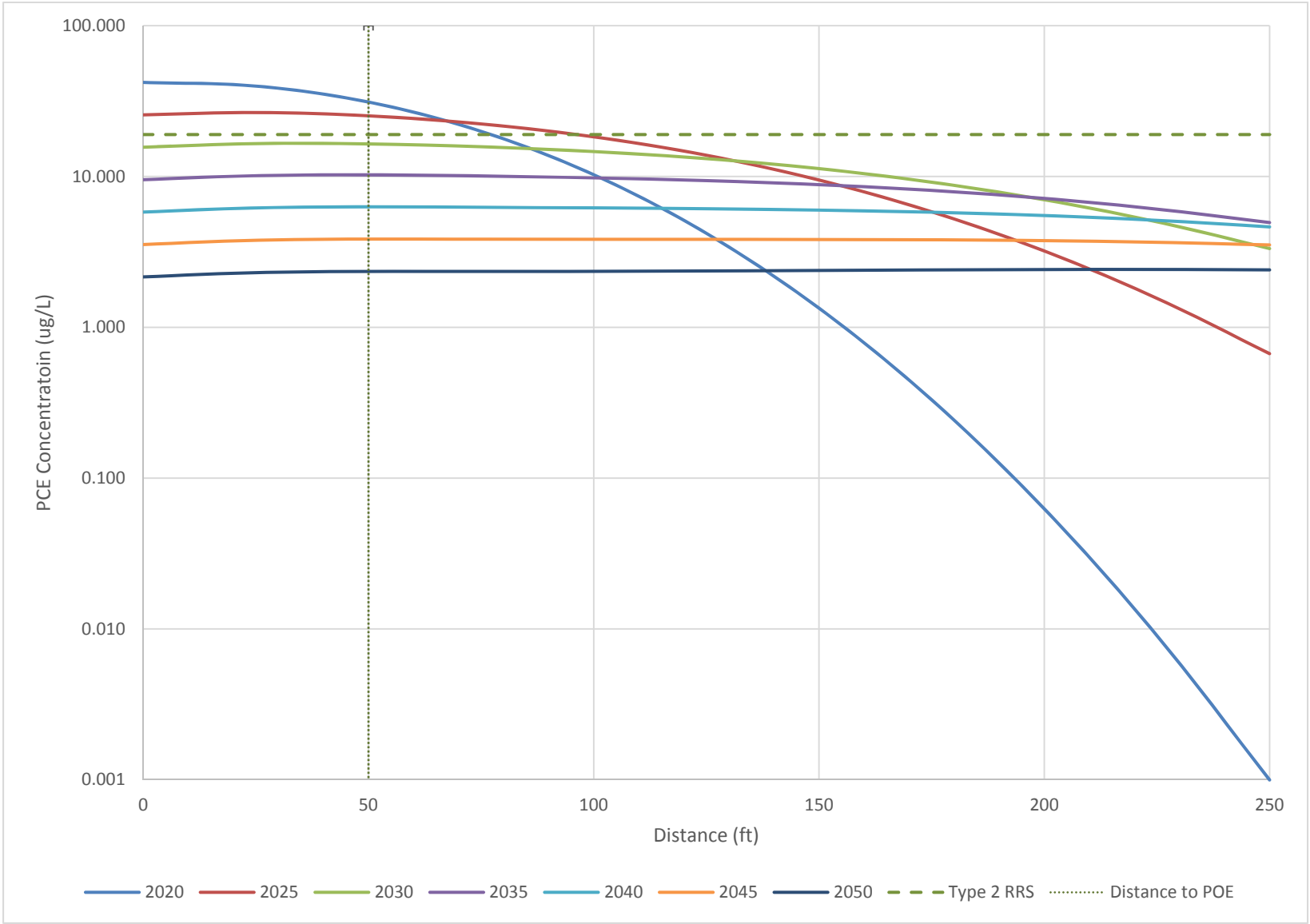


Table 5. Summary of BIOCHLOR Input Parameter Values

Parameter	Unit	Parameter Value			Data Source
		DVEW-7	MW-17	MW-19	
Hydraulic Conductivity	cm/sec	4.29E-04			Arithmetic mean of slug test results
Hydraulic Gradient	ft/ft	0.02			Determined based on groundwater elevations measured in 2014 and 2015
Effective Porosity	-	0.2			Arithmetic mean of effective porosities in silt (McWorter and Sunada, 1977)
Longitudinal Dispersivity	ft	24.9	18.2	18.2	Calculated using Xu and Eckstein, 1995 equation
Transverse Dispersivity	ft	2.49	1.82	1.82	1/10 of Longitudinal Dispersivity
Vertical Dispersivity	ft	2.5E-98	1.8E-98	1.8E-98	Assumed no vertical dispersion
Soil Bulk Density	kg/L	1.75			Commonly used value
Fraction Organic Carbon	-	2.00E-03			Commonly used value
Koc of PCE	L/kg	156			Soil Screening Guidance (USEPA, 1996)
PCE Decay Rate	1/year	0.486			Determined based on recent groundwater sampling results (see text for details)
Simulation Time	year	35			Chosen to project contaminant plumes 30 years from current year
Modeled Area Width	ft	100			Chosen to simulate concentrations along the center portion of the plume
Modeled Area Length	ft	1000	250	250	Chosen to cover POE and the portion of plume exceeding Type 2 RRS
Source Decay Rate	1/year	0.099	0.099	0.099	Conservative source decay rate allowed in the model given the combination of other parameter values
Source Thickness	ft	60			Determined based on site geology
Source Width	ft	50			Estimated value based on field sampling results
Source Concentration	ug/L	630	70	69	Highest PCE concentration measured during the 2014 and 2015 sampling events
Source Release Date	-	May-14	Jul-14	Feb-15	Date when the source concentrations were measured