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Lockheed Martin Corporation

Interim Source Removal Report

Former American Beryllium Company Site
1600 Tallevast Road
Tallevast, Florida

December 19, 2008

ARCADIS

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1600 Tallevast Road
Tallevast, Florida

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Our Ref.:
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Date:
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This Interim Source Removal Final Report for groundwater at the former American Beryllium Company (ABC) site located at 1600 Tallevast Road in Manatee County, Florida has been prepared in accordance with good scientific and engineering practices by individuals under my direct supervision and me. No other warranty is implied or intended.

_____ _____

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Acronyms and Abbreviations

ABC	American Beryllium Company
bls	Below land surface
COCs	Constituents of Concern
DOT	Department of Transportation
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
GCTLs	Groundwater Cleanup Target Levels
gpm	Gallons per Minute
ISR	Interim Source Removal
IDW	Investigation – derived waste
ID	Isotope Dilution
LMC	Lockheed Martin Corporation
LSAS	Lower Shallow Aquifer System
MDL	Method detection limit
PPE	Personal protective equipment
PVC	Polyvinyl choloride
Sch	Schedule
SIM	Selected ion monitoring
SOP	Standard Operating Procedure

SWS	Southern Waste Services
TCE	Trichloroethene
USAS	Upper Surficial Aquifer System
USEPA	U.S. Environmental Protection Agency
USGS	United States Geological Survey
VOCs	Volatile organic compounds

1. Introduction

1.1 Authorization

ARCADIS was contracted by Lockheed Martin Corporation (LMC) to conduct Interim Source Removal (ISR) activities, including preparation of this final report, for contaminated groundwater at the former American Beryllium Company (ABC) Site (Site) in Tallevast Florida. This final report for the ISR is being submitted to satisfy requirements of Chapter 62-780.500(7)(a) of the Florida Administrative Code (F.A.C.).

1.2 Background Information Summary

The Site is located in the Tallevast area, which is situated between the cities of Sarasota and Bradenton, Florida in southern Manatee County. As shown on Figure 1, the Site is located in the northwest quarter of Section 31, Township 35 South, Range 18 East in the Bradenton, Florida United States Geological Survey (USGS) 7½ minute quadrangle.

On August 3, 2008, approximately 5,000 gallons of recovered groundwater were released from the secondary containment unit for the surge tank that is part of the interim groundwater treatment system at the Site. This water was impacted by certain volatile organic compounds (VOCs) and 1,4-dioxane. The response to this release is described in the remainder of this report.

1.3 Assessment Investigations

From August 8, 2008 to September 3, 2008, soil and groundwater samples were collected in the vicinity of the release in order to delineate the lateral and vertical extent of resultant impacts. Sampling locations are depicted in Figures 2 and 3. The sample locations were generally laid out as a 10 to 15 foot grid pattern in and adjacent to the area impacted by the spill. This program incorporated a total of 30 sample locations.

A total of four soil samples each were collected at 16 locations from 0 to 0.5 feet below land surface (bls), 0.5 to 2 feet bls, 2 to 4 feet bls, and 4 to 6 feet bls to the groundwater table. Three soil samples each were collected from 0 to 0.5 feet bls, 0.5 to 2 feet bls, and 2 to 4 feet bls because the groundwater table was higher at those locations. Due to the presence of underground piping, two soil samples each were collected from two locations from 0 to 0.5 feet bls and 0.5 to 2 feet bls. A total of 104 soil samples were collected by a hand-auger method following the procedures in

Florida Department of Environmental Protection (FDEP) Standard Operating Procedure (SOP) #FS3000.

Groundwater samples were collected at 5-foot intervals starting at the groundwater table (approximately 4 to 6 feet bls) and ending at the top of the hard streak (approximately 30 feet bls). This resulted in five groundwater samples per location. At two locations, groundwater samples were not collected due to the presence of underground piping. In-situ groundwater samples were collected using a Geoprobe® direct push sampler. A probe was pushed to the bottom of the desired interval and the probe was retracted slightly to deploy an integral well screen into the zone. A groundwater sample was collected from the bottom of the screened probe utilizing a peristaltic pump and dedicated tubing. A total of 140 groundwater samples were collected following the procedures in FDEP SOP #FS2200.

All samples were analyzed by TestAmerica in Tampa, Florida using United States Environmental Protection Agency (USEPA) Method 8260B for Volatile Organic Compounds (VOCs) and USEPA Method 8260C with heated purge, selective ion monitoring (SIM) and isotope dilution (ID) for 1,4-dioxane. The analytical results for soil and groundwater samples are presented on Figures 2, 3, 4 and 5. These results are discussed below. Laboratory Analytical Reports are included in Attachment 4 and Data Validation Reports are included in Attachment 5.

Soil Results

The results of the soil samples were compared to the Residential Direct Exposure Limits, Commercial/Industrial Direct Exposure Limits and the Leachability Standards based on Groundwater Clean-up Target Levels (GCTLs). As shown on Figure 2, the results for soil samples at all 30 locations were several orders of magnitude below the Residential and Commercial/Industrial Direct Exposure Limits for VOCs and 1,4-dioxane. The results for the top two feet of soil at all 30 sample locations were below the Leachability Standards based on GCTLs for VOCs and 1,4-dioxane. In seven of the sample locations in or near the spill area, the concentration of 1,4-dioxane was above the Leachability Standards based on GCTLs in the samples collected from the vadose zone immediately above the water table. However, the VOCs results for those seven samples were below the Leachability Standards based on GCTLs. These results demonstrate that these localized soil impacts likely resulted from release of 1,4-dioxane in the shallow groundwater at these locations. Therefore, the ISR focused on groundwater extraction and a soil remedy was not required.

Groundwater Results

The results indicated that site related constituents of concern (COCs) were present in the shallow groundwater in the immediate vicinity of the release (Figure 3). Specifically, site related COCs were detected at concentrations above GCTLs in 9 of the 28 samples collected from the 5- to 9-foot bls interval, and 2 of the 28 samples collected from the 10- to 14-foot bls interval. Isoconcentration contours for trichloroethene (TCE) and 1,4-dioxane in the 5- to 9-foot bls interval and the 10- to 14-foot bls interval are shown on Figures 4 and 5, respectively. Site related COCs were detected at concentrations above GCTLs in one sample collected from the 15- to 19-foot bls interval, two samples from the 2-0 to 24-foot bls interval, and three samples from the 25- to 29-foot bls interval.

The results of the investigation indicated that the release from the secondary containment unit primarily impacted the shallow 5 to 9 foot bls groundwater in the immediate vicinity of the spill. The maximum distance from the point of the release that impacts were detected was approximately 30 feet. No COCs were detected in samples collected further than 30 feet from the point of the release. These results showed that the impacts were confined to shallowest groundwater and to within site property boundaries.

1.4 Interim Source Removal

An ISR was conducted in accordance with Chapter 62-780.500(3) of the F.A.C. to extract groundwater from the 5- to 9-foot bls interval beneath the approximately 1,000 square foot area where site related COCs were detected above GCTLs. Groundwater was pumped from 15 shallow extraction wells and collected in a double-walled steel storage tank for transportation off-site for proper disposal.

GeoTrans Inc. developed a local flow and transport model of the area in and around the spill based on the existing site-wide model. The results of modeling runs (short term pumping) at individual extraction wells were used to refine the estimated hydraulic conductivity of the Upper Surficial Aquifer System (USAS) in the local model domain for use in predictive simulations. These simulations were used to determine the locations and pumping rates for the 15 extraction wells. The objectives were to ensure capture of the plume associated with the spill in 30 days or less without resulting in conditions that would facilitate upward movement of pre-existing COCs in the lower part of the USAS and upper Lower Shallow Aquifer System (LSAS).

Double containment was provided for all groundwater piping and the system was manned continuously while in operation. The ISR facilities are shown on Figure 6, on As-Built Drawings 1 through 3 in Attachment 3 and are described below.

The 15 shallow extraction wells were located as shown on Figure 6 and on As-Built Drawing 1 in Attachment 3. A detail for the extraction wells is shown on As-Built Drawing 3 in Attachment 3 and summarized below.

Extraction Wells

- 2-inch-diameter well with total depth of 11 feet
- 1-foot Schedule (Sch.) 40 polyvinyl chloride (PVC) sump at bottom
- 5-foot Sch. 40 PVC 10-slot screen extending from 5 foot bls to 10 foot bls
- 2-inch-diameter Sch. 40 PVC riser to above ground surface
- 6/20 grade filter sand pack
- 2-foot bentonite seal to prevent surface runoff seepage along well casing

Four sets of nested pairs of monitoring wells were also installed near the extraction wells at the locations shown on Figure 6 and As-Built Drawing 1 in Attachment 3. The monitoring well construction is summarized below.

Monitoring Wells

- 2-inch-diameter well
- Shallow "S" wells with a total depth of 10 feet
- Mid-range "M" wells with a total depth of 18 feet
- "S" wells with Sch. 40 PVC 10-slot screen extending from 5 foot bls to 10 foot bls
- "M" wells with Sch. 40 PVC 10-slot screen extending from 16 foot bls to 18 foot bls
- 2-inch-diameter Sch. 40 PVC riser to near ground surface
- 20/30 grade filter sand pack
- 2-foot bentonite seal to prevent surface runoff seepage along well casing

- Protective flush-mount surface casing and locking cap

Each extraction well was equipped with QED Model #AP28 pneumatically operated pump. The pumps had capacities of up to 2 gallons per minute (gpm) but the typical flow from each well was 0.25 to 0.5 gpm. Air was supplied for the pneumatic pumps by an air compressor (Jenny model K15A-8P) located in the adjacent treatment building. Each well pump was fitted with a sample tap and isolation valves for the air supply and groundwater discharge.

The extraction wells discharged into a manifold consisting of ¾- and 1-inch-diameter galvanized steel pipe. Secondary containment for the groundwater piping was provided either by piping or a containment tray as shown on the As-Built Drawings in Attachment 3. The piping from the northern eight extraction wells was combined in one manifold while the southern seven extraction wells were combined in a second manifold. Flowmeters and sample taps were provided for each manifold, and a sample tap was provided for the combined flow from all the extraction wells.

The discharge line with accumulated recovered groundwater discharged into a 17,600-gallon double-walled steel storage tank. A vapor-phase carbon unit was installed on the vent from the storage tank. As necessary, groundwater was removed from the storage tank using a vacuum truck and transported off-site for disposal as a non-hazardous waste. A containment area was provided for the vacuum trucks during the loading operation.

In addition to a continuously manned operation, local signal battery-powered alarms were provided at two locations in the containment tray to detect potential pipeline groundwater leaks. Similarly, a local signal battery-powered alarm was provided to detect potential accumulation of groundwater in the containment section of the double-walled tank. Additionally, an electric-powered audible alarm for high level in the storage tank was located in the adjacent treatment building.

Operating personnel monitored and recorded key process parameters such as extraction wells in operation, air pressure, groundwater flow rates, groundwater levels and storage tank level. They also periodically observed all facilities and containment/high level alarms. Daily Summary Reports are presented in Attachment 1. Pump flow rates were adjusted based on the analytical results and groundwater level measurements in order to maximize horizontal groundwater flow in the 5 to 9 foot bls interval. The system was generally operated for 10 to 16 hours per day and then cycled off each night allowing groundwater levels to recover to near static levels from the previous day. Water level monitoring data is presented in Attachment 2.

Operation of the ISR groundwater extraction system started on September 24, 2008 and continued for 30 days until October 23, 2008 as allowed by Rule 62-780.500(3) of the F.A.C. Progress reports were provided to FDEP weekly during the groundwater extraction activities. Highlights of the ISR operations include the following:

- A total of 74,760 gallons of groundwater were extracted during system operation and extraction well development, and transported off-site for disposal.

- A mobile laboratory (Xenco Laboratories) was on-site to analyze samples collected on September 24-29, 2008. The mobile laboratory provided results for VOCs used for general trending during the first few days of operation. The results from Xenco Laboratories are presented in Attachment 6. These results show 1,4-dioxane as non-detect because Xenco Laboratories did not quantify 1,4-dioxane concentrations.

- A second mobile laboratory (KB Labs) was brought to the site to analyze samples for VOCs and 1,4-dioxane collected on September 22, 2008 and October 6-7, 2008. The results from KB Labs are presented on Tables 1-10 and in Attachment 6.

- Based on analytical results that were not decreasing as rapidly as other areas of the ISR, monitoring well MW-C-10 was converted to an extraction well on October 3, 2008 to extend and accelerate groundwater collection to the east. Monitoring well MW-C-10 was converted back to a monitoring well on October 21, 2008 when the concentration confirmed no detections at the method detection limit (MDL) for VOCs and 1,4-dioxane.

- Extraction wells were turned off when analytical results at specific extraction wells confirmed no detections at the MDL for VOCs and 1,4-dioxane.

Samples were periodically collected from each extraction well, groups of extraction wells in each piping manifold, the combined flow from all the wells and in the storage tank. Samples were also collected from monitoring wells before operations began, at least weekly during operation and 32 days following shutdown of the ISR system. Samples were analyzed by TestAmerica for VOCs by USEPA Method 8260B and 1,4-dioxane by USEPA Method 8260C with heated purge, SIM and ID. Groundwater extraction was determined complete after 30 days of pumping when concentrations of VOCs and 1,4-dioxane were non-detect at all the extraction and monitoring wells.

This was confirmed by sampling at monitoring wells 32 days following shutdown of the ISR extraction system.

Analytical results are summarized in Tables 1 through 10. Concentrations of 1,4,-Dioxane and TCE over time at monitoring wells MW-B-10 and MW-C-10, and extraction wells EW-3, EW-6, EW-7 and EW-8 are presented on Figures 7 through 12, respectively. Laboratory Analytical Reports are presented in Attachment 4 and Data Validation Reports are presented in Attachment 5.

2. Information Required in Accordance with Chapter 62-780.500, F.A.C.

2.1 The Type and Volume of Non-Aqueous Phase Liquid that was Discharged, if Known

Non-aqueous phase liquids were not observed or discharged.

2.2 The Volume of Non-Aqueous Phase Liquid and Volume of Groundwater Recovered

No free non-aqueous phase liquid was released or recovered. Approximately 75,000 gallons of groundwater was extracted and transported off-site for disposal. Copies of the non-hazardous waste disposal manifests are included in Attachment 7.

2.3 The Volume of Contaminated Soil or Sediment Excavated and Treated or Properly Disposed

A small volume of drill cuttings were generated from monitoring and extraction well installation activities. The drill cuttings were placed in a covered, lined roll-off container along with other solid non-hazardous waste generated at the facility and transported off-site for disposal as described below in Section 2.4.

2.4 The Disposal or Recycling Methods for Non-Aqueous Phase Liquid and Contaminated Solids

Drill cuttings, investigation-derived waste (IDW), monitoring well development water, extraction well development water and extracted groundwater generated from ISR activities were disposed as described below.

<u>Drill Cuttings and IDW</u>

Drill cuttings generated during extraction well and monitoring well installation activities, and IDW (personal protective equipment [PPE] and disposal sampling equipment)

throughout the ISR were characterized as non-hazardous, placed in a covered, lined roll-off and transported by Southern Waste Services, Inc. (SWS) for off-site disposal at the Clark Environmental Inc. facility located in Mulberry, Florida.

Monitoring Well Development Water

Development water generated during monitoring well development activities was stored in Department of Transportation (DOT) approved 55-gallon drums and transported by SWS for off-site disposal as a non-hazardous waste at the Aqua Clean Environmental Company facility located in Lakeland, Florida.

Extracted Groundwater and Extraction Well Development Water

Extracted groundwater generated during ISR activities and extraction well development water was stored in a 17,600 gallon double-walled steel storage tank. A non-hazardous manifest was provided for each vacuum truck load and transported by SWS for off-site disposal as a non-hazardous waste at the Aqua Clean Environmental Company facility located in Lakeland, Florida.

2.5 The Disposal Methods for Other Contaminated Media and Any Investigative-Derived Waste

No other contaminated media were generated. IDW disposal is described in Section 2.4.

2.6 A Scaled Site Map (Including a Graphical Representation of the Scale Used) Showing Location(s) of On-Site Structures, Locations where Free Product was Recovered and the Approximate Locations of All Samples Taken

A scaled site map, including a graphical representation of the scale used, showing locations of on-site structures and approximate locations of where soil and groundwater samples were collected is provided on Figures 2 through 6. No free product was released or recovered.

2.7 A Table Summarizing Free Product Thickness in Each Monitoring Well or Extraction Well and the Dates the Measurements Were Made

Free product was not observed in any monitoring or extraction well.

2.8 The Type of Field Screening Instrument, Analytical Methods or Other Methods Used

Field screening was accomplished by field inspection of drill cuttings during well installation activities. The drill cuttings were placed in a covered, lined roll-off container along with other solid non-hazardous waste generated at the facility and transported off-site for disposal as described below in Section 2.4.

2.9 The Dimensions of Area From Which Contaminated Groundwater Was Removed

The area from which groundwater was extracted was approximately 40 feet long by 25 feet wide. Groundwater was extracted from approximately 5 to 10 feet bls.

2.10 Extracted Groundwater Analytical Results

Extracted groundwater analytical results are presented on Tables 1 through 10 and are shown for select locations (monitoring wells MW-B-10 and MW-C-10, and extraction wells EW-3, EW-6, EW-7 and EW-8) on Figures 7 through 12. Groundwater extraction was determined to be complete when concentrations of VOCs and 1,4-dioxane were non-detect at all extraction and monitoring wells.

2.11 Soil Analytical Results

Soil sampling results are presented on Figure 2.

2.12 Depth to Groundwater during Groundwater Extraction Activities

The depth to groundwater during groundwater extraction activities ranged from approximately 4.5 to 6.5 feet bls. The depth measurement in each monitoring well was made with an electric water level indicator probe while the system was operational. The water levels measured at each monitoring well are presented in Attachment 2.

2.13 A Scaled Site Map (Including a Graphical Representation of the Scale Used) that Shows the Locations and Results of Groundwater and Soil Samples

A scaled map (including a graphical representation of the scale used) that shows the locations of groundwater and soil samples in relation to the depth below grade surface is included as Figures 2 through 5.

2.14 Documentation or Certification Confirming the Proper Treatment or Proper Disposal of Drill Cuttings, Monitoring Well Development Water, Extraction Well Development Waste and Extracted Groundwater, Including Disposal Manifests and a Copy of the Treatment or Acceptance and Results of Analyses, if Performed

Copies of the non-hazardous groundwater waste disposal manifests and acceptance profile are included in Attachment 7.

3. Conclusions and Recommendation

3.1 Conclusions

The following conclusions are based on the results of ISR sampling and analyses:

- Shallow contaminated groundwater that contained concentrations of VOCs and 1,4-dioxane that exceeded GTCLs was identified at the Site to the south of the influent surge tank pad.

- The results of the soil samples were compared to the Residential Direct Exposure Limits, Commercial/Industrial Direct Exposure Limits and the Leachability Standards based on GCTLs. As shown on Figure 2 the results for soil samples at all 30 locations were several orders of magnitude below the Residential and Commercial/Industrial Direct Exposure Limits. The results for the top 2 feet of soil at all 30 sample locations were below the Leachability Standards based on GCTLs. In seven of the sample locations in or near the spill area, the concentration of 1,4-dioxane was above the Leachability Standards based on GCTLs in the sample interval immediately above the groundwater table. These results demonstrate that this soil was likely impacted from concentrations of 1,4-dioxane in the groundwater from the release.

- Sampling results indicated that site related COCs were present in the shallow groundwater in the immediate vicinity of the release (Figure 3). Specifically, site related COCs were detected at concentrations above GCTLs in nine of the 28 samples collected from the 5- to 9-foot bls interval, and two of the 28 samples collected from the 10- to 14-foot bls interval. Isoconcentration contours for TCE and 1,4-dioxane in the 5- to 9-foot bls interval and the 10- to 14-foot bls interval are shown on Figures 4 and 5, respectively.

- The results of the investigation indicate that the release from the secondary containment unit impacted the shallow groundwater in the immediate vicinity of the spill. The maximum distance from the point of the release that impacts were

detected was approximately 30 feet. These results show that the impacts were confined to the site and did not migrate off the property.

- The ISR system effectively reduced groundwater concentrations to no detections at the MDL within 30 days. The sample results also showed that pre-existing COCs were not affected by operation of the ISR. The objectives of the ISR were achieved and no further action is necessary.

3.2 Recommendations

Since the objectives of the ISR have been met, ARCADIS on behalf of LMC, recommends that the ISR system be dismantled, removed from the site, and that the associated groundwater/monitoring wells be decommissioned.

Tables

Table 1

Groundwater Analytical Results
MW-A-10
(Results in µg/L)

Date	1,4-Dioxane	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE
GCTL	3.2	70	7.0	70	3.0	3.0
MW-A-10						
9/18/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
9/25/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
9/29/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/1/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/8/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/14/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/23/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
11/24/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U

Notes:

1. **µg/L = micrograms per liter**
2. **U = non-detect**
3. **1,1-DCA = 1,1-Dichloroethane**
4. **1,1-DCE = 1,1-Dichloroethene**
5. **cis-1,2- DCE = cis-1,2-Dichloroethene**
6. **PCE = Tetrachloroethene**
7. **TCE = Trichloroethene**
8. **GCTL = Groundwater Clean-up Target Level**
9. **Samples collected by low-flow method except 9/25/2008 sample which was a grab**
10. **Samples analyzed by TestAmerica**

Table 2

Groundwater Analytical Results
MW-A-18
(Results in µg/L)

Date	1,4-Dioxane	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE
GCTL	3.2	70	7.0	70	3.0	3.0
MW-A-18						
9/18/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
9/29/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/1/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/8/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/14/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/23/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
11/24/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U

Notes:

1. **µg/L = micrograms per liter**
2. **U = non-detect**
3. **1,1-DCA = 1,1-Dichloroethane**
4. **1,1-DCE = 1,1-Dichloroethene**
5. **cis-1,2- DCE = cis-1,2-Dichloroethene**
6. **PCE = Tetrachloroethene**
7. **TCE = Trichloroethene**
8. **GCTL = Groundwater Clean-up Target Level**
9. **Samples collected by low-flow method**
10. **Samples analyzed by TestAmerica**

Table 3

Groundwater Analytical Results
MW-B-10
(Results in µg/L)

Date	1,4-Dioxane	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE
GCTL	3.2	70	7.0	70	3.0	3.0
MW-B-10						
9/18/2008	110	3.0	2.2	1.7	0.50 U	19
9/22/2008*	97.1	NA	1.6	1.4	1.0 U	22.2
9/29/2008	79 (59)	1.4 (1.4)	0.61 I (0.65 I)	0.87 I (0.80 I)	0.50 U (0.50 U)	2.5 (2.3)
10/1/2008	25	0.52 U	0.45 U	0.65 U	0.50 U	0.94 I
10/3/2008	11	0.52 U	0.45 U	0.65 U	0.50 U	0.63 I
10/8/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/14/2008	1.0 U (1.0 U)	0.52 U (0.52 U)	0.45 U (0.45 U)	0.65 U (0.65 U)	0.50 U (0.50 U)	0.50 U (0.50 U)
10/23/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
11/24/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U

Notes:

1. µg/L = micrograms per liter
2 NA = Not analyzed
3. U = non-detect
4. I = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
5. 1,1-DCA = 1,1-Dichloroethane
6. 1,1-DCE = 1,1-Dichloroethene
7. cis-1,2- DCE = cis-1,2-Dichloroethene
8. PCE = Tetrachloroethene
9. TCE = Trichloroethene
10. GCTL = Groundwater Clean-up Target Level
11. Samples collected by low-flow method except 9/22/2008 which was a grab
12. Duplicate sample results shown in ( )
13. * = Samples collected on 9/22/2008 analyzed by mobile KB Labs (1,1-DCA not analyzed)
14. Except as noted, samples analyzed by TestAmerica

Table 4

Groundwater Analytical Results
MW-B-18
(Results in µg/L)

Date	1,4-Dioxane	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE
GCTL	3.2	70	7.0	70	3.0	3.0
MW-B-18						
9/18/2008	1.0 (1.0 U)	0.52 (0.52 U)	0.45 (0.45 U)	0.65 (0.65 U)	0.50 (0.50 U)	0.50 (0.50 U)
9/29/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/1/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/8/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/14/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/23/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
11/24/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U

Notes:

1. **µg/L = micrograms per liter**
2. **U = non-detect**
3. **1,1-DCA = 1,1-Dichloroethane**
4. **1,1-DCE = 1,1-Dichloroethene**
5. **cis-1,2- DCE = cis-1,2-Dichloroethene**
6. **PCE = Tetrachloroethene**
7. **TCE = Trichloroethene**
8. **GCTL = Groundwater Clean-up Target Level**
9. **Samples collected by low-flow method**
10. **Samples analyzed by TestAmerica**
11. **Duplicate sample results shown in ( )**

Table 5

Groundwater Analytical Results
MW-C-10
(Results in µg/L)

Date	Time	1,4-Dioxane	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE
GCTL		3.2	70	7.0	70	3.0	3.0
MW-C-10							
9/18/2008	13:30	60	2.3	1.1	1.4	0.50 U	3.7
9/22/2008*	12:30	66.4	NA	1.5	1.8	1.0 U	5.8
9/25/2008	08:23	89	3.7	2.9	1.7	0.50 U	4.4
9/26/2008	12:55	46	1.4	0.45 U	0.65 U	0.50 U	1.4
10/1/2008	09:02	55 (48)	1.7 (1.7)	0.88 I (0.67 I)	1.2 (1.0)	0.50 U (0.50 U)	0.86 I (0.78 I)
10/2/2008	16:06	61	2.0	0.45 U	1.1	0.50 U	0.98 I
10/3/2008	14:45	66	5.2 U	4.5 U	6.5 U	5.0 U	5.0 U
10/3/2008	15:45	37	0.85 I	0.45 U	0.65 U	0.50 U	0.50 U
10/3/2008*	15:46	31.6	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/4/2008*	07:30	5.4	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/4/2008*	18:30	21.1	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/5/2008*	07:30	22.6	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/5/2008*	18:15	12.1	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/6/2008*	08:30	10.9	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/6/2008*	17:00	11.3	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/7/2008*	08:00	3.6	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/7/2008*	14:45	10.1	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/8/2008	09:55	11 (11)	0.52 U (0.52 U)	0.45 U (0.45 U)	0.65 U (0.65 U)	0.50 U (0.50 U)	0.50 U (0.50 U)
10/10/2008	09:00	2.5	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/13/2008	08:30	2.1	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/14/2008	08:45	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/17/2008	08:42	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/23/2008	10:42	1.0 U (1.0 U)	0.52 U (0.52 U)	0.45 U (0.45 U)	0.65 U (0.65 U)	0.50 U (0.50 U)	0.50 U (0.50 U)
11/24/2008	08:52	1.0 U (1.0 U)	0.52 U (0.52 U)	0.45 U (0.45 U)	0.65 U (0.65 U)	0.50 U (0.50 U)	0.50 U (0.50 U)

Table 5

Groundwater Analytical Results
MW-C-10
(Results in µg/L)

Notes:

1. µg/L = micrograms per liter
2. NA = not analyzed
3. U = non-detect
4. I = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
5. 1,1-DCA = 1,1-Dichloroethane
6. 1,1-DCE = 1,1-Dichloroethene
7. cis-1,2- DCE = cis-1,2-Dichloroethene
8. PCE = Tetrachloroethene
9. TCE = Trichloroethene
10. GCTL = Groundwater Clean-up Target Level
11. Samples prior to 10/3/2008 collected by low-flow method except 9/22/2008 and 9/25/2008 samples which were grabs
12. Samples after 10/2/2008 collected by grab method except 10/23/2008 and 11/24/2008 samples which were collected by low-flow method
13. Duplicate sample results shown in ( )
14. On October 3, 2008, MW-C-10 was converted to an extraction well
15. * = Samples collected on 9/22/2008 and 10/3-7/2008 analyzed by mobile KB Labs (1,1-DCA not analyzed)
16. Except as noted, samples analyzed by TestAmerica
17. On October 21, 2008, MW-C-10 was converted back to a monitoring well

Table 6

Groundwater Analytical Results
MW-C-18
(Results in µg/L)

Date	1,4-Dioxane	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE
GCTL	3.2	70	7.0	70	3.0	3.0
MW-C-18						
9/18/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
9/26/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/1/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/8/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/14/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/23/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
11/24/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U

Notes:

1. **µg/L = micrograms per liter**
2. **U = non-detect**
3. **1,1-DCA = 1,1-Dichloroethane**
4. **1,1-DCE = 1,1-Dichloroethene**
5. **cis-1,2- DCE = cis-1,2-Dichloroethene**
6. **PCE = Tetrachloroethene**
7. **TCE = Trichloroethene**
8. **GCTL = Groundwater Clean-up Target Level**
9. **Samples collected by low-flow method**
10. **Samples analyzed by TestAmerica**

Table 7

Groundwater Analytical Results
MW-D-10
(Results in µg/L)

Date	1,4-Dioxane	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE
GCTL	3.2	70	7.0	70	3.0	3.0
MW-D-10						
9/18/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
9/26/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.61 I
10/1/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/8/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.60 I
10/14/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/23/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
11/24/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U

Notes:

1. **µg/L = micrograms per liter**
2. **U = non-detect**
3. **I = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit**
4. **1,1-DCA = 1,1-Dichloroethane**
5. **1,1-DCE = 1,1-Dichloroethene**
6. **cis-1,2- DCE = cis-1,2-Dichloroethene**
7. **PCE = Tetrachloroethene**
8. **TCE = Trichloroethene**
9. **GCTL = Groundwater Clean-up Target Level**
10. **Samples collected by low-flow method**
11. **Samples analyzed by TestAmerica**

Table 8

Groundwater Analytical Results
MW-D-18
(Results in µg/L)

Date	1,4-Dioxane	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE
GCTL	3.2	70	7.0	70	3.0	3.0
MW-D-18						
9/18/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
9/26/2008	2.5	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/1/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/8/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/14/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/23/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
11/24/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U

Notes:

1. **µg/L = micrograms per liter**
2. **U = non-detect**
3. **1,1-DCA = 1,1-Dichloroethane**
4. **1,1-DCE = 1,1-Dichloroethene**
5. **cis-1,2- DCE = cis-1,2-Dichloroethene**
6. **PCE = Tetrachloroethene**
7. **TCE = Trichloroethene**
8. **GCTL = Groundwater Clean-up Target Level**
9. **Samples collected by low-flow method**
10. **Samples analyzed by TestAmerica**

Table 9
Groundwater Analytical Results
Extraction Well Samples
(Results in µg/L)

Date	1,4-Dioxane	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE
GCTL	3.2	70	7.0	70	3.0	3.0
EW-1						
9/29/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/3/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
EW-2						
10/6/2008*	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/7/2008*	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/8/2008	1.8	0.52 U	0.45 U	0.65 U	0.50 U	0.83 I
10/14/2008	1.9	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/17/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/21/2008	1.0 U J	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/23/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
EW-3						
10/6/2008*	12.6	NA	1.0 U	1.0 U	1.0 U	1.1
10/7/2008*	6.2	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/14/2008	3.7	0.52 U	0.45 U	0.65 U	0.50 U	1.1
10/17/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/21/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/23/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
EW-4						
9/29/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/3/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
EW-5						
10/6/2008*	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.4
10/8/2008	1.4	0.52 U	0.45 U	0.65 U	0.50 U	0.89 I
10/14/2008	3.5	0.52 U	0.45 U	0.65 U	0.50 U	1.3
10/17/2008	1.6	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/21/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/23/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U

Table 9
Groundwater Analytical Results
Extraction Well Samples
(Results in µg/L)

Date	1,4-Dioxane	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE
GCTL	3.2	70	7.0	70	3.0	3.0
EW-6						
9/29/2008	37	1.2	1.4	2.0	0.50 U	10
10/1/2008	35	0.96 I	1.1	1.4	0.50 U	9.2
10/3/2008	73	2.4	2.4	1.7	0.50 U	16
10/7/2008*	10.1	NA	1.0 U	1.0 U	1.0 U	4.2
10/14/2008	1.7	0.52 U	0.45 U	0.65 U	0.50 U	1.2
10/17/2008	1.0	0.52 U	0.45 U	0.65 U	0.50 U	0.91 I
10/21/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/23/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
EW-7						
10/1/2008	120	3.6	3.5	2.4	0.50 U	16
10/3/2008	65	2.9	3.1	2.1	0.50 U	20
10/7/2008*	22	NA	1.0 U	1.0 U	1.0 U	8.6
10/8/2008	25	0.75 I	0.77 I	0.65 U	0.50 U	7.3
10/14/2008	5.7	0.52 U	0.45 U	0.65 U	0.50 U	2.2
10/17/2008	2.0	0.52 U	0.45 U	0.65 U	0.50 U	1.0
10/21/2008	2.0	0.52 U	0.45 U	0.65 U	0.50 U	0.55 I
10/23/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
EW-8						
9/29/2008	50	1.5	1.1	0.98 I	0.50 U	2.9
10/1/2008	95	1.9	1.5	1.2	0.50 U	6.8
10/3/2008	23	0.58 I	0.45 U	0.65 U	0.50 U	1.8
10/7/2008*	14.4	NA	1.0 U	1.0 U	1.0 U	1.7
10/8/2008	10	0.52 U	0.45 U	0.65 U	0.50 U	0.89 I
10/14/2008	2.4	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/17/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/21/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/23/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U

Table 9
Groundwater Analytical Results
Extraction Well Samples
(Results in µg/L)

Date	1,4-Dioxane	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE
GCTL	3.2	70	7.0	70	3.0	3.0
EW-9						
9/29/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/3/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
EW-10						
10/1/2008	1.0	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/6/2008*	3.6	NA	1.0 U	1.0 U	1.0 U	1.6
10/7/2008*	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/14/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
EW-11						
10/6/2008*	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/7/2008*	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/14/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
EW-12						
9/29/2008	13	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/6/2008*	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/7/2008*	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/8/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
EW-13						
10/6/2008*	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/8/2008	1.0 U	0.52 U	0.45U	0.65 U	0.50 U	0.50 U
EW-14						
10/6/2008*	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/8/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
EW-15						
10/3/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/7/2008*	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/8/2008	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U

Table 9
Groundwater Analytical Results
Extraction Well Samples
(Results in µg/L)

Notes:

1. **µg/L = micrograms per liter**
2. **NA = Not analyzed**
3. **U = non-detect**
4. **I = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit**
5. **U J = The compound was detected but not above the reported sample quantitation limit**
6. **1,1-DCA = 1,1-Dichloroethane**
7. **1,1-DCE = 1,1-Dichloroethene**
8. **cis-1,2- DCE = cis-1,2-Dichloroethene**
9. **PCE = Tetrachloroethene**
10. **TCE = Trichloroethene**
11. **GCTL = Groundwater Clean-up Target Level**
12. **Samples collected by grab method**
13. *** = Samples collected on 10/6-7/2008 analyzed by mobile KB Labs (1,1-DCA not analyzed)**
14. **Except as noted, samples analyzed by TestAmerica**

Table 10
Groundwater Analytical Results
Miscellaneous Samples
(Results in µg/L)

Date	Time	1,4-Dioxane	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE
GCTL		3.2	70	7.0	70	3.0	3.0
Northern Manifold (EW 1-8)							
9/25/2008	15:45	22	1.0	1.1	0.65 U	0.50 U	4.4
9/29/2008	14:55	74	2.0	1.6	1.3	0.50 U	9.1
10/1/2008	11:30	46	1.1	1.1	0.81 I	0.50 U	4.6
10/3/2008	09:40	76	2.3	2.2	1.7	0.50 U	15
10/3/2008	14:55	58	1.7	1.4	1.2	0.50 U	9.8
10/6/2008*	12:30	20.9	NA	1.0 U	1.0 U	1.0 U	6.0
10/7/2008*	08:50	17.5	NA	1.0 U	1.0 U	1.0 U	4.2
10/8/2008	08:40	17	0.55 I	0.51 I	0.65 U	0.50 U	3.6
10/10/2008	08:10	7.0	0.52 U	0.45 U	0.65 U	0.50 U	2.4
10/13/2008	08:40	3.6	0.52 U	0.45 U	0.65 U	0.50 U	1.5
10/14/2008	08:50	2.7	0.52 U	0.45 U	0.65 U	0.50 U	0.62 I
Southern Manifold (EW 9-15)							
9/25/2008	15:50	6.9	0.52 U	0.45 U	0.65 U	0.50 U	0.63 I
9/29/2008	15:00	1.9	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/1/2008	11:35	2.4	0.52 U	0.45 U	0.65 U	0.50 U	0.52 I
10/3/2008	09:50	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/6/2008*	12:35	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/7/2008*	08:45	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
10/8/2008	08:30	87	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
Combined Extraction Wells (EW 1-15)							
9/29/2008	15:10	41	1.2	1.2	0.81 I	0.50 U	5.3

Table 10
Groundwater Analytical Results
Miscellaneous Samples
(Results in µg/L)

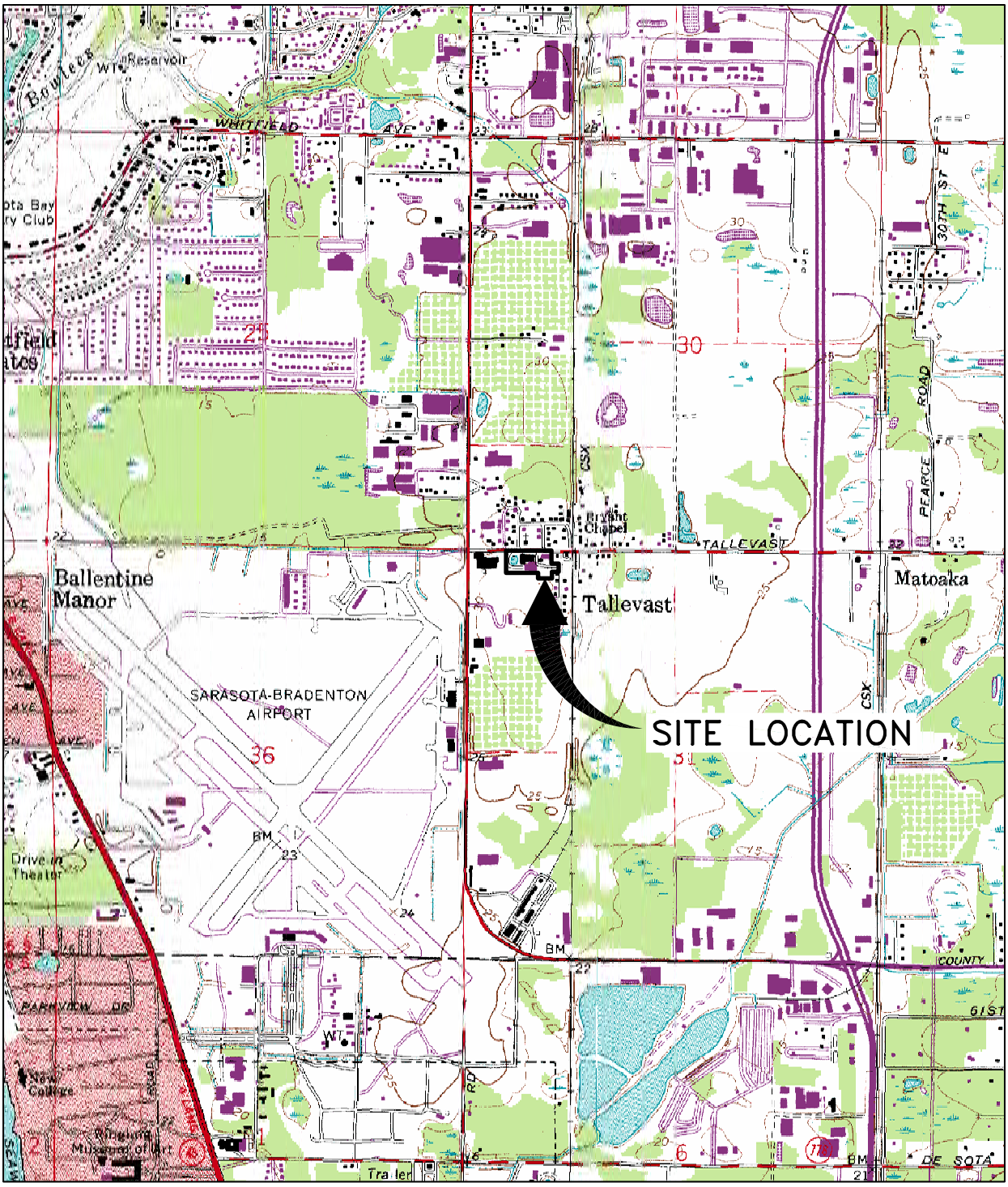
Date	Time	1,4-Dioxane	1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	TCE
GCTL		3.2	70	7.0	70	3.0	3.0
Storage Tank							
9/18/2008	11:30	44	0.52 U	0.45 U	065 U	0.50 U	1.0
9/22/2008	11:11	37	0.52 U	0.45 U	4.6	0.50 U	5.4
9/26/2008	08:35	35	0.69 I	0.45 U	0.65 U	0.50 U	2.8
9/29/2008	11:40	70	0.65 I	0.45 U	0.65 U	0.50 U	2.5
10/1/2008	09:26	34	0.52 U	0.45 U	0.65 U	0.50 U	1.7
10/3/2008	08:29	58	0.82 I	0.68 I	0.66 I	0.50 U	4.9
10/6/2008*	08:35	19.3	NA	1.0 U	1.0 U	1.0 U	2.6
10/6/2008	08:35	25	0.52 U	0.45 U	0.65 U	0.50 U	2.2
10/7/2008*	08:00	14.8	NA	1.0 U	1.0 U	1.0 U	2.2
10/8/2008	08:15	20	0.52 U	0.45 U	0.65 U	0.50 U	1.4
10/10/2008	08:20	8.4	0.52 U	0.45 U	0.65 U	0.50 U	0.89 I
10/13/2008	08:50	5.0	0.52 U	0.45 U	0.65 U	0.50 U	0.74 I
10/14/2008	08:40	4.3	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/17/2008	08:45	1.8	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/21/2008	09:51	1.5	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U
10/23/2008	16:30	1.0 U	0.52 U	0.45 U	0.65 U	0.50 U	0.50 U

Notes:

1. **µg/L = micrograms per liter**
2. **NA = Not analyzed**
3. **U = non-detect**
4. **I = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit**
5. **1,1-DCA = 1,1-Dichloroethane**
6. **1,1-DCE = 1,1-Dichloroethene**
7. **cis-1,2- DCE = cis-1,2-Dichloroethene**
8. **PCE = Tetrachloroethene**
9. **TCE = Trichloroethene**
10. **GCTL = Groundwater Clean-up Target Level**
11. **Samples collected by grab method**
12. *** = Samples collected on 10/6-7/2008 analyzed by mobile KB Labs (1,1-DCA not analyzed)**
13. **Except as noted, samples analyzed by TestAmerica**

ARCADIS

Figures



REFERENCE: BASE MAP SOURCE USGS 7.5 MINUTE QUADS. SERIES BRADENTON, FLORIDA, 1964, PHOTOREVISED 1987.

0 2000' 4000'

APPROXIMATE SCALE

AREA LOCATION

FORMER AMERICAN BERYLLIUM COMPANY SITE
TALLEVAST, FLORIDA

SITE LOCATION MAP

ARCADIS

FIGURE
1

CITY: SYRACUSE DIV/GROUP: 141 DB: GMS PM:(Reqd) LYR:ON=*;OFF=REF
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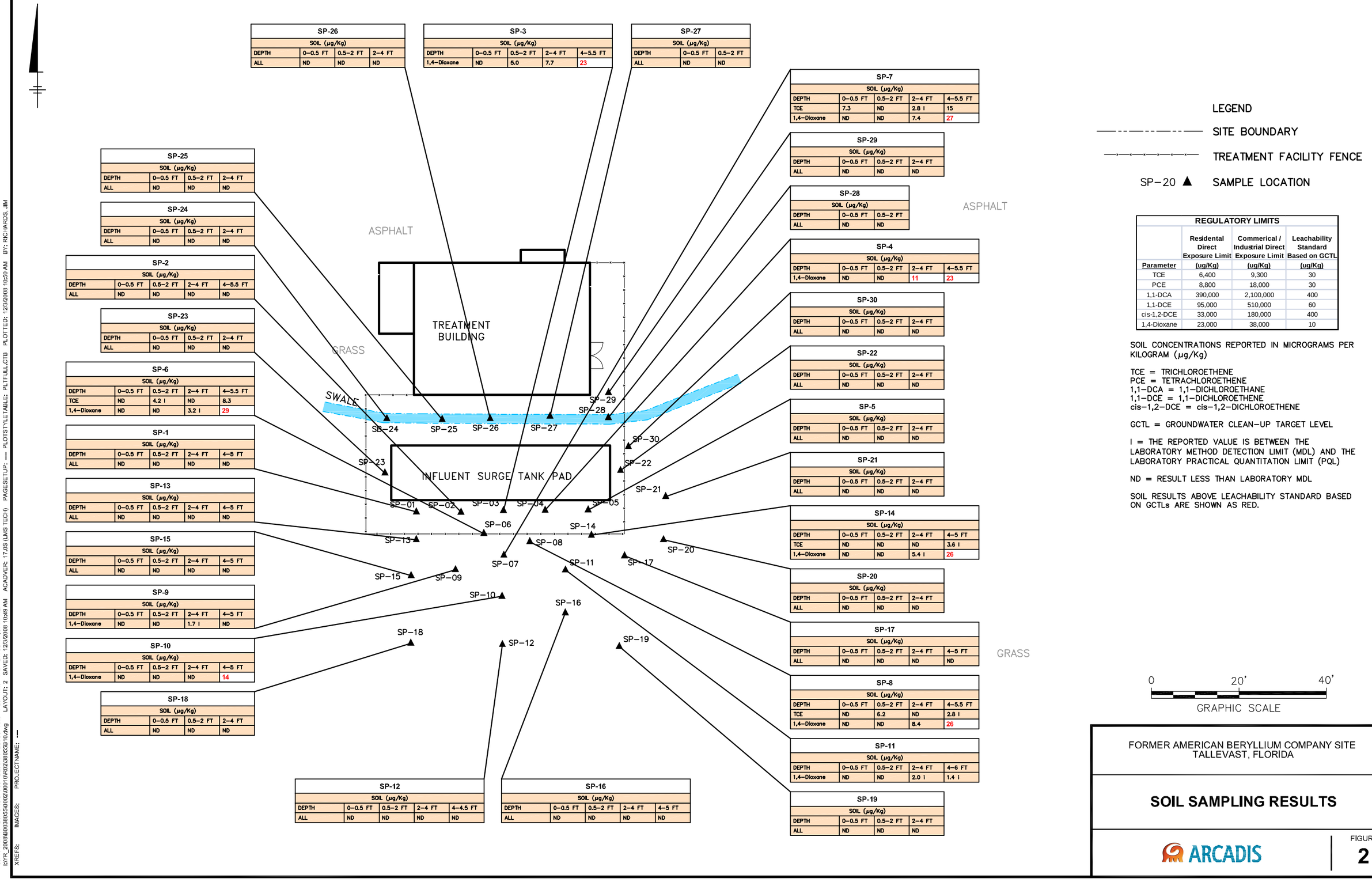


LEGEND

SITE BOUNDARY

TREATMENT FACILITY FENCE

SP–20 ▲ SAMPLE LOCATION

REGULATORY LIMITS			
	Residental Direct Exposure Limit	Commerical / Industrial Direct Exposure Limit	Leachability Standard Based on GCTL
Parameter	(ug/Kg)	(ug/Kg)	(ug/Kg)
TCE	6,400	9,300	30
PCE	8,800	18,000	30
1,1-DCA	390,000	2,100,000	400
1,1-DCE	95,000	510,000	60
cis-1,2-DCE	33,000	180,000	400
1,4-Dioxane	23,000	38,000	10

SOIL CONCENTRATIONS REPORTED IN MICROGRAMS PER KILOGRAM (µg/Kg)

TCE = TRICHLOROETHENE
PCE = TETRACHLOROETHENE
1,1–DCA = 1,1–DICHLOROETHANE
1,1–DCE = 1,1–DICHLOROETHENE
cis–1,2–DCE = cis–1,2–DICHLOROETHENE

GCTL = GROUNDWATER CLEAN–UP TARGET LEVEL

I = THE REPORTED VALUE IS BETWEEN THE LABORATORY METHOD DETECTION LIMIT (MDL) AND THE LABORATORY PRACTICAL QUANTITATION LIMIT (PQL)

ND = RESULT LESS THAN LABORATORY MDL

SOIL RESULTS ABOVE LEACHABILITY STANDARD BASED ON GCTLs ARE SHOWN AS RED.

0 20' 40'

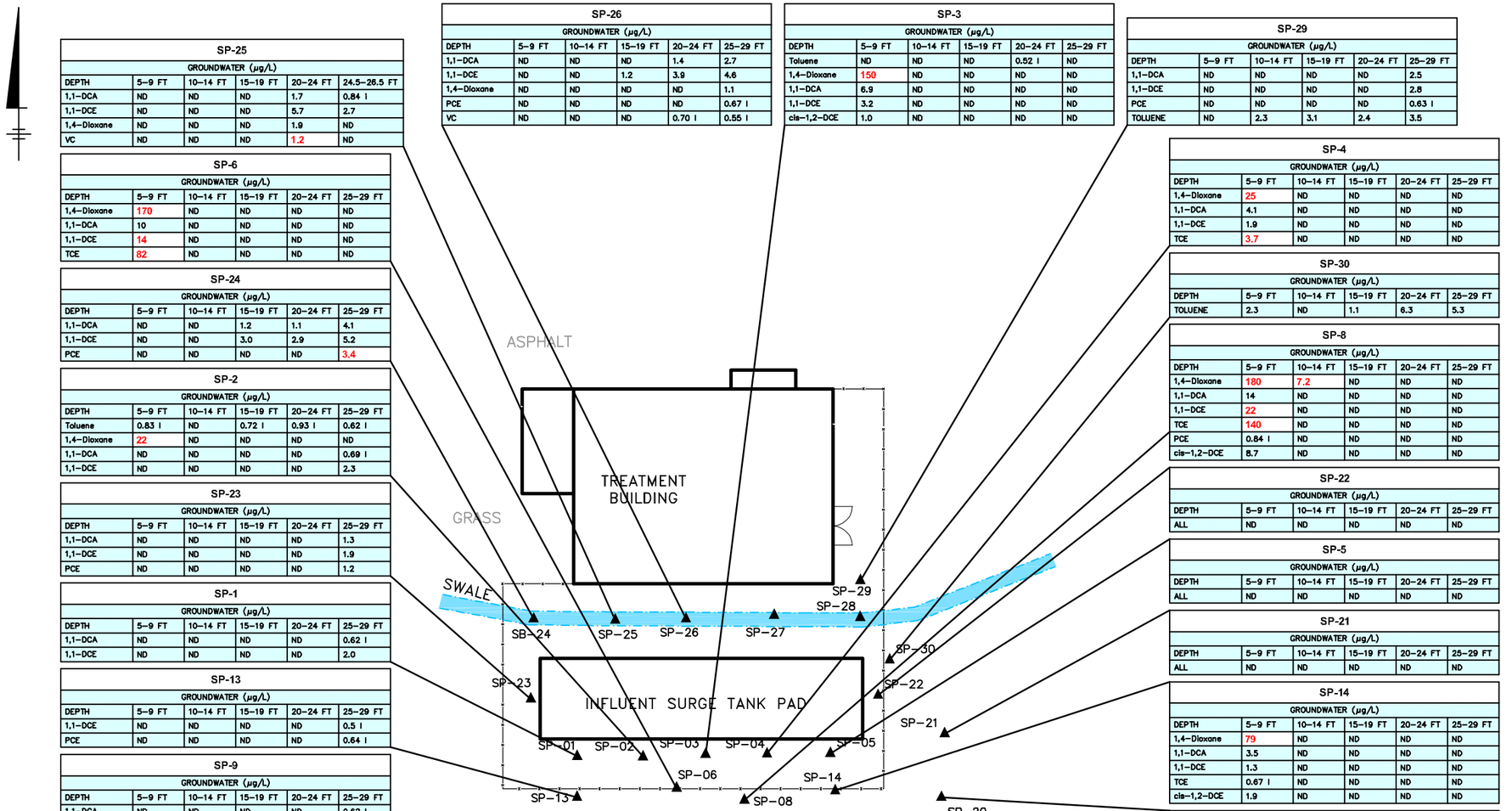
GRAPHIC SCALE

FORMER AMERICAN BERYLLIUM COMPANY SITE
TALLEVAST, FLORIDA

SOIL SAMPLING RESULTS

ARCADIS

FIGURE 2



SP-25

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	24.5–26.5 FT
1,1–DCA	ND	ND	ND	1.7	0.84 I
1,1–DCE	ND	ND	ND	5.7	2.7
1,4–Dioxane	ND	ND	ND	1.9	ND
VC	ND	ND	ND	1.2	ND

SP-6

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,4–Dioxane	170	ND	ND	ND	ND
1,1–DCA	10	ND	ND	ND	ND
1,1–DCE	14	ND	ND	ND	ND
TCE	82	ND	ND	ND	ND

SP-24

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,1–DCA	ND	ND	1.2	1.1	4.1
1,1–DCE	ND	ND	3.0	2.9	5.2
PCE	ND	ND	ND	ND	3.4

SP-2

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
Toluene	0.83 I	ND	0.72 I	0.93 I	0.62 I
1,4–Dioxane	22	ND	ND	ND	ND
1,1–DCA	ND	ND	ND	ND	0.69 I
1,1–DCE	ND	ND	ND	ND	2.3

SP-23

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,1–DCA	ND	ND	ND	ND	1.3
1,1–DCE	ND	ND	ND	ND	1.9
PCE	ND	ND	ND	ND	1.2

SP-1

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,1–DCA	ND	ND	ND	ND	0.62 I
1,1–DCE	ND	ND	ND	ND	2.0

SP-13

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,1–DCE	ND	ND	ND	ND	0.5 I
PCE	ND	ND	ND	ND	0.64 I

SP-9

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,1–DCA	ND	ND	ND	ND	0.62 I

SP-15

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
PCE	ND	ND	ND	ND	3.2

SP-7

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,4–Dioxane	150	13	ND	35	ND
1,1–DCA	13	ND	ND	0.86 I	ND
1,1–DCE	21	ND	ND	0.82 I	ND
TCE	140	ND	ND	2.2	ND
cis–1,2–DCE	8.3	ND	ND	ND	ND

SP-18

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,1–DCE	ND	ND	ND	ND	0.5 I
PCE	ND	ND	ND	2.3	5.6

SP-10

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,1–DCA	6.3	ND	ND	ND	ND
1,1–DCE	5.8	ND	ND	ND	ND
TCE	12	ND	ND	ND	ND
1,4–Dioxane	130	ND	ND	ND	ND

SP-26

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,1–DCA	ND	ND	ND	1.4	2.7
1,1–DCE	ND	ND	1.2	3.9	4.6
1,4–Dioxane	ND	ND	ND	ND	1.1
PCE	ND	ND	ND	ND	0.67 I
VC	ND	ND	ND	0.70 I	0.55 I

SP-3

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
Toluene	ND	ND	ND	0.52 I	ND
1,4–Dioxane	150	ND	ND	ND	ND
1,1–DCA	6.9	ND	ND	ND	ND
1,1–DCE	3.2	ND	ND	ND	ND
cis–1,2–DCE	1.0	ND	ND	ND	ND

SP-29

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,1–DCA	ND	ND	ND	ND	2.5
1,1–DCE	ND	ND	ND	ND	2.8
PCE	ND	ND	ND	ND	0.63 I
TOLUENE	ND	2.3	3.1	2.4	3.5

SP-4

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,4–Dioxane	25	ND	ND	ND	ND
1,1–DCA	4.1	ND	ND	ND	ND
1,1–DCE	1.9	ND	ND	ND	ND
TCE	3.7	ND	ND	ND	ND

SP-30

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
TOLUENE	2.3	ND	1.1	6.3	5.3

SP-8

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,4–Dioxane	180	7.2	ND	ND	ND
1,1–DCA	14	ND	ND	ND	ND
1,1–DCE	22	ND	ND	ND	ND
TCE	140	ND	ND	ND	ND
PCE	0.84 I	ND	ND	ND	ND
cis–1,2–DCE	8.7	ND	ND	ND	ND

SP-22

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
ALL	ND	ND	ND	ND	ND

SP-5

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
ALL	ND	ND	ND	ND	ND

SP-21

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
ALL	ND	ND	ND	ND	ND

SP-14

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,4–Dioxane	79	ND	ND	ND	ND
1,1–DCA	3.5	ND	ND	ND	ND
1,1–DCE	1.3	ND	ND	ND	ND
TCE	0.67 I	ND	ND	ND	ND
cis–1,2–DCE	1.9	ND	ND	ND	ND

SP-20

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
ALL	ND	ND	ND	ND	ND

SP-17

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
ALL	ND	ND	ND	ND	ND

SP-11

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,4–Dioxane	120	ND	7.3	ND	ND
1,1–DCA	7.0	ND	ND	ND	ND
1,1–DCE	8.7	ND	ND	ND	ND
cis–1,2–DCE	2.6	ND	ND	ND	ND
TCE	21	ND	ND	ND	ND

SP-19

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,1–DCA	ND	ND	ND	ND	4.6
1,1–DCE	ND	ND	ND	ND	2.5
PCE	ND	ND	ND	ND	1.2

SP-12

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,4–Dioxane	1.4	ND	ND	ND	ND
1,1–DCA	ND	ND	ND	ND	1.7
1,1–DCE	ND	ND	ND	ND	1.1
TCE	ND	ND	ND	0.56 I	1.1
PCE	ND	ND	ND	0.99 I	0.90 I
cis–1,2–DCE	ND	ND	ND	ND	1.2

SP-16

GROUNDWATER (µg/L)

DEPTH	5–9 FT	10–14 FT	15–19 FT	20–24 FT	25–29 FT
1,1–DCA	ND	ND	ND	ND	1.2
PCE	ND	ND	ND	ND	0.61 I

LEGEND

SITE BOUNDARY

TREATMENT FACILITY FENCE

SP–20 ▲ SAMPLE LOCATION

REGULATORY LIMITS

Parameter	GCTL (ug/L)
TCE	3
PCE	3
1,1-DCA	70
1,1-DCE	7
cis-1,2-DCE	70
1,4-Dioxane	3.2
Toluene	40
Vinyl Chloride	1

GROUNDWATER CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (µg/L)

TCE = TRICHLOROETHENE
PCE = TETRACHLOROETHENE
1,1–DCA = 1,1–DICHLOROETHANE
1,1–DCE = 1,1–DICHLOROETHENE
cis–1,2–DCE = cis–1,2–DICHLOROETHENE
VC = VINYL CHLORIDE

GCTL = GROUNDWATER CLEAN–UP TARGET LEVEL

I = THE REPORTED VALUE IS BETWEEN THE LABORATORY METHOD DETECTION LIMIT (MDL) AND THE LABORATORY PRACTICAL QUANTITATION LIMIT (PQL)

ND = RESULT LESS THAN LABORATORY MDL

GROUNDWATER RESULTS ABOVE GCTLs ARE SHOWN AS RED.

0 20' 40'

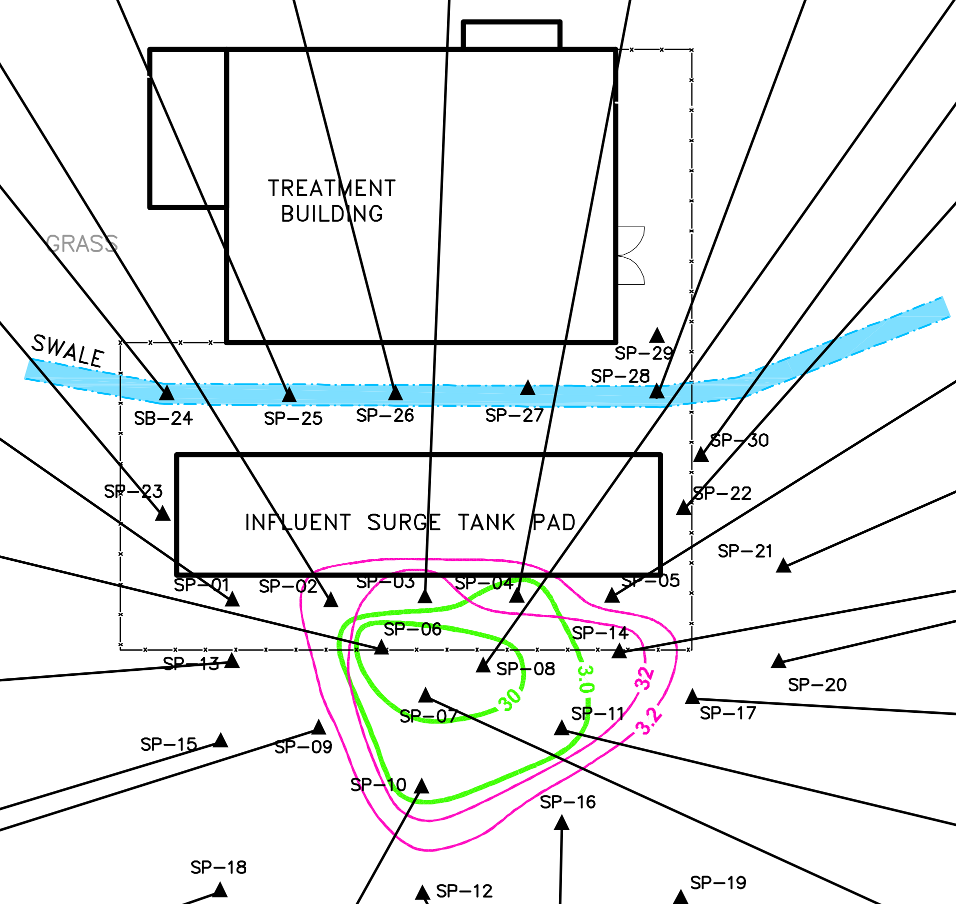
GRAPHIC SCALE

FORMER AMERICAN BERYLLIUM COMPANY SITE
TALLEVAST, FLORIDA

GROUNDWATER SAMPLING RESULTS

ARCADIS

FIGURE 3



Sample	Matrix	Depth	1,4-Dioxane	TCE
SP-25	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-26	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-3	GROUNDWATER (µg/L)	5-9 FT	150	ND
SP-4	GROUNDWATER (µg/L)	5-9 FT	25	3.7
SP-29	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-8	GROUNDWATER (µg/L)	5-9 FT	180	140
SP-2	GROUNDWATER (µg/L)	5-9 FT	22	ND
SP-24	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-23	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-1	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-6	GROUNDWATER (µg/L)	5-9 FT	170	82
SP-13	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-15	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-9	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-18	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-10	GROUNDWATER (µg/L)	5-9 FT	130	12
SP-12	GROUNDWATER (µg/L)	5-9 FT	1.4	ND
SP-16	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-19	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-30	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-22	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-5	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-21	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-14	GROUNDWATER (µg/L)	5-9 FT	79	0.67 I
SP-20	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-17	GROUNDWATER (µg/L)	5-9 FT	ND	ND
SP-11	GROUNDWATER (µg/L)	5-9 FT	120	21
SP-7	GROUNDWATER (µg/L)	5-9 FT	150	140

ASPHALT

GRASS

LEGEND

SITE BOUNDARY

TREATMENT FACILITY FENCE

SP-20 ▲ SAMPLE LOCATION

REGULATORY LIMITS

Parameter	GCTL (ug/L)
TCE	3
1,4-Dioxane	3.2

GROUNDWATER CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (µg/L)

TCE = TRICHLOROETHENE

GCTL = GROUNDWATER CLEAN-UP TARGET LEVEL

I = THE REPORTED VALUE IS BETWEEN THE LABORATORY METHOD DETECTION LIMIT (MDL) AND THE LABORATORY PRACTICAL QUANTITATION LIMIT (PQL)

ND = RESULT LESS THAN LABORATORY MDL

GROUNDWATER RESULTS ABOVE GCTLs ARE SHOWN AS RED.

1,4 DIOXANE ISOCONTOUR LINE

TCE ISOCONTOUR LINE

0 20' 40'

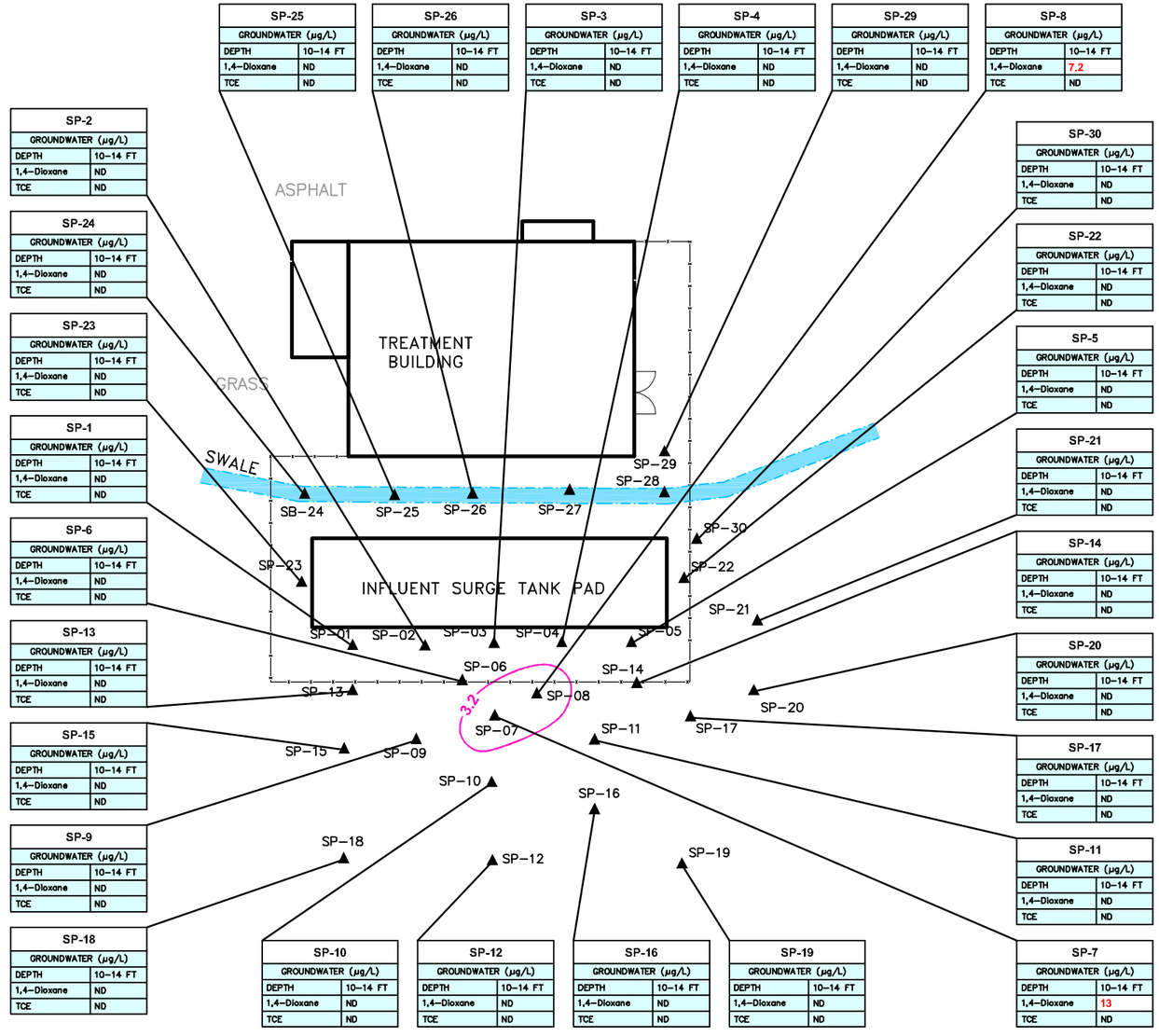
GRAPHIC SCALE

FORMER AMERICAN BERYLLIUM COMPANY SITE
TALLEVAST, FLORIDA

GROUNDWATER SAMPLING RESULTS 5-9 FOOT INTERVAL TCE AND 1,4-DIOXANE ISOCONTOURS

ARCADIS

FIGURE
4



LEGEND

SITE BOUNDARY

TREATMENT FACILITY FENCE

SP–20 ▲ SAMPLE LOCATION

REGULATORY LIMITS	
	GCTL
Parameter	(ug/L)
TCE	3
1,4-Dioxane	3.2

GROUNDWATER CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (µg/L)

TCE = TRICHLOROETHENE

GCTL = GROUNDWATER CLEAN–UP TARGET LEVEL

I = THE REPORTED VALUE IS BETWEEN THE LABORATORY METHOD DETECTION LIMIT (MDL) AND THE LABORATORY PRACTICAL QUANTITATION LIMIT (PQL)

ND = RESULT LESS THAN LABORATORY MDL

GROUNDWATER RESULTS ABOVE GCTLs ARE SHOWN AS RED.

1,4 DIOXANE ISOCONTOUR LINE

TCE ISOCONTOUR LINE
(NOT SHOWN ALL RESULTS ND)

0 20' 40'

GRAPHIC SCALE

FORMER AMERICAN BERYLLIUM COMPANY SITE
TALLEVAST, FLORIDA

GROUNDWATER SAMPLING RESULTS 10-14 FOOT INTERVAL TCE AND 1,4-DIOXANE ISOCONTOURS

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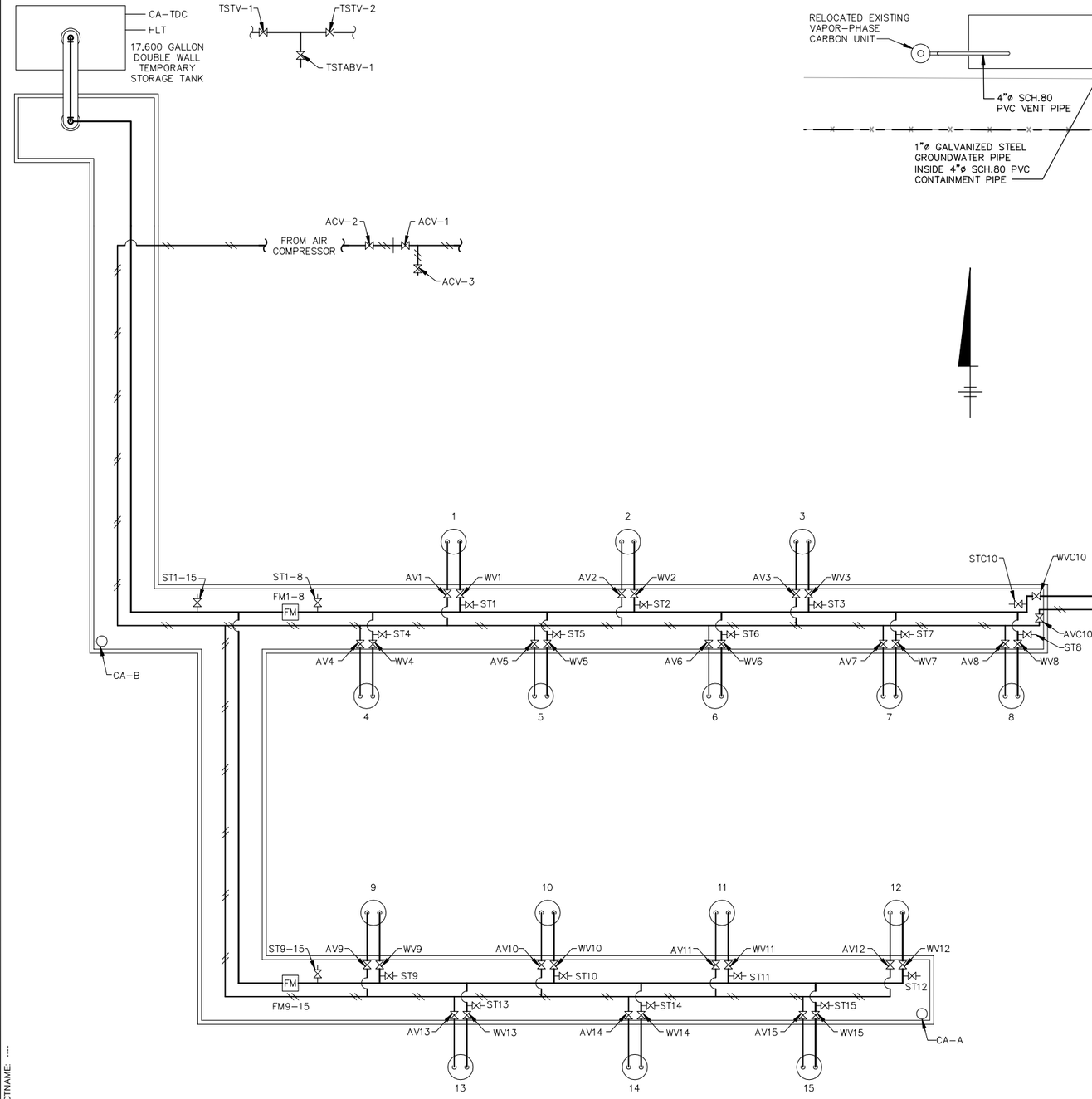
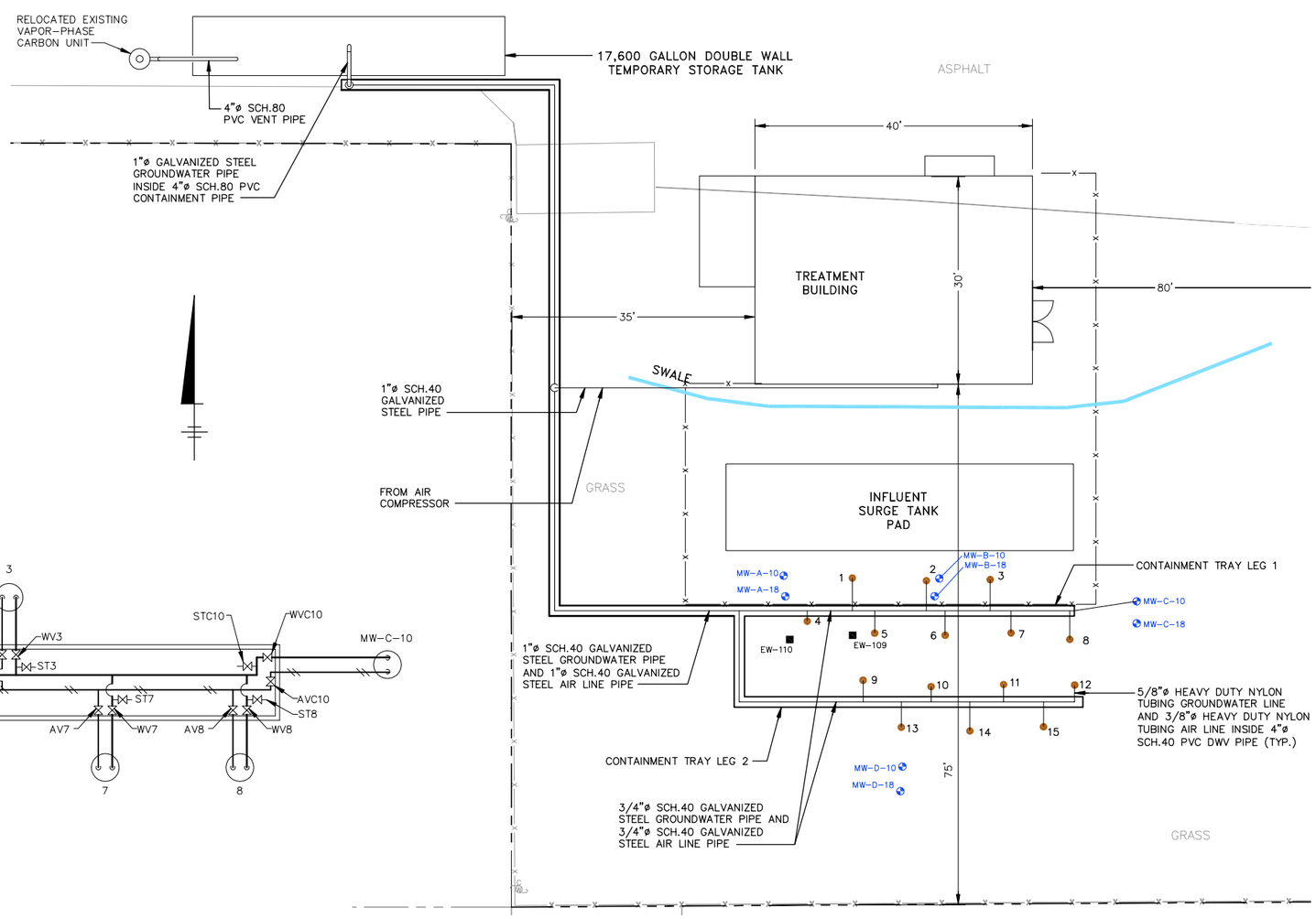
FIGURE 5



PIPING LAYOUT DIAGRAM

NOT TO SCALE



PLAN

0 10' 20'

SCALE: 1"=10'

FORMER AMERICAN BERYLLIUM COMPANY SITE
TALLEVAST, FLORIDA

INTERIM SOURCE REMOVAL OVERVIEW

ARCADIS

FIGURE 6

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Figure 7
MW-B-10 1,4-Dioxane and TCE
Groundwater Analytical Results

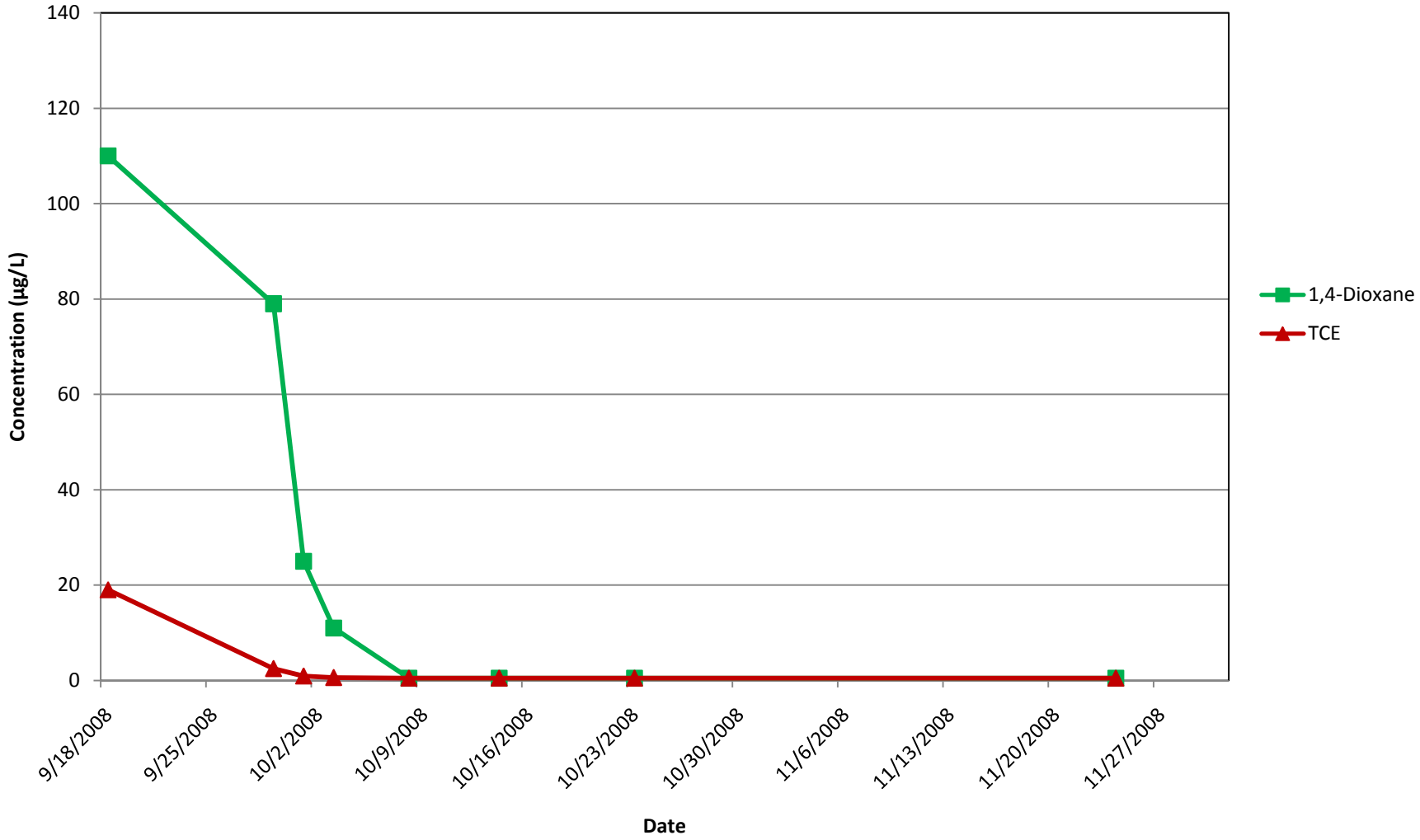


Figure 8
MW-C-10 1,4-Dioxane and TCE
Groundwater Analytical Results

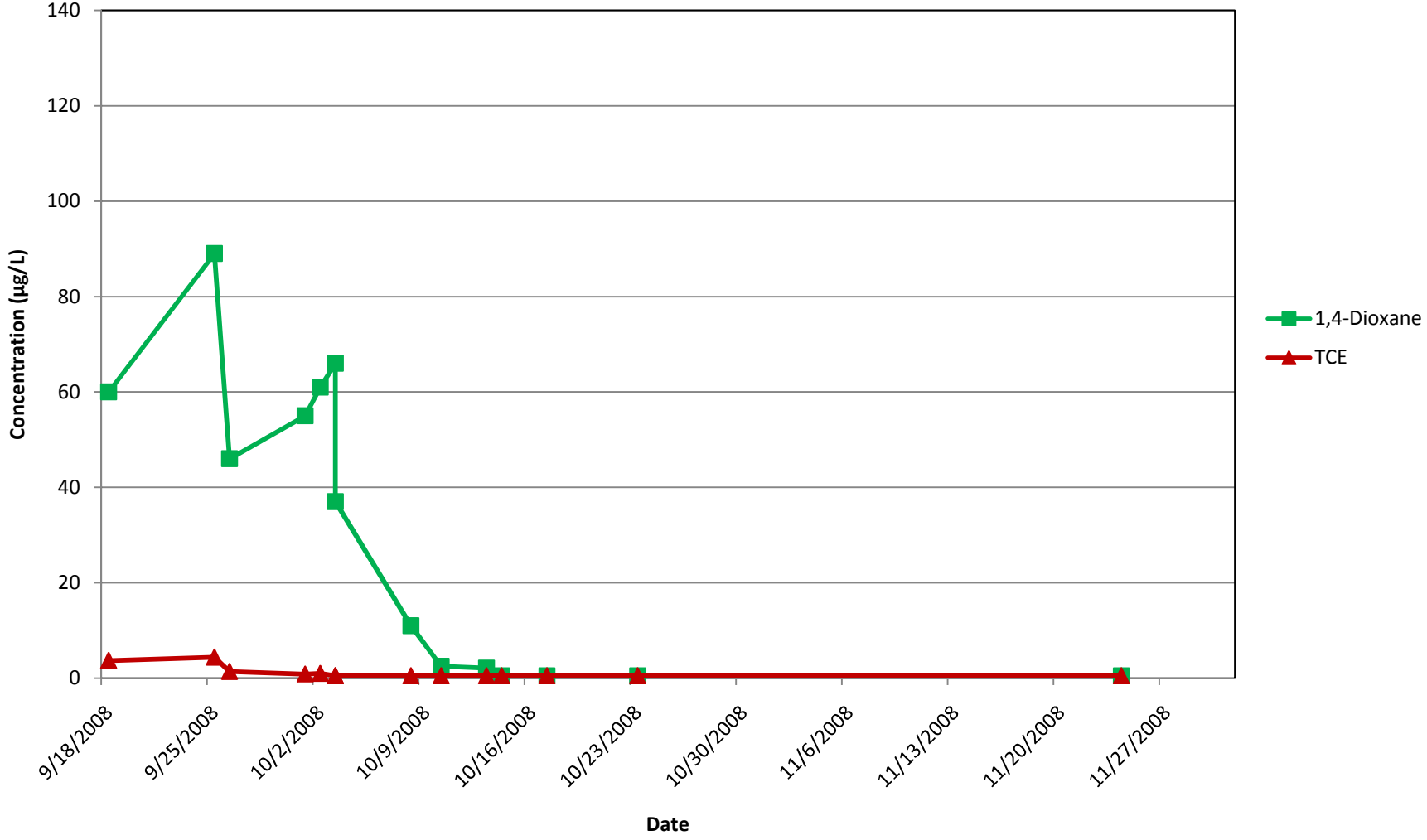


Figure 9
EW-3 1,4-Dioxane and TCE
Groundwater Analytical Results

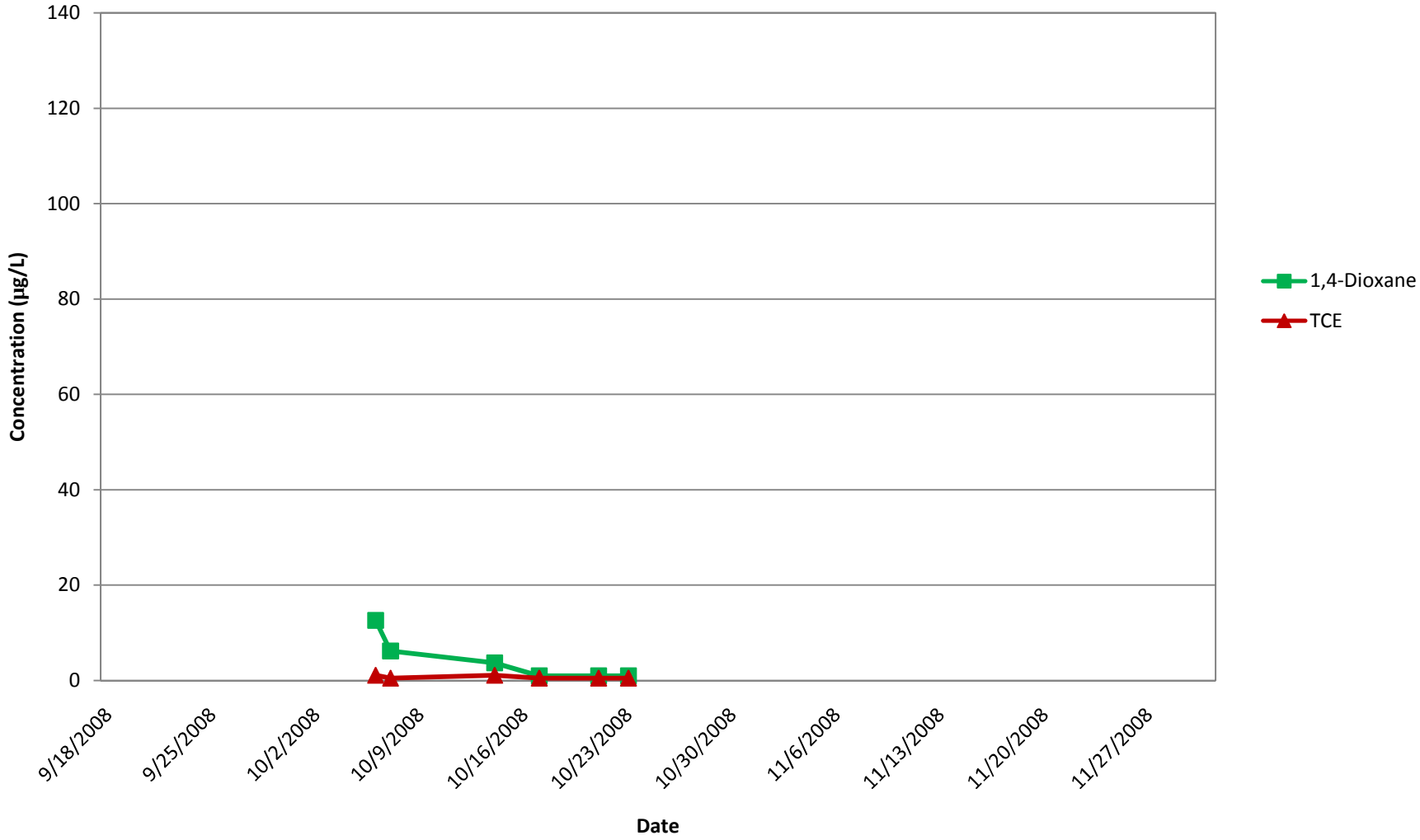


Figure 10
EW-6 1,4-Dioxane and TCE
Groundwater Analytical Results

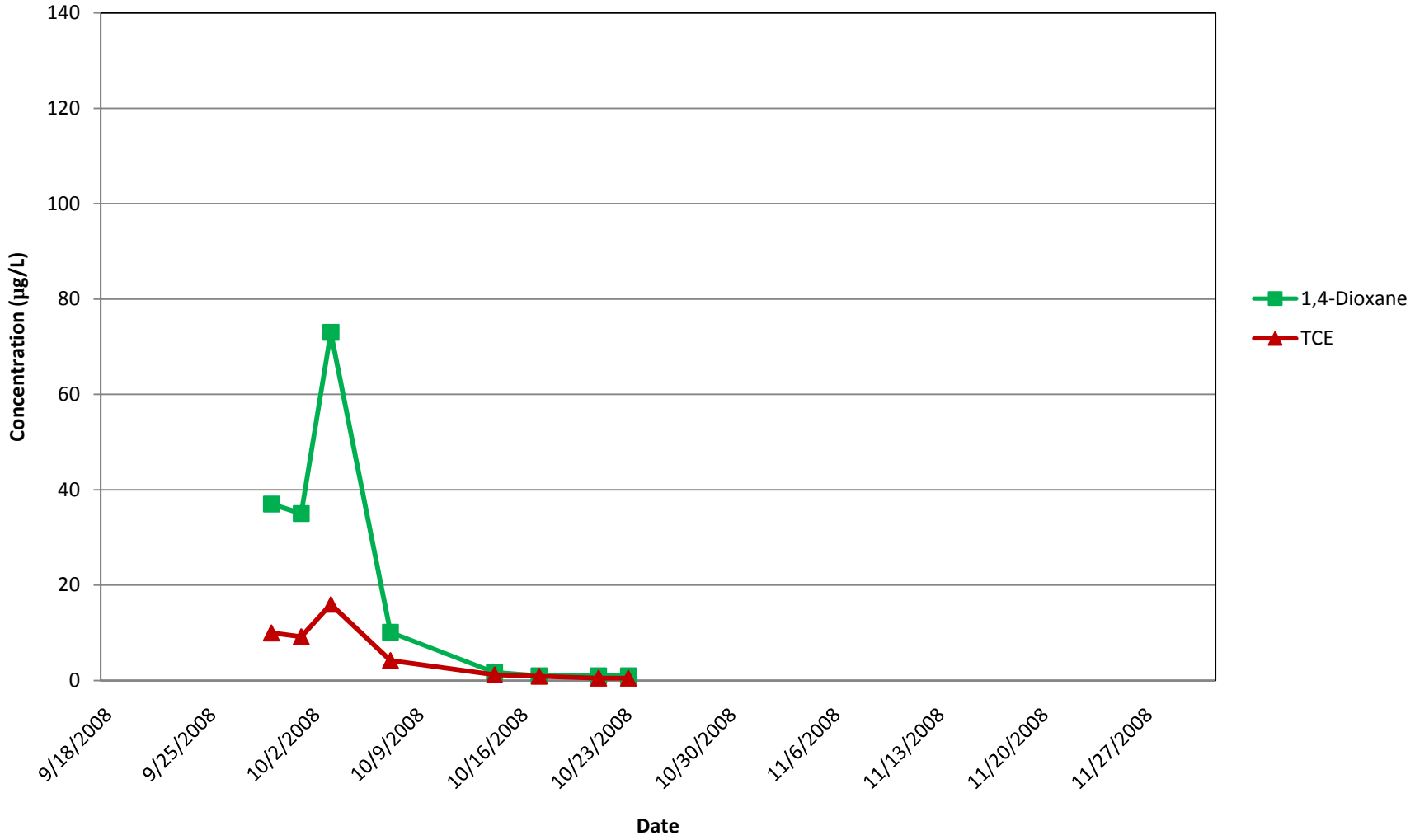


Figure 11
EW-7 1,4-Dioxane and TCE
Groundwater Analytical Results

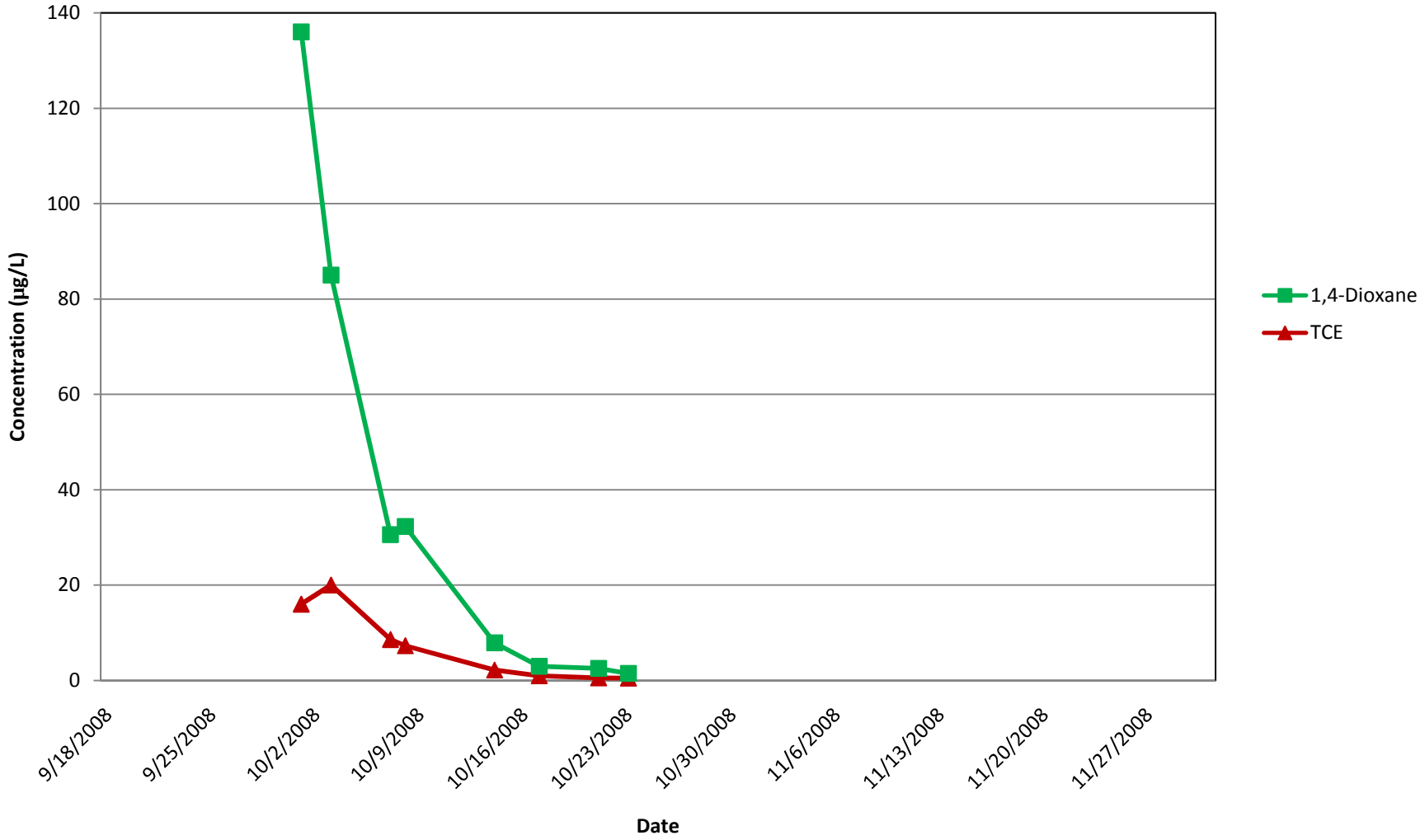
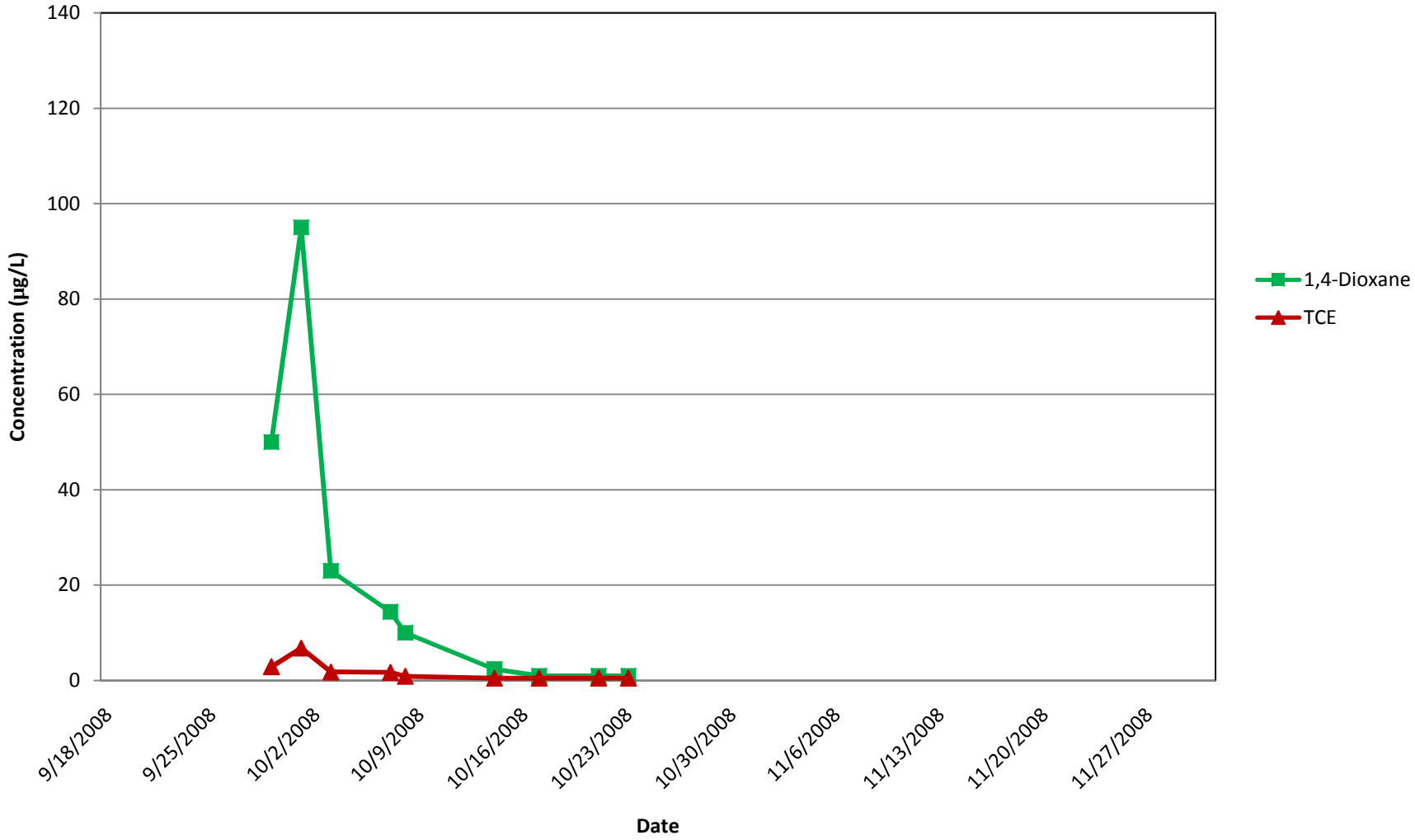


Figure 12
EW-8 1,4-Dioxane and TCE
Groundwater Analytical Results



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Attachment 1

Daily Summary Reports

(See CD on Back Cover of Report)

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Attachment 2

Water Level Monitoring Data

(See CD on Back Cover of Report)

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Attachment 3

As-Built Drawings

(See CD on Back Cover of Report)

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Attachment 4

Analytical Laboratory Reports

(See CD on Back Cover of Report)

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Attachment 5

Data Validation Reports

(See CD on Back Cover of Report)

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Attachment 6

Mobile Lab Results

(See CD on Back Cover of Report)

ARCADIS

Attachment 7

Non-Hazardous Waste Disposal Manifests

(See CD on Back Cover of Report)