TETRA TECH

Via E-Mail

P.N. 117-3008104

August 1, 2018

Mr. Christopher Smith
Waste Management Division
U.S. Environmental Protection Agency
Region I
5 Post Office Square
Mail Code OSRR07-4
Boston, MA 02109-3912

Ms. Jennifer McWeeney
Bureau of Waste Site Cleanup
Massachusetts Department of
Environmental Protection
One Winter Street, 7th Floor
Boston, MA 02108

RE: Response to May 4, 2018 EPA Comments on the 2017 Operable Unit Three Monitoring Report W. R. Grace Superfund Site, Acton, Massachusetts

Dear Mr. Smith and Ms. McWeeney:

This letter provides responses to your May 4, 2018 comments on the *Operable Unit Three Monitoring Program Report, 2017* prepared by Tetra Tech and JG Environmental Inc., dated December 22, 2017. The following are responses to specific EPA comments contained in the May 4, 2018 email attachment:

EPA COMMENT 1-EPA approves W.R. Grace's request for its proposed monitoring changes for the 2018 groundwater sampling program except as our recommendations described in Comments 2 and 3 below may affect certain monitoring.

RESPONSE: Acknowledged.

EPA COMMENT 2-Transmittal letter, Proposed Changes to VOC Sampling, p. 1. After being in the range of 0.93 ug/L to 1.2 ug/L from 2012 to early 2015, the concentrations of 1,4-dioxane at AR-30D increased into the range of 2.6 ug/L to 5 ug/L in the last five semi-annual samples. Annual VOC analyses were stopped at AR-30D in 2013 in response to six years of results below the IGCLs. We recommend you sample AR-30D for VOCs in 2018 to see if VOC concentrations have risen along with the 1,4-dioxane concentrations.

RESPONSE: Well AR-30D will be sampled for VOC analysis in 2018.
As noted in the transmittal letter for the 2013 Annual Monitoring Report we recommended that VOC analyses of samples from AR-30D be discontinued in 2014 because concentrations of VDC,

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vinyl chloride, and benzene had been less than Interim Groundwater Cleanup Levels (IGCLs) for the previous six years, or more (VDC since 2008; vinyl chloride and benzene since well installation in 2000). The reduction in VDC concentrations in samples from AR-30D represented the reduction in the extent of Grace-related VDC-contaminated groundwater in the Northeast Area as a result of operation of the Northeast Area Interim Groundwater Remedy and Monitored Natural Attenuation (MNA) processes. The reduction in the extent of Grace-related groundwater contamination is evidenced by comparing Figures 1 and 2. Figure 1, which is a copy of Figure 3-3 from the July 1, 2005 Remedial Investigation (RI) report shows the distribution of VDC in groundwater at the Site in 2001-2002, including the Northeast Area. Figure 2, which is a copy of Figure 3-4 from December 22, 2017 Annual Monitoring Report (AMR), shows the distribution of VDC in groundwater at the site in 2017, including the Northeast Area. Figure 3 is an aerial photograph of the area of well AR-30D, the School Street wellfield, and the outline of the 2017 extent of VDC-contaminated groundwater in that portion of the Northeast Area.

We had previously noted the anomalously high and rising 1,4-dioxane concentrations in samples collected from AR-30D and the inconsistency of those concentrations with the general distribution of Grace-related groundwater contamination in the Northeast Area of the Site. We will analyze the sample collected from AR-30D for VOCs to evaluate whether that previously noted inconsistency persists.

EPA COMMENT 3-Section 4.2.2.1, VDC, p. 4-10. EPA and MassDEP conditionally approved the petition to discontinue pumping from Extraction Wells NLBR-R, NLGP, SLBR, and SLGP-R in the Former Lagoon Area (FLA) in January 2009. The approval letter noted that the presence of VDC in SLGP-R at concentrations higher than any other monitoring well in the area indicated the presence of a mass of contaminated groundwater in the aquifer that had not been identified with the existing network of monitoring wells. One condition of the approval was that the list of monitoring wells being sampled annually in the FLA be expanded, with the expectation that one or more of the wells would be correctly positioned to monitor the fate of the VDC that was formerly captured by SLGP-R. That data would then be used to evaluate the progress of MNA, the selected remedy for that area of the site.

In the second annual round of sampling (fall 2010) after the shutdown of the extraction wells, VDC and vinyl chloride (VC) were detected at OSA-13B, a monitoring well in which only benzene had been detected since 1997. Despite the addition of nearby monitoring wells to the post-2010 sampling rounds to try to assess the extent and persistence of the contamination, the pathway of migration away from the OSA-13 cluster has not been determined. The evidence seems to suggest the presence of a source area to the north of that cluster, and migration from there to the southeast or south, between the B-04 and OSA-14 clusters, and possibly to the northeast toward the OSA-15 cluster. As noted in comments (dated 7/1/16) made on the 2015 annual report, the use of nearby wells to determine the fate of the high concentrations of contaminants at OSA-13B is hampered by the lack of any surrounding wells that are screened in the same depth interval. This part of the plume has been sustained for decades, indicating that it may significantly extend the period of time that will be required for remediation via MNA. Furthermore, in the absence of any additional (particularly downgradient) wells, the progress of MNA cannot be evaluated. For example, after being stable or possibly rising since 2000, the benzene concentrations at OSA-13B have been decreasing since the shutdown of the FLA extraction wells. This trend may be the result of natural attenuation, or it may simply represent a re-direction of the benzene plume. The results from the sampling of OSA-13C (deepest well in that cluster) since 2011 also suggest that the concentrations of VDC, vinyl chloride, and benzene are trending upward deeper in the aquifer.

The inclusion of additional wells in the 2017 sampling round did not produce much additional information (other than apparently increasing trends for VDC), perhaps in part because the new locations may not be downgradient of the OSA-13 wells. The 2018 sampling round will be the last one before the next five-year review (due in September 2019). The "probably increasing" trends for VDC and vinyl chloride at OSA-13B (in the 2016 and 2017 rounds) suggest that the MNA part of the remedy may not be functioning as expected, even though protectiveness is not threatened. The next five year review may likely need to recommend a re-examination of the MNA remedy, unless additional data collection and evaluation prior to its issuance can substantiate that MNA is still a valid remedy selection for the FLA. Please propose some additional sampling for the 2018 round that will support the efficacy of the MNA remedy in this area.

RESPONSE: Notwithstanding the compelling evidence that demonstrates that MNA has been an effective remedy for the Former Lagoon Area (FLA), Grace proposes to collect additional groundwater quality and groundwater level data in response to the EPA request for additional data collection. Grace proposes to collect the following information.

A. ***The following additional wells will be sampled in 2018 for VOC analysis: OSA-21, PL-4P, SLGP-R, and B-01P, (see Figure 4) to provide broader areal coverage of VDC concentrations in groundwater in the vicinity of the OSA-13 well cluster.***
B. ***Water level data will be collected on a bi-monthly basis for six months from several wells in the vicinity of OSA-13B to provide a more-detailed documentation of seasonal variability of groundwater flow conditions in the vicinity of the OSA-13 well cluster. Table 1 lists the wells (also shown on Figure 4) from which bi-monthly water level data will be collected.***

At the time the petition to discontinue pumping from existing FLA Aquifer Restoration System (ARS) wells NLBR-R, NLGP, SLBR, and SLGP-R was submitted to EPA, it was recognized that groundwater flow directions would change as a result of the shutdown of the ARS extraction wells. Grace proposed to add three additional monitoring wells to monitor groundwater quality changes in response to the shutdown of the FLA ARS wells. The proposed additional monitoring wells were: B-09B3, AR-03B1 and B-05B4. EPA approved that proposal and requested that Grace also add wells OSA-15B, OSA-14B, B-04B4 (Barcad), and AR-19AB1 (Barcad) to the groundwater quality

monitoring program. Grace agreed to add the additional EPA-proposed wells to the monitoring program provided the wells were still accessible for sampling. All four of the EPA-proposed additional wells were accessible for sampling and were added to the monitoring program. With two exceptions, B-09B3 (not sampled since 2012 since this well has been destroyed and AR-19AB1 (not sampled 2014, 2015, 2016), all wells have been sampled annually between 2009 and 2017 and will be sampled in 2018 provided they are still accessible.

There should be no doubt however, that MNA has been a successful remedy for the FLA. A simple comparison of Figures 1 and 2 demonstrates the substantial reduction in the areal extent of VDC-contaminated groundwater in the FLA, as well as the rest of the Site, including the Assabet River Area and the Southwest and Southeast Landfill Areas. Within the FLA there are only three well locations other than the OSA-13 cluster with a VDC concentration greater than the IGCL of 7 µg/L. They are OSA-06 (22 µg/L), OSA-3 (8.8 µg/L) and OSA-15 (7.9 µg/L). We had previously (July 3, 2013 Response to EPA comments regarding the 2012 AMR, 2016 and 2017 AMRs) attributed the VDC concentration fluctuations at this well cluster to be the result of changing groundwater flow directions and groundwater flow rates resulting from the shutdown of the FLA ARS wells and the proximity of the well cluster to a groundwater divide with relatively flat and fluctuating hydraulic gradients. The additional data we are proposing to collect will be used to evaluate our previously-stated hypotheses and the continued viability of MNA as a remedy for the FLA.

EPA COMMENT 4. Section 5. It appears that the purifics system is not effective in treating 1,4-dioxane nor VOCs, specifically benzene and 1,2-Dichloroethane. Has W.R. Grace evaluated and considered alternative treatment technologies? It is likely that next year's five year review will be evaluating 1,4-dioxane at the site as it is an emerging contaminant.

RESPONSE: The Landfill Area Treatment System is effectively treating the influent from the five recovery wells to meet all discharge criteria. Consistent with the U.S. EPA approval (February 2011) of the Landfill Area Treatment System final design, the Purifics system was designed to treat 1,4-dioxane to a discharge criterion of 3.0 ug/L. For the last few years, the concentration of 1,4-dioxane in the influent (and effluent) has been about 2.0 ug/L. VOCs in the combined influent are treated to discharge criteria by LATS unit processes, including the carbon absorption unit; the Purifics system provides no incremental benefit. As such, Grace requests permission to take the Purifics unit off-line, since the 1,4-dioxane discharge criterion is not exceeded in the influent and the VOCs are adequately treated by the other unit processes.

EPA COMMENT 5-Table 3-1. The column labeled "IGCL (ug/L)" has no entries. Please restore the IGCL concentrations in the next report.

RESPONSE: The IGCL concentrations will be included in the appropriate tables of the next report.

EPA COMMENT 6- Figures 1-1, 3-4, 3-5, and 3-6, as well as figures attached to transmittal letter. The background on these figures is very faint, making it difficult to read well numbers and discern site features (e.g., streets, surface water bodies). We recommend enhancing the background on these figures (e.g., see Figures 3-12 and 4-4) in the next report.

RESPONSE: The "background" of all figures will be reviewed and enhanced, as appropriate.

Please contact Thor Helgason at (781) 642-8775 if you have any questions.

Sincerely

Edward B. Dolan
Tetra Tech

Cc:

Paul Bucens (Grace)
Lydia Duff (Grace)
Thor Halgason (de maximis)
Seth Jaffe (Foley Hoag)
Warren Diesl (aecom)
Barbara Weir (aecoom)

Figures and Tables

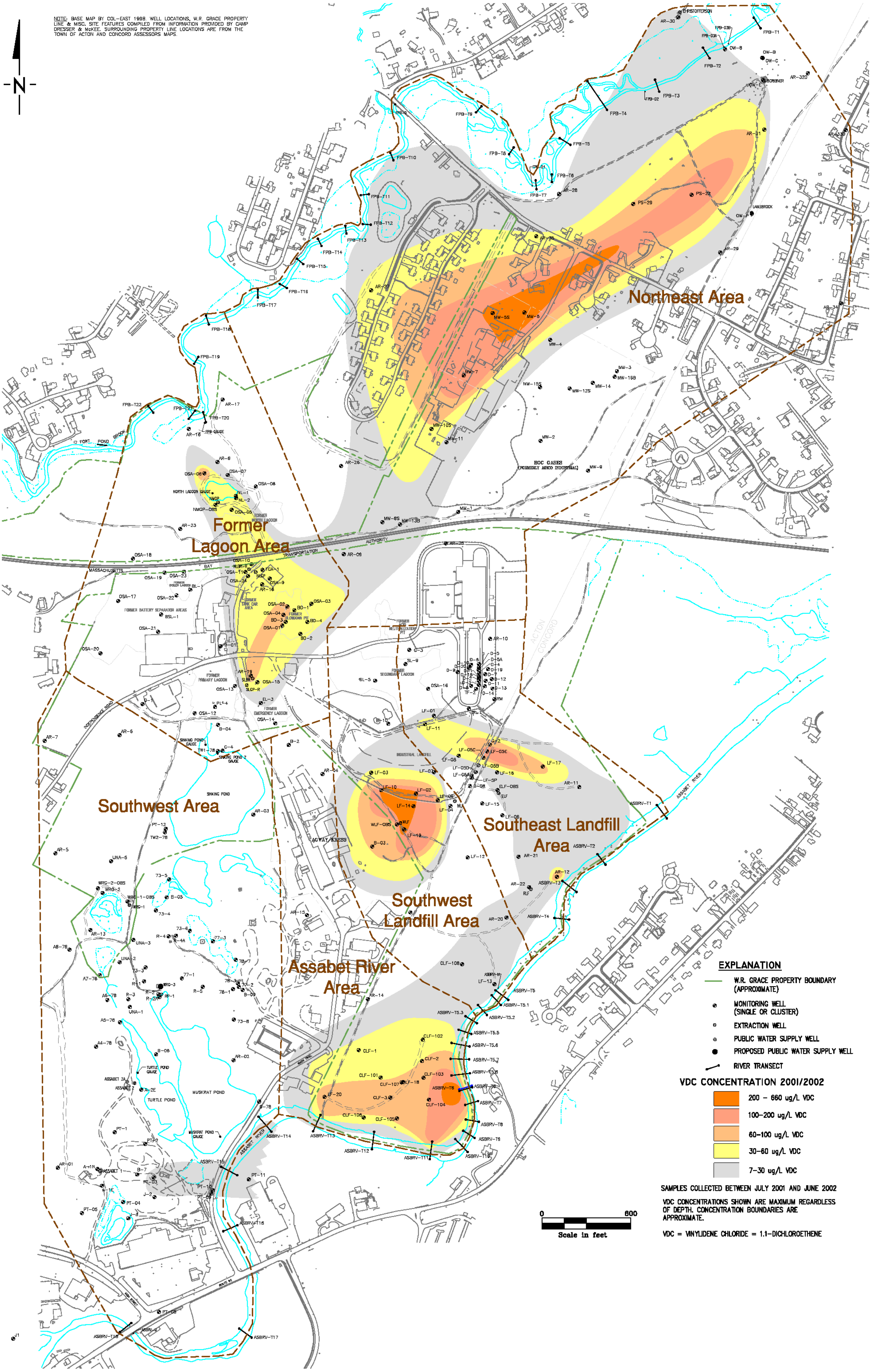
Figure 1. VDC Distribution in Groundwater at the Grace Site, 2001-2002 (source: Figure 3-3, July 1, 2005 Remedial Investigation Report

Figure 2. VDC Distribution in Groundwater at the Grace Site, 2017 (source: Figure 3-4, December 22, 2107 Annual Monitoring Report

Figure 3. Aerial Photograph of the School Street Wellfield Area showing the location of well AR-30D and outline of VDC concentrations in groundwater greater than IGCLs

Figure 4. Proposed OSA-13 Area Wells to be sampled for VOC analysis

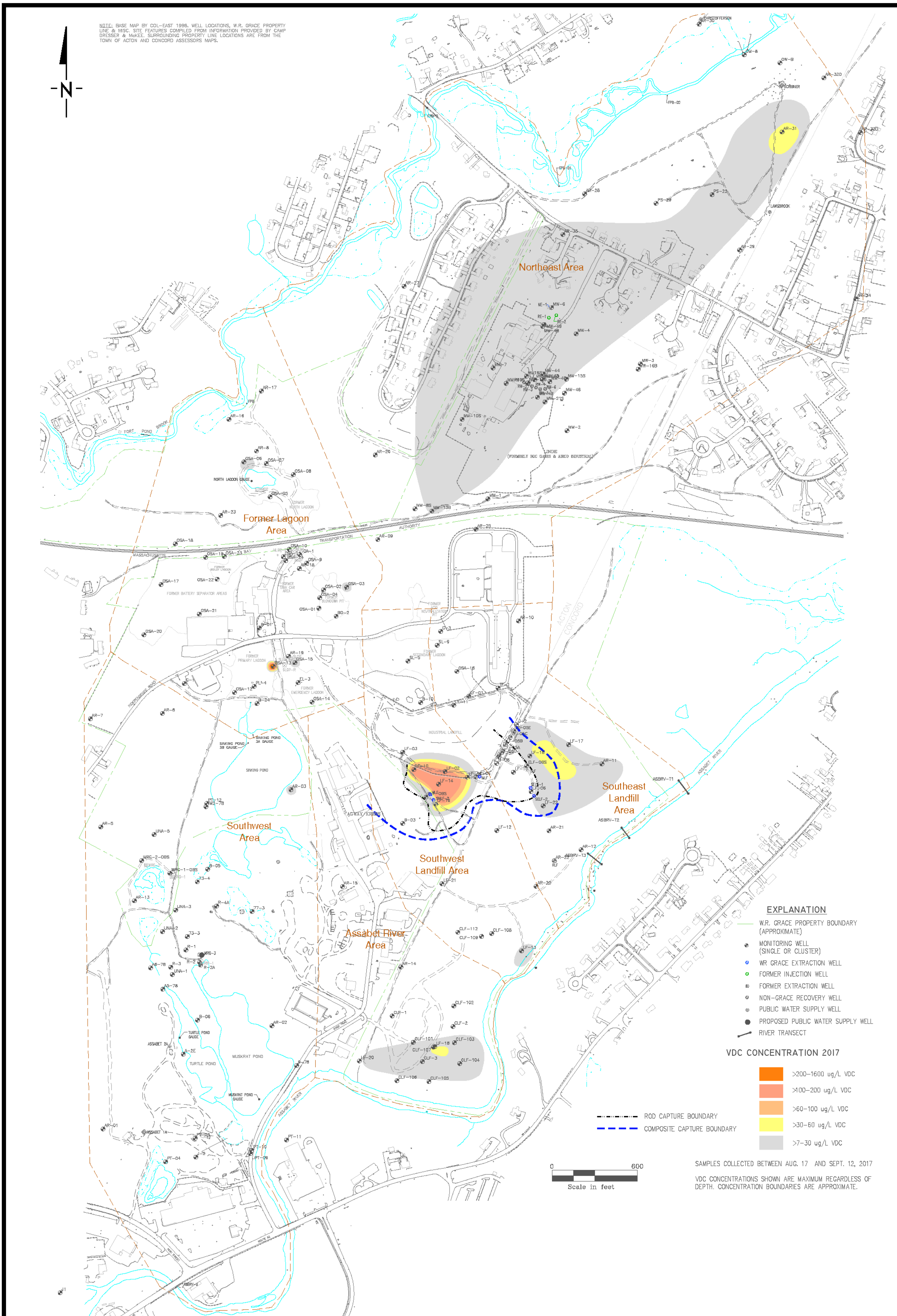
Table 1. OSA-13 Area 2018 Annual Sampling and Bi-Monthly Gauging List



DISTRIBUTION OF VDC IN GROUNDWATER, 2001-2002 (RI REPORT)

LOCATION:	W.R. Grace, Acton, Massachusetts

TETRA TECH	CHECKED:	ED	FIGURE: 1
	DRAFTED:	JML	
	DATE:	6/28/2018	



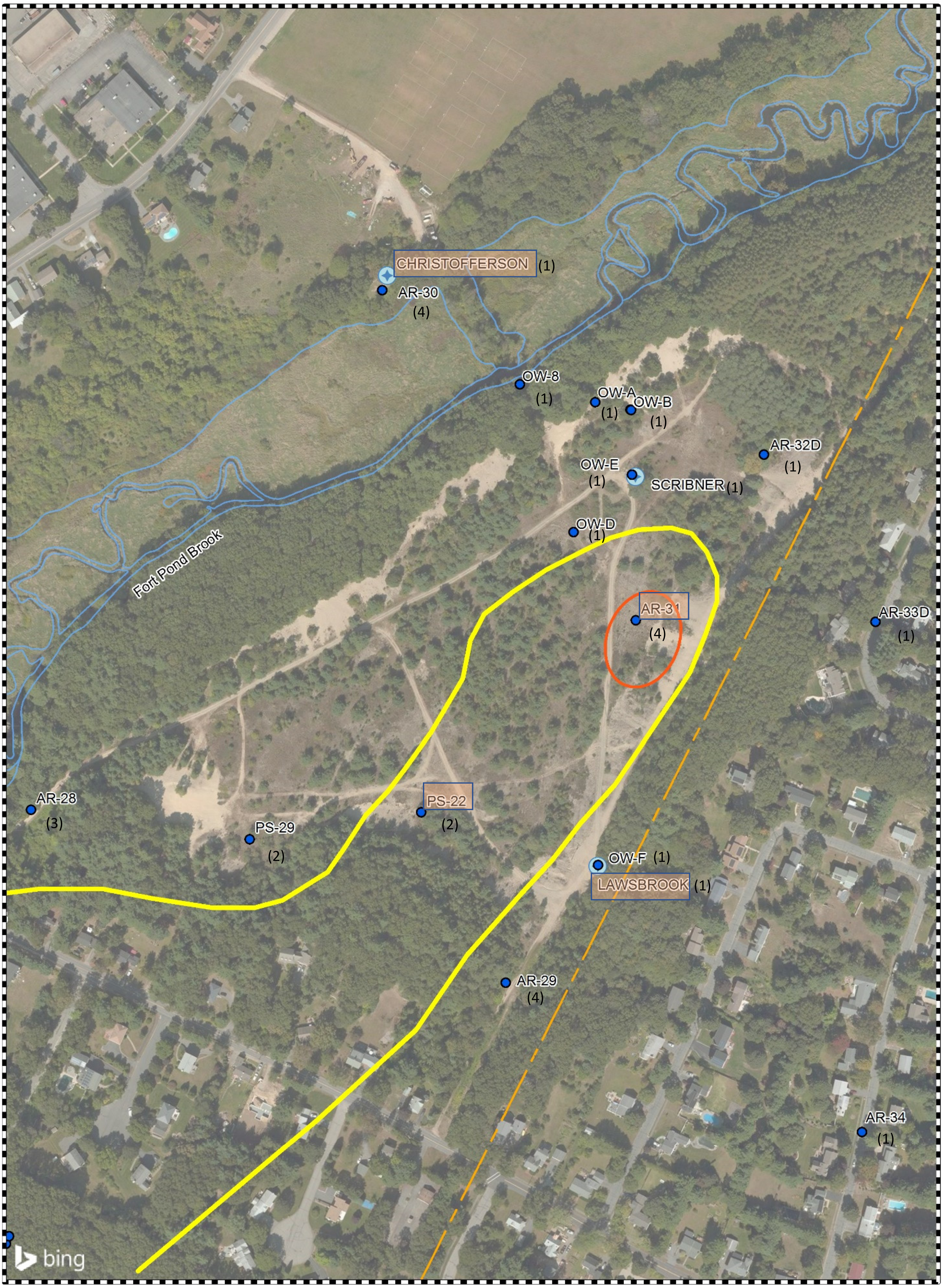
DISTRIBUTION OF VDC IN GROUNDWATER, 2017 (2017 AMR REPORT)

LOCATION: W.R. Grace, Acton, Massachusetts

TETRA TECH

CHECKED:	ED
DRAFTED:	JML
DATE:	6/28/2018

FIGURE: 2



Explanation

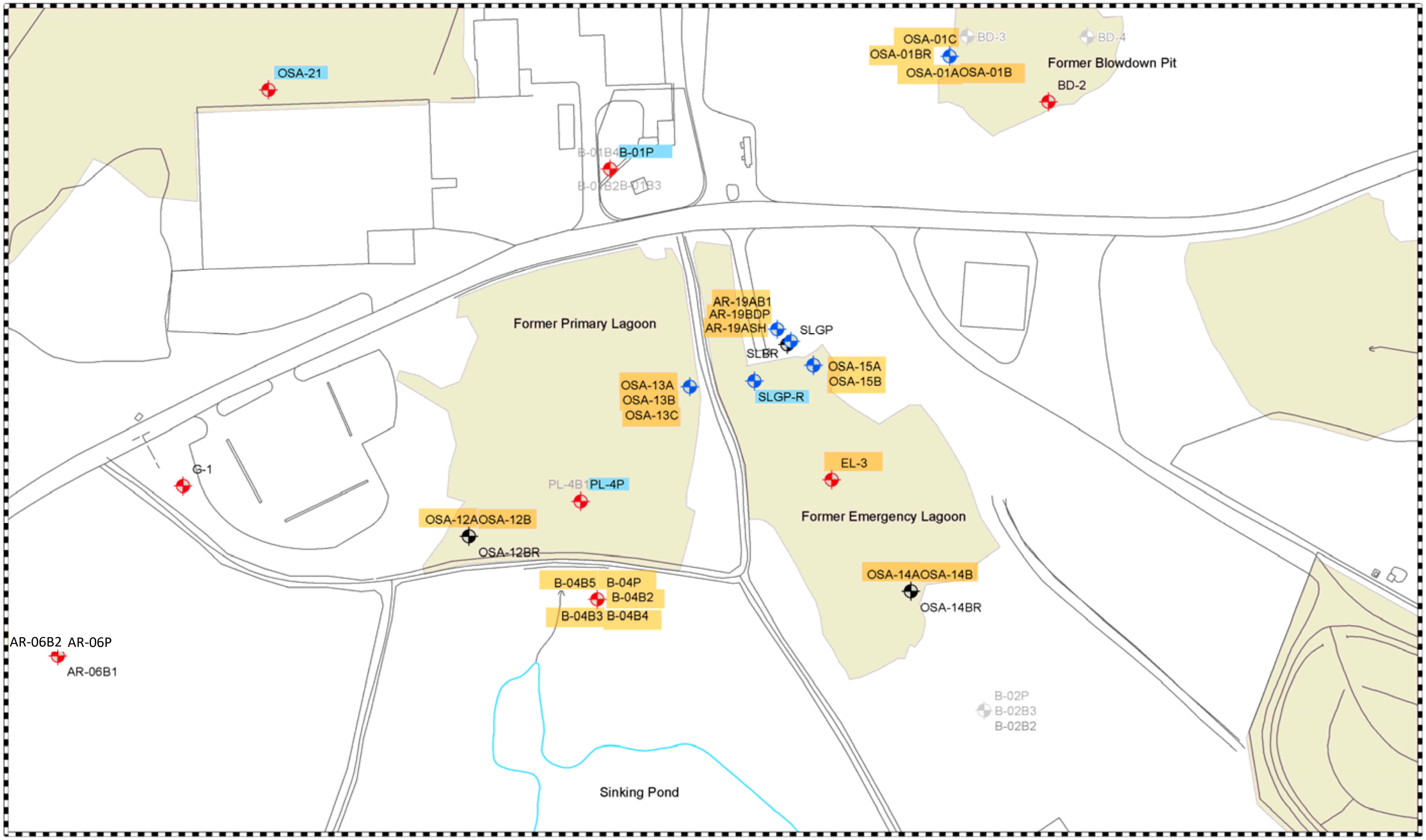
- Monitoring Well
- Public Water Supply Well
- Water Body
- Town Boundary
- Wells Sampled in 2017
- > 7 μg/L 1,1-Dichloroethene Contour (Estimated)
- > 30 μg/L 1,1-Dichloroethene Contour (Estimated)
- (3) # of Screened Intervals

N

0 100 200 Feet

DRAFT

TITLE:	School Street Well Field
LOCATION:	W.R. Grace, Acton, Massachusetts
TETRA TECH	CHECKED: ED DRAFTED: JML DATE: 6/28/2018
FIGURE:	3



Explanation

WELL LOCATION

- Shallow Unconsolidated
- Bedrock
- Deep Unconsolidated

- 2018 Additional Sampling Locations VOCs
- 2018 Sampling Locations VOCs
- Source Area

N

0 100 200 Feet

TITLE:	OSA-13 Area Gauging & Sampling Plan	
LOCATION:	W.R. Grace, Acton, Massachusetts	
TETRA TECH	CHECKED: ED DRAFTED: JML DATE: 7/19/2018	FIGURE: 4

Table 1 – OSA-13 Area 2018 Annual Sampling and Bi-Monthly Gauging List								
Well Name	Cluster Name	Unit Monitored	Top of Screen Ele. (ft, msl)	Bottom of Screen Ele. (ft, msl)	To Be Sampled in 2018	Additional Sampling Locations	Water Level Measurement Location	Comments
AR-06B1	AR-06	Bedrock	86.1	85.1				Barcad
AR-06B2		Shallow Unconsolidated	107.7	106.7				Barcad
AR-06P		Shallow Unconsolidated	137.1	132.1			X	
AR-19AB1	AR-19	Bedrock	61.4	60.4	X		X	
AR-19ASH		Shallow Unconsolidated	127.4	122.4	X		X	
AR-19BDP		Deep Unconsolidated	104.4	84.4	X		X	
B-01P	B-01	Shallow Unconsolidated	135.8	132.8		X	X	
B-04B2	B-04	Shallow Unconsolidated	106.6	105.6	X			Barcad
B-04B3		Deep Unconsolidated	93.6	92.6	X			Barcad
B-04B4		Deep Unconsolidated	73.6	72.6	X			Barcad
B-04B5		Deep Unconsolidated	57.6	56.6	X			Barcad
B-04P		Shallow Unconsolidated	130.6	127.6	X		X	
BD-2	BD-2	Shallow Unconsolidated	134.4	124.4			X	
EL-3	EL-3	Shallow Unconsolidated	127.5	122.5	X		X	
G-1	G-1	Shallow Unconsolidated	138.0	135.0			X	
OSA-01A	OSA-01	Shallow Unconsolidated	137.5	127.5	X		X	
OSA-01B		Deep Unconsolidated	107.5	97.5	X		X	
OSA-01BR		Bedrock	71.5	61.5	X		X	
OSA-01C		Deep Unconsolidated	89.5	79.5	X		X	
OSA-12A	OSA-12	Shallow Unconsolidated	139.9	124.9	X		X	
OSA-12B		Deep Unconsolidated	77.9	67.9	X		X	
OSA-12BR		Bedrock	46.9	36.9			X	
OSA-13A	OSA-13	Shallow Unconsolidated	138.0	123.0	X		X	
OSA-13B		Deep Unconsolidated	115.0	105.0	X		X	
OSA-13C		Deep Unconsolidated	83.0	73.0	X		X	
OSA-14A	OSA-14	Shallow Unconsolidated	134.8	124.8	X		X	
OSA-14B		Deep Unconsolidated	88.8	78.8	X		X	
OSA-14BR		Bedrock	8.8	-1.2			X	
OSA-15A	OSA-15	Shallow Unconsolidated	138.5	128.5	X		X	
OSA-15B		Deep Unconsolidated	82.5	72.5	X		X	
OSA-21	OSA-21	Shallow Unconsolidated	144.5	134.5		X	X	
PL-4P	PL-4	Shallow Unconsolidated	133.9	130.9		X	X	
SLBR	SL	Bedrock	48.7	38.7			X	
SLGP		Deep Unconsolidated	89.7	69.7			X	
SLGP-R		Deep Unconsolidated	82.6	65.6		X	X	
BD-3	BD-3							Abandoned
BD-4	BD-4							Abandoned
B-01B2	B-01							Destroyed
B-01B3								Destroyed
B-01B4								Destroyed
B-02B2	B-02							Abandoned
B-02B3								Abandoned
B-02P								Abandoned
PL-4B1								Destroyed

Note: water levels are not able to be measured in Barcad wells

DRAFT

OPERABLE UNIT THREE MONITORING PROGRAM REPORT, 2017

W.R. GRACE SUPERFUND SITE ACTON, MASSACHUSETTS

PREPARED FOR:

W.R. GRACE & CO. – CONN.
7500 GRACE DRIVE
COLUMBIA, MD 21044

PREPARED BY:

TETRA TECH
ONE MONARCH DRIVE
LITTLETON, MASSACHUSETTS 01460

AND

JG ENVIRONMENTAL, INC.
1740 MASSACHUSETTS AVENUE
BOXBOROUGH, MA 01719-2209

TETRA TECH PROJECT NO. 117-3008104-26 DECEMBER 22, 2017

TETRA TECH

JG Environmental Inc.
WATER RESOURCES CONSULTING

DRAFT

OPERABLE UNIT THREE
MONITORING PROGRAM REPORT, 2017

W.R. GRACE SUPERFUND SITE
ACTON, MASSACHUSETTS

PREPARED FOR:

W.R. GRACE & CO. – CONN.
7500 GRACE DRIVE
COLUMBIA, MD 21044

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LIST OF ACRONYMS/DEFINITIONS

1,2-DCA	1,2-dichloroethane
AWD	Acton Water District
cfs	cubic feet per second
DO	Dissolved Oxygen
EPH	Extractable Petroleum Hydrocarbons
FS	Feasibility Study
FSP	Field Sampling Plan
gpm	gallons per minute
Grace	W.R. Grace & Co. - Conn.
IGCL	Interim Groundwater Cleanup Level
MMCL	Massachusetts Maximum Contaminant Level
MNA	Monitored Natural Attenuation
NMI	Nuclear Metals Superfund Site
NTCRA	Non-Time-Critical Removal Action
OU-3	Operable Unit 3
ORP	Oxidation-Reduction Potential
PCE	tetrachloroethene
PDB	Passive Diffusion Bag
POP	Project Operations Plan
QAPP	Quality Assurance Project Plan
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
ROD	Record of Decision
Site	W.R. Grace & Co. - Conn. Acton Superfund Site
TCA	1,1,1-trichloroethane
TCE	trichloroethene
Trend Test	Mann-Kendall trend test for small sample sizes
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VDC	1,1-dichloroethene or vinylidene chloride
VOC	Volatile Organic Compound
VPH	Volatile Petroleum

1 INTRODUCTION

This report presents the results of the Operable Unit Three (OU-3) groundwater monitoring done between November 1, 2016 and October 31, 2017 at the W.R. Grace & Co. - Conn. (Grace) Superfund Site in Acton, Massachusetts (the "Site"). The current OU-3 monitoring program was defined in the Groundwater Monitoring Plan (GeoTrans, 2006) and modified by the letter Re: *Response to Comments on the September 12, 2006 Draft RD/RA Groundwater Monitoring Plan* (GeoTrans, 2007b) as well as by subsequent minor changes approved by the United States Environmental Protection Agency (USEPA).

The Site has been divided into six geographic Areas on the basis of groundwater flow directions, as well as the nature and extent of historic groundwater contamination (GeoTrans, 2005b). Areas, with a capital "A", is used in this report when the text is referring to these geographic Areas. The six geographic Areas, which are shown on **Figure 1-1,** are:

- Northeast Area;
- Former Lagoon Area;
- Southwest Area;
- Assabet River Area;
- Southwest Landfill Area; and
- Southeast Landfill Area.

The goals and scope of the Site groundwater monitoring program evolved as the remedial actions at the Site have been implemented. There is active groundwater extraction in two Areas of the Site, the Southeast and Southwest Landfill Areas (occasionally referred to collectively as the Landfill Area) where five groundwater extraction wells are located (MLF, SELF-1, SELF-2, SWLF-2 and WLF). These five wells are downgradient of the Industrial Landfill. The other four geographic Areas of the Site, the Northeast Area, the Former Lagoon Area, the Southwest Area, and the Assabet River Area, are being remediated through monitored natural attenuation (MNA) processes. **Figure 1-1** also shows the locations of the five extraction wells downgradient of the Industrial Landfill.

The goals of the Site-wide monitoring program during this reporting period include:

- To confirm through groundwater level monitoring that the Southeast Landfill Area and Southwest Landfill Area groundwater capture zone is being achieved;

- To assess through groundwater quality monitoring the changes in groundwater quality within the Southeast Landfill Area and Southwest Landfill Area capture zone; and
- To assess through groundwater quality monitoring the natural attenuation of contaminant concentrations in Site groundwater not being actively captured and treated.

2 WATER LEVEL MONITORING

A Site-wide water level measurement round was performed on August 14 through 16, 2017. All five Acton Water District (AWD) public water supply wells located within the Site boundaries, and four of the five Southeast and Southwest Landfill Area extraction wells (MLF, SELF-2, SWLF-2, and WLF) were operational at the time the measurements were collected. Extraction well SELF-1 was down for maintenance at the time of the water level round. In addition, recently installed extraction well EW-1, which is located southeast of the Acton Water District (AWD) Assabet well field and is part of the groundwater remedy for the Nuclear Metals (NMI) Superfund Site, was operational. **Table 2-1** summarizes the water levels measured on August 14 through 16, 2017 and **Table 2-2** summarizes the pumping rates of the public water supply wells and extraction wells on August 13 through 15, 2017. On average, August 2017 water levels were approximately 1.7 feet higher than August 2016 water levels. This difference is likely due to the below normal water levels that resulted from the drought conditions the area experienced in the summer and fall of 2016. Those drought conditions did not persist into 2017. **Figures 2-1** and **2-2** illustrate the August 2017 water levels measured in the wells open to the unconsolidated deposits and bedrock, respectively. **Figures 2-1** and **2-2** show that a groundwater divide extends in a generally northeasterly direction from the approximate area of the Former Primary Lagoon and Former Blowdown Pit and causes general directions of groundwater flow to be south and southeast toward the Assabet River, and north and northwest toward Fort Pond Brook. Some of the Site groundwater is captured by the operating extraction wells. The following sections further describe groundwater flow within specific Areas of the Site.

2.1 NORTHEAST AREA

Figures 2-1 and **2-2** show that a water table and bedrock potentiometric level high extends from the northeastern edge of the Grace property under the Linde (formerly BOC Gases) property and to the northeast. Groundwater from the area of higher water table and bedrock potentiometric elevation flows to the northwest and north toward Fort Pond Brook and northeast toward the School Street well field. Water level data from monitoring well clusters located east of the AWD School Street wellfield clearly illustrate a northwesterly hydraulic gradient in the unconsolidated deposits from wells AR-33D and AR-34D toward the AWD public water supply wells and Fort Pond Brook (**Figure 2-1**). The bedrock water level data also indicate a northwesterly hydraulic gradient from the AR-34 cluster toward the AWD public water supply wells and Fort Pond Brook (**Figure 2-2**). The water level data indicate that east of the School Street wellfield, groundwater in the unconsolidated deposits and bedrock flows northwesterly toward the public water supply wells and Fort Pond Brook. The water level data do not indicate that impacted groundwater from the Grace property would migrate beyond the public water supply wells. Impacted water from the Grace property either 1) is captured by the public water supply wells and treated by the AWD treatment system, or 2) discharges naturally to Fort Pond Brook.

2.2 SOUTHEAST AND SOUTHWEST LANDFILL AREAS

The Southeast and Southwest Landfill Area extraction wells were pumping at a total average rate of approximately 49.8 gallons per minute (gpm) during the water level round, with SELF-2 contributing about 1 gpm to this total. SELF-1 was down temporarily for maintenance during the water level round. **Table 2-2** lists the pumping rate of each of the five extraction wells during the water level round. **Figures 2-1** and **2-2** show shallow unconsolidated deposits and bedrock potentiometric contours for the entire Site. **Figure 2-3** is a potentiometric surface contour map of the deep unconsolidated deposits in the Landfill Area.

Figures 2-1 and **2-3** show that the capture zone in the unconsolidated deposits extends from the area west of extraction wells SWLF-2 and WLF to the east, beyond extraction wells SELF-1 and SELF-2. The deep unconsolidated deposits capture zone extends further to the south in the southwestern and south-central portions of the Landfill Area than does the shallow unconsolidated deposits capture zone.

The capture zone in bedrock, shown on **Figure 2-2**, extends from west of extraction well SWLF-2 to the east, beyond extraction well MLF and east of extraction wells SELF-1 and SELF-2. The bedrock capture zone is more extensive than the deep unconsolidated deposits capture zone in the area southwest of the Industrial Landfill, but less extensive in the area southeast of the Landfill. **Figure 2-4** shows that downgradient of the western portion of the Industrial Landfill, along Section A-A’, the capture zone extends through the deep unconsolidated deposits and into the bedrock. Downgradient of the eastern portion of the Industrial Landfill, along Section B-B’ (**Figure 2-5**), the capture zone extends through the unconsolidated deposits and into the upper bedrock and extends to the southeast to beyond monitoring well cluster LF-22. The section locations are shown on **Figure 1-1**.

2.3 Southwest Area

The two public water supply wells (Assabet 1A and Assabet 2A) and NMI extraction well EW-1 were pumping at a total average rate of approximately 465 gallons per minute (gpm) during the water level round. **Table 2-2** lists the extraction rates of these three wells during the water level round. **Figure 2-1**, the shallow unconsolidated deposits potentiometric contour map, shows that the public water supply wells (Assabet-1A and Assabet-2A) create a zone of depression capturing groundwater from all directions. Some of the groundwater from the area south of Sinking Pond flows toward this depression, as does some groundwater that originates across the Assabet River (east) from the well field. NMI extraction well EW-1 also creates a cone of depression that captures groundwater originating from across the Assabet River.

2.4 Vertical Hydraulic Gradients

Vertical hydraulic gradients are downward between the unconsolidated deposits and bedrock across most of the Site. Near the Assabet River and Fort Pond Brook, however, vertical hydraulic gradients are generally upward, indicating that the River and Brook are generally groundwater discharge locations for bedrock and unconsolidated deposits groundwater. In proximity to pumping wells, observed hydraulic gradients can be upward or downward depending upon the relative position of the monitoring well screened interval and the open interval of the pumping well.

3 GROUNDWATER QUALITY SAMPLING

Groundwater samples for the annual groundwater sampling round were collected between August 17, 2017 and September 12, 2017. Groundwater samples for volatile organic compounds (VOCs), inorganic compounds, geochemical parameters and 1,4-dioxane analysis were collected using the following procedures:

- Passive diffusion bag (PDB) samplers were used to collect samples from piezometer type monitoring wells that were sampled only for VOC analysis. At these locations, PDBs were left in the wells for a minimum of 21 days to allow for equilibration with local groundwater.
- Low flow groundwater sampling methods were used at piezometer and Solinst type monitoring wells where samples were collected for 1,4-dioxane, inorganic compounds or geochemical parameters analysis. During this minimum stress procedure, the field parameters of pH, turbidity, specific conductance, temperature, oxidation reduction potential (ORP) and dissolved oxygen were measured during purging. Groundwater samples were collected after field indicator parameters had stabilized.
- The nitrogen gas purge method was used to collect samples from the Barcad type wells. Under this method, water within the Barcad tubing was flushed a minimum of three times, to remove any stagnant water, prior to sampling.
- For active pumping wells, approximately five gallons of water were purged through the dedicated sample port prior to sample collection.

Detailed sampling procedures are outlined in the Field Sampling Plan (FSP) (HSI GeoTrans, 2000) and the Project Operations Plan Addendum (POP) (GeoTrans 2007a).

Tetra Tech performed a Tier 1 validation of the VOC, inorganic compound, and 1,4-dioxane results. The data were checked for completeness and the lab narrative was reviewed. The data were qualified by the lab based on quality control results, holding times, and preservation. The groundwater sampling results are summarized below.

3.1 SAMPLING FOR VOC ANALYSIS

Groundwater samples were collected for VOC analysis from monitoring and extraction wells, and from beneath the Assabet River. These results are described in the following sections.

3.1.1 MONITORING AND EXTRACTION WELL SAMPLING

Groundwater sampling was conducted between August 17, 2017 and September 12, 2017. Samples were collected from 60 locations for VOC analysis. The sample for VOC analysis from monitoring well OSA-01B, located in the Former Lagoon Area, was inadvertently not collected. This well will be sampled in late-December 2017 when the quarterly sampling of OSA-13B and OSA-13C is done; it will also be included in future annual groundwater sampling events. The results of the VOC analyses from the 2017 annual sampling event are included in **Table A-1** of **Attachment A**. **Attachment B** is a table listing all VDC, vinyl chloride and benzene results from all locations sampled at least once since 2009. The "QA Type" field in the **Attachment B** table indicates which samples were collected for VOC analysis using PDB samplers.

3.1.2 SUB-RIVER GROUNDWATER SAMPLING

In addition to the groundwater samples collected from wells, one groundwater sample was collected from beneath the Assabet River at transect ASBRV-T6 using a PDB sampler. The sub-river groundwater sample was collected to evaluate the VOC concentrations in groundwater that discharges to the river. The diffusion bag sampling was done during low river flow conditions to maximize the potential that the samples would be representative of discharging groundwater and not of recharging surface water. The location of sub-river sampling transect ASBRV-T6 is shown on **Figure 2-1**.

One water-filled diffusion bag sampler was deployed beneath the Assabet River at transect ASBRV-T6 on August 1, 2017. The sampler consisted of low-density polyethylene bags filled with laboratory water. The sample location was one-quarter of the distance across the river from the bank closest to the Grace Site. The sampler was placed approximately six-inches beneath the riverbed and marked with flagging tape. The sampler was removed from the river on August 31, 2017. The results of the sub-river groundwater analyses are included in **Table A-1** of **Attachment A** and discussed in **Section 3.1.3**.

A temporary piezometer was installed at transect ASBRV-T6 to determine the direction of the vertical hydraulic gradient between the groundwater and the Assabet River. The groundwater level and the river water level were measured during installation and upon retrieval of the diffusion bag samplers on August 1, 2017, and August 31, 2017, respectively. Water level measurements collected from the piezometer are included on the diffusion bag sub-river sampling form included as **Attachment C**. Upward vertical hydraulic gradients of 0.01 and 0.01 were calculated from water level measurements made at the time of diffusion bag sampler installation and retrieval.

Daily average flow in the Assabet River, as measured at the United States Geological Survey (USGS) gauging station located approximately 1.5 miles upstream of the Site in Maynard, ranged between 17 and 308 cubic feet per second (cfs) during the period the diffusion bag samplers were in the river. **Figure 3-1** is a graph showing the daily average flow rate in the river during 2017. As can be seen on **Figure 3-1**, flow in the Assabet River was low during the time the diffusion bag samplers were deployed. Historical hydraulic gradient and river flow measurements indicate that upward hydraulic gradients are present when river flow rates are less than 400 cfs (GeoTrans, 2005c). The Assabet River daily average flow was below 310 cfs for the entire period that the PDBs were in the river.

3.1.3 Distribution of VOCs with Interim Groundwater Cleanup Levels (IGCLs)

This section describes the current distribution of VOCs detected in groundwater. **Table 3-1** compares the VOC results from groundwater samples collected between August 17, 2017 and September 12, 2017 to the Interim Groundwater Cleanup Level (IGCL) for the eight VOCs for which an IGCL was established in the Record of Decision (ROD) (USEPA, 2005). The following information is listed in **Table 3-1** for each compound:

- The IGCL;
- The number of locations at which the compound was detected at a concentration greater than the IGCL;
- The total number of locations for which the compound was analyzed;
- The number of samples in which the compound was detected at concentrations greater than the IGCL;
- The total number of samples for which the compound was analyzed;
- The number of samples in which the compound was detected; and
- The maximum detected concentration.

Compounds detected above the IGCL in at least one sample are marked with an asterisk on the right side of the table.

As indicated in **Table 3-1**, 68 samples for VOC analysis were collected from a total of 61 locations (60 wells plus one location at sub-river transect ASBRV-T6). Five of the eight VOCs were detected in at least one of the 61 sampling locations at a concentration greater than their IGCL (see **Table 3-1**). The three compounds detected most frequently at a concentration greater than their IGCL were 1,1-dichloroethene (VDC), vinyl chloride, and benzene. They were detected at a concentration greater than their IGCL at 26, 22, and 14 locations, respectively. These compounds were the most widespread in their occurrence. The other two VOCs which were detected at a concentration above their IGCL in a sample from at least one location were 1,2-dichloroethane (1,2-DCA), and 1,2-dichloropropane. These two compounds were only detected at a concentration greater than their IGCL at five and three locations, respectively. The following sections describe the distribution of the five compounds that were detected above their IGCL in at least one sampling location.

Figures 3-2 and **3-3** show the VDC, vinyl chloride, and benzene concentrations in groundwater samples collected from wells open to the unconsolidated deposits and bedrock, respectively. Also shown on **Figure 3-2** are results of the analyses from the groundwater sample collected beneath the Assabet River at transect ASBRV-T6.

3.1.3.1 VDC Distribution

VDC was detected above the IGCL of 7 µg/L at 26 of 61 locations, and in 29 of 68 samples. The maximum VDC concentration (1600 µg/L) was detected in a sample from well cluster OSA-13B, which is located near the former Primary Lagoon. This result is discussed further in **Section 4.2.2.1**. **Figure 3-4** shows the maximum VDC concentration, regardless of depth, detected in groundwater samples collected between August 17, 2017 and September 12, 2017, the most recent Site-wide sampling round. The IGCL of 7 µg/L was used as the minimum isoconcentration line on **Figure 3-4**. The highest concentrations of VDC, 200 µg/L or greater, were detected in a limited area within the unconsolidated deposits on the western edge of the former Primary Lagoon in two monitoring wells in the OSA-13 cluster.

3.1.3.2 Vinyl Chloride Distribution

Vinyl chloride was detected above the IGCL of 2 µg/L at 22 of 61 locations, and in 24 of 68 samples. The maximum vinyl chloride concentration (98 µg/L) was detected in a sample from monitoring well LF-19SBR, which is located downgradient of the Industrial Landfill in the Southwest Landfill Area of the Site. **Figure 3-5** shows the maximum vinyl chloride concentration, regardless of depth, detected in groundwater samples collected between August 17, 2017 and September 12, 2017, the most recent Site-wide sampling round. The IGCL of 2 µg/L was used as the minimum isoconcentration contour on **Figure 3-5**. The highest concentrations of vinyl chloride, greater than 30 µg/L, were detected in the shallow bedrock groundwater adjacent to the southern edge of the Industrial Landfill in the Southwestern Landfill Area, in groundwater samples from monitoring well clusters LF-02 and LF-19, and in the deep unconsolidated deposits groundwater located in the Southeastern Landfill Area in groundwater samples from monitoring well cluster LF-17. A relatively high concentration (53 µg/L) was also detected in unconsolidated deposits monitoring well OSA-13B, located on the western edge of the former Primary Lagoon.

A comparison of **Figure 3-4** to **Figure 3-5** shows that the vinyl chloride is generally found in the same areas as VDC. The vinyl chloride concentrations are usually lower than the VDC concentrations. The similarity in the distribution of these two compounds reflects the fact that vinyl chloride is a breakdown product of, and was also a possible impurity (less than 0.5 parts per million) in, VDC that was used by Grace.

3.1.3.3 BENZENE DISTRIBUTION

Benzene was detected above the IGCL of 5 µg/L at 14 of 61 locations and in 15 of 68 samples. **Figure 3-6** shows the maximum benzene concentration, regardless of depth, detected in samples collected between August 17, 2017 and September 12, 2017, the most recent Site-wide sampling round. The IGCL of 5 µg/L was used as the minimum isoconcentration contour on **Figure 3-6**. Concentrations of benzene greater than 100 µg/L are limited to the Southeast Landfill Area in deep unconsolidated deposits groundwater from extraction wells SELF-1 and SELF-2. The maximum benzene concentration detected was 120 µg/L. A comparison of **Figure 3-6** to **Figures 3-4** and **3-5** shows that benzene is less-widely distributed across the Site than VDC and vinyl chloride, relative to their respective IGCLs.

3.1.3.4 DISTRIBUTION OF OTHER VOCS DETECTED ABOVE IGCLS

As indicated in **Table 3-1**, two other VOCs, 1,2-DCA, and 1,2-dichloropropane, were detected above their IGCL in at least one sample. The compounds 1,2-DCA and 1,2-dichloropropane were detected above their IGCL of 5 µg/L at five and three locations, respectively, and were not widely distributed. Concentrations in excess of the IGCL for these two compounds are limited to the area downgradient of the Industrial Landfill. 1,2-DCA was detected above its IGCL in groundwater samples from extraction wells SELF-1 and SELF-2, and monitoring wells, LF-06C, LF-22S and LF-22D. 1,2-dichloropropane was detected above its IGCL in groundwater samples from extraction well SELF-2 and from monitoring wells LF-22S and LF-22D.

3.2 INORGANIC COMPOUND SAMPLING

Groundwater samples collected from 21 locations were analyzed for inorganic compounds for the reasons specified below.

- Samples from six locations were analyzed for total concentrations of the following inorganic compounds: antimony, arsenic, beryllium, chromium, iron, lead, manganese and nickel.
  - Six monitoring wells (AR-30D, AR-31D, B-05B3, B-06B5, PS-22B, and PS-29B) located between the former Grace property source areas and the Assabet and School Street wellfields were sampled to provide information regarding the total concentrations of inorganic compounds in groundwater upgradient of the two wellfields.
- Samples from five locations were analyzed for total concentrations of the following inorganic compounds: arsenic, iron and manganese.
  - Five Landfill Area extraction wells (MLF, SELF-1, SELF-2, SWLF-2, and WLF) were sampled to monitor concentrations of inorganic compounds in groundwater influent to the Landfill Area groundwater treatment system.
- Samples from 10 locations were analyzed for dissolved concentrations of the following inorganic compounds: arsenic, iron and manganese.
  - Six locations near and downgradient of the Former Lagoon Area (OSA-01B, OSA-05A, OSA-06BR, OSA-07A, OSA-09B, OSA-11B) were sampled to monitor arsenic and manganese concentrations as well as geochemical conditions.
  - Four locations near and downgradient of the Industrial Landfill (B-08C, B-08D, LF-06C, LF-12) to monitor arsenic and manganese concentrations as well as geochemical conditions.

Samples collected for dissolved inorganic compounds analysis were filtered by the laboratory using a 0.45-micron filter. The results of the inorganic compound analyses are included in **Table A-2** of **Attachment A**. **Attachment B** is a table that includes arsenic and manganese results from all locations sampled at least once since 2009.

Table 3-2 summarizes the comparison between the concentrations of arsenic and manganese detected in groundwater samples collected from the 21 locations between August 17, 2017 and September 12, 2017, to the IGCL for each compound. **Table 3-2** also summarizes the comparison between the concentrations of nickel, lead, chromium, beryllium and antimony detected in groundwater samples collected from six monitoring wells during that same period to the IGCL for those compounds. Iron is not included in **Table 3-2** because there is no IGCL for iron. The IGCLs for groundwater are defined in the ROD (USEPA, 2005). The following information is listed in the table for each compound:

- The IGCL;
- The number of locations at which the compound was detected at a concentration greater than the IGCL;
- The total number of locations for which the compound was analyzed;
- The number of samples in which the compound was detected at a concentration greater than the IGCL;
- The total number of samples for which the compound was analyzed;
- The number of samples in which the compound was detected; and
- The maximum detected concentration.

Compounds that were detected at concentrations greater than their IGCL in at least one sample are marked with an asterisk on the right side of **Table 3-2**. As indicated in **Table 3-2,** only two of the seven inorganic compounds that have an IGCL, manganese and arsenic, were detected at a concentration greater than its IGCL in at least one sample. Nickel and lead were not detected above their IGCLs at any of the six locations where samples were collected for nickel and lead analysis. Chromium, antimony and beryllium were not detected at any of the six locations where samples were collected for chromium, antimony and beryllium analysis.

As shown in **Table 3-2**, manganese and arsenic were the only inorganic compounds detected at concentrations greater than their IGCLs. As stated in **Section 3.5.3** of the Public Review Draft Remedial Investigation (RI) Report (GeoTrans, 2005a), Site data suggest that local geochemical conditions associated with Site activities in the area downgradient of the Industrial Landfill and near the former source areas had resulted in increased solubility of naturally occurring manganese and arsenic. Sampling locations for manganese and arsenic concentrations were purposefully selected to be within the regions of the higher historic VOC concentrations that existed during the period of the RI (2001-2002). The outline of those regions is shown on **Figures 3-7** to **3-10.**

Manganese was detected above its ROD-specified IGCL of 300 µg/L at 13 of the 21 locations. However, as indicated in the ROD, this IGCL value may be revised in the future due to the presence of elevated background concentrations of manganese. In a letter dated, September 30, 2009, Grace proposed an IGCL of 722 µg/L based on a statistical evaluation of background manganese concentrations (GeoTrans, 2009). Maps showing manganese concentrations in unconsolidated deposits and bedrock groundwater are included as **Figures 3-7** and **3-8**, respectively. The highest manganese concentrations, greater than 3,000 µg/L, are detected in groundwater located downgradient of the Industrial Landfill and at one location downgradient of Sinking Pond. Elevated manganese concentrations are also found in groundwater in and downgradient of the Former Lagoon Area. Manganese concentrations detected in 2017 were similar to concentrations observed in previous samples (see **Attachment B**).

Arsenic was detected above its IGCL of 10 µg/L at 9 of the 21 locations. Maps showing arsenic concentrations in unconsolidated deposits and bedrock groundwater are included as **Figures 3-9** and **3-10**, respectively. As shown on **Figures 3-9** and **3-10**, arsenic concentrations in excess of the IGCL are limited to the area downgradient of the Industrial Landfill, and in the Former Lagoon Area. Arsenic concentrations in samples collected from locations between the former source areas and the public water supply wells were all below the IGCL of 10 µg/L.

To summarize, groundwater with arsenic concentrations greater than the IGCL and groundwater with the highest manganese concentrations is found on the Grace property in and downgradient of the Industrial Landfill and Former Lagoon Areas. The elevated arsenic and manganese concentrations are consistent with the Site conceptual model that local geochemical conditions associated with Site activities in the area downgradient of the Industrial Landfill and near the former lagoon source areas have resulted in increased solubility of naturally occurring arsenic and manganese.

The sampling results indicate that inorganic compound concentrations in groundwater near the Assabet and School Street wellfields are similar to concentrations detected in previous sampling events. There is no indication that a plume of inorganic compound-contaminated groundwater is migrating toward either of these two wellfields, as inorganic compound detections in excess of IGCLs are isolated.

3.3 GEOCHEMICAL SAMPLING

Groundwater sampling was done to monitor arsenic and manganese concentrations as well as geochemical conditions in two Areas of the Site: near the Industrial Landfill and the Former Lagoon Area. The arsenic and manganese concentration results were included in the discussion in **Section 3.2**. Ten locations were selected to include wells near and downgradient of the source areas that cover a range of VOC concentrations, arsenic concentrations, geochemical conditions, and lithologic units. **Figure 3-11** shows the location of the ten geochemical parameter sampling locations. Two locations are near the Industrial Landfill, two locations are downgradient of the Industrial Landfill, three locations are near the former Tank Car Area/former Blowdown Pit and three locations are downgradient of the former lagoons and toward the North Lagoon Wetland. Two locations normally sampled to assess geochemical conditions, LF-15 and AR-21, were damaged by development activities (solar farm construction, by others on behalf of the Town of Concord) on the property and could not be sampled. Samples from the ten monitoring wells were analyzed for dissolved concentrations of arsenic, manganese, and iron, and for dissolved oxygen (DO), oxidation-reduction potential (ORP), and pH. The results are presented in **Table 3-3**. A more detailed discussion of these geochemical controls on the occurrence and distribution of arsenic and manganese in Site groundwater was provided in Section 3.5 of the Public Review Draft RI Report (GeoTrans, 2005a) and Section 1.3.1.1.3 of the Public Review Draft Feasibility Study (FS) (GeoTrans, 2005b).

The results indicate that elevated arsenic and manganese concentrations at the Site are generally associated with reducing geochemical conditions, such as low ORP values (negative values), high pH values (greater than 6), and low DO values (less than 1). This is consistent with the conceptual model that degradation of organic contaminants has created reducing conditions which favor the dissolution of naturally occurring iron and manganese oxides in the aquifer. The dissolution of iron and manganese oxides results in an increase in dissolved concentrations of iron and manganese as well as arsenic, which tends to adsorb to and be co-precipitated with the iron and manganese oxides. It is expected that with continued decline of VOC concentrations and consequent decrease in the rate of VOC degradation, less-reducing geochemical conditions will be re-established in the aquifer, and the iron and manganese oxides will precipitate, thus lowering the concentrations of iron, manganese and arsenic dissolved in groundwater.

Time-concentration plots for each of the ten locations monitored for geochemistry are included in **Attachment D**. Included on the graphs for each location are: VDC, vinyl chloride, benzene, arsenic, manganese, iron, pH, dissolved oxygen concentration and ORP. Open and closed symbols are used to distinguish between detected and non-detected concentrations, respectively. Concentrations of both total and dissolved arsenic, manganese and iron are graphed. A trend line is included for each parameter on each graph. The graphs show that at most locations concentrations of VOCs, arsenic, manganese and iron are decreasing as pH, dissolved oxygen and ORP are increasing.

3.4 1,4-DIOXANE SAMPLING

The compound 1,4-dioxane has historically been used throughout the United States for a variety of purposes, including use as a solvent stabilizer. Solvent stabilizers are added to chlorinated solvents such as TCE, TCA, and PCE to inhibit reactions that lead to the deterioration and ultimate breakdown of the solvents. There is currently no federal drinking water standard for 1,4-dioxane. However, as of June 2015, USEPA has proposed a risk-based concentration range of 0.46 to 46 µg/L for 1,4-dioxane (USEPA, 2016). Massachusetts has a public water supply drinking water standard and a Massachusetts Contingency Plan GW-1 standard of 0.3 µg/L for 1,4-dioxane. There is no Massachusetts Maximum Contaminant Level (MMCL) for 1,4-dioxane. Samples collected for 1,4-dioxane analysis were analyzed using USEPA Method 522 according to the Quality Assurance Project Plan (QAPP) (Tetra Tech GEO, 2011).

Groundwater samples from 38 locations across the Site were analyzed for 1,4-dioxane between November 1, 2016 and October 31, 2017. 1,4-dioxane was detected above the GW-1 standard of 0.3 µg/L at 32 of 38 locations. The maximum 1,4-dioxane concentration (26 µg/L) was detected in a sample from extraction well SELF-2, which is located downgradient of the Industrial Landfill. **Table 3-4** lists the 1,4-dioxane concentration results from the samples and indicates the Area of the Site in which the well is located. **Figure 3-12** shows the maximum 1,4-dioxane concentration detected in groundwater at each location sampled between November 1, 2016 and October 31, 2017. **Figure 3-12** also shows the six geographic Areas of the Site and the Acton Water District-delineated Zone 2 boundaries for the Assabet and School Street well fields (MassGIS, 2015). **Attachment B** is a table listing all 1,4-dioxane results from all locations sampled at least once since 2009.

4 EVALUATION OF VDC, VINYL CHLORIDE, BENZENE AND 1,4-DIOXANE CONCENTRATION TRENDS AND DISTRIBUTION

This section provides an evaluation of the concentration trends and distribution of VDC, vinyl chloride, benzene and 1,4-dioxane. **Section 4.1** provides a statistical evaluation of long-term groundwater concentration trends for VDC, vinyl chloride, benzene and 1,4-dioxane. **Section 4.2** provides a discussion of the spatial distribution and the statistically significant concentration trends for each of the six geographic Areas of the Site. **Section 4.3** provides a comparison of the current VDC distribution to the pre-1984 VDC distribution.

4.1 TREND TEST FOR VDC, VINYL CHLORIDE, BENZENE AND 1,4-DIOXANE

A statistical evaluation of recent groundwater concentration trends was done using the Mann-Kendall Trend Test (the “Trend Test”). The Trend Test was used to determine if there is a statistically significant trend in the concentrations of the three most prevalent compounds at the Site: VDC, vinyl chloride and benzene. The Trend Test analyses for VDC, vinyl chloride and benzene were done using data from wells that have been sampled at least annually since 2009 and for which at least half of the samples had detected concentrations. Wells that have not been sampled annually since 2009, or where more than half the results were non-detect, were not evaluated using the Trend Test method. The Trend Test evaluation for VDC, vinyl chloride and benzene only considered data collected since 2009 in order to be representative of recent concentration trends of these compounds.

The Trend Test analysis for 1,4-dioxane was done using data from samples collected since 2011. Evaluation of 1,4-dioxane concentration trends is complicated by the fact that analytical methods and reporting limits for 1,4-dioxane have changed over time. Samples collected in 2006 were analyzed using USEPA Method 8270 with a reporting limit of approximately 2 µg/L; samples collected between 2007 and 2010 were analyzed with various USEPA 8270 Methods with reporting limits ranging generally between 0.2 and 2 µg/L; and samples collected since 2011 have been analyzed using USEPA Method 522 with a reporting limit of 0.2 µg/L. To eliminate inconsistencies resulting from use of differing analytical methods, the data used for the 1,4-dioxane Trend Test was limited to results from samples collected since 2011, when analytical USEPA Method 522 with a reporting limit of 0.2 µg/L was used. In addition to analytical method changes, the number of locations sampled as well as the frequency of sampling has changed over time. As a result, the 1,4-dioxane trend evaluation time-period varies for each location, depending on the availability of data.

The following describes how the VDC, vinyl chloride, benzene and 1,4-dioxane Trend Tests were performed:

- For VDC, vinyl chloride and benzene concentrations from samples collected between 2009 and 2017 were used;
- For 1,4-dioxane, concentrations from samples collected since 2011 were used;
  - For monitoring wells, an annual sampling interval was used;
  - For the Acton public water supply and the Grace extraction wells, a quarterly sampling interval was used;
- The maximum concentration detected at each location for each sampling interval was used;
- A concentration of one-half of the detection limit was used for non-detect results;
- The GSI Mann-Kendall Toolkit (GSI Environmental, 2012) was used to evaluate concentration data from locations where more than 50 percent of the samples had detectable VDC, vinyl chloride, benzene or 1,4-dioxane concentrations and at least one detected result exceeded the IGCL (or GW-1 in the case of 1,4-dioxane) for the relevant compound. The calculated VDC, vinyl chloride and benzene concentration trends for each location are listed in **Table 4-1** and the calculated 1,4-dioxane trends for each location are listed in **Table 4-2**. For each table;
  - "No Trend" indicates that either:
    - the confidence factor of an increasing trend is less than 90 percent or
    - the confidence factor of a decreasing trend is less than 90 percent and the concentrations are variable (coefficient of variation is greater than or equal to 1);
  - "Stable" indicates that the confidence factor of a decreasing trend is less than 90 percent and the concentrations are relatively constant (coefficient of variation is less than 1);
  - "Probably Increasing" or "Probably Decreasing" indicates that the confidence factor of an increasing or decreasing trend is greater than 90 and less than 95 percent; and
  - "Increasing" or "Decreasing" indicates that the confidence factor of an increasing or decreasing trend is greater than 95 percent.
- The Trend Test was not done at locations where 50 percent or more of the samples did not have detectable VDC, vinyl chloride, benzene or 1,4-dioxane concentrations. Under these circumstances the Trend Test would not be informative of the true concentration trend, as the method will simply indicate the

trend of the detection limits versus time. The VDC, vinyl chloride, benzene or 1,4-dioxane concentration trends for these locations are listed as “ND” on **Tables 4-1** and **4-2**.

- For locations where concentrations from all samples collected over the nine-year time period were less than or equal to the IGCL for the relevant compound, the VDC, vinyl chloride or benzene concentration trends are listed as “<=IGCL (value of IGCL in µg/L)” on **Table 4-1**.

Table 4-1 summarizes the results of the VDC, vinyl chloride and benzene Trend Tests for the 38 locations sampled for VOCs at least annually between 2009 and 2017. For locations/parameters with at least one result greater than the IGCL, the range of annual maximum concentrations observed between 2009 and 2017 is included in **Table 4-1**. **Table 4-2** summarizes the results of the 1,4-dioxane Trend Test for the 26 locations for which the test was done. Data sheets summarizing the Mann-Kendall Trend Test evaluations are included as **Attachment E**. Graphs showing the temporal change in VDC, vinyl chloride, and benzene concentrations in groundwater for all locations currently sampled are included as **Attachment F**. Graphs showing the temporal change in 1,4-dioxane concentrations in groundwater for all locations sampled in 2017 are included as **Attachment G.**

4.1.1 VDC Concentration Trend Test

The Trend Test for VDC concentrations was done using data from 27 locations. The Trend Test was not done for 11 locations because VDC concentrations were below the IGCL of 7 µg/L in all the samples collected since 2009 from 10 locations, and because VDC was not detected for five or more years in one location. Eighteen of the 27 locations were identified as having a decreasing or probably decreasing VDC concentration trend. One location had was identified as having a probably increasing VDC concentration trend and the remaining eight locations had stable concentrations or no statistically significant trend in concentration.

4.1.2 Vinyl Chloride Concentration Trend Test

The Trend Test for vinyl chloride concentrations was done using data from 25 locations. The Trend Test was not done for 13 locations because vinyl chloride concentrations were below the IGCL of 2 µg/L in all of the samples collected since 2009 from nine locations, and vinyl chloride was not detected for five or more years in four locations. Eighteen locations were identified as having a decreasing or probably decreasing vinyl chloride concentration trend. One location was identified as having a probably increasing vinyl chloride concentration trend. The remaining six locations had stable concentrations or no statistically significant trend in concentration.

4.1.3 BENZENE CONCENTRATION TREND TEST

The Trend Test for benzene concentrations was done using data from 14 locations. The Trend Test was not done for 24 locations because benzene concentrations were below the IGCL of 5 µg/L in all the samples collected since 2009. Eleven locations were identified as having a decreasing or probably decreasing benzene concentration trend, and the remaining three locations had stable concentrations. There were no statistically significant increasing trends in benzene concentration.

4.1.4 1,4-DIOXANE CONCENTRATION TREND TEST

The Trend Test analysis was done for all locations sampled for 1,4-dioxane at least annually for at least four out of the past five years. The Trend Test for 1,4-dioxane concentrations was done using data from 26 locations. As indicated in **Table 4-2**, 12 locations were identified as having decreasing or probably decreasing 1,4-dioxane concentration trends and five locations were identified as having increasing 1,4-dioxane concentration trends. Nine locations had stable concentrations or no statistically significant trend in concentration.

4.2 SITE EVALUATION

The following sections discuss VDC, vinyl chloride, benzene and 1,4-dioxane concentrations in groundwater for each of the six geographic Areas of the Site. The following is included for each of the six geographic Areas:

- Description of the geographic Area including a summary of the groundwater remedial actions;
- For the three main VOCs (VDC, vinyl chloride and benzene):
    - The maximum concentration detected;
    - Any statistically significant concentration trends observed over the 2009 to 2017 time period, and
    - Changes, if any, in the mapped distribution between the 2017 annual sampling results shown in this report and the 2016 annual sampling results reported in the Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b);

- For 1,4-dioxane
    - The maximum concentrations detected and
    - Any statistically significant concentration trends.

It should be noted that 1,4-dioxane had not been identified as a contaminant of concern when the ROD for the Site was issued in 2005 and remedial actions were not specifically designed to address 1,4-dioxane.

4.2.1 Northeast Area

The Northeast Area includes groundwater located northeast of the former wastewater lagoons. Groundwater contamination, consisting mainly of VDC, extends from the Grace property to the northeast beneath the Linde property and to the AWD property. The former Blowdown Pit was the likely source of groundwater contamination from the Grace property in the Northeast Area. In addition to the Grace property-related VDC and vinyl chloride contamination, the Linde property is a source of LNAPL and LNAPL-related contamination that is unrelated to the Grace Site. The Linde property-related contamination consists of Number 2 fuel oil and associated dissolved-phase Extractable Petroleum Hydrocarbon (EPH) and Volatile Petroleum Hydrocarbon (VPH) contamination.

The ROD-required groundwater remedy for the Northeast Area began operating in April 2010 and stopped operating, with USEPA approval, on September 24, 2013. Groundwater was pumped from bedrock extraction well NE-1, treated for VOCs, and then injected into the shallow unconsolidated deposits using reinjection well RE-1 and/or RE-2. Concentrations of 1,4-dioxane in the injected groundwater were approximately 2 µg/L. The ROD did not require that a specific capture zone be attained by the Northeast Area extraction system, but focused instead on groundwater extraction from the geographic area which had the highest residual VOC concentrations in 2001. The ROD-stated goal for the Northeast Area groundwater extraction remedy was to attain a reduction in the areal extent of contaminated groundwater by extracting groundwater from the area with the highest residual VOC concentrations. As stated in the ROD (USEPA, 2005, p. 69), USEPA expected that the Northeast Area Remedial Action would likely operate for approximately three years. The USEPA granted conditional approval to shut down the Northeast Area extraction system on September 20, 2013 (USEPA, 2013).

4.2.1.1 VDC

The maximum VDC concentration detected in the groundwater samples collected from the Northeast Area since November 2016 was 47 µg/L, down from a maximum concentration over the 2009 to 2016 time period of 280 µg/L. As indicated in **Table 4-1**, statistically significant decreasing or probably decreasing VDC concentration trends were identified over the 2009 to 2017 time period in seven locations. There were no statistically significant increasing VDC concentration trends in the Northeast Area.

There is one minor change in the mapped distribution of VDC between the 2017 annual sampling results shown on **Figure 3-4** and the 2016 annual sampling results reported in the Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b). The greater than 7 to 30 µg/L contour interval expanded slightly due to a small concentration increase in monitoring well MW-13B (4.4 µg/L to 7.9 µg/L).

Figure 4-1, cross-section C-C', shows that Grace-related contaminated groundwater is found in the shallow bedrock, but not the unconsolidated deposits, in the area northeast of the former Blowdown Pit and beneath the Linde property. Further downgradient, beneath the AWD property, VDC-contaminated groundwater is found in the unconsolidated deposits. The location of cross-section C-C' is shown on **Figure 1-1**.

4.2.1.2 VINYL CHLORIDE

The maximum vinyl chloride concentration detected in the groundwater samples collected from the Northeast Area since November 2016 was 2.5 µg/L. This is down from a maximum vinyl chloride concentration over the 2009 to 2016 time period of 9.2 µg/L. Statistically significant decreasing vinyl chloride concentration trends were identified at two locations (**Table 4-1**) over the 2009 to 2017 time period. There were no statistically significant increasing vinyl chloride concentration trends in the Northeast Area.

There was one notable change in the mapped distribution of vinyl chloride between the 2017 annual sampling results shown on **Figure 3-5** and the 2016 annual sampling results reported in the Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b). The greater than 2 µg/L to 30 µg/L vinyl chloride contour shrank and shifted due to concentration decreases at MW-06B (2.7 µg/L to 1 µg/L) and at MW-7B (3.9 µg/L to 1.8 µg/L), and a slight increase at MW-13B (1.9 µg/L to 2.5 µg/L) from 2016 to 2017.

4.2.1.3 BENZENE

Benzene has been below the IGCL of 5 µg/L in all groundwater samples collected from the Northeast Area since 2004.

4.2.1.4 1,4-DIOXANE

A total of 14 wells were sampled in the Northeast Area; two (MW-07B and MW-06B) beneath the Linde Property and 12 near the School Street well field public water supply wells. As shown on **Figure 3-12** and in **Table 3-4**, 1,4-dioxane concentrations beneath the Linde Property are approximately 1.7 µg/L and 1,4-dioxane concentrations near the Christofferson, Lawsbrook and Scribner public water supply wells range from not detected at 0.2 µg/L to 5 µg/L. As shown in **Table 3-4**, concentrations in the public water supply wells themselves ranged from 0.072 J µg/L to 0.34 µg/L.

As indicated in **Table 4-2**, statistically significant decreasing or probably decreasing 1,4-dioxane concentration trends were identified in five locations in the Northeast Area. Among the wells with a decreasing or probably decreasing 1,4-dioxane trend were unconsolidated deposits monitoring wells AR-31SPS-22A, PS-22B, and two of the public water supply wells, Lawsbrook and Scribner. Three locations in the Northeast Area were identified as having statistically significant increasing or probably increasing 1,4-dioxane concentration trends: unconsolidated deposits monitoring wells AR-28S, AR-30D and PS-29B.

Historically, 1,4-dioxane concentrations in deep unconsolidated deposits monitoring well AR-30D are anomalously high when compared to the other sampling locations within the School Street well field. The highest 1,4-dioxane concentrations detected in groundwater samples collected near the School Street well field are all from AR-30D (5 µg/L in March 2017, 4.4 µg/L in September 2007, 4 µg/L in March 2016, and 3.5 µg/L in September 2016 – see **Attachment B**). The maximum 1,4-dioxane concentration detected in the other 18 locations sampled near the well field was 2.1 µg/L in a sample collected from monitoring well AR-31D in February 2015. Monitoring well AR-30D is located near the Christofferson public water supply well, on the north side of Fort Pond Brook, the opposite side of the brook from the Grace property. Grace-related groundwater contamination is likely present on the north side of Fort Pond Brook only due to pumping from the Christofferson well, and historically the VDC concentrations north of Fort Pond Brook have been low compared to the rest of the Northeast Area. The fact that 1,4-dioxane concentrations in monitoring well AR-30D are the highest in the area is inconsistent with the general distribution of Grace-related groundwater contamination in the Northeast Area.

4.2.2 FORMER LAGOON AREA

The Former Lagoon Area corresponds to groundwater located beneath most of the former wastewater lagoons, including the former Primary Lagoon, former Emergency Lagoon, former Blowdown Pit, former Tank Car Area, and former North Lagoon, as well as groundwater located downgradient of the former North Lagoon. Historically, five groundwater extraction wells operated in this Area over the following time periods:

- NLGP – 3/85 to 1/09;
- NLBR and its replacement well NLBR-R – 3/85 to 1/09;
- NMGP – 1/88 to 12/02;
- SLGP and its replacement well SLGP-R - 3/85 to 11/08; and
- SLBR 3/85 to 12/08.

Operation of extraction well NMGP, located near the former North Lagoon, was discontinued in December 2002 because of a defective water discharge line. Operation of the remaining wells was discontinued in late 2008-early 2009 because they were not part of the final remedy for groundwater at the Site. The ROD (USEPA, 2005) selected MNA as the groundwater remedy for this portion of the Site.

4.2.2.1 VDC

The maximum VDC concentration detected in the groundwater samples collected from the Former Lagoon Area since November 2016 was 2,000 µg/L. This is down from a maximum VDC concentration over the 2009 to 2016 time period of 2,600 µg/L. As indicated in **Table 4-1**, a statistically significant decreasing VDC concentration trend was identified in one location (OSA-03BR) in the Former Lagoon Area over the 2009 to 2017 time period. A probably increasing VDC concentration trend was identified at one location, unconsolidated deposits monitoring well OSA-13B; this is discussed further below. There are two minor changes in the mapped distribution of VDC between the 2017 annual sampling results shown on **Figure 3-4** and the 2016 annual sampling results reported in the Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b). The VDC concentrations in two monitoring wells increased slightly (deep unconsolidated deposits monitoring well OSA-15B 5.7 µg/L to 7.9 µg/L; shallow bedrock monitoring well OSA-03BR from 5 µg/L to 8.8 µg/L). As a result, the greater than 7 to 30 µg/L contours intervals were modified at these locations.

As has been discussed in previous documents (Tetra Tech, 2015; Tetra Tech, 2016a; USEPA, 2016), there has been variability in VDC concentrations detected in samples collected from OSA-13B in recent years. OSA-13B previously experienced an anomalous spike in VDC concentration in 2010 to 2012, when VDC was detected at a maximum concentration of 900 µg/L. Concentrations subsequently dropped and were below the IGCL (7 µg/L) in 2014. VDC concentrations spiked again in 2015, with sample results from August and September 2015 of 610 µg/L and 2,600 µg/L, respectively. In response to the VDC concentration variability in OSA-13B, the following groundwater monitoring changes were made:

- Beginning in August 2016:
    - Quarterly sampling for VOC analysis of monitoring wells OSA-13B and OSA-13C;
    - Annual sampling for VOC analysis of monitoring wells AR-19BDP, B-04B3, OSA-13A, OSA-14B and OSA-15B;
- Beginning in August 2017:
    - Annual sampling of monitoring wells AR-19AB1, AR-19ASH, B-04B2, B-04P, EL-3, OSA-01A, OSA-01B, OSA-01BR, OSA-1C, OSA-12A, OSA-12B, OSA-14A, and OSA-15A for VOC analysis.

This sampling, in addition to annual VOC sampling of monitoring wells B-04B4 and B-04B5, will continue until VDC concentrations in OSA-13B stabilize. VDC concentration stabilization was defined to be evidenced by either concentrations from one sample to the next changing by less than 30 percent for four consecutive samples or until concentrations in four consecutive samples are below 50 µg/L (Tetra Tech, 2016b). The maximum VDC concentration detected in groundwater from OSA-13B during this monitoring period was 2,000 µg/L (July 2017). The maximum VDC concentration detected in groundwater from monitoring well OSA-13C, the deeper well in the OSA-13 cluster during this monitoring period, was 370 µg/L (March 2017). These concentrations are similar to the maximum concentrations detected in the previous monitoring period (November 2015 through October 2016) of 2,600 µg/L (OSA-13B) and 430 µg/L (OSA-13C). VDC concentrations in the other nearby locations sampled during this monitoring period were all below the IGCL of 7 µg/L, with one exception. The VDC concentration in the sample from deep unconsolidated deposits monitoring well OSA-15B increased slightly from 5.7 µg/L in 2016 to 7.9 µg/L in 2017. The 2017 VDC concentration in OSA-15B is consistent with VDC concentrations detected since 2011, which have ranged between 3.6 µg/L and 8.2 µg/L.

OSA-13B is located on a local groundwater divide in the vicinity of the former Emergency Lagoon, Sinking Pond and former extraction wells SLGP, SLGP-R and SLBR. As discussed in the Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b), review of available water level data from wells in this area demonstrates that groundwater flow directions have been quite variable as a result of changes in groundwater extraction, discharges to Sinking Pond and natural seasonal variability in groundwater levels. It is believed that the primary cause of the recent variability in VDC concentrations detected in samples from the OSA-13 monitoring wells is attributable to a reversal of groundwater flow directions that affected a localized VDC source area in the vicinity of the former Primary Lagoon. The groundwater flow direction reversal resulted from shutdown of many of the Aquifer Restoration System (ARS) wells, and the consequent reduction in the rate of treatment system discharge to Sinking Pond. ARS wells SLGP/SLGP-R and SLBR were shut down in 2008, and NLGP and NLBR/NLBR-R were shut down in 2009. The net reduction in treatment system discharge to Sinking Pond from 2007 to 2011 was approximately 250 gpm. In addition, there is seasonal variability of local groundwater flow directions in the vicinity of the OSA-13 well cluster due to the proximity of a local groundwater divide.

4.2.2.2 VINYL CHLORIDE

The maximum vinyl chloride concentration detected in groundwater samples collected from the Former Lagoon Area since November 2016 was 83 µg/L. This is down from a maximum vinyl chloride concentration over the 2009 to 2016 time period of 140 µg/L at well OSA-13B. A statistically significant decreasing vinyl chloride concentration trend was identified in two locations (OSA-03BR and OSA-06BR) within the Former Lagoon Area. A probably increasing vinyl chloride concentration trend was identified at one location, OSA-13B.

There is a slight change in the mapped distribution of vinyl chloride between the 2017 annual sampling results shown on **Figure 3-5** and the 2016 annual sampling results reported in the Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b). A greater than 2 µg/L to 30 µg/L contour was added around monitoring well OSA-14A, due to a detection of vinyl chloride of 4.2 µg/L. This well was last sampled in 1998, at which time vinyl chloride was not detected.

4.2.2.3 BENZENE

The maximum benzene concentration detected in groundwater samples collected from the Former Lagoon Area since November 2016 was 58 µg/L at well OSA-13B. This is down from a maximum benzene concentration over the 2009 to 2016 time period of 120 µg/L. As indicated in **Table 4-1**, only one well in the Former Lagoon Area has benzene concentrations greater than the IGCL over the 2009 to 2017 time period. One well, OSA-13B, had a statistically significant downward concentration trend. There are no significant changes in the mapped distribution of benzene between the 2017 results shown in **Figure 3-6** and the 2016 results reported in the Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b).

4.2.2.4 1,4-DIOXANE

One monitoring well within the Former Lagoon Area was sampled for 1,4-dioxane since November 2016. The groundwater sample collected from monitoring well OSA-13B had a 1,4-dioxane concentration of 0.43 µg/L, down from a value of 0.94 µg/L in 2016. Insufficient data is available for the 1,4-dioxane Trend Test to be completed for this location.

4.2.3 SOUTHWEST AREA

The Southwest Area extends southwesterly from the area of Sinking Pond past the Assabet Public Water Supply wells to the Assabet River. The former Primary and Emergency Lagoons and treatment system discharge to Sinking Pond are the likely sources of Grace-related groundwater contamination in the Southwest Area. Historically groundwater extraction occurred in this Area from extraction wells RP-1 (October 1986 to November 2002), WRG-1 (April 1991 to November 2002) and WRG-3 (March 1985 to November 1989). The ROD (USEPA, 2005) selected MNA as the groundwater remedy for this Area of the Site.

4.2.3.1 VDC

VDC was detected at one location within this Area at a concentration greater than the IGCL of 7 µg/L. The VDC concentration in bedrock monitoring well AR-03B1 was 15 µg/L. The VDC concentration in monitoring well AR-03B1 has fluctuated between 0.57 µg/L and 15 µg/L since 2009, with no statistically significant VDC concentration trend. There is a slight change in the mapped distribution of VDC between the 2017 annual sampling results shown on **Figure 3-4** and the 2016 annual sampling results reported in the Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b). A greater than 7 µg/L to 30 µg/L contour was added around monitoring well AR-03B1.

4.2.3.2 VINYL CHLORIDE AND BENZENE

Vinyl chloride and benzene concentrations within this Area are below IGCLs.

4.2.3.3 1,4-DIOXANE

There are two known sources of 1,4-dioxane to groundwater in the Southwest Area. Discharge of treated water to Sinking Pond from the Grace water treatment plant is a source of relatively low 1,4-dioxane concentrations detected in the northern portion of the Southwest Area. The highest 1,4-dioxane concentrations detected in the Southwest Area are from samples collected from monitoring well PT-03B1 (9.2 and 7.8 µg/L) since November 2016. The Nuclear Metals Superfund Site (NMI), located across the Assabet River from the well field, is very likely the source of 1,4-dioxane in well PT-03B1. NMI is pursuing a Non-Time-Critical Removal Action (NTCRA) to address migration of 1,4-dioxane in groundwater toward the Assabet well field (Geosyntec, 2016). In 2017 installation and operation of a cut-off well (EW-1) between AWD supply wells and NMI was commenced by NMI. Well PT-03B1 is within the area mapped as the NMI Plume (Geosyntec, 2016).

As shown in **Table 3-4** and **Figure 3-12**, 1,4-dioxane concentrations in samples from the other six monitoring wells within the Southwest Area ranged from 0.25 µg/L in monitoring well AR-03P to 1.5 µg/L in monitoring well B-05B4. Concentrations of 1,4-dioxane in samples from the public water supply wells ranged from 0.2 µg/L in Assabet-2A in August 2017 to 0.45 µg/L in Assabet-1A in March 2017. As shown in **Table 4-2**, statistically significant increasing 1,4-dioxane trends were identified in monitoring wells PT-03B1 and R-2A.

4.2.4 ASSABET RIVER AREA

As shown on **Figure 1-1**, the Assabet River Area extends from the area south of the Former Lagoon Area to the Assabet River. Groundwater in the Assabet River Area may have been impacted by several different sources, including the former Primary Lagoon, the former Emergency Lagoon, and the former Blowdown Pit. The ROD (USEPA, 2005) selected MNA as the groundwater remedy for this Area of the Site.

4.2.4.1 VDC, VINYL CHLORIDE AND BENZENE

The maximum VDC and vinyl chloride concentrations detected in the groundwater samples collected from the Assabet River Area since November 2016 were 32 µg/L and 13 µg/L, respectively. These are less than the maximum concentrations over the 2009 to 2016 time period of 81 µg/L (VDC) and 33 µg/L (vinyl chloride). Benzene concentrations within this Area are below IGCLs.

As indicated in **Table 4-1**, statistically significant decreasing VDC, vinyl chloride and/or benzene concentration trends were identified in groundwater from two locations within the Assabet River Area. No statistically significance increasing concentration trends were identified.

There are minor changes in the mapped distribution of VDC and vinyl chloride between the 2017 annual sampling results shown on **Figures 3-4** and **3-5** and the 2016 annual sampling results reported in the Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b). The area with VDC concentrations greater than 7 µg/L shifted slightly to reflect concentration changes in monitoring well LF-20D (7.2 µg/L to 3.1 µg/L) and sub-river sample ASBRV-T6A (not detected to 7 µg/L) from 2016 to 2017. The area with vinyl chloride concentrations greater than 2 µg/L was decreased slightly to reflect concentration changes in monitoring well LF-20D (4.2 µg/L to 1.3 µg/L) from 2016 to 2017.

4.2.4.2 1,4-DIOXANE

The 1,4-dioxane concentrations in the samples collected from three wells within the Assabet River Area ranged between 1.1 µg/L and 7.5 µg/L. Insufficient data was available for the 1,4-dioxane Trend Test to be completed on any locations in the Assabet River Area.

4.2.5 SOUTHWEST LANDFILL AREA

The Southwest Landfill Area extends from the western portion of the former Secondary Lagoon, beneath the western half of the Industrial Landfill to the south to the Assabet River. The source of groundwater contamination in the Southwest Landfill Area was likely the Industrial Landfill. The main contaminants in the Southwest Landfill Area are VDC and vinyl chloride. The highest concentrations of VDC and vinyl chloride are found in the deep unconsolidated deposits and shallow bedrock in the vicinity of the LF-10, LF-02 and LF-19 monitoring well clusters. The ROD (USEPA, 2005) selected groundwater extraction designed to capture groundwater generally in the area described as the "ROD Capture Zone" shown on **Figures 3-4** through **3-6**, combined with MNA, to remediate groundwater contamination that was present beyond the boundary of the "ROD Capture Zone". Groundwater extraction from this portion of the Site has been ongoing since 1985, with pumping from deep unconsolidated deposits extraction wells MLF (January 1993 to present) and WLF (March 1985 to present), and bedrock extraction well SWLF-1/SWLF-2 (SWLF-1 September 2008 to January 2011; SWLF-2 April 2011 to present).

Extraction well SWLF-1 was replaced by extraction well SWLF-2 in April 2011. The monitoring data showed that VDC concentrations were higher in groundwater extracted by extraction well SWLF-1 than in groundwater extracted by extraction well SWLF-2. Extraction well SWLF-2, however, pumps at a higher rate than extraction well SWLF-1 and is likely pulling in groundwater from a larger area, some of which is not as contaminated. The monitoring data indicate that extraction well SWLF-2 is effective at maintaining the ROD-specified capture zone.

Figure 3-4 is a plan view map showing the distribution of VDC contamination regardless of depth from samples collected during the August-September 2017 annual sampling round. **Figure 4-2** is a cross-section (A-A') through the Southwest Landfill Area showing the vertical distribution of VDC contamination for the same time period. The location of section A-A' is shown on **Figure 1-1**. **Figures 3-4** and **4-2** also show the location of the August 2017 estimated capture zone and the plan view map (**Figure 3-4**) shows the "ROD Capture Zone". The August 2017 estimated capture zone on **Figure 3-4** is a composite of the capture zones from **Figures 2-1** through **2-3**. The composite capture zone of **Figure 3-4** shows the maximum extent of capture regardless of depth. As indicated by **Figure 4-2**, cross-section A-A', the highest VDC concentrations in groundwater southwest of the Industrial Landfill are in the deep unconsolidated deposits and shallow bedrock. **Figures 3-4** and **4-2** demonstrate that groundwater with the highest VDC concentrations, both horizontally and vertically, is within the Landfill Area capture zone. Therefore, the current capture zone fulfills the requirements of the ROD (USEPA, 2005).

4.2.5.1 VDC

The maximum VDC concentration detected in the groundwater samples collected from the Southwest Landfill Area since November 2016 was 120 µg/L at well LF-02A. This is less than the maximum VDC concentration over the 2009 to 2016 time period of 520 µg/L. As shown in **Table 4-1**, statistically significant decreasing VDC concentration trends were identified in five locations over the 2009 to 2017 time period. No probably increasing or increasing VDC concentration trends were identified. There were two minor changes in the mapped distribution of VDC between the 2017 annual sampling results shown on **Figure 3-4** and the 2016 results reported in Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b). The greater than 60 to 100 µg/L contour was changed due to a decrease (80 µg/L to 60 µg/L) in VDC concentration in LF-19SBR from 2016 to 2017. Overall, VDC concentrations continue to decline in this Area.

4.2.5.2 VINYL CHLORIDE

This is the Area where the highest vinyl chloride concentrations are detected at the Site. The maximum vinyl chloride concentration detected in the groundwater samples collected from the Southwest Landfill Area since November 2016 was 98 µg/L. This is less than the maximum vinyl chloride concentration over the 2009 to 2016 time period of 190 µg/L. As shown in **Table 4-1**, statistically significant decreasing and probably decreasing vinyl chloride concentration trends were identified in seven locations (AR-20, LF-02A, LF-10, LF-13A, LF-19D LF-19MBR, and MLF). No statistically significant increasing vinyl chloride concentration trends were identified.

There were no changes in the mapped distribution of vinyl chloride between the 2017 annual sampling results shown on **Figure 3-5** and the 2016 annual sampling results reported in the Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b).

4.2.5.3 BENZENE

The maximum benzene concentration detected in the groundwater samples collected from the Southwest Landfill Area since November 2016 was 26 µg/L at well LF-19MBR. This is less than the maximum benzene concentration over the 2009 to 2016 time period of 48 µg/L. As shown in **Table 4-1**, a statistically significant decreasing benzene concentration trend was identified in three locations (LF-02A, LF-10, and LF-19SBR) in the Southwest Landfill Area. No statistically significant increasing benzene concentration trend was identified. As shown on **Figure 3-6** no changes to the mapped benzene distribution were made between the 2016 and 2017 sampling events.

4.2.5.4 1,4-DIOXANE

The maximum 1,4-dioxane concentration detected in the groundwater samples collected from the Southwest Landfill Area since November 2016 was 4.5 µg/L. This is less than the maximum 1,4-dioxane concentration over the 2011 to 2016 time period of 6.56 µg/L. As indicated in **Table 4-2**, statistically significant decreasing 1,4-dioxane concentration trends were identified in three locations the Southwest Landfill Area. No locations were identified as having statistically significant increasing 1,4-dioxane concentration trends.

4.2.6 SOUTHEAST LANDFILL AREA

The Southeast Landfill Area extends from the eastern portion of the former Secondary Lagoon, beneath the eastern half of the Industrial Landfill to the south to the Assabet River. The source of groundwater contamination in the Southeast Landfill Area was likely the Industrial Landfill. The main contaminant southeast of the Industrial Landfill is benzene. The benzene contamination is generally shallow, with the highest concentrations detected in the upper portion of the aquifer. The highest benzene concentrations are found in extraction wells SELF-1 and SELF-2. VDC, vinyl chloride and 1,4-dioxane are also found in groundwater southeast of the Industrial Landfill, generally in the unconsolidated deposits.

The ROD (USEPA, 2005) selected groundwater extraction designed to maintain hydraulic control of the region of elevated benzene concentrations and highly anaerobic groundwater generally in the area described as the "ROD Capture Zone" on **Figures 3-4** through **3-6**, combined with MNA, to remediate groundwater contamination that was present beyond the boundary of the "ROD Capture Zone". Groundwater extraction from this portion of the Site has been ongoing since 1985, with pumping from deep unconsolidated deposits extraction wells SELF-1 (September 2008 to present) and SELF-2 (June 2010 to present). Historically, extraction also occurred from extraction wells ELF (March 1985 to January 2008) and RLF (March 1985 to April 2007). Extraction wells ELF and RLF were decommissioned in May 2010.

Figure 3-6 is a plan view map showing the distribution of benzene contamination regardless of depth from samples collected during the August-September 2017 annual sampling round. **Figure 4-3** is a cross-section through the Southeast Landfill Area showing the vertical distribution of benzene contamination for the same time period. The location of section B-B' is shown on **Figure 1-1**. **Figures 3-6** and **4-3** also show the location of the deep unconsolidated deposits capture zone and the plan view map (**Figure 3-6**) shows the "ROD Capture Zone". The deep unconsolidated deposits capture zone on **Figure 3-6** is a composite of the capture zones from **Figures 2-1** through **2-3**. The composite capture zone of **Figure 3-6** shows the maximum extent of capture regardless of depth. As indicated by **Figure 4-3**, cross-section B-B', the highest benzene concentrations in groundwater southeast of the Industrial Landfill are in the unconsolidated deposits. **Figures 3-6** and **4-3** demonstrate that groundwater with the highest benzene concentrations, both horizontally and vertically, is within the Landfill Area capture zone.

4.2.6.1 VDC

The maximum VDC concentration detected in the groundwater samples collected from the Southeast Landfill Area since November 2016 was 23 µg/L. This is the less than maximum VDC concentration over the 2009 to 2016 time period of 64 µg/L. As shown in **Table 4-1**, statistically significant decreasing or probably decreasing VDC concentration trends were identified in three locations over the 2009 to 2017 time period. No locations were identified as having statistically significant increasing VDC concentration trends.

There are two small changes in the mapped distribution of VDC between the 2017 annual sampling results shown on **Figure 3-4** and the 2016 annual sampling results reported in the Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b). The greater than 7 µg/L to 30 µg/L contour interval was expanded slightly in the area of LF-05E and LF-17, reflecting the slight increases in concentrations (4.4 µg/L to 23 µg/L and not detected to 7.4 µg/L) from 2016 to 2017.

4.2.6.2 VINYL CHLORIDE

The maximum vinyl chloride concentration detected in the groundwater samples collected from the Southeast Landfill Area since November 2016 was 57 µg/L. This is less than the maximum vinyl chloride concentration over the 2009 to 2016 time period of 120 µg/L. Statistically significant decreasing vinyl chloride concentration trends were identified in five locations over the 2009 to 2017 time period (**Table 4-1**), No locations were identified as having statistically significant increasing vinyl chloride concentration trends. There was one minor change in the mapped distribution of vinyl chloride between the 2017 annual sampling results shown on **Figure 3-5** and the 2016 annual sampling results reported in the Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b). The greater than 2 µg/L to 30 µg/L contour interval was expanded slightly in the area of LF-05E, reflecting the increase in concentrations (not detected to 14 µg/L) from 2016 to 2017.

4.2.6.3 BENZENE

This is the Area where the highest benzene concentrations are detected at the Site. The maximum benzene concentration detected in the groundwater samples collected from the Southeast Landfill Area since November 2016 was 130 µg/L. This is less than the maximum benzene concentration over the 2009 to 2016 time period of 1,100 µg/L. As shown in **Table 4-1**, six wells in the Southeast Landfill Area had statistically significant decreasing or probably decreasing benzene concentration trends over the 2009 to 2017 time period.

There were two minor changes in the distribution of benzene between the 2017 annual sampling results shown on **Figure 3-6** and the 2016 annual sampling results reported in the Operable Unit Three Monitoring Program Report, 2016 (Tetra Tech, 2016b). The greater than 30 µg/L to 100 µg/L contour interval was removed from LF-06 as a result of the decrease in concentrations from 34 µg/L in 2016 to 28 µg/L in 2017. The greater than 5 µg/L to 30 µg/L contour interval was added to OSA-16B as a result of the increase in concentrations from 3.1 µg/L in 2016 to 5.7 µg/L in 2017.

4.2.6.4 1,4-DIOXANE

As indicated in **Table 3-5** and on **Figure 3-12**, the highest 1,4-dioxane concentrations at the Site are found in the Southeast Landfill Area. The maximum 1,4-dioxane concentration detected in the groundwater samples collected from the Southeast Landfill Area since November 2016 was 26 µg/L. This is down from a maximum 1,4-dioxane concentration over the 2011 to 2016 time period of 35.7 µg/L. As indicated in **Table 4-2**, statistically significant decreasing 1,4-dioxane concentration trends were identified in four locations in the Southeast Landfill Area. No locations were identified as having statistically significant increasing 1,4-dioxane concentration trends.

4.3 LONG-TERM GROUNDWATER QUALITY TRENDS

To provide a better perspective regarding the long-term reductions in VOC concentrations in Site groundwater, the pre-1984 distribution of VDC in groundwater is included as **Figure 4-4**. A comparison of **Figure 4-4** to **Figure 3-4** shows that VDC concentrations were considerably higher across the Site in 1984 than during the 2017 annual sampling round. The maximum VDC concentration detected in the 1984 time frame was 2,900 µg/L, while the maximum VDC concentration detected in the August-September 2017 sampling round was 120 µg/L, except for the anomalously high results from wells OSA-13B and OSA-13C, which were 1600 µg/L and 190 µg/L, respectively. As shown on **Figure 4-4**, the area containing VDC concentrations greater than 200 µg/L was much more extensive in the 1984 time frame, extending beneath the former Blowdown Pit to the south beneath a portion of the Industrial Landfill, Sinking Pond, the Agway/Kress property and partially beneath Muskrat Pond. As shown on **Figure 3-4**, the area containing VDC concentrations greater than 200 µg/L in August-September 2017 is limited to one area around monitoring well cluster OSA-13.

In addition, while there were no monitoring wells located northeast of the Grace property in the 1984 time frame, data collected by others between 1984 and 1987 indicate that VDC was likely present in groundwater in this area at concentrations greater than 200 µg/L in 1984. In August-September 2017, the maximum VDC concentration detected in groundwater samples collected from wells located northeast of the Grace property was 47 µg/L.

Concentrations of vinyl chloride and benzene have also decreased significantly since groundwater extraction began at the Site in 1985. In the early 1980s, vinyl chloride concentrations in excess of 100 µg/L extended from the former Lagoon Area to the southwest toward Turtle and Muskrat Ponds, to the south toward the Assabet River, and beneath and downgradient of the Industrial Landfill. The maximum vinyl chloride concentration detected was 890 µg/L in June 1982, while the maximum vinyl chloride concentration detected in the August-September 2017 sampling round was 98 µg/L.

In the early 1980s, benzene concentrations in excess of 500 µg/L were found in eight monitoring well clusters located southeast of the Industrial Landfill and in monitoring well B-04 located just north of Sinking Pond. In the 1982 to 1984 timeframe, the maximum benzene concentration detected was 17,000 µg/L in samples from the B-08 and LF-06 monitoring well clusters. The maximum benzene concentration detected in August-September 2017 was 120 µg/L in a sample collected from extraction well SELF-2, which is located southeast of the Industrial Landfill.

5 LANDFILL AREA GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

This section provides a summary of activities associated with the operation, maintenance, and monitoring of the Landfill Area groundwater extraction and treatment system (GWTS) at the Site from January 2017 through October 2017. Monitoring for the system was done in accordance with the Landfill Area Groundwater Operation and Maintenance Plan (Tetra Tech GEO and O&M, Inc., 2012a). **Section 5.1** of this report includes information related to discharge sampling, and treatment system operation and maintenance. **Section 5.2** provides information regarding extraction well operation and maintenance.

5.1 GROUNDWATER TREATMENT SYSTEM

As part of the final remedy selected in the ROD (USEPA, 2005) for the Site, the Aquifer Restoration System (ARS), which operated on the Grace property beginning in 1984, was replaced by the Landfill Area GWTS. The Landfill Area GWTS began operation on May 2, 2011. The Landfill Area GWTS consists of five extraction wells (MLF, SELF-1, SELF-2, SWLF-2 and WLF) pumping a combined total of approximately 40 to 50 gallons per minute (gpm). The extraction wells are located downgradient of the Industrial Landfill. The treatment system consists of a metals microfiltration system to remove arsenic, iron, manganese and phosphorus, and photocatalytic oxidation to remove and destroy dissolved-phase VOCs and 1,4-dioxane from the extracted groundwater prior to surface discharge to Sinking Pond. Documentation of the start-up of the Landfill Area GWTS was included in the Final Landfill Area Groundwater Remedial Action Report (Tetra Tech GEO and O&M, Inc., 2012b). On May 25, 2012, USEPA determined that the system was "Operational and Functional." **Figure 5-1** shows the location of the five operating Landfill Area extraction wells, the equalization tank system and the Landfill Area GWTS.

5.1.1 MONITORING AND REMOVAL EFFICIENCY

Treatment system discharge compliance is evaluated through the collection of monthly water quality samples. Treatment system influent and effluent samples were collected monthly and analyzed for VOCs, SVOCs, 1,4-dioxane, total metals and phosphorus. Also, samples for VOC analysis were collected immediately prior to and immediately following the Purifics unit on August 18, 2017 and September 21, 2017. The treatment system water quality results from samples collected from January 2017 through October 2017 are summarized in **Table 5-1**. Effluent discharge standards are also included in **Table 5-1**. Effluent concentrations were below discharge standards with the following exceptions:

- Phosphorus in July and August: The July and August phosphorus results of 19 µg/L and 33 µg/L, respectively, were above the average monthly discharge limit of 18 µg/L.

GWTS contaminant removal efficiency is determined through evaluation of the monthly water quality sample results. **Table 5-2** shows the calculated treatment system removal efficiency for total VOCs, 1,4-dioxane, manganese, arsenic, iron and phosphorus. Calculated total VOC removal efficiency for January 2017 to October 2017 ranged between 83 and 100 percent. The calculated removal efficiency for 1,4-dioxane for January 2017 to October 2017 ranged from 0 to 15 percent. The removal efficiency for 1,4-dioxane was not calculated when the reported effluent concentration exceeded the reported influent concentration. Calculated removal efficiencies for arsenic and iron ranged from 96 to 98 percent and 99 to 100 percent, respectively. The calculated removed efficiency for manganese was 100% for the period. The calculated removal efficiency for phosphorus ranged from 39 to 87 percent.

5.1.2 MAINTENANCE ACTIVITIES

Routine and other maintenance activities performed on the Landfill Area GWTS between January 2017 and October 2017 are summarized in **Table 5-3**.

5.1.3 ACTIVITIES ANTICIPATED FOR 2018

Monitoring and maintenance activities specified in the Landfill Area Groundwater Operation and Maintenance Plan (Tetra Tech GEO and O&M, Inc., 2012a) will continue to be performed, as necessary.

5.2 EXTRACTION WELLS

The extraction system consists of five extraction wells (MLF, SELF-1, SELF-2, SWLF-2 and WLF) pumping at a total rate of approximately 40 to 50 gpm. Groundwater samples were collected from the extraction wells in March, June, and August 2017. Those results are summarized in **Table 5-4**.

5.2.1 EXTRACTION RATES AND VOC MASS REMOVAL

Totalizer readings were collected regularly from each extraction well from January 2017 through October 2017 to evaluate extraction rates of the individual extraction wells and the system as a whole. The monthly extraction rates from the individual Landfill Area extraction wells and the total system during this period are summarized in **Table 5-5**. Total average monthly extraction rates ranged between 38.3 and 53.9 gpm, with an average of 47.4 gpm for the reporting period. The average instantaneous extraction rate ranged between 39.8 and 53.2 gpm with an average of 49.0 gpm for the year. The average instantaneous extraction rate is generally higher than the average monthly extraction rate because it only considers extraction rates when the wells are pumping whereas the average monthly extraction rate considers extraction well or treatment system down times.

The total Landfill Area extraction rates and the treatment system influent concentrations were used to estimate the VOC mass removed from Landfill Area groundwater from January 2017 through October 2017. The Grace Property section of **Table 5-6** summarizes the volume of groundwater and pounds of VOCs removed from the Grace Site each year since groundwater extraction first began in 1984. The Grace Property section of the table represents groundwater extracted by the former ARS (1984 through April 2011) as well as the current Landfill Area GWTS (beginning in May 2011). The reduction in annual totals for volume of groundwater removed since 2009 reflects the modification of the original ARS and transition to the Landfill Area extraction system. As of October 2017, a total of approximately 4,989 million gallons of groundwater have been extracted and more than 5,985 pounds of VOCs have been removed from the groundwater beneath the Grace property since extraction began in 1984. Approximately 20.2 million gallons of groundwater were extracted and approximately 3 pounds of total VOCs were removed from beneath the Grace property during the reporting period. **Figure 5-2** is a graph showing the cumulative volume of water removed and the cumulative mass of VOCs removed since groundwater extraction began.

5.2.2 MAINTENANCE ACTIVITIES

Totalizer readings and depth to water measurements are collected regularly from each extraction well. These readings are used to track and evaluate the condition of the extraction wells. The following routine maintenance was performed on each extraction well on an as-needed basis:

- Redevelopment
  - Discharge hoses, pitless adapters, check valves, pumps and motors were removed from the well and cleaned.
  - Submersible pumps were disassembled, cleaned, inspected and reassembled.
  - All parts were inspected, and defective parts were replaced.
  - Muriatic acid was put into the well and the entire length of the open interval was surged to force the acid through the well screen, sand pack and nearby formation. The acid was left to sit overnight.
  - Well casings were cleaned using a surge block to force water back and forth through the well screen, sand pack and nearby formation to loosen and remove any material that may have accumulated.
  - Sludge materials and other debris loosened by the surge block were pumped from the well using an airlift pump. Pumping was continued until the well water became clear.
  - Equipment was installed back in the well.
- Pump Repair
- Pump Replacement

Due to their high inorganics concentrations and low flow rates, extraction wells SELF-1 and SELF-2 have historically required a high level of maintenance, including frequent redevelopment, pump maintenance and pigging of lines. In an attempt to decrease the level of effort required to maintain these wells, a transducer-based groundwater level control system was installed in extraction wells SELF-1 and SELF-2 in April 2016. The new control system is designed to optimize pump cycles and reduce inorganic fouling of the pumps and well screens.

Table 5-7 summarizes the routine maintenance that was performed on each extraction well from January 2017 to October 2017. **Figures 5-3** through **5-7** are graphs showing the flow rates and water level elevations measured in extraction wells MLF, SELF-1, SELF-2, SWLF-2 and WLF, respectively, during this period. Maintenance activities are also indicated on each graph.

5.2.3 ACTIVITIES ANTICIPATED FOR 2018

Routine cleaning, inspection and maintenance of extraction wells will continue on an as-needed basis. A more-detailed maintenance plan, focusing on preventive maintenance, is included in the Landfill Area Groundwater Operation and Maintenance Plan, (Tetra Tech GEO and O&M, Inc., 2012a).

6 SUMMARY AND CONCLUSIONS

Evaluation of the 2017 annual monitoring data indicates that the goals of the Site-wide monitoring program continued to be met in 2017. The monitoring program goals during this reporting period include:

- To confirm through groundwater level monitoring that the Southeast Landfill Area and Southwest Landfill Area groundwater capture zone is being achieved;
- To assess through groundwater quality monitoring the changes in groundwater quality within the Southeast Landfill Area and Southwest Landfill Area capture zone; and
- To assess through groundwater quality monitoring the natural attenuation of contaminant concentrations in Site groundwater not being actively captured and treated.

In the Northeast Area, the ROD-required groundwater extraction and injection remedy began operating in April 2010. Pumping from bedrock extraction well NE-1 met the ROD-stated objective of removing VOC mass, reducing VOC concentrations from the previously identified area of higher residual VOC concentrations. Extraction well NE-1 was therefore shut down on September 24, 2013 with conditional approval from the USEPA (USEPA, 2013). The 2017 sampling event, which occurred approximately four years after shut down of the Northeast Area extraction system, shows no rebound of concentrations in the Northeast Area. Overall, VDC and vinyl chloride concentrations decreased in the Northeast Area, where the maximum VDC and vinyl chloride concentrations are now 47 µg/L and 2.5 µg/L, respectively. The maximum VDC concentration in the Northeast Area prior to operation of the treatment system was approximately 200 µg/L, in extraction well NE-1. 1,4-dioxane concentrations in the Northeast Area were 2 µg/L or less at all locations except for monitoring well AR-30D. The 1,4-dioxane concentration in monitoring well AR-30D is anomalously high (5 µg/L) when compared to nearby wells and is inconsistent with the general distribution of Grace-related groundwater contamination in the Northeast Area.

In the Former Lagoon Area, where MNA was selected as the final groundwater remedy, VDC, vinyl chloride and benzene concentrations continue to exhibit an overall decline and there are only a few areas where VDC, vinyl chloride or benzene concentrations exceed IGCLs. One exception to this is monitoring well cluster OSA-13 (wells OSA-13B and OSA-13C), which is located in the vicinity of a local groundwater divide between the Former Primary Lagoon and

Sinking Pond. There has been a change in the direction of groundwater flow as a result of the shutdown of extraction wells SLGP, SLGP-R and SLBR in late 2008, and this change has likely contributed to the changes in VDC concentrations detected in samples collected from these wells in recent years. Sampling of additional wells in the vicinity of the OSA-13 monitoring well cluster to provide more detail regarding the distribution of VDC in groundwater in this area will continue in 2018.

In the Southwest Area, where MNA was selected as the final groundwater remedy, the data indicate that VDC, vinyl chloride, and benzene concentrations are below IGCLs at all but one location. 1,4-dioxane present in the Southwest Area is derived from two sources. One is discharge to Sinking Pond of treated groundwater from the Grace treatment plant. The other is what has been referred to as the "NMI Plume", which originates east of the Assabet River and flows under the river toward the Assabet wells in response to pumping.

In the Southwest and Southeast Landfill Areas, the ROD (USEPA, 2005) selected groundwater extraction designed to capture groundwater generally in the area described as the "ROD Capture Zone" combined with MNA, to remediate groundwater contamination that was present beyond the boundary of the "ROD Capture Zone". The 2017 data demonstrate that groundwater with the highest VDC and benzene concentrations, both horizontally and vertically, is within the Southeast Landfill Area and Southwest Landfill Area capture zone. Therefore, the current capture zones fulfill or exceed the requirements of the ROD (USEPA, 2005). Water quality data from both inside and outside of the Southeast Landfill Area and Southwest Landfill Area capture zone document that, overall, VDC, vinyl chloride and benzene concentrations are decreasing. Within the Southwest and Southeast Landfill Areas, statistically significant decreases in 1,4-dioxane concentrations were identified at seven locations, and no locations were identified as having statistically significant increasing 1,4-dioxane concentrations.

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TABLES

Table 2-1. Water Level Measurements, August 2017.

Location	Open Interval Elevation (feet NGVD)	Date Measured	Measuring Point Elevation (feet NGVD)	Depth to Water (feet)	Water Level Elevation (feet NGVD)
73-3	73 to 83	8/14/2017	130.96	6.71	124.25
77-3	46 to 51	8/14/2017	134.26	5.98	128.28
9-78	58 to 62	8/14/2017	138.96	13.30	125.66
A-2E	74 to NA	8/14/2017	132.70	8.69	124.01
A5-78	88 to 93	8/14/2017	132.32	5.05	127.27
A6-78	80 to 85	8/14/2017	138.55	10.56	127.99
A7-78	72 to 77	8/14/2017	136.12	7.11	129.01
AR-01P	122 to 132	8/14/2017	139.91	11.97	127.94
AR-02P	120 to 130	8/14/2017	137.38	12.39	124.99
AR-03P	120 to 130	8/14/2017	153.96	19.34	134.62
AR-05	126 to 131 (BR)	8/16/2017	198.80	64.88	133.92
AR-06P	132 to 137	8/16/2017	199.67	63.32	136.35
AR-07P	138 to NA	8/16/2017	202.70	54.58	148.12
AR-08P	124 to 129	8/16/2017	141.39	10.11	131.28
AR-09A	68 to 71	8/16/2017	186.34	51.81	134.53
AR-09BR	57 to 62 (BR)	8/16/2017	188.39	53.95	134.44
AR-09P	129 to 134	8/16/2017	187.84	51.42	136.42
AR-10BR	8 to 18 (BR)	8/15/2017	190.17	58.88	131.29
AR-10P	124 to 134	8/15/2017	191.68	55.78	135.90
AR-11P	122 to 127	8/15/2017	141.48	8.72	132.76
AR-11SBR	60 to 70 (BR)	8/15/2017	140.67	13.81	126.86
AR-12	103 to 113	8/15/2017	141.68	18.18	123.50
AR-12DBR	11 to 20 (BR)	8/15/2017	143.16	16.72	126.44
AR-12SBR	49 to 61 (BR)	8/15/2017	143.16	16.60	126.56
AR-13P	117 to 122	8/14/2017	142.75	12.29	130.46
AR-14P	120 to 125	8/14/2017	152.18	24.82	127.36
AR-16ADP	73 to 83 (BR)	8/16/2017	137.46	8.37	129.09
AR-16BSH	110 to 120	8/16/2017	137.41	8.50	128.91
AR-17ASH	118 to 128	8/16/2017	143.01	13.56	129.45
AR-17BDP	104 to 114 (BR)	8/16/2017	145.09	14.82	130.27
AR-18P	101 to 106	8/16/2017	185.12	50.05	135.07
AR-19ASH	122 to 127	8/16/2017	184.15	48.77	135.38
AR-19BDP	84 to 104	8/16/2017	184.92	49.69	135.23
AR-20	87 to 92 (BR)	8/15/2017	147.68	21.22	126.46
AR-20A	123 to 133	8/15/2017	147.69	17.00	130.69
AR-21	78 to 83 (BR)	8/15/2017	197.95	69.85	128.10
AR-21A	103 to 113	8/15/2017	197.56	70.13	127.43
AR-21B	131 to 136	8/15/2017	197.65	63.50	134.15
AR-22	106 to 116	8/15/2017	148.43	20.61	127.82
AR-23	98 to 103 (BR)	8/16/2017	165.99	32.10	133.89

Table 2-1. Water Level Measurements, August 2017.

Location	Open Interval Elevation (feet NGVD)	Date Measured	Measuring Point Elevation (feet NGVD)	Depth to Water (feet)	Water Level Elevation (feet NGVD)
AR-23A	116 to 126	8/16/2017	165.81	32.03	133.78
AR-23B	129 to 144	8/16/2017	165.53	31.61	133.92
AR-25B	52 to 57 (BR)	8/15/2017	194.87	60.55	134.32
AR-25D	89 to 99	8/15/2017	195.01	58.60	136.41
AR-25S	124 to 134	8/15/2017	193.02	56.52	136.50
AR-26D	87 to 97	8/16/2017	190.60	57.02	133.58
AR-26S	112 to 122	8/16/2017	190.60	52.18	138.42
AR-26SBR	53 to 70 (BR)	8/16/2017	190.60	57.32	133.28
AR-27D	104 to 114	8/16/2017	148.30	18.29	130.01
AR-27S	124 to 134	8/16/2017	148.30	12.51	135.79
AR-27SBR	82 to 91 (BR)	8/16/2017	148.30	33.30	115.00
AR-28D	85 to 95	8/16/2017	148.56	21.36	127.20
AR-28DBR	43 to 54 (BR)	8/16/2017	148.56	21.19	127.37
AR-28S	115 to 125	8/16/2017	148.56	21.67	126.89
AR-28SBR	65 to 77 (BR)	8/16/2017	148.56	21.03	127.53
AR-29D	91 to 101	8/16/2017	162.80	36.19	126.61
AR-29SBR	56 to 67 (BR)	8/16/2017	162.80	32.67	130.13
AR-30D	75 to 85	8/16/2017	125.10	7.22	117.88
AR-30DBR	22 to 41 (BR)	8/16/2017	125.10	16.94	108.16
AR-30S	105 to 115	8/16/2017	125.10	4.72	120.38
AR-31D	82 to 92	8/16/2017	139.97	16.72	123.25
AR-31DBR	14 to 33 (BR)	8/16/2017	139.97	9.52	130.45
AR-31S	112 to 122	8/16/2017	139.97	16.44	123.53
AR-31SBR	51 to 67 (BR)	8/16/2017	139.97	13.50	126.47
AR-32D	97 to 102	8/16/2017	139.48	18.31	121.17
AR-33D	117 to 133	8/16/2017	172.79	38.54	134.25
AR-34D	139 to 144	8/16/2017	184.87	41.71	143.16
AR-34DBR	55 to 75 (BR)	8/16/2017	184.85	41.31	143.54
AR-34SBR	100 to 120 (BR)	8/16/2017	184.79	39.00	145.79
AR-35DBR	-188 to -178 (BR)	8/16/2017	151.58	19.33	132.25
AR-35MBR	-88 to -78 (BR)	8/16/2017	151.48	20.86	130.62
AR-35SBR	82 to 92 (BR)	8/16/2017	151.64	22.09	129.55
ASBRV-D2	Surface Water	8/14/2017	139.10	21.35	117.75
ASBRV-U	Surface Water	8/14/2017	144.18	17.06	127.12
B-01P	133 to 136	8/16/2017	178.28	41.82	136.46
B-03P	118 to 121	8/15/2017	166.12	32.64	133.48
B-04P	128 to 131	8/15/2017	168.06	32.79	135.27
B-06P	110 to 113	8/14/2017	139.13	13.65	125.48
B-08A	15 to 25 (BR)	8/15/2017	199.19	69.91	129.28
B-08B	76 to 86	8/15/2017	199.16	67.21	131.95

Table 2-1. Water Level Measurements, August 2017.

Location	Open Interval Elevation (feet NGVD)	Date Measured	Measuring Point Elevation (feet NGVD)	Depth to Water (feet)	Water Level Elevation (feet NGVD)
B-08C	108 to 118	8/15/2017	199.07	64.53	134.54
B-08D	125 to 140	8/15/2017	199.13	64.45	134.68
B-10P	128 to 131	8/15/2017	193.54	57.69	135.85
BD-2	124 to 134	9/1/2017	195.91	60.41	135.50
CHRISTOFFERSON	86 to 96	8/16/2017	126.10	11.06	115.04
CLF-101	115 to 125	8/15/2017	144.50	17.95	126.55
CLF-102	118 to 128	8/15/2017	133.06	9.60	123.46
CLF-103	117 to 128	8/15/2017	133.08	9.28	123.80
CLF-104	115 to 125	8/15/2017	133.86	9.71	124.15
CLF-105	113 to 123	8/15/2017	133.34	8.51	124.83
CLF-106	113 to 123	8/15/2017	133.85	10.15	123.70
CLF-107	114 to 124	8/15/2017	134.91	7.10	127.81
CLF-108	115 to 125	8/15/2017	141.88	16.27	125.61
CLF-109	115 to 125	8/15/2017	142.01	16.21	125.80
CLF-112	114 to 124	8/15/2017	143.49	16.75	126.74
CLF-1P	120 to 125	8/15/2017	149.68	23.75	125.93
CLF-2A	84 to 89	8/15/2017	131.65	7.39	124.26
CLF-2B	104 to 109	8/15/2017	129.81	6.31	123.50
CLF-2C	114 to 124	8/15/2017	131.78	7.10	124.68
CLF-3A	116 to 126	8/15/2017	132.10	8.41	123.69
CLF-3B	106 to 111	8/15/2017	133.23	7.71	125.52
CLF-3C	86 to 91	8/15/2017	133.86	8.49	125.37
EL-3	123 to 128	8/15/2017	169.96	34.89	135.07
ELF-OBS	97 to 102	8/15/2017	197.90	64.40	133.50
EW-1	73 to 97	8/14/2017	133.28	14.50	118.78
FPB-D	Surface Water	8/16/2017	133.85	10.50	123.35
FPB-D1	Surface Water	8/16/2017	125.28	1.80	123.48
G-1	135 to 138	8/15/2017	201.75	64.77	136.98
G-2	132 to 135	8/15/2017	198.21	63.13	135.08
G-3A	43 to 53	8/15/2017	191.82	56.85	134.97
G-3BR	10 to 20 (BR)	8/15/2017	192.45	57.94	134.51
LAWSBROOK	108 to 118	8/16/2017	160.50	37.28	123.22
LF-01P	126 to 131	8/15/2017	192.67	57.59	135.08
LF-02A	35 to 45 (BR)	8/15/2017	199.03	68.05	130.98
LF-02P	119 to 124	8/15/2017	198.55	66.22	132.33
LF-03A	13 to 23 (BR)	8/15/2017	199.64	68.97	130.67
LF-03P	123 to 128	8/15/2017	200.86	66.02	134.84
LF-04P	127 to 137	8/15/2017	200.27	68.82	131.45
LF-05A	125 to 135	8/15/2017	199.71	64.84	134.87
LF-05B	126 to 136	8/15/2017	198.51	63.62	134.89

Table 2-1. Water Level Measurements, August 2017.

Location	Open Interval Elevation (feet NGVD)	Date Measured	Measuring Point Elevation (feet NGVD)	Depth to Water (feet)	Water Level Elevation (feet NGVD)
LF-05C	125 to 135	8/15/2017	197.89	62.92	134.97
LF-05D	82 to 92	8/15/2017	199.38	67.15	132.23
LF-05E	96 to 106	8/15/2017	197.10	63.12	133.98
LF-05P	132 to 137	8/15/2017	199.56	64.78	134.78
LF-06	26 to 36 (BR)	8/15/2017	197.55	70.80	126.75
LF-06C	105 to 115	8/15/2017	198.55	67.21	131.34
LF-06N	85 to 90 (BR)	8/15/2017	198.15	69.36	128.79
LF-06S	127 to 132	8/15/2017	198.45	63.69	134.76
LF-09	80 to 95	8/15/2017	200.28	68.21	132.07
LF-09A	113 to 127	8/15/2017	200.34	68.24	132.10
LF-09B	128 to 138	8/15/2017	200.80	68.75	132.05
LF-10	35 to 45	8/15/2017	199.42	66.92	132.50
LF-10A	56 to 71	8/15/2017	199.71	67.10	132.61
LF-10B	78 to 86	8/15/2017	199.37	66.88	132.49
LF-10C	128 to 138	8/15/2017	199.45	64.73	134.72
LF-11AR	40 to 50	8/15/2017	195.60	62.33	133.27
LF-11BR	85 to 95	8/15/2017	195.88	61.32	134.56
LF-11CR	127 to 137	8/15/2017	195.65	59.10	136.55
LF-11R	-11 to -1 (BR)	8/15/2017	195.64	65.91	129.73
LF-12	88 to 98	8/15/2017	199.64	72.32	127.32
LF-12A	127 to 137	8/15/2017	199.81	68.40	131.41
LF-13	14 to 24 (BR)	8/15/2017	129.12	3.46	125.66
LF-13A	90 to 100	8/15/2017	129.40	6.70	122.70
LF-13B	115 to 125	8/15/2017	129.22	6.58	122.64
LF-13SBR	68 to 78 (BR)	8/15/2017	129.18	3.36	125.82
LF-14	120 to 130	8/15/2017	184.12	49.61	134.51
LF-15	120 to 130	8/15/2017	200.01	65.18	134.83
LF-16	119 to 129	8/15/2017	194.68	60.02	134.66
LF-17D	83 to 93	8/16/2017	200.54	70.45	130.09
LF-17S	113 to 123	8/16/2017	200.54	65.80	134.74
LF-17SBR	56 to 62 (BR)	8/16/2017	200.56	71.69	128.87
LF-18D	53 to 63	8/15/2017	133.81	9.98	123.83
LF-18DBR	-15 to -5 (BR)	8/15/2017	133.75	8.54	125.21
LF-18SBR	31 to 41 (BR)	8/15/2017	133.84	8.82	125.02
LF-19D	50 to 60	8/16/2017	198.89	66.98	131.91
LF-19DBR	-48 to -33 (BR)	8/15/2017	197.53	75.17	122.36
LF-19MBR	-23 to -8 (BR)	8/16/2017	197.53	75.20	122.33
LF-19SBR	11 to 23 (BR)	8/16/2017	198.89	69.41	129.48
LF-20D	34 to 44	8/14/2017	150.16	25.87	124.29
LF-20DBR	-53 to -43 (BR)	8/14/2017	150.46	24.83	125.63

Table 2-1. Water Level Measurements, August 2017.

Location	Open Interval Elevation (feet NGVD)	Date Measured	Measuring Point Elevation (feet NGVD)	Depth to Water (feet)	Water Level Elevation (feet NGVD)
LF-20SBR	-1 to 9 (BR)	8/14/2017	150.16	25.03	125.13
LF-21D	61 to 71	8/15/2017	157.05	28.83	128.22
LF-21DBR	-30 to -20 (BR)	8/15/2017	158.37	32.11	126.26
LF-21SBR	41 to 51 (BR)	8/15/2017	156.94	30.69	126.25
LF-22D	80 to 90	8/15/2017	197.71	69.98	127.73
LF-22S	100 to 110	8/15/2017	197.37	66.74	130.63
MLF	83 to 123	8/15/2017	198.81	72.50	126.31
MW-01B	40 to 45 (BR)	8/16/2017	192.75	55.92	136.83
MW-01D	79 to 89	8/16/2017	192.52	55.73	136.79
MW-01S	134 to 149	8/16/2017	192.84	55.88	136.96
MW-02B	29 to 34 (BR)	8/16/2017	194.98	58.71	136.27
MW-03D	109 to 119	8/14/2017	191.54	57.63	133.91
MW-03S	130 to 145	8/14/2017	191.41	57.52	133.89
MW-04B	36 to 41 (BR)	8/16/2017	190.57	57.07	133.50
MW-04D	106 to 116	8/16/2017	190.74	54.83	135.91
MW-04S	132 to 147	8/16/2017	190.68	55.50	135.18
MW-06B	40 to 45 (BR)	8/16/2017	186.93	52.81	134.12
MW-06D	111 to 121	8/16/2017	187.28	51.65	135.63
MW-06D1	85 to 95	8/16/2017	187.56	52.17	135.39
MW-06D2	59 to 69	8/16/2017	187.56	52.96	134.60
MW-06S	125 to 140	8/16/2017	186.95	52.02	134.93
MW-07B	50 to 60 (BR)	8/14/2017	190.90	55.65	135.25
MW-07D	98 to 108	8/14/2017	191.13	53.60	137.53
MW-07S	129 to 144	8/14/2017	191.16	52.90	138.26
MW-08S	128 to 143	8/15/2017	183.81	46.93	136.88
MW-10S	128 to 143	8/14/2017	194.71	56.68	138.03
MW-13B	46 to 56 (BR)	8/16/2017	185.88	51.47	134.41
MW-15S	134 to 144	8/14/2017	192.63	54.74	137.89
MW-16B	73 to 93 (BR)	8/14/2017	191.41	57.18	134.23
MW-17S	135 to 145	8/16/2017	191.37	53.41	137.96
MW-18S	136 to 146	8/16/2017	190.03	52.10	137.93
MW-19S	138 to 148	8/14/2017	191.20	53.11	138.09
MW-40	132 to 142	8/14/2017	193.73	56.90	136.83
MW-42	136 to 146	8/14/2017	195.20	57.22	137.98
MW-43D	121 to 131	8/16/2017	193.94	56.15	137.79
MW-43S	133 to 143	8/16/2017	194.08	56.01	138.07
MW-44	132 to 142	8/16/2017	193.09	55.21	137.88
MW-45	132 to 142	8/16/2017	193.27	55.38	137.89
MW-46	131 to 141	8/14/2017	191.75	53.62	138.13
MW-48	127 to 137	8/16/2017	188.05	51.86	136.19

Table 2-1. Water Level Measurements, August 2017.

Location	Open Interval Elevation (feet NGVD)	Date Measured	Measuring Point Elevation (feet NGVD)	Depth to Water (feet)	Water Level Elevation (feet NGVD)
MW-49	128 to 138	8/16/2017	189.32	52.85	136.47
NLBR	76 to 86 (BR)	8/16/2017	182.76	47.39	135.37
NLBR-R	75 to 89 (BR)	8/16/2017	183.10	49.29	133.81
NLGP	93 to 108	8/16/2017	182.66	47.42	135.24
NMGP	101 to 116	8/16/2017	143.22	8.91	134.31
OSA-01A	128 to 138	8/16/2017	195.78	60.12	135.66
OSA-01B	98 to 108	8/16/2017	196.60	61.03	135.57
OSA-01BR	62 to 72 (BR)	8/16/2017	195.99	60.73	135.26
OSA-01C	80 to 90	8/16/2017	196.24	60.79	135.45
OSA-02A	130 to 140	8/16/2017	196.06	60.20	135.86
OSA-02B	104 to 114	8/16/2017	195.80	60.19	135.61
OSA-02BR	49 to 69 (BR)	8/16/2017	196.42	61.69	134.73
OSA-03A	128 to 138	8/16/2017	194.06	58.14	135.92
OSA-03B	104 to 114	8/16/2017	194.22	58.41	135.81
OSA-03BR	55 to 65 (BR)	8/16/2017	194.47	59.91	134.56
OSA-04	130 to 140	8/16/2017	196.89	61.12	135.77
OSA-05A	128 to 138	8/16/2017	152.89	17.80	135.09
OSA-05B	100 to 110	8/16/2017	152.94	18.72	134.22
OSA-05BR	70 to 80 (BR)	8/16/2017	152.86	18.65	134.21
OSA-06A	125 to 135	8/16/2017	141.22	7.89	133.33
OSA-06B	101 to 111	8/16/2017	141.52	8.21	133.31
OSA-06BR	51 to 61 (BR)	8/16/2017	141.29	8.07	133.22
OSA-07A	127 to 137	8/16/2017	149.58	15.65	133.93
OSA-07B	89 to 99	8/16/2017	149.40	16.22	133.18
OSA-08R	to NA	8/16/2017	153.10	18.67	134.43
OSA-09A	126 to 136	8/16/2017	188.94	53.14	135.80
OSA-09B	86 to 96	8/16/2017	189.00	53.80	135.20
OSA-10A	129 to 139	8/16/2017	183.22	47.54	135.68
OSA-10B	99 to 109	8/16/2017	183.16	48.01	135.15
OSA-11A	126 to 136	8/16/2017	183.70	48.24	135.46
OSA-11B	108 to 118	8/16/2017	184.09	48.87	135.22
OSA-11BR	78 to 88 (BR)	8/16/2017	183.50	49.40	134.10
OSA-12A	125 to 140	8/15/2017	184.40	48.77	135.63
OSA-12B	68 to 78	8/15/2017	184.45	49.19	135.26
OSA-12BR	37 to 47 (BR)	8/15/2017	184.64	49.35	135.29
OSA-13A	123 to 138	8/15/2017	177.43	41.96	135.47
OSA-13B	105 to 115	8/15/2017	176.71	41.32	135.39
OSA-13C	73 to 83	8/15/2017	177.54	42.15	135.39
OSA-14A	125 to 135	8/15/2017	175.30	40.02	135.28
OSA-14B	79 to 89	8/15/2017	175.23	40.12	135.11

Table 2-1. Water Level Measurements, August 2017.

Location	Open Interval Elevation (feet NGVD)	Date Measured	Measuring Point Elevation (feet NGVD)	Depth to Water (feet)	Water Level Elevation (feet NGVD)
OSA-14BR	-1 to 9 (BR)	8/15/2017	175.17	40.09	135.08
OSA-15A	129 to 139	8/16/2017	180.37	45.08	135.29
OSA-15B	73 to 83	8/16/2017	181.08	45.84	135.24
OSA-16A	129 to 139	8/15/2017	188.80	53.31	135.49
OSA-16B	54 to 64	8/15/2017	188.89	54.98	133.91
OSA-16BR	7 to 17 (BR)	8/15/2017	188.32	54.90	133.42
OSA-17	128 to 138	8/16/2017	169.26	26.99	142.27
OSA-18	133 to 143	8/16/2017	165.73	26.85	138.88
OSA-19	134 to 144	8/16/2017	178.20	41.61	136.59
OSA-20	142 to 152	8/16/2017	196.27	47.08	149.19
OSA-21	135 to 145	8/16/2017	189.00	50.71	138.29
OSA-22	120 to 130	8/16/2017	171.58	35.26	136.32
OSA-23A	129 to 139	8/16/2017	179.07	43.88	135.19
OSA-23B	115 to 125	8/16/2017	179.22	44.88	134.34
OSA-24	74 to 89 (BR)	8/16/2017	183.81	49.01	134.80
OW-8	110 to 115	8/16/2017	129.10	9.01	120.09
OW-B	87 to 92	8/16/2017	142.30	23.45	118.85
OW-E	98 to 103	8/16/2017	138.00	36.29	101.71
PS-22B	96 to 98	8/16/2017	143.20	15.53	127.67
PS-29A	117 to 119	8/16/2017	141.69	20.30	121.39
PS-29B	86 to 91	8/16/2017	141.39	11.40	129.99
PT-04P	118 to 123	8/14/2017	135.90	14.09	121.81
PT-09	43 to 53	8/14/2017	134.65	10.98	123.67
PT-10	103 to 108	8/14/2017	135.23	11.18	124.05
R-1	44 to 49 (BR)	8/14/2017	155.98	27.52	128.46
R-2	65 to 70 (BR)	8/14/2017	138.03	10.66	127.37
R-2A	86 to 91	8/14/2017	138.78	10.82	127.96
R-3P	76 to 81	8/14/2017	145.97	18.33	127.64
R-4A	to NA	8/14/2017	140.59	9.05	131.54
RP-1	53 to 63 (BR)	8/14/2017	138.66	9.55	129.11
RW-1	126 to 141	8/16/2017	190.56	52.59	137.97
RW-2	127 to 142	8/16/2017	191.24	53.21	138.03
RW-3	127 to 142	8/16/2017	194.34	56.41	137.93
RW-4	125 to 140	8/16/2017	194.17	56.22	137.95
RW-5	125 to 140	8/16/2017	193.76	55.80	137.96
SELF-1	95 to 113	8/15/2017	198.32	68.38	129.94
SELF-2	85 to 113	8/15/2017	198.09	82.06	116.03
SL-9	125 to 130	8/15/2017	179.95	45.00	134.95
SLBR	39 to 49 (BR)	8/16/2017	181.23	47.01	134.22
SLGP	70 to 90	8/16/2017	182.19	45.99	136.20

Table 2-1. Water Level Measurements, August 2017.

Location	Open Interval Elevation (feet NGVD)	Date Measured	Measuring Point Elevation (feet NGVD)	Depth to Water (feet)	Water Level Elevation (feet NGVD)
SLGP-R	66 to 83	8/16/2017	181.90	47.48	134.42
SWLF-1	-12 to 28 (BR)	8/15/2017	197.13	67.12	130.01
SWLF-2	-25 to 30 (BR)	8/15/2017	197.00	82.00	115.00
TCA-1	121 to 126	8/16/2017	183.62	48.51	135.11
TW-2-78	71 to 76	8/16/2017	151.61	17.68	133.93
UNA-1	111 to NA	8/14/2017	143.57	16.14	127.43
UNA-2	97 to NA	8/14/2017	138.39	9.31	129.08
UNA-3	103 to NA	8/14/2017	154.79	24.90	129.89
UNA-5	111 to NA	8/14/2017	157.75	24.51	133.24
WLF	86 to 104	8/15/2017	198.47	71.46	127.01
WLF-OBS	92 to 117	8/15/2017	199.24	66.69	132.55
WRG1-OBS	102 to NA	8/14/2017	146.18	14.55	131.63
WRG2-OBS	103 to NA	8/14/2017	146.83	15.33	131.50

Note:

(BR) - Open interval in bedrock.

NGVD - National Geodetic Vertical Datum NA - Not Available

Table 2-2. Summary of Extraction Rates, August 14-16, 2017

Location	Pumping Rate (gpm)
Public Water Supply Wells	
Assabet 1A	311
Assabet 2A	134
Christofferson	203
Lawsbrook	92
Scribner	97
Extraction Wells	
MLF	35.5
SELF-1	0*
SELF-2	1
SWLF-2	6.6
WLF	6.7
EW-1	20**

gpm - gallons per minute

* SELF-1 was down for maintenance
** Based on information provided by Geosyntec Consultants

Table 3-1. Comparison of VOCs detected in groundwater to Interim Groundwater Cleanup Levels, August 17 to September 12, 2017.

Compound	IGCL (ug/l)	No. Locations > IGCL / Total No. Locations	No. Samples > IGCL / Total No. Samples	No. of Detections	Maximum Concentration Detected (ug/l)	
VOCs						
1,1-Dichloroethene (VDC)		26 / 61	29 / 68	47	1600	*
Vinyl Chloride		22 / 61	24 / 68	32	98	*
Benzene		14 / 61	15 / 68	30	120	*
1,2-Dichloroethane (1,2-DCA)		5 / 61	5 / 68	14	29	*
1,2-Dichloropropane		3 / 61	3 / 68	4	63	*
Methylene Chloride		0 / 61	0 / 68	7	3.9	
Methyl tert butyl ether		0 / 61	0 / 68	7	1.7	
Trichloroethene (TCE)		0 / 61	0 / 68	2	1.1	

Concentrations in µg/L.
IGCL – Interim Groundwater Cleanup Level as defined in Record of Decision (USEPA, 2005).
* - Compound detected above IGCL.

Table 3-2. Comparison of inorganic compounds detected in groundwater to Interim Groundwater Cleanup Levels, August 17 to September 12, 2017.

Compound	IGCL (ug/l)	No. Locations > IGCL / Total No. Locations	No. Samples > IGCL / Total No. Samples	No. of Detections	Maximum Concentration Detected (ug/l)	
Metals						
Manganese [(1)]	300	13 / 21	13 / 22	22	5800	*
Arsenic	10	9 / 21	9 / 22	20	210	*
Nickel	100	0 / 6	0 / 7	6	9.5	
Lead	15	0 / 6	0 / 7	4	1.2	
Chromium	100	0 / 6	0 / 7	0	0	
Beryllium	4	0 / 6	0 / 7	0	0	
Antimony	6	0 / 6	0 / 7	0	0	

Concentrations in µg/L.
IGCL –Interim Groundwater Cleanup Level as defined in Record of Decision (USEPA, 2005).
* - Compound detected above IGCL.
(1) A background concentration of 722 µg/L has been proposed by Grace as the IGCL for manganese.

Table 3-3. Summary of Geochemical Results, 2017.

LOCATION	Lithologic Unit	Screen Depth	Sample Date	QA Type	Dissolved Arsenic (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	DO (mg/L)	ORP (mV)	pH
Former Lagoon Area										
Close to Source										
OSA-01B	Sand & Gravel	86-96	8/18/2017		72	38 J	1200 B	1.06	-71.8	7.16
OSA-09B	Till	91-101	8/22/2017		130	210	6.1 B	1.11	58.2	9.29
OSA-11B	Sand & Gravel	64-74	8/22/2017		0.59 J	65	14 B	7.26	13.9	6.72
Downgradient toward North Lagoon Wetland										
OSA-05A	Sand & Gravel	12-22	8/22/2017		1.1	21 J	93 B	7.04	121.8	6.15
OSA-06BR	Bedrock	78-88	8/24/2017		13	200	520	1.79	28.9	5.37
OSA-07A	Sand & Gravel	10-20	8/22/2017		7.8	19000	1300 B	0.79	-30.1	6.49
Industrial Landfill										
Close to Source										
B-08C	Till	80-90	8/25/2017		4.4	5200	2700 B	1.21	-11.4	5.74
B-08D	Sand & Gravel	58-73	8/25/2017		1.3	ND (50)	380 B	9.45	139.2	5.99
LF-06C	Sand & Gravel	82-92	8/29/2017		210	9000	2200 B	0.81	-101.1	6.41
Downgradient toward Assabet River										
LF-12	Till	100-110	8/23/2017		15	33 J	140	3.34	98.7	7.41

NOTES:

DUP - Duplicate Sample.
ND (10) - Compound not detected at limit indicated in parentheses.
J - Estimated Value.
B - Detected in blank.
^ - Instrument related QC exceeded the control limits.

Table 3-4. 1,4-Dioxane Concentrations in Groundwater, 2016/2017.

Location	Sample Date	QA Type	Result
Assabet River Area			
AR-14B1	8/18/2017		1.1
LF-18D	8/24/2017		7.5
LF-20D	8/29/2017		2.9
Former Lagoon Area			
OSA-13B	8/28/2017		0.43
Northeast Area			
AR-28S	8/23/2017		0.9
AR-29D	8/23/2017		0.37
AR-29SBR	8/30/2017		ND (2000)*
AR-30D	3/23/2017		5
AR-30D	8/25/2017		3.4
AR-30SBR	8/25/2017		0.53
AR-31D	3/23/2017		1.5
AR-31D	8/24/2017		1.1
AR-31S	8/22/2017		ND (0.2)
CHRISTOFFERSON	12/15/2016		0.28
CHRISTOFFERSON	3/23/2017		0.15 J
CHRISTOFFERSON	6/19/2017		0.072 J
CHRISTOFFERSON	8/22/2017		0.13 J
LAWSBROOK	3/23/2017		0.25
LAWSBROOK	6/19/2017		0.13 J
LAWSBROOK	8/22/2017		0.21
MW-06B	8/30/2017		1.7
MW-07B	8/30/2017		1.6
PS-22A	8/23/2017		ND (0.2)
PS-22B	8/23/2017		0.62
PS-22B	8/23/2017	Dup	0.56
PS-29B	8/23/2017		1.4
SCRIBNER	12/15/2016		0.34
SCRIBNER	12/15/2016	Dup	0.32
SCRIBNER	3/23/2017	Dup	0.26
SCRIBNER	3/23/2017		0.24
SCRIBNER	6/19/2017	Dup	0.18 J
SCRIBNER	6/19/2017		0.19 J
SCRIBNER	8/22/2017		0.21
SCRIBNER	8/22/2017	Dup	0.2
Southeast Landfill Area			
AR-11B2	8/17/2017		14
B-08B	8/25/2017		6.5
LF-06C	8/29/2017		4
SELF-1	12/8/2016		19
SELF-1	3/9/2017		17
SELF-1	6/15/2017		15
SELF-1	8/30/2017		15

Location	Sample Date	QA Type	Result
SELF-2	12/8/2016		26
SELF-2	3/9/2017		22
SELF-2	6/15/2017		20
SELF-2	8/30/2017		19
Southwest Area			
AR-03B1	8/17/2017		1.2
AR-03P	8/17/2017		0.25
Assabet-1A	12/15/2016		1
Assabet-1A	3/23/2017		0.45
Assabet-1A	6/19/2017		0.32
Assabet-1A	8/18/2017		0.35
Assabet-2A	12/15/2016		0.41
Assabet-2A	3/23/2017		0.24
Assabet-2A	6/19/2017		0.25
Assabet-2A	8/18/2017		0.2
B-05B4	8/23/2017		1.5
B-06B5	8/30/2017		0.69
PT-03B1	3/23/2017		9.2
PT-03B1	8/22/2017		7.8
R-2	8/28/2017		1.1
R-2A	3/23/2017		1.1
R-2A	8/28/2017		0.66
Southwest Landfill Area			
AR-20	8/29/2017		3
B-03B3	8/23/2017		1.8
MLF	12/8/2016		0.99
MLF	3/9/2017		1
MLF	6/15/2017		0.76
MLF	8/30/2017		0.83
SWLF-2	12/8/2016		4.4
SWLF-2	3/9/2017		4.5
SWLF-2	6/15/2017		4.4
SWLF-2	8/30/2017		4.5
WLF	12/8/2016		3
WLF	3/9/2017		2.9
WLF	6/15/2017		2.9
WLF	8/30/2017		3.2

Notes:

Concentrations in µg/L

Dup - Duplicate Sample

J - Estimated Concentration

ND (10) - Compound not detected at limit indicated in parentheses.

B - Compound detected in blank and sample.

***Elevated reporting limit for AR-29SBR due to matrix interference**

Table 4-1. Summary of VDC, Vinyl Chloride and Benzene Concentration Trends Based on Mann-Kendall Trend Test, 2009 - 2017

Location	VDC		Vinyl Chloride		Benzene	
	Trend	Concentration Range	Trend	Concentration Range	Trend	Concentration Range
Former Lagoon Area						
B-04B4	ND	ND(1) - 36	ND	ND(1) - 22	<=IGCL (5)	-
OSA-03BR	Decreasing	5 - 48	Decreasing	2.1 - 33	<=IGCL (5)	-
OSA-06BR	No Trend	ND(1) - 42	Decreasing	1.3 - 3.6	<=IGCL (5)	-
OSA-13B	Probably Increasing	ND(1) - 2600	Probably Increasing	ND(1) - 140	Decreasing	54 - 120
OSA-15B	No Trend	1.4 - 8.2	Stable	ND(1) - 2.6	<=IGCL (5)	-
Northeast Area						
AR-31D	Decreasing	33 - 92	Stable	1.9 - 3.3	<=IGCL (5)	-
AR-35MBR	Probably Decreasing	17 - 30	<=IGCL (2)	-	<=IGCL (5)	-
CHRISTOFFERSON	<=IGCL (7)	-	<=IGCL (2)	-	<=IGCL (5)	-
LAWSBROOK	<=IGCL (7)	-	<=IGCL (2)	-	<=IGCL (5)	-
MW-04B	Stable	17 - 20	Stable	1.4 - 2.1	<=IGCL (5)	-
MW-06B	Decreasing	19 - 140	Stable	1 - 2.9	<=IGCL (5)	-
MW-07B	Decreasing	12 - 37	Decreasing	1.8 - 5.9	<=IGCL (5)	-
MW-13B	Decreasing	4.4 - 17	Decreasing	1.9 - 9.2	<=IGCL (5)	-
PS-22B	Decreasing	7.9 - 71	ND	ND(1) - 2.2	<=IGCL (5)	-
SCRIBNER	Decreasing	1.7 - 10.8	<=IGCL (2)	-	<=IGCL (5)	-
Southwest Area						
AR-03B1	No Trend	0.57 - 15	<=IGCL (2)	-	<=IGCL (5)	-
ASSABET-1A	<=IGCL (7)	-	<=IGCL (2)	-	<=IGCL (5)	-
ASSABET-2A	<=IGCL (7)	-	<=IGCL (2)	-	<=IGCL (5)	-

Table 4-1. Summary of VDC, Vinyl Chloride and Benzene Concentration Trends Based on Mann-Kendall Trend Test, 2009 - 2017

Location	VDC		Vinyl Chloride		Benzene	
	Trend	Concentration Range	Trend	Concentration Range	Trend	Concentration Range
Assabet River Area						
ASBRV-T6A	No Trend	ND(1) - 51	ND	ND(1) - 4.7	<=IGCL (5)	-
LF-18D	Decreasing	30 - 81	Decreasing	13 - 33	Decreasing	3.1 - 5.4
LF-20D	Decreasing	3.1 - 14	Decreasing	1.3 - 7.1	<=IGCL (5)	-
Southwest Landfill Area						
AR-20	Decreasing	6 - 14	Decreasing	1.9 - 7.3	<=IGCL (5)	-
LF-02A	Decreasing	120 - 520	Decreasing	60 - 190	Decreasing	11 - 28
LF-10	Decreasing	110 - 440	Decreasing	23 - 120	Decreasing	11 - 23
LF-12	<=IGCL (7)	-	<=IGCL (2)	-	Stable	5.6 - 33
LF-13A	Decreasing	11 - 14	Probably Decreasing	5.9 - 10	<=IGCL (5)	-
LF-19D	<=IGCL (7)	-	Decreasing	10 - 36	Stable	1.5 - 5.4
LF-19MBR	Decreasing	ND(1) - 25	Probably Decreasing	ND(1) - 27	Stable	22 - 26
LF-19SBR	No Trend	40 - 150	No Trend	49 - 120	Decreasing	14 - 48
MLF	<=IGCL (7)	-	Decreasing	1.2 - 3.3	<=IGCL (5)	-
WLF	Stable	23 - 32	Stable	5.4 - 7.6	<=IGCL (5)	-
Southeast Landfill Area						
AR-11B2	Probably Decreasing	11 - 34	Decreasing	17 - 84	Decreasing	2.7 - 8.4
LF-05E	Decreasing	4.4 - 64	Decreasing	ND(1) - 49	<=IGCL (5)	-
LF-06	<=IGCL (7)	-	<=IGCL (2)	-	Decreasing	1.7 - 17
LF-06C	<=IGCL (7)	-	ND	ND(1) - 2.6	Decreasing	15 - 830
LF-17D	No Trend	ND(1) - 11	Decreasing	57 - 120	Decreasing	4 - 6.9
OSA-16B	<=IGCL (7)	-	Decreasing	4.8 - 42	Probably Decreasing	3.1 - 17
SELF-1	Decreasing	1.5 - 7.4	Decreasing	3.8 - 9.8	Decreasing	120 - 640

Table 4-1. Summary of VDC, Vinyl Chloride and Benzene Concentration Trends Based on Mann-Kendall Trend Test, 2009 - 2017

Location	VDC		Vinyl Chloride		Benzene	
	Trend	Concentration Range	Trend	Concentration Range	Trend	Concentration Range

Notes:

Concentration Range - Range of annual maximum conconcentrations observed between 2009 and 2017.

- Not applicable.

<=IGCL (#) - Concentrations from all samples collected over the nine year time period were less than or equal to the Interim Groundwater Cleanup Goal (value of IGCL in µg/L).

ND - Not all sample results were less than or equal to IGCL, however, trend analysis not informative because more than half the results were not detected.

No Trend - Cconcentration trend indicates that either: the confidence factor of an increasing trend is less than 90 percent, or the confidence factor of a decreasing trend is less than 90 percent and the concentrations are variable (coefficient of variation is greater than or equal to 1).

Stable - Concentration trend indicates that the confidence factor of a decreasing trend is less than 90 percent and the concentrations are relatively constant (coefficient of variation is less than 1).

Probably Increasing or Probably Decreasing - Concentration trend indicates that the confidence factor of an increasing or decreasing trend is between 90 and 95 percent.

Increasing or Decreasing - Concentration trend indicates that the confidence factor of an increasing or decreasing trend is greater than 95 percent.

Table 4-2. Summary of 1,4-Dioxane Concentration Trends Based on Mann-Kendall Trend Test

Location	Trend	Concentration Range (µg/L)	Data Used for Trend Test
Northeast Area			
AR-28S	Increasing	0.169 - 1.4	Annual since 2011
AR-29D	No Trend	0.12 - 0.47	Annual since 2013
AR-30D	Probably Increasing	0.93 - 5	Annual since 2011
AR-30SBR	No Trend	0.42 - 0.56	Annual since 2011
AR-31D	Stable	1.2 - 2.1	Annual since 2011
AR-31S	Probably Decreasing	ND(0.2) - 1	Annual since 2013
CHRISTOFFERSON	Stable	0.12 - 0.28	Quarterly since August 2013
LAWSBROOK	Decreasing	0.13 - 0.35	Quarterly since August 2013
MW-06B	Stable	1.7 - 2.4	Annual since 2014
PS-22A	Decreasing	ND(0.1) - 0.385	Annual since 20111
PS-22B	Decreasing	0.4 - 1.74	Annual since 2011
PS-29B	Increasing	0.19 - 1.4	Annual since 2011
SCRIBNER	Decreasing	0.19 - 0.35	Quarterly since August 2013
Southwest Area			
ASSABET-1A	No Trend	0.15 - 1	Quarterly since August 2013
ASSABET-2A	No Trend	0.13 - 0.41	Quarterly since August 2013
B-06B5	Stable	0.69 - 1.1	Annual since 2013
PT-03B1	Increasing	1.65 - 9.2	Annual since 2011
R-2	No Trend	0.92 - 1.1	Annual since 2013
R-2A	Increasing	0.34 - 1.1	Annual since 2014
Southwest Landfill Area			
MLF	Decreasing	0.76 - 1.66	Quarterly since September 2011
SWLF-1/SWLF-2	Decreasing	3.4 - 6.56	Quarterly since September 2011
WLF	Decreasing	2.6 - 4.1	Quarterly since September 2011
Southeast Landfill Area			
B-08B	Decreasing	6.5 - 20.2	Annual since 2011
LF-06C	Decreasing	3.8 - 18.9	Annual since 2011
SELF-1	Decreasing	15 - 35.7	Quarterly since September 2011
SELF-2	Decreasing	19 - 34.7	Quarterly since September 2011

Notes:

Concentration Range - Range of annual or quarterly maximum concentrations observed over time period used for Trend Test.

No Trend - Cconcentration trend indicates that either: the confidence factor of an increasing trend is less than 90 percent, or the confidence factor of a decreasing trend is less than 90 percent and the concentrations are variable (coefficient of variation is greater than or equal to 1).

Stable - Concentration trend indicates that the confidence factor of a decreasing trend is less than 90 percent and the concentrations are relatively constant (coefficient of variation is less than 1).

Probably Increasing or Probably Decreasing - Concentration trend indicates that the confidence factor of an increasing or decreasing trend is between 90 and 95 percent.

Increasing or Decreasing - Concentration trend indicates that the confidence factor of an increasing or decreasing trend is greater than 95 percent.

Table 5-1: Landfill Area Groundwater Treatment System Sampling Results

	Discharge Limits	1/19/17	2/17/17	3/9/17	4/14/17	5/26/17	6/22/17	7/26/17	8/10/17	9/21/17	10/31/17
Influent											
VOCs											
VDC	NA	7.6	7.8	8.5	7.7	9.1	9.2	9.2	8.8	7.8	8
1,2 Dichloroethane	NA	0.82 J	0.84 J	1.1	1.4	0.7 J	1.1	0.33 J	0.59 J	0.85 J	1.1
1,2 Dichloropropane	NA	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
2-Butanone (MEK)	NA	U (10)	U (10)	U (10)	U (10)	U (10)	U (10)	U (10)	U (10)	U (10)	U (10)
Benzene	NA	5.3	5	6	6.8	5.9	6	3.6	4.7	6	7
Chloroethane	NA	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
Methlyene Chloride	NA	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
MTBE	NA	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
TCE	NA	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
Vinyl Chloride	NA	2.4	2.3	2.6	2.3	2.7	3.4	2.2	2.4	1.7	2.4
1,4 Dioxane	NA	2.0	2.1	2.6	1.3	2.7	2.0	2.0	2.4	2.3	1.8
SVOCs											
Bis(2-chloroethyl) ether	NA	U (5.1)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5.2)	U (5.2)	U(50)	U (53)
Bis(2-ethylhexyl) phthalate	NA	U (5.1)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5.2)	U (5.2)	U(50)	U (53)
Metals											
Arsenic	NA	68	42	55	42	38	40	35	39	34	28
Beryllium	NA	U (2)	U (2)	U (2)	U (2)	U (2)	U (2)	U (2)	U (2)	U (2)	U (2)
Chromium	NA	U (4)	U (4)	U (4)	U (4)	U (4)	U (4)	U (4)	U (4)	U (4)	U (4)
Iron	NA	21000	9100	15000	11000	9500	9400	9200	11000 B	10000	7100
Lead	NA	1.2	0.7 J	1.9	0.89 J	1	0.22 J	0.43 J	U (1)	U (1)	0.19 J
Manganese	NA	2400 B	2400	2500	2600	2500	2300	2600 B	2600 B	2600 B	2200
Nickel	NA	15	12	22	12	17	12	8.0 J	8.4 J	8.0 J	7 J
Other											
Phosphorus	NA	56	32	27	55	24	33	81	54	U(10)	63
Effluent											
VOCs											
VDC	MO	U (1)	U (1)	1.1	1	1.4	1.6	1.6	1.4	1.9	1.6
1,2 Dichloroethane	MO	U (1)	0.5 J	0.71 J	0.85 J	0.7 J	0.67 J	0.64 J	0.72 J	0.8 J	0.85 J
1,2 Dichloropropane	MO	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
2-Butanone (MEK)	MO	U (10)	U (10)	U (10)	U (10)	U (10)	U (10)	U (10)	U (10)	U (10)	U (10)
Benzene	MO	U (1)	U (1)	U (1)	0.7 J	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
Chloroethane	MO	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
Methlyene Chloride	MO	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
MTBE	MO	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
TCE	MO	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
Vinyl Chloride	MO	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)	U (1)
1,4 Dioxane	MO	2.4	2.2	2.6	1.6	2.3	2.5	2.2	2.1	2	1.3
SVOCs											
Bis(2-chloroethyl) ether	MO	U (4.9)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5.1)
Bis(2-ethylhexyl) phthalate	MO	U (4.9)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5)	U (5.1)
Metals											
Arsenic	4* / 4*	2.4	1.8	2.2	0.99 J	0.91 J	1.2	1.1	1.1	0.68 J	0.54 J
Beryllium	MO	U (2)	U (2)	U (2)	U (2)	U (2)	U (2)	U (2)	U (2)	U (2)	U (2)
Chromium	579.3 / 27.7	U (4)	U (4)	U (4)	U (4)	U (4)	U (4)	U (4)	U (4)	U (4)	U (4)
Iron	NAC / 1000	U (50)	21 J	U (50)	24 J	U (50)	U (50)	U (50)	U (50)	20 J	U (50)
Lead	14 / 0.5	0.26 J	1 U	0.27 J	0.17 J	1 U	1 U	0.31 J	0.23 J	0.18 J	U (1)
Manganese	MO	0.97 JB	1.3 J	0.99 J	0.41 J	1.3 J	2.3 J	4.9 B	1.9 JB	1.9 JB	7.2
Nickel	145.2 / 16.1	9.9 J	6.9 J	8 J	7.3 J	8.3 J	7.6 J	7.5 J	7.5 J	6.9 J	5.8 J
Other											
Phosphorus	NAC / 18	U (10)	U (10)	U (10)	U (10)	U (10)	6 J	19	33	U (10)	8 JB

Concentrations in µg/L.
U (1) - not detected at limit indicated in parentheses.
J - Estimated value
B - Compound was found in the blank and sample.
Discharge Limits - Maximum Daily / Average Monthly
MO - Monitoring Only
NA - Not applicable
NAC - No applicable criterion
* Interim arsenic limit

Table 5-1. Landfill Area Groundwater Treatment System Sampling Results

	Discharge Limits	8/18/17	9/21/17
Influent			
VOCs			
VDC	NA	8.8	7.8
1,2-Dichloroethane	NA	0.59 J	0.85 J
Benzene	NA	4.7	6
Vinyl Chloride	NA	2.4	1.7
Before Purifics[1]			
VOCs			
VDC	NA	U (1)	U (1)
1,2-Dichloroethane	NA	0.47 J	0.72 J
Benzene	NA	2.7	2.7
Vinyl Chloride	NA	U (1)	U (1)
After Purifics[2]			
VOCs			
VDC	NA	U (1)	U (1)
1,2-Dichloroethane	NA	0.48 J	0.75 J
Benzene	NA	2.6	2.7
Vinyl Chloride	NA	U (1)	U (1)
Effluent			
VOCs			
VDC	NA	1.4	1.9
1,2-Dichloroethane	NA	0.72 J	0.80 J
Benzene	NA	U (1)	U (1)
Vinyl Chloride	NA	U (1)	U (1)

Concentrations in µg/L.

U (1) - not detected at limit indicated in parentheses.

J - Estimated value

NA - Not applicable

[1] Sample collected after metals treatment immediately prior to the Purifics unit

[2] Sample collected immediately after the Purifics unit but before the carbon unit

Table 5-2. Landfill Area Groundwater Treatment System Removal Efficiency.

Date	Total VOCs		% Removal Efficiency
	Influent	Effluent	
1/19/17	16.12	0	100
2/17/17	15.94	0.5	97
3/9/17	18.2	1.81	90
4/14/17	18.2	2.5	86
5/26/17	18.4	2.1	89
6/22/17	19.7	2.27	88
7/26/17	15.33	2.24	85
8/10/17	16.49	2.12	87
9/21/17	16.35	2.7	83
10/31/17	18.5	2.45	87

Date	1,4-Dioxane		% Removal Efficiency
	Influent	Effluent	
1/19/17	2.0	2.4	NC
2/17/17	2.1	2.2	NC
3/9/17	2.6	2.6	0
4/14/17	1.3	1.6	NC
5/26/17	2.7	2.3	15
6/22/17	2.0	2.5	NC
7/26/17	2.0	2.2	NC
8/10/17	2.4	2.1	13
9/21/17	2.3	2	13
10/31/17	1.8	1.3	NC

Date	Manganese		% Removal Efficiency
	Influent	Effluent	
1/19/17	2400	0.97	100
2/17/17	2400	1.3	100
3/9/17	2500	0.99	100
4/14/17	2600	0.41	100
5/26/17	2500	1.3	100
6/22/17	2300	2.3	100
7/26/17	2600	4.9	100
8/10/17	2600	1.9	100
9/21/17	2600	1.9	100
10/31/17	2200	7.2	100

Table 5-2. Landfill Area Groundwater Treatment System Removal Efficiency.

Date	Arsenic Influent	Arsenic Effluent	% Removal Efficiency
1/19/17	68	2.4	96
2/17/17	42	1.8	96
3/9/17	55	2.2	96
4/14/17	42	0.99	98
5/26/17	38	0.91	98
6/22/17	40	1.2	97
7/26/17	35	1.1	97
8/10/17	39	1.1	97
9/21/17	34	0.68	98
10/31/17	28	0.54	98

Date	Iron Influent	Iron Effluent	% Removal Efficiency
1/19/17	21000	50	100
2/17/17	9100	21	100
3/9/17	15000	50	100
4/14/17	11000	24	100
5/26/17	9500	50	99
6/22/17	9400	50	99
7/26/17	9200	50	99
8/10/17	11000	50	100
9/21/17	10000	20	100
10/31/17	7100	50	99

Date	Phosphorus Influent	Phosphorus Effluent	% Removal Efficiency
1/19/17	56	10	82
2/17/17	32	10	69
3/9/17	27	10	63
4/14/17	55	10	82
5/26/17	24	10	58
6/22/17	33	6	82
7/26/17	81	19	77
8/10/17	54	33	39
9/21/17	10	10	NA
10/31/17	63	8	87

Concentrations in µg/L

Not detected; Reporting limit is listed in table and was used to calculate removal efficiency

NA - not applicable - not detected in influent

NC - Not calculated; the effluent concentration is reported as greater than the influent concentration.

Table 5-3. Landfill Area Groundwater Treatment System Maintenance

Routine Maintenance Activities	Frequency
Clean and calibrate pH and ORP probes in all reaction tanks	Weekly
Bleed air from all LMI chemical pumps	Weekly
Take recovery well flow rates	Weekly
Grease and rotate all electric pump motors	Monthly
Clean and calibrate Purifics unit pH probe	Monthly
Clean influent pump flow meter paddle wheel	Monthly
Site health and safety inspections	Monthly
Clean and calibrate recovery well flow meters	Quarterly
Clean pump-house discharge tank level switches	Quarterly
Acid cleaning/line pigging of treatment system influent pipe	Quarterly
Clean microfilter trains with acid or bleach	As Needed
Run, fill, and empty filter press	As Needed
Replace Purifics unit bag filter	As Needed
Disassemble and clean influent pumps, valves, and lines	As Needed
Clean out sludge from pump-house, discharge pump, lines, and valves	As Needed
Backflush carbon canister	As Needed
Other Maintenance Activities	**Date**
Replaced cracked 6" end cap of train #4 of micro-filter.	2/6/2017
Both Kaeser air compressors had complete yearly service performed.	2/22/2017
Cleaned out oil lines and oil tank in air compressor B.	2/23/2017
Installed 3 new clamp/gasket assemblies between 3 sections of microfilter filters	3/17/2017
Installed new pH probe in reaction tank 1.	3/28/2017
Replaced influent pump and motor assembly #2 feeding reaction tank #1.	4/11/2017
Removed and replaced pump seal assembly in influent pump #1 feeding reaction tank #1.	4/18/2017
Replaced leaking gasket and pump seals in main discharge pump in pumphouse.	5/9/2017
Removed old plugged influent piping going to top of influent tank and replaced with new sections and unions for easier future iron sludge cleaning.	6/21/2017
Mowed landfill with tractor and brush hog. Trimmed inside and around swails, valve pots and gas vents.	7/6/2017
Built and replaced cracked 6" "T" at front manifold of trains 1&2 of micro-filter.	7/27/2017
Maher services installed new pump and motor in SELF-1 well.	8/17/2017
Repaired rotted section of ceiling in pump house and reinstalled light fixture.	8/18/2017
Used roofing sealer to paint and seal leaking roof in pump house.	8/22/2017
Cut up and removed large oak trees that had fallen across trail to wells at north lagoon.	8/23/2017
Rebuilt leaking LMI pump bleeder for bleach pump.	9/5/2017
Mowed landfill and road with tractor and brush hog. Trimmed around swails.	9/20/2017

Table 5-3. Landfill Area Groundwater Treatment System Maintenance

Mowed and trimmed all 3 Lagoon swails and cleared for water drainage.	10/3/2017
Kaeser compressor installed new temp sensor on air dryer.	10/4/2017

Table 5-4. Landfill Area Extraction Well Groundwater Quality Results

Location	MLF	MLF	MLF	SELF-1	SELF-1	SELF-1	SELF-2
Sample Date	3/9/17	6/15/17	8/30/17	3/9/17	6/15/17	8/30/17	3/9/17
VOCs							
1,1,1-Trichloroethane	1 U	1 U	1 U	5 U	5 U	5 U	2 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	5 U	5 U	5 U	2 U
1,1,2-Trichloroethane	1 U	1 U	1 U	5 U	5 U	5 U	2 U
1,1-Dichloroethene	4.6	4.1	4.7	5 U	5 U	5 U	8.2
1,2-Dichloroethane	1 U	0.46 J	1 U	23	26	24	10
1,2-Dichloropropane	1 U	1 U	1 U	5 U	5 U	5 U	9.6
1,4-Dioxane	1	0.76	0.83	17	15	15	22
2-Butanone	10 U	10 U	10 U	50 U	50 U	50 U	20 U
2-Hexanone	5 U	5 U	5 U	25 U	25 U	25 U	10 U
4-Methyl-2-Pentanone	5 U	5 U	5 U	25 U	25 U	25 U	10 U
Acetone	10 U	10 U	10 U	50 U	50 U	50 U	20 U
Benzene	1 U	1 U	1 U	120	120	110	130
Bromochloromethane	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Bromodichloromethane	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Bromoform	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Bromomethane	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Carbon Disulfide	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Carbon Tetrachloride	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Chlorobenzene	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Chloroethane	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Chloroform	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Chloromethane	1 U	1 U	1 U	5 U	5 U	5 U	2 U
cis-1,2-Dichloroethene	1 U	1 U	1 U	5 U	5 U	5 U	2 U
cis-1,3-Dichloropropene	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Dibromochloromethane	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Ethylbenzene	1 U	1 U	1 U	8	7.7	8	2.6
m,p-Xylenes	2 U	2 U	2 U	10 U	10 U	10 U	4 U
Methyl tert butyl ether	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Methylene Chloride	1 U	1 U	1 U	5 U	5 U	3.9 J	2 U
o-Xylene	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Styrene	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Tetrachloroethene	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Toluene	1 U	1 U	1 U	5 U	5 U	5 U	2 U
trans-1,2-Dichloroethene	1 U	1 U	1 U	5 U	5 U	5 U	2 U
trans-1,3-Dichloropropene	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Trichloroethene	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Trichlorofluoromethane	1 U	1 U	1 U	5 U	5 U	5 U	2 U
Vinyl Chloride	1.5	1.3	1.2	4.5 J	5 U	5 U	9.2
Other Parameters							
Total Arsenic	58	56	53	120	120	120	74
Total Iron	15000 B	16000	15000	13000 B	13000	13000	9400 B
Total Manganese	3300	3400	3300 B	1300	1300	1300 B	1100
Total Phosphorus	23	46	1.9	390	380	73	43

Table 5-4. Landfill Area Extraction Well Groundwater Quality Results

Location	SELF-2	SELF-2	SWLF-2	SWLF-2	SWLF-2	WLF	WLF	WLF
Sample Date	6/15/17	8/30/17	3/9/17	6/15/17	8/30/17	3/9/17	6/15/17	8/30/17
VOCs								
1,1,1-Trichloroethane	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	6.8	7.1	18	14	20	22	20	25
1,2-Dichloroethane	11	11	0.48 J	0.53 J	0.53 J	1 U	1 U	1 U
1,2-Dichloropropane	8.2	7.7	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dioxane	20	19	4.5	4.4	4.5	2.9	2.9	3.2
2-Butanone	20 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	20 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	120	120	13	12	13	1.2	1.4	1.3
Bromochloromethane	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Disulfide	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	2	1.2 J	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	2.8	2.6	1 U	1 U	1 U	1 U	1 U	1 U
m,p-Xylenes	4 U	4 U	2 U	2 U	2 U	2 U	2 U	2 U
Methyl tert butyl ether	2 U	2 U	1 U	1 U	1 U	0.46 J	0.4 J	0.46 J
Methylene Chloride	2 U	1.5 J	1 U	1 U	1 U	1 U	1 U	1 U
o-Xylene	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	8.5	8.3	8.5	6.7	7.9	5.4	4.9	4.4
Other Parameters								
Total Arsenic	77	74	1.9	2.1	1.9	27	32	31
Total Iron	9500	8700	2700 B	2700	2600	3400 B	4400	4100
Total Manganese	1200	1200 B	210	200	210 B	1900	2000	1900 B
Total Phosphorus	76	27	82	100	11	34	99	8.3

Table 5-5. Monthly Landfill Area Extraction Rates

	MLF		SELF-1		SELF-2		SWLF-2		WLF		Total Landfill Area System	
Target Flow Rate (gpm)	**38**		**0.9-1.2**		**1-1.4**		**4**		**8**		**51-53**	
	Average	**Instantaneous**	**Average**	**Instantaneous**	**Average**	**Instantaneous**	**Average**	**Instantaneous**	**Average**	**Instantaneous**	**Average**	**Instantaneous^**
Jan-17	30.1	35.8	0.6	-	1.0	-	6.5	7.1	5.7	6.4	43.9	49.3
Feb-17	37.8	38	0.6	-	1.0	-	6.9	7.1	4.7	4.5	51.0	49.6
Mar-17	35.1	38.2	0.6	-	0.9	-	6.4	7	4.9	4.9	47.9	50.1
Apr-17	39.1	39.2	0.6	-	1.0	-	6.8	7	6.4	7	53.9	53.2
May-17	27.6	32.2	0.6	-	0.9	-	6.1	7	7.6	8.9	42.8	48.1
June-17	35.4	37.3	0.6	-	1.0	-	6.5	6.9	8.0	8.1	51.5	52.3
July-17	32.7	36.4	0.6	-	0.9	-	6.1	6.9	6.1	6.9	46.4	50.2
Aug-17	35.8	36.5	0.3	-	0.9	-	6.7	6.9	6.8	6.9	50.5	50.3
Sep-17	34.0	34.7	0.6	-	0.9	-	6.8	7	5.3	5.5	47.6	47.2
Oct-17*	26.0	27.9	0.6	-	0.8	-	6.6	7.2	4.3	4.7	38.3	39.8

Average - Flow rate calculated using monthly totalizer readings.

^Instantaneous - Flow rate displayed during monthly monitoring. Transducers installed in SELF-1 and SELF-2 in April 2016 to optimize pump cycles preclude meaningful instantaneous readings.

SELF-1 was down for approximately one week during August for pump repair

*MLF and WLF flow rates have recently declined due to well fouling and are scheduled for redevelopment in early November

Table 5-6. Summary of Volumes of Groundwater and VOCs Removed

	Grace Property					Northeast Area					Site-Wide Removal				
	Volume of Groundwater Removed	Pounds Removed				Volume of Groundwater Removed	Pounds Removed				Volume of Groundwater Removed	Pounds Removed			
Year	Million Gallons	TVOC	VDC	Benzene	Vinyl Chloride	Million Gallons	TVOC	VDC	Benzene	Vinyl Chloride	Million Gallons	TVOC	VDC	Benzene	Vinyl Chloride
1984	3.9	23.8	18.3	0.9	3.8	-	-	-	-	-	3.9	23.8	18.3	0.9	3.8
1985	155.2	1595.7	912.2	79.0	155.9	-	-	-	-	-	155.2	1595.7	912.2	79.0	155.9
1986	222.6	898.0	747.0	34.8	81.5	-	-	-	-	-	222.6	898.0	747.0	34.8	81.5
1987	199.1	507.6	330.7	63.9	65.8	-	-	-	-	-	199.1	507.6	330.7	63.9	65.8
1988	247.2	563.4	347.7	59.1	94.9	-	-	-	-	-	247.2	563.4	347.7	59.1	94.9
1989	198.4	248.5	184.7	14.2	28.6	-	-	-	-	-	198.4	248.5	184.7	14.2	28.6
1990	279.8	293.6	228.4	16.5	47.6	-	-	-	-	-	279.8	293.6	228.4	16.5	47.6
1991	46.2	37.1	23.9	4.9	7.1	-	-	-	-	-	46.2	37.1	23.9	4.9	7.1
1992	234.9	283.2	103.8	60.7	32.8	-	-	-	-	-	234.9	283.2	103.8	60.7	32.8
1993	216.1	165.3	73.8	38.5	24.7	-	-	-	-	-	216.1	165.3	73.8	38.5	24.7
1994	216.1	132.7	70.7	26.3	25.9	-	-	-	-	-	216.1	132.7	70.7	26.3	25.9
1995	211.7	150.0	77.3	33.2	23.8	-	-	-	-	-	211.7	150.0	77.3	33.2	23.8
1996	243.6	104.3	57.0	19.6	12.0	-	-	-	-	-	243.6	104.3	57.0	19.6	12.0
1997	297.3	107.8	81.3	11.9	11.7	-	-	-	-	-	297.3	107.8	81.3	11.9	11.7
1998	197.2	94.9	63.4	11.8	7.5	-	-	-	-	-	197.2	94.9	63.4	11.8	7.5
1999	196.7	164.7	123.5	14.1	12.8	-	-	-	-	-	196.7	164.7	123.5	14.1	12.8
2000	224.1	98.6	82.0	4.6	10.1	-	-	-	-	-	224.1	98.6	82.0	4.6	10.1
2001	168.2	50.2	41.8	1.9	5.3	-	-	-	-	-	168.2	50.2	41.8	1.9	5.3
2002	187.3	42.1	32.5	2.1	4.5	-	-	-	-	-	187.3	42.1	32.5	2.1	4.5
2003	198.7	45.9	28.9	4.7	7.3	-	-	-	-	-	198.7	45.9	28.9	4.7	7.3
2004	209.0	52.1	41.1	2.8	4.4	-	-	-	-	-	209.0	52.1	41.1	2.8	4.4
2005	188.4	96.7	60.5	4.5	6.7	-	-	-	-	-	188.4	96.7	60.5	4.5	6.7
2006	178.2	78.8	71.2	0.9	5.1	-	-	-	-	-	178.2	78.8	71.2	0.9	5.1
2007	150.4	62.9	49.3	1.7	3.0	-	-	-	-	-	150.4	62.9	49.3	1.7	3.0
2008	116.6	38.3	31.8	1.6	2.3	-	-	-	-	-	116.6	38.3	31.8	1.6	2.3
2009	26.1	10.5	4.7	3.6	1.4	-	-	-	-	-	26.1	10.5	4.7	3.6	1.4
2010	18.7	6.3	2.2	2.5	0.7	7.2	5.9	5.6	0.1	0.1	25.9	12.2	7.8	2.6	0.9
2011	16.0	3.2	1.1	0.8	0.4	9.9	4.5	4.2	0.1	0.1	25.9	7.7	5.3	0.9	0.5
2012	22.9	5.8	1.7	2.2	0.7	10.1	3.7	3.5	0.1	0.1	33.0	9.6	5.2	2.2	0.8
2013	23.1	5.5	1.8	1.9	0.7	7.0	2.0	1.9	0.1	0.1	30.0	7.5	3.7	2.0	0.7
2014	24.6	5.0	2.0	1.4	0.6	-	-	-	-	-	24.6	5.0	2.0	1.4	0.6
2015	26.1	5.2	2.3	1.4	0.6	-	-	-	-	-	26.1	5.2	2.3	1.4	0.6
2016	24.4	4.2	1.9	1.1	0.6	-	-	-	-	-	24.4	4.2	1.9	1.1	0.6
2017*	20.2	3.3	1.4	0.9	0.4						20.2	3.3	1.4	0.9	0.4
Total	**4989.0**	**5985.2**	**3901.8**	**530.4**	**691.1**	**34.1**	**16.2**	**15.2**	**0.4**	**0.4**	**5023.2**	**6001.4**	**3917.0**	**530.8**	**691.5**

Gallons Removed - Grace Property			
TVOC	VDC	Benzene	Vinyl Chloride
591.5	**385.6**	**72.4**	**91.0**

Gallons Removed - Northeast Area			
TVOC	VDC	Benzene	Vinyl Chloride
1.6	**1.5**	**0.0**	**0.1**

Gallons Removed - Site-Wide			
TVOC	VDC	Benzene	Vinyl Chloride
593.1	**387.1**	**72.4**	**91.0**

TVOC - total volatile organic compounds
VDC - 1,1-dichloroethene or vinylidene chloride
* Year 2017 covers the ten-month time period from January 2017 through October 2017. Previous years cover 12-month time periods from January through December.

Table 5-7. Landfill Area Extraction Well Maintenance

	MLF	SELF-1	SELF-2	SWLF-2	WLF
Flow Meter Cleaning	3/22/2017 5/10/2017 8/10/2017 9/29/2017 10/13/2017	3/22/2017 5/10/2017 8/10/2017	3/22/2017 5/10/2017 8/10/2017	3/22/2017 5/10/2017 8/10/2017	2/20/2017 3/1/2017 3/22/2017 5/10/2017 8/10/2017 9/29/2017 10/13/2017
Replaced Flow Meter	-	-	-	-	-
Pump Repaired or Replaced	-	8/17/17	-	-	-
Redevelopment & Pump Cleaning	-	-	1/4/17	-	5/10/17

FIGURES

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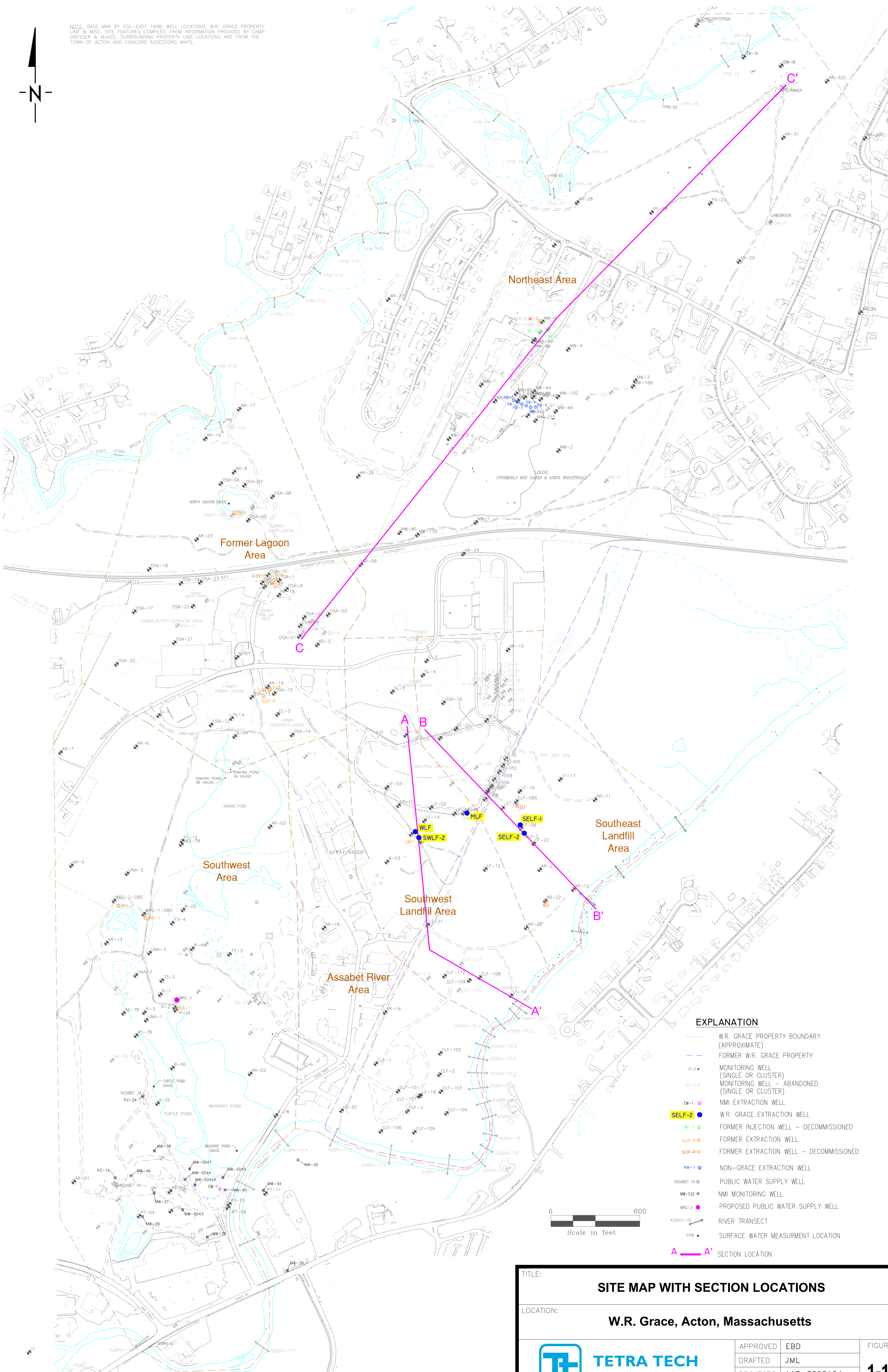

EXPLANATION

- W.R. GRACE PROPERTY BOUNDARY (APPROXIMATE)
- FORMER W.R. GRACE PROPERTY
- R-2 — MONITORING WELL (SINGLE OR CLUSTER)
- MONITORING WELL – ABANDONED (SINGLE OR CLUSTER)
- EW-1 — NMI EXTRACTION WELL
- SELF-2 — W.R. GRACE EXTRACTION WELL
- RE-1 — FORMER INJECTION WELL – DECOMMISSIONED
- SLGP-R — FORMER EXTRACTION WELL
- SLGP-R — FORMER EXTRACTION WELL – DECOMMISSIONED
- RW-1 — NON-GRACE EXTRACTION WELL
- ASSABET 1A — PUBLIC WATER SUPPLY WELL
- MW-532 — NMI MONITORING WELL
- WRG-3 — PROPOSED PUBLIC WATER SUPPLY WELL
- ASBRV-T6 — RIVER TRANSECT
- FPB — SURFACE WATER MEASURMENT LOCATION
- A — A' SECTION LOCATION

TITLE:	SITE MAP WITH SECTION LOCATIONS
LOCATION:	W.R. Grace, Acton, Massachusetts

TETRA TECH

APPROVED	EBD	FIGURE
DRAFTED	JML	1-1
PROJECT#	117-3008104	
DATE	DEC 2017	

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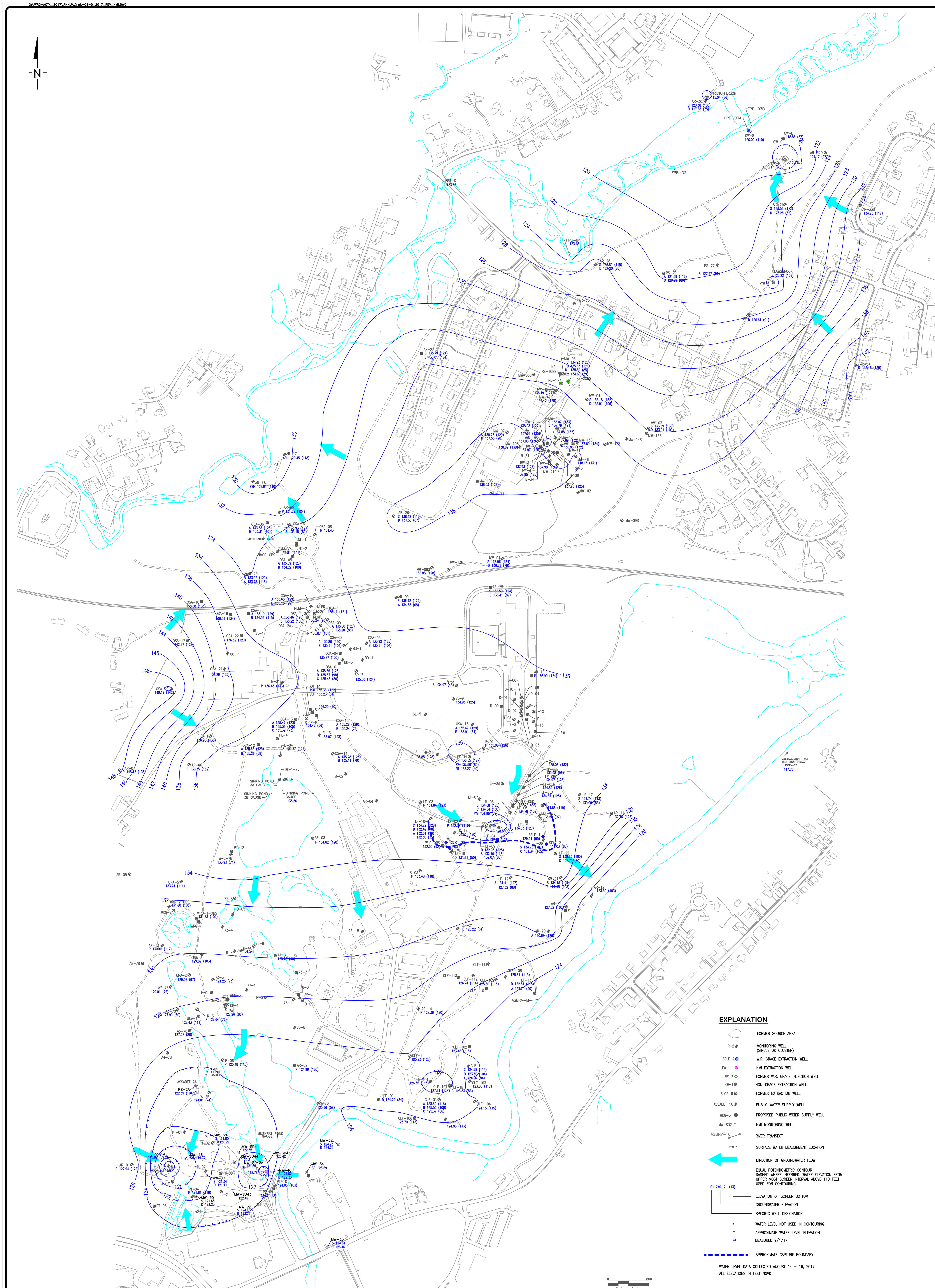


NOTE: BASE MAP BY COL-EAST 1998. WELL LOCATIONS, W.R. GRACE PROPERTY LINE & MISC. SITE FEATURES COMPILED FROM INFORMATION PROVIDED BY CAMP DRESSER & McKEE. SURROUNDING PROPERTY LINE LOCATIONS ARE FROM THE TOWN OF ACTON AND CONCORD ASSESSORS MAPS.

TITLE:

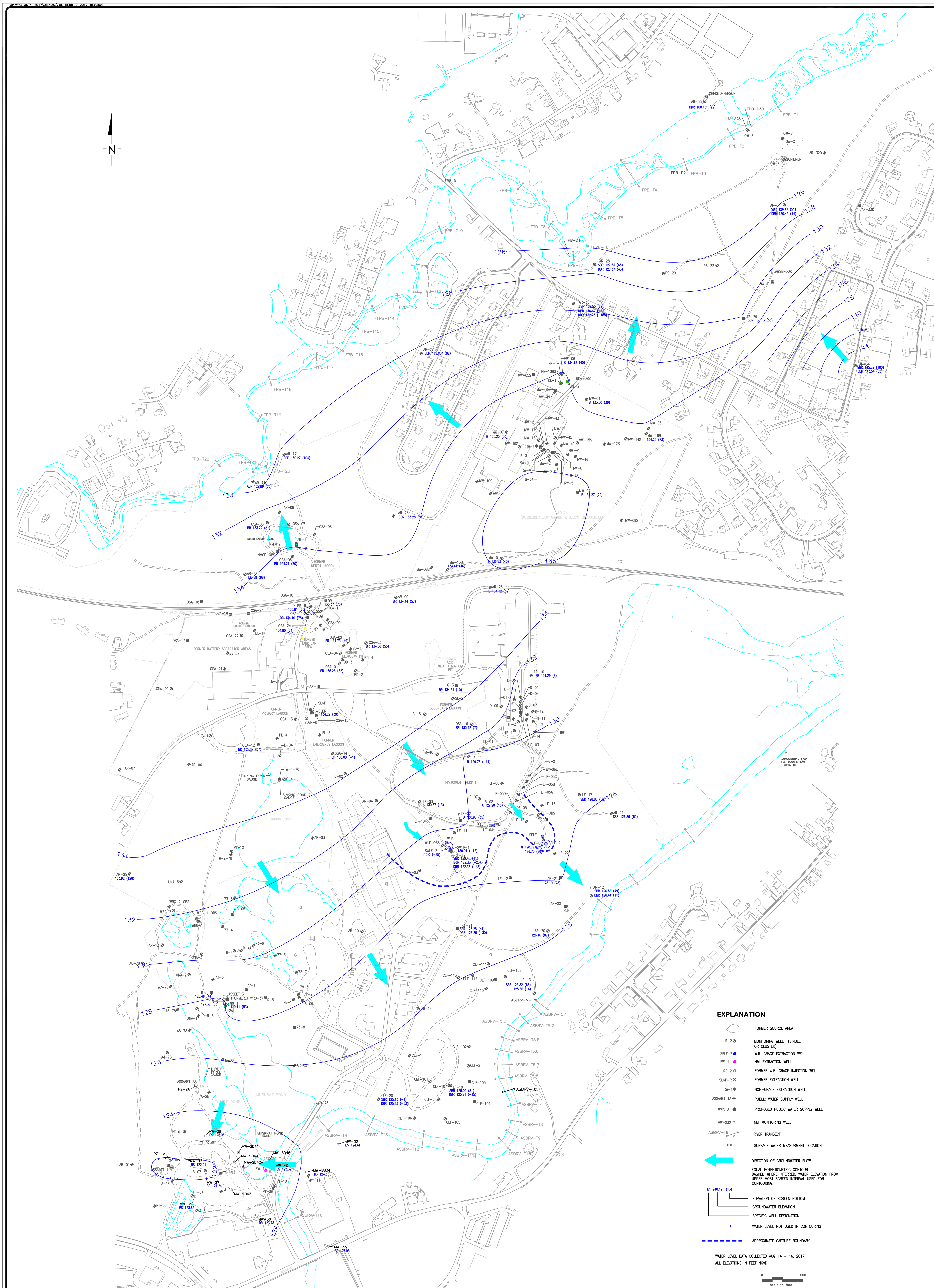
SHALLOW UNCONSOLIDATED DEPOSITS POTENTIOMETRIC CONTOUR MAP, AUGUST 2017

LOCATION:

W.R. Grace, Acton, Massachusetts

TETRA TECH

APPROVED	EBD	FIGURE
DRAFTED	JML	2-1
PROJECT#	117-3008104	
DATE	DEC 2017	



NOTE: BASE MAP BY COL–EAST 1998. WELL LOCATIONS, W.R. GRACE PROPERTY LINE & MISC. SITE FEATURES COMPILED FROM INFORMATION PROVIDED BY CAMP DRESSER & McKEE. SURROUNDING PROPERTY LINE LOCATIONS ARE FROM THE TOWN OF ACTON AND CONCORD ASSESSORS MAPS.

TITLE:	BEDROCK POTENTIOMETRIC CONTOUR MAP, AUGUST 2017			
LOCATION:	W.R. Grace, Acton, MA.			
TETRA TECH	APPROVED	EBD	FIGURE	
	DRAFTED	JML	2-2	
	PROJECT#	117–3008104		
	DATE	DEC 2017		

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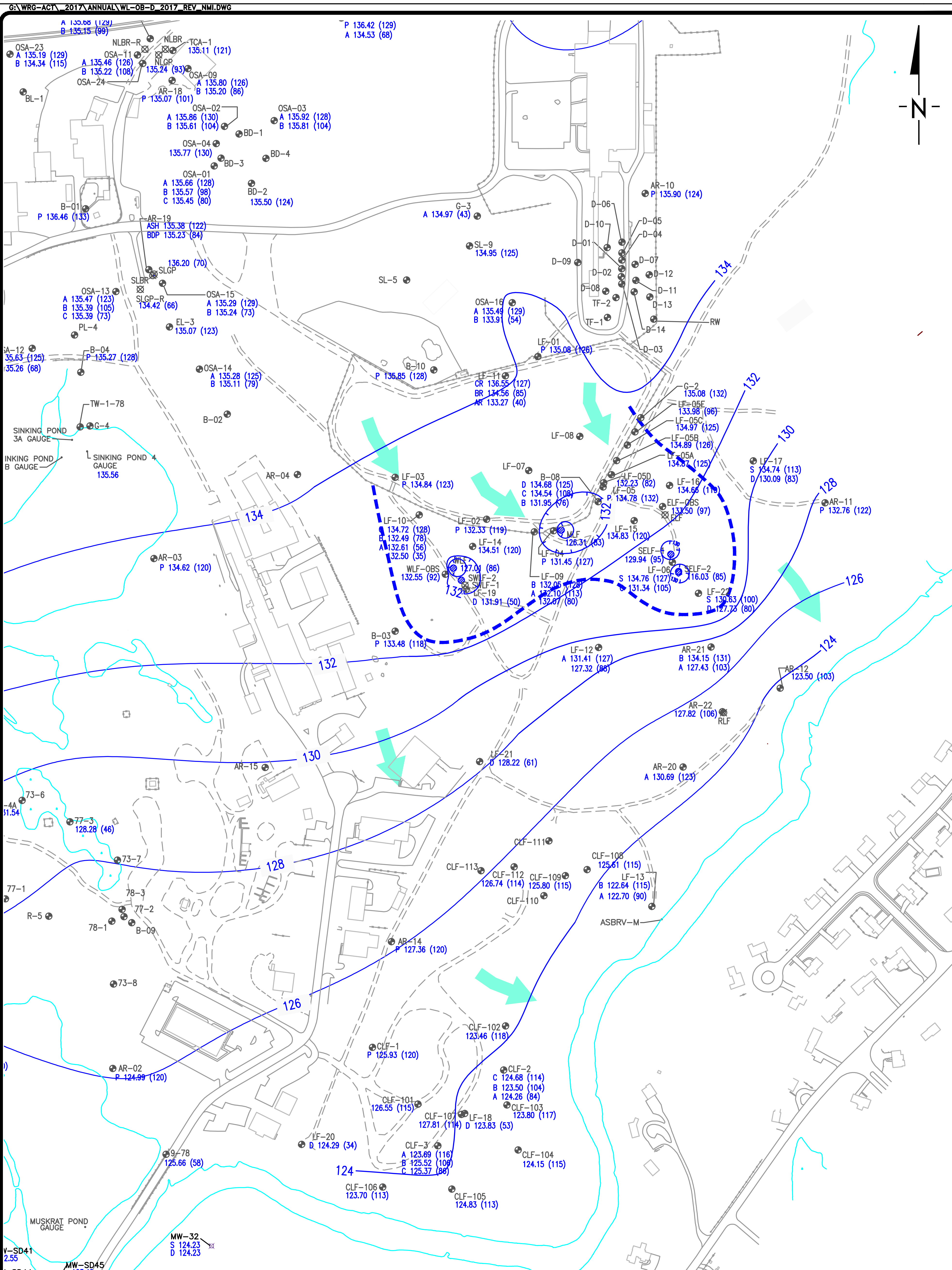


EXPLANATION

	FORMER SOURCE AREA
R-2	MONITORING WELL (SINGLE OR CLUSTER)
MW-S32	NMI MONITORING WELL
SELF-2	W.R. GRACE EXTRACTION WELL
SLGP-R	FORMER EXTRACTION WELL
ASBRV-T6	RIVER TRANSECT
FPB •	SURFACE WATER MEASURMENT LOCATION

EQUAL POTENTIOMETRIC CONTOUR DASHED WHERE INFERRED. WATER ELEVATION FROM WELLS WITH SCREEN BOTTOM ≤ 105'

B1 240.12 (13)
ELEVATION OF SCREEN BOTTOM
GROUNDWATER ELEVATION
SPECIFIC WELL DESIGNATION

* WATER LEVEL NOT USED IN CONTOURING

APPROXIMATE CAPTURE BOUNDARY

DIRECTION OF GROUNDWATER FLOW

WATER LEVEL DATA COLLECTED AUG 14 – 16, 2017
ALL ELEVATIONS IN FEET NGVD

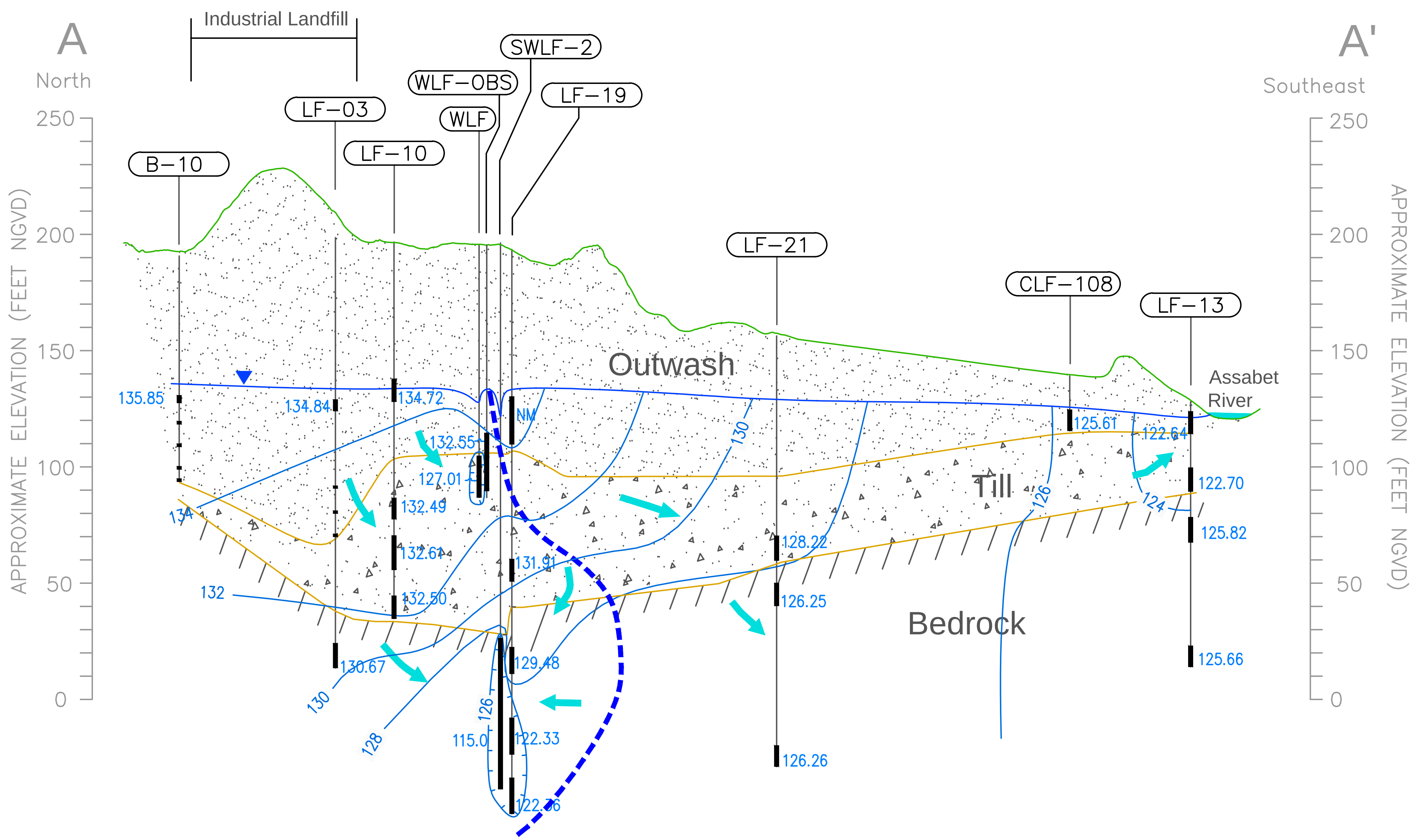
0 300
Scale in feet

TITLE: **DEEP UNCONSOLIDATED DEPOSITS POTENTIOMETRIC CONTOUR MAP, LANDFILL AREA, AUGUST 2017**

LOCATION: **W.R Grace, Acton, Massachusetts**

TETRA TECH

APPROVED	EBD	FIGURE
DRAFTED	JML	2-3
PROJECT#	117-3008104	
DATE	DEC 2017	



Explanation

WELL OR WELL CLUSTER DESIGNATION — AR-32D

GROUND SURFACE

WATER TABLE

GEOLOGIC CONTACT

MONITORING WELL

134 — POTENTIOMETRIC CONTOUR

OPEN INTERVAL

132.0 — GROUNDWATER ELEVATION

DIRECTION OF GROUNDWATER FLOW

APPROXIMATE CAPTURE BOUNDARY

* WATER LEVEL NOT USED IN CONTOURING

WATER LEVEL DATA COLLECTED AUGUST 14–16, 2017

ALL ELEVATIONS IN FEET NGVD

Vertical Scale: 0 – 60

Horizontal Scale: 0 – 300

Scale in Feet

Vertical Exaggeration 5X

TITLE:	POTENTIOMETRIC SECTION A-A', AUGUST 2017
LOCATION:	W.R. Grace, Acton, Massachusetts

TETRA TECH

APPROVED	EBD	FIGURE
DRAFTED	JML	2-4
PROJECT#	117–3008104	
DATE	NOV 2017	

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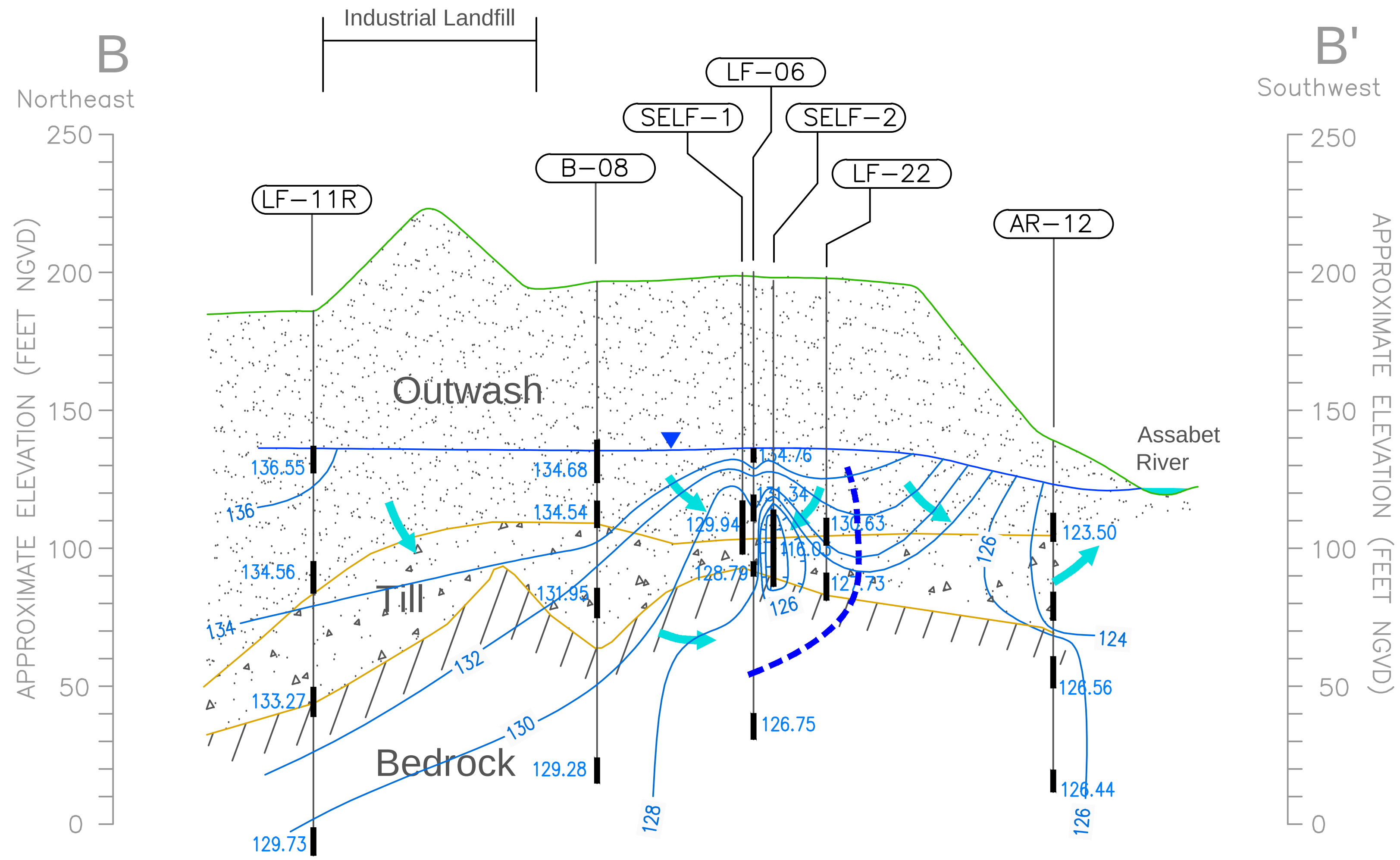

Explanation

WELL OR WELL CLUSTER DESIGNATION — AR–32D

GROUND SURFACE

WATER TABLE

GEOLOGIC CONTACT

WELL SHAFT

134 — POTENTIOMETRIC CONTOUR

OPEN INTERVAL

132.0 — GROUNDWATER ELEVATION

DIRECTION OF GROUNDWATER FLOW

APPROXIMATE CAPTURE BOUNDARY

* WATER LEVEL NOT USED IN CONTOURING

WATER LEVEL DATA COLLECTED AUGUST 14–16, 2017

ALL ELEVATIONS IN FEET NGVD

60 Vertical Scale 0

Horizontal Scale 0 300

Scale in Feet

Vertical Exaggeration 5X

TITLE:	POTENTIOMETRIC SECTION B-B', AUGUST 2017
LOCATION:	W.R. Grace, Acton, Massachusetts

TETRA TECH

APPROVED	EBD	FIGURE
DRAFTED	JML	2-5
PROJECT#	117–3008104	
DATE	NOV 2017	

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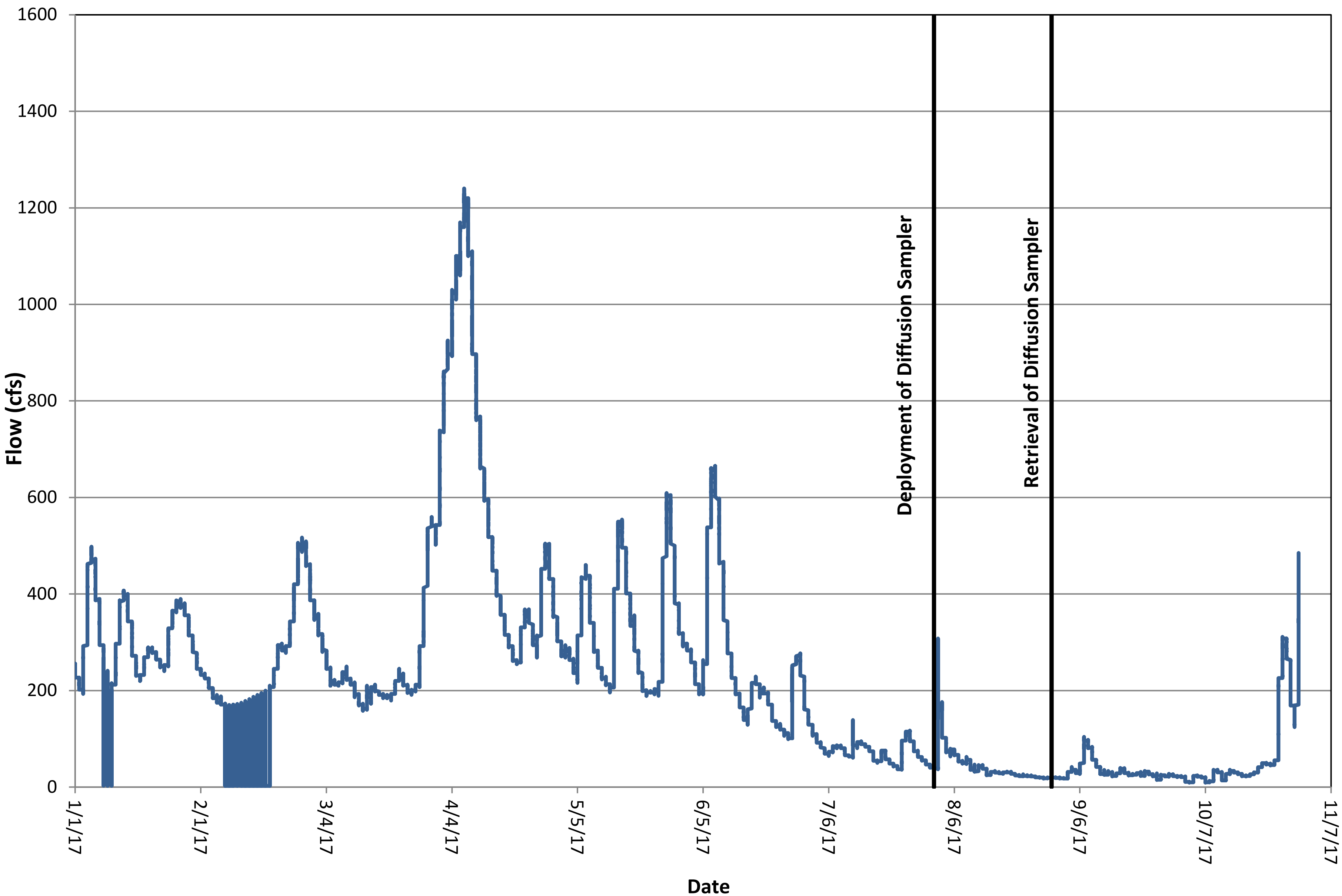

Figure 3-1. Assabet River Daily Average Flow, 2017

M:\DOCs\WRGrace\Acton\2017\ActonAnnualReport\Figure_3-1_AssabetGauge.xlsx2017 Chart

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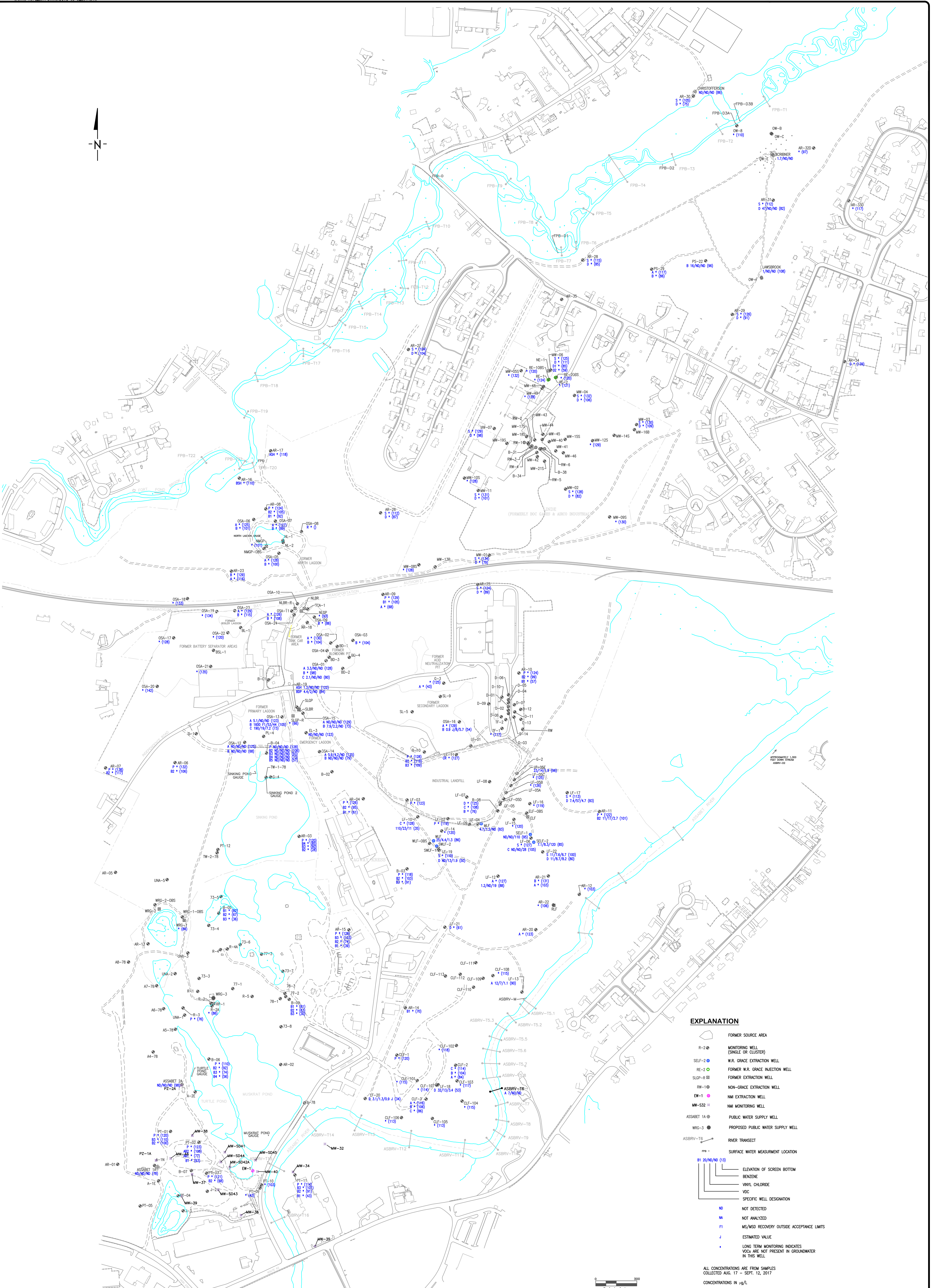
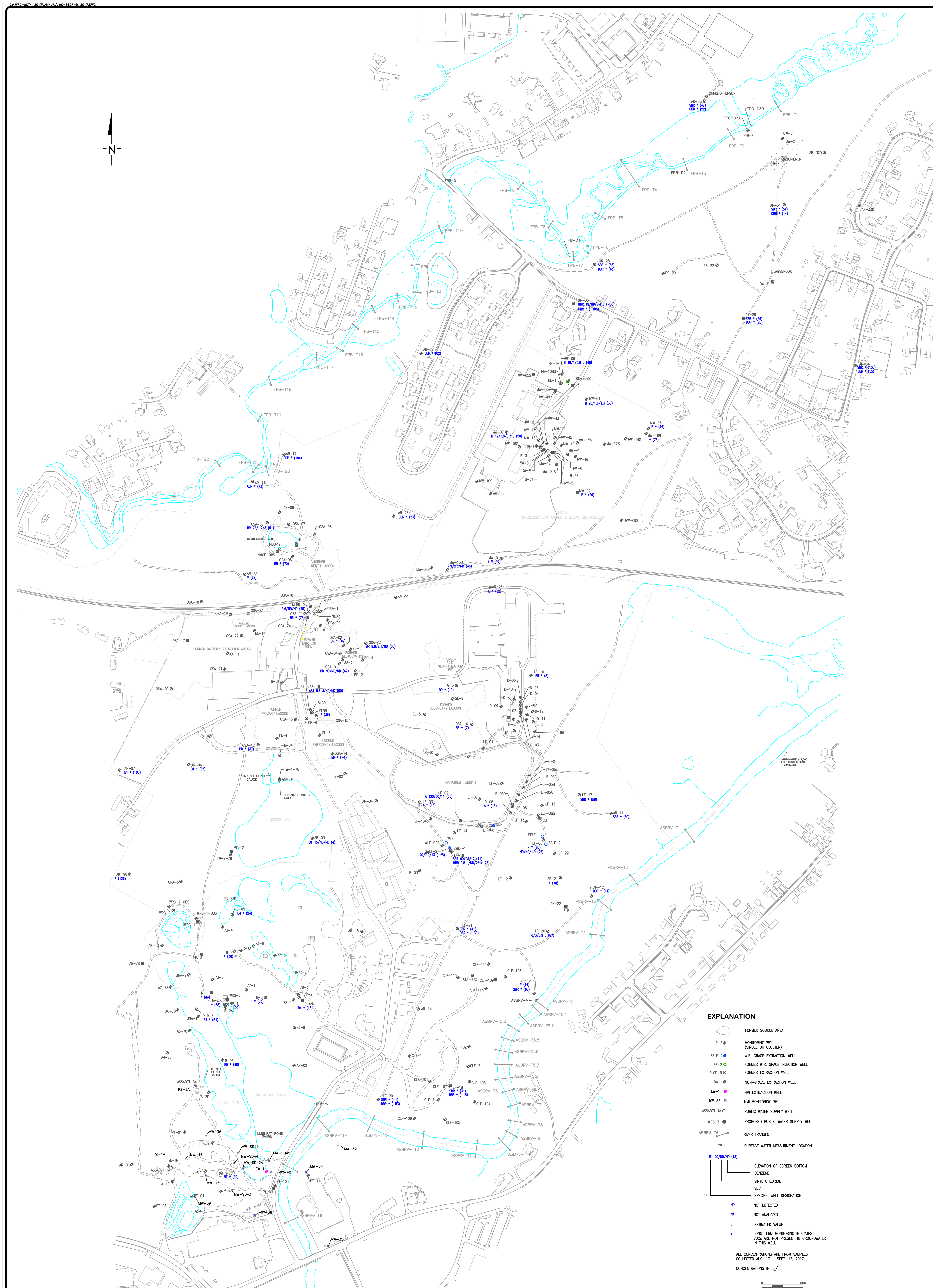


TITLE:	VDC, VINYL CHLORIDE & BENZENE CONCENTRATIONS IN UNCONSOLIDATED DEPOSITS, 2017
LOCATION:	W.R. Grace, Acton, Massachusetts

TETRA TECH			FIGURE
	APPROVED	EBD	3-2
	DRAFTED	JML	
	PROJECT#	117-3008104	
	DATE	NOV 2017	



TITLE: **VDC, VINYL CHLORIDE & BENZENE CONCENTRATIONS IN BEDROCK, 2017**

LOCATION: **W.R. Grace, Acton, MA.**

TETRA TECH

APPROVED	EBD	FIGURE
DRAFTED	JML	3-3
PROJECT#	117–3008104	
DATE	NOV 2017	

G:\WRG-ACT_2017\ANNUAL\FALL17-VDC-B.DWG

NOTE: BASE MAP BY COL-EAST 1998. WELL LOCATIONS, W.R. GRACE PROPERTY LINE & MISC. SITE FEATURES COMPILED FROM INFORMATION PROVIDED BY CAMP DRESSER & McKEE. SURROUNDING PROPERTY LINE LOCATIONS ARE FROM THE TOWN OF ACTON AND CONCORD ASSESSORS MAPS.

EXPLANATION

- W.R. GRACE PROPERTY BOUNDARY (APPROXIMATE)
- MONITORING WELL (SINGLE OR CLUSTER)
- WR GRACE EXTRACTION WELL
- FORMER INJECTION WELL
- FORMER EXTRACTION WELL
- NON-GRACE RECOVERY WELL
- PUBLIC WATER SUPPLY WELL
- PROPOSED PUBLIC WATER SUPPLY WELL
- RIVER TRANSECT

VDC CONCENTRATION 2017

- >200–1600 ug/L VDC
- >100–200 ug/L VDC
- >60–100 ug/L VDC
- >30–60 ug/L VDC
- >7–30 ug/L VDC

- ROD CAPTURE BOUNDARY
- COMPOSITE CAPTURE BOUNDARY

0 600
Scale in feet

SAMPLES COLLECTED BETWEEN AUG. 17 AND SEPT. 12, 2017

VDC CONCENTRATIONS SHOWN ARE MAXIMUM REGARDLESS OF DEPTH. CONCENTRATION BOUNDARIES ARE APPROXIMATE.

VDC = VINYLIDENE CHLORIDE = 1,1-DICHLOROETHENE

TITLE:

DISTRIBUTION OF VDC IN GROUNDWATER, 2017

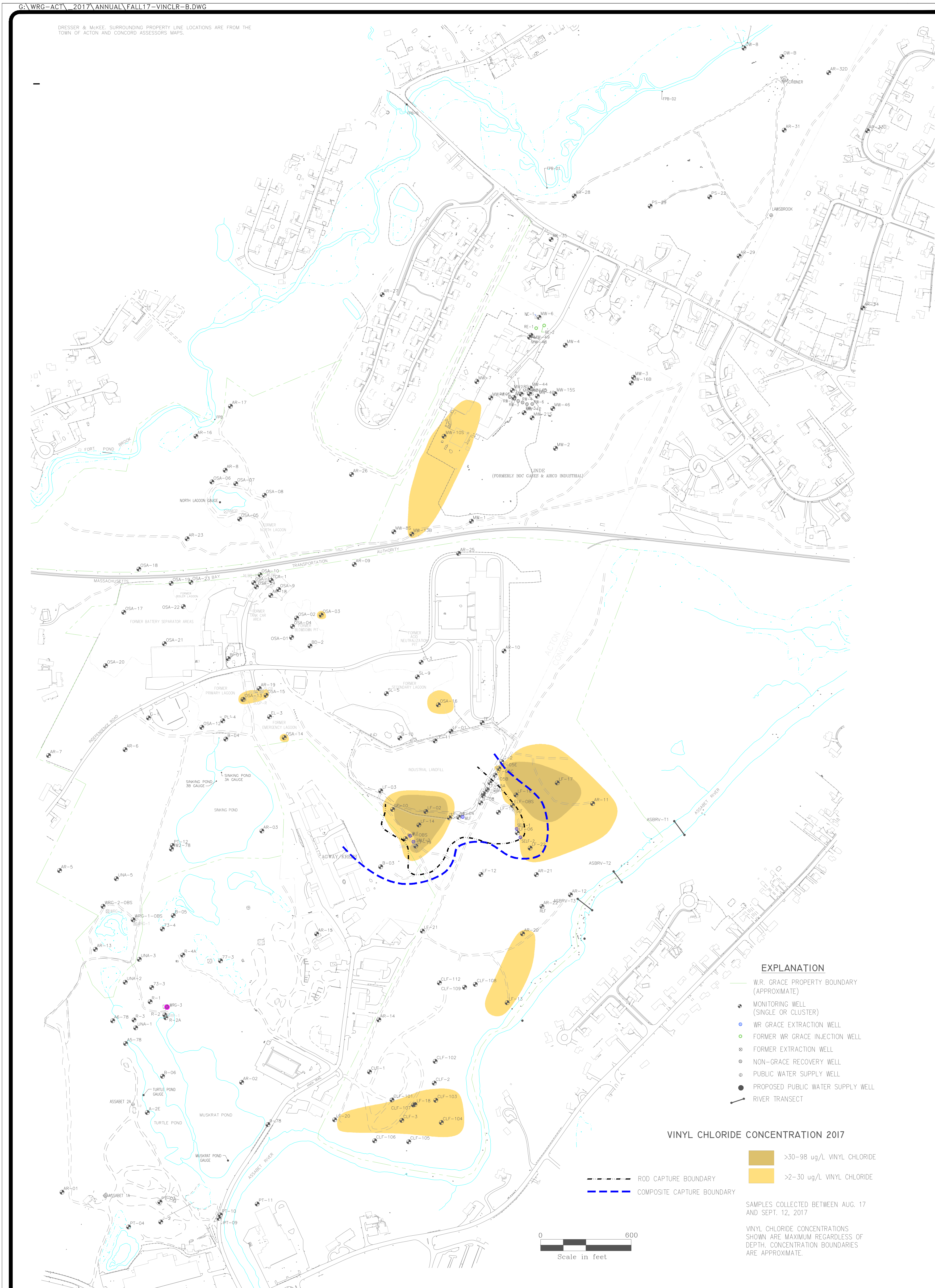
LOCATION:

W.R. Grace, Acton, MA.

TETRA TECH

APPROVED	EBD	FIGURE
DRAFTED	JML	3-4
PROJECT#	117-3008104	
DATE	NOV 2017	

G:\WRG-ACT_2017\ANNUAL\FALL17-VINCLR-B.DWG



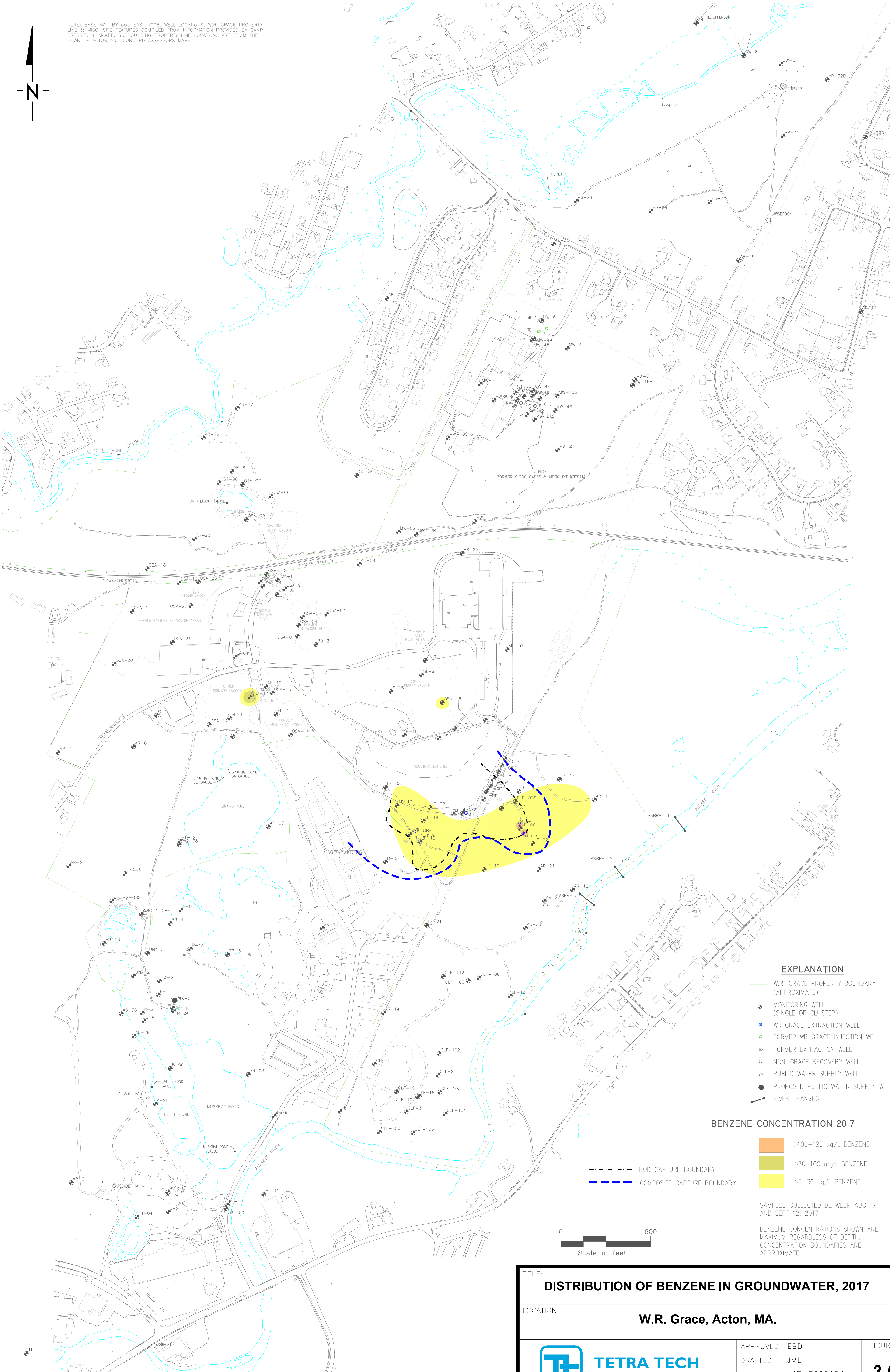
TITLE:
DISTRIBUTION OF VINYL CHLORIDE IN GROUNDWATER, 2017

LOCATION:
W.R. Grace, Acton, MA.

TETRA TECH

APPROVED	EBD	FIGURE
DRAFTED	JML	
PROJECT#	117-3008104	3-5
DATE	NOV 2017	

G:\WRG-ACT_2017\FALL17-BENZ-B.DWG



TITLE:

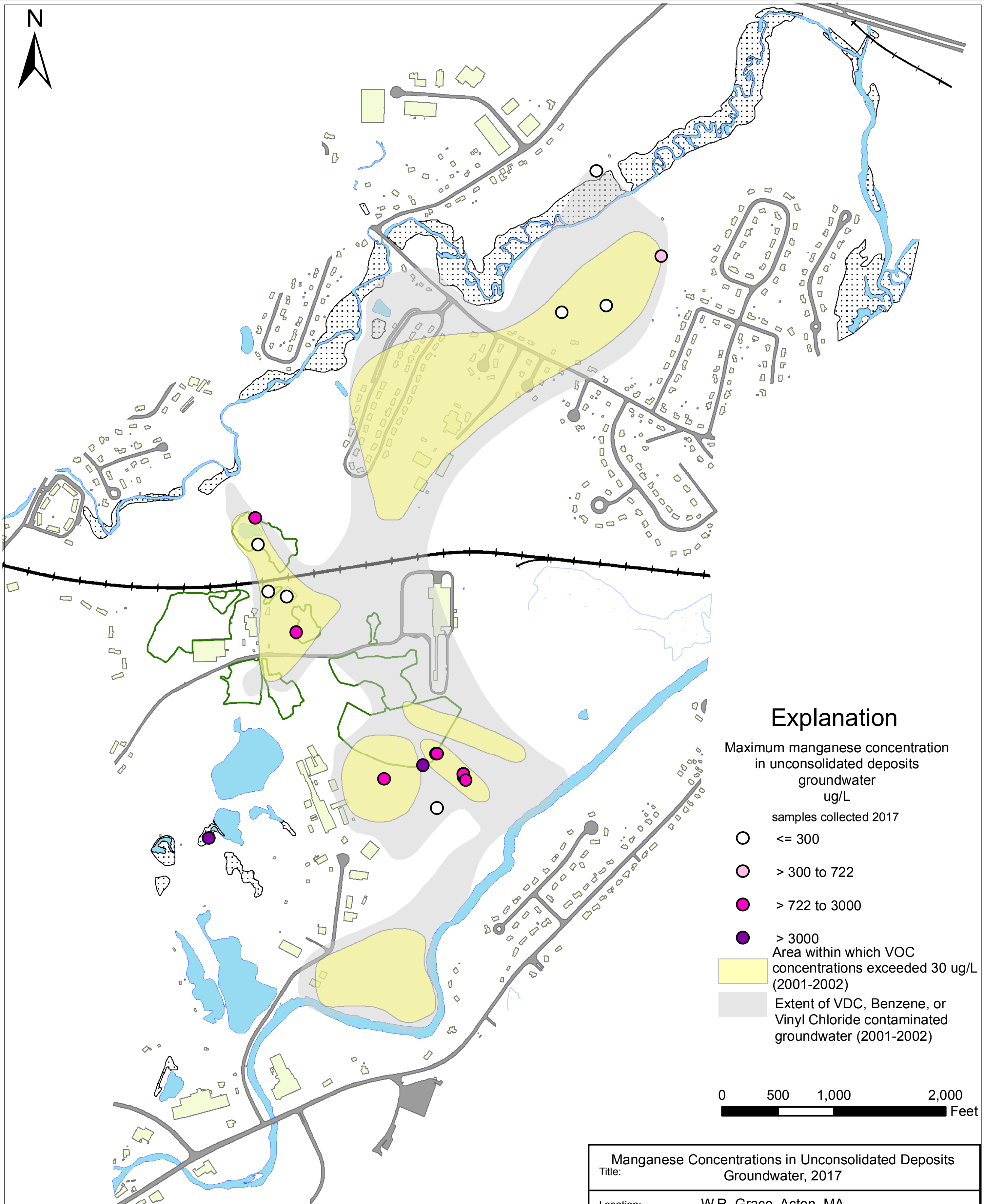
DISTRIBUTION OF BENZENE IN GROUNDWATER, 2017

LOCATION:

W.R. Grace, Acton, MA.

TETRA TECH

APPROVED	EBD	FIGURE
DRAFTED	JML	
PROJECT#	117-3008104	3-6
DATE	NOV 2017	



Title: Manganese Concentrations in Unconsolidated Deposits Groundwater, 2017

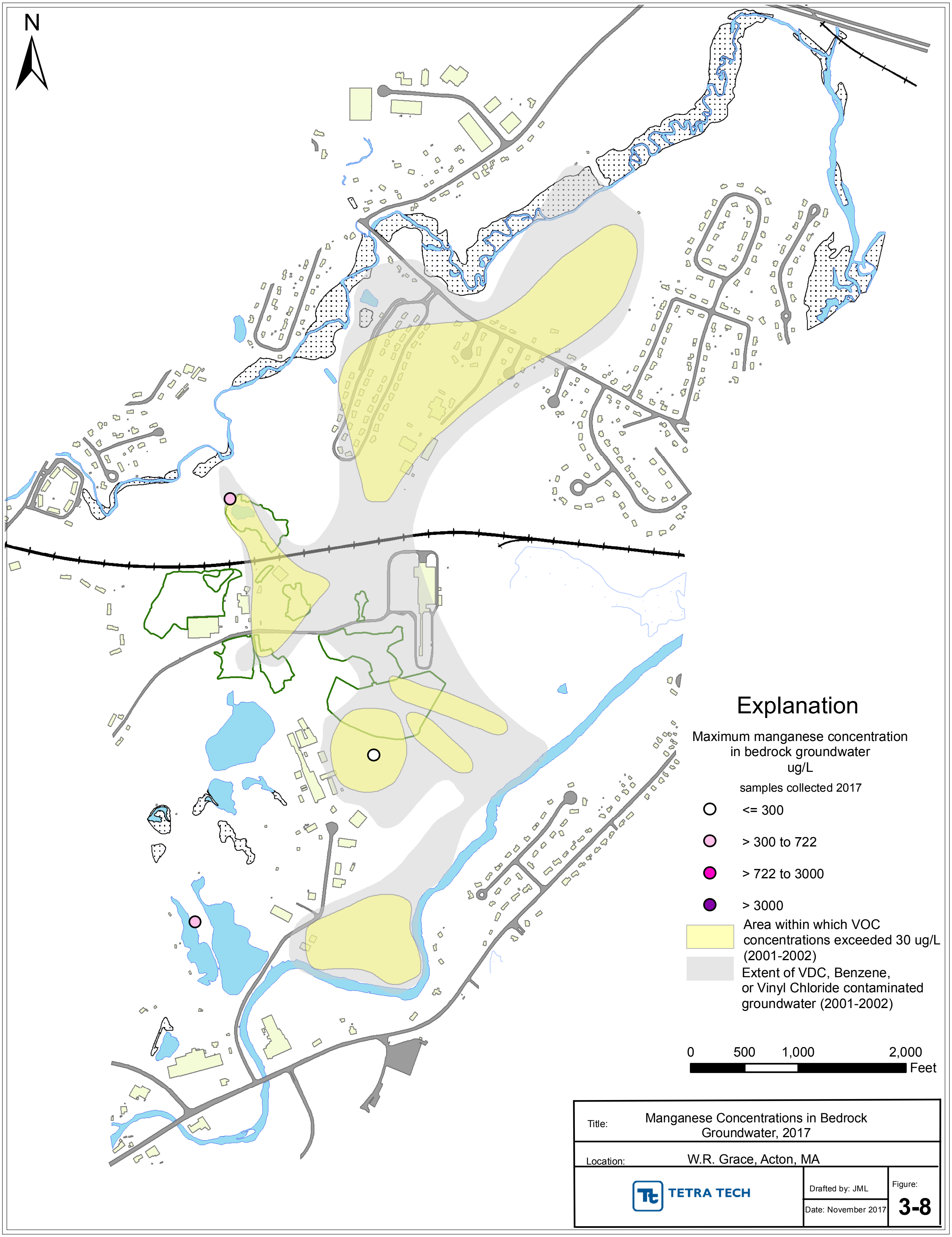
Location: W.R. Grace, Acton, MA

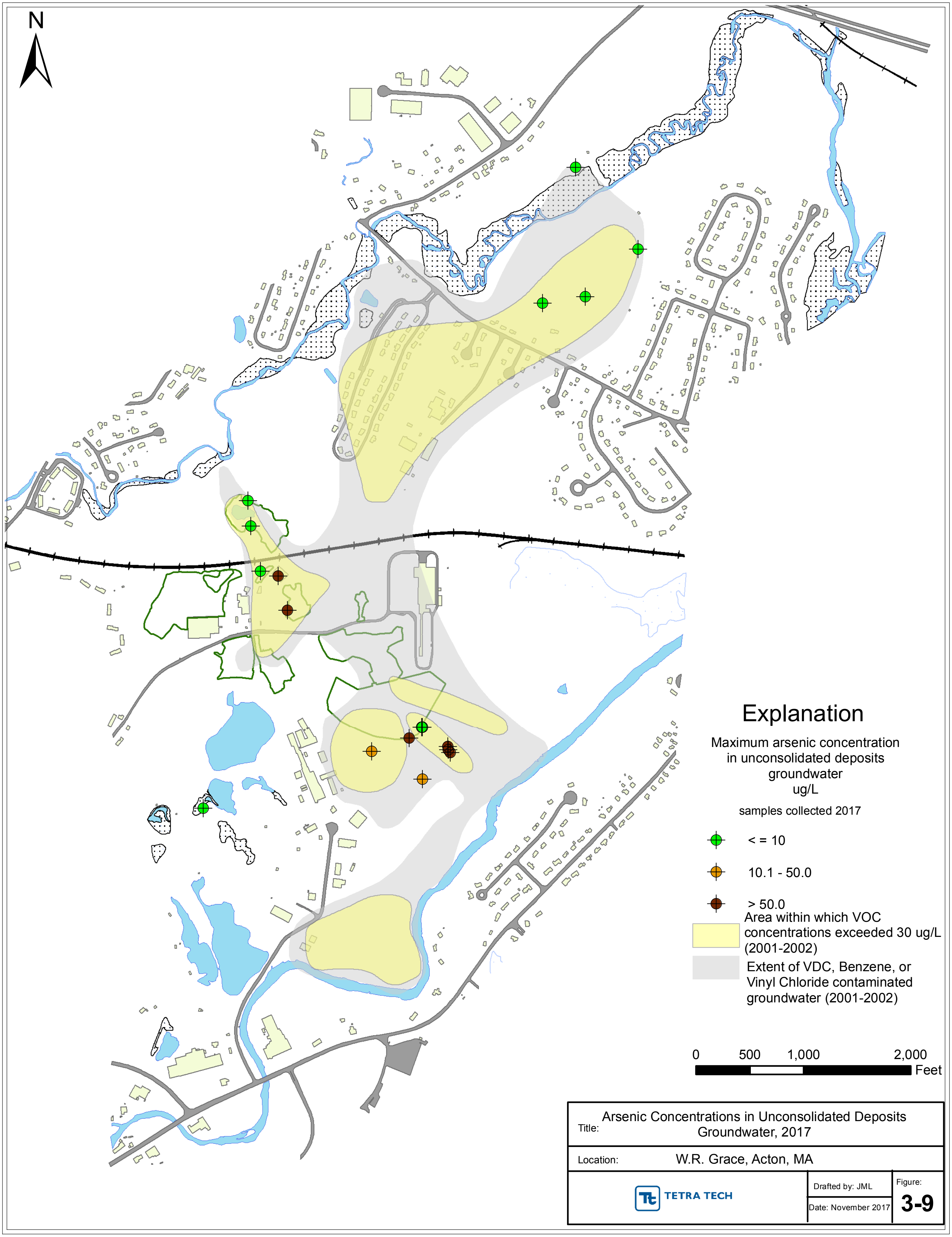
TETRA TECH

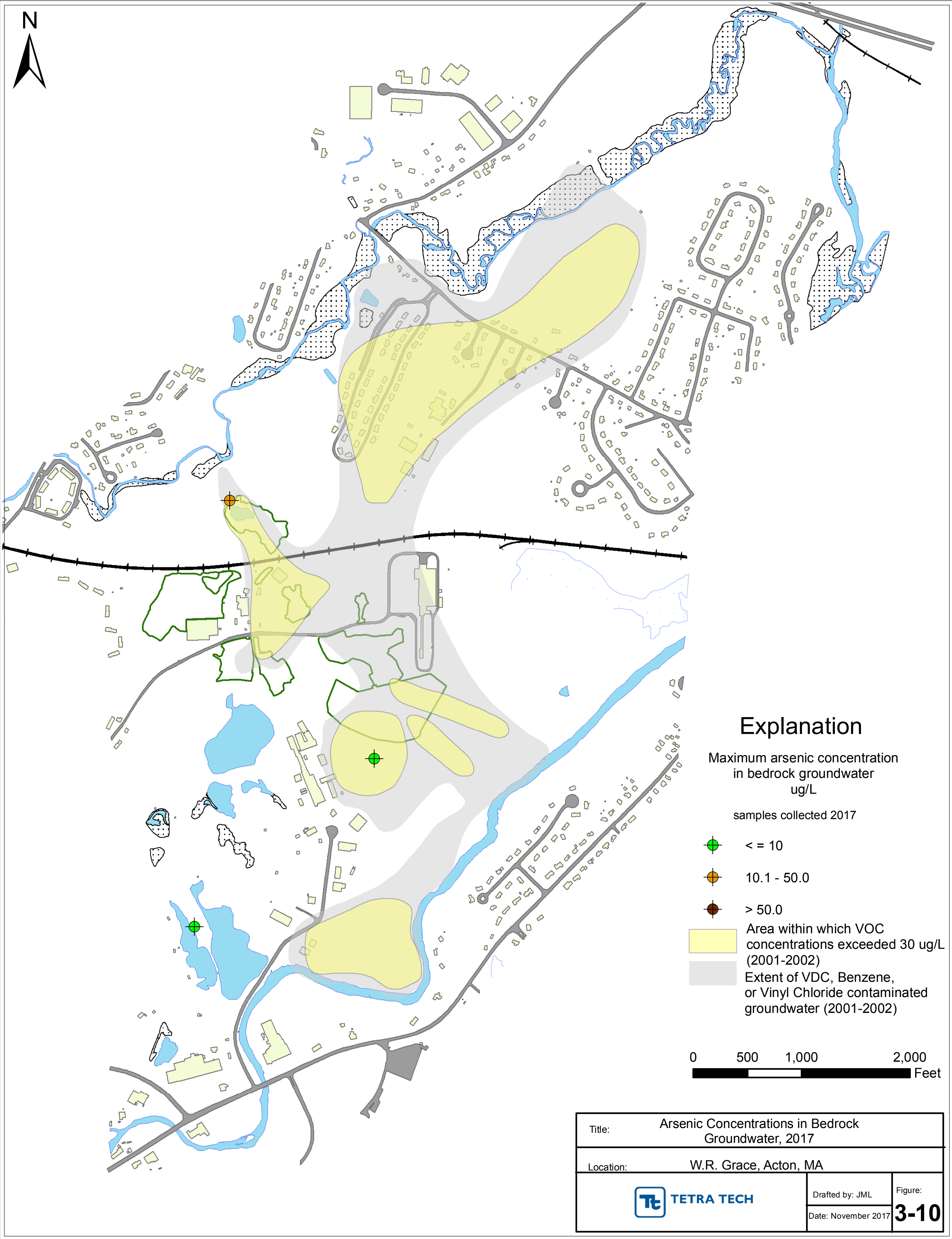
Drafted by: JML

Date: November 2017

Figure: 3-7

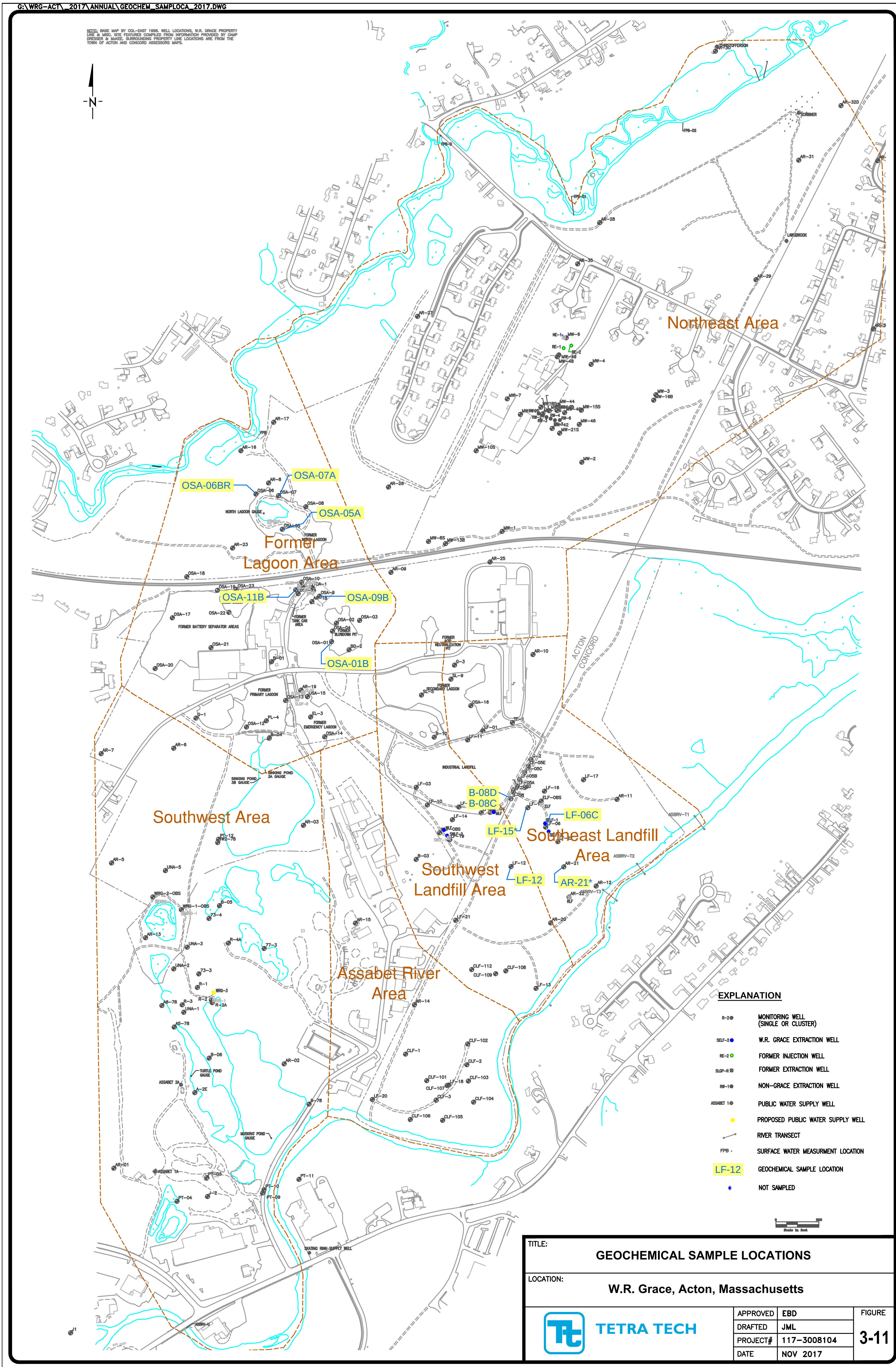

N
Explanation
Maximum manganese concentration
in bedrock groundwater
ug/L
samples collected 2017
<= 300
> 300 to 722
> 722 to 3000
> 3000
Area within which VOC concentrations exceeded 30 ug/L (2001-2002)
Extent of VDC, Benzene, or Vinyl Chloride contaminated groundwater (2001-2002)
0
500
1,000
2,000
Feet
Title: Manganese Concentrations in Bedrock Groundwater, 2017
Location: W.R. Grace, Acton, MA
TETRA TECH
Drafted by: JML
Date: November 2017
Figure: 3-8


N
Explanation
Maximum arsenic concentration in unconsolidated deposits groundwater ug/L
samples collected 2017
< = 10
10.1 - 50.0
> 50.0
Area within which VOC concentrations exceeded 30 ug/L (2001-2002)
Extent of VDC, Benzene, or Vinyl Chloride contaminated groundwater (2001-2002)
0
500
1,000
2,000
Feet
Title: Arsenic Concentrations in Unconsolidated Deposits Groundwater, 2017
Location: W.R. Grace, Acton, MA
TETRA TECH
Drafted by: JML
Date: November 2017
Figure: 3-9



Title:	Arsenic Concentrations in Bedrock Groundwater, 2017
Location:	W.R. Grace, Acton, MA
TETRA TECH	Drafted by: JML Date: November 2017
Figure:	3-10

G:\WRG-ACT_2017\ANNUAL\GEOCHEM_SAMPLOCA_2017.DWG



TITLE: GEOCHEMICAL SAMPLE LOCATIONS

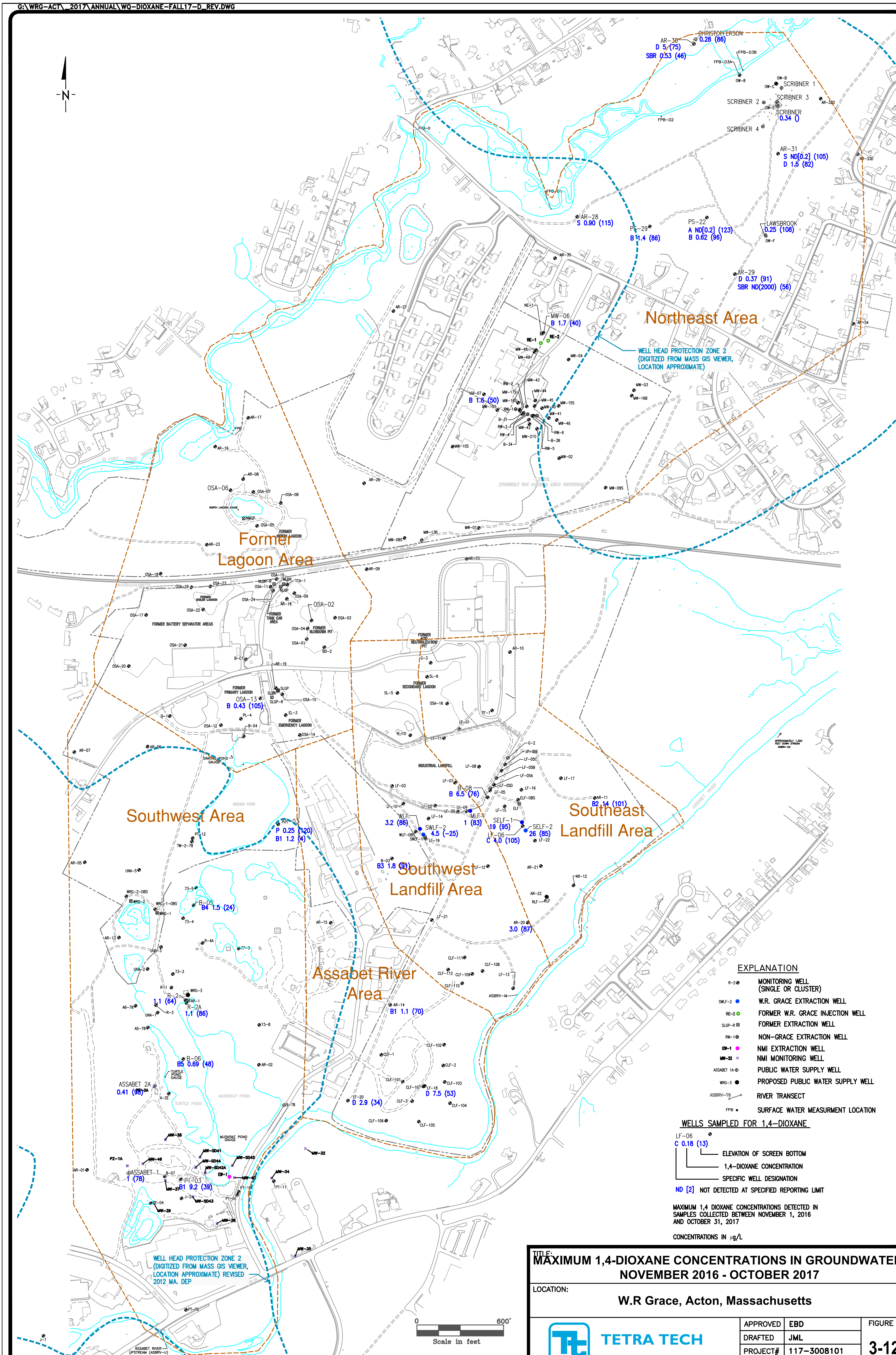
LOCATION: W.R. Grace, Acton, Massachusetts

TETRA TECH

APPROVED	EBD
DRAFTED	JML
PROJECT#	117-3008104
DATE	NOV 2017

FIGURE 3-11

G:\WRG-ACT_2017\ANNUAL\WQ-DIOXANE-FALL17-D_REV.DWG

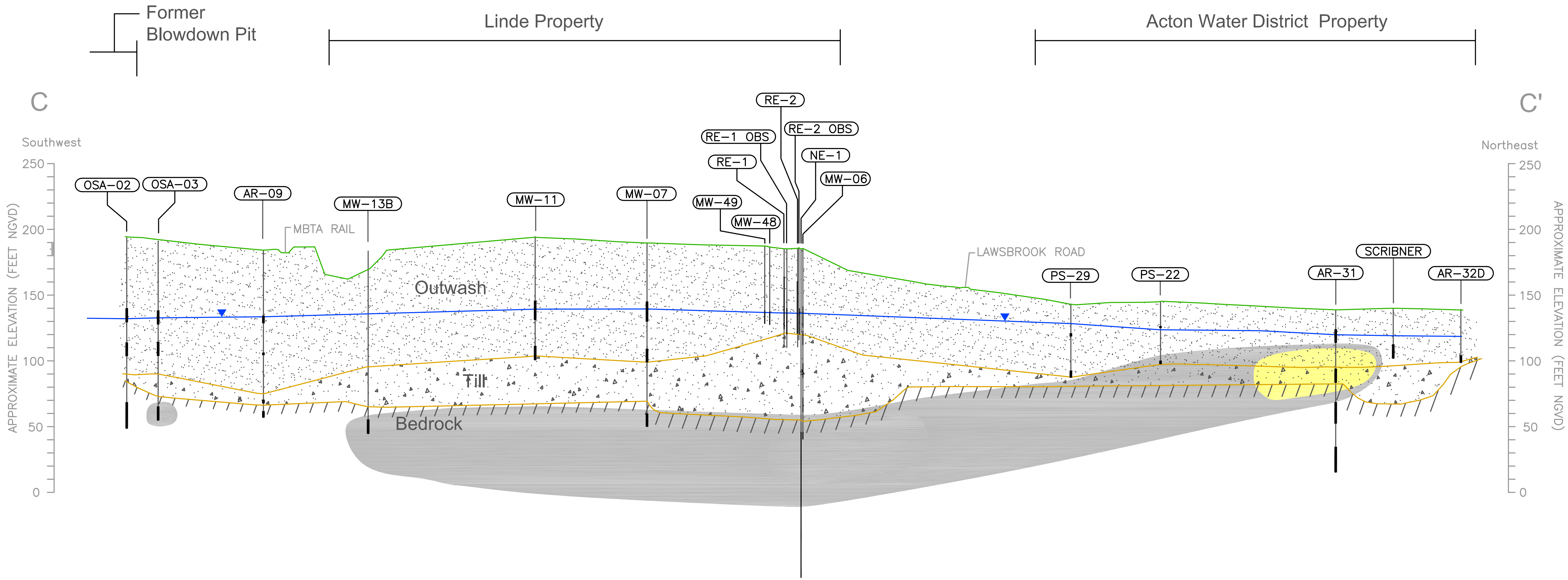


TITLE:
MAXIMUM 1,4-DIOXANE CONCENTRATIONS IN GROUNDWATER
NOVEMBER 2016 - OCTOBER 2017

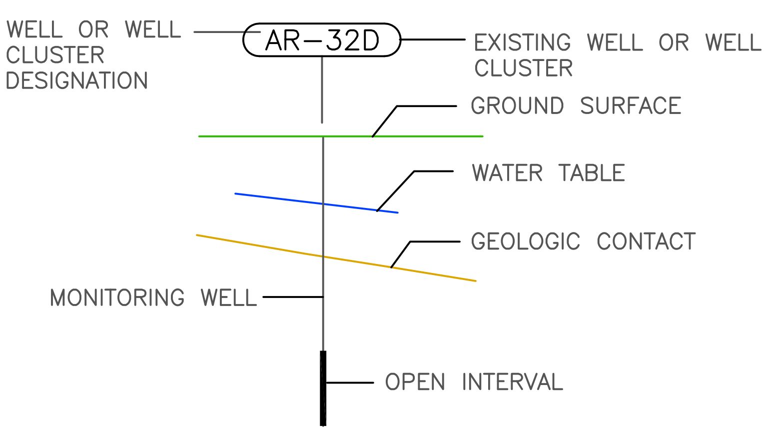
LOCATION:
W.R Grace, Acton, Massachusetts

TETRA TECH

APPROVED	EBD	FIGURE
DRAFTED	JML	
PROJECT#	117-3008101	3-12
DATE	NOV 2017	



Explanation



VDC CONCENTRATION 2017

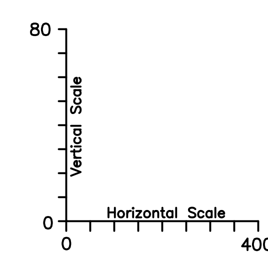
- >30–47 ug/L VDC
- >7–30 ug/L VDC

SAMPLES COLLECTED BETWEEN AUG 17, – SEPT. 12, 2017

CONCENTRATION BOUNDARIES ARE APPROXIMATE.

VDC = VINYLIDENE CHLORIDE = 1.1–DICHLOROETHENE

NOTE: ALL ELEVATIONS IN FEET NGVD



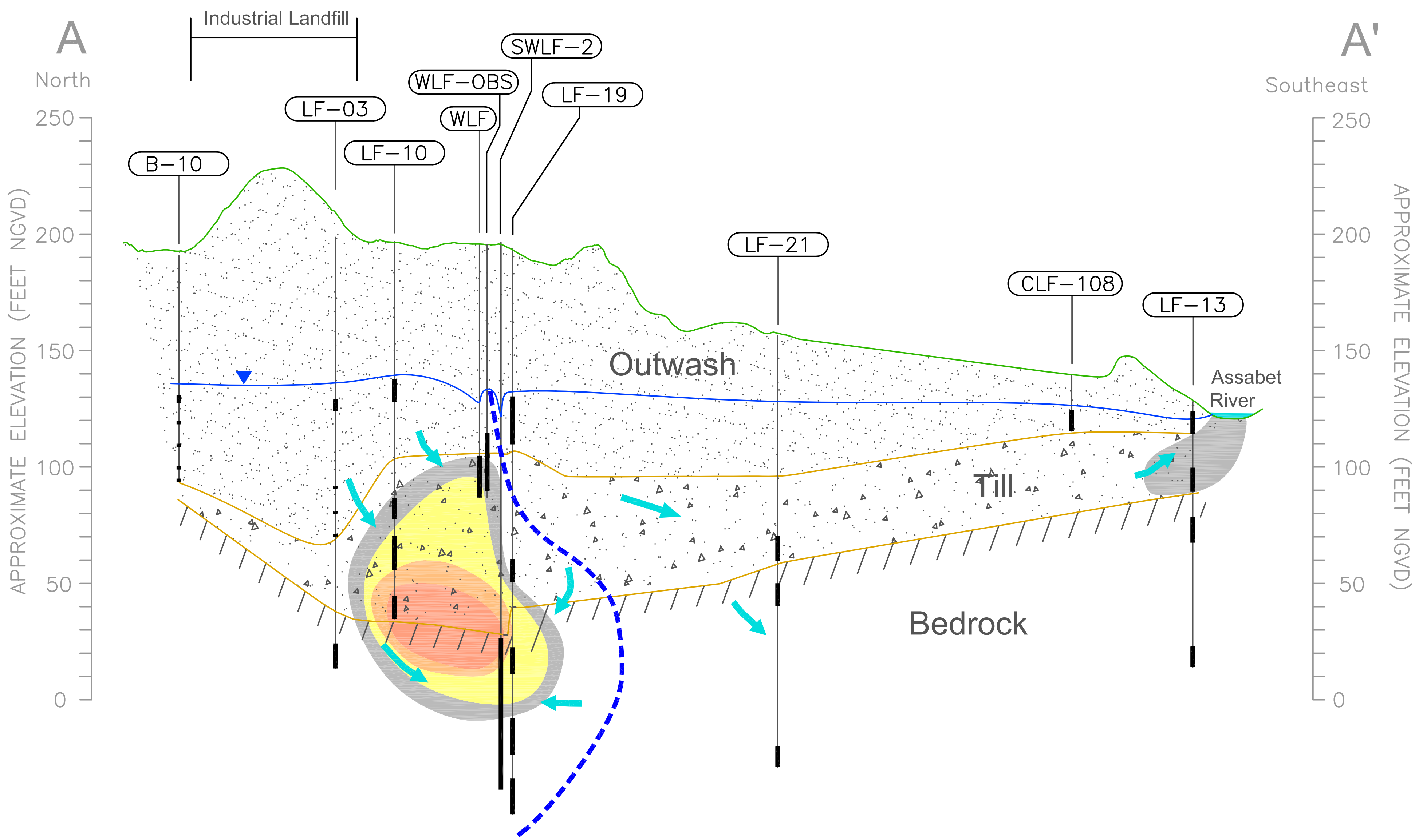
Scale in Feet
Vertical Exaggeration 5X

TITLE:	2017 VDC CONCENTRATIONS, SECTION C-C'
LOCATION:	W.R. Grace, Acton, Massachusetts

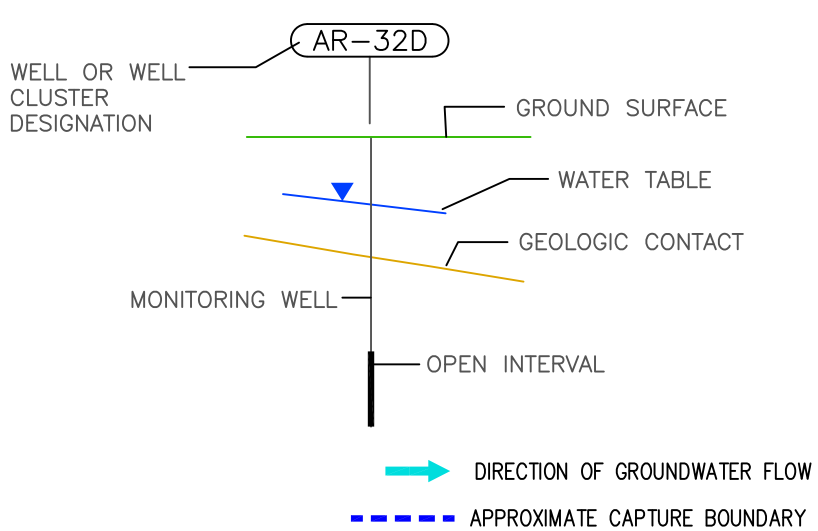
TETRA TECH

APPROVED	EBD	FIGURE
DRAFTED	JML	4-1
PROJECT#	117-3008104	
DATE	NOV 2017	

G:\WRG-ACT_2017 ANNUAL SECTIONS_2017.DWG



Explanation



VDC CONCENTRATION 2017

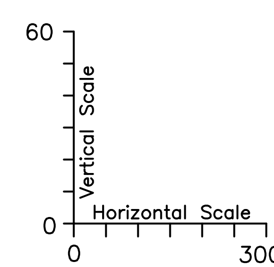
- >100-110 ug/L VDC
- >60-100 ug/L VDC
- >30-60 ug/L VDC
- >7-30 ug/L VDC

SAMPLES COLLECTED BETWEEN AUG. 17 AND SEPT. 12 2017

CONCENTRATION BOUNDARIES ARE APPROXIMATE.

VDC = VINYLIDENE CHLORIDE = 1,1-DICHLOROETHENE

NOTE: ALL ELEVATIONS IN FEET NGVD



Scale in Feet
Vertical Exaggeration 5X

TITLE:	2017 VDC CONCENTRATIONS, SECTION A-A'
LOCATION:	W.R. Grace, Acton, Massachusetts

TETRA TECH

APPROVED	EBD	FIGURE
DRAFTED	JML	4-2
PROJECT#	117-3008104	
DATE	NOV 2017	

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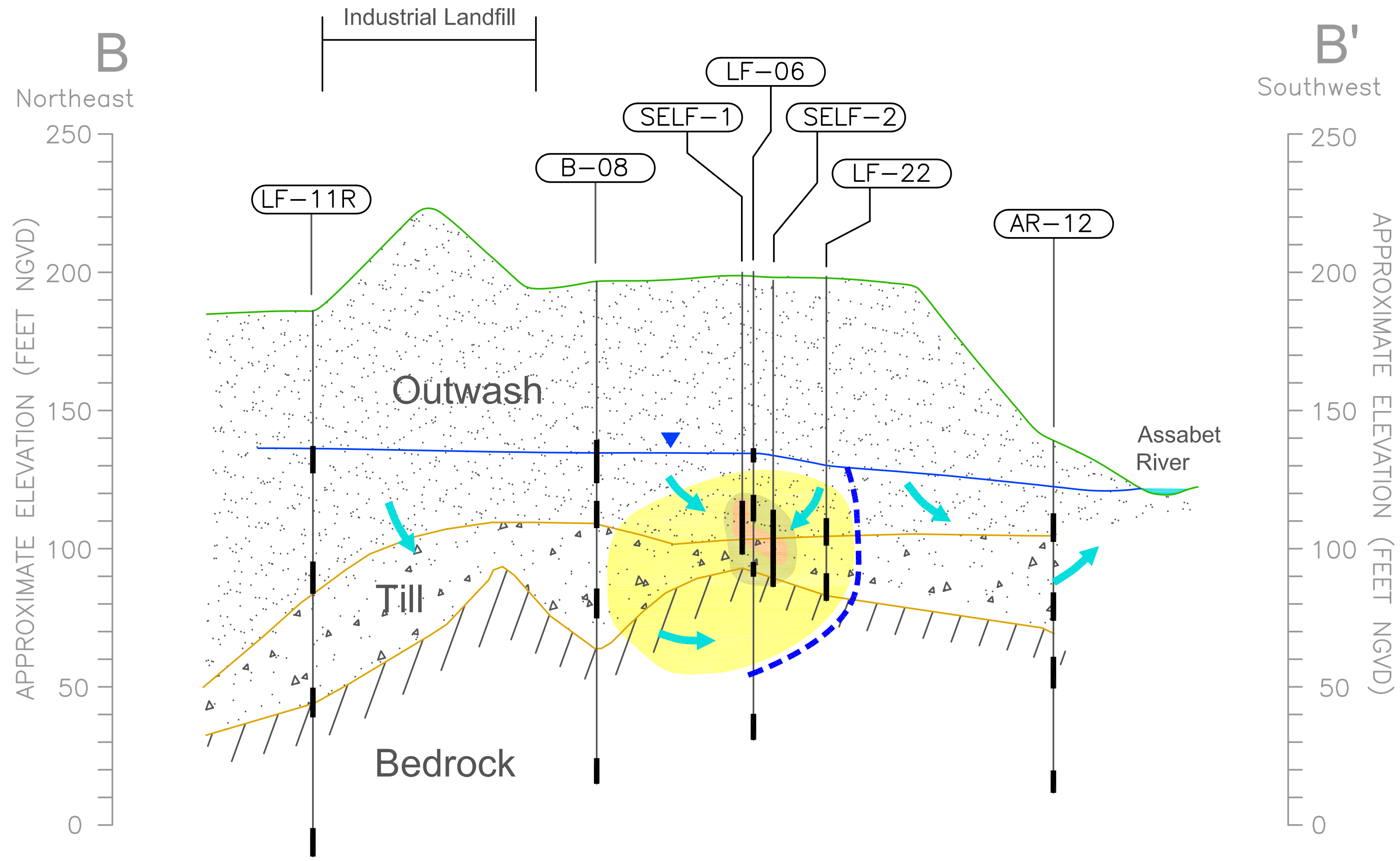
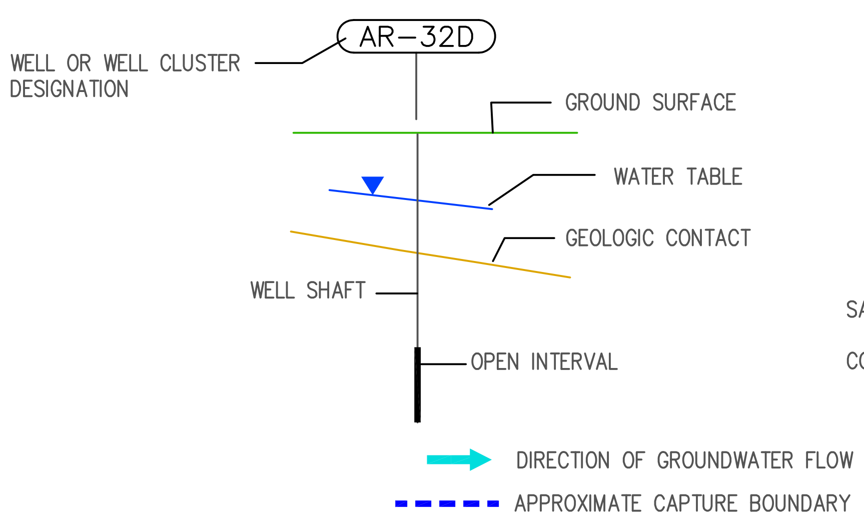
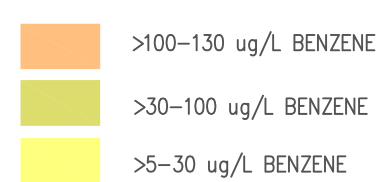


Explanation

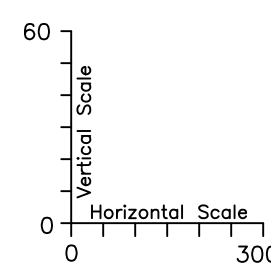


BENZENE CONCENTRATION 2017



SAMPLES COLLECTED BETWEEN AUG 17 AND SEPT 12, 2017

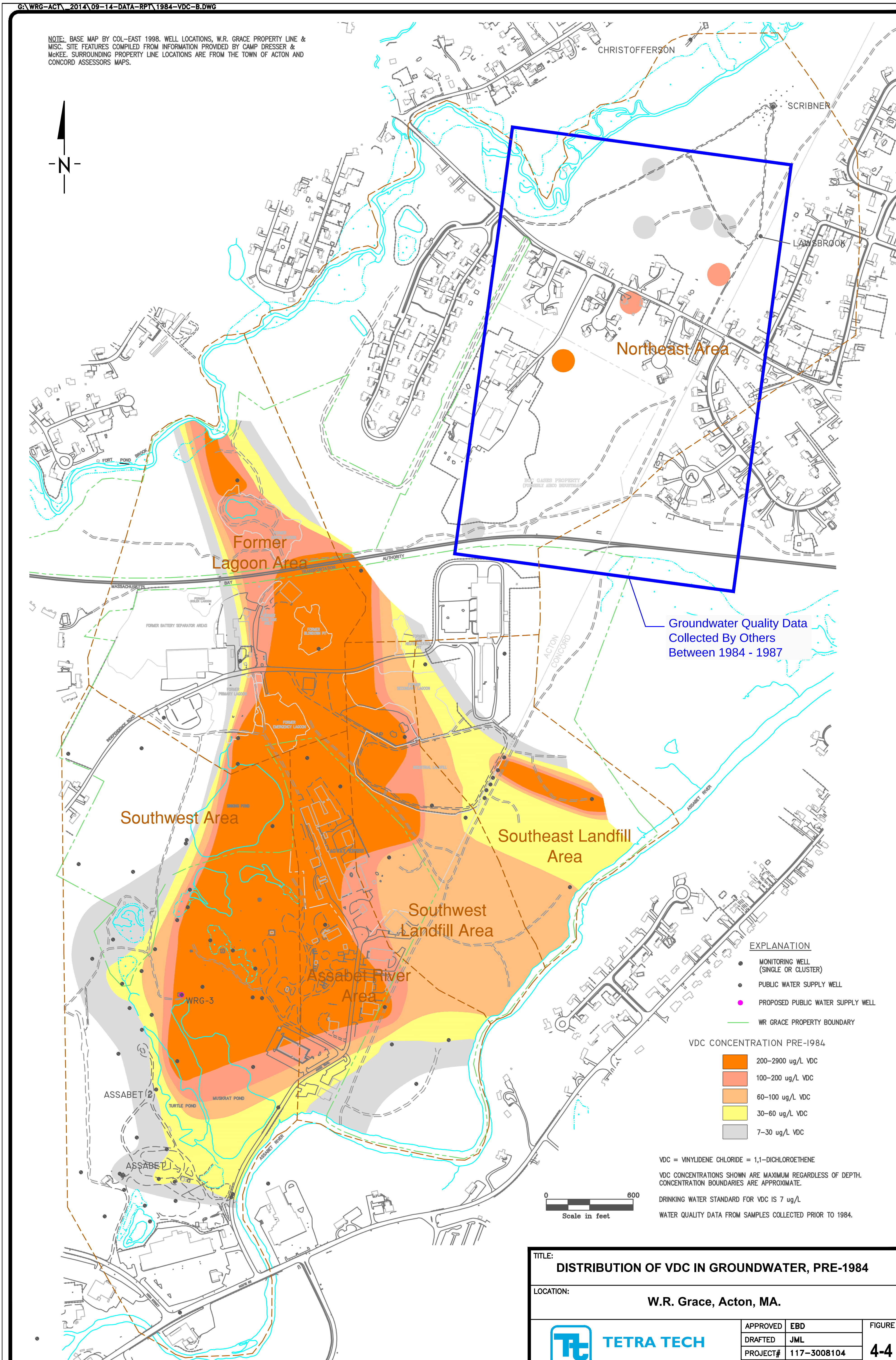
CONCENTRATION BOUNDARIES ARE APPROXIMATE.



Scale in Feet
Vertical Exaggeration 5X

TITLE: 2017 BENZENE CONCENTRATIONS, SECTION B-B'				
LOCATION: W.R. Grace, Acton, Massachusetts				
TETRA TECH	APPROVED	EBD	FIGURE	
	DRAFTED	JML		4-3
	PROJECT#	117-3008104		
	DATE	NOV 2017		

G:\WRG-ACT_2017\ANNUAL SECTIONS_2017.DWG



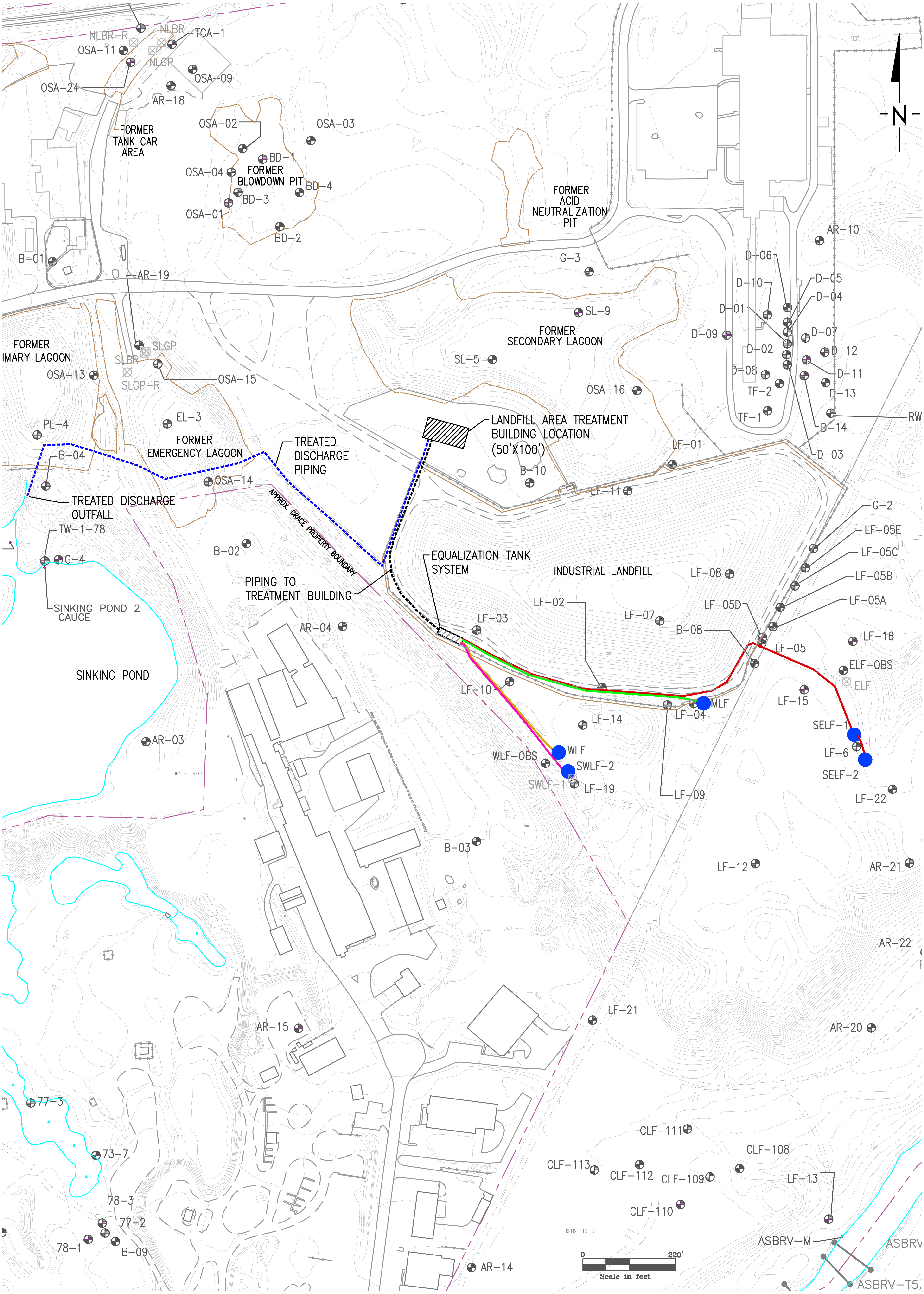
TITLE:
DISTRIBUTION OF VDC IN GROUNDWATER, PRE-1984

LOCATION:
W.R. Grace, Acton, MA.

TETRA TECH

APPROVED	EBD	FIGURE
DRAFTED	JML	
PROJECT#	117-3008104	4-4
DATE	NOV 2017	

G:\WRG-ACT_2017\LF-TREAT-SYS_2017.DWG



EXPLANATION

(outline)	FORMER SOURCE AREA
R-2	MONITORING WELL (SINGLE OR CLUSTER)
RP-1	EXTRACTION WELL
ASSABET 1	PUBLIC WATER SUPPLY WELL
(line)	RIVER TRANSECT

EXTRACTION WELL PIPING

- SELF PIPE LINE
- MLF PIPE LINE
- WLF PIPE LINE
- SWLF PIPE LINE

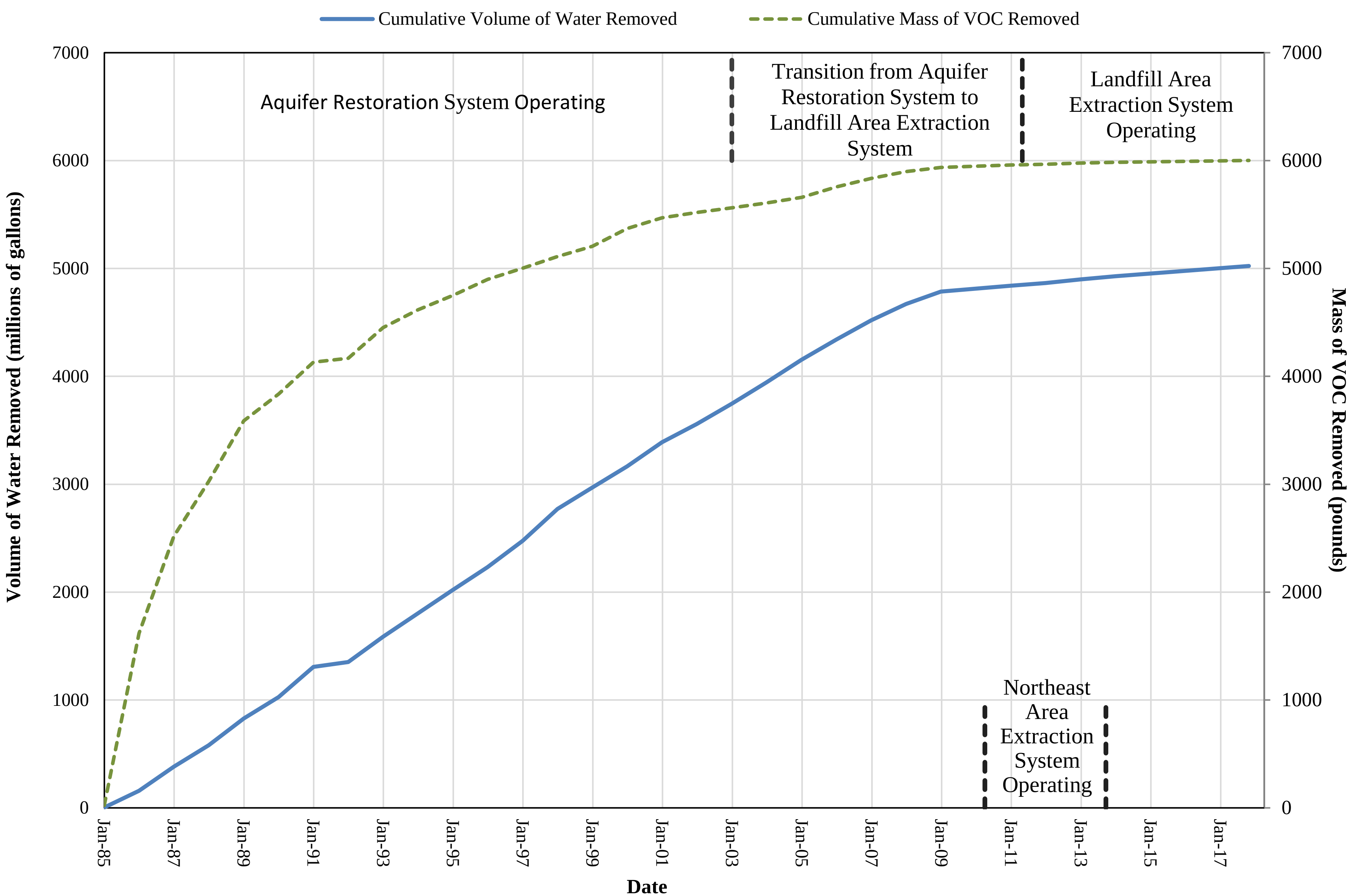
TITLE: **LANDFILL AREA EXTRACTION SYSTEM LOCATION**

LOCATION: **W.R. Grace, Acton, MA.**

TETRA TECH

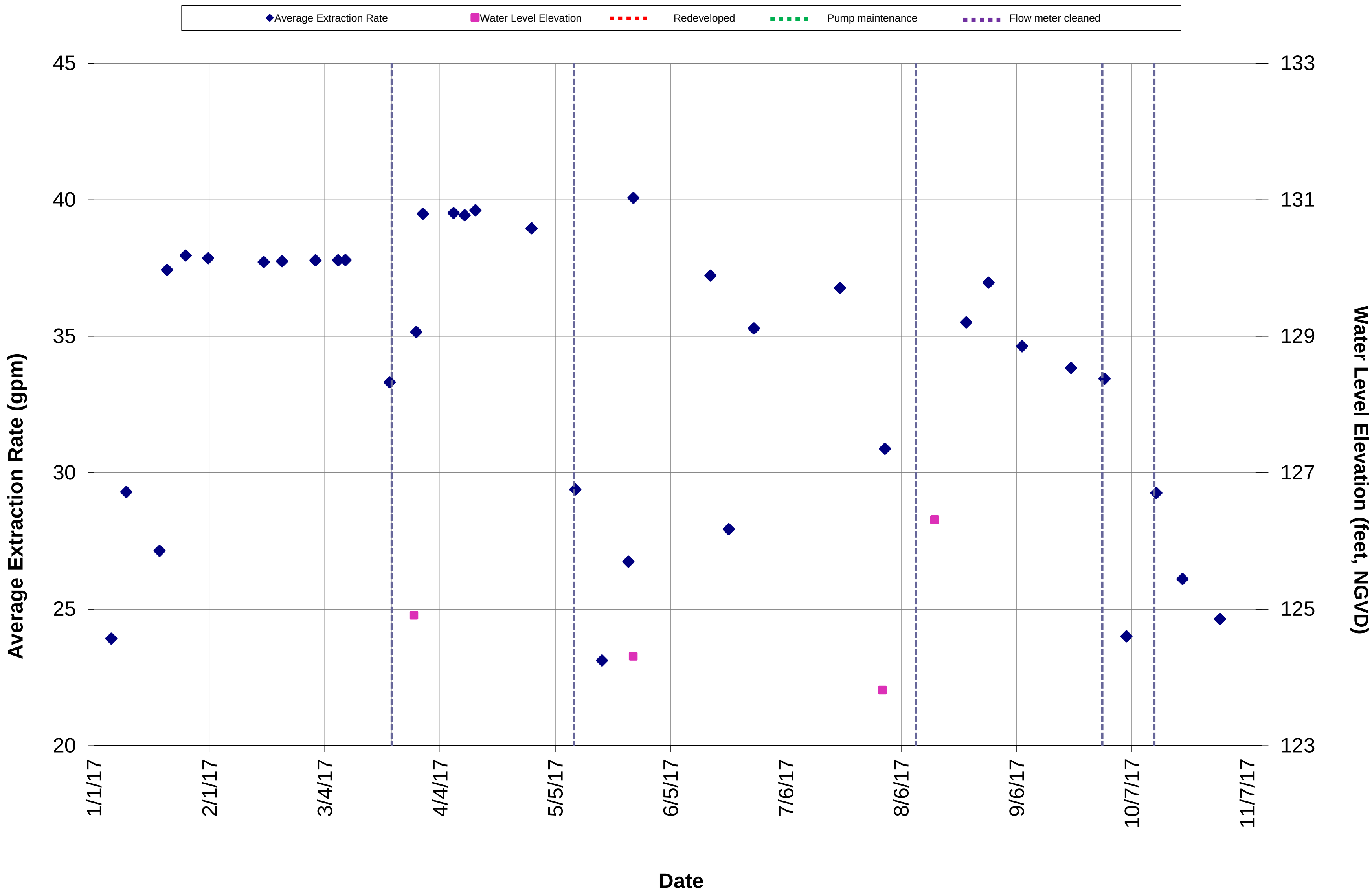
APPROVED	EBD	FIGURE
DRAFTED	JML	5-1
PROJECT#	117-3008104	
DATE	DEC 2017	

Figure 5-2. Graph of Cumulative Water Volume Removed and Cumulative Mass VOCs Removed Versus Time



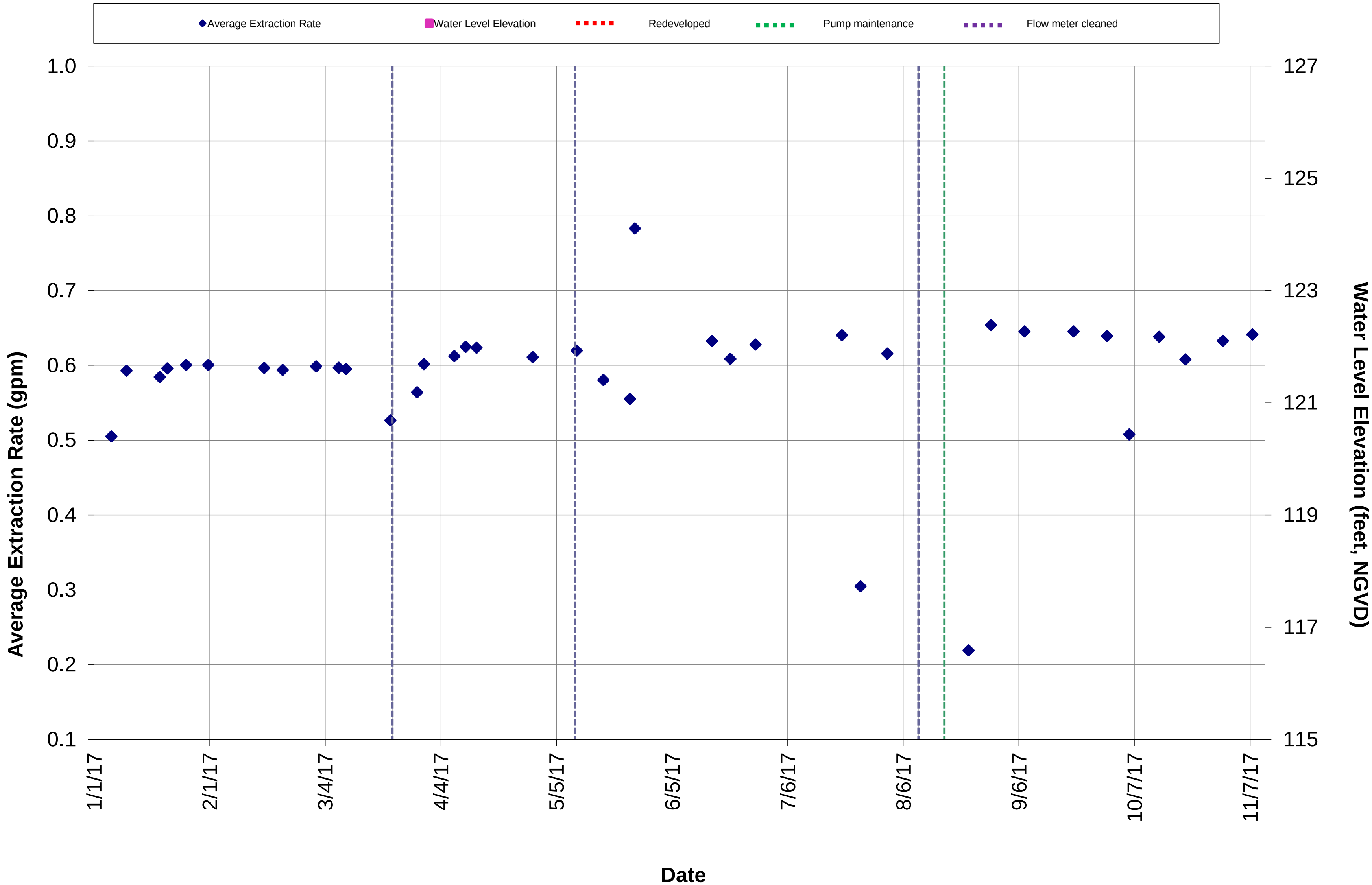
P:\4200s\4240.00\Information\Tetra Tech\2017 O&M Report\NE-1_2017_Calc.xlsChart1

Figure 5-3. Average Extraction Rate and Water Level Elevation, MLF



P:\PROJECT\WRGACTON\ARS_NE_Data\Landfill Extraction System.xlsx

Figure 5-4. Average Extraction Rate and Water Level Elevation, SELF-1



P:\PROJECT\WRGACTON\ARS_NE_Data\Landfill Extraction System.xlsx

Figure 5-5. Average Extraction Rate and Water Level Elevation, SELF-2

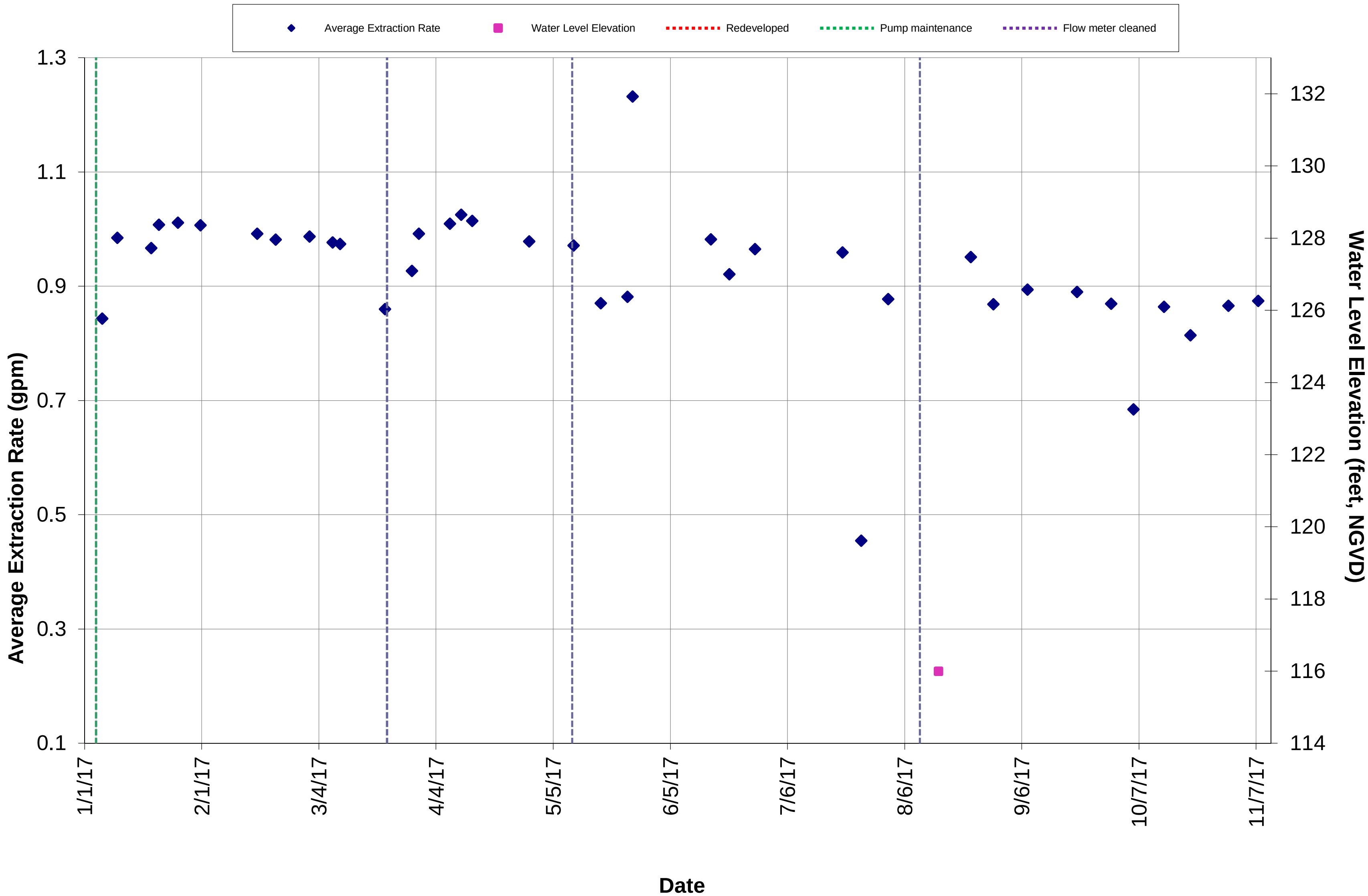


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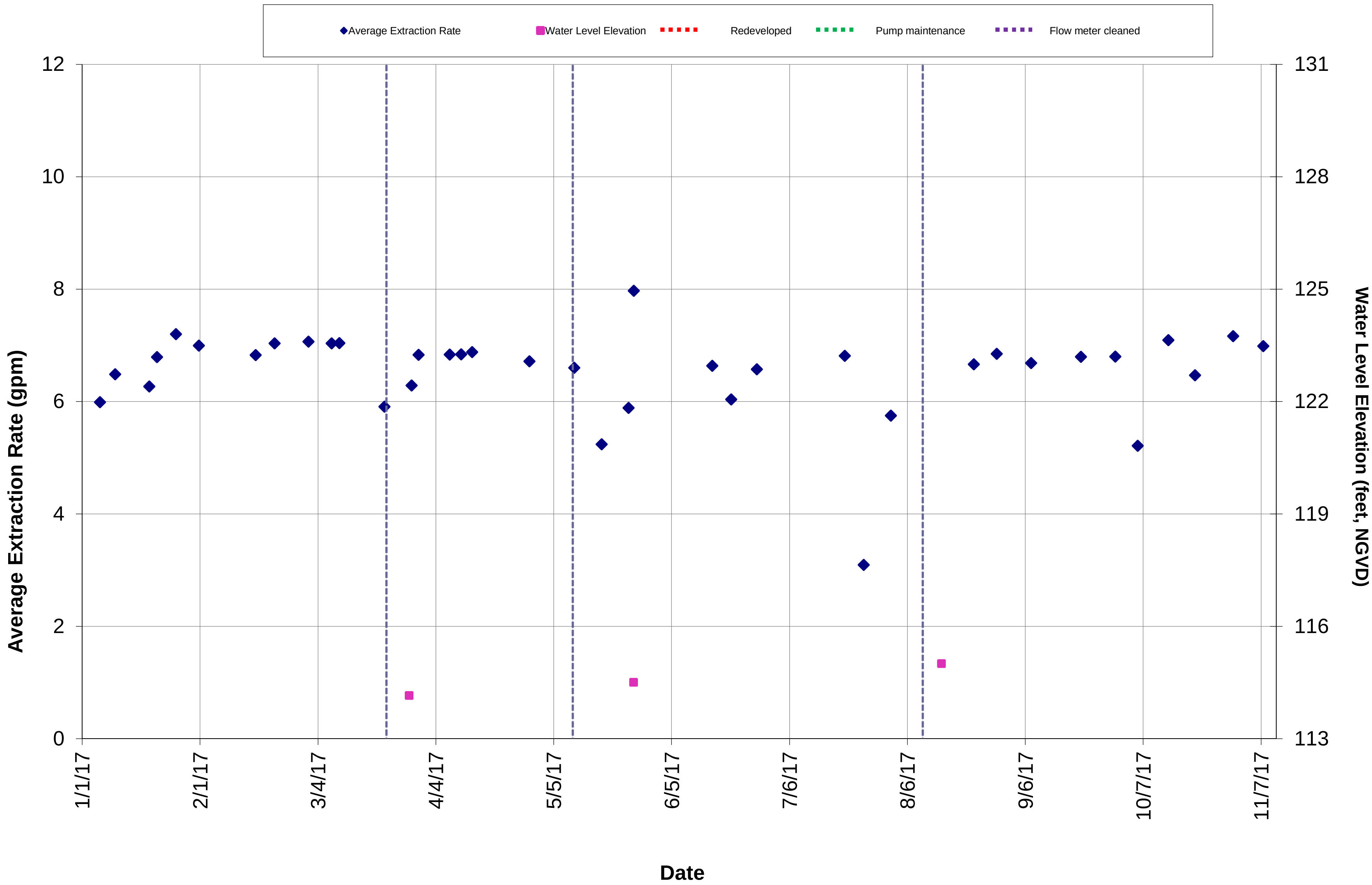
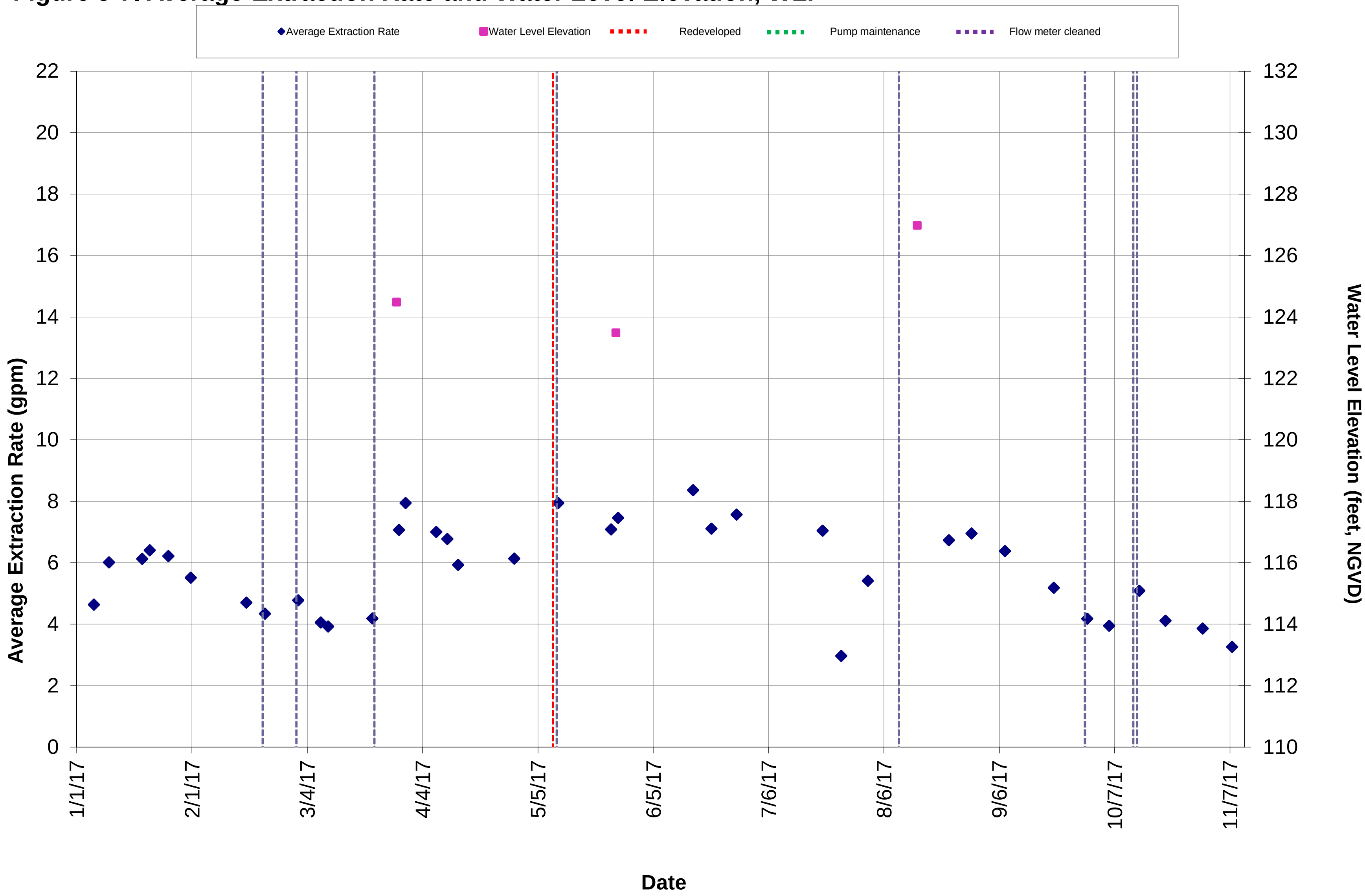
Figure 5-6. Average Extraction Rate and Water Level Elevation, SWLF-2



P:\PROJECT\WRGACTON\ARS_NE_Data\Landfill Extraction System.xlsx

Figure 5-7. Average Extraction Rate and Water Level Elevation, WLF



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ATTACHMENT A

Table A-1. VOC concentrations in groundwater.

LOCATION: DATE SAMPLED: OPEN INTERVAL: QA TYPE & DB Interval:	AR-03B1 8/17/17 4 to 5 (BR)	AR-03P 8/17/17 120 to 130	AR-11B2 8/17/17 101 to 102	AR-14B1 8/18/17 70 to 71	AR-19AB1 8/18/17 60 to 61 (BR)	AR-19ASH 8/30/17 122 to 127 L1	AR-19BDP 8/30/17 84 to 104 L1	AR-20 8/29/17 87 to 92 (BR)
VOCs								
1,1,1-Trichloroethane	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2,2-Tetrachloroethane	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2-Trichloroethane	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
1,1-Dichloroethane	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
1,1-Dichloroethene	15	NA	11	NA	0.61 J	1.3	4.4	6
1,2-Dichloroethane	ND (1)	NA	0.38 J	NA	ND (1)	ND (1)	ND (1)	ND (1)
1,2-Dichloropropane	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
1,4-Dioxane	1.2	0.25	14	1.1	NA	NA	NA	3
2-Butanone	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
2-Hexanone	ND (5)	NA	ND (5)	NA	ND (5)	ND (5)	ND (5)	ND (5)
4-Methyl-2-Pentanone	ND (5)	NA	ND (5)	NA	ND (5)	ND (5)	ND (5)	ND (5)
Acetone	ND (10)	NA	ND (10)	NA	ND (10)	4.9 J	ND (10)	ND (10)
Benzene	ND (1)	NA	2.7	NA	ND (1)	ND (1)	ND (1)	0.89 J
Bromochloromethane	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Bromodichloromethane	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Bromoform	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Bromomethane	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Carbon Disulfide	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Carbon Tetrachloride	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Chlorobenzene	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
chlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Chloroform	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Chloromethane	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,2-Dichloroethene	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,3-Dichloropropene	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Dibromochloromethane	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Ethylbenzene	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
m,p-Xylenes	ND (2)	NA	ND (2)	NA	ND (2)	ND (2)	ND (2)	ND (2)
Methyl tert butyl ether	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Methylene Chloride	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
o-Xylene	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Styrene	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Tetrachloroethene	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Toluene	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
trans-1,2-Dichloroethene	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
trans-1,3-Dichloropropene	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Trichloroethene	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Trichlorofluoromethane	ND (1)	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Vinyl Acetate	ND (5)	NA	ND (5)	NA	ND (5)	ND (5)	ND (5)	ND (5)
Vinyl Chloride	ND (1)	NA	17	NA	ND (1)	ND (1)	2	3

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval L1=0-5 feet, L2=5-10 feet, L3=10-15 feet from top of screen, L4=15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag
F2 - MS/MSD relative percent difference exceeds control limits

Table A-1. VOC concentrations in groundwater.

LOCATION:	AR-28S	AR-29D	AR-29SBR	AR-30D	AR-30D	AR-30SBR	AR-31D	AR-31D
DATE SAMPLED:	8/23/17	8/23/17	8/30/17	3/23/17	8/25/17	8/25/17	3/23/17	8/24/17
OPEN INTERVAL:	115 to 125	91 to 101	56 to 67 (BR)	75 to 85	75 to 85	47 to 61 (BR)	82 to 92	82 to 92
QA TYPE & DB Interval:								
VOCs								
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	ND (4)
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	ND (4)
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	ND (4)
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	ND (4)
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	47
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	ND (4)
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	ND (4)
1,4-Dioxane	0.9	0.37	ND (2000)	5	3.4	0.53	1.5	1.1
2-Butanone	NA	NA	NA	NA	NA	NA	NA	ND (40)
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	ND (20)
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	NA	NA	ND (20)
Acetone	NA	NA	NA	NA	NA	NA	NA	51
Benzene	NA	NA	NA	NA	NA	NA	NA	ND (4)
Bromochloromethane	NA	NA	NA	NA	NA	NA	NA	ND (4)
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	ND (4)
Bromoform	NA	NA	NA	NA	NA	NA	NA	ND (4)
Bromomethane	NA	NA	NA	NA	NA	NA	NA	ND (4)
Carbon Disulfide	NA	NA	NA	NA	NA	NA	NA	ND (4)
Carbon Tetrachloride	NA	NA	NA	NA	NA	NA	NA	ND (4)
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	ND (4)
chlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA	NA	ND (4)
Chloroform	NA	NA	NA	NA	NA	NA	NA	ND (4)
Chloromethane	NA	NA	NA	NA	NA	NA	NA	ND (4)
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	ND (4)
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	ND (4)
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	ND (4)
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	ND (4)
m,p-Xylenes	NA	NA	NA	NA	NA	NA	NA	ND (8)
Methyl tert butyl ether	NA	NA	NA	NA	NA	NA	NA	1.7 J
Methylene Chloride	NA	NA	NA	NA	NA	NA	NA	3.1 J
o-Xylene	NA	NA	NA	NA	NA	NA	NA	ND (4)
Styrene	NA	NA	NA	NA	NA	NA	NA	ND (4)
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	ND (4)
Toluene	NA	NA	NA	NA	NA	NA	NA	ND (4)
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	ND (4)
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	ND (4)
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	ND (4)
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	ND (4)
Vinyl Acetate	NA	NA	NA	NA	NA	NA	NA	ND (20)
Vinyl Chloride	NA	NA	NA	NA	NA	NA	NA	ND (4)

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval: L1=0-5 feet, L2=5-10 feet, L3=10-15 feet from top of screen, L4=15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses.
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag
F2 - MS/MSD relative percent difference exceeds control limits

Table A-1. VOC concentrations in groundwater.

LOCATION:	AR-31S	AR-35MBR	ASBRV-T6A	Assabet-1A	Assabet-1A	Assabet-1A	Assabet-1A	Assabet-2A
DATE SAMPLED:	8/22/17	8/31/17	8/31/17	12/15/16	3/23/17	6/19/17	8/18/17	12/15/16
OPEN INTERVAL:	112 to 122	-88 to -78 (BR)	to	78 to 88	78 to 88	78 to 88	78 to 88	98 to 106
QA TYPE & DB Interval:		L1						
VOCs								
1,1,1-Trichloroethane	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
1,1,2,2-Tetrachloroethane	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
1,1,2-Trichloroethane	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
1,1-Dichloroethane	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
1,1-Dichloroethene	NA	19	7	NA	NA	NA	ND (1)	NA
1,2-Dichloroethane	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
1,2-Dichloropropane	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
1,4-Dioxane	ND (0.2)	NA	NA	1	0.45	0.32	0.35	0.41
2-Butanone	NA	ND (10)	ND (10)	NA	NA	NA	ND (10)	NA
2-Hexanone	NA	ND (5)	ND (5)	NA	NA	NA	ND (5)	NA
4-Methyl-2-Pentanone	NA	ND (5)	ND (5)	NA	NA	NA	ND (5)	NA
Acetone	NA	14	8.4 J	NA	NA	NA	ND (10)	NA
Benzene	NA	0.42 J	ND (1)	NA	NA	NA	ND (1)	NA
Bromochloromethane	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Bromodichloromethane	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Bromoform	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Bromomethane	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Carbon Disulfide	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Carbon Tetrachloride	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Chlorobenzene	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
chlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Chloroform	NA	ND (1)	ND (1)	NA	NA	NA	0.44 J	NA
Chloromethane	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
cis-1,2-Dichloroethene	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
cis-1,3-Dichloropropene	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Dibromochloromethane	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Ethylbenzene	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
m,p-Xylenes	NA	ND (2)	ND (2)	NA	NA	NA	ND (2)	NA
Methyl tert butyl ether	NA	ND (1)	0.33 J	NA	NA	NA	0.16 J	NA
Methylene Chloride	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
o-Xylene	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Styrene	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Tetrachloroethene	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Toluene	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
trans-1,2-Dichloroethene	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
trans-1,3-Dichloropropene	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Trichloroethene	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Trichlorofluoromethane	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA
Vinyl Acetate	NA	ND (5)	ND (5)	NA	NA	NA	ND (5)	NA
Vinyl Chloride	NA	ND (1)	ND (1)	NA	NA	NA	ND (1)	NA

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD; (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval L1=0-5 feet, L2=5-10 feet, L3= 10-15 feet from top of screen, L4= 15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag
* F2 - MS/MSD relative percent difference exceeds control limits

Table A-1. VOC concentrations in groundwater.

LOCATION: DATE SAMPLED: OPEN INTERVAL: QA TYPE & DB Interval:	Assabet-2A 3/23/17 98 to 106	Assabet-2A 6/19/17 98 to 106	Assabet-2A 8/18/17 98 to 106	B-03B3 8/23/17 91 to 92	B-04B2 8/17/17 106 to 107	B-04B3 8/24/17 93 to 94	B-04B4 8/17/17 73 to 74	B-04B5 8/24/17 57 to 58
VOCs								
1,1,1-Trichloroethane	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2,2-Tetrachloroethane	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2-Trichloroethane	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
1,1-Dichloroethane	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
1,1-Dichloroethene	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
1,2-Dichloroethane	NA	NA	ND (1)	NA	0.32 J	0.47 J	ND (1)	ND (1)
1,2-Dichloropropane	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
1,4-Dioxane	0.24	0.25	0.2	1.8	NA	NA	NA	NA
2-Butanone	NA	NA	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
2-Hexanone	NA	NA	ND (5)	NA	ND (5)	ND (5)	ND (5)	ND (5)
4-Methyl-2-Pentanone	NA	NA	ND (5)	NA	ND (5)	ND (5)	ND (5)	ND (5)
Acetone	NA	NA	ND (10)	NA	ND (10)	3 J	ND (10)	ND (10)
Benzene	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Bromochloromethane	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Bromodichloromethane	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Bromoform	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Bromomethane	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Carbon Disulfide	NA	NA	ND (1)	NA	ND (1)	0.5 J	ND (1)	ND (1)
Carbon Tetrachloride	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Chlorobenzene	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
chlorodifluoromethane	NA	NA	NA*	NA	NA	NA	NA	NA
Chloroethane	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Chloroform	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Chloromethane	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,2-Dichloroethene	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,3-Dichloropropene	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Dibromochloromethane	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Ethylbenzene	NA	NA	ND (1)	NA	1.1	ND (1)	ND (1)	ND (1)
m,p-Xylenes	NA	NA	ND (2)	NA	ND (2)	ND (2)	ND (2)	ND (2)
Methyl tert butyl ether	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Methylene Chloride	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
o-Xylene	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Styrene	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Tetrachloroethene	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Toluene	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
trans-1,2-Dichloroethene	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
trans-1,3-Dichloropropene	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Trichloroethene	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Trichlorofluoromethane	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Vinyl Acetate	NA	NA	ND (5)	NA	ND (5)	ND (5)	ND (5)	ND (5)
Vinyl Chloride	NA	NA	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval: L1=0-5 feet, L2=5-10 feet, L3=10-15 feet from top of screen, L4=15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
*** - Surrogate flag**
* F2 - MS/MSD relative percent difference exceeds control limits

Table A-1. VOC concentrations in groundwater.

LOCATION:	B-04P	B-05B4	B-06B5	B-08B	RISTOFFERSC	RISTOFFERSC	RISTOFFERS	RISTOFFERSC
DATE SAMPLED:	8/31/17	8/23/17	8/30/17	8/25/17	12/15/16	3/23/17	6/19/17	8/22/17
OPEN INTERVAL:	128 to 131	24 to 25 (BR)	48 to 49 (BR)	76 to 86	86 to 96	86 to 96	86 to 96	86 to 96
QA TYPE & DB Interval:	L1							
VOCs								
1,1,1-Trichloroethane	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
1,1,2,2-Tetrachloroethane	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
1,1,2-Trichloroethane	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
1,1-Dichloroethane	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
1,1-Dichloroethene	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
1,2-Dichloroethane	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
1,2-Dichloropropane	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
1,4-Dioxane	NA	1.5	0.69	6.5	0.28	0.15 J	0.072 J	0.13 J
2-Butanone	16	NA	NA	NA	NA	NA	NA	ND (10)
2-Hexanone	ND (5)	NA	NA	NA	NA	NA	NA	ND (5)
4-Methyl-2-Pentanone	ND (5)	NA	NA	NA	NA	NA	NA	ND (5)
Acetone	37	NA	NA	NA	NA	NA	NA	ND (10)
Benzene	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Bromochloromethane	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Bromodichloromethane	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Bromoform	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Bromomethane	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Carbon Disulfide	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Carbon Tetrachloride	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Chlorobenzene	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
chlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Chloroform	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Chloromethane	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
cis-1,2-Dichloroethene	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
cis-1,3-Dichloropropene	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Dibromochloromethane	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Ethylbenzene	13	NA	NA	NA	NA	NA	NA	ND (1)
m,p-Xylenes	ND (2)	NA	NA	NA	NA	NA	NA	ND (2)
Methyl tert butyl ether	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Methylene Chloride	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
o-Xylene	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Styrene	1.6	NA	NA	NA	NA	NA	NA	ND (1)
Tetrachloroethene	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Toluene	1	NA	NA	NA	NA	NA	NA	ND (1)
trans-1,2-Dichloroethene	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
trans-1,3-Dichloropropene	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Trichloroethene	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Trichlorofluoromethane	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)
Vinyl Acetate	ND (5)	NA	NA	NA	NA	NA	NA	ND (5)
Vinyl Chloride	ND (1)	NA	NA	NA	NA	NA	NA	ND (1)

NOTES:

Concentrations in µg/L.
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval L1=0-5 feet, L2=5-10 feet, L3= 10-15 feet from top of screen, L4= 15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag
* F2 - MS/MSD relative percent difference exceeds control limits

Table A-1. VOC concentrations in groundwater.

LOCATION:	EL-3	LAWSBROOK	LAWSBROOK	LAWSBROOK	LF-02A	LF-05E	LF-06	LF-06C
DATE SAMPLED:	8/31/17	3/23/17	6/19/17	8/22/17	8/31/17	9/12/17	8/31/17	8/29/17
OPEN INTERVAL:	123 to 128	108 to 118	108 to 118	108 to 118	35 to 45 (BR)	96 to 106	26 to 36 (BR)	105 to 115
QA TYPE & DB Interval:	L1				L1		L2	
VOCs								
1,1,1-Trichloroethane	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
1,1,2,2-Tetrachloroethane	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
1,1,2-Trichloroethane	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
1,1-Dichloroethane	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	1.5 J
1,1-Dichloroethene	ND (1)	NA	NA	1	120	23	ND (1)	ND (4)
1,2-Dichloroethane	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	0.45 J	8.2
1,2-Dichloropropane	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
1,4-Dioxane	NA	0.25	0.13 J	0.21	NA	NA	NA	4
2-Butanone	5.3 J	NA	NA	ND (10)	ND (40)	ND (10)	3.9 J	ND (40)
2-Hexanone	ND (5)	NA	NA	ND (5)	ND (20)	ND (5)	ND (5)	ND (20)
4-Methyl-2-Pentanone	ND (5)	NA	NA	ND (5)	ND (20)	ND (5)	ND (5)	ND (20)
Acetone	13	NA	NA	ND (10)	ND (40)	6.7 J	3.6 J	ND (40)
Benzene	ND (1)	NA	NA	ND (1)	11	1.9	1.9	28
Bromochloromethane	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Bromodichloromethane	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Bromoform	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Bromomethane	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Carbon Disulfide	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Carbon Tetrachloride	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Chlorobenzene	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
chlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Chloroform	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Chloromethane	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
cis-1,2-Dichloroethene	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
cis-1,3-Dichloropropene	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Dibromochloromethane	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Ethylbenzene	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
m,p-Xylenes	ND (2)	NA	NA	ND (2)	ND (8)	ND (2)	ND (2)	ND (8)
Methyl tert butyl ether	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Methylene Chloride	ND (1)	NA	NA	ND (1)	1.9 J	ND (1)	ND (1)	ND (4)
o-Xylene	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Styrene	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Tetrachloroethene	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Toluene	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
trans-1,2-Dichloroethene	ND (1)	NA	NA	ND (1)	ND (4)	1.5	ND (1)	ND (4)
trans-1,3-Dichloropropene	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Trichloroethene	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Trichlorofluoromethane	ND (1)	NA	NA	ND (1)	ND (4)	ND (1)	ND (1)	ND (4)
Vinyl Acetate	ND (5)	NA	NA	ND (5)	ND (20)	ND (5)	ND (5)	ND (20)
Vinyl Chloride	ND (1)	NA	NA	ND (1)	60	14	ND (1)	ND (4)

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval L1=0-5 feet, L2=5-10 feet, L3= 10-15 feet from top of screen, L4= 15-20 feet from top of screen

DUP - Duplicate Sample.
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag
* F2 - MS/MSD relative percent difference exceeds control limits

Table A-1. VOC concentrations in groundwater.

LOCATION:	LF-10	LF-12	LF-13A	LF-17D	LF-18D	LF-19D	LF-19MBR	LF-19SBR
DATE SAMPLED:	8/31/17	8/18/17	8/31/17	8/18/17	8/24/17	8/25/17	8/31/17	8/28/17
OPEN INTERVAL:	35 to 45	88 to 98	90 to 100	83 to 93	53 to 63	50 to 60	-23 to -8 (BR)	11 to 23 (BR)
QA TYPE & DB Interval:	L2		L1				L2	
VOCs								
1,1,1-Trichloroethane	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
1,1,2,2-Tetrachloroethane	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
1,1,2-Trichloroethane	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
1,1-Dichloroethane	ND (2)	ND (1)	ND (1)	0.47 J	ND (1)	ND (1)	ND (1)	ND (2)
1,1-Dichloroethene	110	1.2	12	7.4	32	ND (1)	0.52 J	60
1,2-Dichloroethane	0.52 J	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	1	ND (2)
1,2-Dichloropropane	ND (2)	2.5	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
1,4-Dioxane	NA	NA	NA	NA	7.5	NA	NA	NA
2-Butanone	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	4.5 J	ND (20)
2-Hexanone	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
4-Methyl-2-Pentanone	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
Acetone	7.6 J	ND (10)	4.7 J	ND (10)	ND (10)	ND (10)	6.8 J	ND (20)
Benzene	11	19	1.1	4.7	3.4	1.9	26	17
Bromochloromethane	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Bromodichloromethane	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Bromoform	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Bromomethane	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Carbon Disulfide	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Carbon Tetrachloride	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Chlorobenzene	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
chlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Chloroform	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Chloromethane	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
cis-1,2-Dichloroethene	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	1.7 J
cis-1,3-Dichloropropene	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Dibromochloromethane	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Ethylbenzene	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	0.9 J	ND (2)
m,p-Xylenes	ND (4)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (4)
Methyl tert butyl ether	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	0.26 J	ND (1)	ND (2)
Methylene Chloride	1.5 J	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
o-Xylene	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Styrene	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Tetrachloroethene	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Toluene	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	0.68 J	ND (2)
trans-1,2-Dichloroethene	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
trans-1,3-Dichloropropene	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Trichloroethene	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Trichlorofluoromethane	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
Vinyl Acetate	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
Vinyl Chloride	23	ND (1)	7	57	13	13	ND (1)	98

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval L1=0-5 feet, L2=5-10 feet, L3=10-15 feet from top of screen, L4=15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag
* F2 - MS/MSD relative percent difference exceeds control limits

Table A-1. VOC concentrations in groundwater.

LOCATION:	LF-20D	LF-22D	LF-22S	MLF	MLF	MLF	MLF	MW-04B
DATE SAMPLED:	8/29/17	8/31/17	8/31/17	12/8/16	3/9/17	6/15/17	8/30/17	8/31/17
OPEN INTERVAL:	34 to 44	80 to 90	100 to 110	83 to 123	83 to 123	83 to 123	83 to 123	36 to 41 (BR)
QA TYPE & DB Interval:		L1	L2					L1
VOCs								
1,1,1-Trichloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2,2-Tetrachloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2-Trichloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1-Dichloroethane	ND (1)	5.1	9.7	ND (1)	NA	NA	NA	ND (1)
1,1-Dichloroethene	3.1	11	11	3.9	4.6	4.1	4.7	20
1,2-Dichloroethane	ND (1)	9.5	29	0.39 J	ND (1)	NA	ND (1)	ND (1)
1,2-Dichloropropane	ND (1)	10	63	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,4-Dioxane	2.9	NA	NA	0.99	1	0.76	0.83	NA
2-Butanone	ND (10)	4.2 J	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	4 J
2-Hexanone	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
4-Methyl-2-Pentanone	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Acetone	ND (10)	ND (10)	4 J	ND (10)	ND (10)	ND (10)	ND (10)	4.1 J
Benzene	0.85 J	8.2	6.7	ND (1)	ND (1)	ND (1)	ND (1)	1.3
Bromochloromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromodichloromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromoform	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromomethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Carbon Disulfide	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Carbon Tetrachloride	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chlorobenzene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
chlorodifluoromethane	NA	NA	NA	ND (1)	NA	NA	NA	NA
Chloroethane	ND (1)	1	11	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chloroform	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chloromethane	ND (1)	0.44 J	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,2-Dichloroethene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,3-Dichloropropene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Dibromochloromethane	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
Ethylbenzene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
m,p-Xylenes	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Methyl tert butyl ether	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Methylene Chloride	ND (1)	ND (1)	1.3	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
o-Xylene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Styrene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Tetrachloroethene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Toluene	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)
trans-1,2-Dichloroethene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
trans-1,3-Dichloropropene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Trichloroethene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Trichlorofluoromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Vinyl Acetate	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Vinyl Chloride	1.3	8.7	7.6	1.2	1.5	1.3	1.2	1.6

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval L1=0-5 feet, L2=5-10 feet, L3= 10-15 feet from top of screen, L4= 15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag
* F2 - MS/MSD relative percent difference exceeds control limits

Table A-1. VOC concentrations in groundwater.

LOCATION:	MW-06B	MW-07B	MW-13B	MW-13B	NLBR-R	OSA-01A	OSA-01BR	OSA-01BR
DATE SAMPLED:	8/30/17	8/30/17	8/31/17	8/31/17	8/31/17	8/31/17	8/31/17	8/31/17
OPEN INTERVAL:	40 to 45 (BR)	50 to 60 (BR)	46 to 56 (BR)	46 to 56 (BR)	75 to 89 (BR)	128 to 138	62 to 72 (BR)	62 to 72 (BR)
QA TYPE & DB Interval:			L1	L1 DUP	L3	L1	L1	L2
VOCs								
1,1,1-Trichloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2,2-Tetrachloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2-Trichloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1-Dichloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1-Dichloroethene	19	12	7.9	7.2	5.6	3.3	ND (1)	ND (1)
1,2-Dichloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,2-Dichloropropane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,4-Dioxane	1.7	1.6	NA	NA	NA	NA	NA	NA
2-Butanone	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Hexanone	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
4-Methyl-2-Pentanone	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Acetone	ND (10)	ND (10)	10	8.9 J	16	4.1 J	ND (10)	3.8 J
Benzene	0.89 J	0.71 J	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromochloromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromodichloromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromoform	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromomethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Carbon Disulfide	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Carbon Tetrachloride	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chlorobenzene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
chlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chloroform	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chloromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,2-Dichloroethene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,3-Dichloropropene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Dibromochloromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Ethylbenzene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
m,p-Xylenes	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Methyl tert butyl ether	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Methylene Chloride	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
o-Xylene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Styrene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Tetrachloroethene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Toluene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
trans-1,2-Dichloroethene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
trans-1,3-Dichloropropene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Trichloroethene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Trichlorofluoromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Vinyl Acetate	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Vinyl Chloride	1	1.8	2.5	2.4	ND (1)	ND (1)	ND (1)	ND (1)

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval L1=0-5 feet, L2=5-10 feet, L3=10-15 feet from top of screen, L4=15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses.
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag
* F2 - MS/MSD relative percent difference exceeds control limits

Table A-1. VOC concentrations in groundwater.

LOCATION:	OSA-01C	OSA-03BR	OSA-03BR	OSA-06BR	OSA-12A	OSA-12A	OSA-12B	OSA-13A
DATE SAMPLED:	8/31/17	8/17/17	8/17/17	8/24/17	8/31/17	8/31/17	8/31/17	8/31/17
OPEN INTERVAL:	80 to 90	55 to 65 (BR)	55 to 65 (BR)	51 to 61 (BR)	125 to 140	125 to 140	68 to 78	123 to 138
QA TYPE & DB Interval:	L1		DUP		L1	L2	L2	L2
VOCs								
1,1,1-Trichloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2,2-Tetrachloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2-Trichloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1-Dichloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1-Dichloroethene	2.1	8.8	7.7	22	ND (1)	ND (1)	ND (1)	5.1
1,2-Dichloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,2-Dichloropropane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	4.2 J	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	3 J	ND (10)
2-Hexanone	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
4-Methyl-2-Pentanone	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Acetone	3.1 J	ND (10)	ND (10)	3 J	12	15	9.4 J	10
Benzene	ND (1)	ND (1)	ND (1)	3	ND (1)	ND (1)	ND (1)	ND (1)
Bromochloromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromodichloromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromoform	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromomethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Carbon Disulfide	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	0.69 J
Carbon Tetrachloride	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chlorobenzene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
chlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chloroform	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chloromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,2-Dichloroethene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,3-Dichloropropene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Dibromochloromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Ethylbenzene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	13
m,p-Xylenes	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	0.91 J
Methyl tert butyl ether	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Methylene Chloride	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
o-Xylene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Styrene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	3.1
Tetrachloroethene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Toluene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	0.52 J
trans-1,2-Dichloroethene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
trans-1,3-Dichloropropene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Trichloroethene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Trichlorofluoromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Vinyl Acetate	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Vinyl Chloride	ND (1)	2.1	1.9	1.7	ND (1)	ND (1)	ND (1)	ND (1)

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval L1 = 0-5 feet, L2 = 5-10 feet, L3 = 10-15 feet from top of screen, L4 = 15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag
* F2 - MS/MSD relative percent difference exceeds control limits

Table A-1. VOC concentrations in groundwater.

LOCATION:	OSA-13B	OSA-13B	OSA-13B	OSA-13B	OSA-13B	OSA-13B	OSA-13C	OSA-13C
DATE SAMPLED:	12/15/16	3/23/17	3/23/17	7/10/17	7/10/17	8/28/17	12/15/16	12/15/16
OPEN INTERVAL:	105 to 115	105 to 115	105 to 115	105 to 115	105 to 115	105 to 115	73 to 83	73 to 83
QA TYPE & DB Interval:	L1	L1	DUP	L1	DUP		L2	L2 DUP
VOCs								
1,1,1-Trichloroethane	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
1,1,2,2-Tetrachloroethane	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
1,1,2-Trichloroethane	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
1,1-Dichloroethane	0.67 J	2.6 J	2.9 J	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
1,1-Dichloroethene	120	1300	1500	2000	1700	1600 F1	66	62
1,2-Dichloroethane	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
1,2-Dichloropropane	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
1,4-Dioxane	NA	NA	NA	NA	NA	0.43	NA	NA
2-Butanone	ND (10)	ND (40)	ND (40)	ND (200)	ND (200)	ND (400)	ND (10)	ND (10)
2-Hexanone	ND (5)	ND (20)	ND (20)	ND (100)	ND (100)	ND (200)	ND (5)	ND (5)
4-Methyl-2-Pentanone	ND (5)	ND (20)	ND (20)	ND (100)	ND (100)	ND (200)	ND (5)	ND (5)
Acetone	7.4 J	ND (40)	ND (40)	ND (200)	ND (200)	ND (400)	5.4 J	6.7 J
Benzene	58	49	51	54	46	44	0.44 J	ND (1)
Bromochloromethane	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Bromodichloromethane	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Bromoform	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Bromomethane	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Carbon Disulfide	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Carbon Tetrachloride	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Chlorobenzene	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
chlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Chloroform	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Chloromethane	ND (1)	ND (4)	ND (4)	ND (20)	9.4 J	ND (40)	ND (1)	ND (1)
cis-1,2-Dichloroethene	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
cis-1,3-Dichloropropene	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Dibromochloromethane	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Ethylbenzene	12	27	31	28	28	60	3.9	3.5
m,p-Xylenes	10	53	61	47	42	86	ND (2)	ND (2)
Methyl tert butyl ether	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Methylene Chloride	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
o-Xylene	1.1	3.1 J	3.3 J	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Styrene	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Tetrachloroethene	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Toluene	2.2	2.2 J	2.2 J	ND (20)	ND (20)	ND (40)	0.52 J	0.59 J
trans-1,2-Dichloroethene	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
trans-1,3-Dichloropropene	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Trichloroethene	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Trichlorofluoromethane	ND (1)	ND (4)	ND (4)	ND (20)	ND (20)	ND (40)	ND (1)	ND (1)
Vinyl Acetate	ND (5)	ND (20)	ND (20)	ND (100)	ND (100)	ND (200)	ND (5)	ND (5)
Vinyl Chloride	26	58	70	83	75	53	3.4	3

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval L1=0-5 feet, L2=5-10 feet, L3=10-15 feet from top of screen, L4=15-20 feet from top of screen

DUP - Duplicate Sample.
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag
* F2 - MS/MSD relative percent difference exceeds control limits

Table A-1. VOC concentrations in groundwater.

LOCATION:	OSA-13C	OSA-13C	OSA-13C	OSA-14A	OSA-14B	OSA-15A	OSA-15A	OSA-15B
DATE SAMPLED:	3/23/17	7/10/17	8/31/17	8/31/17	8/31/17	8/30/17	8/30/17	8/30/17
OPEN INTERVAL:	73 to 83	73 to 83	73 to 83	125 to 135	79 to 89	129 to 139	129 to 139	73 to 83
QA TYPE & DB Interval:	L2	L2		L1	L1	L2	L1	L1
VOCs								
1,1,1-Trichloroethane	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2,2-Tetrachloroethane	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2-Trichloroethane	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1-Dichloroethane	0.73 J	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1-Dichloroethene	370 F1 F2	300	190	5.9	ND (1)	ND (1)	ND (1)	7.9
1,2-Dichloroethane	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,2-Dichloropropane	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	ND (10)	ND (50)	ND (50)	ND (10)	3.6 J	ND (10)	ND (10)	ND (10)
2-Hexanone	ND (5)	ND (25)	ND (25)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
4-Methyl-2-Pentanone	ND (5)	ND (25)	ND (25)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Acetone	28	35 J	25 J	5.5 J	3.3 J	4.6 J	ND (10)	7.3 J
Benzene	3.7	6.5	7.2	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromochloromethane	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromodichloromethane	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromoform	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromomethane	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Carbon Disulfide	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Carbon Tetrachloride	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chlorobenzene	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
chlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chloroform	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chloromethane	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,2-Dichloroethene	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,3-Dichloropropene	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Dibromochloromethane	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Ethylbenzene	17	16	10	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
m,p-Xylenes	0.83 J	ND (10)	ND (10)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Methyl tert butyl ether	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Methylene Chloride	ND (1)	ND (5)	3.6 J	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
o-Xylene	0.94 J	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Styrene	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Tetrachloroethene	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Toluene	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
trans-1,2-Dichloroethene	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
trans-1,3-Dichloropropene	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Trichloroethene	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Trichlorofluoromethane	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Vinyl Acetate	ND (5)	ND (25)	ND (25)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Vinyl Chloride	22	32	19	4.2	ND (1)	ND (1)	ND (1)	2.2

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval L1=0-5 feet, L2=5-10 feet, L3= 10-15 feet from top of screen, L4= 15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag
* F2 - MS/MSD relative percent difference exceeds control limits

Table A-1. VOC concentrations in groundwater.

LOCATION:	OSA-16B	OSA-16B	PS-22A	PS-22B	PS-22B	PS-29B	PT-03B1	PT-03B1
DATE SAMPLED:	8/31/17	8/31/17	8/23/17	8/23/17	8/23/17	8/23/17	3/23/17	8/22/17
OPEN INTERVAL:	54 to 64	54 to 64	124 to 126	96 to 98	96 to 98	86 to 91	39 to 40 (BR)	39 to 40 (BR)
QA TYPE & DB Interval:	L2	DUP			DUP			
VOCs								
1,1,1-Trichloroethane	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
1,1,2,2-Tetrachloroethane	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
1,1,2-Trichloroethane	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
1,1-Dichloroethane	0.44 J	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
1,1-Dichloroethene	0.88 J	0.92 J	NA	16	16	NA	NA	NA
1,2-Dichloroethane	0.32 J	0.28 J	NA	ND (1)	ND (1)	NA	NA	NA
1,2-Dichloropropane	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
1,4-Dioxane	NA	NA	ND (0.2)	0.62	0.56	1.4	9.2	7.8
2-Butanone	ND (10)	2.9 J	NA	ND (10)	ND (10)	NA	NA	NA
2-Hexanone	ND (5)	ND (5)	NA	ND (5)	ND (5)	NA	NA	NA
4-Methyl-2-Pentanone	ND (5)	ND (5)	NA	ND (5)	ND (5)	NA	NA	NA
Acetone	3.6 J	3.5 J	NA	ND (10)	ND (10)	NA	NA	NA
Benzene	5.7	5.5	NA	ND (1)	ND (1)	NA	NA	NA
Bromochloromethane	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Bromodichloromethane	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Bromoform	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Bromomethane	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Carbon Disulfide	0.3 J	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Carbon Tetrachloride	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Chlorobenzene	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
chlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Chloroform	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Chloromethane	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
cis-1,2-Dichloroethene	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
cis-1,3-Dichloropropene	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Dibromochloromethane	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Ethylbenzene	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
m,p-Xylenes	ND (2)	ND (2)	NA	ND (2)	ND (2)	NA	NA	NA
Methyl tert butyl ether	ND (1)	ND (1)	NA	0.32 J	0.3 J	NA	NA	NA
Methylene Chloride	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
o-Xylene	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Styrene	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Tetrachloroethene	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Toluene	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
trans-1,2-Dichloroethene	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
trans-1,3-Dichloropropene	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Trichloroethene	ND (1)	ND (1)	NA	1.1	0.91 J	NA	NA	NA
Trichlorofluoromethane	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA
Vinyl Acetate	ND (5)	ND (5)	NA	ND (5)	ND (5)	NA	NA	NA
Vinyl Chloride	8	7.8	NA	ND (1)	ND (1)	NA	NA	NA

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval L1=0-5 feet, L2=5-10 feet, L3= 10-15 feet from top of screen, L4= 15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag
* F2 - MS/MSD relative percent difference exceeds control limits

Table A-1. VOC concentrations in groundwater.

LOCATION:	R-2	R-2A	R-2A	SCRIBNER	SCRIBNER	SCRIBNER	SCRIBNER	SCRIBNER
DATE SAMPLED:	8/28/17	3/23/17	8/28/17	12/15/16	12/15/16	3/23/17	3/23/17	6/19/17
OPEN INTERVAL:	65 to 70 (BR)	86 to 91	86 to 91	to	to	to	to	to
QA TYPE & DB Interval:					DUP		DUP	
VOCs								
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	1.1	1.1	0.66	0.34	0.32	0.24	0.26	0.19 J
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	NA	NA
Bromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
chlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylenes	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval: L1=0-5 feet, L2=5-10 feet, L3= 10-15 feet from top of screen, L4= 15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag

Table A-1. VOC concentrations in groundwater.

LOCATION:	SCRIBNER	SCRIBNER	SCRIBNER	SELF-1	SELF-1	SELF-1	SELF-1	SELF-2
DATE SAMPLED:	6/19/17	8/22/17	8/22/17	12/8/16	3/9/17	6/15/17	8/30/17	12/8/16
OPEN INTERVAL:	to	to	to	95 to 113	95 to 113	95 to 113	95 to 113	85 to 113
QA TYPE & DB Interval:	DUP		DUP					
VOCs								
1,1,1-Trichloroethane	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
1,1,2,2-Tetrachloroethane	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
1,1,2-Trichloroethane	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
1,1-Dichloroethane	NA	ND (1)	NA	2.5 J	NA	NA	NA	3.8
1,1-Dichloroethene	NA	1.7	NA	ND (5)	ND (5)	ND (5)	ND (5)	7.5
1,2-Dichloroethane	NA	ND (1)	NA	23	23	NA	24	10
1,2-Dichloropropane	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	8.7
1,4-Dioxane	0.18 J	0.21	0.2	19	17	15	15	26
2-Butanone	NA	ND (10)	NA	ND (50)	ND (50)	ND (50)	ND (50)	ND (20)
2-Hexanone	NA	ND (5)	NA	ND (25)	ND (25)	ND (25)	ND (25)	ND (10)
4-Methyl-2-Pentanone	NA	ND (5)	NA	ND (25)	ND (25)	ND (25)	ND (25)	ND (10)
Acetone	NA	ND (10)	NA	ND (50)	ND (50)	ND (50)	ND (50)	ND (20)
Benzene	NA	ND (1)	NA	120	120	120	110	110
Bromochloromethane	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Bromodichloromethane	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Bromoform	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Bromomethane	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Carbon Disulfide	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Carbon Tetrachloride	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Chlorobenzene	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
chlorodifluoromethane	NA	NA	NA	ND (5)	NA	NA	NA	ND (2)
Chloroethane	NA	ND (1)	NA	2.6 J	ND (5)	ND (5)	ND (5)	2
Chloroform	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Chloromethane	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
cis-1,2-Dichloroethene	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
cis-1,3-Dichloropropene	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Dibromochloromethane	NA	ND (1)	NA	NA	ND (5)	ND (5)	ND (5)	NA
Ethylbenzene	NA	ND (1)	NA	8.1	8	7.7	8	2.4
m,p-Xylenes	NA	ND (2)	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (4)
Methyl tert butyl ether	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Methylene Chloride	NA	ND (1)	NA	4.7 J	ND (5)	ND (5)	3.9 J	2.2
o-Xylene	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Styrene	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Tetrachloroethene	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Toluene	NA	ND (1)	NA	NA	ND (5)	ND (5)	ND (5)	NA
trans-1,2-Dichloroethene	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
trans-1,3-Dichloropropene	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Trichloroethene	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Trichlorofluoromethane	NA	ND (1)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (2)
Vinyl Acetate	NA	ND (5)	NA	ND (25)	ND (25)	ND (25)	ND (25)	ND (10)
Vinyl Chloride	NA	ND (1)	NA	ND (5)	4.5 J	ND (5)	ND (5)	8.2

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval L1=0-5 feet, L2=5-10 feet, L3= 10-15 feet from top of screen, L4= 15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag

Table A-1. VOC concentrations in groundwater.

LOCATION:	SELF-2	SELF-2	SELF-2	SWLF-2	SWLF-2	SWLF-2	SWLF-2	WLF
DATE SAMPLED:	3/9/17	6/15/17	8/30/17	12/8/16	3/9/17	6/15/17	8/30/17	12/8/16
OPEN INTERVAL:	85 to 113	85 to 113	85 to 113	-25 to 30 (BR)	-25 to 30 (BR)	-25 to 30 (BR)	-25 to 30 (BR)	86 to 104
QA TYPE & DB Interval:								
VOCs								
1,1,1-Trichloroethane	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2,2-Tetrachloroethane	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1,2-Trichloroethane	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,1-Dichloroethane	NA	NA	NA	ND (1)	NA	NA	NA	ND (1)
1,1-Dichloroethene	8.2	6.8	7.1	17	18	14	20	19
1,2-Dichloroethane	10	NA	10	0.33 J	0.48 J	NA	0.53 J	ND (1)
1,2-Dichloropropane	9.6	8.2	7.7	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,4-Dioxane	22	20	19	4.4	4.5	4.4	4.5	3
2-Butanone	ND (20)	ND (20)	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Hexanone	ND (10)	ND (10)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
4-Methyl-2-Pentanone	ND (10)	ND (10)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Acetone	ND (20)	ND (20)	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Benzene	130	120	120	12	13	12	13	1.3
Bromochloromethane	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromodichloromethane	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromoform	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Bromomethane	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Carbon Disulfide	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Carbon Tetrachloride	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chlorobenzene	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
chlorodifluoromethane	NA	NA	NA	ND (1)	NA	NA	NA	ND (1)
Chloroethane	ND (2)	2	1.2 J	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chloroform	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chloromethane	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,2-Dichloroethene	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
cis-1,3-Dichloropropene	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Dibromochloromethane	ND (2)	ND (2)	ND (2)	NA	ND (1)	ND (1)	ND (1)	NA
Ethylbenzene	2.6	2.8	2.6	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
m,p-Xylenes	ND (4)	ND (4)	ND (4)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Methyl tert butyl ether	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	0.32 J
Methylene Chloride	ND (2)	ND (2)	1.5 J	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
o-Xylene	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Styrene	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Tetrachloroethene	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Toluene	ND (2)	ND (2)	ND (2)	NA	ND (1)	ND (1)	ND (1)	NA
trans-1,2-Dichloroethene	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
trans-1,3-Dichloropropene	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Trichloroethene	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Trichlorofluoromethane	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Vinyl Acetate	ND (10)	ND (10)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Vinyl Chloride	9.2	8.5	8.3	7.3	8.5	6.7	7.9	4.8

NOTES:

Concentrations in µg/L
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval L1=0-5 feet, L2=5-10 feet, L3= 10-15 feet from top of screen, L4= 15-20 feet from top of screen

DUP - Duplicate Sample
ND (10) - Compound not detected at limit indicated in parentheses
J - Estimated Value
F1 - MS and/or MSD Recovery outside acceptance limits
* - Surrogate flag

Table A-1. VOC concentrations in groundwater.

LOCATION:	WLF	WLF	WLF
DATE SAMPLED:	3/9/17	6/15/17	8/30/17
OPEN INTERVAL:	86 to 104	86 to 104	86 to 104
QA TYPE & DB Interval:			
VOCs			
1,1,1-Trichloroethane	ND (1)	ND (1)	ND (1)
1,1,2,2-Tetrachloroethane	ND (1)	ND (1)	ND (1)
1,1,2-Trichloroethane	ND (1)	ND (1)	ND (1)
1,1-Dichloroethene	22	20	25
1,2-Dichloroethane	ND (1)	NA	ND (1)
1,2-Dichloropropane	ND (1)	ND (1)	ND (1)
1,4-Dioxane	2.9	2.9	3.2
2-Butanone	ND (10)	ND (10)	ND (10)
2-Hexanone	ND (5)	ND (5)	ND (5)
4-Methyl-2-Pentanone	ND (5)	ND (5)	ND (5)
Acetone	ND (10)	ND (10)	ND (10)
Benzene	1.2	1.4	1.3
Bromochloromethane	ND (1)	ND (1)	ND (1)
Bromodichloromethane	ND (1)	ND (1)	ND (1)
Bromoform	ND (1)	ND (1)	ND (1)
Bromomethane	ND (1)	ND (1)	ND (1)
Carbon Disulfide	ND (1)	ND (1)	ND (1)
Carbon Tetrachloride	ND (1)	ND (1)	ND (1)
Chlorobenzene	ND (1)	ND (1)	ND (1)
Chloroethane	ND (1)	ND (1)	ND (1)
Chloroform	ND (1)	ND (1)	ND (1)
Chloromethane	ND (1)	ND (1)	ND (1)
cis-1,2-Dichloroethene	ND (1)	ND (1)	ND (1)
cis-1,3-Dichloropropene	ND (1)	ND (1)	ND (1)
Dibromochloromethane	ND (1)	ND (1)	ND (1)
Ethylbenzene	ND (1)	ND (1)	ND (1)
m,p-Xylenes	ND (2)	ND (2)	ND (2)
Methyl tert butyl ether	0.46 J	0.4 J	0.46 J
Methylene Chloride	ND (1)	ND (1)	ND (1)
o-Xylene	ND (1)	ND (1)	ND (1)
Styrene	ND (1)	ND (1)	ND (1)
Tetrachloroethene	ND (1)	ND (1)	ND (1)
Toluene	ND (1)	ND (1)	ND (1)
trans-1,2-Dichloroethene	ND (1)	ND (1)	ND (1)
trans-1,3-Dichloropropene	ND (1)	ND (1)	ND (1)
Trichloroethene	ND (1)	ND	
Trichlorofluoromethane	ND (1)	ND	
Vinyl Acetate	ND (5)	ND	
Vinyl Chloride	5.4	4.	

NOTES:

Concentrations in µg/L.
Open Interval - elevation in feet NGVD, (BR) - Open Interval in bedrock
NA - Not Applicable
DB Interval - Diffusion Bag Interval: L1=0-5 feet, L2=5-10 feet, L3= 10-15 feet fr
top of screen, L4= 15-20 feet from top of screen

Table A-2. Inorganic Compound Concentrations in Groundwater

LOCATION:	AR-30D	AR-31D	B-05B3	B-06B5	B-08C	B-08D	LF-06C	LF-12
DATE SAMPLED:	8/25/17	8/24/17	8/23/17	8/30/17	8/25/17	8/25/17	8/29/17	8/23/17
OPEN INTERVAL:	75 to 85	82 to 92	36 to 37	48 to 49 (BR)	108 to 118	125 to 140	105 to 115	88 to 98
QA TYPE (Analysis):					Diss.	Diss.	Diss.	Diss.
Metals								
Antimony	ND (20)	ND (20)	ND (20)	ND (20)	NA	NA	NA	NA
Arsenic	2.1	4.5	ND (1)	1.2	4.4	1.3	210	15
Beryllium	ND (2)	ND (2)	ND (2)	ND (2)	NA	NA	NA	NA
Chromium	ND (4)	ND (4)	ND (4)	ND (4)	NA	NA	NA	NA
Iron	77	1800	110	6000	5200	ND (50)	9000	33 J
Lead	0.19 J	ND (1)	0.88 J	1.2	NA	NA	NA	NA
Manganese	31 B	330 B	5800 B	320 B	2700 B	380 B	2200 B	140
Nickel	ND (10)	5.2 J	9.5 J	5.5 J	NA	NA	NA	NA

NOTES:

Concentrations in µg/L.
Open Interval - elevation in feet NGVD; (BR) - Open Interval in bedrock
DUP - Duplicate Sample.
ND (10) - Compound not detected at limit indicated in parentheses.
J - Estimated Value.
(Diss.) - Sample filtered and analyzed for dissolved metals
^ - Instrument QC exceeded control limits
NA - Not Applicable
B - Analyte detected in blank

Table A-2. Inorganic Compound Concentrations in Groundwater

LOCATION:	MLF	MLF	MLF	MLF	OSA-01B	OSA-05A	OSA-06BR	OSA-07A
DATE SAMPLED:	12/8/16	3/9/17	6/15/17	8/30/17	8/18/17	8/22/17	8/24/17	8/22/17
OPEN INTERVAL:	83 to 123	83 to 123	83 to 123	83 to 123	98 to 108	128 to 138	51 to 61 (BR)	127 to 137
QA TYPE (Analysis):					Diss.	Diss.	Diss.	Diss.
Metals								
Antimony	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	57	58	56	53	72	1.1	13	7.8
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA	NA
Iron	14000	15000 B	16000	15000	38 J	21 J	200	19000
Lead	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	3300	3300	3400	3300 B	1200 B	93 B	520	1300 B
Nickel	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

Concentrations in µg/L.
Open Interval - elevation in feet NGVD; (BR) - Open Interval in bedrock
DUP - Duplicate Sample.
ND (10) - Compound not detected at limit indicated in parentheses.
J - Estimated Value.
(Diss.) - Sample filtered and analyzed for dissolved metals
^ - Instrument QC exceeded control limits
NA - Not Applicable
B - Analyte detected in blank

Table A-2. Inorganic Compound Concentrations in Groundwater

LOCATION:	OSA-09B	OSA-11B	PS-22B	PS-22B	PS-29B	SELF-1	SELF-1	SELF-1
DATE SAMPLED:	8/22/17	8/22/17	8/23/17	8/23/17	8/23/17	12/8/16	3/9/17	6/15/17
OPEN INTERVAL:	86 to 96	108 to 118	96 to 98	96 to 98	86 to 91	95 to 113	95 to 113	95 to 113
QA TYPE (Analysis):	Diss.	Diss.		DUP				
Metals								
Antimony	NA	NA	ND (20)	ND (20)	ND (20)	NA	NA	NA
Arsenic	130	0.59 J	0.31 J	ND (1)	0.49 J	120	120	120
Beryllium	NA	NA	ND (2)	ND (2)	ND (2)	NA	NA	NA
Chromium	NA	NA	ND (4)	ND (4)	ND (4)	NA	NA	NA
Iron	210	65	66	57	540	13000	13000 B	13000
Lead	NA	NA	ND (1)	ND (1)	0.34 J	NA	NA	NA
Manganese	6.1 B	14 B	300 B	300 B	93 B	1300	1300	1300
Nickel	NA	NA	3 J	2.4 J	1.5 J	NA	NA	NA

NOTES:

Concentrations in µg/L.
Open Interval - elevation in feet NGVD; (BR) - Open Interval in bedrock
DUP - Duplicate Sample.
ND (10) - Compound not detected at limit indicated in parentheses.
J - Estimated Value.
(Diss.) - Sample filtered and analyzed for dissolved metals
^ - Instrument QC exceeded control limits
NA - Not Applicable
B - Analyte detected in blank

Table A-2. Inorganic Compound Concentrations in Groundwater

LOCATION:	SELF-1	SELF-2	SELF-2	SELF-2	SELF-2	SWLF-2	SWLF-2	SWLF-2
DATE SAMPLED:	8/30/17	12/8/16	3/9/17	6/15/17	8/30/17	12/8/16	3/9/17	6/15/17
OPEN INTERVAL:	95 to 113	85 to 113	85 to 113	85 to 113	85 to 113	-25 to 30 (BR)	-25 to 30 (BR)	-25 to 30 (BR)
QA TYPE (Analysis):								
Metals								
Arsenic	120	68	74	77	74	1.8	1.9	2.1
Iron	13000	9000	9400 B	9500	8700	2800	2700 B	2700
Manganese	1300 B	1100	1100	1200	1200 B	210	210	200

NOTES:

Concentrations in µg/L.
Open Interval - elevation in feet NGVD; (BR) - Open Interval in bedrock
DUP - Duplicate Sample.
ND (10) - Compound not detected at limit indicated in parentheses.
J - Estimated Value.
(Diss.) - Sample filtered and analyzed for dissolved metals
^ - Instrument QC exceeded control limits
NA - Not Applicable
B - Analyte detected in blank

Table A-2. Inorganic Compound Concentrations in Groundwater

LOCATION:	SWLF-2	WLF	WLF	WLF	WLF
DATE SAMPLED:	8/30/17	12/8/16	3/9/17	6/15/17	8/30/17
OPEN INTERVAL:	-25 to 30 (BR)	86 to 104	86 to 104	86 to 104	86 to 104
QA TYPE (Analysis):					
Metals					
Arsenic	1.9	29	27	32	31
Iron	2600	3700	3400 B	4400	4100
Manganese	210 B	1900	1900	2000	1900 B

NOTES:

Concentrations in µg/L.
Open Interval - elevation in feet NGVD; (BR) - Open Interval in bedrock
DUP - Duplicate Sample.
ND (10) - Compound not detected at limit indicated in parentheses.
J - Estimated Value.
(Diss.) - Sample filtered and analyzed for dissolved metals
^ - Instrument QC exceeded control limits
NA - Not Applicable
B - Analyte detected in blank

ATTACHMENT B

SUMMARY OF VDC, VINYL CHLORIDE, BENZENE, 1,4-DIOXANE, ARSENIC AND MANGANESE RESULTS FROM LOCATIONS SAMPLED SINCE 2009

Attachment B. Summary of VDC, Vinyl Chloride, Benzene, 1,4-Dioxane, Arsenic and Manganese Results From Locations Sampled Since 2009

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
9-78	PIEZ	6/1/1982		18	10 ND	10 ND			
		9/13/2016					0.96		
		9/13/2016	DUP				1		
AR-02B2	BAR	6/9/1982		10 ND	10 ND	10 ND			
		9/8/2016					1.2		
AR-03B1	BAR	6/4/1982		10 ND	10 ND	10 ND			
		9/29/1982		160	53	12			
		7/5/1985		1300	16	<10			
		9/23/1985		75	<10	30			
		12/3/1985		640	140	20			
		3/6/1986		270	<10	<10			
		9/12/1986		480	40	20			
		10/4/1986		290	35	12			
		3/13/1987		120	20	8			
		9/4/1987		180	68	12			
		3/24/1988		130	27	8			
		9/16/1988		16	<1	1			
		3/13/1989		28	5	<1			
		9/19/1989		<1	<1	<1			
		9/19/1989	DUP	540	300	40			
		3/19/1990		96	12	6			
		3/19/1990	DUP	41	5	4			
		3/20/1991		34	3	2			
		3/18/1992		30	3	2			
		3/26/1993		<1	<1	2			
		3/31/1994		7	<1	1			
		4/10/1995		14	<1	1			
		4/17/1996		12	<1	<1			
		3/14/1997		16	<1	<1			
		4/8/1998		10	0.6 J	0.92 J			
		9/30/1999		1 U	1 U	1 U			
		9/8/2000		8.2	0.56 J	0.8 J		5.9 J	586
		9/18/2001		6.6	0.38 J	0.46 J			
		10/31/2002		11	0.55 J	0.65 J			
		9/8/2003		6.1	1 U	1 U			
		9/21/2004		1.9	1 U	1 U			
		9/28/2005		2.1	1 U	1 U			
		10/25/2006		9	0.54 J	0.35 J			
		8/19/2009		4.9	1 U	1 U			
		9/28/2010		6.8	0.45 J	0.25 J			
		9/30/2011		7.9	0.49 J	0.21 J	1.8		
		7/31/2012		8.8	0.59	0.29 J			
		8/21/2013		0.71 J	1 U	1 U			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-03B1	BAR	8/7/2014		9.9	1 U	1 U			
		8/19/2015		0.57 J	1 U	1 U			
		8/20/2015					1.7		
		9/2/2016		0.7 J	1 U	1 U	1.5		
		8/17/2017		15	1 U	1 U	1.2		
AR-03B2	BAR	6/4/1982		370	42	21			
		9/29/1982		190	51	34			
		7/5/1985		<10	<10	<10			
		9/23/1985		<10	<10	<10			
		12/3/1985		<10	<10	<10			
		3/6/1986		<10	<10	<10			
		9/12/1986		20	<10	<10			
		10/4/1986		27	<1	<1			
		3/13/1987		4	<1	<1			
		9/4/1987		9	<1	<1			
		3/24/1988		2	<1	<1			
		9/16/1988		<1	<1	<1			
		3/13/1989		<1	<1	<1			
		9/19/1989		6	<1	<1			
		3/19/1990		<1	<1	<1			
		3/20/1991		<1	<1	<1			
		3/18/1992		<1	<1	<1			
		3/26/1993		<1	<1	<1			
		3/31/1994		<1	<1	<1			
		4/10/1995		<1	<1	<1			
		4/17/1996		<1	<1	<1			
		3/14/1997		<1	<1	<1			
		4/8/1998		1 U	1 U	1 U			
		9/8/2000						6.4 J	1550
		9/30/2011		1	0.61 J	1 U	1.43		
AR-03P	PIEZ	6/4/1982		10 ND	10 ND	10 ND			
		9/29/1982		BDL	BDL	BDL			
		7/5/1985		<10	<10	<10			
		9/23/1985		<10	<10	<10			
		12/3/1985		<10	<10	<10			
		3/6/1986		<10	<10	<10			
		9/12/1986		<10	<10	<10			
		10/4/1986		7	<1	<1			
		3/13/1987		<1	<1	<1			
		9/4/1987		<1	<1	<1			
		3/24/1988		<1	<1	<1			
		9/16/1988		<1	<1	<1			
		3/13/1989		<1	<1	<1			
		9/19/1989		<1	<1	<1			
		3/19/1990		<1	<1	<1			
		3/20/1991		<1	<1	<1			
		3/18/1992		<1	<1	<1			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-03P	PIEZ	3/26/1993		<1	<1	<1			
		3/31/1994		<1	<1	<1			
		4/10/1995		<1	<1	<1			
		4/17/1996		<1	<1	<1			
		3/14/1997		<1	<1	<1			
		4/8/1998		1 U	1 U	1 U			
		9/8/2000						4.6 U	18
		8/25/2015					0.27		
		9/2/2016					0.19 J		
		8/17/2017					0.25		
AR-05	PIEZ	6/4/1982		10 ND	10 ND	10 ND			
		10/29/1982		BDL	BDL	BDL			
		9/21/2000		1 U	1 U	1 U		4.6 U	10
		9/13/2016					0.12 J		
AR-06B1	BAR	6/9/1982		10 ND	10 ND	10 ND			
		9/15/2000		1 U	1 U	1 U		5.3 U	331
		9/9/2016					0.21		
AR-06B2	BAR	6/4/1982		10 ND	10 ND	10 ND			
		9/15/2000		1 U	1 U	1 U		5.3 U	172
		9/9/2016					0.18 J		
AR-07B1	BAR	6/4/1982		10 ND	10 ND	10 ND			
		9/15/2000		1 U	1 U	1 U		5.3 U	191
		9/9/2016					0.2 U		
AR-07B2	BAR	6/4/1982		10 ND	10 ND	10 ND			
		9/15/2000		1 U	1 U	1 U		5.3 U	258
		9/9/2016					0.093 J		
AR-09A	PIEZ	10/31/1986		530	240	21			
		9/11/1987		380	180	14			
		3/24/1988		470	160	10			
		9/19/1988		220	80	<10			
		3/21/1989		500	70	20			
		9/19/1989		180	17	6			
		3/7/1990		110	54	7			
		3/11/1991		170	92	6			
		3/12/1992		160	83	7			
		4/1/1993		100	86	7			
		3/9/1994		82	73	6			
		4/3/1995		52	54	6			
		3/18/1996		32	28	4			
		3/18/1997		45	25	4			
		4/22/1998		41 E	16	1.8			
		10/19/1999		23	17	3.7			
		9/18/2000		19	9.6	1.5		19.2	1170
		9/19/2001		11 J	12 J	2.3 J			
		10/17/2002		4.9 J	8.8 J	2 J			
		9/2/2003		12	11	2.7			
		9/9/2004		13	13	2.9			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-09A	PIEZ	9/8/2005		9.2	10	2.4			
		10/6/2006		8.8	7.5	1.4			
		11/7/2007	(DB)	5.9	3.4	0.56 J			
		10/29/2008	(DB)	1.1	1 U	1 U			
		9/3/2009	(DB)	1 U	1 U	1 U			
		9/8/2010	(DB)	1 U	1 U	1 U			
		10/10/2011	(DB)	0.45 J	1 U	1 U			
		8/10/2012	(DB)	0.52 J	0.5 U	1 U			
AR-11B2	BAR	6/8/1982		250	150	11			
		3/8/1983		110	96	BDL			
		3/16/1983		BDL	BDL	BDL			
		3/23/1983		180	140	BDL			
		3/30/1983		180	110	13			
		4/6/1983		190	110	11			
		4/12/1983		200	140	15			
		4/21/1983		200	150	13			
		4/28/1983		200	100	18			
		5/5/1983		130	77	13			
		5/13/1983		170	84	16			
		5/19/1983		120	44	10			
		10/4/1983		140	77	12			
		10/28/1983		240	87	12			
		11/20/1983		140	110	12			
		12/19/1983		180	150	18			
		2/3/1984		160	90	12			
		3/7/1984		160	110	13			
		4/9/1984		88	71	BDL			
		7/3/1985		<10	<10	<10			
		9/23/1985		140	<10	50			
		12/5/1985		30	10	<10			
		3/6/1986		150	130	<10			
		9/5/1986		100	20	<10			
		10/4/1986		130	70	11			
		3/12/1987		96	102	10			
		9/11/1987		74	62	6			
		3/24/1988		29	24	3			
		9/15/1988		91	180	9			
		3/17/1989		59	32	5			
		9/25/1989		99	85	8			
		3/16/1990		45	32	4			
		3/20/1991		27	20	3			
		3/10/1992		38	33	4			
		4/1/1992		26	25	3 J			
		7/7/1992		42	48	6 J			
		10/7/1992		34	39	4			
		12/18/1992		27	27	3 J			
		4/12/1993		29	35	3 J			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-11B2	BAR	6/17/1993		24	40	3 J			
		9/21/1993		37	22	5 J			
		1/3/1994		17	20	3 J			
		4/5/1994		14	20	3 J			
		6/24/1994		29	44	5			
		9/19/1994		45	36	5			
		12/9/1994		18	34	3			
		3/23/1995		12	21	2			
		6/12/1995		19	22	3			
		9/14/1995		35	29	7			
		12/29/1995		29	17	5			
		4/9/1996		14	31	7			
		6/13/1996		14	18	3	91 U		
		9/4/1996		40	51	6			
		12/18/1996		21	26	3		8 (dis)	
		3/4/1997		45	51	6			
		7/7/1997		24	22	4.6			
		4/20/1998		15	20	3.5			
		10/11/1999		17	16	2.9			
		9/19/2000		18	31	5.5		5.2 J	3910
		9/19/2001		25	45	7.4			
		10/23/2002		9.7	19	3.9			
		9/12/2003		22	42	5.8			
		9/17/2004		14	28	3.7			
		9/23/2005		23	48	5.8			
		10/27/2006		17	35	4.4	7.5		
		9/21/2007		28	65	7.8			
		10/14/2008		25	57	7.1			
		8/17/2009		26	61	7.6			
		9/29/2010		25	57	6.2			
		9/28/2011		32	84	8.39			
		8/1/2012		34	78	8.3			
		8/21/2013		34	75	7.9			
		8/7/2014		29	47	6.1			
		8/19/2015		19	39	4.3	17		
		9/2/2016		13	22	2.8	16		
		8/17/2017		11	17	2.7	14		
AR-11SBR	PIEZ	1/29/2001		0.29 J	3.5	9.9		7.2 U	478
		9/19/2001		1 U	5	9.8			
		10/24/2002		1 U	4.2	9.5			
		9/9/2003		1 U	3.6	8.8			
		9/22/2004		0.5 J	5	11			
		9/21/2005		1 U	3.8	9.7			
		11/1/2006		1 U	2.9	10			
		10/8/2007	(DB)	1 U	0.91 J	6			
		10/28/2008	(DB)	1 U	1	6.3			
		9/3/2009	(DB)	1 U	1 U	3.2			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-11SBR	PIEZ	9/8/2010	(DB)	1 U	0.58 J	4.1			
		9/6/2013	(DB)	2 U	2 U	4.6			
		9/12/2016	(DB)	1 U	2.8	3.8			
AR-12	PIEZ	6/9/1982		100	26	23			
		10/28/1982		95	21	15			
		3/8/1983		43	18	10			
		3/16/1983		62	21	11			
		3/23/1983		57	23	12			
		3/30/1983		63	17	14			
		4/6/1983		57	21	12			
		4/12/1983		74	31	15			
		4/21/1983		59	28	12			
		4/28/1983		44	15	13			
		5/5/1983		46	14	10			
		5/13/1983		58	23	15			
		5/19/1983		67	20	14			
		9/1/1983		69	13	13			
		10/4/1983		40	13	BDL			
		11/20/1983		74	26	15			
		12/19/1983		49	18	11			
		2/3/1984		60	25	12			
		3/7/1984		45	14	BDL			
		4/9/1984		63	29	10			
		7/5/1985		<10	<10	<10			
		9/12/1985		90	<10	360			
		12/6/1985		40	<10	<10			
		3/6/1986		70	30	40			
		9/30/1986		<1	<1	<1			
		3/12/1987		52	20	41			
		9/10/1987		58	32	49			
		3/23/1988		50	21	44			
		9/15/1988		49	67	110			
		3/16/1989		43	17	120			
		9/19/1989		45	20	4			
		3/13/1990		61	9	5			
		3/12/1991		50	17	7			
		3/12/1991	DUP	39	14	7			
		3/12/1992		45	37	14			
		3/30/1992		39	29	13		<2 (dis)	97.9 (dis)
		6/17/1992		37	27	14		3 (dis)	93.4 (dis)
		9/21/1992		32	28	60		<3 (dis)	97.3 (dis)
		12/4/1992		27	17	58		<3 (dis)	92.3 (dis)
		3/29/1993		29	20	60		<2 (dis)	90.6 (dis)
		6/14/1993		37	21	16		3.3 B (dis)	69.5 (dis)
		9/7/1993		32	20	100		<3 (dis)	92.4 (dis)
		12/3/1993		17	10	82		3.5 B (dis)	87.4 (dis)
		3/14/1994		27	15	100		<2 (dis)	73.7 (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-12	PIEZ	6/14/1994		49	27	18		<10 (dis)	
		9/16/1994		36	12	68		<10 (dis)	
		12/8/1994		27	15	130		<10 (dis)	
		3/14/1995		26	7	110		<10 (dis)	
		6/1/1995		22	<1	99		<10 (dis)	
		9/12/1995		28	23	150		<10 (dis)	
		12/6/1995		55	27	170		<10 (dis)	
		3/26/1996		40	32	130		<10 (dis)	
		3/26/1996	DUP	47	36	150		<10 (dis)	
		6/4/1996		3 U	23	69	130 U	3.6 U (dis)	
		9/9/1996		26	12	170		5.3 (dis)	
		12/18/1996		37	18	38		6 (dis)	
		3/5/1997		45	17	220 E		6 (dis)	
		6/26/1997		45	17	81		8.8 (dis)	
		4/14/1998		32	12	100		6.3 (dis)	
		10/11/1999		27	11	50			
		1/31/2001		36	12	13		7.1 U	188
		9/19/2001		61	20	5.9			
		9/19/2001	DUP	65	21	6.2			
		10/23/2002		34	14	8			
		9/8/2003		52	23	7.6			
		9/15/2004		46	19	6.6			
		9/13/2005		51	22	8.3			
		10/20/2006		22	5	2.9 U	11		
		10/10/2007	(DB)	5.7	1 U	1 U			
		10/28/2008	(DB)	2.4	2 U	2 U			
		9/3/2009	(DB)	1 U	1 U	1 U			
		9/8/2010	(DB)	1 U	1 U	1 U			
AR-14B1	BAR	12/16/1982		490	200	41			
		2/6/2001		1.7	1 U	0.23 J		2.5 UJ	191
		2/6/2001	DUP	1.7	0.2 J	0.23 J		2.5 UJ	192
		8/19/2015					1.4		
		8/31/2016		1 U	1 U	1 U	1.3		
		8/18/2017					1.1		
AR-16ADP	PIEZ	3/7/1984		2400	22	13			
		7/3/1985		150	<10	<10			
		9/13/1985		1000	50	10			
		12/18/1985		70	<10	<10			
		3/5/1986		1100	100	<10			
		9/29/1986		380	<10	<10			
		3/9/1987		310	76	6			
		9/10/1987		200	45	5			
		3/22/1988		260	63	11			
		9/20/1988		54	13	<1			
		3/17/1989		110	21	4			
		9/13/1989		92	23	5			
		3/16/1990		90	30	6			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-16ADP	PIEZ	3/16/1990	DUP	95	24	5			
		3/18/1991		34	11	7			
		3/10/1992		39	20	5			
		3/10/1992	DUP	37	19	5			
		4/13/1993		27	26	4			
		4/13/1993	DUP	27	26	5			
		3/8/1994		14	15	<1			
		3/6/1995		10	9	4			
		4/1/1996		10	9	4			
		4/1/1996	DUP	11	8	4			
		3/17/1997		7	<1	3			
		3/17/1997	DUP	7		3			
		4/9/1998		7.2	1.2	3.6			
		10/19/1999		9.1	2.4	3.3			
		9/14/2000		4.3	1.7	1.3 U		61.1	740
		10/1/2001		4.8	2.1	0.85 J			
		10/24/2002		2.8	1.8	0.58 J			
		9/4/2003		3.9	1.8	0.86 J			
		4/19/2004		3.5	1.9	0.74 J			
		9/14/2004		5.1	2.2	0.96 J			
		5/26/2005		7.1	2.4	1			
		9/9/2005		5.1	2.2	0.7 J			
		4/21/2006		5.2	2.4	0.55 J			
		10/9/2006		5.6	2	0.63 J			
		10/12/2007	(DB)	7.8	2.1	1.3			
		10/29/2008	(DB)	5.9	1.7	1.4			
		9/4/2009	(DB)	6.6	1.4	1.1			
		10/1/2010	(DB)	5.9	1.7	1.1			
		10/11/2011	(DB)	3.7	0.7 J	0.66 J			
		8/13/2012	(DB)	5.2	1.4	1.1			
AR-19AB1	BAR	2/1/1984		BDL	BDL	BDL			
		2/23/1984		BDL	BDL	BDL			
		8/13/2009		1 U	1 U	1 U			
		9/24/2010		1 U	1 U	1 U			
		9/28/2011		0.43 J	1 U	1 U			
		8/1/2012		1 U	0.5 U	1 U			
		8/21/2013		0.7 J	1 U	1 U			
		8/18/2017		0.61 J	1 U	1 U			
AR-19ASH	PIEZ	2/27/1984		150	BDL	20			
		8/30/2017	(DB)	1.3	1 U	1 U			
AR-19BDP	PIEZ	2/23/1984		28	16	BDL			
		9/13/2016	(DB)	5	2.1	1 U			
		8/30/2017	(DB)	4.4	2	1 U			
AR-20	PIEZ	7/5/1985		<10	<10	<10			
		9/11/1985		<10	<10	<10			
		12/6/1985		<10	<10	<10			
		3/28/1986		<10	<10	<10			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-20	PIEZ	9/16/1986		2	<1	<1			
		3/12/1987		3	<1	<1			
		9/11/1987		3	<1	<1			
		3/16/1988		2	<1	<1			
		9/20/1988		<1	<1	2			
		3/16/1989		<1	<1	2			
		9/18/1989		<1	2	2			
		3/13/1990		<1	<1	<1			
		3/7/1991		<1	<1	3			
		3/12/1992		3	3	3			
		4/8/1992		2 J	5 J	3 J		14.9 (dis)	161 (dis)
		6/17/1992		2 J	5 J	4 J		17.8 (dis)	138 (dis)
		9/21/1992		2	6	4		17.1 (dis)	146 (dis)
		12/7/1992		1 J	5 J	4 J		15.8 (dis)	141 (dis)
		3/29/1993		<10	<10	3 J		14.8 (dis)	133 (dis)
		6/14/1993		<10	3 J	3 BJ		18.2 (dis)	124 (dis)
		9/7/1993		2 J	4 J	3 J		14.2 (dis)	145 (dis)
		12/3/1993		1 J	6 J	4 J		14.1 (dis)	137 (dis)
		3/15/1994		2 J	3 J	3 J		9.6 B (dis)	134 (dis)
		6/14/1994		<1	<1	3		15 (dis)	
		9/19/1994		1	<1	4		<10 (dis)	
		12/8/1994		<1	<1	4		16 (dis)	
		3/14/1995		2	1	3		13 (dis)	
		6/1/1995		2	1	3		18 (dis)	
		9/12/1995		<1	<1	4		17 (dis)	
		12/6/1995		2 J	<1	4 J		18 (dis)	
		3/26/1996		2	6	4		16 (dis)	
		6/4/1996		1	2	3	50 U	13.3 (dis)	
		9/3/1996		<1	<1	2		16 (dis)	
		12/18/1996		1	2	3		18 (dis)	
		3/5/1997		1.3	4	4.7		18 (dis)	
		7/2/1997		1.2	2.4	3.8		16.3 (dis)	
		4/14/1998		1.2	2.1	3.6		16.975 (dis)	
		10/13/1999		4.3 J	4 J	3.1 J			
		9/28/2000		5.2	4.2	2.6		16.8 J	245
		10/3/2001		8.3	5.7	2.1			
		10/23/2002		3.8	3.3	2.3			
		9/9/2003		4.4	3	2.2			
		9/15/2004		5.1	4	2			
		9/13/2005		9	6.2	2.1			
		10/16/2006		9.8	6.5	1.8	2.2		
		10/10/2007	(DB)	14	7.8	1.8			
		10/28/2008	(DB)	12	10	2.1			
		9/3/2009	(DB)	14	7.3	1.8			
		9/8/2010	(DB)	9.9	7.2	1.5			
		10/12/2011	(DB)	10	7	1.7			
		8/13/2012	(DB)	10	5.8	0.92 J			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-20	PIEZ	9/5/2013	(DB)	8.7	4.7	0.82 J			
		8/25/2014	(DB)	6.6	1.9	0.44 J			
		8/26/2015	(DB)	6.2	3.1	0.95 J	3.9		
		9/8/2016		6.3	2.9	0.76 J	1.1		
		8/29/2017		6	3	0.89 J	3		
AR-20A	PIEZ	7/5/1985		<10	<10	<10			
		9/11/1985		280	110	<10			
		12/6/1985		160	30	<10			
		3/28/1986		130	20	<10			
		9/16/1986		290	130	15			
		3/12/1987		65	14	3			
		9/11/1987		97	90	8			
		3/16/1988		51	<1	<1			
		9/15/1988		81	140	7			
		3/16/1989		71	33	5			
		9/18/1989		60	26	3			
		3/13/1990		70	7	5			
		3/7/1991		2	<1	<1			
		3/12/1992		22	5	<1			
		4/8/1992		12	<10	<10		<2 (dis)	1 (dis)
		6/17/1992		16	2 JY	<10		<3 (dis)	1 (dis)
		9/21/1992		33	28	4		<3 (dis)	4.8 B (dis)
		12/7/1992		32	13	2 J		<3 (dis)	9.6 B (dis)
		3/29/1993		7 J	<10	<10		<2 (dis)	1.6 B (dis)
		6/14/1993		2 J	<10	<10		3.4 B (dis)	<1 (dis)
		9/7/1993		33	19	3 J		<3 (dis)	2.9 B (dis)
		12/3/1993		32	12	3 J		<2 (dis)	5.1 B (dis)
		3/15/1994		7 J	<10	<10		<2 (dis)	<2 (dis)
		6/14/1994		<1	<1	<1		<10 (dis)	
		9/19/1994		36	<1	<1		<10 (dis)	
		12/8/1994		57	12	2		<10 (dis)	
		3/14/1995		2	<1	<1		<10 (dis)	
		6/1/1995		33	<1	<1		<10 (dis)	
		9/12/1995		37	17	4		<10 (dis)	
		12/6/1995		46	<1	<1		<10 (dis)	
		3/26/1996		12	<1	<1		<10 (dis)	
		6/4/1996		2	1 U	1 U	50 U	3.6 U (dis)	
		9/3/1996		25	<1	2		17 (dis)	
		9/3/1996	DUP	<1	<1	2		17 (dis)	
		12/18/1996		9	<1	<1		<2 (dis)	
		3/5/1997		15	<1	<1		<2 (dis)	
		7/2/1997		23	1 U	1 U		1.8 U (dis)	
		4/14/1998		9.7	1 U	1 U		1.8 U (dis)	
		10/13/1999		13	3	1 U			
		9/28/2000		15	0.65 J	1 U		4.6 UJ	2.2
		10/3/2001		14	0.56 J	1 U			
		10/23/2002		18	1.3	0.71 J			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-20A	PIEZ	9/9/2003		1.1	1 U	1 U			
		9/15/2004		13	0.63 J	1 U			
		9/12/2005		17	0.62 J	1 U			
		10/16/2006		12	1 U	1 U			
		10/10/2007	(DB)	11	1 U	1 U			
		10/28/2008	(DB)	1.2	1 U	1 U			
		9/3/2009	(DB)	3.6	1 U	1 U			
		9/8/2010	(DB)	4.1	1 U	1 U			
AR-21	PIEZ	3/28/1985		10	<10	30			
		4/12/1985		<10	<10	200			
		6/4/1985		8	<1	<1			
		6/21/1985		<10	<10	100			
		7/17/1985		<10	<10	250			
		8/20/1985		<10	<10	<10			
		9/26/1985		<10	<10	60			
		10/31/1985		<10	<10	180			
		11/21/1985		<10	<10	200			
		12/31/1985		<10	<10	170			
		1/17/1986		<10	<10	230			
		2/21/1986		<10	<10	140			
		4/1/1986		20	<10	10			
		9/15/1986		10	<10	400			
		10/5/1986		21	21	390			
		3/12/1987		12	27	410			
		9/20/1987		<10	20	210			
		3/25/1988		<10	<10	290			
		9/15/1988		12	58	240			
		3/24/1989		<5	<5	140			
		9/19/1989		<1	19	270			
		3/9/1990		<1	12	190			
		3/15/1991		7	8	150			
		3/30/1992		3 J	5 J	100		10.4 (dis)	621 (dis)
		6/23/1992		2 J	5 J	90		11.7 (dis)	461 (dis)
		9/30/1992		<1	2	68		7.2 B (dis)	368 (dis)
		9/30/1992	DUP	<10	1 J	64		7.9 B (dis)	360 (dis)
		12/10/1992		<10	<10	66		7.7 B (dis)	312 (dis)
		3/31/1993		<10	<10	140		9.5 B (dis)	569 (dis)
		3/31/1993	DUP	1 J	4 J	150		9 B (dis)	581 (dis)
		6/15/1993		2 J	4 J	160		9.7 B (dis)	641 (dis)
		9/9/1993		<10	3 J	180		10.6 (dis)	539 (dis)
		1/14/1994		<50	<50	230		12.3 (dis)	472 (dis)
		3/28/1994		<10	<10	310		14 (dis)	472 (dis)
		6/27/1994		3	5	180		10 (dis)	
		9/16/1994		<1	<1	210		16 (dis)	
		12/28/1994		<2	<2	240		16 (dis)	
		3/23/1995		<2	<2	200		16 (dis)	
		6/15/1995		<2	<2	210		12 (dis)	

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-21	PIEZ	9/25/1995		<2	<2	230		11 (dis)	
		12/29/1995		<1	<1	200		12 (dis)	
		4/4/1996		<2	<2	180		12 (dis)	
		6/7/1996		8 U	8 U	210	420 U	12.6 (dis)	
		9/9/1996		<1	<1	170		16 (dis)	
		12/16/1996		<2	<2	170		16 (dis)	
		3/4/1997		<1	<1	<1		<2 (dis)	
		7/7/1997		1 U	1 U	0.26 J		2.2 B (dis)	
		4/14/1998		6.8 U	6.8 U	180		11.8 (dis)	
		10/11/1999		3 U	4.3	79			
		10/2/2000		0.58 J	1.2	28		4.7 J	889
		10/3/2001		1 U	0.51 J	4.2			
		10/3/2001	DUP	1 U	0.58 J	4.5			
		10/18/2002		1 U	1 U	2.4			
		9/9/2003		1 U	1 U	7.3			
		9/16/2004		1 U	1 U	4.6			
		9/13/2005		0.79 J	1.9	15			
		10/11/2006		1 U	1 U	1 U	0.21 J	1 U (dis)	6.9 (dis)
		9/18/2007		1 U	1 U	1 U		1 U (dis)	10 U (dis)
		10/9/2008		1 U	1 U	1 U		1 U (dis)	1.4 (dis)
		8/20/2009		1 U	1 U	1 U		1 U (dis)	1.7 (dis)
		9/23/2010		1 U	1 U	1 U		1 U (dis)	1.6 (dis)
		9/26/2011		1 U	1 U	0.26 J		1 U (dis)	1.29 (dis)
		8/7/2012		1 U	0.5 U	1 U		0.7 J (dis)	1.5 J (dis)
		8/27/2013		1 U	1 U	1 U		1.7 (dis)	4.9 B (dis)
		8/25/2014						0.53 J (dis)	6 (dis)
		8/21/2015						0.56 J (dis)	4 (dis)
		9/8/2016						0.68 J (dis)	3.8 B (dis)
AR-27D	SOLINST	2/6/2001		65	2	0.96 J		9 U	62.8
		7/27/2001		46 J	1.2	0.72 J			
		10/21/2002		34	0.83 J	0.58 J			
		9/8/2003		20	1 U	1 U			
		9/13/2004		29	0.8 J	0.41 J			
		9/22/2005		30	0.63 J	0.42 J			
		10/24/2006		24	0.6 J	0.43 J			
		9/24/2007		23	1 U	0.49 J			
		10/16/2008		25	0.56 J	0.57 J			
		8/14/2009		18	1 U	1 U			
		9/29/2010		6.7	1 U	1 U			
		9/30/2011		2.8	1 U	1 U			
		7/31/2012		1.8 J	2 U	4 U			
		8/22/2013		0.74 J	1 U	1 U			
		8/6/2014		1.1	1 U	1 U			
AR-27SBR	SOLINST	6/29/2000		9		1 ND			
		6/29/2000	DUP	8		1 ND			
		7/19/2000		1 ND		1 ND			
		7/19/2000	DUP	1 ND		1 ND			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-27SBR	SOLINST	2/5/2001		16	1 U	1 U		9 U	43.5
		2/5/2001	DUP	16	1 U	1 U		9 U	46.3
		7/27/2001		19	1 U	1 U			
		7/27/2001	DUP	19	1 U	1 U			
		11/8/2002		15	1 U	1 U			
		9/5/2003		13	1 U	1 U			
		9/14/2004		13	1 U	1 U			
		9/22/2005		12	1 U	1 U			
		10/24/2006		13	1 U	1 U			
		8/18/2015		5	1 U	1 U	0.2 U		
AR-28S	SOLINST	2/1/2001		0.5 J	1 U	1 U		9 U	40.5
		7/25/2001		1 U	1 U	1 U			
		9/30/2011					0.169 J		
		8/1/2012					0.18 J		
		8/22/2013					0.46		
		8/21/2014					1.4		
		8/20/2015					0.7		
		9/2/2016					0.82		
		8/23/2017					0.9		
AR-29D	SOLINST	1/31/2001		4.2	1 U	1 U		3.1 U	204
		7/24/2001		5.8	0.3 J	1 U			
		5/7/2002						2.2 U	71.8
		11/7/2002		0.59 J	1 U	1 U		3.2 U	44.8
		11/7/2002	DUP	0.31 J	1 U	1 U			
		9/12/2003		9.3	1 U	1 U		2.4 U	94.3
		9/21/2004		6.9	0.45 J	1 U		1 U	139 NEJ
		9/22/2005		2.1	1 U	1 U		0.201 B	194
		10/26/2006		4.8	1 U	1 U		1 U	226
		9/20/2007		1.6	1 U	1 U	0.097 J	1 U	197
		10/16/2008		0.71 J	1 U	1 U	0.2 U	1 U	138
		8/14/2009		1 U	1 U	1 U	0.14 J	1 U	137
		9/30/2010		2.4	1 U	1 U		1 U	185
		10/3/2011					0.175 J		
		8/22/2013					0.17 J		
		8/20/2014					0.12 J		
		8/21/2015					0.47		
		9/1/2016					0.15 J		
		8/23/2017					0.37		
AR-29SBR	SOLINST	7/10/2000		168		1 ND			
		7/10/2000	DUP	178		1 ND			
		7/12/2000		7		1 ND			
		7/12/2000	DUP	9		1 ND			
		1/31/2001		15	0.66 J	1 U		2.7 U	219
		7/24/2001		2.4 J	1 U	1 U			
		7/24/2001	DUP	2.1	1 U	1 U			
		5/7/2002						2.2 U	1160
		11/1/2002						3.2 U	368

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-29SBR	SOLINST	11/5/2002		42	1.9	0.63 J		3.2 U	440
		9/12/2003		3.6	1 U	1 U		2.4 U	599
		9/21/2004		63	2.2	0.67 J		1.8	660 NEJ
		9/22/2005		41	1.3	0.55 J		1.4	641
		10/26/2006		24	0.61 J	0.38 J		2.1	1120
		9/21/2007		31	1.3	0.56 J	0.48	2.5	416
		9/21/2007	DUP	37	1.4	0.57 J	0.57	2.5	427
		10/16/2008		5 U	5 U	5 U	2	1.2	655
		8/14/2009		2.8	2.5 U	2.5 U		2.4	700
		8/18/2009					2.3 U		
		9/30/2010		3.1	2.5 U	2.5 U			
		10/1/2010						1 U	525
		10/5/2011		6	0.24 J	0.26 J			
		8/9/2012		1 U	0.5 U	1 U			
		9/4/2013					1.1	4.6	620 B
		9/19/2013		5 U	5 U	5 U			
		8/21/2014					1.3		
		8/21/2015					1.1		
		9/1/2016					1.3		
		8/30/2017					2000 U		
AR-30D	SOLINST	2/5/2001		7.8	1 U	1 U		9 U	40.3
		7/26/2001		7.8	1 U	1 U			
		11/6/2002		19	0.3 J	0.25 J		3.2 U	42.9
		9/11/2003		12	1 U	1 U		2.4 U	33.2
		9/20/2004		5.2	1 U	1 U		2.3	51.9 NEJ
		9/20/2004	DUP	5.2	1 U	1 U		2.4	52.6 NEJ
		9/26/2005		9.6	1 U	1 U		1.9	25.7
		10/27/2006		10	1 U	1 U		2.3	21.4
		9/24/2007		12	1 U	0.31 J	4.4	1.6	16.4
		10/15/2008		1.2	1 U	1 U	0.87	1 U	334
		10/15/2008	DUP	1.4	1 U	1 U	0.88	1 U	344
		8/17/2009		0.97 J	1 U	1 U	0.74	1 U	627
		8/17/2009	DUP	1.1	1 U	1 U	0.65	1 U	649
		10/1/2010		2.2	1 U	1 U	2	1 U	43.3
		10/1/2010	DUP	2.1	1 U	1 U	2	1 U	44.7
		10/4/2011		1.2	1 U	1 U	1.79	1 U	190
		10/4/2011	DUP	1.2	1 U	1 U	1.94	1 U	191
		8/10/2012		0.88 J	0.5 U	1 U	1.2	1.1	83
		8/29/2013		0.4 J	1 U	1 U	0.93	0.32 J	2600
		5/12/2014					1		
		8/20/2014						0.39 J	580 (dis)
		9/5/2014					1		
		9/5/2014	DUP				1.1		
		2/18/2015					0.95		
		8/21/2015					2.6	1.4	42 B
		3/1/2016					4		
		9/7/2016					3.5	2	26

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-30D	SOLINST	3/23/2017					5		
		8/25/2017					3.4	2.1	31 B
AR-30SBR	SOLINST	7/6/2000		1 ND		1 ND			
		2/5/2001		0.33 J	1 U	1 U		9 U	25.7
		7/26/2001		0.24 J	1 U	1 U			
		11/7/2002		13	0.21 J	1 U		3.2 U	185
		9/11/2003		2.2	1 U	1 U		2.4 U	59.6
		9/20/2004		1.7	1 U	1 U		1.3	44.3 NEJ
		9/23/2005		4.1	1 U	1 U		2.3	34.9
		10/27/2006		4.1	1 U	1 U		1.1	47.4
		9/24/2007		1 U	1 U	1 U	1.2	2	44
		10/15/2008		0.95 J	1 U	1 U	0.44	1	43
		8/17/2009		1 U	1 U	1 U	0.31	1 U	38.3
		10/1/2010		1 U	1 U	1 U	2 U	1 U	21.4
		10/4/2011					0.439		
		8/10/2012					0.48		
		8/29/2013					0.52		
		8/20/2014					0.42		
		8/21/2015					0.56		
		9/7/2016					0.45		
		8/25/2017					0.53		
AR-31D	SOLINST	2/1/2001		20	0.42 J	1 U		9 U	72.7
		7/26/2001		57	1.6	0.46 J			
		11/1/2002		45	1 J	1.8 U		4.4 B	658
		9/15/2003		1 U	1 U	1 U		2.4 U	194
		9/15/2003	DUP	1 U	1 U	1 U		2.4 U	190
		9/21/2004		76	1.7	0.51 J		3.2	267 NEJ
		9/23/2005		90	2	0.59 J		3.8	280
		9/23/2005	DUP	88	2	0.55 J		3.6	287
		10/25/2006		100	1.9	0.58 J	1.2 J	4.4	403
		10/25/2006	DUP	110	2	0.55 J	1.2 J	4.4	398
		9/20/2007		87	2.2	0.78 J		3.9	273
		10/15/2008		110	2.2	0.64 J	1.1	3.3	381
		8/18/2009		92	2.1	0.64 J	0.94	4.2	280
		9/29/2010		81	1.9	0.63 J	2 U	4.4	274
		10/4/2011		80	1.9	0.67 J	1.54	4.1	303
		8/8/2012		86	2.8	0.71 J	1.9	4	230
		8/29/2013		66	3.3	0.64 J	1.2	4.6	270
		2/11/2014					1.1		
		8/6/2014		51	2.5	0.49 J	1.7	4.6	260 B
		2/18/2015					2.1		
		8/25/2015		48	5 U	5 U	1.5	4.8	300
		3/1/2016					1.4		
		9/2/2016		33	1.9	1 U	1.1	5	320
		3/23/2017					1.5		
		8/24/2017		47	4 U *	4 U	1.1	4.5	330 B
AR-31S	SOLINST	2/1/2001		18	1 U	1 U		9 U	105

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-31S	SOLINST	7/26/2001		17	1 U	1 U			
		11/5/2002		4.5	1 U	1 U		3.9 B	13.5 B
		9/15/2003		4.5 J	1 UJ	1 UJ		6.2 B	42.3
		9/20/2004		20	1 U	1 U		3.4	38.4 NEJ
		9/23/2005		6.6	1 U	1 U		2	38.9
		10/25/2006		0.71 J	1 U	1 U		2.2	43.6
		9/20/2007		0.57 J	1 U	1 U		2.4	44.1
		10/15/2008		0.55 J	1 U	1 U	0.24 U	3.4	73.8
		8/18/2009		1 U	1 U	1 U	0.2 U	2.8	47.2
		8/19/2009						1.9	29.5
		9/29/2010		1.4	1 U	1 U		9.3	88.4
		9/30/2010					2 U		
		10/3/2011					0.152 J		
		8/29/2013					1		
		8/6/2014					0.34		
		8/19/2015					0.73 *		
		9/1/2016					0.2 U		
		8/22/2017					0.2 U *		
AR-33D	PIEZ	10/24/2001		ND		ND			
		10/24/2001	DUP	ND		ND			
		11/8/2001		1 U	1 U	1 U		1.5 UJ	45.9 J
		11/8/2001	DUP	1 U	1 U	1 U		1.5 UJ	286 J
		11/11/2002						3.2 U (dis)	74.7 (dis)
		9/9/2016					0.2 U		
AR-34DBR	PIEZ	5/6/2002		1 U	1 U	1 U		2.2 U	855
		5/6/2002	DUP	1 U	1 U	1 U		2.2 U	832
		11/11/2002						3.2 U (dis)	891
		9/9/2016					0.31		
AR-34SBR	PIEZ	5/6/2002		1 U	1 U	3.9		2.2 U	301
		11/11/2002						3.2 U (dis)	263
		9/9/2016					0.15 J		
AR-35MBR	PIEZ	9/24/2003		12	0.26 J	0.29 J			
		12/22/2003		17 J	0.32 J	0.3 J			
		12/22/2003	DUP	20 J	0.35 J	1 U			
		6/2/2004	(DB)	19	0.38 J	0.26 J			
		6/2/2004	DUP (DB)	16	0.37 J	1 U			
		10/4/2004		28	0.58 J	0.55 J			
		9/26/2005		25	0.41 J	0.46 J			
		10/26/2006		29	1 U	0.48 J			
		10/10/2007	(DB)	26	1 U	0.48 J			
		10/27/2008	(DB)	31	1 U	0.48 J			
		9/11/2009	(DB)	24	1 U	0.45 J			
		9/10/2010	(DB)	18	2.5 U	2.5 U			
		10/12/2011	(DB)	28	0.4 J	0.44 J			
		8/13/2012	(DB)	30	0.53	0.53 J			
		9/6/2013	(DB)	23	2 U	2 U			
		8/28/2014	(DB)	22	2 U	2 U			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
AR-35MBR	PIEZ	8/27/2015	(DB)	17	1 U	1 U			
		9/13/2016	(DB)	20	1 U	1 U			
		8/31/2017	(DB)	19	1 U	0.42 J			
AR-35SBR	PIEZ	9/24/2003		13	0.23 J	1 U			
		12/22/2003		25	0.51 J	1 U			
		6/2/2004	(DB)	28	0.52 J	1 U			
		10/4/2004		31	0.71 J	1 U			
		9/26/2005		27	0.46 J	1 U			
		10/26/2006		30	0.5 J	1 U			
		10/10/2007	(DB)	30	0.53 J	1 U			
		10/27/2008	(DB)	29	1 U	1 U			
		9/11/2009	(DB)	26	1 U	1 U			
		9/10/2010	(DB)	15	0.23 J	1 U			
ASBRV-T6A	TRANSECT	8/25/2000		260	81	16			
		11/4/2002		270	100	18			
		9/26/2003		110	67	5.3			
		10/8/2004		150	69	6.4			
		8/30/2005		200	69	7.6			
		10/3/2006		320	74	7.5			
		9/19/2007		310	88	7.6			
		11/5/2008		33	14 J	1.2			
		11/5/2008	DUP	43	19 J	1.4			
		9/11/2009		6.4	1 U	1 U			
		9/9/2010		2.5	1 U	1 U			
		10/11/2011	(DB)	51	4.7	0.35 J			
		8/14/2012		5.6	1.5	1 U			
		9/6/2013	(DB)	9.7	2.1	2 U			
		8/25/2014	(DB)	7.3	0.92 J	1 U			
		8/27/2015	(DB)	2.1	1 U	1 U			
		9/13/2016	(DB)	1 U	1 U	1 U			
		8/31/2017	(DB)	7	1 U	1 U			
ASBRV-T6B	TRANSECT	8/25/2000		420 J	100 J	14 J			
		9/10/2001		338	79	11			
		9/10/2001	DUP	250	87	12			
		10/1/2001		380	100	14			
		10/1/2001	DUP	380	100	14			
		11/4/2002		0.97 J	1 U	1 U			
		9/26/2003		2.2	0.47 J	1 U			
		10/8/2004		44	9.8	0.37 J			
		8/30/2005		140	56	6.4			
		10/3/2006		19	4.2	0.43 J			
		9/19/2007		36	6.3	0.41 J			
		11/5/2008		56	7.2	0.34 J			
		9/11/2009		49	14	1.5			
		9/9/2010		12	2.4	0.29 J			
		8/14/2012		0.27 J	0.5 U	1 U			
		9/6/2013	(DB)	2 U	2 U	2 U			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
ASBRV-T6B	TRANSECT	8/25/2014	(DB)	1 U	1 U	1 U			
		8/27/2015	(DB)	2.5	1 U	1 U			
ASSABET-1A	DW	8/18/2004		U	U	U			
		9/23/2004		0.9 J	1 U	1 U			
		8/1/2005		U	U	U			
		9/15/2005		1 U	1 U	1 U			
		4/26/2006							170
		8/7/2006		U	U	U			
		10/31/2006		1 U	1 U	1 U			
		4/17/2007							170
		7/13/2007		U	U	U			
		9/12/2007		1 U	1 U	1 U			
		3/5/2008					0.22		270 (dis)
		4/30/2008					0.22		
		7/23/2008		U	U	U			
		8/21/2008					0.19		
		10/21/2008		1 U	1 U	1 U			
		7/29/2009		U	U	U			
		8/12/2009		1 U	1 U	1 U			
		8/16/2010		U	U	U			
		10/1/2010		1 U	1 U	1 U			
		8/16/2011		U	U	U			
		9/30/2011		1 U	1 U	1 U	0.239		
		6/13/2012					0.221		
		6/19/2012					0.192		
		7/30/2012		1 U	0.5 U	1 U	0.22		
		8/14/2012		U	U	U	0.231		
		11/26/2012					0.263		
		8/13/2013		U	U	U			
		8/23/2013		1 U	1 U	1 U	0.32		
		11/14/2013					0.38		
		1/13/2014					0.2		
		2/11/2014					0.15 J		
		5/9/2014					0.38		
		6/2/2014					0.32		
		8/4/2014		U	U	U			
		8/20/2014		1 U	1 U	1 U	0.29		
		10/20/2014					0.314		
		11/4/2014					0.44		
		2/18/2015					0.46		
		2/18/2015	DUP				0.47		
		8/17/2015		0.53	U	U	0.449		
		8/19/2015		1 U	1 U	1 U	0.36		
		12/17/2015					0.34		
		3/1/2016					0.3		
		5/27/2016					0.37		
		6/6/2016					0.328		

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
ASSABET-1A	DW	8/30/2016		1 U	1 U	1 U	0.28		
		9/7/2016		U	U	U	0.377		
		9/23/2016					0.359		
		10/3/2016					0.362		
		12/15/2016					1		
		3/23/2017					0.45		
		6/19/2017					0.32		
		8/18/2017		1 U	1 U	1 U	0.35		
ASSABET-2A	DW	7/17/2001		U	U	U			
		10/4/2001		1 U	1 U	1 U			
		9/4/2002		0.7	U	U			
		11/12/2002		0.64 J	1 U	1 U			
		8/6/2003		U	U	U			
		9/17/2003		1 U	1 U	1 U			
		8/18/2004		U	U	U			
		9/23/2004		1 U	1 U	1 U			
		8/1/2005		U	U	U			
		9/15/2005		1 U	1 U	1 U			
		4/26/2006							100
		8/7/2006		U	U	U			
		10/31/2006		1 U	1 U	1 U			
		4/17/2007							120
		7/13/2007		U	U	U			
		9/12/2007		1 U	1 U	1 U			
		3/5/2008					0.19		80 (dis)
		3/18/2008							90
		4/30/2008					0.24		
		7/23/2008		U	U	U			
		8/13/2008					0.19		
		10/21/2008		1 U	1 U	1 U			
		7/29/2009		U	U	U			
		8/12/2009		1 U	1 U	1 U			
		8/16/2010		U	U	U			
		10/1/2010		1 U	1 U	1 U			
		8/16/2011		U	U	U			
		9/30/2011		1 U	1 U	1 U	0.116 J		
		6/13/2012					0.0929 J		
		6/19/2012					0.0709 J		
		7/30/2012		1 U	0.5 U	1 U	0.13 J		
		8/14/2012		U	U	U	0.13 J		
		11/26/2012					0.143		
		8/13/2013		U	U	U			
		8/23/2013		1 U	1 U	1 U	0.16 J		
		11/14/2013					0.39		
		1/13/2014					0.14		
		2/11/2014					0.23		
		5/9/2014					0.16 J		

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
ASSABET-2A	DW	6/2/2014					0.141		
		8/4/2014		U	U	U			
		8/20/2014		1 U	1 U	1 U	0.15 J		
		10/20/2014					0.152		
		11/4/2014					0.2		
		2/18/2015					0.27		
		5/29/2015					0.17 J		
		6/26/2015					0.2 U		
		8/17/2015		U	U	U			
		8/19/2015		1 U	1 U	1 U	0.13 J		
		12/17/2015					0.17 J		
		3/1/2016					0.19 J		
		5/27/2016					0.17 J		
		6/6/2016					0.2 U		
		8/30/2016		1 U	1 U	1 U	0.13 J		
		9/7/2016		U	U	U			
		9/23/2016					0.198		
		10/3/2016					0.202		
		12/15/2016					0.41		
		3/23/2017					0.24		
		6/19/2017					0.25		
		8/18/2017		1 U	1 U	1 U	0.2		
B-03B3	BAR	6/11/1982		79	240	350			
		10/28/1982		77	430	350			
		11/23/1999		71	59	5.1			
		9/7/2000		70	49	3.8		4.6 U	66.8
		8/7/2003		47 J	21 J	1.6			
		8/7/2003	DUP	50 J	23 J	1.7			
		9/21/2004		34	16	1.5			
		9/27/2005		34	18	1.4			
		10/9/2006		26	9.4	0.85 J	2.2		
		9/20/2007		16	5.8	0.65 J			
		10/14/2008		9.8	3.8	0.37 J			
		8/17/2009		1.8	1 U	1 U			
		9/29/2010		1.6	0.83 J	1 U			
		9/29/2011		0.53 J	0.33 J	1 U			
		7/31/2012		0.58 J	0.48 J	1 U			
		8/20/2015					2.1		
		9/1/2016					1.9		
		8/23/2017					1.8		
B-04B2	BAR	6/8/1982		10 ND	14	10 ND			
		8/17/2017		1 U	1 U	1 U			
B-04B3	BAR	6/8/1982		10 ND	410	880			
		9/29/2011		1 U	1 U	1 U			
		8/21/2013		1 U	1 U	1 U			
		9/25/2015		1 U					
		9/8/2016		1 U	1 U	1 U			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
B-04B3	BAR	8/24/2017		1 U	1 U *	1 U			
B-04B4	BAR	6/8/1982		10 ND	410	580			
		8/14/2009		1 U	1	1 U			
		9/24/2010		36	22	2.2			
		9/29/2011		1 U	1 U	1 U			
		7/30/2012		1 U	0.5 U	1 U			
		8/21/2013		1 U	1 U	1 U			
		8/7/2014		1 U	1 U	1 U			
		8/20/2015		1 U	1 U	1 U			
		8/31/2016		1 U	1 U	1 U			
		8/17/2017		1 U	1 U	1 U			
B-04B5	BAR	6/8/1982		640	890	680			
		9/29/2011		1 U	1 U	1 U			
		8/21/2013		1 U	1 U	1 U			
		9/25/2015		1 U					
		9/8/2016		1 U	1 U	1 U			
		8/24/2017		1 U	1 U *	1 U			
B-04P	PIEZ	6/8/1982		15	10 ND	10 ND			
		8/31/2017	(DB)	1 U	1 U	1 U			
B-05B3	BAR	6/2/1982		54	25	11			
		10/28/1982		43	23	BDL			
		6/7/1985		<10	<10	<10			
		9/6/1985		<10	<10	<10			
		3/26/1986		10	<10	<10		<10 (dis)	
		9/5/1986		<10	<10	<10			
		10/3/1986		12	<1	<1			
		3/16/1987		7	2	<1		<3 (dis)	
		9/17/1987		<1	<1	<1			
		3/17/1988		6	2	<1		<2 (dis)	
		9/14/1988		<1	<1	<1			
		3/22/1989		<1	<1	<1		<2 (dis)	
		9/15/1989		<1	<1	<1			
		3/14/1990		<1	<1	<1		<4 (dis)	
		3/13/1991		4	<1	<1		<3 (dis)	
		9/27/1991		3	<3	<3			
		4/1/1992		3 J	<10	<10		<2 (dis)	1680 (dis)
		6/26/1992		3 J	<10	<10		<3 (dis)	1750 (dis)
		10/9/1992		3	1	<1		<3 (dis)	1650 (dis)
		12/21/1992		2 J	<10	<10		<2 (dis)	1610 (dis)
		4/6/1993		3 J	<10	<10		<2 (dis)	1690 (dis)
		6/22/1993		2 J	<10	<10		<3 (dis)	1580 (dis)
		9/23/1993		3 J	<10	<10		<3 (dis)	1540 (dis)
		12/2/1993		4 J	3 J	<10		<2 (dis)	1610 (dis)
		3/30/1994		2 J	<10	<10		<2 (dis)	1630 (dis)
		7/7/1994		<1	<1	<1		<10 (dis)	
		9/29/1994		2	<1	<1		<10 (dis)	
		12/9/1994		<1	<1	<1		<10 (dis)	

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
B-05B3	BAR	4/11/1995		2	<1	<1		<10 (dis)	
		6/19/1995						<10 (dis)	
		7/27/1995		2	<1	<1			
		10/2/1995		1	<1	<1		<10 (dis)	
		6/18/1996		1	1 U	1 U	50 U	3.6 U (dis)	
		9/6/1996		<1	<1	<1		<2 (dis)	
		3/3/1997		2	<1	<1			
		4/8/1998		1.1	1 U	1 U		1.85 U (dis)	
		10/11/1999		1	1 U	1 U			
		9/18/2000		0.81 J	1 U	1 U		5.3 U	1910
		9/20/2001		1.2	1 U	1 U			
		10/31/2002						3.2 U	2130
		9/11/2003		0.45 J	1 U	1 U		2.4 U	2260
		9/20/2004		1 U	1 U	1 U		0.12 B	2470 NEJ
		9/26/2005		1 U	1 U	1 U		0.098 B	2680
		10/27/2006		1 U	1 U	1 U		4.1	388
		9/24/2007						1 U	3040
		10/17/2008						1.8	3370
		8/14/2009						1 U	341
		9/28/2010						1 U	3230
		10/4/2011					0.51	1 U	3130
		8/8/2012						1 U	2500
		9/3/2013						0.087 J	4300
		8/20/2014						0.18 J	4400 B
		8/26/2015						1 U	5100
		9/8/2016						1 U	6500 ^
		8/23/2017						1 U	5800 B
B-05B4	BAR	6/2/1982		870	170	64			
		10/28/1982		390	150	50			
		3/27/1985		110	<10	<10			
		4/11/1985		120	<10	<10			
		5/24/1985		<10	<10	<10			
		6/7/1985		100	20	10			
		7/30/1985		130	82	14			
		8/13/1985		230	30	20			
		9/6/1985		100	<10	10			
		10/8/1985		110	<10	10			
		11/20/1985		40	<10	<10			
		12/27/1985		<10	<10	<10			
		1/22/1986		70	20	<10			
		2/27/1986		<10	<10	<10			
		3/26/1986		60	20	<10		<10 (dis)	
		9/5/1986		<10	<10	<10			
		10/3/1986		54	4	6			
		3/17/1987		29	7	4		<3 (dis)	
		9/17/1987		24	70	3			
		3/17/1988		15	6	2		<2 (dis)	

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
B-05B4	BAR	9/14/1988		10	<1	1			
		9/14/1988	DUP	14	2	2			
		4/12/1989		8	3	1		<2 (dis)	
		9/15/1989		14	5	2			
		3/14/1990		8	3	1		<4 (dis)	
		3/13/1991		5	<1	<1		<3 (dis)	
		9/27/1991		7	<10	3			
		4/1/1992		9 J	3 J	1 J		<2 (dis)	824 (dis)
		6/26/1992		6 J	<10	1 J		<3 (dis)	846 (dis)
		10/9/1992		5	<1	<1		<3 (dis)	824 (dis)
		12/21/1992		4 J	<10	<10		<2 (dis)	732 (dis)
		4/6/1993		4 J	<10	<10		<2 (dis)	771 (dis)
		6/22/1993		5 J	2 J	<10		<3 (dis)	841 (dis)
		9/23/1993		3 J	1 JY	1 J		<3 (dis)	771 (dis)
		12/2/1993		3 J	<10	<10		2.7 B (dis)	788 (dis)
		3/30/1994		5 J	1 J	1 J		<2 (dis)	785 (dis)
		7/7/1994		<1	<1	<1		<10 (dis)	
		9/29/1994		2	<1	<1		<10 (dis)	
		12/9/1994		<1	2	1		<10 (dis)	
		4/11/1995		5	<1	1		<10 (dis)	
		6/19/1995						<10 (dis)	
		7/27/1995		5	<1	1			
		10/2/1995		1	<1	<1		<10 (dis)	
		6/18/1996		3	1 U	1 U	50 U	3.6 U (dis)	
		9/6/1996		<1	<1	<1		<2 (dis)	
		3/3/1997		4	<1	<1			
		4/8/1998		1.7	0.49 J	0.37 J		1.85 U (dis)	
		10/11/1999		2.4	1 U	1 U			
		9/18/2000		1	1 U	1 U		37.9	925
		9/20/2001		1.4	1 U	1 U			
		9/11/2003		1	1 U	1 U			
		9/20/2004		1.2	0.58 J	1 U			
		9/26/2005		1.4	0.39 J	1 U			
		10/27/2006		1.1	1 U	1 U			
		8/14/2009		1	1 U	1 U			
		9/28/2010		1.1	0.43 J	1 U			
		10/4/2011		1.1	0.33 J	1 U	0.987		
		8/8/2012		1.1	0.74	1 U	0.99		
		9/3/2013		1 U	1 U	1 U			
		8/8/2014		1.1	1.1	1 U			
		8/20/2015		1	0.92 J	1 U	1.2		
		9/8/2016					2.7		
		8/23/2017					1.5		
B-06B5	BAR	5/27/1982		140	20	10 ND			
		10/28/1982		440	140	BDL			
		3/1/1983		2000	200	45			
		3/30/1983		1900	220	55			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
B-06B5	BAR	4/28/1983		1800	220	58			
		3/27/1985		1200	<10	<10			
		4/11/1985		980	580	<10			
		5/24/1985		1100	<10	40			
		6/28/1985		1700	560	<10			
		7/10/1985		740	120	30			
		8/13/1985		1600	330	20			
		9/6/1985		1500	420	40			
		10/8/1985		1100	220	10			
		11/20/1985		790	130	<10			
		12/27/1985		760	<10	20			
		1/22/1986		630	110	10			
		2/27/1986		1700	320	40			
		3/25/1986		<10	<10	<10			
		4/3/1986		1500	840	40			
		9/4/1986		820	20	20			
		10/4/1986		720	130	20			
		3/11/1987		670	160	30			
		9/4/1987		540	280	20			
		3/23/1988		550	90	20			
		9/15/1988		140	<5	<5			
		3/23/1989		200	75	10			
		9/12/1989		89	24	4			
		3/13/1990		300	50	10			
		3/8/1991		21	4	<1			
		3/12/1992		59	17	3			
		3/12/1992	DUP	32	9	2			
		3/26/1993		26	7	1			
		3/2/1994		75	26	5			
		3/13/1995		12	4	1			
		3/26/1996		52	11	3			
		3/17/1997		18	2	<1			
		4/7/1998		30 E	6	1.5			
		10/5/1999		0.63 J	1 U	1 U			
		9/12/2000		0.46 J	1 U	1 U		4.6 UJ	275
		9/20/2001		2.7 J	1 UJ	1 UJ			
		10/28/2002		1.7	1 U	1 U			
		9/5/2003		1 U	1 U	1 U			
		9/17/2004		0.61 J	1 U	1 U			
		9/23/2005		1 U	1 U	1 U			
		10/25/2006		1 U	1 U	1 U	0.71 J		
		8/26/2013					1.1		
		8/8/2014					0.76		
		8/25/2015					0.81	1.2	330
		9/6/2016					1	0.94 J	370 B
		8/30/2017					0.69	1.2	320 B
B-08B	PIEZ	3/3/1993		<1000	<1000	11000		6.4 B (dis)	955 (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
B-08B	PIEZ	3/3/1993	DUP	<50	<50	610		5.5 B (dis)	923 (dis)
		6/11/1993		<10	17	8400		6.5 B (dis)	790 (dis)
		9/16/1993		<500	<500	9000		7 B (dis)	844 (dis)
		12/22/1993		<10	25	8300		6.2 B (dis)	806 (dis)
		4/5/1994		<20	14 J	7700		5.4 B (dis)	803 (dis)
		6/17/1994		<50	<50	9400		<10 (dis)	
		6/17/1994	DUP	<50	<50	7100		<10 (dis)	
		9/26/1994		<50	<50	7500		<10 (dis)	
		12/7/1994		<50	<50	9400		<10 (dis)	
		3/17/1995		<250	<250	7700		<10 (dis)	
		6/14/1995		<250	<250	6700		<10 (dis)	
		9/14/1995		<50	<50	5600		<10 (dis)	
		12/11/1995		<50	<50	5000		<10 (dis)	
		4/11/1996		<100	<100	5900		<10 (dis)	
		6/12/1996		250 U	250 U	4400	12000 U	3.6 U (dis)	
		9/6/1996		<50	<50	4300		9.9 (dis)	
		12/11/1996		<20	<20	2400		10 (dis)	
		3/19/1997		<20	<20	2500		10 (dis)	
		3/19/1997	DUP	<50		3400		10 (dis)	
		6/26/1997		200 U	200 U	3700		9.4 (dis)	
		6/26/1997	DUP					9.5 (dis)	
		4/16/1998		55 U	55 U	1400		8.31 (dis)	
		9/28/1999		69 U	69 U	2000			
		9/12/2000		44 UJ	44 UJ	1100		7.1 J	1080
		9/12/2000	DUP	44 U	44 U	1200		6.6 J	1160
		9/17/2001		37 U	37 U	1300 U			
		4/1/2002		34 U	34 U	1300			
		10/14/2002		20 U	20 U	810			
		9/30/2003		16 U	16 U	550			
		9/28/2004		1 U	2.1	300 E			
		10/3/2005		1 U	1	100			
		10/18/2006		1 U	1.4	74	24		
		9/18/2007		5 U	2.6 J	66	16		
		10/8/2008		2.5 U	0.82 J	18	17		
		8/19/2009		1 U	1.8	23	12		
		9/22/2010		1 U	1.2	8.7	23		
		10/5/2011		1 U	0.99 J	3.5	20.2		
		8/8/2012		1 U	1.1	4.6	18		
		8/27/2013		5 U	5 U	2.8 J	17		
		8/22/2014					17		
		8/21/2015					14		
		9/6/2016					8.2		
		8/25/2017					6.5		
B-08C	PIEZ	3/3/1993		14 J	80	1000		62.2 (dis)	10200 (dis)
		6/11/1993		<100	43 J	840		97.8 (dis)	8990 (dis)
		9/16/1993		<50	39 J	860		133 (dis)	7190 (dis)
		12/22/1993		<100	40 J	670		64.1 (dis)	10500 (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
B-08C	PIEZ	4/5/1994		<100	<100	1100		54.6 (dis)	12000 (dis)
		6/17/1994		<10	<10	960		72 (dis)	
		9/26/1994		<10	<10	1100		96 (dis)	
		9/26/1994	DUP	<10	<10	950		87 (dis)	
		12/7/1994		<20	33	1000		48 (dis)	
		3/17/1995		<20	<20	840		48 (dis)	
		6/14/1995		<10	<10	820		86 (dis)	
		9/14/1995		<20	<20	910		75 (dis)	
		12/11/1995		<25	<25	560		98 (dis)	
		4/11/1996		<10	<10	1400		170 (dis)	
		6/12/1996		100 U	100 U	2000	5000 U	202 (dis)	
		9/6/1996		<10	<10	1800		260 (dis)	
		12/11/1996		<10	10	810		160 (dis)	
		3/19/1997		<20	<20	690		180 (dis)	
		6/25/1997		67 U	67 U	1500			
		6/26/1997						6.7 (dis)	
		4/16/1998		22 U	14 J	300		175.2 (dis)	
		9/29/1999		5.6 U	4.9 J	180			
		9/12/2000		4.4 U	2.9 J	110		185	6780
		9/17/2001		4.1	16 J	20			
		10/14/2002		1.9	12 J	8.7			
		9/9/2003		0.62 J	3.5	5.3			
		9/16/2004		1 U	0.93 J	2.6			
		9/9/2005		1 U	1 U	0.32 J			
		10/9/2006		0.35 J	0.71 J	5.8		61.5 (dis)	6270 J (dis)
		9/14/2007						58.1 (dis)	7520 (dis)
		10/8/2008						2.2 (dis)	3490 (dis)
		8/19/2009						53.5 (dis)	4100 (dis)
		9/22/2010						149 (dis)	4530 (dis)
		9/28/2011						82.5 (dis)	4770 (dis)
		8/2/2012						29 (dis)	5000 (dis)
		8/21/2013						100 (dis)	4500 ^ (dis)
		8/22/2014						170 (dis)	3000 (dis)
		8/21/2015						6.3 (dis)	2600 (dis)
		9/6/2016						11 (dis)	3000 ^ (dis)
		8/25/2017						4.4 (dis)	2700 B (dis)
B-08D	PIEZ	3/4/1993		<200	<200	2400		171 (dis)	3060 (dis)
		6/11/1993		<200	<200	1000		160 (dis)	2900 (dis)
		9/16/1993		<100	<100	790		190 (dis)	5690 (dis)
		12/22/1993		<250	<250	880		264 (dis)	4100 (dis)
		4/5/1994		<20	<20	63		148 (dis)	3040 (dis)
		6/17/1994		<20	<20	1300		170 (dis)	
		9/26/1994		<10	<10	860		180 (dis)	
		12/7/1994		<10	<10	790		210 (dis)	
		3/17/1995		<10	<10	1300		190 (dis)	
		6/14/1995		<10	<10	1000		150 (dis)	
		9/14/1995		<5	<5	890		180 (dis)	

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
B-08D	PIEZ	12/11/1995		<25	<25	550		180 (dis)	
		4/11/1996		<5	<5	320		110 (dis)	
		6/12/1996		40 U	40 U	380	2000 U	116 (dis)	
		9/6/1996		<5	<5	420		160 (dis)	
		12/11/1996		<10	<10	930		190 (dis)	
		3/20/1997		<10	<20	1200		190 (dis)	
		6/25/1997		33 U	33 U	580			
		6/26/1997						224 (dis)	
		4/16/1998		48 U	48 U	860		186.05 (dis)	
		4/16/1998	DUP	61 U	61 U	1200		226.2 (dis)	
		9/29/1999		7.3 U	1.8 J	190			
		9/11/2000		1 U	0.35 J	29		166	3520
		9/18/2001		1 U	1 U	6.6			
		10/14/2002		1 U	1 U	2.6			
		9/10/2003		1 U	1 U	0.45 J			
		9/16/2004		1 U	1 U	0.38 J			
		9/9/2005		0.36 J	0.74 J	3			
		10/12/2006		1 U	1 U	1 U		1.4 (dis)	3580 (dis)
		9/14/2007						1 U (dis)	4390 (dis)
		10/8/2008						1 U (dis)	3550 (dis)
		8/20/2009						1 U (dis)	3330 (dis)
		9/22/2010						1 U (dis)	4060 (dis)
		9/28/2011						1 U (dis)	4020 (dis)
		8/3/2012						1 U (dis)	3600 (dis)
		8/21/2013						0.27 J (dis)	3500 ^ (dis)
		8/22/2014						1.1 (dis)	4700 (dis)
		8/21/2015						1.6 (dis)	2000 (dis)
		9/6/2016						1 U (dis)	3500 ^ (dis)
		8/25/2017						1.3 (dis)	380 B (dis)
B-09B3	BAR	6/1/1982		550	90	10 ND			
		6/7/1985		50	<10	<10			
		9/6/1985		610	430	10			
		12/4/1985		70	60	<10			
		3/24/1986		320	260	<10		<10 (dis)	
		9/5/1986		260	120	<10			
		10/3/1986		280	130	11			
		3/16/1987		280	280	<10		<3 (dis)	
		9/16/1987		270	380	10			
		3/17/1988		230	38	10		<2 (dis)	
		9/14/1988		260	50	<10			
		3/22/1989		<1	95	12		<2 (dis)	
		9/14/1989		260	59	10			
		3/14/1990		190	49	8		<4 (dis)	
		3/13/1991		50	13	2		<3 (dis)	
		9/27/1991		18	<19	1			
		3/16/1992		18	4	<1		<2 (dis)	
		9/23/1992		<1	<1	<1			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
B-09B3	BAR	4/6/1993		3	<1	<1		<10 (dis)	
		10/7/1993		6	<1	<1			
		3/30/1994		6	1	<1		<10 (dis)	
		9/29/1994		6	<1	<1			
		4/11/1995		7	3	<1		<10 (dis)	
		10/2/1995		8	<1	<1			
		6/18/1996		4	1 U	1 U	50 U	3.6 U (dis)	
		3/3/1997		7	<1	<1			
		4/8/1998		2.2	1 U	1 U			
		10/11/1999		1	1 U	1 U			
		9/18/2000		1 U	1 U	1 U		5.3 U	1190
		9/20/2001		1 U	1 U	1 U			
		8/17/2009		1 U	1 U	1 U			
		9/29/2010		0.5 J	1 U	1 U			
		10/4/2011		0.39 J	1 U	1 U	1.17		
		7/31/2012		0.88 J	0.21 J	1 U			
B-09B4	BAR	6/9/1982		380	85	10 ND			
		2/22/1984		52	BDL	BDL			
		6/7/1985		330	120	10			
		9/6/1985		1000	100	10			
		12/5/1985		650	250	10			
		3/25/1986		190	80	<10		<10 (dis)	
		3/16/1987		260	99	8		<3 (dis)	
		9/16/1987		140	420	<10			
		3/17/1988		220	150	10		<2 (dis)	
		9/15/1988		160	87	6			
		3/22/1989		<1	110	10		<2 (dis)	
		9/15/1989		240	130	9			
		3/14/1990		200	110	10			
		3/13/1991		140	70	5		<3 (dis)	
		9/27/1991		5	<5	<5			
		3/16/1992		75	31	3		<2 (dis)	
		9/23/1992		<1	<1	<1			
		4/6/1993		<5	<5	<5		<10 (dis)	
		10/7/1993		3	<1	<1			
		3/30/1994		<1	<1	<1		<10 (dis)	
		9/29/1994		12	<1	1			
		4/11/1995		10	<1	<1		<10 (dis)	
		10/2/1995		<1	<1	<1			
		6/18/1996		3	1 U	1 U	50 U	3.6 U (dis)	
		3/3/1997		2	<1	<1			
		10/11/1999		5.7	0.68 J	1 U			
		9/20/2000		2.9	0.52 J	1 U		4.6 U	626
		9/21/2001		1.4	1 U	1 U			
		11/5/2002		1.9	0.39 J	1 U		3.2 U	677
		9/15/2003		1.2 J	1 UJ	1 UJ		2.4 U	595
		9/21/2004		1.1	1 U	1 U		1.5	487 NEJ

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
B-09B4	BAR	9/27/2005		0.32 J	1 U	1 U		1.3	544
		10/27/2006		1 U	1 U	1 U		5 U	583
		9/24/2007		1 U	1 U	1 U	1.5	1.4	602
		10/17/2008		0.76 J	1 U	1 U	1.1		
		10/20/2008						1.6	593
		8/17/2009		1 U	1 U	1 U	0.86	2	617
		10/1/2010		0.53 J	1 U	1 U		1.7	572
		10/4/2010					2 U		
		10/6/2011		0.51 J	1 U	1 U	1.65	1.9	627
		8/9/2012		0.86 J	0.5 U	1 U	1.7		
		8/10/2012						1.9	550
		9/5/2013		0.71 J	1 U	1 U	1.9	1.9	600 B
Christofferson	DW	12/18/1980		TR		TR			
		8/30/1981		1					
		4/5/1983		0.07					
		2/17/1984		0.05					
		2/21/1984		0.27					
		3/9/1984		0.18					
		3/16/1984		0.09					
		4/6/1984		0.06					
		5/10/1984		0.05					
		5/31/1984		0.07					
		6/20/1984		0.07					
		11/29/1984		0.27					
		5/14/1985		<1	<1	<1			
		5/14/1985	DUP	<1	<1	<1			
		5/15/1985		0.19					
		9/5/1985		0.19					
		12/6/1985		0.13					
		3/11/1986		0.13					
		6/30/1997		0.5	U	U			
		8/21/1998		U	U	U			
		9/8/1999		U	U	U			
		9/11/2000		U	U	U			
		10/4/2000		1 U	1 U	1 U		4.6 U	520
		7/17/2001		U	U	U			
		10/4/2001		1 U	1 U	1 U			
		9/4/2002		0.6	U	U			
		11/12/2002		0.28 J	1 U	1 U			
		11/19/2002		U	U	U			
		8/6/2003		0.6	U	U			
		9/17/2003		1 U	1 U	1 U			
		8/18/2004		U	U	U			
		8/1/2005		U	U	U			
		9/15/2005		1 U	1 U	1 U			
		4/26/2006							1500
		8/7/2006		U	U	U			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
Christofferson	DW	10/31/2006		1 U	1 U	1 U			
		4/17/2007							1600
		7/13/2007		U	U	U			1300
		9/12/2007		1 U	1 U	1 U			
		11/7/2007					U		
		3/5/2008					0.24		2700 (dis)
		4/30/2008					0.19		
		7/23/2008		U	U	U			1400
		8/13/2008					0.19		
		10/21/2008		1 U	1 U	1 U			
		11/6/2008							1500
		2/17/2009							1700
		9/9/2009		U	U	U			1800
		9/11/2009		1 U	1 U	1 U			
		8/12/2010		U	U	U			
		10/1/2010		1 U	1 U	1 U			
		7/28/2011		U	U	U			
		9/30/2011		1 U	1 U	1 U	0.134 J		
		4/20/2012					0.164 J		
		5/17/2012					0.169 J		
		7/31/2012		1 U	0.5 U	1 U	0.15 J		
		8/14/2012		U	U	U	0.155 J		
		11/26/2012					0.108		
		3/18/2013					0.103		
		8/23/2013		1 U	1 U	1 U	0.2		
		9/19/2013		U	U	U			
		11/14/2013					0.2		
		2/11/2014					0.12 J		
		5/12/2014					0.12 J		
		6/2/2014					0.135		
		8/4/2014		U	U	U			
		8/20/2014		1 U	1 U	1 U	0.18 J		
		10/20/2014					0.191		
		11/4/2014					0.19 J		
		5/29/2015					0.15 J		
		6/26/2015					0.2 U		
		8/17/2015		0.53	U	U			
		8/19/2015		1 U	1 U	1 U	0.16 J		
		12/17/2015					0.28		
		3/1/2016					0.15 J		
		5/27/2016					0.17 J		
		6/6/2016					0.2 U		
		8/30/2016		1 U	1 U	1 U	0.19 J		
		9/7/2016		U	U	U			
		12/15/2016					0.28		
		3/23/2017					0.15 J		
		6/19/2017					0.072 J		

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
Christofferson	DW	8/22/2017		1 U	1 U	1 U	0.13 J		
EL-3	PIEZ	6/1/1989		<1	<1	<1			
		8/31/2017	(DB)	1 U	1 U	1 U			
ELF	RECOV	4/26/1985		<10	<10	700			
		5/24/1985		<10	<10	840			
		6/28/1985		<10	<10	450			
		7/26/1985		<10	<10	680			
		8/23/1985		<10	<10	370			
		9/26/1985		<10	<10	160			
		10/31/1985		<10	<10	210			
		11/26/1985		<10	<10	170			
		12/26/1985		<10	<10	220			
		1/22/1986		<10	<10	60			
		2/24/1986		<10	<10	64			
		2/24/1986	DUP	<10	<10	74			
		3/27/1986		<10	<10	90			
		6/6/1986		<10	<10	190			
		7/15/1986		<10	<10	300			
		8/26/1986		<10	<10	300			
		9/30/1986		<10	<10	110			
		10/22/1986		16	<1	380			
		11/24/1986		9	3	370			
		12/23/1986		4	<1	310			
		2/4/1987		2	<1	12			
		3/2/1987		<10	<10	330			
		3/31/1987		6	5	300			
		4/28/1987		<10	<10	300			
		5/28/1987		<10	<10	310			
		9/28/1987		<10	<10	240			
		10/27/1987		<1	7	19			
		11/24/1987		<10	<10	330			
		1/27/1988		<10	<10	360			
		2/29/1988		140	<10	350			
		3/21/1988		<10	<10	260			
		4/27/1988		<10	<10	290			
		10/27/1988		<2	<2	32			
		3/14/1989		<2	4	120			
		9/12/1989		<1	2	53			
		9/12/1989	DUP	<1	1	42			
		3/12/1990		<1	<1	1			
		5/4/1990		3.2	<5	18			
		3/6/1991		<1	<1	49			
		3/11/1992		54	<1	300			
		7/8/1992		1 J	3 J	140		35.7 (dis)	4660 (dis)
		9/24/1992		3	5	100		44.6 (dis)	4340 (dis)
		12/18/1992		<100	<100	240		103 (dis)	3970 (dis)
		3/5/1993		3 J	3 J	48		19 (dis)	3670 (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
ELF	RECOV	6/7/1993		9 J	8 J	150		<2 (dis)	63.4 (dis)
		9/20/1993		7 J	5 J	100		46.3 (dis)	3680 (dis)
		12/22/1993		14	20	130		14.3 (dis)	3770 (dis)
		3/22/1994		15	17	120		130 (dis)	3820 (dis)
		6/28/1994		3	3	100		140 (dis)	
		10/5/1994		1	<1	38		63 (dis)	
		1/5/1995		5	4	85		150 (dis)	
		3/1/1995		8	9	120		140 (dis)	
		6/16/1995		18	15	200		110 (dis)	
		9/26/1995		3	<1	58		100 (dis)	
		12/8/1995		4	5	46		150 (dis)	
		3/5/1996		3	4	30		13000 (dis)	
		6/7/1996		5	4	35	83 U	132 (dis)	
		6/7/1996	DUP	5	4	35	83 U	129 (dis)	
		9/5/1996		10	7	110		140 (dis)	
		9/5/1996	DUP	10	<1	110		140 (dis)	
		12/23/1996		14	10	90		120 (dis)	
		12/23/1996	DUP					130 (dis)	
		4/17/1998		6.3	3.5 J	96		95.4 (dis)	
		9/28/1999		0.77 J	0.8 J	1.5		106	
		9/28/1999	DUP	0.76 J	0.78 J	1.6		107	
		9/8/2000		58 J	18 J	4.4 J		37.6 J	1930
		9/8/2000	DUP	60	17 J	4.4 J		54.1 J	1950
		9/18/2001		11	5.5	16		188	4910
		9/18/2001	DUP	9.9	4.8	15			
		10/31/2002		19	10	41			
		6/10/2003		28 (dis)	14 (dis)	68 (dis)			
		9/4/2003		19	9.7	94			
		9/4/2003	DUP	20 J	9.8 J	89 J			
		12/17/2003		6	3.4	2.6			
		3/25/2004		40	11	3.5			
		7/7/2004		23	0.91 J	0.66 J			
		9/10/2004		22	9.5	45			
		9/27/2004		33	2.8	1.3			
		12/21/2004		19	9.9	52			
		3/28/2005		24	14	82			
		6/20/2005		23	11	61			
		9/21/2005		20	10	49			
		10/12/2005		21	11	43			
		5/23/2006					6.6	89.9	3090
		10/17/2006		17	8.3	11	4	108 (dis)	
		9/10/2007		23	11	52			
		10/30/2008	(DB)	1 U	1 U	1 U			
		9/3/2009	(DB)	1 U	1 U	1 U			
		9/3/2009	DUP (DB)	1 U	1 U	1 U			
G-3A	PIEZ	8/3/1993		3 J	36	7 J		5.5 B (dis)	314 (dis)
		12/30/1993		3 J	29	7 J		4.8 B (dis)	181 (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
G-3A	PIEZ	4/6/1994		2 J	24	4 J		4.2 B (dis)	122 (dis)
		6/17/1994		2	34	5		<10 (dis)	
		9/30/1994		2	21	4		<10 (dis)	
		1/5/1995		<1	27	4		<10 (dis)	
		3/24/1995		2	31	4		<10 (dis)	
		6/12/1995		2	18	4		<10 (dis)	
		9/27/1995		1	23	4		<10 (dis)	
		12/7/1995		2 J	20	3 J		<10 (dis)	
		4/8/1996		<1	28	3		<10 (dis)	
		6/10/1996		1 J	21	3	85 U	3.6 U (dis)	
		9/11/1996		<1	19	3		5.2 (dis)	
		12/10/1996		2	23	3		7 (dis)	
		3/4/1997		<1	28	3		5 (dis)	
		6/25/1997		1 U	15	2.6			
		4/21/1998		0.85 J	14	2.4			
		10/18/1999		0.57 J	12	1.9 U			
		9/25/2000		0.48 J	9.5	1.8		4.6 UJ	121
		10/3/2001		1 U	12	1.7			
		10/29/2002		0.99 J	8.7	1.4			
		9/3/2003		1.2	9	1.4			
		9/8/2004		2	10	1.4			
		9/14/2005		1.8	9.5	1.3			
		10/23/2006		1.7	10	1.3			
		10/8/2007	(DB)	2.3	5.7	0.96 J			
		10/28/2008	(DB)	2.2	9.5	1			
		9/3/2009	(DB)	1.7	11	0.85 J			
		9/8/2010	(DB)	1.5	8	0.59 J			
		10/10/2011	(DB)	1.2	5.1	0.5 J			
		8/10/2012	(DB)	0.95 J	5.2	0.47 J			
		9/5/2013	(DB)	0.64 J	2.7	1 U			
		8/28/2014	(DB)	2 U	2 U	2 U			
		8/27/2015	(DB)	0.37 J	1.5	1 U			
		9/13/2016	(DB)	0.34 J	1 U	1 U			
G-3BR	PIEZ	8/4/1993		<10	<10	9 J		<3 (dis)	37 (dis)
		1/6/1994		<10	<10	5 J		<2 (dis)	176 (dis)
		4/6/1994		<10	<10	4 J		<2 (dis)	184 (dis)
		6/17/1994		<1	<1	7		<10 (dis)	
		9/30/1994		<1	<1	10		<10 (dis)	
		1/5/1995		<1	<1	13		<10 (dis)	
		3/24/1995		<1	<1	5		<10 (dis)	
		6/12/1995		<1	<1	5		<10 (dis)	
		9/27/1995		<1	<1	4		<10 (dis)	
		12/7/1995		<1	<1	10		<10 (dis)	
		4/8/1996		<1	<1	7		<10 (dis)	
		6/10/1996		1 U	1 U	6	50 U	3.6 U (dis)	
		9/12/1996		<1	<1	2		<2 (dis)	
		12/11/1996		<1	<1	1		<2 (dis)	

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
G-3BR	PIEZ	3/7/1997		<1	<1	7		<2 (dis)	
		6/26/1997		1 U	1 U	5.3		2.3 B (dis)	
		4/22/1998		1 U	1 U	7			
		10/18/1999		1 U	1 U	8.3			
		9/25/2000		1 U	1 U	7.8		4.6 UJ	351
		10/3/2001		1 U	1 U	7.5			
		10/29/2002		1 U	1 U	9.9			
		9/3/2003		1 U	1 U	9.3			
		9/8/2004		1 U	1 U	9.1			
		9/16/2005		1 U	1 U	7			
		10/23/2006		1 U	1 U	6.4			
		10/8/2007	(DB)	1 U	1 U	6.5			
		10/28/2008	(DB)	2 U	2 U	6.4			
		9/3/2009	(DB)	1 U	1 U	2.5			
		9/8/2010	(DB)	1 U	1 U	4.6			
		10/10/2011	(DB)	1 U	0.22 J	5.1			
		8/10/2012	(DB)	1 U	0.25 J	5.4			
		9/5/2013	(DB)	1 U	1 U	4.4			
		8/28/2014	(DB)	2 U	2 U	4.7			
		8/27/2015	(DB)	1 U	1 U	4.2			
		9/13/2016	(DB)	1 U	1 U	1.6			
Lawsbrook	DW	12/17/1980		TR		TR			
		2/21/1984		4					
		3/9/1984		2.3					
		3/16/1984		0.8					
		4/6/1984		2.6					
		5/10/1984		1.9					
		5/31/1984		2					
		6/20/1984		2.6					
		11/29/1984		1.2					
		12/17/1984		6.8					
		5/14/1985		<1	<1	<1			
		5/15/1985		2					
		9/5/1985		0.74					
		12/6/1985		2.1					
		1/31/1986		1 ND		1 ND			
		3/11/1986		0.2					
		6/30/1997		U	U	U			
		8/21/1998		U	U	U			
		9/8/1999		U	U	U			
		9/11/2000		4.7	U	U			
		10/4/2000		1 U	1 U	1 U		5.2 J	2.4 J
		7/17/2001		7.2	0.2	U			
		10/4/2001		6.4	1 U	1 U			
		3/26/2002						2 U	
		9/4/2002		U	U	U			
		11/12/2002		9.9	1 U	1 U			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
Lawsbrook	DW	11/19/2002		U	U	U			
		8/6/2003		6	U	U			
		9/17/2003		5	1 U	1 U			
		8/18/2004		U	U	U			
		9/23/2004		7	1 U	1 U			
		8/1/2005		3	U	U			
		9/15/2005		2	1 U	1 U			
		2/14/2006		4	U	U			
		8/7/2006		2	U	U			
		10/31/2006		2.2	1 U	1 U			
		4/17/2007						U	U
		7/13/2007		U	U	U			
		9/12/2007		1 U	1 U	1 U			
		11/20/2007					U		
		3/5/2008					0.19		
		4/30/2008					0.19		
		7/23/2008		2	U	U			
		8/13/2008					0.19		
		10/21/2008		1 U	1 U	1 U			
		7/29/2009		2	U	U			
		8/12/2009		3	1 U	1 U			
		8/12/2010		2	U	U			
		10/1/2010		1.8	1 U	1 U			
		7/28/2011		2.1	U	U			
		9/30/2011		1.7	1 U	1 U	0.199 J		
		4/20/2012					0.199		
		7/31/2012		2.6	0.5 U	1 U	0.2		
		8/14/2012		2.2	U	U	0.207		
		11/26/2012					0.202		
		3/18/2013					0.234		
		8/13/2013		3.9	U	U			
		8/22/2013		4.1	1 U	1 U	0.33		
		11/14/2013					0.32		
		1/13/2014					0.281		
		2/11/2014					0.35		
		5/12/2014					0.31		
		6/2/2014					0.277		
		8/4/2014		3.9	U	U			
		8/8/2014		3.4	1 U	1 U	0.26		
		10/20/2014					0.248		
		11/4/2014					0.33		
		5/29/2015					0.15 J		
		6/26/2015					0.2 U		
		8/17/2015		5.96	U	U			
		8/18/2015		1.7	1 U	1 U	0.17 J		
		12/17/2015					0.22		
		3/1/2016					0.29		

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
Lawsbrook	DW	5/27/2016					0.3		
		6/6/2016					0.289		
		8/30/2016		2.2	1 U	1 U	0.21		
		9/7/2016		U	U	U			
		3/23/2017					0.25		
		6/19/2017					0.13 J		
		8/22/2017		1	1 U	1 U	0.21		
LF-02A	PIEZ	3/9/1993		41 Y	190	35		2.6 B (dis)	3.2 B (dis)
		6/3/1993		26	200	26		<2 (dis)	<1 (dis)
		9/17/1993		23	110	26		<3 (dis)	<2 (dis)
		1/13/1994		17 J	140	22		2.2 B (dis)	75.9 (dis)
		4/12/1994		18	55	38		<2 (dis)	259 (dis)
		7/1/1994		28	150	33		<10 (dis)	
		9/27/1994		27	190	26		<10 (dis)	
		1/10/1995		44	200	39		<10 (dis)	
		3/29/1995		40	220	33		<10 (dis)	
		6/12/1995		44	180	33		<10 (dis)	
		10/4/1995		35	140	29		<10 (dis)	
		1/12/1996		45	200	28		<10 (dis)	
		3/21/1996		37	180	26		<10 (dis)	
		6/26/1996		37	100	28	650 U	4.2 U (dis)	
		9/16/1996		<1	190	39		<2 (dis)	
		12/20/1996		74	200	31		<2 (dis)	
		3/24/1997		39	95	35		<2 (dis)	
		6/24/1997		47	100	23		1.8 U (dis)	
		4/24/1998		75	81 D	26		1.85 U (dis)	
		9/30/1999		160	150	30			
		9/14/2000		160	180	26		4.6 UJ	906
		9/18/2001		210	200	27			
		10/15/2002		230	200 J	28			
		9/22/2003		250	180	25			
		9/27/2004		240	160	21			
		9/28/2005		400	220	31			
		10/23/2006		200	110	24			
		10/9/2007		260	110	23			
		10/9/2007	(DB)	550	240	36			
		10/9/2007	DUP	250	110	23			
		10/29/2008	(DB)	500	260	34			
		9/3/2009	(DB)	430	190	28			
		9/8/2010	(DB)	520	190	27			
		10/12/2011	(DB)	520	180	28			
		8/13/2012	(DB)	440	180	25			
		9/5/2013	(DB)	310	130	21			
		8/25/2014	(DB)	230	83	16			
		8/27/2015	(DB)	180	64	13			
		9/12/2016	(DB)	150	69	11			
		8/31/2017	(DB)	120	60	11			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
LF-05E	PIEZ	3/4/1993		260	310	28		2.6 B (dis)	657 (dis)
		6/4/1993		270	220	25		5.2 B (dis)	425 (dis)
		9/9/1993		160	140	25		3.6 B (dis)	346 (dis)
		12/16/1993		250 Y	200	24		4.2 B (dis)	329 (dis)
		4/4/1994		170	130	24		3.6 B (dis)	331 (dis)
		6/21/1994		130	100	21		<10 (dis)	
		9/27/1994		160	100	18		<10 (dis)	
		12/19/1994		<1	180	23		<10 (dis)	
		3/16/1995		180	160	27		<10 (dis)	
		6/9/1995		190	140	22		10 (dis)	
		6/9/1995	DUP	250	170	22		<10 (dis)	
		9/19/1995		240	190	22		<10 (dis)	
		12/22/1995		190	140	21		<10 (dis)	
		4/4/1996		250	220	25		<10 (dis)	
		6/25/1996		220	150	23	500 U	4.4 B (dis)	
		9/10/1996		150	100	20		4.9 (dis)	
		12/11/1996		200	130	16		6 (dis)	
		12/11/1996	DUP	210		17		6 (dis)	
		3/19/1997		200	110	20		7 (dis)	
		7/1/1997		190	110	20		4.4 B (dis)	
		4/16/1998		190	110	19		5.57 (dis)	
		10/20/1999		24	14	7.4			
		10/4/2000		100 J	71 J	14		5.5 U	299
		10/4/2000	DUP	130	100 J	13		5.3 U	298
		10/2/2001		140	97	12			
		10/16/2002		120	54	9.5 J			
		9/29/2003		140	98	10			
		9/28/2004		100	80	7.5			
		9/28/2004	DUP	97	71	7.6			
		9/28/2005		100	76	8.2			
		9/28/2005	DUP	110	78	8			
		10/18/2006		90	61	6.3	7.1		
		10/11/2007	(DB)	70	41	4.2			
		10/28/2008	(DB)	81	54	5.5			
		9/3/2009	(DB)	64	49	4.7			
		9/8/2010	(DB)	56	43	3.5			
		10/12/2011	(DB)	29	25	2.1			
		8/13/2012	(DB)	46 J	38 J	3.1 J			
		9/5/2013	(DB)	32	26	2.6			
		8/25/2014	(DB)	23	14	1.8			
		8/27/2015	(DB)	16	12	1.4			
		9/12/2016	(DB)	4.4	1 U	1 U			
		9/12/2016	DUP (DB)	4	1 U	1 U			
		9/12/2017		23	14	1.9			
LF-06	PIEZ	3/10/1993		<10	<10	100		5.2 B (dis)	59.2 (dis)
		6/15/1993		<10	<10	150		<3 (dis)	<1 (dis)
		9/9/1993		<10	<10	160		3.7 B (dis)	<2 (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
LF-06	PIEZ	12/30/1993		<10	<10	58		<2 (dis)	<2 (dis)
		3/28/1994		<10	<10	150		<2 (dis)	<2 (dis)
		6/23/1994		<2	<2	160		<10 (dis)	
		9/15/1994		<2	<2	180		<10 (dis)	
		12/28/1994		<2	<2	190		<10 (dis)	
		3/20/1995		<1	<1	180		<10 (dis)	
		6/12/1995		<1	<1	180		<10 (dis)	
		9/19/1995		<1	<1	150		<10 (dis)	
		12/14/1995		<1	<1	160		1300 (dis)	
		4/5/1996		<1	<1	170		<10 (dis)	
		6/7/1996		10 U	10 U	170	500 U	3.6 U (dis)	
		9/4/1996		<1	2	190		3.2 (dis)	
		12/16/1996		<2	<2	140		<2 (dis)	
		3/5/1997		<1	<1	140		2 (dis)	
		7/3/1997		7.7 U	7.7 U	140		3.2 B (dis)	
		4/15/1998		2.2 U	0.9 J	140 D		2.256 B (dis)	
		10/8/1999		4.3 U	4.3 U	120			
		9/13/2000		3.3 U	3.3 U	89		4.6 UJ	215
		10/2/2001		1 U	0.36 J	60			
		10/15/2002		1 U	0.24 J	31			
		9/23/2003		1 U	1 U	21			
		9/23/2003	DUP	1 U	1 U	22			
		9/24/2004		1 U	1 U	12			
		9/29/2005		1 U	1 U	12			
		10/19/2006		1 U	1 U	6.1			
		10/9/2007	(DB)	1 U	1 U	4.4			
		10/28/2008	(DB)	1 U	1 U	2.3			
		9/3/2009	(DB)	1 U	1 U	1.7			
		9/8/2010	(DB)	1 U	1 U	17			
		10/12/2011	(DB)	1 U	0.26 J	14			
		8/13/2012	(DB)	1 U	0.5 U	3.5			
		9/5/2013	(DB)	1 U	1 U	3.4			
		8/28/2014	(DB)	2 U	2 U	2.8			
		8/27/2015	(DB)	1 U	1 U	2.1			
		9/12/2016	(DB)	1 U	1 U	2			
		8/31/2017	(DB)	1 U	1 U	1.9			
LF-06C	PIEZ	2/7/1984		350	BDL	17000			
		6/23/1992		<500	<500	6800		176 (dis)	11700 (dis)
		9/24/1992		27	60	8600 B		63.7 (dis)	11900 (dis)
		9/24/1992	DUP	<500	<500	10000 E		1200 (dis)	13100 (dis)
		12/9/1992		20 J	29 J	11000		950 (dis)	12000 (dis)
		3/10/1993		<500	<500	8700		1060 (dis)	12100 (dis)
		6/15/1993		<500	<500	9000		1130 (dis)	11500 (dis)
		6/15/1993	DUP	28	54	9900 D		3040 (dis)	11800 (dis)
		9/9/1993		<500	<500	8400		1080 (dis)	12000 (dis)
		12/30/1993		<500	<500	7600		1100 (dis)	11100 (dis)
		3/28/1994		15	37	9000		1260 (dis)	11300 (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
LF-06C	PIEZ	6/23/1994		<100	<100	9300		1200 (dis)	
		9/15/1994		<50	<50	8200		1300 (dis)	
		12/28/1994		<100	<100	8800		1100 (dis)	
		3/20/1995		<50	<50	6400		1100 (dis)	
		6/12/1995		<50	<50	8800		850 (dis)	
		9/19/1995		<100	<100	8900		1100 (dis)	
		12/14/1995		<50	<50	7100		<10 (dis)	
		4/5/1996		<50	<50	6900		1200 (dis)	
		6/7/1996		420 U	420 U	7700	21000 U	1140 (dis)	
		9/4/1996		<50	<50	8300		680 (dis)	
		12/16/1996		<50	<50	5700		1200 (dis)	
		3/5/1997		<50	<50	8600		1000 (dis)	
		6/26/1997		330 U	330 U	6900			
		6/27/1997						1200 (dis)	
		6/27/1997	DUP					1200 (dis)	
		4/15/1998		260 U	260 U	6400		1076 (dis)	
		9/30/1999		180 U	180 U	6000			
		9/13/2000		200 U	200 U	5200		1240	8710
		9/18/2001		130 U	130 U	4800 U			
		4/1/2002		100 U	100 U	3900			
		10/15/2002		130 U	130 U	4500			
		10/15/2002	DUP	130 U	130 U	4500			
		9/23/2003		98 U	98 U	4000			
		9/24/2004		2 U	1.3 J	3200			
		9/29/2005		10 U	10 U	2800			
		5/23/2006					36	892	6680
		10/19/2006		10 U	10 U	3000	33	258 (dis)	6160 (dis)
		10/19/2006	DUP					233 (dis)	6690 (dis)
		9/17/2007		10 U	10 U	1800	21	357 (dis)	6610 (dis)
		9/17/2007	DUP				23		
		10/9/2008		0.4 J	1.3 J	1800	21	168 (dis)	5910 (dis)
		10/9/2008	DUP				24		
		8/20/2009		5 U	5 U	830	20	564 (dis)	5420 (dis)
		8/20/2009	DUP				24		
		9/24/2010		1 U	1 U	15	23	265 (dis)	4790 (dis)
		9/24/2010	DUP				24		
		10/5/2011		1 UJ	2.6	420	18.9	648 (dis)	4040 (dis)
		8/8/2012		10 U	2.2 J	220	12	360 (dis)	2500 B (dis)
		8/27/2013		5 U	5 U	160	8.4	310 (dis)	2800 B (dis)
		8/22/2014		5 U	5 U	100	6.6	120 (dis)	2400 (dis)
		8/24/2015		5 U	5 U	74	5.8	96 (dis)	2400 (dis)
		9/7/2016		1 U	1 U	34	3.8	140 (dis)	2300 (dis)
		8/29/2017		4 U	4 U	28	4	210 (dis)	2200 B (dis)
LF-06N	PIEZ	2/8/1984		21	25	13000			
		6/19/1992		<200	<200	3300		<3 (dis)	611 (dis)
		9/21/1992		<200	<200	2000 B		<3 (dis)	723 (dis)
		12/9/1992		<10	<10	130		<3 (dis)	762 (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
LF-06N	PIEZ	3/10/1993		<200	<200	2800		9.8 B (dis)	697 (dis)
		3/10/1993	DUP	<200	<200	2800		8.9 B (dis)	674 (dis)
		6/15/1993		<200	<200	2600		8.1 B (dis)	747 (dis)
		9/9/1993		<200	<200	2100		12.8 (dis)	800 (dis)
		12/30/1993		<100	<100	1500		11 (dis)	816 (dis)
		3/28/1994		2 J	<10	1700		10.1 (dis)	683 (dis)
		6/23/1994		<20	<20	3100		<10 (dis)	
		9/15/1994		<20	<20	2900		11 (dis)	
		12/28/1994		<20	<20	270		14 (dis)	
		3/20/1995		<20	<20	2400		19 (dis)	
		6/12/1995		<10	<10	1600		20 (dis)	
		9/19/1995		<20	<20	2400		25 (dis)	
		12/14/1995		<20	<20	2200		12 (dis)	
		4/5/1996		<25	<25	2400		14 (dis)	
		6/7/1996		1 U	1 U	18	50 U	13.6 (dis)	
		9/4/1996		<25	<25	2300		26 (dis)	
		12/16/1996		<10	<10	1400		17 (dis)	
		3/5/1997		<10	<20	1700		35 (dis)	
		6/26/1997		100 U	100 U	1800		27.3 (dis)	
		4/15/1998		50 U	50 U	1200		50.45 (dis)	
		10/1/1999		31 U	31 U	960			
		9/13/2000		28 U	28 U	680		11 J	1030
		9/18/2001		28 U	28 U	930 U			
		4/1/2002		22 U	22 U	860			
		10/15/2002		11 J	4.3 J	440			
		9/18/2003		9.4 U	9.4 U	340			
		9/24/2004		0.58 J	1.5	150			
		9/29/2005		0.68 J	1.9	130			
		5/23/2006					27	8.1 (dis)	629 (dis)
		10/18/2006		1 U	1.3	61	25	25 (dis)	
		10/9/2007		0.68 J	1.6	58			
		10/9/2007	(DB)	0.36 J	0.75 J	53			
		10/28/2008	(DB)	0.58 J	1.1	56			
		9/3/2009	(DB)	0.65 J	2.5	49			
		9/8/2010	(DB)	0.94 J	3.8	20			
		10/12/2011	(DB)	0.76 J	3.2	4.8			
		8/13/2012	(DB)	2.2 J	8.1 J	15 J			
		9/5/2013	(DB)	1 U	1 U	1 U			
		8/28/2014	(DB)	2 U	2 U	2 U			
LF-10	PIEZ	3/8/1993		1100 Y	390	44 J		3.2 B (dis)	1180 (dis)
		6/10/1993		1000	350	47 J		3.6 B (dis)	1130 (dis)
		9/13/1993		830	350	43 J		4.8 B (dis)	1090 (dis)
		12/15/1993		1000	400	41 J		3.7 B (dis)	1120 (dis)
		3/18/1994		990	480	40 J		3.2 B (dis)	1100 (dis)
		3/18/1994	DUP	950	470	40 J		3.4 B (dis)	1050 (dis)
		6/15/1994		370	120	28		<10 (dis)	
		6/15/1994	DUP	670	250	33		<10 (dis)	

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
LF-10	PIEZ	9/13/1994		940	350	52		<10 (dis)	
		12/22/1994		<2	290	45		<10 (dis)	
		3/10/1995		780	460	50		<10 (dis)	
		6/9/1995		750	240	<10		<10 (dis)	
		9/14/1995		820	380	40		<10 (dis)	
		9/14/1995	DUP	660	400	38		<10 (dis)	
		12/15/1995		570	380	35		<10 (dis)	
		3/6/1996		490	210	31		<10 (dis)	
		6/3/1996		710	220	38	1500 U	3.6 U (dis)	
		6/3/1996	DUP	710	220	38	1500 U	3.6 U (dis)	
		9/10/1996		510	170	24		5.1 (dis)	
		12/12/1996		790	220	28		4 (dis)	
		3/21/1997		900	250	41		5 (dis)	
		3/21/1997	DUP	1000	280	48		6 (dis)	
		6/24/1997		670	180	31		4.6 B (dis)	
		4/23/1998		720	190	32		5.08 (dis)	
		10/20/1999		490 J	140	30			
		10/20/1999	DUP	580	150	31			
		9/18/2000		650 J	160 J	31 J		5.3 U	1120
		9/18/2000	DUP	540	140	30		5.3 U	1130
		10/1/2001		610	170	32			
		10/1/2001	DUP	660	180	30			
		10/15/2002		540	170 J	22			
		9/22/2003		510	140	26			
		9/23/2004		640	180	28			
		10/3/2005		470	130	21			
		10/11/2006		410	92	16	7.7		
		10/9/2007		430	110	18			
		10/9/2007	(DB)	540	130	22			
		10/28/2008	(DB)	480	150	24			
		9/3/2009	(DB)	440	120	23			
		9/9/2010	(DB)	340	92	17			
		10/10/2011	(DB)	200	60	14			
		8/10/2012	(DB)	230	66	14			
		9/5/2013	(DB)	200	55	15			
		8/25/2014	(DB)	170	37	15			
		8/27/2015	(DB)	140	33	13			
		9/12/2016	(DB)	120	29	11			
		8/31/2017	(DB)	110	23	11			
LF-11AR	PIEZ	9/27/1995		12	92	22		<10 (dis)	
		12/19/1995		16	47	19		<10 (dis)	
		12/19/1995	DUP	17	38	22		12 (dis)	
		3/21/1996		20	180	19		<10 (dis)	
		6/24/1996		19	110	22	300 U	13.9 (dis)	
		9/16/1996		16	130	19		16 (dis)	
		12/27/1996		19	110	15		13 (dis)	
		12/27/1996	DUP	7	30	8		7 (dis)	

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
LF-11AR	PIEZ	3/21/1997		20	100	22		14 (dis)	
		7/2/1997		16	84	16		11.8 (dis)	
		4/23/1998		16	66 E	14		14.52 (dis)	
		10/19/1999		13	71 J	15			
		9/22/2000		8.7	46	12		12	1800
		9/20/2001		14	63	14			
		10/21/2002		12	76	16			
		9/30/2003		15	77	17			
		9/23/2004		24	110	20			
		9/16/2005		18	78	14			
		10/30/2006		16	79	14			
		10/8/2007	(DB)	8.4	74	13			
		10/28/2008	(DB)	5.2	69	16			
		9/3/2009	(DB)	2.2	35	6.7			
		9/8/2010	(DB)	1.2	19	3.1			
		10/12/2011	(DB)	0.99 J	10	1.5			
		8/13/2012	(DB)	0.78 J	3.3	0.39 J			
		9/5/2013	(DB)	1.7	3.2	0.43 J			
		8/25/2014	(DB)	0.54 J	1 U	1 U			
		8/27/2015	(DB)	0.58 J	1 U	1 U			
		9/12/2016	(DB)	0.56 J	1 U	1 U			
LF-12	PIEZ	3/10/1993		1 J	<10	38		15.9 (dis)	138 (dis)
		6/8/1993		<10	<10	3 J		16 (dis)	154 (dis)
		9/8/1993		1 J	<10	8 J		0.003 (dis)	145 (dis)
		12/16/1993		2 J	<10	38		17.8 (dis)	118 (dis)
		3/29/1994		2 J	<10	22		13.2 (dis)	138 (dis)
		6/24/1994		2	<1	39		14 (dis)	
		9/14/1994		3	<1	15		15 (dis)	
		1/4/1995		<1	<1	15		14 (dis)	
		3/24/1995		2	<1	43		23 (dis)	
		6/12/1995		2	<1	<1		<10 (dis)	
		9/13/1995		2	1	38		16 (dis)	
		12/29/1995		1	<1	7		12 (dis)	
		4/5/1996		<1	<1	13		11 (dis)	
		6/10/1996		2	0.8 J	33	83 U	13.7 (dis)	
		9/12/1996		<1	<1	4		13 (dis)	
		12/16/1996		2	<1	31		18 (dis)	
		3/4/1997		<1	<1	<1		9 (dis)	
		7/7/1997		1.4	1 U	0.3 J		11.3 (dis)	
		7/7/1997	DUP	1.3	1 U	0.29 J		14.6 (dis)	
		4/15/1998		2.2	0.83 J	32 D		15.34 (dis)	
		10/15/1999		3.1	0.49 J	24			
		9/15/2000		1.8	0.52 J	18		13.8	208
		9/21/2001		1.6 J	1 UJ	8.3 J			
		10/16/2002		1 U	0.49 J	17			
		9/8/2003		2.4	0.9 J	28			
		9/16/2004		2.6	0.98 J	19			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
LF-12	PIEZ	9/9/2005		1 U	0.73 J	3.7			
		10/6/2006		3.2	0.9 J	22		15.8 (dis)	150 J (dis)
		9/19/2007		3.2	1.2	27		16.1 (dis)	170 (dis)
		10/9/2008		2.8	0.94 J	24		15.1 (dis)	191 (dis)
		8/20/2009		2.6	0.81 J	22		16.3 (dis)	161 (dis)
		9/24/2010		2.9	1.3	26		16.5 (dis)	197 (dis)
		9/27/2011		2.7	0.87 J	16		14.39 (dis)	126 (dis)
		8/3/2012		2.8	1.2	33		18 (dis)	140 (dis)
		8/22/2013		1.3	1 U	28		16 (dis)	130 B (dis)
		8/6/2014		1.7	1 U	29		16 (dis)	88 (dis)
		8/18/2015		1.3	1 U	30		15 (dis)	140 B (dis)
		9/1/2016		1.1	1 U	5.6		15 (dis)	91 (dis)
		8/18/2017		1.2	1 U	19			
		8/23/2017						15 (dis)	140 (dis)
LF-13A	PIEZ	3/31/1993		63	27	6 J		7.4 B (dis)	877 (dis)
		6/14/1993		43	20	5 J		6.1 B (dis)	1950 (dis)
		9/7/1993		56	21	8 J		5.4 B (dis)	1780 (dis)
		12/16/1993		59	20	7 J		5.9 B (dis)	1660 (dis)
		3/15/1994		50	20	5 J		2.9 B (dis)	1570 (dis)
		6/14/1994		33	12	4		<10 (dis)	
		9/14/1994		49	12	4		12 (dis)	
		12/8/1994		25	6	4		<10 (dis)	
		3/14/1995		45	13	3		<10 (dis)	
		6/1/1995		37	13	3		11 (dis)	
		9/12/1995		40	13	3		<10 (dis)	
		12/6/1995		44	11	3 J		<10 (dis)	
		3/26/1996		52	24	3		<10 (dis)	
		6/4/1996		39 E	12	3	50 U	3.6 U (dis)	
		9/3/1996		25	<1	3		10 (dis)	
		12/18/1996		27	9	2		10 (dis)	
		3/5/1997		50	14	3.5		7 (dis)	
		7/7/1997		27	7.5	2.6		5.2 (dis)	
		4/14/1998		35	8.8	4.4		4.518 B (dis)	
		10/7/1999		25	5.5	2.4			
		9/21/2000		19 J	4.4 J	1.8		14	2280
		9/21/2000	DUP	23	6.5 J	1.9		10.7	2320
		9/24/2001		21	4.3	1.3			
		10/21/2002		25	4.6	1.5			
		9/9/2003		7.3	1 U	1 U			
		9/15/2004		21	3.9	1.1			
		9/13/2005		21	3.3	1			
		10/30/2006		25	3.5	0.76 J			
		10/8/2007	(DB)	14	7.9	1			
		10/28/2008	(DB)	14	7.3	1.1			
		9/3/2009	(DB)	14	8.3 J	1.1			
		9/8/2010	(DB)	12	7.7	0.84 J			
		10/12/2011	(DB)	13	7.5	0.94 J			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
LF-13A	PIEZ	8/13/2012	(DB)	14	10	1.1			
		9/5/2013	(DB)	12	7.8	1			
		8/25/2014	(DB)	11	5.9	0.96 J			
		8/27/2015	(DB)	11	6.3	0.94 J			
		9/12/2016	(DB)	11	7.6	0.93 J			
		8/31/2017	(DB)	12	7	1.1			
LF-15	PIEZ	3/8/1993		<50	8 J	360		201 (dis)	8350 (dis)
		6/1/1993		<20	<20	260		226 (dis)	8170 (dis)
		6/1/1993	DUP	<20	5 J	280		258 (dis)	8220 (dis)
		9/8/1993		<20	8 J	260		0.003 (dis)	8200 (dis)
		9/8/1993	DUP	<20	8 J	280		0.003 (dis)	7760 (dis)
		12/3/1993		<100	<100	290		213 (dis)	8630 (dis)
		3/15/1994		<10	2 J	190		204 (dis)	10200 (dis)
		6/7/1994		<50	<50	360		296 (dis)	
		6/16/1994	DUP	<50	<50	340		280 (dis)	
		9/15/1994		<2	<2	300		280 (dis)	
		12/9/1994		<2	2	360		230 (dis)	
		3/10/1995		<2	<2	200		240 (dis)	
		3/10/1995	DUP	<2	<2	190		220 (dis)	
		6/1/1995		<1	<1	170		280 (dis)	
		9/13/1995		<2	3	320		240 (dis)	
		12/6/1995		<5	<5	240		230 (dis)	
		3/20/1996		<1	2	170		240 (dis)	
		3/20/1996	DUP	<1	3	180		240 (dis)	
		6/4/1996		15 U	15 U	220	760 U	231 (dis)	
		9/4/1996		<5	<5	200		260 (dis)	
		12/23/1996		<2	<2	120		280 (dis)	
		3/4/1997		<1	<1	190		230 (dis)	
		3/4/1997	DUP	<1		200		230 (dis)	
		6/26/1997		10 U	10 U	180		238 (dis)	
		4/14/1998		0.85 J	3.2	40		222 (dis)	
		4/14/1998	DUP	0.99 J	3.9	39		219.4 (dis)	
		10/20/1999		1 U	1.4	11			
		9/21/2000		1 U	1 U	6.9		182	4770
		9/24/2001		1 U	1 U	2.3			
		10/15/2002		1 U	1 U	0.73 J			
		9/9/2003		1 U	1 U	1 U			
		9/15/2004		1 U	1 U	0.51 J			
		9/13/2005		1 U	1 U	0.55 J			
		10/13/2006		1 U	1 U	0.57 J		54.3 (dis)	2540 (dis)
		9/18/2007						65.6 (dis)	2910 (dis)
		10/9/2008						3.2 (dis)	2960 (dis)
		8/20/2009						66.6 (dis)	3110 (dis)
		9/23/2010						82.5 (dis)	2460 (dis)
		9/26/2011						108 (dis)	2570 (dis)
		8/3/2012						63 (dis)	2200 (dis)
		8/22/2013						3.2 (dis)	2400 B (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
LF-15	PIEZ	8/6/2014						0.29 J (dis)	2400 (dis)
		8/20/2015						2.2 (dis)	2700 (dis)
		9/1/2016						35 (dis)	2800 (dis)
LF-17D	SOLINST	1/29/2001		23	32	4 J		10.6 U	2200
		9/20/2001		76 J	72 J	8.5 J			
		11/8/2002		66 J	86 J	7.9			
		11/8/2002	DUP	63 J	75 J	8.2			
		9/25/2003		49	72	8.5			
		9/28/2004		49	93	8.8			
		9/28/2004	DUP	49	91	8.6			
		10/3/2005		34	97	7.2			
		10/3/2005	DUP	33	93	7			
		11/1/2006		29	91	6.6			
		11/1/2006	DUP	29	91	6.7			
		9/25/2007		27	110	8.1			
		10/14/2008		21	110	7.1			
		8/13/2009		5.4	120	6.9			
		9/28/2010		11	100	6.1			
		9/29/2011		4.9	90	5.4			
		8/1/2012		0.41 J	100	5.8			
		8/22/2013		1 U	73	4.6			
		8/7/2014		1 U	69	4.6			
		8/18/2015		1 U	74	4			
		9/2/2016		1 U	75	4.1			
		8/18/2017		7.4	57	4.7			
LF-18D	PIEZ	12/7/2001		5		ND			
		12/7/2001	DUP	6		ND			
		12/10/2001		97		ND			
		12/10/2001	DUP	188		ND			
		12/19/2001		501		ND			
		12/19/2001	DUP	535		ND			
		12/20/2001		63		ND			
		12/20/2001	DUP	62		ND			
		1/2/2002		ND		ND			
		1/2/2002	DUP	ND		ND			
		4/3/2002		15	5	1		7.2 U	1140
		6/13/2002		68 J	25	3.9			
		10/30/2002		89 J	35 J	5.5			
		10/30/2002	DUP	100 J	37 J	5.8			
		9/18/2003		120 J	39 J	7.1			
		9/18/2003	DUP	130 J	42 J	7.4			
		9/22/2004		150	54	8.6			
		9/20/2005		120	48	7.8			
		10/20/2006		110	45	7.3	7.9		
		10/8/2007	(DB)	120	43	7			
		10/8/2007	DUP (DB)	140	44	7.5			
		10/28/2008	(DB)	100	39	6.3			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
LF-18D	PIEZ	10/28/2008	DUP (DB)	120	36	6.8			
		9/3/2009	(DB)	81	30	5.3			
		9/3/2009	DUP (DB)	74	28	4.8			
		9/8/2010	(DB)	71	30	4.5			
		9/8/2010	DUP (DB)	66	28	4.4			
		10/11/2011	(DB)	62	25	4.7			
		10/11/2011	DUP (DB)	63	26	4.9			
		8/13/2012	(DB)	74	33	5.3			
		8/13/2012	DUP (DB)	76	33	5.4			
		9/5/2013	(DB)	44	20	4.3			
		9/5/2013	DUP (DB)	42	19	4.1			
		8/25/2014	(DB)	34	13	3.5			
		8/25/2014	DUP (DB)	31	10	3.1			
		8/27/2015	(DB)	32	14	3.4			
		8/27/2015	DUP (DB)	31	13	3.5			
		9/2/2015					8.4 B		
		9/8/2016		30	13	3.1	6.9		
		8/24/2017		32	13	3.4	7.5		
LF-19D	SOLINST	1/30/2001		0.78 J	1.6 J	0.91 J		4.9 U	646
		9/19/2001		140 J	84 J	25			
		10/17/2002		4.7	100	15			
		9/23/2003		2.6 J	190	26			
		9/23/2003	DUP	3.1 J	190	25			
		9/13/2004		1.4	160	28			
		9/21/2005		6.9	240	31			
		10/18/2006		10	290	31			
		9/19/2007		2 U	230	30			
		10/14/2008		16	53	7			
		8/13/2009		1.5	31	1.8			
		9/28/2010		1 U	36	1.5			
		9/29/2011		1 U	26	5.4			
		8/17/2012		0.24 J	19	3			
		9/4/2013		1 U	13	2.3			
		8/21/2014		0.63 J	10	2.3			
		8/24/2015		1 U	21	1.7			
		9/6/2016		1 U	18	2.6			
		8/25/2017		1 U	13	1.9			
LF-19DBR	PIEZ	12/21/2007	(DB)	19	9.3	27			
		10/28/2008	(DB)	29	14	28			
		9/3/2009	(DB)	14	11	24			
		9/8/2010	(DB)	11	9.2	21			
		9/8/2010	DUP (DB)	11	9.4	22			
LF-19MBR	PIEZ	12/21/2007	(DB)	36	18	30			
		12/21/2007	DUP (DB)	33	18	32			
		10/28/2008	(DB)	29	17	25			
		9/3/2009	(DB)	25	15	26			
		10/1/2010	(DB)	19	14	22			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
LF-19MBR	PIEZ	10/12/2011	(DB)	3	23	24			
		10/12/2011	DUP (DB)	3.1	23	23			
		8/13/2012	(DB)	0.43 J	23	21			
		8/13/2012	DUP (DB)	0.51 J	27 J	24 J			
		9/5/2013	(DB)	0.82 J	18	24			
		8/25/2014	(DB)	1 U	1 U	23			
		8/27/2015	(DB)	1 U	1 U	23			
		9/12/2016	(DB)	1 U	1 U	23			
		8/31/2017	(DB)	0.52 J	1 U	26			
LF-19SBR	SOLINST	1/30/2001		390 J	160	30		5.3 U	432
		9/20/2001		540	160	30			
		10/17/2002		570 J	190 J	29			
		10/17/2002	DUP	560 J	170 J	28			
		9/23/2003		600	160	24			
		9/13/2004		640	190	31			
		9/21/2005		680	190	29			
		5/23/2006					12	1.8 B	312
		5/23/2006	DUP				13	1.6	309
		10/18/2006		560	150	23	10	2.27 (dis)	
		9/19/2007		520	160	21			
		10/14/2008		58	70	61			
		8/13/2009		63	49	48			
		9/28/2010		40	54	39			
		9/29/2011		130	120	33			
		8/17/2012		140	120	26			
		9/4/2013		150	97	23			
		8/21/2014		150	64	18			
		8/24/2015		130	71	17			
		9/6/2016		80	83	14			
		8/28/2017		60	98	17			
LF-20D	PIEZ	12/11/2001		ND		ND			
		12/11/2001	DUP	ND		ND			
		1/8/2002		462		ND			
		1/8/2002	DUP	493		ND			
		1/10/2002		494		ND			
		1/10/2002	DUP	498		ND			
		1/23/2002		191		ND			
		1/23/2002	DUP	188		ND			
		1/25/2002		218		ND			
		1/25/2002	DUP	221		ND			
		1/28/2002		56		ND			
		1/28/2002	DUP	59		ND			
		1/30/2002		5		ND			
		1/30/2002	DUP	6		ND			
		4/2/2002		78	47	7.2		8.3 U	762
		4/18/2002		69	40	6.1			
		4/19/2002		98.42		ND			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
LF-20D	PIEZ	4/19/2002	DUP	90.6		ND			
		10/22/2002		63 J	39 J	5.5			
		10/22/2002	DUP	56 J	35 J	5.2 J			
		9/8/2003		46	30	4.5			
		9/13/2004		50	29	4.5			
		9/22/2005		39	28	3.7			
		9/22/2005	DUP	39	28	3.8			
		10/24/2006		33	21	3.4			
		10/24/2006	DUP	34	22	3.6			
		10/9/2007		28	16	2.8			
		10/9/2007	(DB)	29	14	2.8			
		10/28/2008	(DB)	21	7.7	2.3			
		9/3/2009	(DB)	14	7.1	1.9			
		9/8/2010	(DB)	11	5.9	1.7			
		10/11/2011	(DB)	8.7	4.1	1.5			
		8/13/2012	(DB)	9	4.9	1.7			
		9/5/2013	(DB)	7.5	6.9	1.4 J			
		8/25/2014	(DB)	5.5	2.9	0.83 J			
		8/27/2015	(DB)	4.8	3.3	0.73 J			
		9/8/2016		7.2	4.2	1.6	3.4		
		8/29/2017		3.1	1.3	0.85 J	2.9		
LF-22D	PIEZ	4/9/2010		4.1	5.1	19	6.1	2.5	484
		9/9/2010	(DB)	5.4	6.1	81			
		10/10/2011	(DB)	4.8	5	33			
		8/10/2012	(DB)	6.8	7.1	28			
		9/5/2013	(DB)	14	8.9	16			
		8/28/2014	(DB)	16	7.8	11			
		8/27/2015	(DB)	8.3	6.4	9			
		9/12/2016	(DB)	11	11	10			
		8/31/2017	(DB)	11	8.7	8.2			
LF-22S	PIEZ	4/9/2010		31	36	15	30	1 U	3880
		9/9/2010	(DB)	28	34	19			
		10/10/2011	(DB)	21	25	12			
		8/10/2012	(DB)	20	27	11			
		9/5/2013	(DB)	14	18	9.6			
		8/28/2014	(DB)	12	7.9	7.4			
		8/27/2015	(DB)	10	9.9	6.8			
		9/12/2016	(DB)	8	7.7	6.1			
		8/31/2017	(DB)	11	7.6	6.7			
MLF	RECOV	12/4/1992		31	32	180		13.5 (dis)	5880 (dis)
		3/5/1993		32	38	140		16.8 (dis)	5320 (dis)
		6/7/1993		32	36	120		29.8 (dis)	4540 (dis)
		9/15/1993		6 J	5 J	68		30.7 (dis)	4850 (dis)
		12/21/1993		34	51	110		34.2 (dis)	4830 (dis)
		3/22/1994		42	63	140		33.6 (dis)	5660 (dis)
		6/28/1994		33	36	120		36 (dis)	
		9/7/1994		22	28	110		38 (dis)	

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
MLF	RECOV	9/7/1994	DUP	24	14	120		37 (dis)	
		1/5/1995		27	35	120		30 (dis)	
		3/1/1995		22	29	92		41 (dis)	
		6/12/1995		24	23	110		25 (dis)	
		6/12/1995	DUP	22	25	8		29 (dis)	
		9/26/1995		20	29	140		41 (dis)	
		9/26/1995	DUP	21	32	130		40 (dis)	
		12/8/1995		21	32	110		44 (dis)	
		3/5/1996		17	27	91		43 (dis)	
		3/5/1996	DUP	16	26	92		43 (dis)	
		6/12/1996		29	5	36	50 U	24 (dis)	
		8/30/1996		10	17	89		44 (dis)	
		12/23/1996		13	5	41		30 (dis)	
		3/20/1997		120	40	8		40 (dis)	
		6/26/1997		4 U	9.2	60		40.8 (dis)	
		6/27/1997	DUP	3.6 U	9.5	62		38.7 (dis)	
		4/17/1998		10	2.5	2.8		43.2 (dis)	
		9/29/1999		6.5	4.8	28		49.4	
		9/6/2000		80	14	3.2		181	1770
		9/18/2001		5.3	4.7	7.8		72.5	5660
		10/31/2002		4.2	3.8	4.7			
		6/10/2003		6.3 (dis)	4.8 (dis)	4.8 (dis)			
		9/4/2003		5	3.4	3.6			
		12/17/2003		5.1	3.4	3.5			
		3/25/2004		4.2	2.6	3.7			
		7/7/2004		6	3.2	3.2			
		9/10/2004		8.4	5.5	3			
		9/10/2004	DUP	9	5.6	3			
		9/27/2004		6.1	4.1	2.8			
		12/21/2004		46	12	3.4			
		3/28/2005		64	17	3.7			
		6/20/2005		5.6	3.6	1.9			
		9/21/2005		48	1.7	1 U			
		10/12/2005		4.7	2.9	2.1			
		5/23/2006					1.2 J	48.1	5770
		10/17/2006		4.5	3.7	1.4	1.5 J	60 (dis)	
		10/17/2006	DUP	4.9	3	1.3	1.3 J		
		9/10/2007		4.6	4.4	1.4			
		8/13/2008		3.9	0.8 J	1 U	0.76	52.3	4570
		8/13/2008	DUP	3.7	0.85 J	1 U	0.8	52.4	4530 (dis)
		9/4/2008		3.8	2.3	1	1.6	45.4	5070 (dis)
		4/3/2009		3.9 J	3.1 J	1.2 J	1.2		
		9/15/2009		3.9	2.5	0.88 J	1.1	51.8	5040
		12/29/2009		3.6	2	0.66 J	1.1	50.7	4540
		3/24/2010		3.1	0.59 J	0.31 J	0.73	68.7 J	4190
		5/12/2010		4.4	3.3	0.96 J	0.89	58.5 NJ	4600
		7/20/2010		3.5	2.5	1	0.83	56.4	4070

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
MLF	RECOV	10/7/2010		3.6	2.9	0.65 J		76.2	4290
		10/12/2010					2 U		
		1/25/2011		3.5	2.1	0.58 J	1.9 J	53	4020
		4/19/2011		3.4	2	0.56 J	1.5 J	57.8	4240
		9/27/2011		3.2	0.88 J	0.27 J	1.51	45.4	4080
		1/11/2012		2.6	1.9	0.51 J	1.66	53.8	4530
		3/1/2012		3.4	3.2	0.52 J	1.37	59.2	4370
		7/26/2012		3.7	1.7	0.47 J	1.23	51.6	4040
		10/11/2012		2.8	1.2	0.38 J	1.3	51	3400
		1/14/2013		4.1	2.2	0.46 J	1.3	54	3800
		4/11/2013		3.6	1.1	1 U	1.3	59	3700
		9/5/2013		4	2.5	1 U	1.2	57	3700
		11/13/2013		4.4	2.2	0.63 J	1.4	47	3800 B
		2/3/2014		4.1	1.6	1 U	1.4	56	3600
		5/30/2014		6.2	2	1 U	1.2	61	3500 ^
		8/11/2014		5.7	1.6	1 U	1	57 B	3700
		11/7/2014		3.8	1.6	0.64 J	1.2	40	3700
		2/19/2015	DUP	6	1.5	1 U	50 U	59	3700
		5/29/2015		5.1	1.2 *	1 U	50 U	61	3400 B
		8/20/2015		4.9	1.5	1 U	50 U	58	3500
		11/20/2015		3.6	1.1	1 U	50 U *	62	3400
		2/26/2016		5.4	1.2	1 U	50 U	60	3300
		5/24/2016		4.1	1.2	1 U	0.8	56	3300 B
		8/19/2016		5.2	1.2	1 U	0.99	58	3500 B
		12/8/2016		3.9	1.2	1 U	0.99	57	3300
		3/9/2017		4.6	1.5	1 U	1	58	3300
		6/15/2017		4.1	1.3	1 U	0.76	56	3400
		8/30/2017		4.7	1.2	1 U	0.83	53	3300 B
MW-04B	PIEZ	11/18/1987		110	12	3 J			
		6/28/1990		114	4.2	2.4			
		11/1/1991		ND	ND	ND			
		2/1/1995		26 J	ND	1.2 J			
		7/1/1996		62 J	4 J	ND			
		9/1/1997		60	4	2 J			
		10/18/1999		31	2.1	9.5			
		9/29/2000		1.5	1 U	1 U		4.6 UJ	17.5
		9/27/2001		14	1.2 J	0.83 J			
		10/28/2002		14	1.2	0.93 J			
		9/12/2003		12	1.1	0.8 J			
		9/16/2004		12	1.3	0.77 J			
		9/14/2005		16	1.4	1.1			
		10/13/2006		12	0.92 J	0.69 J			
		10/10/2007	(DB)	16	1.2	1.2			
		10/29/2008	(DB)	21	2	1.6			
		9/11/2009	(DB)	18	1.6	1.5			
		9/9/2010	(DB)	19	1.7	1.1			
		10/12/2011	(DB)	18	1.5	1.2			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
MW-04B	PIEZ	8/14/2012	(DB)	20	2.1	1.3			
		9/6/2013	(DB)	18	2	1.1 J			
		8/28/2014	(DB)	18	2 U	1.2 J			
		8/27/2015	(DB)	18	1.4	1.1			
		9/13/2016	(DB)	17	1.4	0.97 J			
		8/31/2017	(DB)	20	1.6	1.3			
MW-06B	PIEZ	6/27/1990		727	33.2	2.8			
		11/1/1991		810	ND	ND			
		2/1/1995		630	35	ND			
		7/1/1996		290	6	ND			
		9/1/1997		490	14	2 J			
		11/1/1998		390	19	ND			
		10/12/1999		260	10	5.3			
		9/27/2000		250	10 J	3.4		18.7 J	213
		9/27/2000	DUP	250	8.4 J	3.3		18.3 J	219
		9/25/2001		260 J	7 U	7 U			
		9/25/2001	DUP	240	6.9 U	6.9 U			
		10/25/2002		190 J	6	2.6 J			
		10/25/2002	DUP	180 J	4.3	2.4 J			
		9/10/2003		170	4.4	2.5 J			
		9/14/2004		190	4.9	2.2			
		9/12/2005		170	4.2	2.1			
		5/24/2006					0.98 J	20.8	202
		10/10/2006		180	4.1	1.8			
		10/10/2007	(DB)	190	3.2	1.5			
		10/10/2007	DUP (DB)	190	3.1	1.6			
		10/29/2008	(DB)	140	1.9	1.2			
		10/29/2008	DUP (DB)	120	1.4	1.1			
		9/11/2009	(DB)	140	2.8	2			
		9/11/2009	DUP	130	2.7	1.9			
		9/9/2010	(DB)	54	1.7	2			
		9/9/2010	DUP (DB)	54	1.7	2.1			
		10/12/2011	(DB)	29	2	1.4			
		8/14/2012	(DB)	25	3	1.2			
		9/6/2013	(DB)	19	2	2 U			
		9/6/2013	DUP (DB)	20	2.9	2 U			
		8/21/2014		20	1.4	0.9 J	2		
		8/25/2015		20	1.5	0.89 J	2.4		
		9/7/2016		22	2.7	0.87 J	1.9		
		8/30/2017		19	1	0.89 J	1.7		
MW-06D1	PIEZ	12/21/2007	(DB)	1 U	1 U	1 U			
		10/29/2008	(DB)	1 U	1 U	1 U			
		1/15/2010		1 U	1 U	2 U			
		10/5/2010				2 U			
		3/29/2011				2 U			
		10/7/2011				2 U			
		8/2/2012				4 U			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
MW-06D1	PIEZ	8/23/2013				1 U			
MW-06D2	PIEZ	12/21/2007	(DB)	1 U	1 U	1 U			
		10/29/2008	(DB)	1 U	1 U	1 U			
		1/15/2010		1 U	1 U	2 U			
		10/5/2010				2 U			
		3/29/2011				2 U			
		10/7/2011				2 U			
		8/2/2012				4 U			
		8/23/2013				1 U			
MW-06S	PIEZ	6/27/1990		ND	ND	ND			
		11/1/1991		ND	ND	ND			
		2/1/1995		ND	ND	ND			
		7/1/1996		ND	ND	ND			
		9/1/1997		ND	ND	ND			
		10/7/2011					1.83		
		8/26/2013					2		
		11/14/2013					0.87		
		2/11/2014					0.41		
		5/12/2014					0.2		
		8/21/2014					0.2 U		
		2/18/2015					0.11 J		
MW-07B	PIEZ	7/1/1996		79	8	ND			
		9/1/1997		71	2 J	3 J			
		11/1/1998		250	43	6.8			
		10/12/1999		160	21	7 UJ			
		10/12/1999	DUP	160	21	7.2 U			
		9/27/2000		170 J	21 J	6		44.1	232
		9/25/2001		140	15	6			
		10/25/2002		100	10	4.2			
		9/10/2003		110 J	13	4.3			
		9/10/2003	DUP	110 J	13	4.4			
		9/14/2004		81	9.2	3.5			
		9/14/2004	DUP	85	8.8	3.6			
		9/12/2005		76	7.5	3.5			
		9/12/2005	DUP	75	7.3	3.5			
		5/24/2006					3.7	37.8	178
		10/10/2006		56	6.1	3.5			
		10/10/2007	(DB)	41	2.2	1.4			
		10/29/2008	(DB)	52	6	3.2			
		9/10/2009	(DB)	37	5.9	2.4			
		9/9/2010	(DB)	25	4	2.2			
		10/12/2011	(DB)	22	4.5	2.1			
		8/14/2012	(DB)	16	4.9	2.3			
		9/6/2013	(DB)	13	4.1	1.5 J			
		8/28/2014	(DB)	15	2.2	1 J			
		8/28/2014	DUP (DB)	15	2.1	1.1 J			
		8/26/2015	(DB)	14	2.8	1	3.2		

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
MW-07B	PIEZ	9/7/2016		15	3.9	0.74 J	2		
		8/30/2017		12	1.8	0.71 J	1.6		
MW-13B	PIEZ	7/1/1996		180	14	ND			
		9/1/1997		65	2	2 J			
		11/1/1998		54	3.1	1 ND			
		10/11/1999		32	17	3.8			
		9/28/2000		40	17	4.3		45.9	674
		9/25/2001		21 J	17 J	5.1 J			
		10/25/2002		16	13	3.2			
		9/10/2003		28	16	4.3			
		9/14/2004		7.3	8.8	2.3			
		9/12/2005		14	11	3.1			
		10/11/2006		4.2	9.2	1.8			
		10/10/2007	(DB)	6.4	8	1.7 J			
		10/29/2008	(DB)	7.5	8.6	1.7			
		9/10/2009	(DB)	8.3	5.5	1.7			
		9/9/2010	(DB)	17	9.2	1.4			
		10/12/2011	(DB)	15	6.3	0.8 J			
		8/14/2012	(DB)	15	7	0.68 J			
		9/6/2013	(DB)	11	4.5	2 U			
		8/28/2014	(DB)	9.8	2.9	2 U			
		8/27/2015	(DB)	7	2.4	1 U			
		8/27/2015	DUP (DB)	6.4	2.3	1 U			
		9/13/2016		3.7	1.7	1 U			
		9/13/2016	DUP (DB)	4.4	1.9	1 U			
		8/31/2017	(DB)	7.9	2.5	1 U			
		8/31/2017	DUP (DB)	7.2	2.4	1 U			
MW-49	PIEZ	1/14/2010		1 U	1 U	1 U			
		1/15/2010				2 U			
		10/6/2010				2 U			
		3/29/2011				2 U			
		10/7/2011				2 U			
		10/7/2011	DUP			2 U			
		8/2/2012				1 U			
		8/2/2012	DUP			1 U			
		8/26/2013				1 U			
		8/26/2013	DUP			1 U			
NE-1	RECOV	7/28/2009		280	50 U	25 U			
		7/29/2009		250	10 U	5 U			
		7/31/2009		0.5 U	1 U	1.2			
		1/12/2010		200	4.5	2 U	0.43	6.5	62.9 JN
		1/12/2010	DUP	200	4.6	2 U	0.63	6.3	61.8 JN
		1/18/2010				2 U			
		1/18/2010	DUP			2 U			
		4/7/2010		170	5.2	2 U	0.64	6.3	47.6
		4/13/2010		150	3.6	2 U	0.71 B	4.9 J	44.4
		4/20/2010		130	3.4	1.3	0.69	4.5	46.4

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
NE-1	RECOV	4/21/2010				2 U			
		4/27/2010		120	3.2	2 U	1	5.8	49
		5/5/2010		140	3.6	2 U	0.67	4.3	49.3
		6/7/2010		120	3.2	2 U	0.72	4.4	58.5
		7/8/2010		100	2.8	2 U	0.75	3.7	64.9
		8/11/2010		94	2	2 U	1.8 J	3	64.4
		9/8/2010		78	1.7	2 U	2.3	3.2	70.9
		10/5/2010		72	1.6	2.69	2.2	3.4	70.3
		11/2/2010		73	1.4	2.09		3.7	70.7
		12/7/2010		61	1.3	2 U		4.2	76.8
		1/4/2011		64	1.6	2 U		3	72.6
		2/3/2011		57	1.5	2 U		3.9	69.2
		3/1/2011		55	1.9	2 U		3.5	74.2
		4/6/2011		56	1.6	2 U		3.7	77.1
		5/4/2011		55	1.7	2 U		3.7	78.8 E
		6/15/2011		50	1.2	2 U		2.6	70.2
		7/7/2011		59	1.7	2 U		3.2	68.4
		8/10/2011		52 J	1.6 J	1.2 J		3	68.1
		8/11/2011				2 U			
		8/31/2011				2 U		4.3	68
		9/14/2011		48	1.7	2 U		3.5	66.9
		10/11/2011		37	1.2	2 U		3.7	66.9
		11/3/2011		42	1.2	2 U		3	59.3
		12/14/2011		42	1.3	2 U		3.4	63.3
		1/4/2012		43	1.4	2 U		3.6	66.8
		2/8/2012		43	1.6	2 U	1.98	4.5	61.3
		3/1/2012		44	1.4	2 U		3.7	68.6
		4/11/2012		45	1.4	2 U		3.4	63.8
		5/4/2012		43	1.4	2 U		3.7	65.6
		6/5/2012		40	1.1	2 U		3.5	64.8
		7/10/2012		52	1.6	2 U		3.6	64.4
		8/16/2012		40	1.8	1.2		4	60
		9/13/2012		39	1.3	1.1		4	58 B
		10/10/2012		33	1.4	1 U		4.4	59
		11/13/2012		39	1.3	1.2		4.4	63
		12/7/2012		32	1	1.1		4.6	59
		1/7/2013		36	1.4	1.2		4.5	65
		2/6/2013		35	1.2	1.1		4.5	62
		3/5/2013		33	0.5 U	1		4.3	67
		4/16/2013		38	1.2	1		4.3	65 B
		5/8/2013		32	1.2	1.1	50 U	4.6	61
		6/6/2013		31	1.4	1.1	50 U	4.2	68
		7/23/2013		30	1.4	1.1	50 U	4.5	62 B
		8/16/2013		31	1.7	1.1	50 U	4.4	63 ^
		9/10/2013		28	1.4	1.1	50 U	4.5	64
NLBR-R	RECOV	1/30/2001		40	4.3	1 U		7.4 U	4510
		9/18/2001		44	8.6	1.1			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
NLBR-R	RECOV	10/31/2002		29	5.9	1			
		6/10/2003		21	4.2	0.95 J			
		9/4/2003		24	5	1.1			
		12/17/2003		8.5	0.89 J	1 U			
		3/25/2004		13	2.8	0.71 J			
		7/7/2004		14	1 U	1 U			
		9/10/2004		27	5.7	1.1			
		9/27/2004		15	2.9	0.74 J			
		12/21/2004		13	2.9	0.65 J			
		3/28/2005		22	4.2	0.51 J			
		6/20/2005		9.3	1 U	1 U			
		9/21/2005		17	5	0.81 J			
		10/12/2005		19	4.6	0.82 J			
		10/17/2006		14	3.5	1 U			
		9/10/2007		8.2	2.8	1 U			
		10/21/2008		12	3.4	0.3 J			
		8/12/2009		8.1	1 U	1 U			
		10/1/2010		9.2	0.85 J	1 U			
		8/13/2012	(DB)	7	1.8	1 U			
		9/5/2013	(DB)	9.3	1.7	1 U			
		8/28/2014	(DB)	8.1	2 U	2 U			
		8/27/2015	(DB)	5.7	1 U	1 U			
		9/13/2016	(DB)	3.8	1	1 U			
		8/31/2017	(DB)	5.6	1 U	1 U			
NLGP	RECOV	4/26/1985		1200	<10	<10			
		5/24/1985		1300	<10	<10			
		6/28/1985		1200	<10	<10			
		7/26/1985		1400	<10	<10			
		8/23/1985		1600	<10	<10			
		9/26/1985		780	<10	<10			
		10/31/1985		1000	<10	<10			
		11/26/1985		1400	<10	<10			
		12/26/1985		940	<10	<10			
		1/22/1986		570	<10	<10			
		2/24/1986		820	<10	<10			
		3/27/1986		980	<10	<10			
		6/6/1986		550	<10	<10			
		7/15/1986		700	<10	<10			
		8/26/1986		1200	80	<10			
		9/30/1986		440	<10	<10			
		10/22/1986		770	10	<10			
		11/24/1986		680	10	<10			
		12/23/1986		470	4	<1			
		2/4/1987		710	<10	<10			
		3/2/1987		430	<10	<10			
		3/31/1987		450	<10	<10			
		4/28/1987		390	<10	<10			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
NLGP	RECOV	5/28/1987		250	<10	<10			
		6/30/1987		260	<10	<10			
		7/29/1987		770	200	<10			
		8/26/1987		130	<10	<10			
		9/28/1987		360	<10	<10			
		10/27/1987		21	<1	<1			
		11/24/1987		190	<10	<10			
		1/27/1988		88	<1	<1			
		2/29/1988		140	3	<1			
		3/21/1988		280	<10	<10			
		4/27/1988		380	<10	<10			
		9/28/1988		260	<10	<10			
		3/14/1989		220	5	<1			
		9/12/1989		160	<5	<5			
		3/12/1990		220	3	<1			
		3/6/1991		140	5	<1			
		3/11/1992		150	8	<1			
		3/18/1993		78	<4	<1			
		3/4/1994		110	25	2			
		5/19/1994		49	<1	<1			
		3/1/1995		71	2	<1			
		3/19/1996		71	2	<1			
		3/20/1997		98	9	1			
		4/17/1998		2.8	1 U	1 U			
		11/23/1999		46	1.5	1 U			
		9/6/2000		35	3	0.76 J		50.2	3000
		9/18/2001		47	9.3	1.1			
		10/31/2002		18	1.9	1 U			
		6/10/2003		13	0.67 J	0.36 J			
		9/4/2003		11	1	1 U			
		12/17/2003		8.6	0.86 J	1 U			
		3/25/2004		6.1	0.53 J	1 U			
		7/7/2004		16	1 U	1 U			
		9/10/2004		21	4.4	0.94 J			
		9/27/2004		16	3.4	0.84 J			
		12/21/2004		7	0.84 J	1 U			
		3/28/2005		9.7	1.2	1 U			
		6/20/2005		5.1	0.96 J	1 U			
		9/21/2005		7.2	1 U	1 U			
		10/12/2005		7.1	0.7 J	1 U			
		10/17/2006		6.2	1 U	1 U			
		9/10/2007		5.5	0.5 J	1 U			
		10/21/2008		6.8	0.67 J	1 U			
		10/21/2008	DUP	6.8	0.98 J	1 U			
		8/12/2009		5.1	1 U	1 U			
		10/1/2010		5	1 U	1 U			
NMGP	RECOV	2/29/1988		170	6	<1			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
NMGP	RECOV	3/21/1988		140	3	<1			
		4/27/1988		140	3	<1			
		4/27/1988	DUP	130	4	<1			
		5/25/1988		160	4	<1			
		6/30/1988		200	5	<1			
		8/31/1988		210	<50	<50			
		9/28/1988		180	14	1			
		10/27/1988		130	7	1			
		11/21/1988		160	420	<2			
		12/21/1988		140	8	2			
		1/25/1989		170	10	<1			
		2/28/1989		130	6	<1			
		3/13/1989		130	11	<1			
		9/12/1989		72	<1	<1			
		3/12/1990		51	2	<1			
		9/27/1990		42	2	<1			
		3/6/1991		38	<1	<1			
		9/26/1991		29	<1	2			
		3/11/1992		44	<1	<1			
		9/23/1992		57	<1	1			
		3/24/1993		15	<1	<1			
		3/24/1993	DUP	19	<1	<1			
		3/8/1994		39	9	1			
		3/6/1995		17	<1	<1			
		4/1/1996		15	<1	<1			
		3/25/1997		5	<1	<1			
		4/17/1998		6.9	1 U	1 U			
		9/29/1999		4	1 U	1 U			
		1/30/2001		8.9	0.38 J	1 U		6 U	2270
		9/18/2001		12	0.35 J	1 U			
		10/31/2002		4.1	1 U	1 U			
		9/4/2003		8.5	1 U	1 U			
		4/19/2004		7.6	1 U	1 U			
		9/10/2004		8.9	1 U	1 U			
		5/26/2005		12	1 U	1 U			
		9/21/2005		7	1 U	1 U			
		4/20/2006		6.9	1 U	1 U			
		10/17/2006		8.6	1 U	1 U			
		11/7/2007	(DB)	8.8	1 U	7.6 U			
		10/29/2008	(DB)	6.8	1 U	1 U			
		9/4/2009	(DB)	3.2	1 U	1 U			
		9/8/2010	(DB)	3	1 U	1 U			
		10/11/2011	(DB)	2.6	1 U	1 U			
		8/13/2012	(DB)	3	0.5 U	1 U			
OSA-01A	PIEZ	8/4/1993		340	29	<10		10.1 (dis)	1990 (dis)
		12/17/1993		170 Y	46	<10		3.4 B (dis)	2900 (dis)
		4/11/1994		110	33	<10		<2 (dis)	1200 (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-01A	PIEZ	6/3/1994		42	9 J	<10		<2 (dis)	
		9/22/1994		190	<2	<2		<10 (dis)	
		12/12/1994		120	59	<2		<10 (dis)	
		3/15/1995		110	22	<1		<10 (dis)	
		6/5/1995		100	25	<1		<10 (dis)	
		9/15/1995		160	7	<1		<10 (dis)	
		12/11/1995		77	<1	<1		<10 (dis)	
		3/12/1996		88	8	<1		<10 (dis)	
		6/6/1996		96 E	6	1 U	50 U	3.6 U (dis)	
		8/30/1996		190	10	<1		<2 (dis)	
		12/10/1996		110	<5	<5		<2 (dis)	
		3/10/1997		160	5	<1		<2 (dis)	
		4/24/1998		66 D	11	1 U			
		10/6/1999		62	3.9	1 U			
		9/13/2000		30	0.29 J	1 U		4.6 UJ	278
		9/26/2001		54	0.47 J	1.6 U			
		10/17/2002		27 J	0.87 J	1 UJ			
		9/4/2003		23	1 U	1 U			
		9/7/2004		39	1 U	1 U			
		9/6/2005		19	1 U	1 U			
		10/25/2006		21	1 U	1 U			
		10/11/2007	(DB)	4.8	1 U	1 U			
		10/30/2008	(DB)	12	1 U	1 U			
		9/3/2009	(DB)	6.8	1 U	1 U			
		9/9/2010	(DB)	10	1 U	1 U			
		10/10/2011	(DB)	4.6	1 U	1 U			
		8/10/2012	(DB)	5	0.5 U	1 U			
		9/5/2013	(DB)	3.7	1 U	1 U			
		8/31/2017	(DB)	3.3	1 U	1 U			
OSA-01B	PIEZ	8/4/1993		6 J	6 J	<10		196 (dis)	876 (dis)
		12/17/1993		2 J	4 J	<10		23.5 (dis)	795 (dis)
		4/11/1994		2 J	<10	<10		222 (dis)	899 (dis)
		6/3/1994		1 J	<10	<10		234 (dis)	
		9/22/1994		2	<1	<1		190 (dis)	
		12/12/1994		<1	2	<1		210 (dis)	
		3/15/1995		<1	3	<1		230 (dis)	
		6/5/1995		3	4	<1		240 (dis)	
		9/15/1995		<1	2	<1		180 (dis)	
		12/11/1995		<1	<1	<1		210 (dis)	
		3/12/1996		<1	<1	<1		220 (dis)	
		6/6/1996		1 U	1	1 U	50 U	206 (dis)	
		8/30/1996		<1	<1	<1		200 (dis)	
		12/10/1996		<1	2	<1		220 (dis)	
		3/10/1997		<1	1	<1		200 (dis)	
		4/24/1998		1 U	1.3	1 U			
		10/4/1999		1 U	0.84 J	1 U			
		9/19/2000		1 U	1 U	1 U		287	2400

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-01B	PIEZ	9/26/2001		1 U	1 U	1 U			
		10/18/2006						224 (dis)	977 (dis)
		9/19/2007						212 (dis)	1060 (dis)
		10/10/2008						113 (dis)	1060 (dis)
		8/21/2009						215 (dis)	1240 (dis)
		9/24/2010						131 (dis)	1280 (dis)
		9/27/2011						154 (dis)	1130 (dis)
		8/2/2012						120 (dis)	1200 (dis)
		8/23/2013						110 (dis)	1300 B (dis)
		8/6/2014						70 (dis)	1300 (dis)
		8/18/2015						110 (dis)	1200 B (dis)
		8/30/2016						79 (dis)	1300 (dis)
		8/18/2017						72 (dis)	1200 B (dis)
OSA-01BR	PIEZ	8/4/1993		44	23	<10		<3 (dis)	121 (dis)
		12/17/1993		32	12	<10		<2 (dis)	96.9 (dis)
		4/11/1994		44	13	<10		<2 (dis)	81 (dis)
		6/3/1994		31	11	<10		2.2 B (dis)	
		9/22/1994		99	50	<1		<10 (dis)	
		12/12/1994		72	36	<1		<10 (dis)	
		3/15/1995		140	48	<1		<10 (dis)	
		6/5/1995		<1	32	<1		<10 (dis)	
		9/15/1995		120	34	<1		<10 (dis)	
		12/11/1995		120	10	<1		<10 (dis)	
		3/12/1996		55	22	<5		<10 (dis)	
		6/6/1996		65 E	21	0.9 J	50 U	3.6 U (dis)	
		8/30/1996		60	31	1		<2 (dis)	
		12/10/1996		110	42	<5		3 (dis)	
		3/10/1997		220 E	38	3		3 (dis)	
		4/24/1998		13	9	1 U			
		10/4/1999		26	8.6	0.66 J			
		9/13/2000		9.2	4.2	1 U		4.6 UJ	590
		9/26/2001		11	2.8	1 U			
		10/18/2002		1 U	1 U	1 U			
		9/3/2003		2.9	0.49 J	1 U			
		9/8/2004		1 U	1 U	1 U			
		9/6/2005		2.6	1 U	1 U			
		10/19/2006		3.6	0.64 J	1 U			
		8/31/2017	(DB)	1 U	1 U	1 U			
OSA-01C	PIEZ	8/5/1993		67	<10	<10		<3 (dis)	<2 (dis)
		12/17/1993		40	<10	<10		<2 (dis)	<2 (dis)
		4/11/1994		65	<10	1 J		2.6 B (dis)	<2 (dis)
		6/3/1994		32	<10	<10		<2 (dis)	
		9/22/1994		25	<1	<1		<10 (dis)	
		12/12/1994		43	<1	<1		<10 (dis)	
		3/15/1995		30	<1	<1		<10 (dis)	
		6/5/1995		41	<1	<1		<10 (dis)	
		9/15/1995		24	<1	<1		<10 (dis)	

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-01C	PIEZ	12/11/1995		10	<1	<1		<10 (dis)	
		3/12/1996		18	<1	<1		<10 (dis)	
		6/6/1996		7	1 U	1 U	50 U	3.6 U (dis)	
		8/30/1996		11	<1	<1		<2 (dis)	
		12/10/1996		21	<1	<1		<2 (dis)	
		3/10/1997		15	<1	<1		<2 (dis)	
		4/24/1998		9.1	1 U	1 U			
		10/4/1999		9.1	1 U	1 U			
		9/13/2000		1 U	1 U	0.5 J		4.6 UJ	5
		9/26/2001		8.5	1 U	1 U			
		10/21/2002		7.3	1 U	1 U			
		9/3/2003		7	1 U	1 U			
		9/8/2004		6.5	1 U	1 U			
		9/6/2005		6.2	1 U	1 U			
		10/19/2006		4.9	1 U	1 U			
		10/11/2007	(DB)	4.1	1 U	1 U			
		10/30/2008	(DB)	1.8	1 U	1 U			
		9/3/2009	(DB)	2.9	1 U	1 U			
		9/8/2010	(DB)	3.7	1 U	1 U			
		10/12/2011	(DB)	2.4	1 U	1 U			
		8/13/2012	(DB)	1.9	0.5 U	1 U			
		8/31/2017	(DB)	2.1	1 U	1 U			
OSA-02A	PIEZ	8/5/1993		320	<50	<50		<3 (dis)	262 (dis)
		12/17/1993		400	<10	4 J		<2 (dis)	134 (dis)
		4/11/1994		400 E	<10	<10		<2 (dis)	24.1 (dis)
		6/3/1994		410 E	<10	<10		<2 (dis)	
		9/7/1994		330	<2	<2		<10 (dis)	
		12/12/1994		470	<2	<2		<10 (dis)	
		3/16/1995		290	<2	<2		<10 (dis)	
		6/7/1995		350	<25	<25		<10 (dis)	
		9/15/1995		350	<5	<5		<10 (dis)	
		12/19/1995		260	<2	<2		<10 (dis)	
		3/14/1996		440	<2	<2		<10 (dis)	
		6/6/1996		420	20 U	20 U	1000 U	3.6 U (dis)	
		9/9/1996		290	<2	<2		<2 (dis)	
		12/10/1996		300	<10	<10		<2 (dis)	
		3/10/1997		340	<5	<5		<2 (dis)	
		4/24/1998		38 D	1.6	1 U			
		4/24/1998	DUP	38 D	1.6	1 U			
		10/15/1999		100	3.3 U	3.3 U			
		9/20/2000		58	1 U	1 U		4.6 U	7.2
		9/27/2001		65 J	1.8 U	1.8 U			
		10/21/2002		13	1 U	1 U			
		9/3/2003		24	1 U	1 U			
		9/9/2004		34	1 U	1 U			
		9/6/2005		15	1 U	1 U			
		10/25/2006		10	1 U	1 U			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-02A	PIEZ	10/11/2007	(DB)	14	1 U	1 U			
		11/5/2008	(DB)	11	1 U	1 U			
		9/3/2009	(DB)	12	1 U	1 U			
		9/8/2010	(DB)	7.8	1 U	1 U			
		10/5/2011	(DB)	9.3	1 U	1 U	0.2 U		
		8/13/2012		14	0.5 U	1 U			
		9/5/2013	(DB)	6.7	1 U	1 U			
		8/28/2014	(DB)	4.7	2 U	2 U			
		8/27/2015	(DB)	4	1 U	1 U			
OSA-03BR	PIEZ	8/5/1993		17	<10	<10		<3 (dis)	178 (dis)
		12/20/1993		28	5 J	<10		2.2 B (dis)	287 (dis)
		3/17/1994		31	7 J	<10		<2 (dis)	360 (dis)
		6/15/1994		24	5	<1		<10 (dis)	
		9/7/1994		51	<1	<1		<10 (dis)	
		12/2/1994		26	<1	<1		<10 (dis)	
		3/9/1995		21	3	<1		<10 (dis)	
		6/5/1995		33	8	<1		<10 (dis)	
		9/15/1995		29	6	<1		<10 (dis)	
		12/5/1995		28	5	<1		<10 (dis)	
		3/12/1996		24	5	<1		<10 (dis)	
		6/5/1996		21	4	0.3 J	50 U	3.6 U (dis)	
		9/9/1996		27	<1	<1		3.3 (dis)	
		12/10/1996		41	7	<1		3 (dis)	
		3/10/1997		38	7	<1		3 (dis)	
		4/24/1998		44 D	9.3	0.71 J			
		10/8/1999		20	3.6	0.41 J			
		9/20/2000		23	7.4	0.73 J		4.6 U	619
		9/20/2000	DUP	27	10	0.82 J		4.6 U	612
		9/27/2001		42 J	14 J	1.8 J			
		10/24/2002		41	20	2.4			
		9/4/2003		50	23	2.6			
		9/8/2004		43	16	2.1			
		9/6/2005		31	17	2			
		10/19/2006		25	14	1.4			
		10/11/2007	(DB)	4	2	1 U			
		10/11/2007	DUP (DB)	3.8	2.1	1 U			
		10/30/2008		20	18	1.4			
		10/30/2008	(DB)	2.8	2.5	1 U			
		8/21/2009		48	33	2.9			
		9/24/2010		35	22	2			
		9/28/2011		39	27	2.29			
		9/28/2011	DUP	38	27	2.299			
		8/3/2012		31	18	1.8			
		8/3/2012	DUP	30	18	1.7			
		8/22/2013		21	11	1.4			
		8/22/2013	DUP	23	12	1.5			
		8/7/2014		12	4	0.41 J			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-03BR	PIEZ	8/7/2014	DUP	12	4	0.44 J			
		8/18/2015		4.8	1.9	1 U			
		8/18/2015	DUP	5.7	2.2	1 U			
		8/30/2016		4.4	2.1 F1	1 U			
		8/30/2016	DUP	5	2.3	1 U			
		8/17/2017		8.8	2.1	1 U			
		8/17/2017	DUP	7.7	1.9	1 U			
OSA-05A	PIEZ	8/10/1993		<10	<10	19		<3 (dis)	310 (dis)
		12/10/1993		<10	<10	<10		12.7 (dis)	321 (dis)
		3/25/1994		<10	<10	<10		8.9 B (dis)	168 (dis)
		6/30/1994		<1	<1	<1		<10 (dis)	
		10/4/1994		<1	<1	<1		18 (dis)	
		12/13/1994		<1	<1	<1		<10 (dis)	
		3/7/1995		<1	<1	<1		12 (dis)	
		6/8/1995		<1	<1	<1		13 (dis)	
		9/11/1995		<1	<1	<1		18 (dis)	
		1/2/1996		<1	<1	<1		17 (dis)	
		4/3/1996		<1	<1	<1		12 (dis)	
		6/17/1996		1 U	1 U	1 U	50 U	9.8 B (dis)	
		9/5/1996		<1	<1	<1		20 (dis)	
		12/17/1996		<1	<1	<1		24 (dis)	
		3/12/1997		<1	<1	<1		13 (dis)	
		4/9/1998		1 U	1 U	1 U			
		10/12/2006						1 U (dis)	842 (dis)
		9/17/2007						3 (dis)	1260 (dis)
		10/9/2008						1 U (dis)	360 (dis)
		8/20/2009						2.1 (dis)	726 (dis)
		9/23/2010						4.4 (dis)	646 (dis)
		9/28/2011						1 U (dis)	190 (dis)
		8/6/2012						2.3 (dis)	430 (dis)
		8/26/2013						0.5 J (dis)	59 B (dis)
		8/7/2014						1 (dis)	63 (dis)
		8/19/2015						1.7 (dis)	37 B (dis)
		8/31/2016						2.8 (dis)	54 (dis)
		8/22/2017						1.1 (dis)	93 B (dis)
OSA-05B	PIEZ	8/10/1993		120	<10	<10		<3 (dis)	110 (dis)
		12/10/1993		32	<10	<10		<2 (dis)	47.7 (dis)
		3/25/1994		50	<10	<10		<2 (dis)	49.6 (dis)
		6/30/1994		25	<1	<1		<10 (dis)	
		10/4/1994		68	<1	<1		<10 (dis)	
		12/13/1994		66	<1	<1		<10 (dis)	
		3/7/1995		54	<1	<1		<10 (dis)	
		6/8/1995		65	<1	<1		<10 (dis)	
		9/11/1995		66	<1	<1		<10 (dis)	
		1/2/1996		94	<1	<1		<10 (dis)	
		4/3/1996		160	<1	<1		<10 (dis)	
		6/17/1996		80	4 U	4 U	200 U	3.6 U (dis)	

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-05B	PIEZ	9/5/1996		110	<1	<1		<2 (dis)	
		12/17/1996		57	<1	<1		<2 (dis)	
		3/12/1997		60	<1	<1		<2 (dis)	
		4/9/1998		35	2 U	2 U			
		10/6/1999		20	1 U	1 U			
		9/14/2000		28	0.42 J	1 U		4.6 UJ	79.5
		9/26/2001		34 J	0.25 J	1 UJ			
		10/24/2002		38	1 U	1 U			
		9/4/2003		12	1 U	1 U			
		4/19/2004		15	1 U	1 U			
		9/9/2004		41	1 U	1 U			
		5/26/2005		25	0.42 J	1 U			
		9/8/2005		17	0.36 J	1 U			
		4/21/2006		16	1 U	1 U			
		10/18/2006		13	1 U	1 U			
		10/12/2007	(DB)	23	1 U	1 U			
		10/29/2008	(DB)	14	1 U	1 U			
		9/4/2009	(DB)	15	1 U	1 U			
		10/1/2010	(DB)	11	1 U	1 U			
		10/11/2011	(DB)	7.2	1 U	1 U			
		8/13/2012	(DB)	7.5	0.5 U	1 U			
		9/6/2013	(DB)	3.8	2 U	2 U			
		8/28/2014	(DB)	4.6	2 U	2 U			
OSA-06BR	PIEZ	8/10/1993		300 E	18	14		3.4 B (dis)	409 (dis)
		12/14/1993		260	14 J	13 J		2.4 B (dis)	382 (dis)
		3/24/1994		370 E	26	16		2.8 B (dis)	373 (dis)
		6/30/1994		74	<1	11		16 (dis)	
		10/4/1994		190	<1	10		14 (dis)	
		12/14/1994		<1	18	15		<10 (dis)	
		3/7/1995		170	11	12		15 (dis)	
		6/8/1995		190	16	14		<10 (dis)	
		9/11/1995		180	18	13		17 (dis)	
		1/2/1996		190	19	17		12 (dis)	
		4/2/1996		110	6	16		15 (dis)	
		6/21/1996		140	10	15	360 U	16.1 (dis)	
		9/5/1996		190	10	23		19 (dis)	
		12/17/1996		170	6	11		15 (dis)	
		3/12/1997		190	8	17		9 (dis)	
		3/12/1997	DUP	190		17		12 (dis)	
		4/9/1998		120	4.2 J	12			
		4/9/1998	DUP	120	4.1 J	12			
		10/8/1999		33	2.6	2.8			
		10/8/1999	DUP	34	2.8	2.8			
		9/12/2000		89	5	11		30.3 J	490
		9/27/2001		85	4.6	10			
		9/27/2001	DUP	110 J	4.7	10			
		10/18/2002		72	3.3	8.2			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-06BR	PIEZ	9/4/2003		88 J	4	8.9			
		9/4/2003	DUP	94 J	4.3	9.2			
		4/19/2004		78 J	4.1 J	7 J			
		4/19/2004	DUP	80 J	4.2 J	7.4 J			
		9/10/2004		100	5.3	8.4			
		9/10/2004	DUP	98	5	8.4			
		5/26/2005		93	5.2	7.6			
		5/26/2005	DUP	96	5.9	7.5			
		9/9/2005		73	4.6	6.6			
		9/9/2005	DUP	72	4.8	6.5			
		4/21/2006		70	5.1	5.5			
		4/21/2006	DUP	68	4.9	5.6			
		10/11/2006		59	4.2	4.5	1.4 J	2.4 (dis)	280 (dis)
		10/11/2006	DUP	53	3.2	4.1	1.4 J	2.4	265
		9/17/2007		61	4.4	4		1.8 (dis)	254 (dis)
		9/17/2007	DUP	62	4.3	4.1		1.4 (dis)	259 (dis)
		10/9/2008		46	3	3.9		1.3 (dis)	244 (dis)
		10/9/2008	DUP	45	3.1	3.6		1.1 (dis)	240 (dis)
		8/21/2009		41	3.5	2.9		1.7 (dis)	251 (dis)
		8/21/2009	DUP	42	3.6	2.7		1.7 (dis)	249 (dis)
		9/23/2010		1.7	2.5	1 U		57.4 (dis)	753 (dis)
		9/23/2010	DUP	1.7	2.4	1 U		43.5 (dis)	729 (dis)
		10/6/2011		1 U	2.1	1 U	0.11 J	59.9 (dis)	797 (dis)
		8/7/2012		1	2.7	1 U		50 (dis)	710 (dis)
		8/27/2013		0.79 J	2.3	1 U		37 (dis)	950 B (dis)
		8/21/2014		12	1.5	1.8		8 (dis)	890 (dis)
		8/25/2015		16	1.4	3		9.1 (dis)	730 (dis)
		9/6/2016		9.7	1.3	1.7		16 (dis)	590 ^ (dis)
		8/24/2017		22	1.7	3		13 (dis)	520 (dis)
OSA-07A	PIEZ	8/10/1993		<10	<10	<10		32.6 (dis)	1180 (dis)
		12/10/1993		<10	<10	1 J		40.3 (dis)	1150 (dis)
		3/24/1994		<10	<10	<10		22 (dis)	1180 (dis)
		7/5/1994		<1	<1	<1		<10 (dis)	
		10/4/1994		<1	<1	<1		22 (dis)	
		12/14/1994		<1	<1	<1		19 (dis)	
		3/7/1995		<1	<1	<1		35 (dis)	
		6/8/1995		<1	<1	<1		18 (dis)	
		9/11/1995		<1	<1	<1		29 (dis)	
		1/2/1996		<1	<1	<1		34 (dis)	
		4/2/1996		<1	<1	<1		<10 (dis)	
		6/17/1996		1 U	1 U	1 U	50 U	3.6 U (dis)	
		9/5/1996		<1	<1	2		<2 (dis)	
		12/17/1996		<1	<1	<1		<2 (dis)	
		3/12/1997		<1	<1	<1		<2 (dis)	
		4/9/1998		1 U	1 U	1 U			
		10/12/2006						1.7 (dis)	709 (dis)
		9/17/2007						1 U (dis)	1050 (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-07A	PIEZ	10/13/2008						1 U (dis)	45.9 (dis)
		8/21/2009						1 U (dis)	20.8 (dis)
		9/23/2010						1 U (dis)	839 (dis)
		9/28/2011						1 U (dis)	474 (dis)
		8/7/2012						2 U (dis)	930 (dis)
		8/21/2013						0.53 J (dis)	870 ^ (dis)
		8/7/2014						0.085 J (dis)	810 (dis)
		8/19/2015						1.6 (dis)	930 B (dis)
		8/31/2016						0.97 J (dis)	1000 (dis)
		8/22/2017						7.8 (dis)	1300 B (dis)
OSA-07B	PIEZ	8/10/1993		120	2 J	<10		8.2 B (dis)	819 (dis)
		12/10/1993		70	3 J	<10		6.3 B (dis)	867 (dis)
		3/24/1994		96	<10	<10		6.5 B (dis)	896 (dis)
		7/5/1994		64	<1	<1		<10 (dis)	
		10/5/1994		49	<1	<1		<10 (dis)	
		12/14/1994		<1	3	<1		<10 (dis)	
		3/7/1995		<1	<1	<1		<10 (dis)	
		3/7/1995	DUP	61	<1	<1		<10 (dis)	
		6/8/1995		70	<1	<1		<10 (dis)	
		9/11/1995		35	<1	<1		<10 (dis)	
		1/2/1996		<1	<1	<1		<10 (dis)	
		4/2/1996		23	<1	<1		<10 (dis)	
		6/17/1996		8	1 U	1 U	50 U	3.6 U (dis)	
		9/5/1996		5	<1	<1		5.3 (dis)	
		12/17/1996		18	<1	<1		6 (dis)	
		12/17/1996	DUP	17	<1	<1		5 (dis)	
		3/12/1997		15	<1	<1		4 (dis)	
		4/9/1998		25	0.48 J	1 U			
		10/7/1999		41	0.62 J	1 U			
		10/3/2000		18	1 U	1 U		6.7 J	1450
		9/27/2001		18	0.62 J	1 U			
		10/24/2002		14	0.44 J	1 U			
		9/4/2003		7.1	1 U	1 U			
		4/19/2004		13	0.32 J	1 U			
		9/9/2004		16	1 U	1 U			
		5/26/2005		19	0.52 J	1 U			
		9/8/2005		18	0.42 J	1 U			
		4/20/2006		14	0.53 J	1 U			
		10/12/2006		12	0.44 J	1 U			
		10/12/2007	(DB)	2.2	1 U	1 U			
		10/29/2008	(DB)	1.9	1 U	1 U			
		10/29/2008	DUP (DB)	1.9	1 U	1 U			
		9/4/2009	(DB)	2.1	1 U	1 U			
		9/8/2010	(DB)	1.2	1 U	1 U			
		9/6/2013	(DB)	0.67 J	2 U	2 U			
		9/13/2016	(DB)	0.42 J	1 U	1 U			
OSA-09B	PIEZ	8/6/1993		260 E	180	<10		27.8 (dis)	1630 (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-09B	PIEZ	12/29/1993		180	140	<10		59 (dis)	1170 (dis)
		3/18/1994		210 E	250 E	<10		66.3 (dis)	932 (dis)
		6/16/1994		130	110	<1		78 (dis)	
		10/4/1994		180	170	<1		83 (dis)	
		12/1/1994		130	81	<1			
		4/3/1995		150	130	<1			
		4/3/1995	DUP	150	130	<1			
		6/7/1995		180	59	<1			
		9/18/1995		150	92	2			
		3/15/1996		78	61	<1			
		4/13/1998		29	15	1 U			
		4/13/1998	DUP	36	16	1.8 U			
		10/7/1999		46	27	1 U			
		10/4/2000		28	15	1 U		541 J	33.4 J
		9/28/2001		17	1.8	1 U			
		10/24/2002		8.1	0.6 J	1 U			
		9/2/2003		4.9	0.5 J	1 U			
		9/7/2004		4.8	0.55 J	1 U			
		9/8/2005		1.8	1 U	1 U			
		10/13/2006		0.56 J	1 U	1 U		66.5 (dis)	22.8 (dis)
		9/18/2007						22.1 (dis)	106 (dis)
		10/10/2008						22.3 (dis)	94.1 (dis)
		8/20/2009						51.4 (dis)	84.4 (dis)
		9/27/2010						55.5 (dis)	25.8 (dis)
		9/28/2011						42.2 (dis)	24.7 (dis)
		8/2/2012						85 (dis)	12 (dis)
		8/26/2013						83 (dis)	3.7 B (dis)
		8/8/2014						120 (dis)	4.8 (dis)
		8/19/2015						130 (dis)	3.2 B (dis)
		8/31/2016						86 (dis)	6.5 (dis)
		8/22/2017						130 (dis)	6.1 B (dis)
OSA-11B	PIEZ	8/6/1993		130	<10	<10		<3 (dis)	8.4 B (dis)
		12/20/1993		170	2 J	1 J		<2 (dis)	5.1 B (dis)
		4/13/1994		120	<10	<10		<2 (dis)	7 B (dis)
		6/16/1994		140	<1	<1		<10 (dis)	
		9/22/1994		150	<1	<1		<10 (dis)	
		12/2/1994		130	<1	<1			
		4/3/1995		90	1	<1			
		6/7/1995		150	<1	<1			
		9/18/1995		130	<1	<1			
		3/14/1996		100	<1	<1			
		4/27/1998		120 D	2.3	2 U			
		10/8/1999		130	2.1	1 U			
		9/29/2000		130	2	1 U		13	6.1
		9/29/2000	DUP	140	2.1	1 U		10.7	6.3
		9/28/2001		60	2 U	2 U			
		10/16/2002		28	1 U	1 U			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-11B	PIEZ	9/2/2003		24	1 U	1 U			
		9/7/2004		18	1 U	1 U			
		9/8/2005		11	1 U	1 U			
		10/9/2006		11	1 U	1 U		1 U (dis)	28.6 J (dis)
		10/9/2006	DUP	9.8	1 U	1 U		1 U (dis)	34.6 J (dis)
		9/18/2007		8.1	1 U	1 U		1.3 (dis)	134 (dis)
		10/13/2008		6.5	1 U	1 U		4 (dis)	129 (dis)
		8/21/2009		5.9	1 U	1 U		9.6 (dis)	107 (dis)
		9/27/2010		4.3	1 U	1 U		7.9 (dis)	194 (dis)
		9/26/2011		5	1 U	1 U		2.9 (dis)	156 (dis)
		8/6/2012		5.9	0.5 U	1 U		1.6 (dis)	120 (dis)
		9/4/2013		4	1 U	1 U		0.53 J (dis)	21 B (dis)
		8/8/2014						0.34 J (dis)	15 (dis)
		8/18/2015						0.4 J (dis)	19 B (dis)
		8/31/2016						0.35 J (dis)	9.2 (dis)
		8/22/2017						0.59 J (dis)	14 B (dis)
OSA-12A	PIEZ	8/2/1993		<10	<10	<10		<3 (dis)	29.8 (dis)
		12/28/1993		<10	<10	<10		6.2 B (dis)	18.4 (dis)
		3/21/1994		<10	<10	<10		5.9 B (dis)	18.8 (dis)
		6/2/1994		<10	<10	<10		8.8 B (dis)	
		9/30/1994		<1	<1	<1		10 (dis)	
		12/6/1994		<1	<1	<1		14 (dis)	
		3/9/1995		<1	<1	<1		<10 (dis)	
		6/7/1995		<1	<1	<1		<10 (dis)	
		9/28/1995		<1	<1	<1		<10 (dis)	
		10/18/1995		<1	<1	<1			
		12/5/1995		<1	<1	<1			
		1/23/1996		<1	<1	<1			
		3/15/1996		<1	<1	<1			
		9/3/1996		<1	<1	<1		3.4 (dis)	
		12/18/1996		<1	<1	<1		2 (dis)	
		3/14/1997		<1	<1	<1		7 (dis)	
		4/28/1998		1 U	1 U	1 U			
		8/31/2017	(DB)	1 U	1 U	1 U			
OSA-12B	PIEZ	8/2/1993		<10	32	<10		239 (dis)	911 (dis)
		12/28/1993		<50	32 J	11 BJ		230 (dis)	1020 (dis)
		3/21/1994		<10	41	<10		214 (dis)	873 (dis)
		6/2/1994		<10	26	<10		280 (dis)	
		9/30/1994		<1	40	<1		440 (dis)	
		12/6/1994		<1	27	<1		210 (dis)	
		3/9/1995		<1	11	<1		210 (dis)	
		6/7/1995		<1	15	1		120 (dis)	
		9/28/1995		<1	15	<1		180 (dis)	
		10/18/1995		<1	<1	<1			
		12/5/1995		<1	43	<1			
		1/23/1996		<1	21	<1			
		3/15/1996		<1	27	<1			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-12B	PIEZ	9/3/1996		<1	20	<1		250 (dis)	
		12/19/1996		<1	28	<1		210 (dis)	
		3/14/1997		<1	28	<1		200 (dis)	
		4/28/1998		1.1 J	48	1.7 J			
		10/8/1999		1 U	10	0.46 J			
		10/2/2000		1 U	6.1	0.69 J		266	1220
		9/25/2001		1 UJ	12 J	0.58 J			
		10/25/2002		1 U	2.2	1 U			
		9/3/2003		1 U	1.6	1 U			
		9/9/2004		1 U	4.5	0.5 J			
		9/13/2005		1 U	2.6	0.36 J			
		10/23/2006		1 U	1 U	1 U			
		10/8/2007	(DB)	1 U	1 U	1 U			
		10/28/2008	(DB)	1 U	1 U	1 U			
		9/4/2009	(DB)	1 U	1 U	1 U			
		9/9/2010	(DB)	1 U	1 U	1 U			
		8/31/2017	(DB)	1 U	1 U	1 U			
OSA-13A	PIEZ	8/3/1993		7 J	<10	98		8.4 B (dis)	1710 (dis)
		12/28/1993		5 J	<50	180 B		7.4 B (dis)	1460 (dis)
		3/21/1994		14	15	410 E		5.2 B (dis)	1370 (dis)
		6/2/1994		8 J	<50	270		6.2 B (dis)	
		9/30/1994		11	<5	160		<10 (dis)	
		12/6/1994		5	<1	13		<10 (dis)	
		3/14/1995		<10	<10	470		<10 (dis)	
		6/7/1995		<10	<10	580		<10 (dis)	
		9/28/1995		10	<5	410		<10 (dis)	
		10/18/1995		<10	<10	430			
		12/5/1995		11	<5	290			
		1/23/1996		1	<1	2			
		3/18/1996		6	8	320			
		9/3/1996		<1	<1	320		8.4 (dis)	
		12/13/1996		<5	<5	180		6 (dis)	
		3/14/1997		<5	<5	150		6 (dis)	
		4/21/1998		8.6 U	8.6 U	30			
		10/13/1999		1 U	1 U	2.3			
		10/2/2000		2.1 U	2.1 U	1.3 J		5.8 J	5340
		9/28/2001		1 U	1 U	1.5			
		10/11/2011	(DB)	20 U	20 U	20 U			
		10/1/2012	(DB)	0.39 J	0.5 U	1 U			
		9/5/2013	(DB)	1.1 J	2 U	2 U			
		9/25/2015		1.7 J					
		9/13/2016	(DB)	6.5	1 U	1 U			
		8/31/2017	(DB)	5.1	1 U	1 U			
OSA-13B	PIEZ	8/3/1993		11 J	<20	68		25 (dis)	2290 (dis)
		8/3/1993	DUP	10 J	<50	110		23 (dis)	2280 (dis)
		12/28/1993		<50	<50	60 B		26.1 (dis)	2050 (dis)
		3/21/1994		10	18	170		30.8 (dis)	1880 (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-13B	PIEZ	6/2/1994		7 J	<20	120		22.6 (dis)	
		9/30/1994		8	<5	59		<10 (dis)	
		12/6/1994		6	5	26		14 (dis)	
		3/14/1995		6	6	79		20 (dis)	
		6/7/1995		4	3	46		13 (dis)	
		9/28/1995		5	<1	65		16 (dis)	
		10/18/1995		5	4	64			
		12/5/1995		5	4	59			
		12/5/1995	DUP	5	4	67			
		1/23/1996		2	1	15			
		3/18/1996		4	2	46			
		9/3/1996		<1	<1	33		15 (dis)	
		12/13/1996		<1	<1	60		13 (dis)	
		3/14/1997		<1	<1	<1		14 (dis)	
		4/21/1998		2.7 U	2.7 U	57			
		10/13/1999		1 UJ	1 UJ	14			
		10/13/1999	DUP	1 U	1 U	16			
		9/29/2000		1.6 U	1.6 U	50		42.8	3990
		9/28/2001		1.8 U	1.8 U	55			
		10/14/2002		1.4 U	1.4 U	50			
		9/4/2003		1 U	1 U	78			
		9/9/2004		1 U	1 U	45			
		9/20/2005		1 U	1 U	53			
		10/16/2006		1 U	1 U	18	0.18 J		
		10/8/2007	(DB)	1 U	1 U	90			
		10/28/2008	(DB)	1 U	1 U	96			
		9/4/2009	(DB)	1 U	1 U	120			
		9/9/2010	(DB)	120	4.4	110			
		10/6/2011	(DB)	110	3.4	110	2.07		
		8/13/2012	(DB)	770	140	110			
		10/1/2012	(DB)	900	35	83			
		10/1/2012	DUP (DB)	820	32	78			
		9/5/2013	(DB)	23	2 U	77			
		8/28/2014	(DB)	5.6	2 U	65			
		8/27/2015		610 F1	22	59			
		9/2/2015					1.3 B		
		9/2/2015	DUP				1.1 B		
		9/25/2015		2600 ^					
		9/25/2015	DUP	2500 ^					
		9/9/2016		630	53	56	0.94		
		12/15/2016	(DB)	120	26	58			
		3/23/2017	(DB)	1300	58	49			
		3/23/2017	DUP (DB)	1500	70	51			
		7/10/2017		2000	83	54			
		7/10/2017	DUP	1700	75	46			
		8/28/2017		1600 F1	53	44	0.43		
OSA-13C	PIEZ	8/3/1993		<10	<10	<10		78.4 (dis)	3710 (dis)

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-13C	PIEZ	12/28/1993		<10	<10	<10		63 (dis)	3650 (dis)
		12/28/1993	DUP	<10	<10	<10		60.4 (dis)	3650 (dis)
		3/21/1994		1 J	<10	<10		57.3 (dis)	4660 (dis)
		6/2/1994		<10	<10	<10		58 (dis)	
		9/30/1994		<1	<1	<1		51 (dis)	
		12/6/1994		<1	<1	<1		54 (dis)	
		3/14/1995		<1	<1	<1		59 (dis)	
		6/7/1995		<1	<1	<1		50 (dis)	
		9/28/1995		<1	<1	<1		52 (dis)	
		10/18/1995		<1	<1	<1			
		12/5/1995		<1	<1	<1			
		1/23/1996		<1	<1	<1			
		3/18/1996		<1	<1	<1			
		9/3/1996		<1	<1	<1		51 (dis)	
		12/13/1996		<1	<1	<1		50 (dis)	
		3/14/1997		<1	<1	<1		40 (dis)	
		4/21/1998		1 U	1 U	1 U			
		10/12/2011	(DB)	4	1 U	1 U			
		10/1/2012	(DB)	9.1	0.5 U	1 U			
		9/5/2013	(DB)	4.4	2 U	2 U			
		9/13/2016	(DB)	430	28	5.2			
		12/15/2016	(DB)	66	3.4	0.44 J			
		12/15/2016	DUP (DB)	62	3	1 U			
		3/23/2017	(DB)	370 F1 F2	22	3.7			
		7/10/2017		300	32	6.5			
		8/31/2017	(DB)	190	19	7.2			
OSA-14A	PIEZ	8/3/1993		<10	<10	<10		29.8 (dis)	329 (dis)
		1/4/1994		<10	<10	<10		30.4 (dis)	399 (dis)
		3/29/1994		<10	<10	<10		30.4 (dis)	376 (dis)
		6/16/1994		<1	<1	<1		30 (dis)	
		9/30/1994		<1	<1	<1		29 (dis)	
		12/6/1994		<1	<1	<1		31 (dis)	
		3/9/1995		<1	<1	<1		28 (dis)	
		6/7/1995		<1	<1	<1		21 (dis)	
		3/7/1997		<1	<1	<1		13 (dis)	
		7/1/1997		1 U	1 U	1 U		23.8 (dis)	
		4/28/1998		1 U	1 U	1 U			
		8/31/2017	(DB)	5.9	4.2	1 U			
OSA-14B	PIEZ	8/3/1993		<10	<10	<10		<3 (dis)	137 (dis)
		1/4/1994		<10	<10	<10		3.5 B (dis)	195 (dis)
		3/29/1994		<10	<10	1 J		<2 (dis)	161 (dis)
		6/16/1994		<1	<1	<1		<10 (dis)	
		9/30/1994		<1	<1	<1		<10 (dis)	
		12/6/1994		<1	<1	<1		<10 (dis)	
		3/9/1995		<1	<1	<1		<10 (dis)	
		6/7/1995		4	1	<1		<10 (dis)	
		3/7/1997		<1	<1	<1		<2 (dis)	

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-14B	PIEZ	7/1/1997		0.32 J	1 U	1 U		1.8 U (dis)	
		4/28/1998		0.36 J	1 U	1 U			
		9/4/2009	(DB)	1 U	1 U	1 U			
		9/9/2010	(DB)	1 U	1 U	1 U			
		10/10/2011	(DB)	1 U	1 U	1 U			
		8/13/2012	(DB)	1 U	0.5 U	1 U			
		9/5/2013	(DB)	2 U	2 U	2 U			
		9/13/2016	(DB)	1 U	1 U	1 U			
		8/31/2017	(DB)	1 U	1 U	1 U			
OSA-15A	PIEZ	8/3/1993		<10	<10	<10		4 B (dis)	1770 (dis)
		12/27/1993		<10	<10	<10		14.6 (dis)	2070 (dis)
		3/21/1994		1 J	<10	<10		8.2 B (dis)	1370 (dis)
		6/3/1994		<10	<10	<10		<2 (dis)	
		9/30/1994		<1	<1	<1		<10 (dis)	
		12/2/1994		<1	<1	<1		<10 (dis)	
		3/9/1995		<1	<1	<1		<10 (dis)	
		6/7/1995		<1	<1	<1		<10 (dis)	
		9/28/1995		<1	<1	<1		<10 (dis)	
		12/5/1995		<1	<1	<1		<10 (dis)	
		1/25/1996		<1	<1	<1			
		2/9/1996		<1	<1	<1			
		3/20/1996		<1	<1	<1		<10 (dis)	
		4/11/1996		<1	<1	1			
		6/3/1996		0.4 J	1 U	1 U	50 U		
		6/21/1996		1 U	1 U	1 U	50 U	4 U (dis)	
		9/17/1996		<1	<1	<1		<2 (dis)	
		9/17/1996	DUP	<1	<1	<1		<2 (dis)	
		12/13/1996		<1	<1	<1		<2 (dis)	
		3/7/1997		21	<1	<1		<2 (dis)	
		6/27/1997		1 U	1 U	1 U		1.8 U (dis)	
		4/28/1998		1 U	1 U	1 U			
		8/30/2017	(DB)	1 U	1 U	1 U			
OSA-15B	PIEZ	8/3/1993		<10	<10	<10		26.7 (dis)	1100 (dis)
		12/27/1993		<10	<10	<10		17.6 (dis)	1120 (dis)
		3/21/1994		<10	<10	<10		20 (dis)	1200 (dis)
		3/21/1994	DUP	<10	<10	<10		28.2 (dis)	1280 (dis)
		6/3/1994		<10	<10	<10		44 (dis)	
		9/30/1994		<1	<1	<1		62 (dis)	
		12/2/1994		<1	<1	<1		59 (dis)	
		12/2/1994	DUP	<1	<1	<1		57 (dis)	
		3/9/1995		<1	<1	<1		72 (dis)	
		6/7/1995		<1	<1	<1		63 (dis)	
		6/7/1995	DUP	<1	<1	<1		36 (dis)	
		9/28/1995		<1	<1	<1		81 (dis)	
		12/5/1995		<1	<1	<1		83 (dis)	
		1/25/1996		<1	<1	<1			
		2/9/1996		<1	<1	<1			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-15B	PIEZ	3/20/1996		<1	<1	<1		68 (dis)	
		4/11/1996		<1	<1	<1			
		6/3/1996		1 U	1 U	1 U	50 U		
		6/21/1996		1 U	1 U	1 U	50 U	69 (dis)	
		9/17/1996		<1	<1	<1		8.4 (dis)	
		12/13/1996		<1	<1	<1		55 (dis)	
		3/7/1997		<1	<1	<1		45 (dis)	
		6/27/1997		1 U	1 U	1 U		47 (dis)	
		4/28/1998		1 U	1 U	1 U			
		9/4/2009	(DB)	1.4	1.2	1 U			
		9/9/2010	(DB)	2.6	1.3	1 U			
		10/10/2011	(DB)	7.2	2.4	1 U			
		8/13/2012	(DB)	8.2	2.6	1 U			
		9/5/2013	(DB)	6.2	2.4	1 U			
		8/28/2014	(DB)	5.5	2.2	2 U			
		8/27/2015	(DB)	3.6	1 U	1 U			
		9/13/2016	(DB)	5.7	2.3	1 U			
		8/30/2017	(DB)	7.9	2.2	1 U			
OSA-16B	PIEZ	8/4/1993		2 J	30	6 J		3.2 B (dis)	1190 (dis)
		1/6/1994		1 J	18	9 J		3.8 B (dis)	900 (dis)
		3/16/1994		3 J	77	11		3.8 B (dis)	885 (dis)
		6/24/1994		1	24	9		<10 (dis)	
		9/28/1994		1	24	9		<10 (dis)	
		9/28/1994	DUP	1	29	<1		<10 (dis)	
		1/6/1995		2	27	10		<10 (dis)	
		3/30/1995		2	35	10		<10 (dis)	
		6/9/1995		3	32	12		<10 (dis)	
		9/25/1995		2	35	14		<10 (dis)	
		12/7/1995		3	24	11		<10 (dis)	
		3/22/1996		<1	5	11		<10 (dis)	
		6/14/1996		2	19	9	50 U	4.1 B (dis)	
		9/11/1996		<1	22	8		7.1 (dis)	
		12/23/1996		2	19	7		7 (dis)	
		3/6/1997		2	<1	10		7 (dis)	
		7/1/1997		1.7	19	8.8		8.4 (dis)	
		4/23/1998		1.4	14	9.2			
		4/23/1998	DUP	1.3	14	8.7			
		10/5/1999		1.7	22	10			
		10/2/2000		1.4	16	9.9		21.4	1460
		10/1/2001		2.3	23	11			
		10/18/2002		2.2	25	13			
		10/1/2003		2.8	25	13			
		9/28/2004		2.8	25	10			
		10/3/2005		1.8	17	8.9			
		10/31/2006		2.6	25	9.8			
		10/8/2007	(DB)	4.9	44	18			
		10/28/2008	(DB)	4.2	40	18			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
OSA-16B	PIEZ	9/3/2009	(DB)	3.6	42	17			
		9/8/2010	(DB)	2.7	30	12			
		10/11/2011	(DB)	1.5	16	7.2			
		8/13/2012	(DB)	0.67 J	6.2	3.1			
		9/5/2013	(DB)	1.6	16	7.5			
		8/28/2014	(DB)	0.95 J	6.6	5.6			
		8/27/2015	(DB)	1.3	16	9			
		9/12/2016	(DB)	0.42 J	4.8	3.1			
		8/31/2017	(DB)	0.88 J	8	5.7			
		8/31/2017	DUP (DB)	0.92 J	7.8	5.5			
PS-22A	BAR	1/31/1986		0.1 TR		0.1 ND			
		10/3/2011					0.385		
		8/1/2012					0.28		
		8/23/2013					0.35		
		8/8/2014					0.2 U		
		8/20/2015					0.06 J		
		8/23/2017					0.2 U		
PS-22B	BAR	1/31/1986		17		0.1 ND			
		10/4/2000		120	4.5	1.2		5.3 U	121
		7/24/2001		140	4.6	1.2			
		11/5/2002		56	2.1	0.98 J		3.2 U	141
		9/15/2003		74	2.5	2 U		2.4 U	137
		9/17/2004		48	1.5	0.48 J		0.39 B	150
		9/27/2005		72	2	0.6 J		0.365 B	123
		10/26/2006		85	2	0.7 J		1 U	146
		9/20/2007		72	2	0.79 J		1 U	91.2
		10/16/2008		100	3	1.2	1.4	1 U	140
		8/18/2009		57	1.6	0.81 J	0.91	1 U	168
		9/30/2010		71	2.2	0.81 J	1.7 J	1 U	170
		10/5/2011		37	1	0.49 J	1.74	1 U	227
		8/7/2012		28	0.97	0.45 J	1.7	1 U	230 B
		8/7/2012	DUP	27	0.89	0.47 J	1.6	0.59 J	240
		8/29/2013		17	1 U	1 U	1.6	0.38 J	250
		8/29/2013	DUP	17	1 U	1 U	1.5	0.32 J	250
		8/22/2014		11	1 U	1 U	1.4	0.33 J	250 B
		8/22/2014	DUP	12	1 U	1 U	1.1	0.36 J	250 B
		8/20/2015		20	1 U F1	1 U	1.2	0.46 J	270
		8/20/2015	DUP	19	1 U	1 U	0.99	0.36 J	270 B
		9/7/2016		7.9	1 U * F1	1 U	0.4	1 U	260
		9/7/2016	DUP	7.9	1 U *	1 U	0.4	0.27 J	260
		8/23/2017		16	1 U	1 U	0.62	0.31 J	300 B
		8/23/2017	DUP	16	1 U	1 U	0.56	1 U	300 B
PS-29A	BAR	1/31/1986		1 ND		0.1 ND			
		10/3/2000		1 U	1 U	1 U		4.6 U	6.1
		7/24/2001		1 U	1 U	1 U			
		10/5/2011					0.109 J		
		8/7/2012					0.11 J		

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
PS-29A	BAR	8/29/2013					0.12 J		
		8/8/2014					0.11 J		
PS-29B	BAR	1/31/1986		9.7		2.4			
		10/3/2000		1.5	1 U	1 U		4.6 U	127
		7/24/2001		3.1	1 U	0.42 J			
		11/5/2002		13	0.29 J	0.49 J		3.2 U	128
		9/15/2003		3.1	1 U	1 U		2.4 U	120
		9/17/2004		3	1 U	0.33 J		0.917 B	114
		9/27/2005		6.1	1 U	0.32 J		0.194 B	71.6
		10/26/2006		9.3	1 U	0.31 J		1 U	85.1
		9/20/2007		5	1 U	1 U		1 U	150
		10/17/2008		7.5	1 U	1 U	0.46	1.8	149
		8/18/2009		4.1	1 U	1 U	0.52	1 U	124
		9/30/2010		4.6	0.2 J	1 U	2 U	1 U	135
		10/5/2011		2.1	1 U	1 U	0.212	1 U	169
		8/7/2012		3.9	0.5 U	1 U	0.19 J	4.8 J	370 B
		8/29/2013		4	1 U	1 U	0.34	0.73 J	200
		8/20/2014		2.7	1 U	1 U	0.4	0.73 J	170 B
		8/20/2015						7.2	290
		8/25/2015					1.2		
		9/7/2016					1.1	1 U	100
		8/23/2017					1.4	0.49 J	93 B
PT-03B1	BAR	5/25/1982		10 ND	10 ND	10 ND			
		11/19/1982		36	14	BDL			
		3/8/1983		16	BDL	BDL			
		3/16/1983		45	10	BDL			
		3/23/1983		15	BDL	BDL			
		3/30/1983		18	BDL	BDL			
		4/6/1983		18	BDL	BDL			
		4/12/1983		21	10	BDL			
		4/21/1983		18	BDL	BDL			
		4/28/1983		18	BDL	BDL			
		5/5/1983		21	BDL	BDL			
		5/13/1983		BDL	BDL	BDL			
		5/19/1983		18	BDL	BDL			
		6/29/1983		16	BDL	BDL			
		2/27/1984		4	BDL	BDL			
		4/2/1984		7.2	BDL	BDL			
		7/10/1985		<10	<10	<10			
		9/30/1985		49	17	1			
		12/5/1985		56	14	<1			
		3/4/1986		190	120	16			
		4/3/1986		35	29	2			
		9/30/1986		100	39	4			
		3/18/1987		33	13	4			
		9/9/1987		34	37	3			
		3/24/1988		12	4	1			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
PT-03B1	BAR	9/16/1988		46	14	3			
		3/15/1989		12	4	1			
		9/21/1989		53	22	3			
		3/15/1990		33	15	3			
		3/12/1991		13	6	<1			
		3/18/1992		98	54	6			
		3/25/1993		19	8	2			
		3/9/1994		26	18	2			
		4/12/1995		29	18	3			
		4/18/1996		11	6	2			
		3/11/1997		19	7	2			
		4/13/1998		4.7	1.4	0.48 J			
		10/12/1999		11	4.7	1			
		9/21/2000		9.2 J	4.3 J	1.5 J		4.6 U	363
		9/21/2001		10 J	3.9 J	1 J			
		10/28/2002		10	4.1	0.92 J			
		9/8/2003		7.1	2.8	0.78 J			
		9/27/2004		5.8	2.4	0.7 J			
		9/30/2005		5.8	2.1	0.66 J			
		10/20/2006		3.9	1.5	1 U	2		
		9/24/2007		4	1.4	0.5 J	1.9		
		10/17/2008		1.3	0.4 J	1 U	1.3		
		8/17/2009		2.2	0.59 J	1 U	1		
		9/29/2010		1.8	0.49 J	1 U	2 U		
		10/3/2011					1.65		
		8/27/2013					2.9		
		8/8/2014					2.6		
		2/18/2015					6.1		
		8/19/2015					5.9		
		3/1/2016					4.3		
		8/31/2016					6.3		
		3/23/2017					9.2		
		8/22/2017					7.8		
PT-11B1	BAR	5/27/1982		82	12	10 ND			
		11/19/1982		84	23	BDL			
		6/30/1983		250	44	BDL			
		3/1/1984		240	38	10			
		4/2/1984		280	75	6.4			
		7/11/1985		<10	<10	<10			
		9/26/1985		<1	<1	<1			
		12/3/1985		<10	<10	<10			
		3/4/1986		<1	<1	<1			
		9/12/1986		2	<1	<1			
		3/18/1987		<1	<1	<1			
		9/9/1987		61	58	3			
		3/23/1988		1	<1	<1			
		9/12/1988		4	<1	<1			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
PT-11B1	BAR	3/15/1989		8	<1	<1			
		9/14/1989		<1	<1	<1			
		3/15/1990		170	62	<1			
		3/15/1990	DUP	220	79	<1			
		3/8/1991		16	<1	<1			
		3/8/1991	DUP	16	<1	<1			
		3/17/1992		16	<1	<1			
		3/25/1993		21	<1	<1			
		3/9/1994		17	<1	<1			
		4/6/1995		24	<1	<1			
		4/6/1995	DUP	30	3	<1			
		4/17/1996		31	<1	2			
		3/13/1997		7	<1	<1			
		4/7/1998		6.3	2.9 U	2.9 U			
		10/14/1999		12	1.8 U	1.8 U			
		9/19/2000		12	2.5 U	2.5 U		4.6 U	1360
		9/24/2001		14	1 U	1 U			
		10/25/2002		1.1	1 U	1 U			
		9/11/2003		12	1.5 U	1.5 U			
		9/17/2004		4.1	1 U	1 U			
		9/14/2005		3	1 U	1 U			
		10/9/2006		5.3	1 U	1 U			
		9/13/2007		6.7	1 U	1 U			
		10/14/2008		5.1	1 U	1 U			
		8/13/2009		7.2	1 U	1 U			
		9/28/2010		6.4	1 U	1 U			
		10/6/2011		2.3	1 U	1 U			
		8/8/2012		3.8	0.5 U	1 U			
		9/6/2013		1.9	1 U	1 U			
R-2	PIEZ	3/26/1985		60	<10	<10			
		3/27/1985		60	<10	<10			
		4/11/1985		20	<10	<10			
		5/31/1985		<10	<10	<10			
		6/14/1985		<10	<10	<10			
		7/16/1985		<10	<10	<10			
		8/12/1985		<10	<10	<10			
		9/6/1985		<10	<10	<10			
		10/8/1985		<10	<10	<10			
		11/20/1985		<10	<10	<10			
		1/10/1986		<10	<10	<10			
		1/22/1986		<10	<10	<10			
		2/27/1986		<10	<10	<10			
		3/20/1986		<10	<10	<10			
		3/20/1986	DUP	<10	<10	<10			
		9/3/1986		<10	<10	<10			
		10/3/1986		25	10	2			
		3/6/1987		<1	<1	<1			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
R-2	PIEZ	9/4/1987		6	<1	<1			
		3/21/1988		2	<1	<1			
		9/14/1988		<1	<1	<1			
		3/24/1989		4	<1	<1			
		9/12/1989		2	<1	<1			
		3/9/1990		3	<1	<1			
		3/7/1991		28	4	<1			
		3/12/1992		4	<1	<1			
		3/24/1993		8	<1	<1			
		3/9/1994		11	<1	<1			
		3/13/1995		11	4	<1			
		3/19/1996		4	2	<1			
		3/17/1997		2	<1	<1			
		4/20/1998		1.5	1 U	1 U			
		10/7/1999		2.8	0.46 J	1 U			
		9/20/2000		4.7	1 U	1 U		4.6 U	1760
		9/26/2001		1.7	0.28 J	1 U			
		9/4/2013					0.99		
		11/14/2013					0.98		
		2/11/2014					0.92		
		8/25/2015					1.1		
		9/6/2016					1.1		
		8/28/2017					1.1		
R-2A	PIEZ	3/27/1985		<10	<10	<10			
		4/11/1985		<10	<10	<10			
		5/31/1985		<10	<10	<10			
		6/14/1985		<10	<10	<10			
		7/16/1985		<10	<10	<10			
		8/12/1985		<10	<10	<10			
		9/6/1985		<10	<10	<10			
		10/8/1985		<10	<10	<10			
		11/20/1985		<10	<10	<10			
		1/10/1986		<10	<10	<10			
		1/22/1986		<10	<10	<10			
		2/27/1986		<10	<10	<10			
		3/20/1986		<10	<10	<10			
		9/3/1986		<10	<10	<10			
		10/3/1986		<1	<1	<1			
		3/6/1987		<10	<10	<10			
		9/4/1987		<1	<1	<1			
		3/21/1988		1	<1	<1			
		9/14/1988		<1	<1	<1			
		3/24/1989		<1	<1	<1			
		9/12/1989		<1	<1	<1			
		3/9/1990		<1	<1	<1			
		3/7/1991		<1	<1	<1			
		3/12/1992		2	<1	<1			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
R-2A	PIEZ	3/24/1993		<1	<1	<1			
		3/9/1994		4	<1	<1			
		3/13/1995		<1	<1	8			
		3/19/1996		2	1	<1			
		3/17/1997		<1	<1	<1			
		4/20/1998		1.3	1 U	1 U			
		10/13/1999		1.2	1 U	1 U			
		9/25/2000						4.6 UJ	738
		5/12/2014					0.34		
		8/25/2014					0.2 U		
		2/18/2015					0.59		
		8/25/2015					0.57		
		3/1/2016					0.41		
		9/6/2016					0.91		
		3/23/2017					1.1		
		8/28/2017					0.66		
RE-1	RECOV	8/24/2009		1 U	1 U	2 U	0.21 U	1 U	7.4
		8/24/2009	DUP	1 U	1 U	2 U	0.17 J	1 U	6.7
RE-1OBS	PIEZ	6/23/2009		1 U	1 U	2 U	0.19 U	1 U	5.9
		10/4/2010						3.6	19.3
		10/6/2011					2.12	3	9
		8/9/2012						1.6	4.6 J
		8/27/2013						4.7	22
RE-2	RECOV	8/24/2009		1 U	1 U	2 U	0.19 U	1 U	13.4
RE-2OBS	PIEZ	6/23/2009		1 U	1 U	2 U	0.19 U	1 U	29
		10/4/2010						1 U	122
		10/6/2011					2.12	1 U	6.5
		8/9/2012					2	2.8	96
		8/27/2013						2.4	37
RLF	RECOV	4/26/1985		<10	<10	<10			
		5/24/1985		41	13	4.5			
		5/24/1985	DUP	41	16	5.4			
		6/28/1985		20	<10	<10			
		7/26/1985		<10	<10	<10			
		8/23/1985		200	<10	<10			
		9/26/1985		40	10	<10			
		10/31/1985		170	<10	10			
		11/26/1985		40	10	<10			
		12/26/1985		<10	<10	<10			
		1/22/1986		60	10	<10			
		1/22/1986	DUP	80	20	<10			
		2/24/1986		<10	<10	<10			
		3/27/1986		110	<10	<10			
		6/6/1986		84	28	5			
		7/15/1986		600	<10	30			
		8/26/1986		90	9	5			
		9/30/1986		72	27	5			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
RLF	RECOV	10/22/1986		120	53	5			
		11/24/1986		94	17	5			
		12/23/1986		47	20	5			
		2/4/1987		49	20	3			
		3/2/1987		21	<1	3			
		3/31/1987		40	16	4			
		4/28/1987		35	3	3			
		5/28/1987		30	<1	2			
		6/30/1987		32	<1	2			
		7/29/1987		27	<1	3			
		8/26/1987		32	<1	3			
		9/28/1987		32	24	3			
		10/27/1987		2	27	3			
		11/24/1987		36	8	<1			
		1/27/1988		48	28	4			
		2/29/1988		44	13	3			
		3/21/1988		36	19	<1			
		4/27/1988		28	<1	3			
		9/28/1988		27	6	2			
		3/14/1989		35	13	3			
		11/17/1989		32	21	<5			
		3/12/1990		33	12	3			
		3/19/1990		42	17	3			
		3/6/1991		23	<1	2			
		3/11/1992		18	6	2			
		7/8/1992		17	5 J	1 J		<3 (dis)	60.8 (dis)
		7/8/1992	DUP	<10	5 J	1 J		<3 (dis)	6260 (dis)
		9/24/1992		18	5	1		<3 (dis)	70.5 (dis)
		12/7/1992		24	8 J	2 J		<3 (dis)	91.1 (dis)
		12/7/1992	DUP	26	7 J	2 J		<3 (dis)	90.5 (dis)
		3/29/1993		21	<10	1 J		<2 (dis)	77.3 (dis)
		6/7/1993		14	4 J	<10		107 (dis)	4020 (dis)
		9/8/1993		16	5 J	1 J		<3 (dis)	66.9 (dis)
		12/3/1993		13	<10	1 J		<2 (dis)	67.6 (dis)
		12/3/1993	DUP	20	<10	1 J		<2 (dis)	69.4 (dis)
		3/15/1994		20	5 J	1 J		<2 (dis)	136 (dis)
		3/15/1994	DUP	21	6 J	1 J		<2 (dis)	144 (dis)
		7/7/1994		33	10	6		24 (dis)	
		10/5/1994		18	<1	<1		<10 (dis)	
		12/8/1994		25	<1	1		<10 (dis)	
		12/8/1994	DUP	25	<1	1		<10 (dis)	
		3/1/1995		29	5	1		<10 (dis)	
		6/1/1995		31	4	<1		<10 (dis)	
		6/1/1995	DUP	31	5	1		<10 (dis)	
		9/12/1995		19	<1	<1		<10 (dis)	
		12/6/1995		28	<1	<1		<10 (dis)	
		3/5/1996		22	4	<1		<10 (dis)	

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
RLF	RECOV	6/4/1996		20	2	0.4 J	50 U	3.6 U (dis)	
		9/9/1996		19	<1	<1		<2 (dis)	
		9/9/1996	DUP	18	<1	<1		<2 (dis)	
		3/5/1997		21	<1	<1		<2 (dis)	
		4/17/1998		9.2	0.58 J	1 U		1.8 U (dis)	
		9/29/1999		8.6	0.5 J	1 U		1.9 UJ	
		1/30/2001		12	1 U	1 U		2.5 U	90.6
		1/30/2001	DUP	11	0.36 J	1 U		2.5 U	92.3
		9/18/2001		10	0.23 J	1 U		1.5 U	139
		10/31/2002		9.7	1 U	1 U			
		6/10/2003		8.2 (dis)	0.3 J (dis)	1 U (dis)			
		9/4/2003		8.1	1 U	1 U			
		12/17/2003		20	0.22 J	1 U			
		3/25/2004		6.3	0.21 J	1 U			
		7/19/2004		6.8	1 U	1 U			
		9/10/2004		8.9	1 U	1 U			
		9/27/2004		27	4.1	1.8			
		12/21/2004		7.5	0.24 J	1 U			
		3/28/2005		6.7	1 U	1 U			
		6/20/2005		6.5	1 U	1 U			
		9/21/2005		7.5	1 U	1 U			
		10/12/2005		7.8	1 U	1 U			
		10/17/2006		8	1 U	1 U			
		11/7/2007	(DB)	6.7	1 U	1 U			
		10/28/2008	(DB)	8	1 U	1 U			
		9/3/2009	(DB)	5.5	1 U	1 U			
Scribner	DW	10/22/1980		TR					
		9/30/1981		1					
		4/13/1983		0.54					
		2/17/1984		2.1					
		2/21/1984		1.6					
		3/9/1984		0.9					
		3/16/1984		0.36					
		4/6/1984		0.18					
		5/10/1984		0.14					
		5/31/1984		0.11					
		6/20/1984		0.42					
		7/6/1984		0.59					
		8/7/1984		0.22					
		8/29/1984		0.39					
		11/29/1984		0.57					
		5/3/1985		1.8					
		5/14/1985		<1	<1	<1			
		5/15/1985		0.48					
		1/31/1986		1 ND		0.1 ND			
		1/31/1986	DUP	1 ND					
		6/30/1997		8.6	U	U			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
Scribner	DW	8/21/1998		6.1	U	U			
		9/8/1999		U	U	U			
		9/11/2000		15	U	U			
		10/4/2000		8.2	1 U	1 U		4.6 U	0.99 J
		9/4/2002		11	U	U			
		11/12/2002		8.5	1 U	1 U			
		11/19/2002		11	U	U			
		8/6/2003		7	U	U			
		9/17/2003		6.7	1 U	1 U			
		8/18/2004		9	U	U			
		9/23/2004		8.6	1 U	1 U			
		8/1/2005		5	U	U			
		9/15/2005		5.5	1 U	1 U			
		2/14/2006		7	U	U			
		8/7/2006		6	U	U			
		10/31/2006		5.9	1 U	1 U			
		4/17/2007						U	U
		7/13/2007		6	U	U			
		9/12/2007		7.6	1 U	1 U			
		11/7/2007					U		
		3/5/2008					0.18		
		4/30/2008					0.21		
		7/23/2008		3	U	U			
		8/13/2008					0.26		
		10/21/2008		4.1	1 U	1 U			
		2/17/2009							U
		6/10/2009						U	
		7/29/2009		3	U	U			
		8/12/2009		4.3	1 U	1 U			
		8/12/2010		6	U	U			
		10/1/2010		4.7	1 U	1 U			
		7/28/2011		3.9	U	U			
		9/30/2011		4.2	1 U	1 U	0.273		
		9/30/2011	DUP	3.8	1 U	1 U	0.315		
		4/20/2012					0.3		
		7/30/2012		3.5	0.5 U	1 U	0.34		
		7/30/2012	DUP	3.5	0.5 U	1 U	0.3		
		8/14/2012		3	U	U	0.329		
		11/26/2012					0.299		
		3/18/2013					0.264		
		8/13/2013		3.1	U	U			
		8/23/2013		2.8	1 U	1 U	0.25		
		8/23/2013	DUP				0.3		
		9/19/2013					0.31		
		9/19/2013	DUP				0.31		
		11/14/2013					0.35		
		11/14/2013	DUP				0.35		

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
Scribner	DW	1/13/2014					0.25		
		2/11/2014					0.26		
		2/11/2014	DUP				0.32		
		5/12/2014					0.28		
		5/12/2014	DUP				0.28		
		6/2/2014					0.242		
		8/4/2014		2.4	U	U			
		8/8/2014		1.9	1 U	1 U	0.28		
		8/8/2014	DUP				0.32		
		10/20/2014					0.228		
		11/4/2014					0.31		
		11/4/2014	DUP				0.321		
		5/29/2015					0.19 J		
		5/29/2015	DUP				0.27		
		6/26/2015					0.234		
		8/17/2015		10.8	U	U			
		8/18/2015		2.9	1 U	1 U	0.24		
		8/18/2015	DUP				0.27		
		12/17/2015					0.28		
		12/17/2015	DUP				0.24		
		3/1/2016					0.24		
		3/1/2016	DUP				0.23		
		5/27/2016					0.24		
		5/27/2016	DUP				0.27		
		6/6/2016					0.239		
		8/30/2016		1.9	1 U	1 U	0.15 J		
		8/30/2016	DUP				0.21		
		9/7/2016		3.25	U	U			
		12/15/2016					0.34		
		12/15/2016	DUP				0.32		
		3/23/2017					0.24		
		3/23/2017	DUP				0.26		
		6/19/2017					0.19 J		
		6/19/2017	DUP				0.18 J		
		8/22/2017		1.7	1 U	1 U	0.21		
		8/22/2017	DUP				0.2		
SCRIBNER1	DW	11/26/2012					0.108		
		3/18/2013					0.121		
		9/19/2013					0.12 J		
		11/14/2013					0.17 J		
		2/12/2014					0.1 J		
		5/12/2014					0.12 J		
SCRIBNER2	DW	11/26/2012					0.323		
		3/18/2013					0.352		
		9/19/2013					0.43		
		11/14/2013					0.53		
		2/11/2014					0.42		

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
SCRIBNER2	DW	5/12/2014					0.46		
SCRIBNER3	DW	11/26/2012					0.0362 J		
		3/18/2013					0.0424 J		
		9/19/2013					0.2 U		
		11/14/2013					0.048 J		
		2/11/2014					0.053 J		
		5/12/2014					0.22 U		
SCRIBNER4	DW	11/26/2012					0.406		
		3/18/2013					0.322		
		9/19/2013					0.4		
		11/14/2013					0.43		
		2/12/2014					0.42		
		5/12/2014					0.37		
SELF-1	RECOV	8/13/2008		2.6	5.4	1000	22	64.3 (dis)	3670
		9/4/2008		5.4	6.2	760	28	99 (dis)	2460 J
		4/3/2009		7.4 J	7.8 J	640	25		
		9/15/2009		5.9	7.8	510	23	145	2240
		12/29/2009		3.3	4.7	320	13	221	3210
		3/24/2010		6	8.1	450	18	131	2180
		5/12/2010		5.8	8.9	500	18	880 N	2420
		7/20/2010		6.1	8.7	61	15	611	2140
		10/7/2010		5.7	9.8	450		117	2030
		10/12/2010					23		
		1/25/2011		5.7	7.8	40	27	160	2080
		4/19/2011		4.5	5.9	43	22	84.9	1850
		9/27/2011		4.6	7.4	160	35.7	48.3	1730
		1/11/2012		4.1	6.1	79	30.3	26.9	1930
		3/1/2012		4.2	5.9	190	25.3	44.1	1870
		7/26/2012		3.5	5.8	82	22.1	80.8	1750
		10/11/2012		3.3 J	5.5	230	24	210	1600
		1/14/2013		2.3 J	5.8	2.7 J	26	54	1700
		4/11/2013		5 U	5.9	80	29	51	1600
		9/5/2013		2.8 J	7.5	270	28	120	1700
		11/13/2013		2.3 J	5.8	260	29	180	1600 B
		2/3/2014		1.6 J	5 U	29	31	34	1500
		5/30/2014		5 U	5 U	16	28	72	1400 ^
		8/11/2014		1.1	2.1	6.4	24	270 B	1600
		11/7/2014		1.2	4.4	230	24	99	1600
		2/19/2015		1.3 J	4 U	12	25	320	1400
		5/29/2015		1.5 J	3.8 J *	200	21	150	1400 B
		8/20/2015		4 U	4 U	150	200 U	170	1500
		11/20/2015		0.83 J	2.1	2.5	50 U *	150	1400
		2/26/2016		4 U	4 U	39	200 U	57	1300
		5/24/2016		5 U	5 U	120	16	160	1400 B
		8/19/2016		5 U	5 U	140	18	130	1400 B
		12/8/2016		5 U	5 U	120	19	120	1300
		3/9/2017		5 U	4.5 J	120	17	120	1300

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
SELF-1	RECOV	6/15/2017		5 U	5 U	120	15	120	1300
		8/30/2017		5 U	5 U	110	15	120	1300 B
SELF-2	RECOV	6/9/2010		36	28	1100 J	28	233 J	3930 J
		6/24/2010		23	16	660	25	87.8	2210
		6/24/2010	DUP	23	16	660	21	83.9	2080
		7/20/2010		18	13	68	15	165	1840
		10/7/2010		18	15	380		22.3	1940
		10/12/2010					26		
		1/25/2011		14	12	240	29	74.6	2110
		9/27/2011		13	11	150	34.7	29.5	2360
		1/11/2012		11	9.3	210 E	28.7	54.2	1960
		3/1/2012		12	8.9	290	25	135	1960
		7/26/2012		11	8.7	220	24.5	125	1870
		10/11/2012		8.9	8.3	200	24	410	1600
		1/14/2013		11	9.8	230	26	98	1600
		4/11/2013		11	9.2	230	28	110	1700
		9/5/2013		11	12	240	34	88	1600
		11/13/2013		11	9.6	220	29	80	1500 B
		2/3/2014		9.8	8.3	89	32	27	1500
		5/30/2014		12	10	190	29	130	1400 ^
		8/11/2014		9.5	7	150	26	360 B	1500
		11/7/2014		8.1	7	43	27	23	1400
		2/19/2015		10	7.7	170	31	540	1400
		5/29/2015		10	8 *	160	26	210	1400 B
		8/20/2015		8.6	5.8	61	28	150	1300
		11/20/2015		8	6.8	79	23	28	1200
		5/24/2016		6.4	6.7	110	19	120	1300 B
		8/19/2016		8.8	8.4	120	22	78	1200 B
		12/8/2016		7.5	8.2	110	26	68	1100
		3/9/2017		8.2	9.2	130	22	74	1100
		6/15/2017		6.8	8.5	120	20	77	1200
		8/30/2017		7.1	8.3	120	19	74	1200 B
SLBR	RECOV	4/26/1985		1300	1600	40			
		5/24/1985		2200	<10	70			
		6/28/1985		1900	550	20			
		7/26/1985		2000	720	30			
		7/26/1985	DUP	1700	350	30			
		8/23/1985		2100	480	<10			
		9/26/1985		1300	270	<10			
		10/31/1985		1000	180	10			
		11/26/1985		1600	210	<10			
		12/26/1985		1200	<10	10			
		1/22/1986		920	140	<10			
		2/24/1986		1400	210	<10			
		3/27/1986		1800	280	20			
		6/6/1986		1000	110	<10			
		7/15/1986		420	80	<10			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
SLBR	RECOV	8/26/1986		870	110	<10			
		9/30/1986		980	<10	<10			
		10/22/1986		1200	220	9			
		11/24/1986		1400	180	10			
		12/23/1986		720	170	9			
		2/4/1987		1000	<10	<10			
		3/2/1987		680	<10	<10			
		3/31/1987		650	150	<10			
		4/28/1987		690	170	<10			
		5/28/1987		520	<10	<10			
		6/30/1987		550	150	<10			
		7/29/1987		640	200	<10			
		8/26/1987		140	<10	<10			
		9/28/1987		510	210	<10			
		10/27/1987		41	17	<1			
		11/24/1987		370	50	<10			
		1/27/1988		700	230	10			
		2/29/1988		410	90	<10			
		3/21/1988		600	90	<10			
		4/27/1988		660	130	<10			
		9/28/1988		90	28	4			
		12/21/1988		31	10	<1			
		3/14/1989		71	12	3			
		4/28/1989		220	29	3			
		9/12/1989		240	40	<5			
		3/12/1990		230	57	5			
		3/6/1991		130	29	5			
		3/11/1992		140	47	5			
		3/18/1993		93	32	3			
		3/4/1994		67	23	3			
		3/1/1995		90	21	5			
		3/5/1996		82	16	3			
		3/10/1997		24	2	3			
		4/17/1998		40 E	5.5	2.2			
		9/29/1999		5.3	0.4 J	0.42 J			
		9/6/2000		46	8.9	1.2		17.3	2280
		9/18/2001		86	5.9	1 J			
		10/31/2002		26	7.2	0.86 J			
		6/10/2003		27	7	0.97 J			
		9/4/2003		22	6	0.96 J			
		12/17/2003		19	5.2	0.72 J			
		3/25/2004		20	6.1	0.89 J			
		7/7/2004		21	4.6	0.81 J			
		9/10/2004		30	1.6	0.4 J			
		9/27/2004		13	0.69 J	0.34 J			
		12/21/2004		25	8.2	1.1			
		3/28/2005		90	10	1.2			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
SLBR	RECOV	6/20/2005		87	6.7	0.99 J			
		9/21/2005		100	7.1	0.94 J			
		10/12/2005		96	7.5	0.94 J			
		11/1/2006		15	3.5	0.39 J			
		9/10/2007		11	2.3	0.34 J			
		10/21/2008		25	2.1	1 U			
		8/12/2009		6.9	1 U	1 U			
		8/12/2009	DUP	5.4	1 U	1 U			
		10/1/2010		2.3	1 U	1 U			
		10/1/2010	DUP	2.4	1 U	1 U			
SLGP-R	RECOV	9/29/1999		80	7	1.6 J			
		9/6/2000		22	0.85 J	0.61 J		75.6	2270
		9/18/2001		10 J	0.65 J	0.55 J			
		10/31/2002		12 J	0.64 J	1 UJ			
		6/10/2003		8.6	0.75 J	1 U			
		9/4/2003		22	5.6	0.92 J			
		12/17/2003		20	5.8	0.83 J			
		3/25/2004		23	0.88 J	0.28 J			
		7/7/2004		47	1	0.4 J			
		9/10/2004		31	1.5	0.41 J			
		9/27/2004		24	7	1.2			
		12/21/2004		14	0.96 J	0.28 J			
		3/28/2005		36	1.3	1 U			
		6/20/2005		64	1.3	0.37 J			
		9/21/2005		20	0.99 J	1 U			
		10/12/2005		19	0.89 J	0.32 J			
		10/17/2006		77	2.7	1 U			
		9/10/2007		62	1.8	0.38 J			
		9/10/2007	DUP	61	1.9	0.4 J			
		10/21/2008		25	2	1 U			
		9/4/2009	(DB)	17	1.4	1.2			
		9/9/2010	(DB)	3.3	1 U	1 U			
		10/11/2011	(DB)	1.4	0.36 J	1 U			
		8/13/2012	(DB)	1.4	0.65	1 U			
		9/5/2013	(DB)	1.8	1 U	1 U			
SWLF-1	RECOV	8/13/2008		290	73	14	4.8	2.6	367
		9/4/2008		270	62	16	5.1	3.9	461 J
		4/3/2009		240	59	22	4.3		
		9/15/2009		200	52	21	4.6	15.8	535
		12/29/2009		190	52	21	4.8	7.9	517
		3/24/2010		180	50	19	4	7.7 J	525
		5/12/2010		200	56	20	4.1	8.8 NJ	513
		7/20/2010		210	51	19	2.8	12.1	556
		10/7/2010		180	58	18	5.9	13.4	1210
		1/25/2011		62	30	25	5.5	3.8	574
		9/5/2013	(DB)	7.6	57	18			
SWLF-2	RECOV	4/28/2011		23	13	24	4.2	2.1	303

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
SWLF-2	RECOV	9/27/2011		36	15	16	6.56	1.6	299
		1/11/2012		31	13	16	5.61	1.8	286
		3/1/2012		35	14	17	4.83	2	270
		7/26/2012		42	14	16	4.76	1.7	268
		10/11/2012		24	11	15	4.7	1.7	220
		1/14/2013		28	11	17	4.5	1.6	230
		4/11/2013		26	12	14	5.4	1.1	250
		9/5/2013		29	14	15	5.3	1.8	220
		11/13/2013		25	11	15	6	1.7	220 B
		2/3/2014		23	9.1	14	4.9	1.6	210
		5/30/2014		26	10	14	4.4	1.7	220 ^
		8/11/2014		27	9.7	15	4.1	2.2 J B	220
		11/7/2014		18	9	14	5	1.4	240
		2/19/2015		21	7.5	13	50 U	2.2	230
		5/29/2015		23	7.9 *	13	50 U	2.3	220 B
		8/20/2015		25	9.5	12	50 U	3	230
		11/20/2015		21	8	12	50 U *	2.4	220
		2/26/2016		23	8.7	13	50 U	2.2	210
		5/24/2016		17	6.8	12	3.4	2.1	220 B
		8/19/2016		23	9.3	13	4.4	2.2	220 B
		12/8/2016		17	7.3	12	4.4	1.8	210
		3/9/2017		18	8.5	13	4.5	1.9	210
		6/15/2017		14	6.7	12	4.4	2.1	200
		8/30/2017		20	7.9	13	4.5	1.9	210 B
WLF	RECOV	8/27/1984		<10	14	<10			
		6/30/1987		6	60	16			
		7/29/1987		110	110	110			
		8/26/1987		200	<10	120			
		9/28/1987		240	260	130			
		10/27/1987		200	180	110			
		11/24/1987		270	76	94			
		1/27/1988		190	85	120			
		2/29/1988		210	100	130			
		3/21/1988		270	130	70			
		4/27/1988		250	80	50			
		5/25/1988		280	100	70			
		8/31/1988		280	230	90			
		9/28/1988		340	190	100			
		10/27/1988		230	90	50			
		11/21/1988		260	100	56			
		12/21/1988		59	26	15			
		1/25/1989		360	150	50			
		1/25/1989	DUP	300	120	40			
		3/14/1989		300	70	45			
		9/12/1989		42	8	2			
		3/12/1990		200	75	31			
		9/27/1990		140	55	30			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
WLF	RECOV	3/6/1991		120	44	29			
		9/26/1991		97	47	32			
		3/11/1992		160	81	59			
		7/8/1992		130	64	33		44.2 (dis)	2340 (dis)
		9/24/1992		120	64	26		52.6 (dis)	2360 (dis)
		12/16/1992		100	48	18		49.4 (dis)	2240 (dis)
		12/16/1992	DUP	140	74	22		59.5 (dis)	2190 (dis)
		3/5/1993		150	73	19 J		53.2 (dis)	2290 (dis)
		6/7/1993		140	69	63		62.1 (dis)	2330 (dis)
		9/15/1993		130	44	55		64 (dis)	2300 (dis)
		9/15/1993	DUP	7 J	2 J	19		51.8 (dis)	2330 (dis)
		12/21/1993		150	110	30		61 (dis)	2150 (dis)
		3/22/1994		260 E	160	22		57.3 (dis)	2260 (dis)
		6/28/1994		120	46	18		64 (dis)	
		10/5/1994		100	44	10		58 (dis)	
		1/5/1995		180	67	12		58 (dis)	
		3/1/1995		140	43	9		71 (dis)	
		3/1/1995	DUP	140	60	9		73 (dis)	
		6/16/1995		150	55	10		<10 (dis)	
		9/26/1995		170	77	11		67 (dis)	
		12/8/1995		120	52	8		62 (dis)	
		3/5/1996		110	15	8		66 (dis)	
		6/14/1996		99 E	34 E	6	50 U	53.5 (dis)	
		9/9/1996		72	23	6		68 (dis)	
		3/20/1997		92	29	7		60 (dis)	
		6/24/1997		80	23	6.1		50.3 (dis)	
		4/17/1998		12	2.7	12		1.8 U (dis)	
		9/29/1999		83 J	23	6.1		55	
		9/6/2000		76	23	4.9		36.2	1740
		9/18/2001		85	21	5.2		39.8	1600
		10/31/2002		51 J	12	3.5			
		10/31/2002	DUP	50 J	12	3.9			
		6/10/2003		6.4 (dis)	4.8 (dis)	4.8 (dis)			
		9/4/2003		43	12	3.4			
		12/17/2003		45	13	4			
		3/25/2004		1.7	0.93 J	0.49 J			
		7/19/2004		48	7.9	3.2			
		9/14/2004		54	10	3.4			
		9/27/2004		59	12	3.6			
		12/21/2004		42	12	3.6			
		3/28/2005		71	20	4.4			
		6/20/2005		54	13	3.5			
		9/21/2005		48	12	3.1			
		10/12/2005		48	14	3.2			
		5/23/2006					2.3	38.1	1640
		10/17/2006		55	12	3	2.6	53.7 (dis)	
		11/7/2007		3.5	2.8	1.2			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
WLF	RECOV	11/7/2007	DUP	3.8	3.2	1.2			
		3/11/2008		22	4.5	1.4			
		8/13/2008		42	11	2.5	2.7	43.8	1760 (dis)
		9/4/2008		43	9.2	2.5	2.7	24.5	1520 J
		9/4/2008	DUP	43	9.1	2.3	2.4	25.6	1540 J (dis)
		4/3/2009		25	5.7	1.6 J	1.9		
		9/15/2009		18	4.1	1	2.3	28.6	1540
		12/29/2009		15	3.4	0.81 J	2.1	93.9	1430
		3/24/2010		13	3.6	0.81 J	1.9	1340	4400
		5/12/2010		23	6.3	1.1	1.8	21.7 NJ	1650
		7/20/2010		14 J	5.1 J	1.2 J	1.7 J	85.9 J	1550 J
		10/7/2010		21	5	1.1		31.1	1600
		10/12/2010					2.8		
		1/25/2011		26	7	1.5	2.9	28.8	1640
		4/19/2011		30	7.2	2.2	3	30.5	1620
		9/27/2011		32	6.3	2.2	3.84	34.2	1350
		1/11/2012		24	5.8	1.7	3.59	27.6	1630
		3/1/2012		31	6.6	1.7	3.01	26.9	1650
		7/26/2012		32	6.4	1.8	3.21	27	1580
		10/11/2012		28	6.2	1.8	3	26	1400
		1/14/2013		28	6.1	1.7	3.2	27	1600
		4/11/2013		27	6.3	1.6	3.8		1700
		9/5/2013		29	7.6	1.9	3.9	27	1600
		11/13/2013		27	5.7	1.7	3.8	100	1600 B
		2/3/2014		26	5.6	1.6	3.9	32	1500
		5/30/2014		28	5.5	1.5	3.7	41	1600 ^
		8/11/2014		32	6.3	1.9	3.3	32 B	1700
		11/7/2014		23	5.8	1.8	4.1	29	1700
		2/19/2015		24	4.6	1.5	50 U	28	1700
		5/29/2015		24	4.4 *	1.3	50 U	27	1600 B
		8/20/2015		27	5.4	1.6	50 U	32	1600
		11/20/2015		21	5.1	1.4	50 U *	37	1700
		2/26/2016		26	4.9	1.5	50 U	30	1600
		5/24/2016		20	4.1	1.3	2.8	35	1700 B
		8/19/2016		26	6.1	1.5	3.1	51	1800 B
		12/8/2016		19	4.8	1.3	3	29	1900
		3/9/2017		22	5.4	1.2	2.9	27	1900
		6/15/2017		20	4.9	1.4	2.9	32	2000
		8/30/2017		25	4.4	1.3	3.2	31	1900 B
WRG-1	RECOV	10/26/1990		<1	<1	<1			
		3/7/1991		<1	<1	<1			
		3/18/1993		<1	<1	<1			
		3/2/1994		<1	<1	<1			
		3/13/1995		<1	<1	<1			
		3/5/1996		<1	<1	<1			
		3/18/1997		<1	<1	<1			
		4/7/1998		1 U	1 U	1 U			

Location	Type	Date	QA Type	VDC	Vinyl Chloride	Benzene	1,4-Dioxane	Arsenic	Manganese
WRG-1	RECOV	9/29/1999		1 U	1 U	1 U			
		9/6/2000		1 U	1 U	1 U		6.1 J	1130
		6/26/2001						5.6 B	
		9/18/2001		1 U	1 U	1 U			
		9/19/2001						2.5 U	
		12/18/2001						3.2 B	
		3/25/2002						4.8 U (dis)	
		6/24/2002						2.4 B (dis)	
		9/23/2002						16 (dis)	
		10/31/2002		1 U	1 U	1 U			
		8/3/2011		0.5 U	1 U	0.5 U		9.2	1300

NOTES:

Concentrations in µg/L
DUP - Duplicate Sample
(DB) - Passive Diffusion Bag Sample
(dis) - Dissolved Concentration
Bar - Barcad Well
Piez - Piezometer
DW - Public Supply Well
Recov - Recovery or Reinjection Well
VDC - 1,1-Dichloroethene (vinylidene chloride)
ND (10) - Compound not detected at limit indicated in parentheses (if known).
B - In Blank
BDL - Below Detection Limit
D - Diluted

E - Exceeds Calibration
F1 - MS and/or MSD Recovery outside acceptance limits
J - Estimated
LT - Unknown
N - MS recovery outside lab limits
ND - Non-Detect
TR - Trace
U - Compound not detected at lmit indicated in parentheses (if known)
Y - RTE/MS edited
* - Surrogate Flag
^ - Exceeds calibration, no lab dilution
< - Non-Detect

ATTACHMENT C

DIFFUSIVE SUB-RIVER SAMPLING FORM

Diffusive Sub-River Sampling

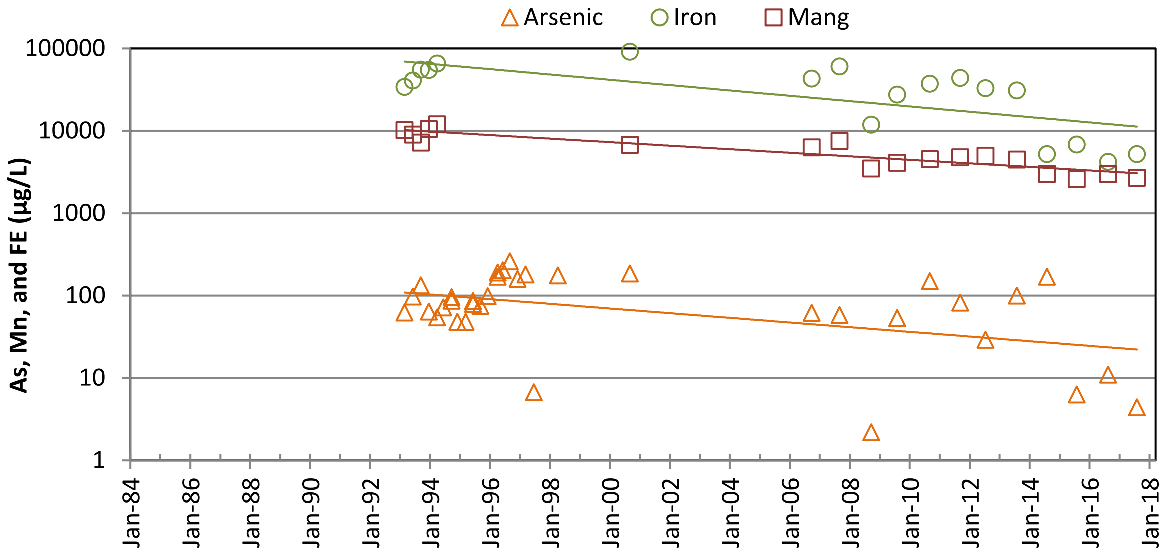
Transect # **ASBRV-T6**	Description of Transect Location: Located between a 90-degree bend in river to west (upstream) and gentle curve to northeast (downstream). Site (west) end of T-6 is in grassy, marshy area. House on opposite bank.
Width of River (ft): 67.00	Depth of Piezometer Screen Bottom in Riverbed: 2.17

Installation	Date: 8/1/2017	Flow Rate	**Removal**	Date: 8/31/2017	Flow Rate	**Add'l measurement:** Date	NA	Flow Rate
DTW inside Piezometer	2.57		DTW inside Piezometer	2.71		DTW inside Piezometer	NA	
DTW outside Piezometer	2.59	38 cfs	DTW outside Piezometer	2.73	19 cfs	DTW outside Piezometer	NA	cfs

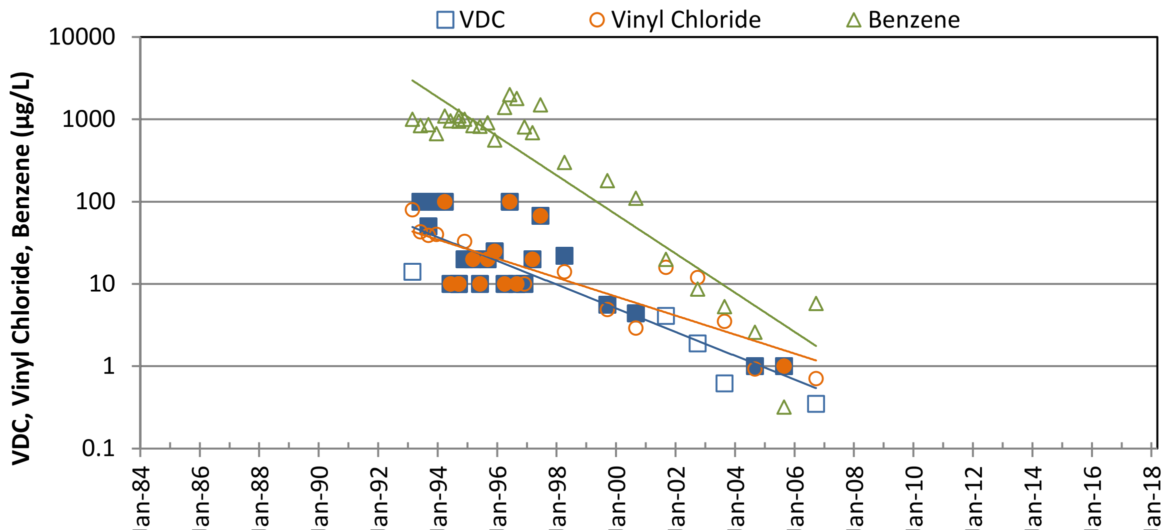
Sample Number	Time of Placement	Time of Removal	Distance from West Riverbank (ft)	Water Depth at Installation (ft)	Water Depth at Removal (ft)	Sediment Description	Notes
TR-6A	10:45	9:40	16.75	1.15	1.00	sand, cobbles	1/4 across transect
TR-6B	NA	NA	NA	NA	NA	sand, cobbles	1/3 across transect
TR-6C	NA	NA	NA	NA	NA	NA	1/2 across transect
TR-6D	NA	NA	NA	NA	NA	NA	2/3 across transect

ATTACHMENT D

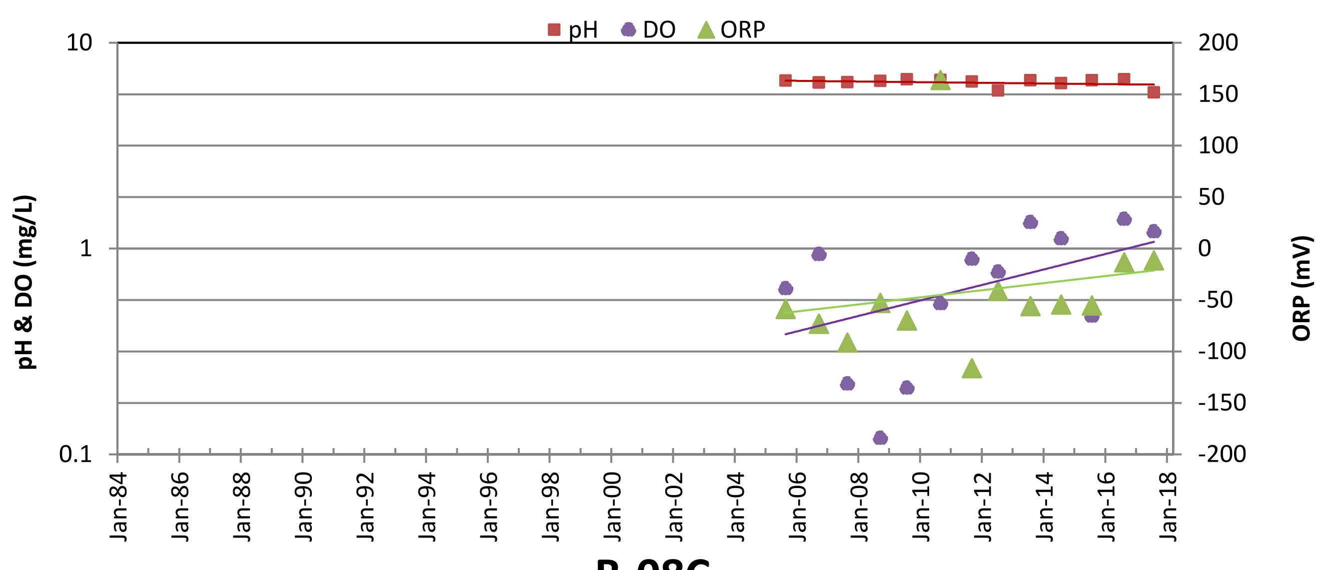
GEOCHEMISTRY VERSUS TIME GRAPHS



Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..

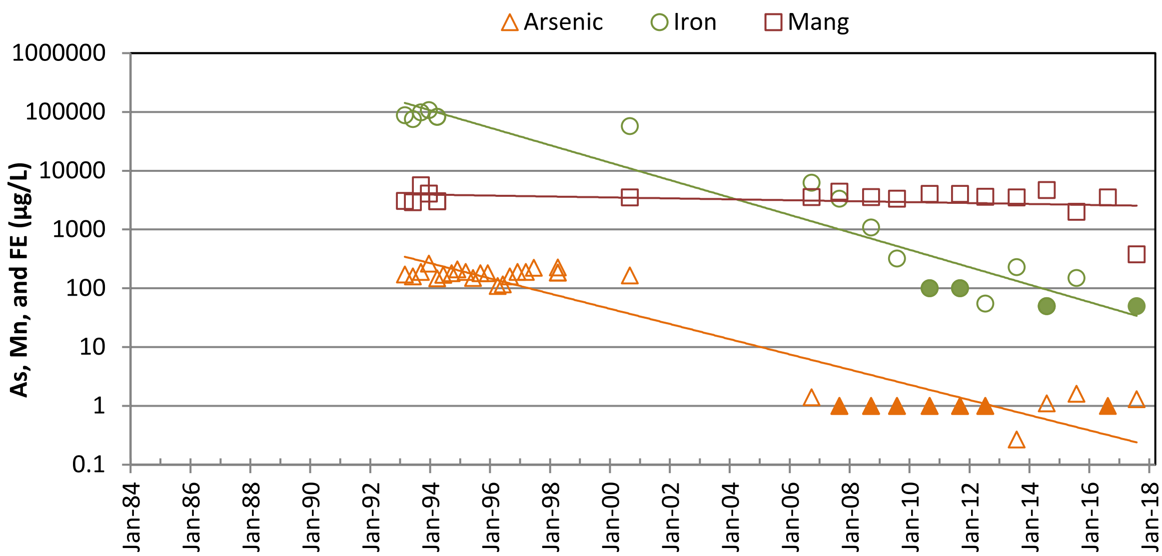


Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..

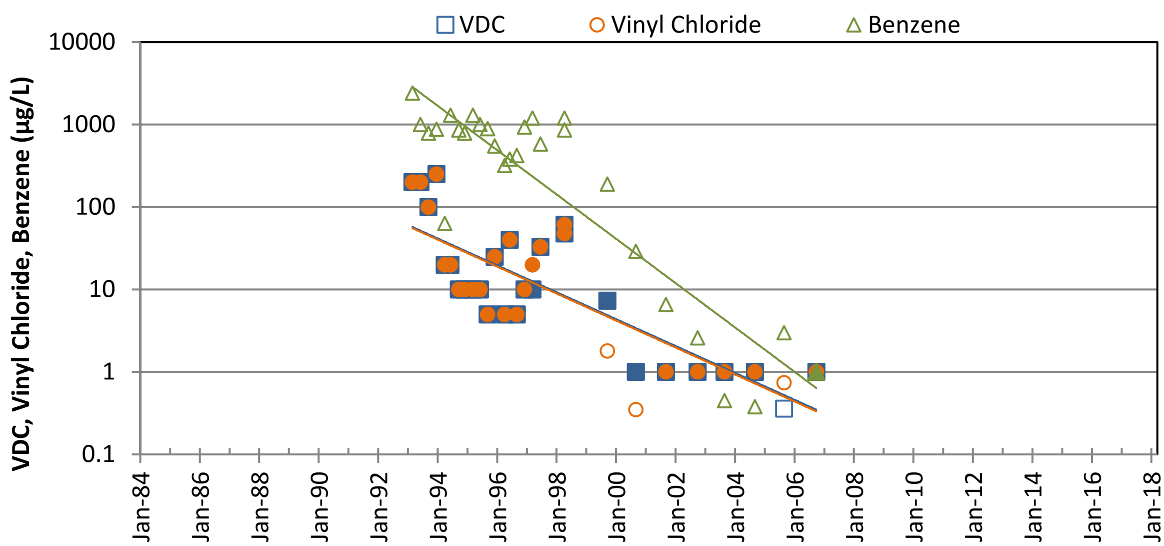


B-08C

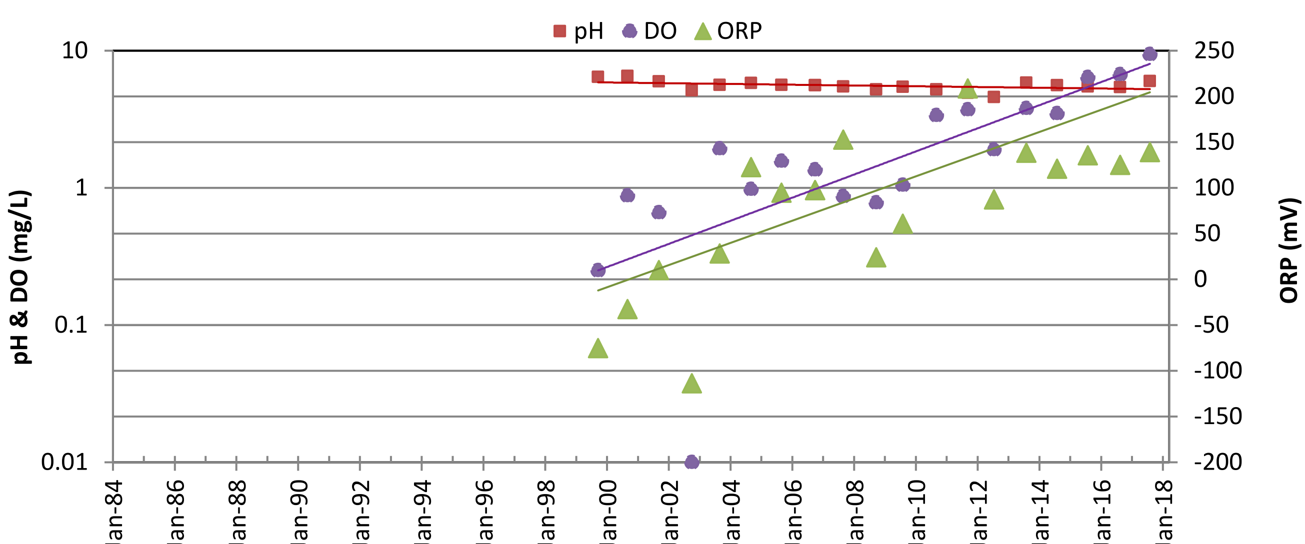
P:\4200s\4240.00\Information\Tetra Tech\2017 Annual Report\Updated\Copy of geochemgraphs2017.xlsxB-08CGraph



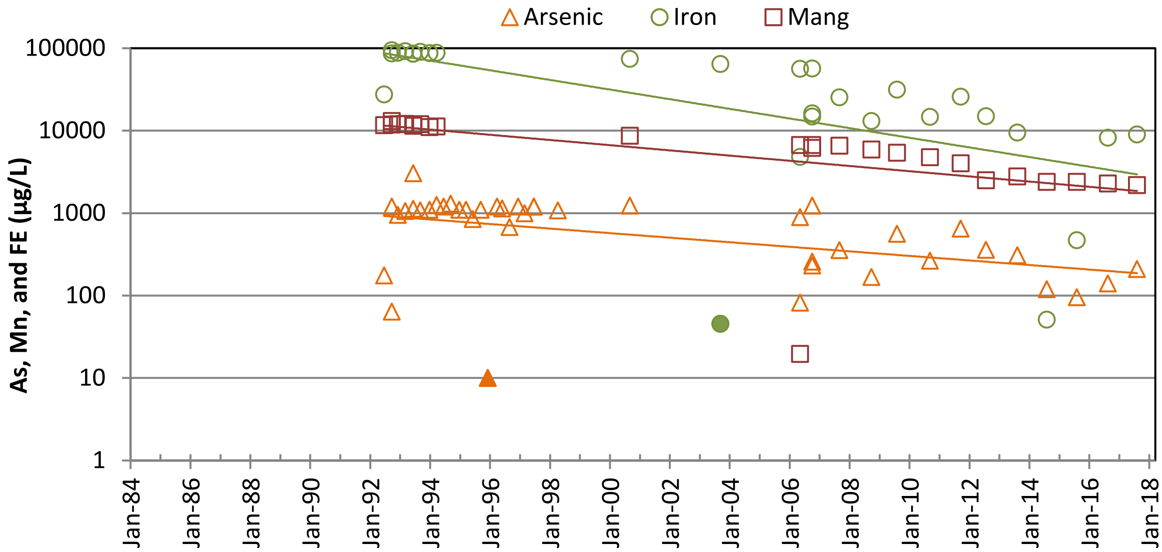
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..



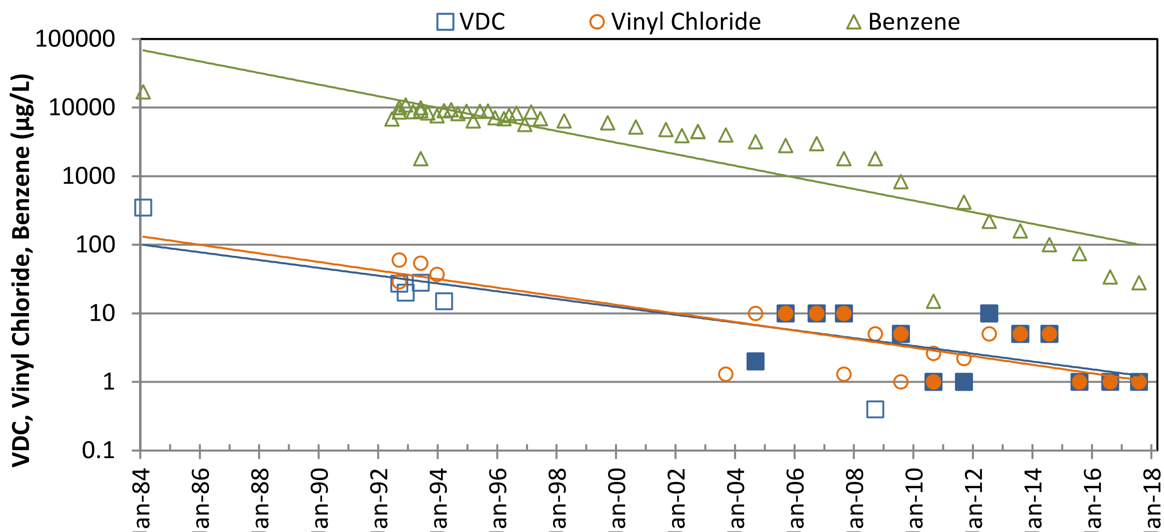
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..



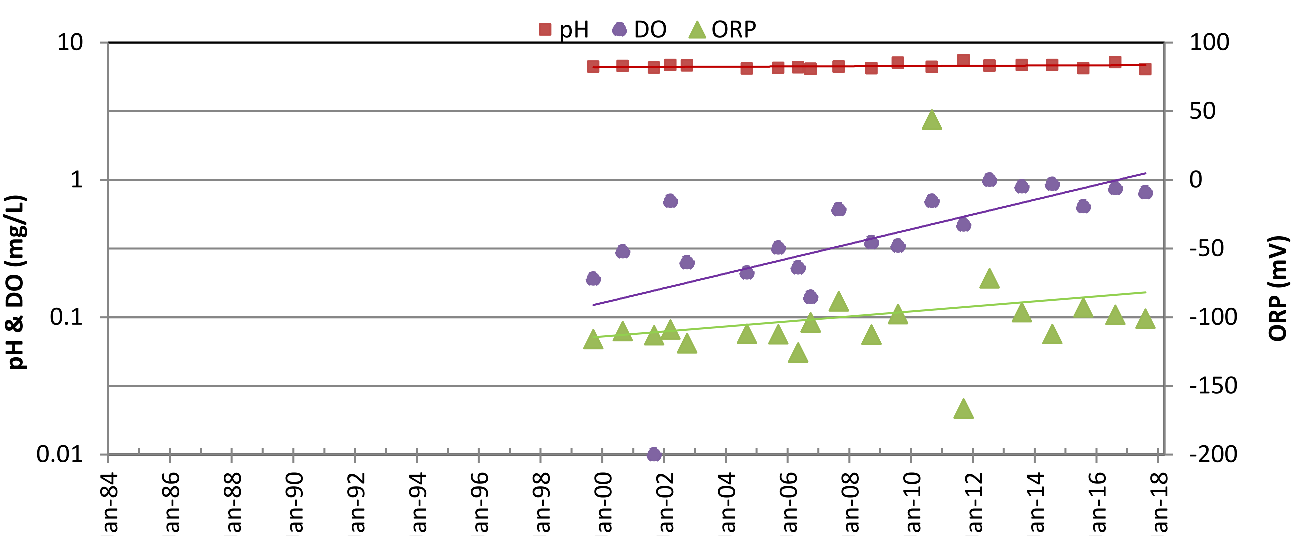
B-08D



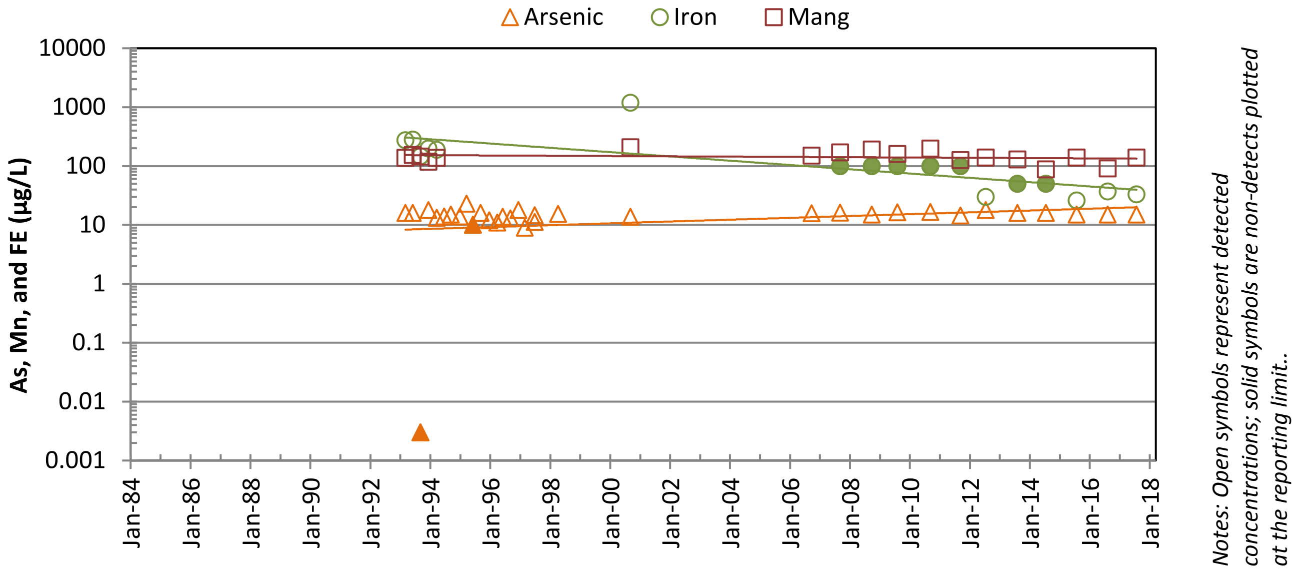
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..

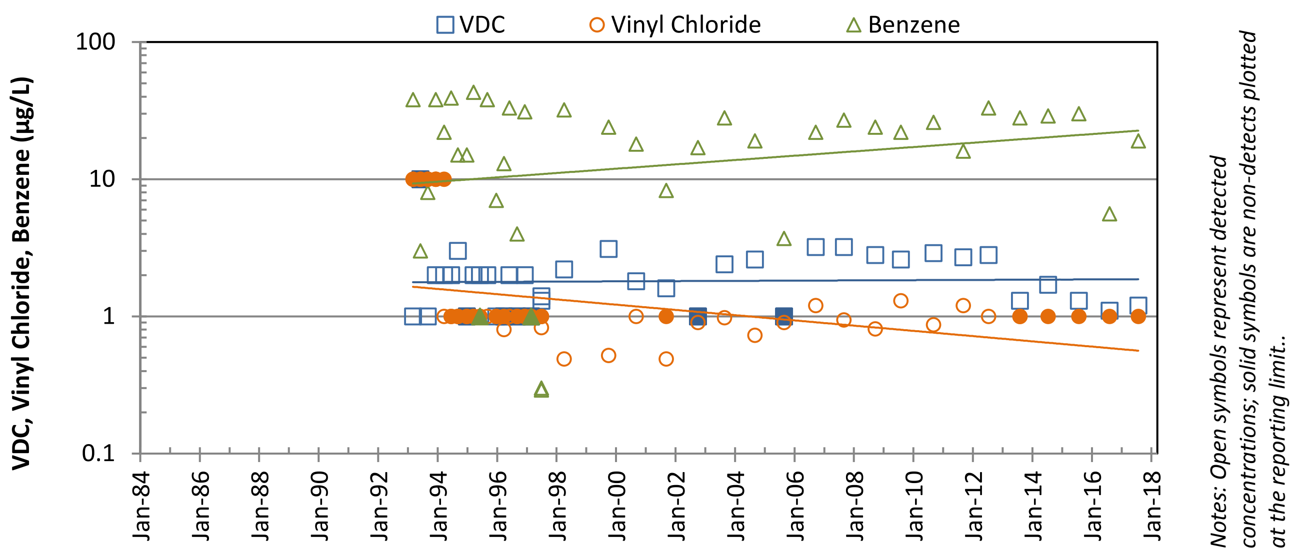


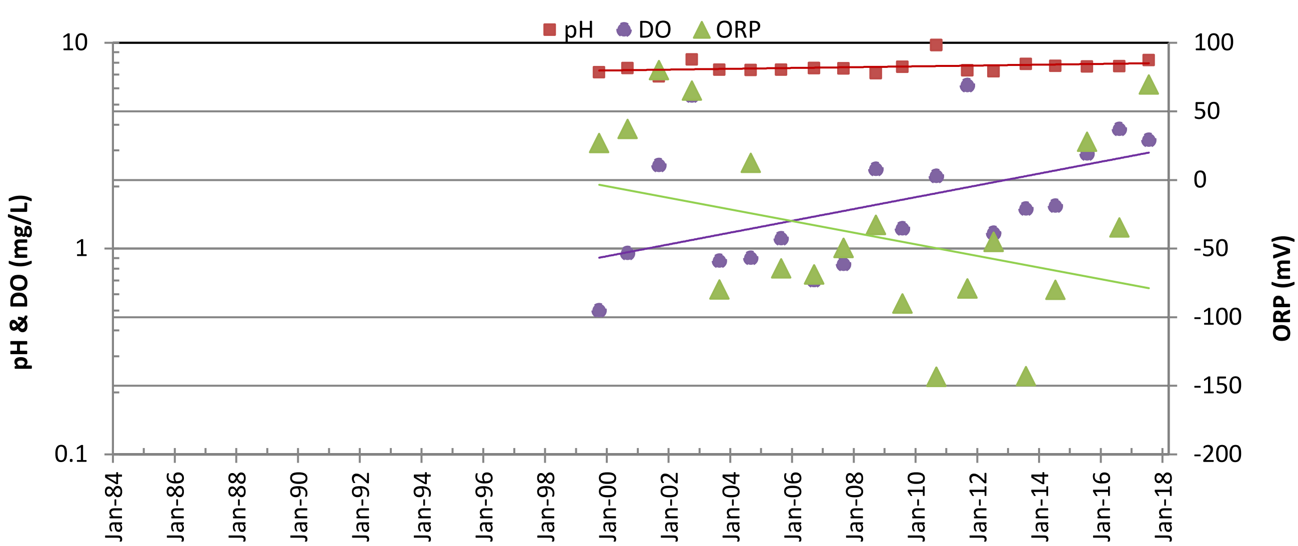
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit.. Non-detects at elevated reporting limits are not plotted.



LF-06C

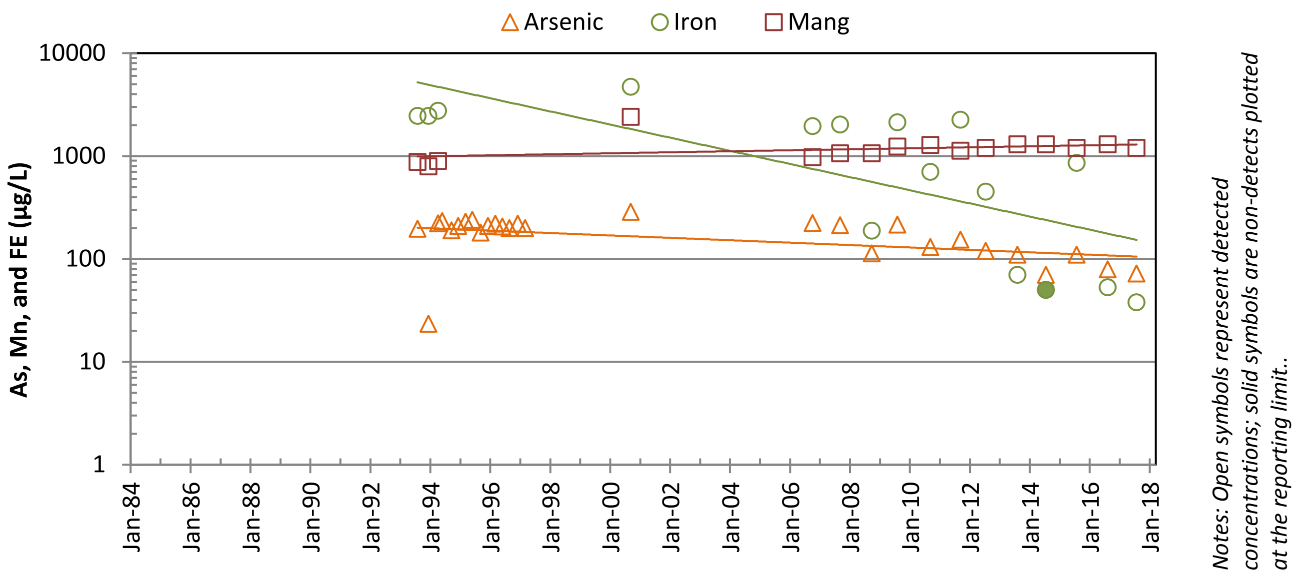


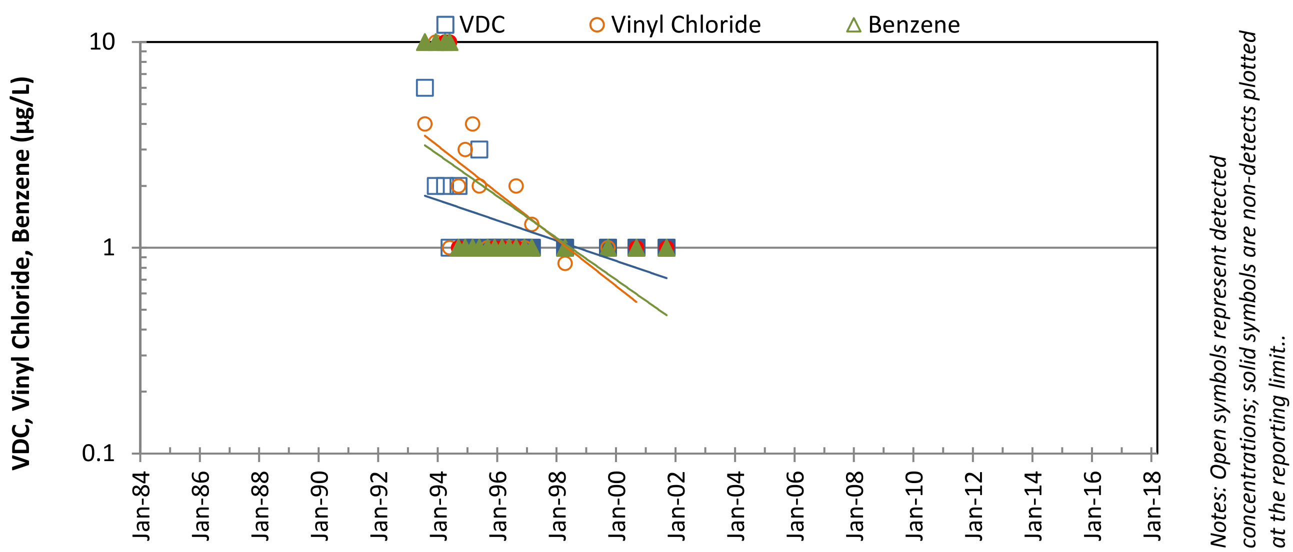


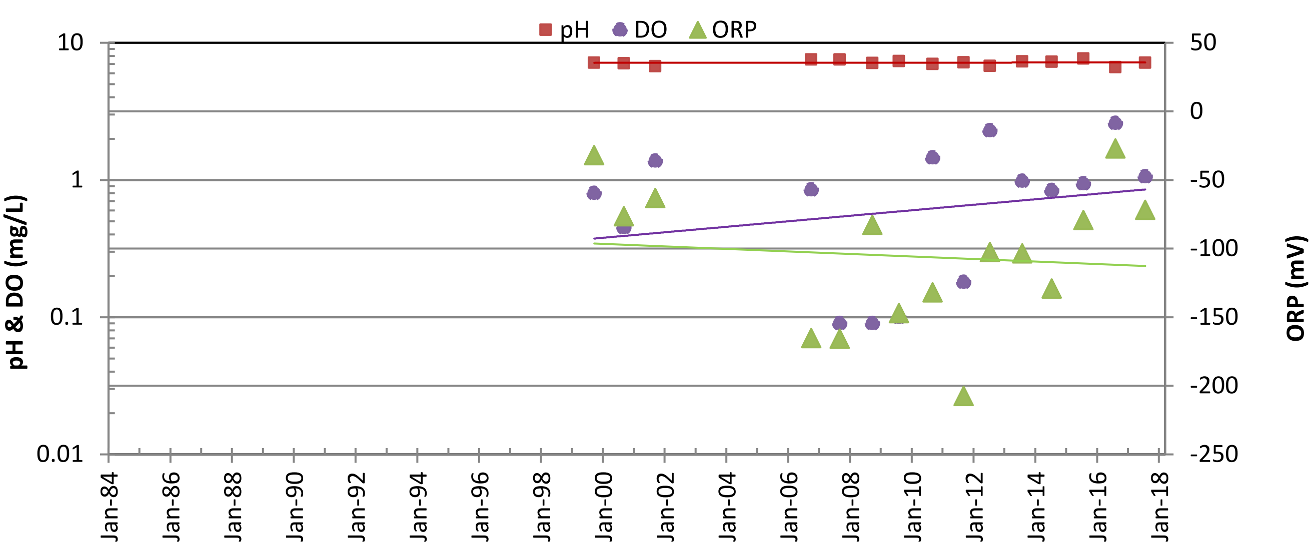


LF-12

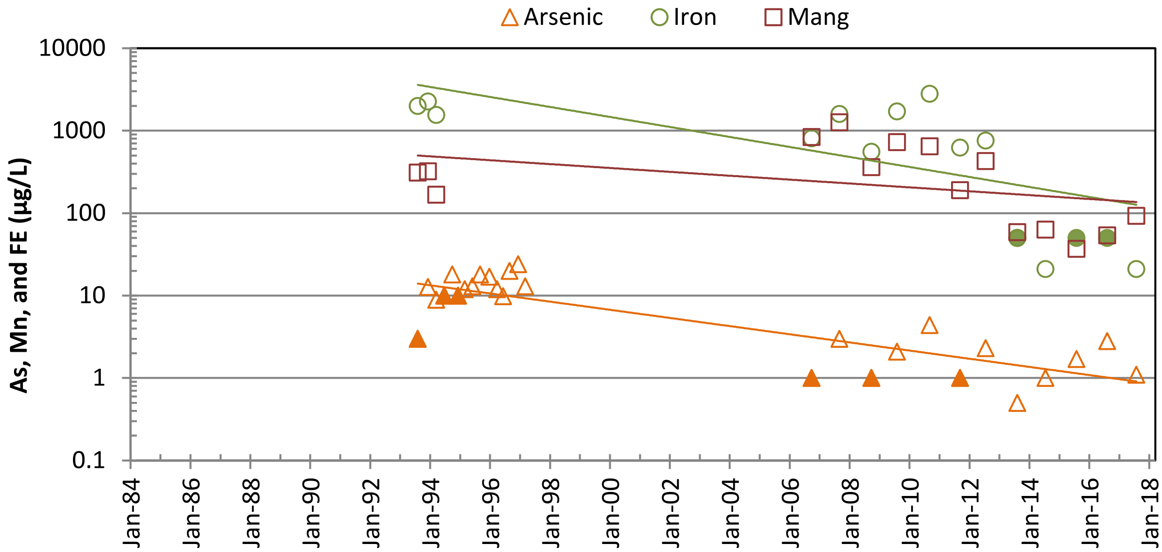
P:\4200s\4240.00\Information\Tetra Tech\2017 Annual Report\Updated\Copy of geochemgraphs2017.xlsxLF-12 Graph


Arsenic
Iron
Mang
10000
1000
100
10
1
As, Mn, and FE (µg/L)
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..

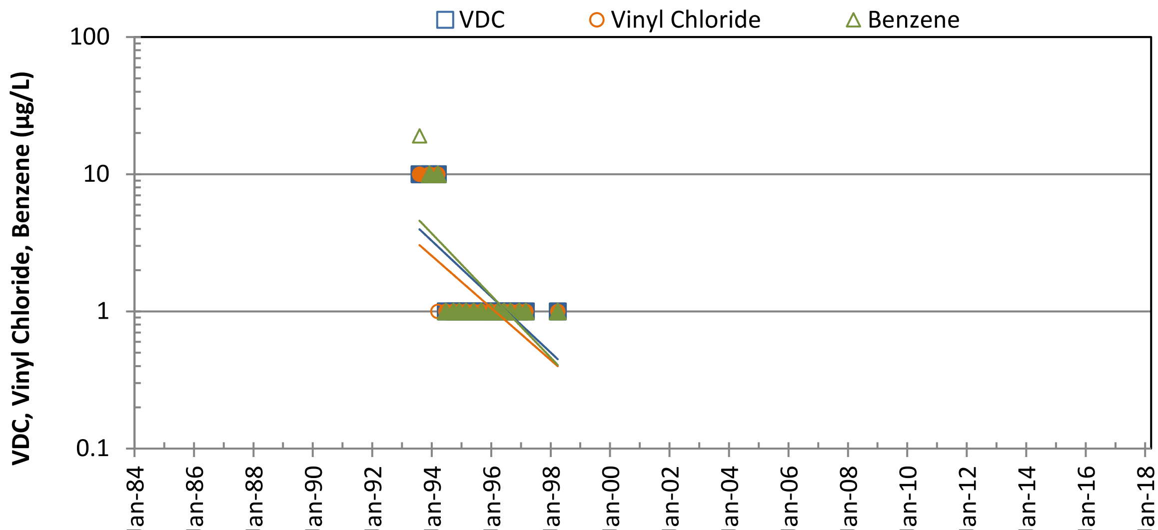

VDC
Vinyl Chloride
Benzene
10
1
0.1
VDC, Vinyl Chloride, Benzene (µg/L)
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..


pH
DO
ORP
10
1
0.1
0.01
pH & DO (mg/L)
50
0
-50
-100
-150
-200
-250
ORP (mV)
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18

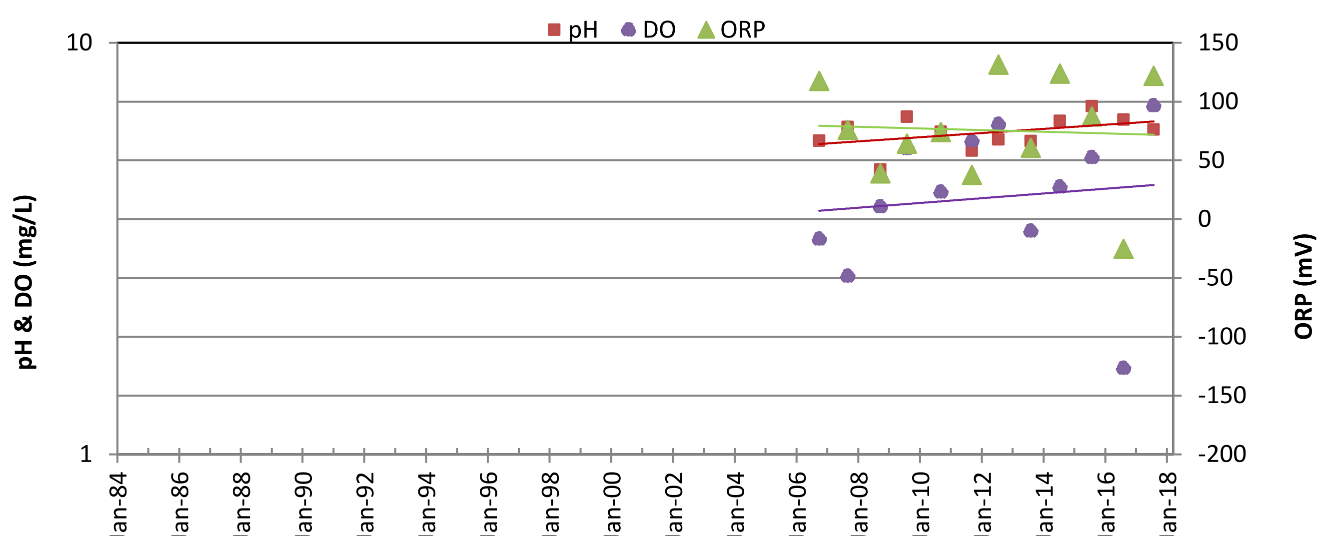
OSA-01B



Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..

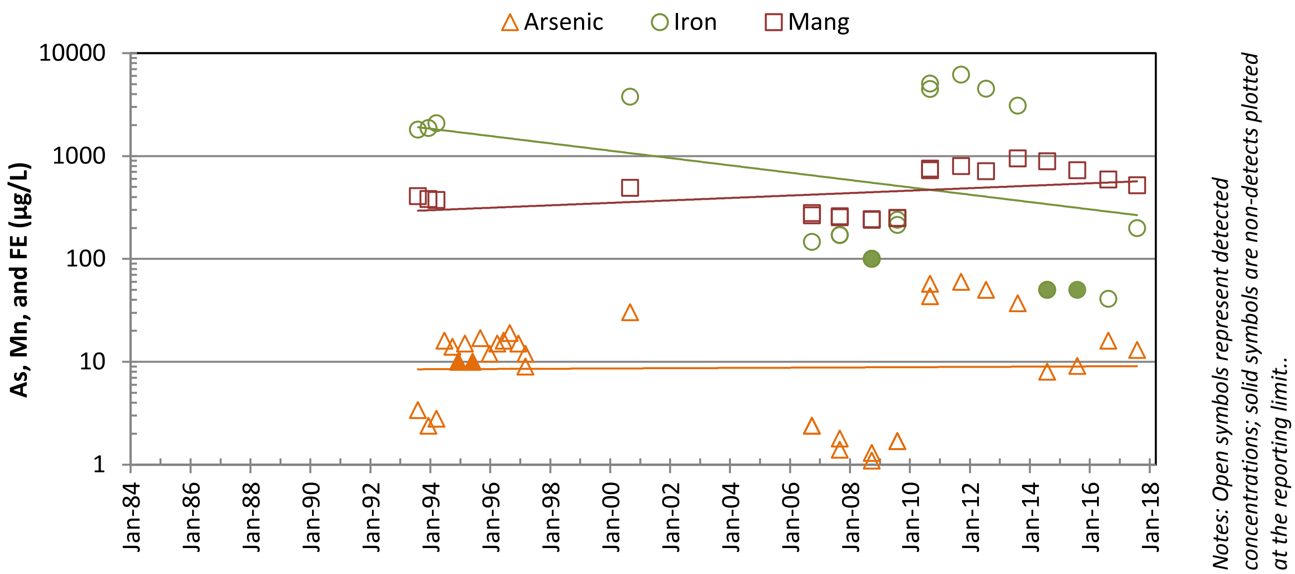


Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..

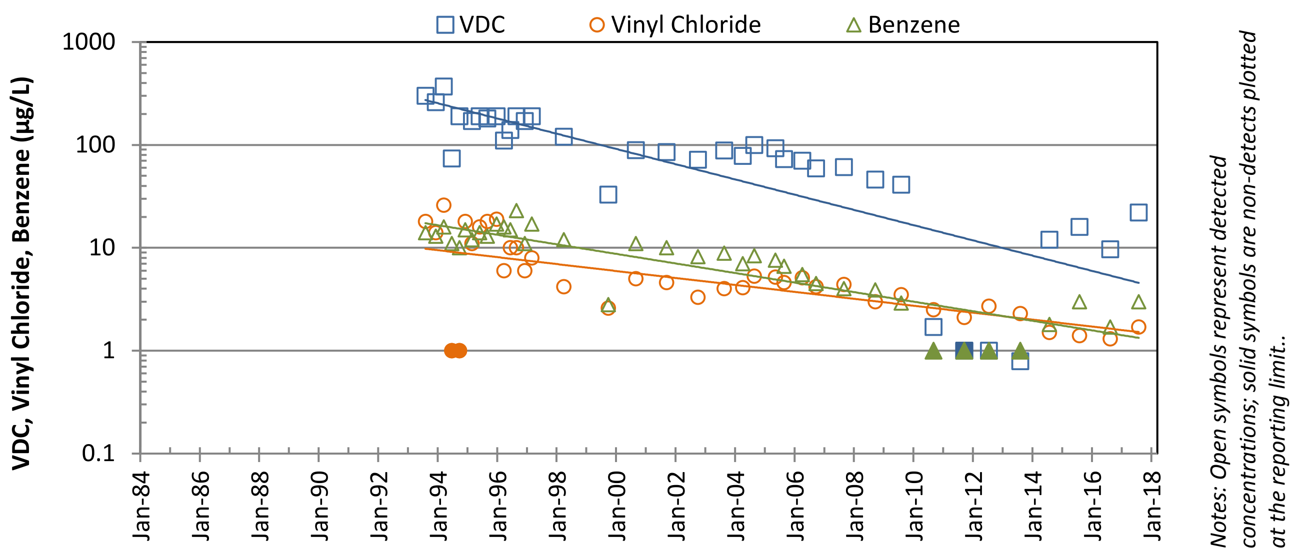


OSA-05A

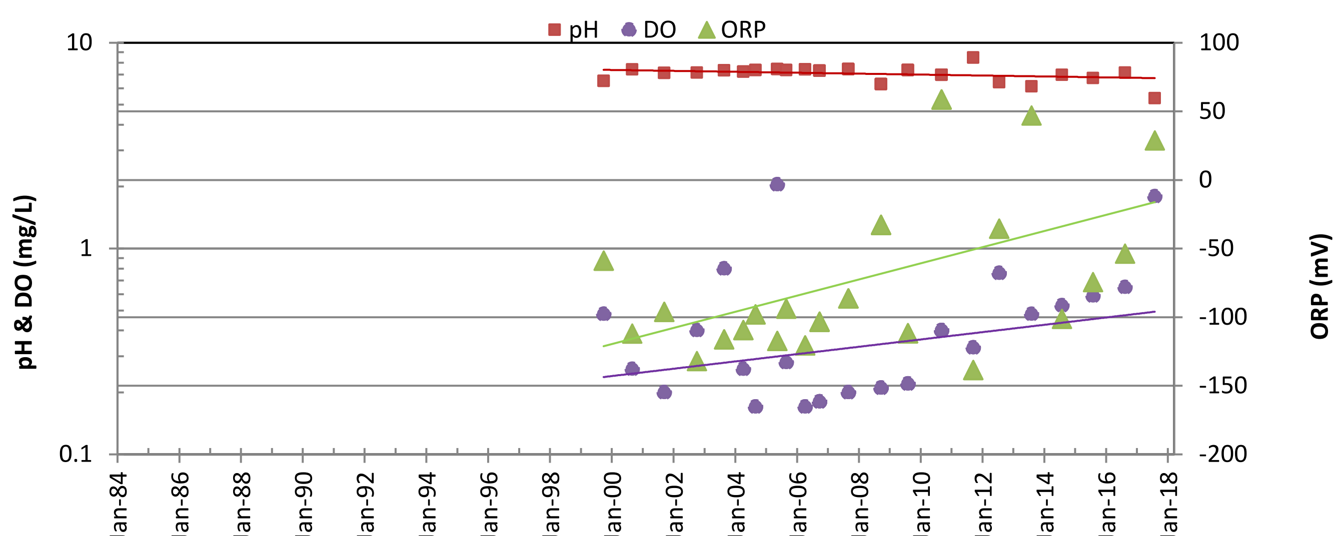
P:\4200s\4240.00\Information\Tetra Tech\2017 Annual Report\Updated\Copy of geochemgraphs2017.xlsxOSA-05A Graph



Arsenic
Iron
Mang
As, Mn, and FE (µg/L)
10000
1000
100
10
1
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..

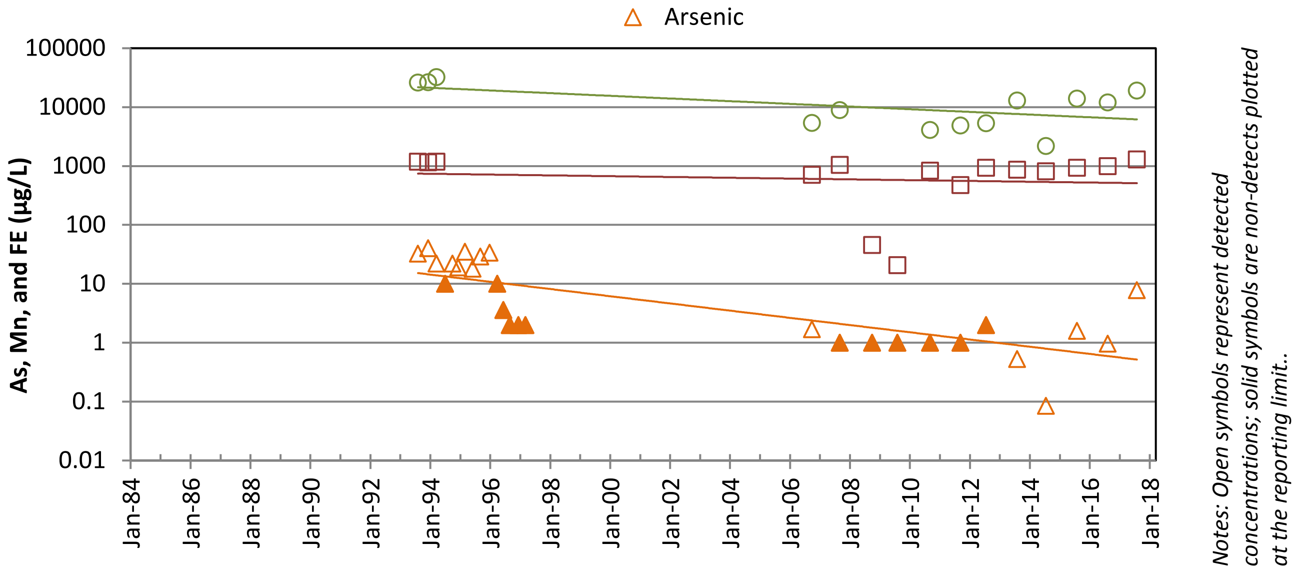


VDC
Vinyl Chloride
Benzene
VDC, Vinyl Chloride, Benzene (µg/L)
1000
100
10
1
0.1
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..

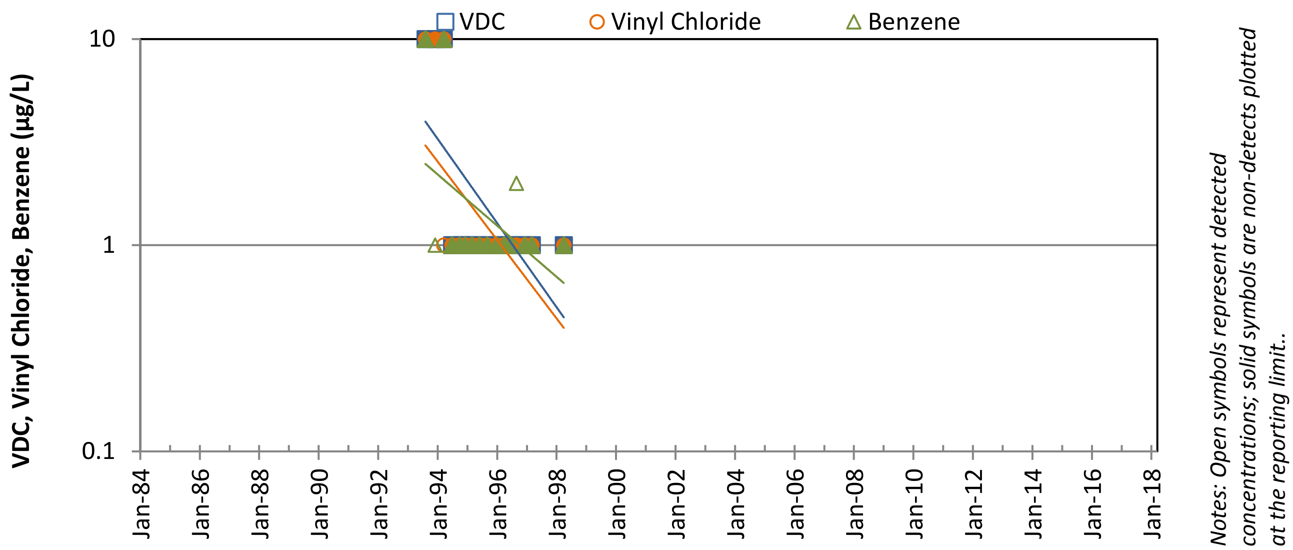


pH
DO
ORP
pH & DO (mg/L)
ORP (mV)
10
1
0.1
100
50
0
-50
-100
-150
-200
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18

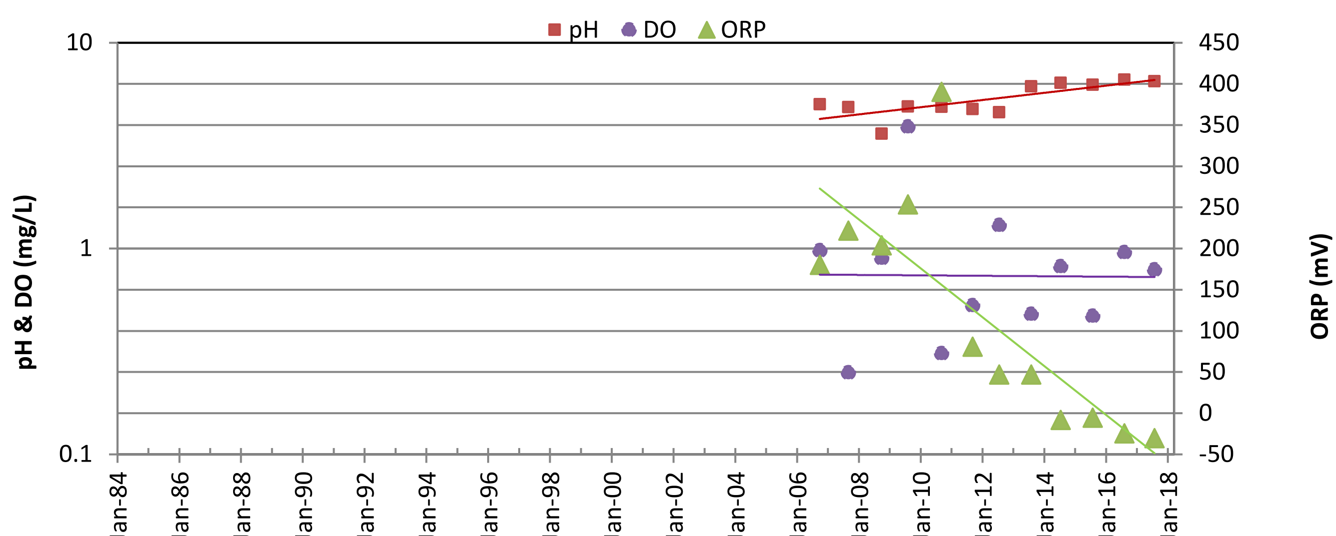
OSA-06BR



Arsenic
100000
10000
1000
100
10
1
0.1
0.01
As, Mn, and FE (µg/L)
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..

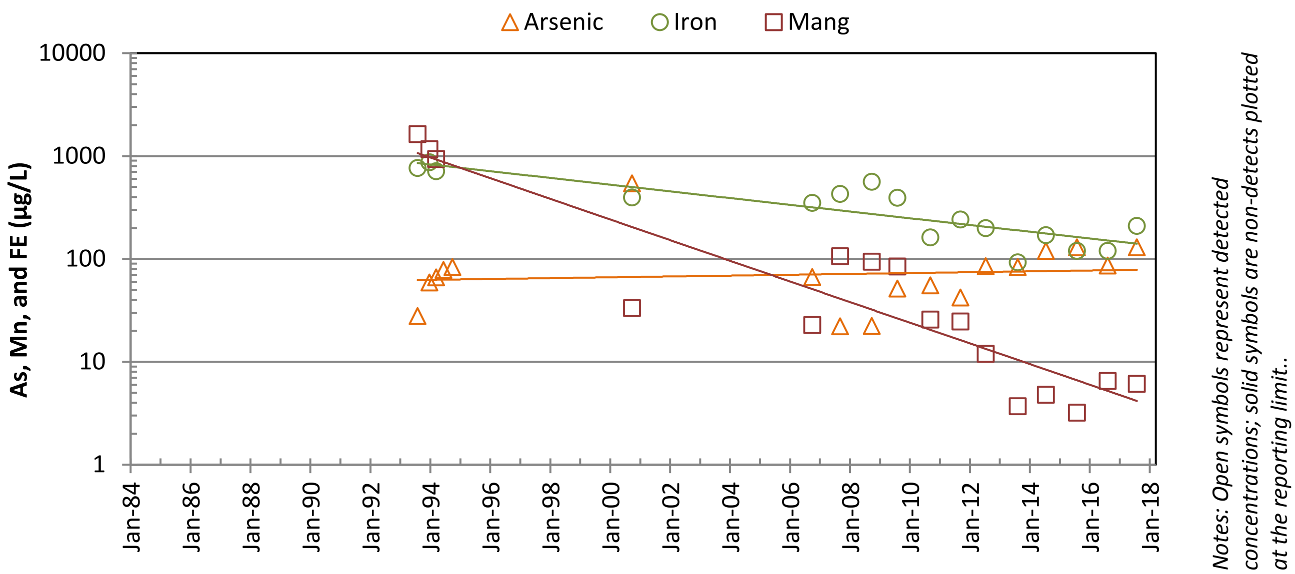


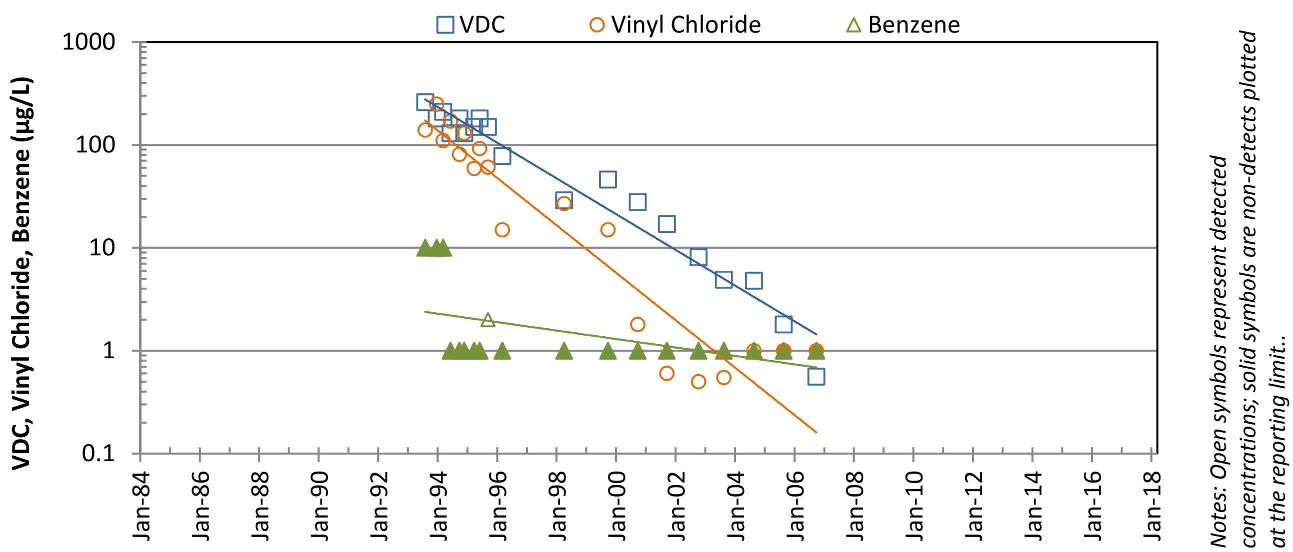
VDC
Vinyl Chloride
Benzene
10
1
0.1
VDC, Vinyl Chloride, Benzene (µg/L)
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..

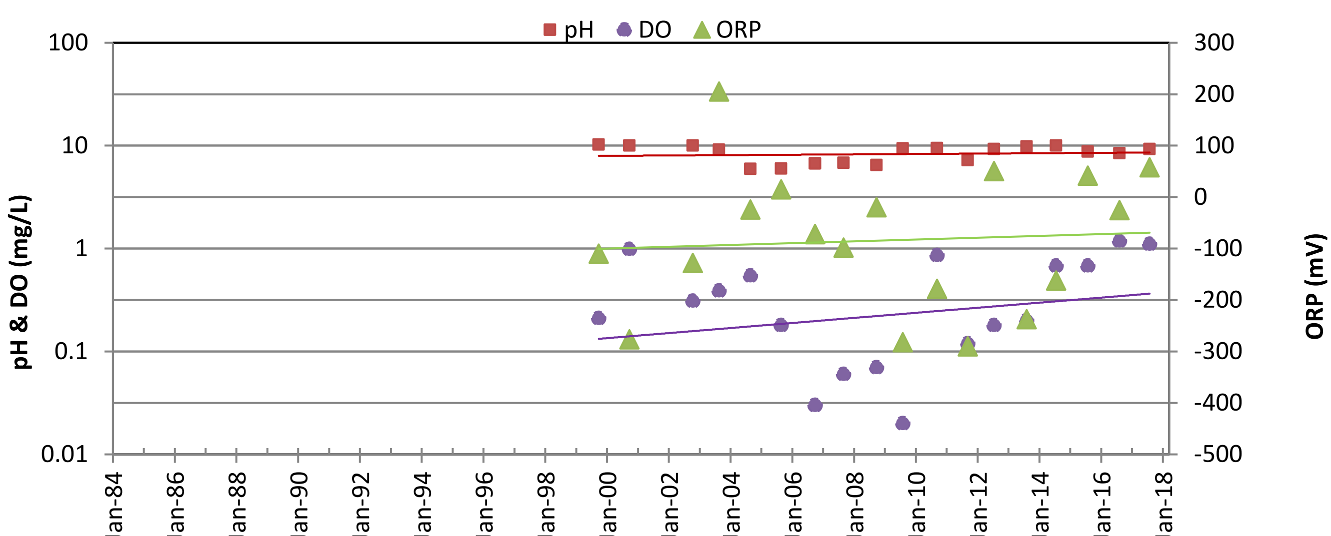


pH
DO
ORP
10
1
0.1
pH & DO (mg/L)
450
400
350
300
250
200
150
100
50
0
-50
ORP (mV)
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18

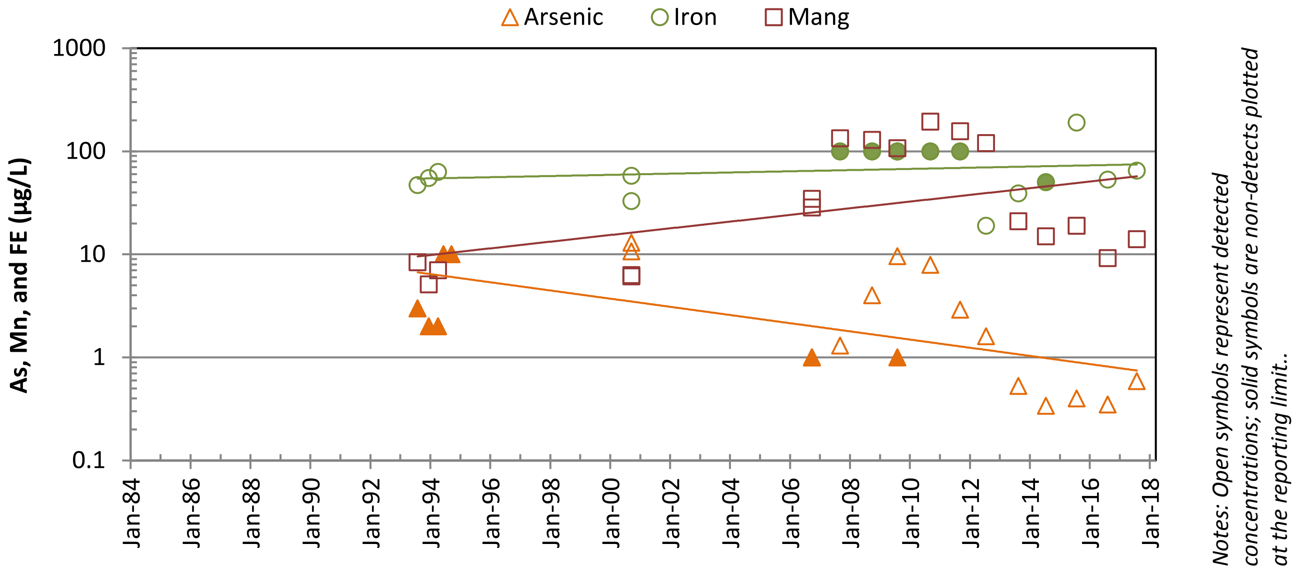
OSA-07A


Arsenic
Iron
Mang
As, Mn, and FE (µg/L)
10000
1000
100
10
1
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..

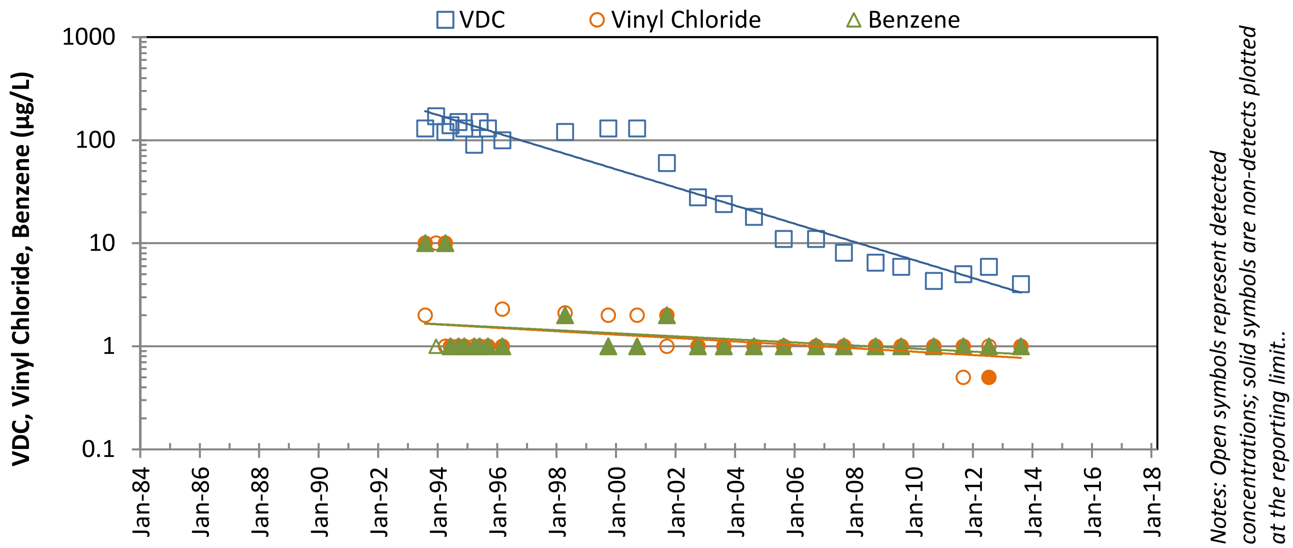

VDC
Vinyl Chloride
Benzene
VDC, Vinyl Chloride, Benzene (µg/L)
1000
100
10
1
0.1
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..


pH
DO
ORP
pH & DO (mg/L)
100
10
1
0.1
0.01
ORP (mV)
300
200
100
0
-100
-200
-300
-400
-500
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18

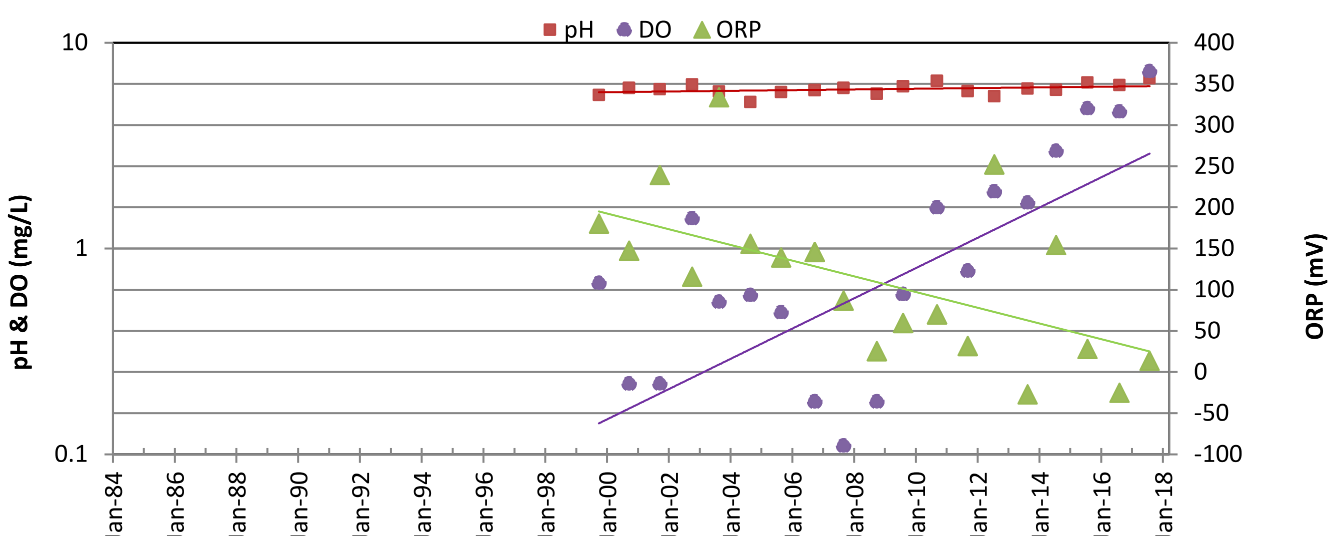
OSA-09B



Arsenic
Iron
Mang
As, Mn, and FE (µg/L)
1000
100
10
1
0.1
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..



VDC
Vinyl Chloride
Benzene
VDC, Vinyl Chloride, Benzene (µg/L)
1000
100
10
1
0.1
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Notes: Open symbols represent detected concentrations; solid symbols are non-detects plotted at the reporting limit..



pH
DO
ORP
pH & DO (mg/L)
10
1
0.1
ORP (mV)
400
350
300
250
200
150
100
50
0
-50
-100
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18

OSA-11B

ATTACHMENT E

MANN-KENDALL TREND TEST DATA SHEETS

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**AR-03B1**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Point ID:		VDC	**Vinyl Chloride**	**Benzene**				
Sampling Event	**Sampling Date**	AR-03B1 CONCENTRATION (µg/L)						
1	2009	4.9	0.5	0.5				
2	2010	6.8	0.45	0.25				
3	2011	7.9	0.49	0.21				
4	2012	8.8	0.59	0.29				
5	2013	0.71	0.5	0.5				
6	2014	9.9	0.5	0.5				
7	2015	0.57	0.5	0.5				
8	2016	0.7	0.5	0.5				
9	2017	15	0.5	0.5				
10								
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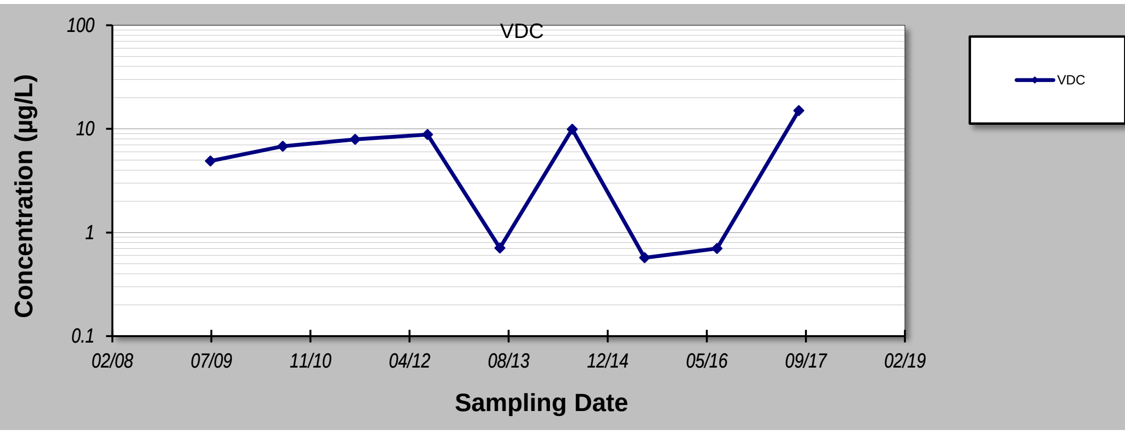
20								
Coefficient of Variation:		0.80						
Mann-Kendall Statistic (S):		4						
Confidence Factor:		61.9%						
Concentration Trend:		No Trend						



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*

2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.

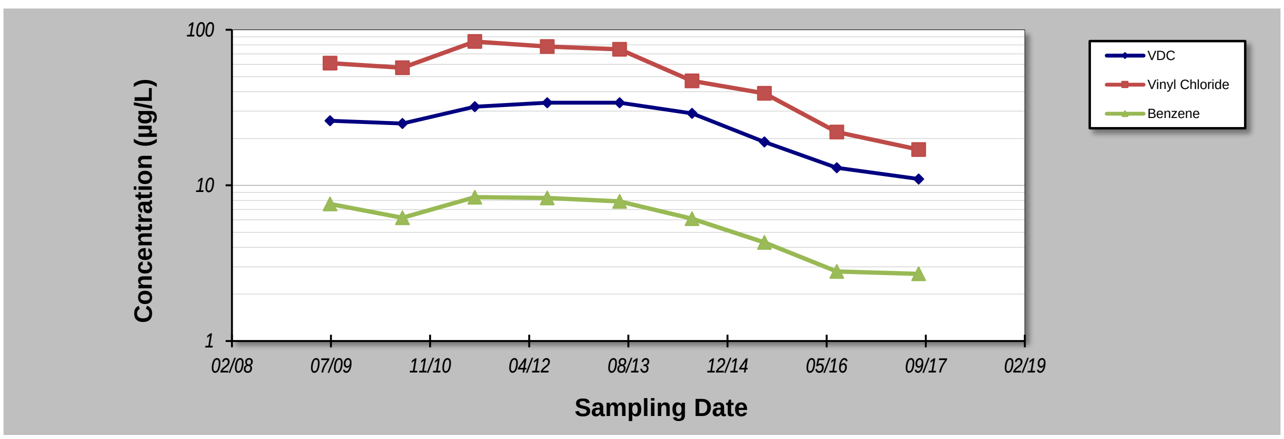
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

4 Non-detect results are in shaded cells with a value of half the detection limit.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	29-Nov-17	Job ID:	117-3008100
Facility Name:	Grace Acton	Constituent:	AR-11B2
Conducted By:	Tt	Concentration Units:	µg/L

Sampling Event	Sampling Date	AR-11B2 CONCENTRATION (µg/L)						
Sampling Point ID:		VDC	Vinyl Chloride	Benzene				
1	2009	26	61	7.6				
2	2010	25	57	6.2				
3	2011	32	84	8.4				
4	2012	34	78	8.3				
5	2013	34	75	7.9				
6	2014	29	47	6.1				
7	2015	19	39	4.3				
8	2016	13	22	2.8				
9	2017	11	17	2.7				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.35	0.45	0.38				
Mann-Kendall Statistic (S):		-15	-24	-24				
Confidence Factor:		92.5%	99.4%	99.4%				
Concentration Trend:		Prob. Decreasing	Decreasing	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*

2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.

3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**AR-20**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Point ID:		VDC	**Vinyl Chloride**	**Benzene**				
Sampling Event	**Sampling Date**	AR-20 CONCENTRATION (µg/L)						
1	2009	14	7.3	1.8				
2	2010	9.9	7.2	1.5				
3	2011	10	7	1.7				
4	2012	10	5.8	0.92				
5	2013	8.7	4.7	0.82				
6	2014	6.6	1.9	0.44				
7	2015	6.2	3.1	0.95				
8	2016	6.3	2.9	0.76				
9	2017	6	3	0.9				
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16								
17								
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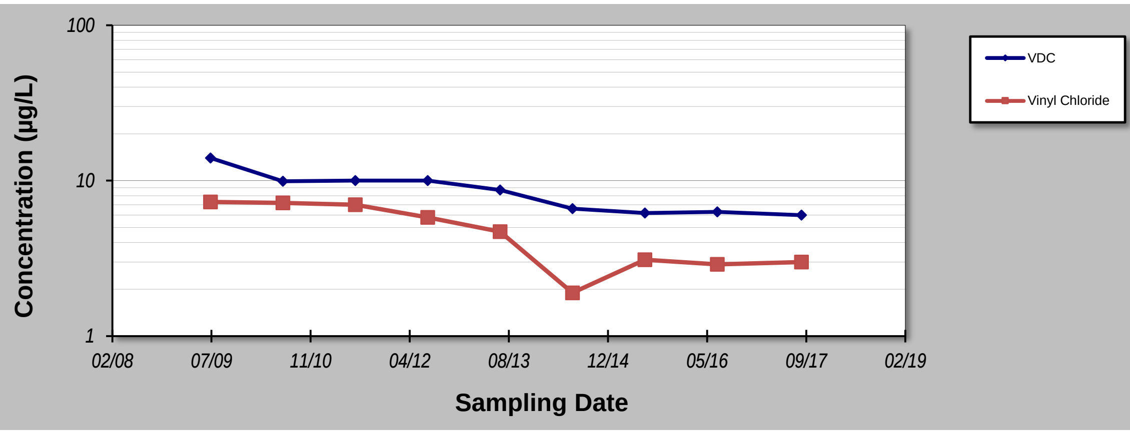
19								
20								
Coefficient of Variation:		**0.31**	**0.45**					
Mann-Kendall Statistic (S):		**-29**	**-28**					
Confidence Factor:		**100.0%**	**99.9%**					
Concentration Trend:		Decreasing	Decreasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
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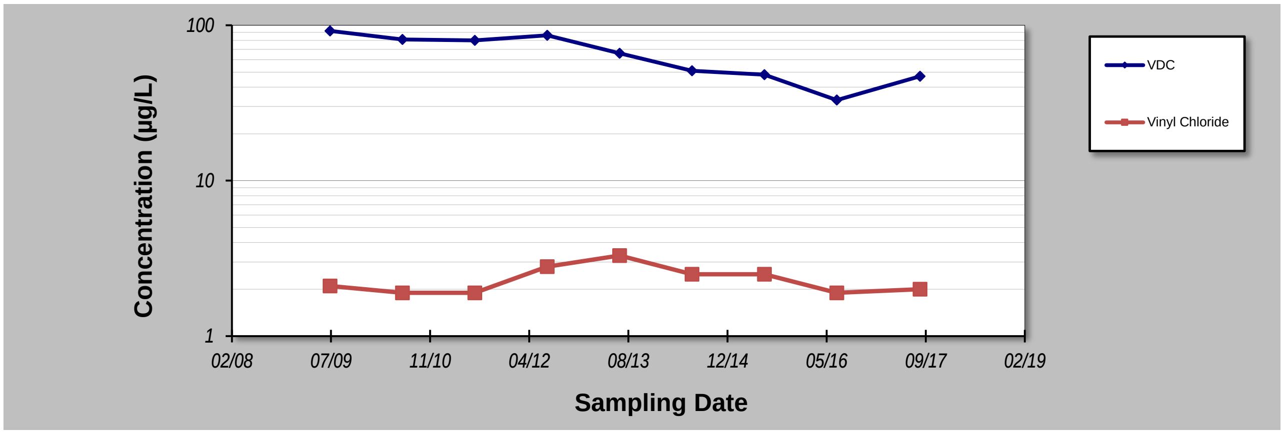
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**AR-31D**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Point ID:		VDC	**Vinyl Chloride**	**Benzene**				
Sampling Event	Sampling Date	AR-31D CONCENTRATION (µg/L)						
1	2009	92	2.1	0.64				
2	2010	81	1.9	0.63				
3	2011	80	1.9	0.67				
4	2012	86	2.8	0.71				
5	2013	66	3.3	0.64				
6	2014	51	2.5	0.49				
7	2015	48	2.5	2.5				
8	2016	33	1.9	0.5				
9	2017	47	2	2				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.32	0.21					
Mann-Kendall Statistic (S):		-30	0					
Confidence Factor:		100.0%	46.0%					
Concentration Trend:		Decreasing	Stable					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**AR-35MBR**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Point ID:		VDC	**Vinyl Chloride**	**Benzene**				
Sampling Event	**Sampling Date**	AR-35MBR CONCENTRATION (µg/L)						
1	2009	24	0.5	0.45				
2	2010	18	1.25	1.25				
3	2011	28	0.4	0.44				
4	2012	30	0.53	0.53				
5	2013	23	1	1				
6	2014	22	1	1				
7	2015	17	0.5	0.5				
8	2016	20	0.5	0.5				
9	2017	19	0.5	0.42				
10								
11								
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14								
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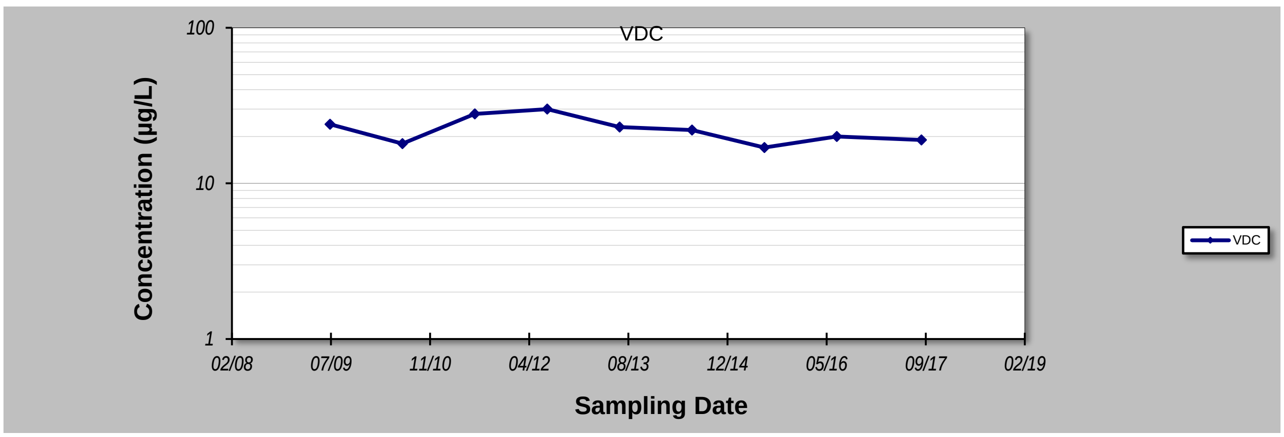
16								
17								
18								
19								
20								
Coefficient of Variation:		0.20						
Mann-Kendall Statistic (S):		-14						
Confidence Factor:		91.0%						
Concentration Trend:		Prob. Decreasing						



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	29-Nov-17	Job ID:	117-3008100
Facility Name:	Grace Acton	Constituent:	ASBRV-T6A
Conducted By:	Tt	Concentration Units:	µg/L

	Sampling Point ID:	VDC	Vinyl Chloride	Benzene				
Sampling Event	Sampling Date	ASBRV-T6A CONCENTRATION (µg/L)						
1	2009	6.4	0.5	0.5				
2	2010	2.5	0.5	0.5				
3	2011	51	4.7	0.35				
4	2012	5.6	1.5	0.5				
5	2013	9.7	2.1	1				
6	2014	7.3	0.92	0.5				
7	2015	2.1	0.5	0.5				
8	2016	0.5	0.5	0.5				
9	2017	7	0.5	0.5				
10								
11								
12								
13								
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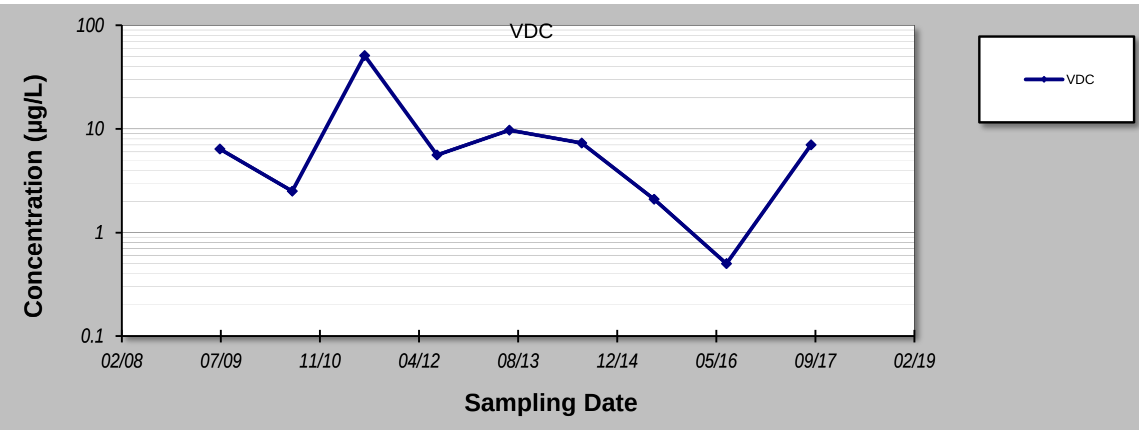
16								
17								
18								
19								
20								
	Coefficient of Variation:	1.52						
	Mann-Kendall Statistic (S):	-8						
	Confidence Factor:	76.2%						
	Concentration Trend:	No Trend						



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
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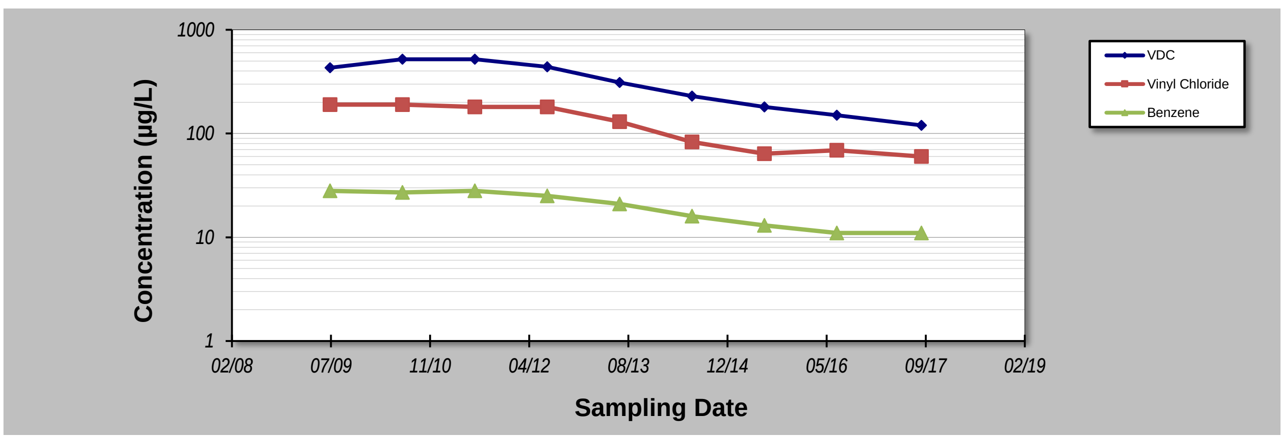
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**LF-02A**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

	Sampling Point ID:	VDC	**Vinyl Chloride**	**Benzene**				
Sampling Event	Sampling Date	LF-02A CONCENTRATION (µg/L)						
1	2009	430	190	28				
2	2010	520	190	27				
3	2011	520	180	28				
4	2012	440	180	25				
5	2013	310	130	21				
6	2014	230	83	16				
7	2015	180	64	13				
8	2016	150	69	11				
9	2017	120	60	11				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	**0.49**	**0.46**	**0.37**				
	Mann-Kendall Statistic (S):	**-29**	**-32**	**-32**				
	Confidence Factor:	**100.0%**	**>99.9%**	**>99.9%**				
	Concentration Trend:	Decreasing	Decreasing	Decreasing				



Notes:

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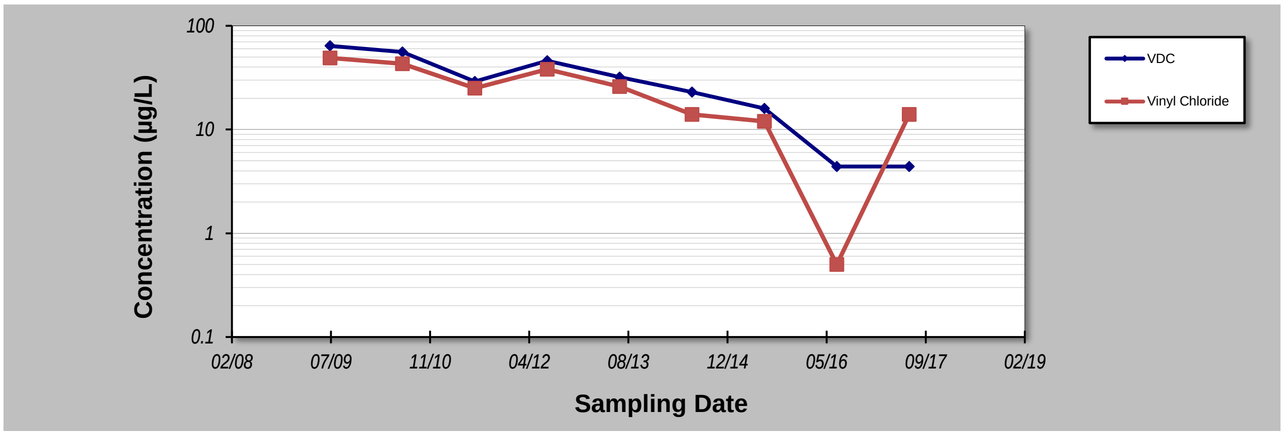
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	29-Nov-17	Job ID:	117-3008100
Facility Name:	Grace Acton	Constituent:	LF-05E
Conducted By:	Tt	Concentration Units:	µg/L

Sampling Point ID:		VDC	Vinyl Chloride	Benzene				
Sampling Event	Sampling Date	LF-05E CONCENTRATION (µg/L)						
1	2009	64	49	4.7				
2	2010	56	43	3.5				
3	2011	29	25	2.1				
4	2012	46	38	3.1				
5	2013	32	26	2.6				
6	2014	23	14	1.8				
7	2015	16	12	1.4				
8	2016	4.4	0.5	0.5				
9	2017	4.4	14	1.9				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.70	0.66					
Mann-Kendall Statistic (S):		-31	-27					
Confidence Factor:		>99.9%	99.8%					
Concentration Trend:		Decreasing	Decreasing					



Notes:

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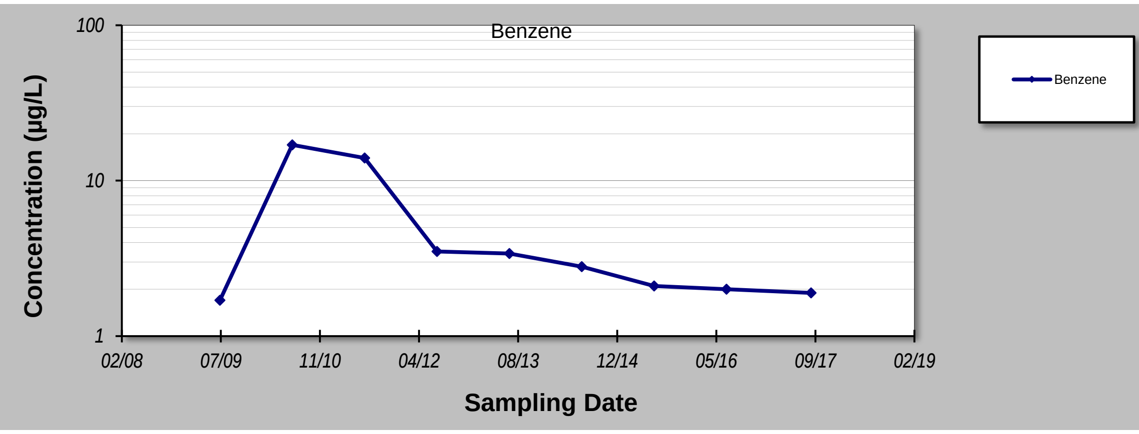
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **29-Nov-17**
Facility Name: **Grace Acton**
Conducted By: **Tt**

Job ID: **117-3008100**
Constituent: **LF-06**
Concentration Units: **µg/L**

Sampling Event	Sampling Date	VDC	Vinyl Chloride	Benzene				
		LF-06 CONCENTRATION (µg/L)						
1	2009	0.5	0.5	1.7				
2	2010	0.5	0.5	17				
3	2011	0.5	0.26	14				
4	2012	0.5	0.5	3.5				
5	2013	0.5	0.5	3.4				
6	2014	1	1	2.8				
7	2015	0.5	0.5	2.1				
8	2016	0.5	0.5	2				
9	2017	0.5	0.5	1.9				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:				1.08				
Mann-Kendall Statistic (S):				-20				
Confidence Factor:				97.8%				
Concentration Trend:				Decreasing				



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.

3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**LF-06C**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Point ID:		VDC	Vinyl Chloride	Benzene				
Sampling Event	Sampling Date	LF-06C CONCENTRATION (µg/L)						
1	2009	2.5	2.5	830				
2	2010	0.5	0.5	15				
3	2011	0.5	2.6	420				
4	2012	5	2.2	220				
5	2013	2.5	2.5	160				
6	2014	2.5	2.5	100				
7	2015	2.5	2.5	74				
8	2016	0.5	0.5	34				
9	2017	0.5	0.5	28				
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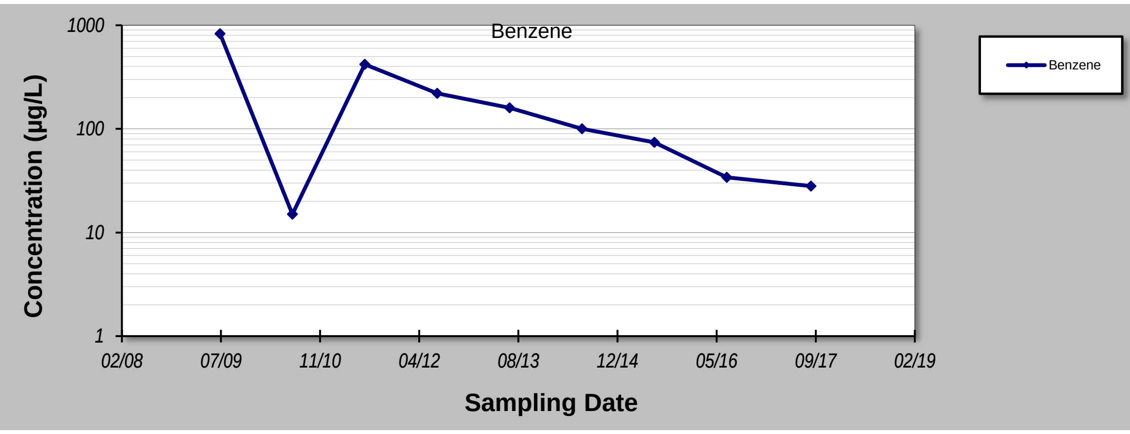
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:				1.27				
Mann-Kendall Statistic (S):				-22				
Confidence Factor:				98.8%				
Concentration Trend:				Decreasing				



Notes:

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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	29-Nov-17		Job ID:	117-3008100
Facility Name:	Grace Acton		Constituent:	LF-10
Conducted By:	Tt		Concentration Units:	µg/L

Sampling Event	Sampling Date	VDC	Vinyl Chloride	Benzene				
	Sampling Point ID:	LF-10 CONCENTRATION (µg/L)						
1	2009	440	120	23				
2	2010	340	92	17				
3	2011	200	60	14				
4	2012	230	66	14				
5	2013	200	55	15				
6	2014	170	37	15				
7	2015	140	33	13				
8	2016	120	29	11				
9	2017	110	23	11				
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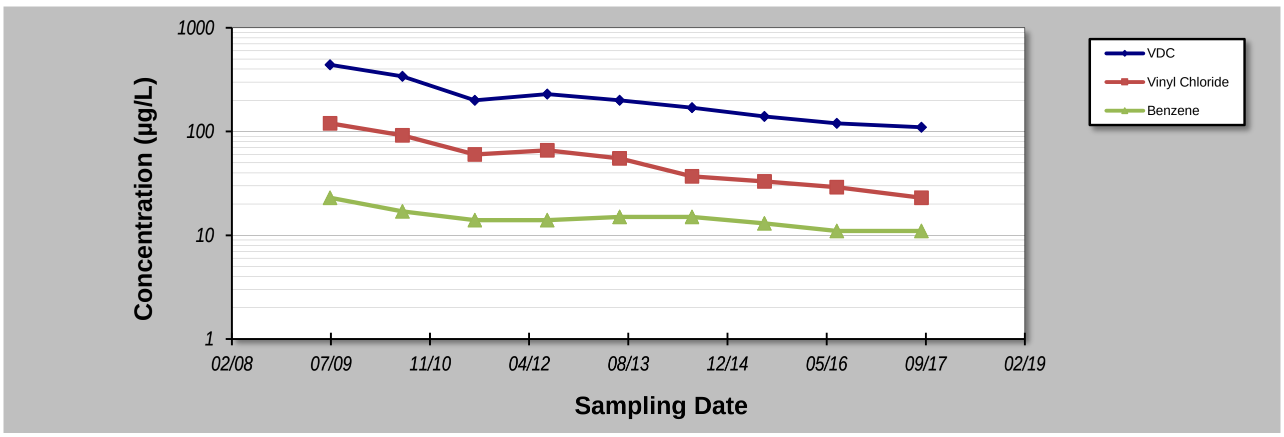
19								
20								
Coefficient of Variation:		0.50	0.56	0.25				
Mann-Kendall Statistic (S):		-33	-34	-25				
Confidence Factor:		>99.9%	>99.9%	99.6%				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**LF-12**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Event	Sampling Date	VDC	Vinyl Chloride	Benzene				
		LF-12 CONCENTRATION (µg/L)						
1	2009	2.6	0.81	22				
2	2010	2.9	1.3	26				
3	2011	2.7	0.87	16				
4	2012	2.8	1.2	33				
5	2013	1.3	0.5	28				
6	2014	1.7	0.5	29				
7	2015	1.3	0.5	30				
8	2016	1.1	0.5	5.6				
9	2017	1.2	0.5	19				
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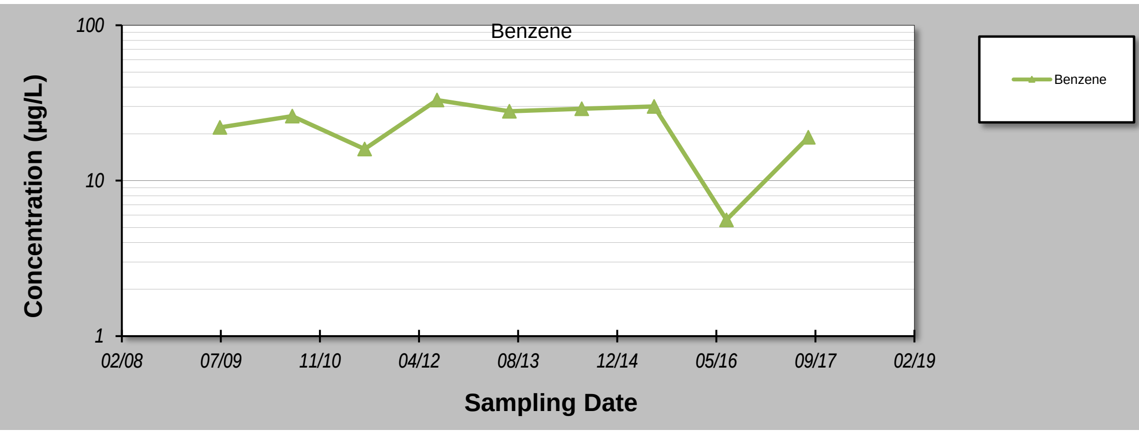
19								
20								
Coefficient of Variation:				0.37				
Mann-Kendall Statistic (S):				0				
Confidence Factor:				46.0%				
Concentration Trend:				Stable				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*

2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.

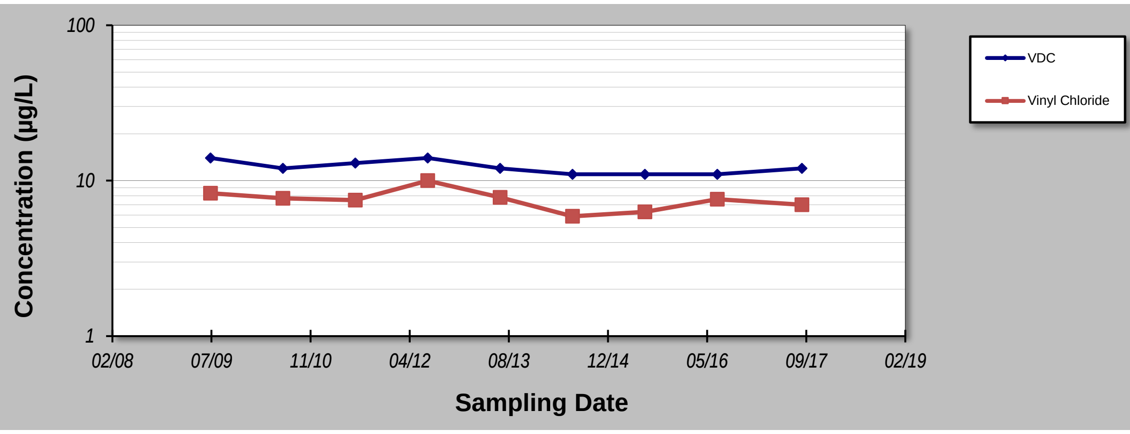
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

4 Non-detect results are in shaded cells with a value of half the detection limit.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**LF-13A**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Event	Sampling Date	LF-13A CONCENTRATION (µg/L)						
Sampling Point ID:		VDC	**Vinyl Chloride**	**Benzene**				
1	2009	14	8.3	1.1				
2	2010	12	7.7	0.84				
3	2011	13	7.5	0.94				
4	2012	14	10	1.1				
5	2013	12	7.8	1				
6	2014	11	5.9	0.96				
7	2015	11	6.3	0.94				
8	2016	11	7.6	0.93				
9	2017	12	7	1.1				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.10	0.16					
Mann-Kendall Statistic (S):		-17	-14					
Confidence Factor:		95.1%	91.0%					
Concentration Trend:		Decreasing	Prob. Decreasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
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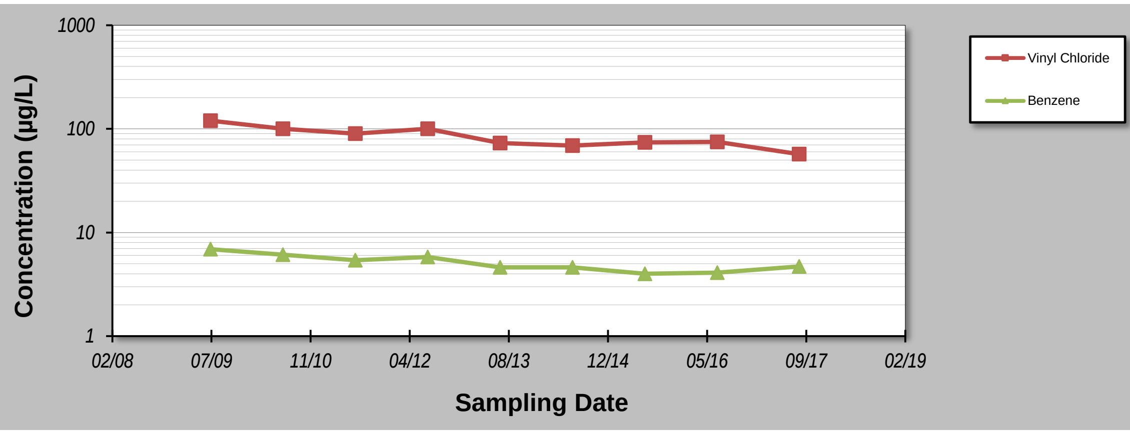
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	29-Nov-17	Job ID:	117-3008100
Facility Name:	Grace Acton	Constituent:	LF-17D
Conducted By:	Tt	Concentration Units:	µg/L

Sampling Event	Sampling Date	VDC	Vinyl Chloride	Benzene				
		LF-17D CONCENTRATION (µg/L)						
1	2009	5.4	120	6.9				
2	2010	11	100	6.1				
3	2011	4.9	90	5.4				
4	2012	0.41	100	5.8				
5	2013	0.5	73	4.6				
6	2014	0.5	69	4.6				
7	2015	0.5	74	4				
8	2016	0.5	75	4.1				
9	2017	7.4	57	4.7				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:			0.23	0.19				
Mann-Kendall Statistic (S):			-23	-23				
Confidence Factor:			99.1%	99.1%				
Concentration Trend:			Decreasing	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*

2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.

3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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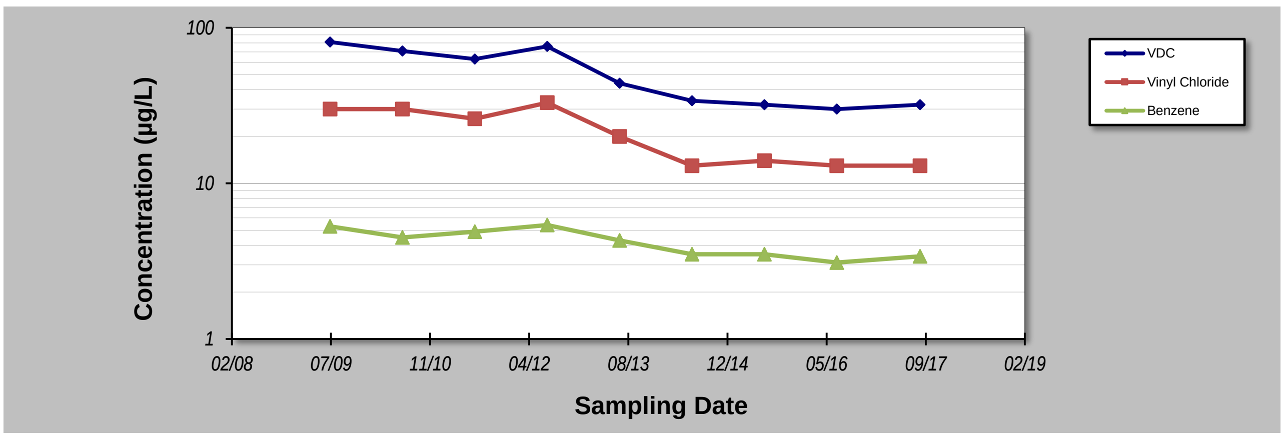
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**LF-18D**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Event	Sampling Date	LF-18D CONCENTRATION (µg/L)						
Sampling Point ID:		VDC	**Vinyl Chloride**	**Benzene**				
1	2009	81	30	5.3				
2	2010	71	30	4.5				
3	2011	63	26	4.9				
4	2012	76	33	5.4				
5	2013	44	20	4.3				
6	2014	34	13	3.5				
7	2015	32	14	3.5				
8	2016	30	13	3.1				
9	2017	32	13	3.4				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.41**	**0.40**	**0.21**				
Mann-Kendall Statistic (S):		**-29**	**-24**	**-25**				
Confidence Factor:		**100.0%**	**99.4%**	**99.6%**				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*

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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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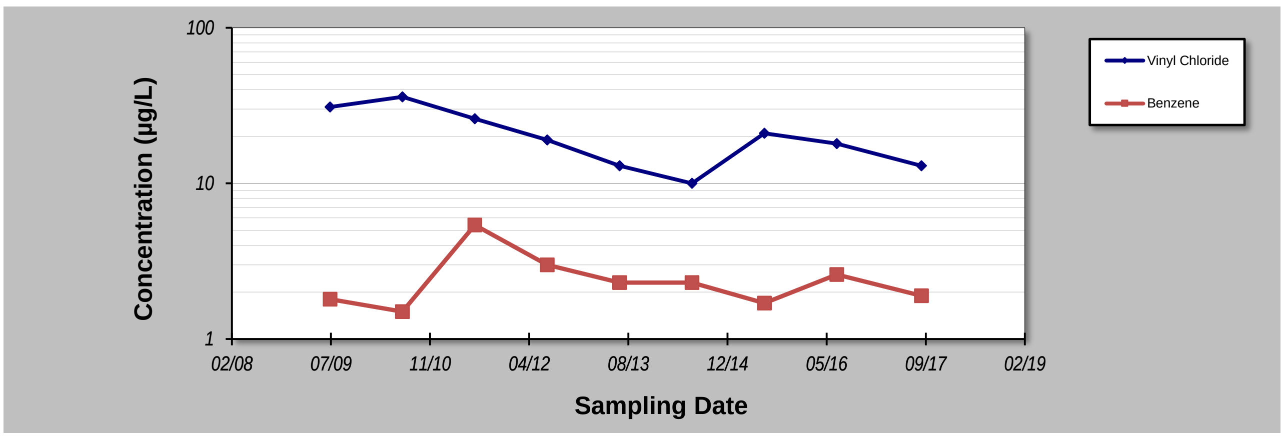
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **29-Nov-17**
Facility Name: **Grace Acton**
Conducted By: **Tt**

Job ID: **117-3008100**
Constituent: **LF-19D**
Concentration Units: **µg/L**

Sampling Event	Sampling Date	VDC	Vinyl Chloride	Benzene				
		LF-19D CONCENTRATION (µg/L)						
1	2009	1.5	31	1.8				
2	2010	0.5	36	1.5				
3	2011	0.5	26	5.4				
4	2012	0.24	19	3				
5	2013	0.5	13	2.3				
6	2014	0.63	10	2.3				
7	2015	0.5	21	1.7				
8	2016	0.5	18	2.6				
9	2017	0.5	13	1.9				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:			0.42	0.47				
Mann-Kendall Statistic (S):			-21	-1				
Confidence Factor:			98.3%	50.0%				
Concentration Trend:			Decreasing	Stable				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
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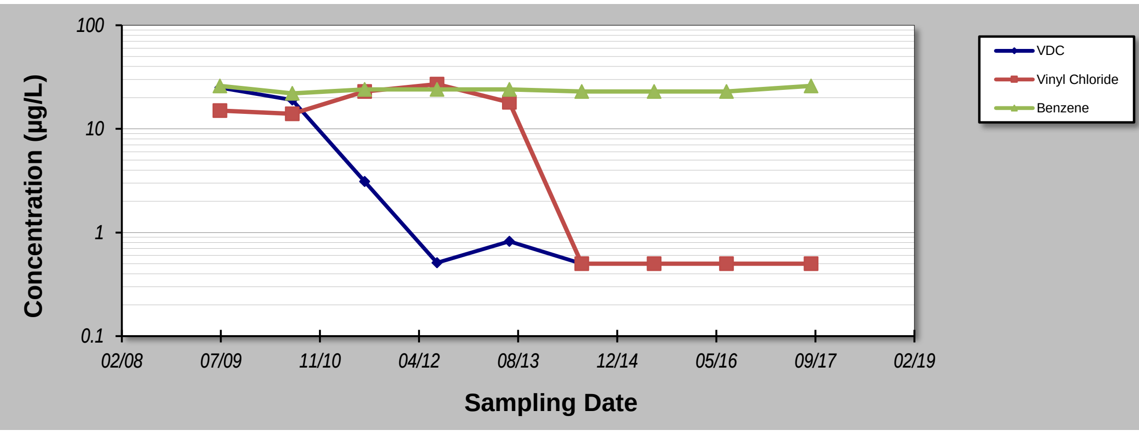
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**LF-19MBR**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Point ID:		VDC	**Vinyl Chloride**	**Benzene**				
Sampling Event	**Sampling Date**	**LF-19MBR CONCENTRATION (µg/L)**						
1	2009	25	15	26				
2	2010	19	14	22				
3	2011	3.1	23	24				
4	2012	0.51	27	24				
5	2013	0.82	18	24				
6	2014	0.5	0.5	23				
7	2015	0.5	0.5	23				
8	2016	0.5	0.5	23				
9	2017	0.5	0.5	26				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.69	0.97	0.06				
Mann-Kendall Statistic (S):		-28	-16	-3				
Confidence Factor:		99.9%	94.0%	58.0%				
Concentration Trend:		Decreasing	Prob. Decreasing	Stable				



Notes:

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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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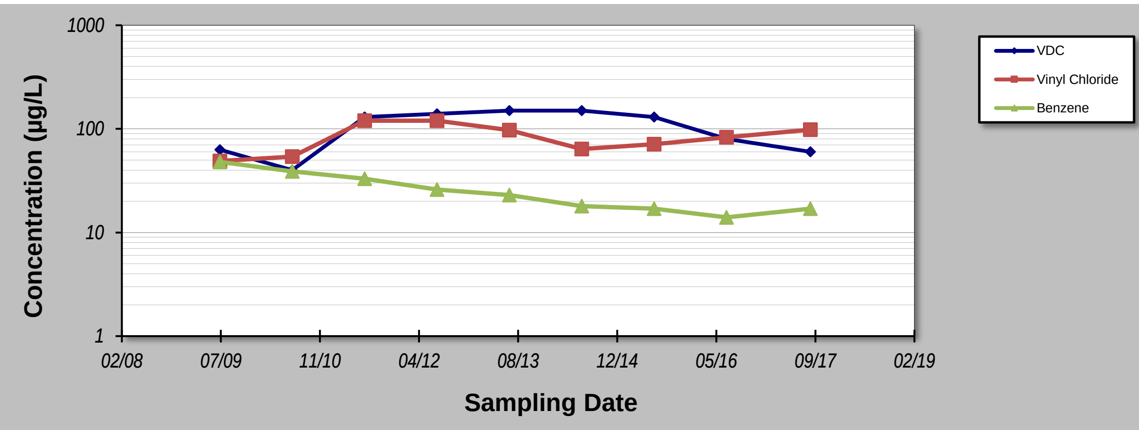
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	29-Nov-17	Job ID:	117-3008100
Facility Name:	Grace Acton	Constituent:	LF-19SBR
Conducted By:	Tt	Concentration Units:	µg/L

Sampling Event	Sampling Date	VDC	Vinyl Chloride	Benzene				
		LF-19SBR CONCENTRATION (µg/L)						
1	2009	63	49	48				
2	2010	40	54	39				
3	2011	130	120	33				
4	2012	140	120	26				
5	2013	150	97	23				
6	2014	150	64	18				
7	2015	130	71	17				
8	2016	80	83	14				
9	2017	60	98	17				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.42	0.32	0.45				
Mann-Kendall Statistic (S):		2	9	-33				
Confidence Factor:		54.0%	79.2%	>99.9%				
Concentration Trend:		No Trend	No Trend	Decreasing				



Notes:

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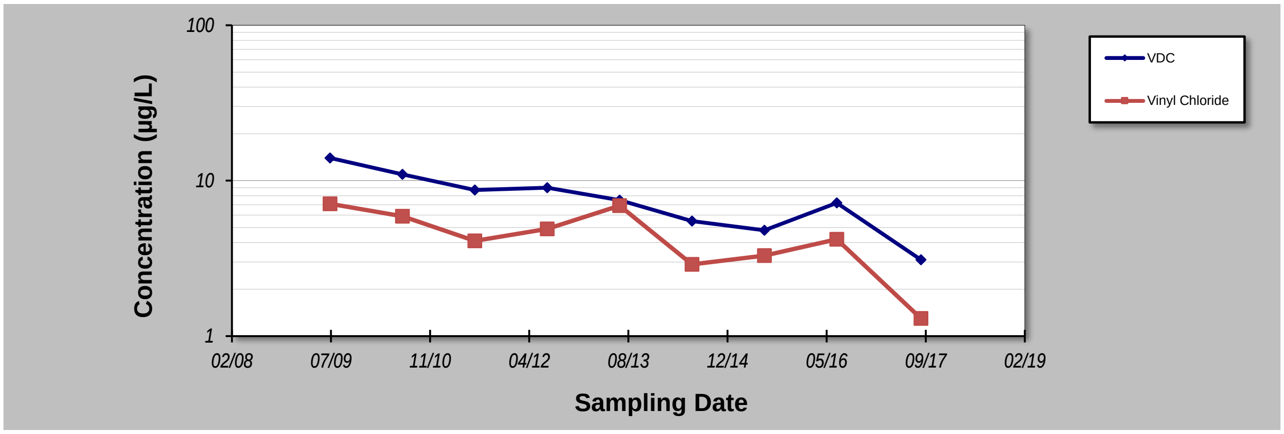
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **29-Nov-17**
Facility Name: **Grace Acton**
Conducted By: **Tt**

Job ID: **117-3008100**
Constituent: **LF-20D**
Concentration Units: **µg/L**

Sampling Point ID:		VDC	Vinyl Chloride	Benzene				
Sampling Event	Sampling Date	LF-20D CONCENTRATION (µg/L)						
1	2009	14	7.1	1.9				
2	2010	11	5.9	1.7				
3	2011	8.7	4.1	1.5				
4	2012	9	4.9	1.7				
5	2013	7.5	6.9	1.4				
6	2014	5.5	2.9	0.83				
7	2015	4.8	3.3	0.73				
8	2016	7.2	4.2	1.6				
9	2017	3.1	1.3	0.9				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.42	0.42					
Mann-Kendall Statistic (S):		-30	-20					
Confidence Factor:		100.0%	97.8%					
Concentration Trend:		Decreasing	Decreasing					



Notes:

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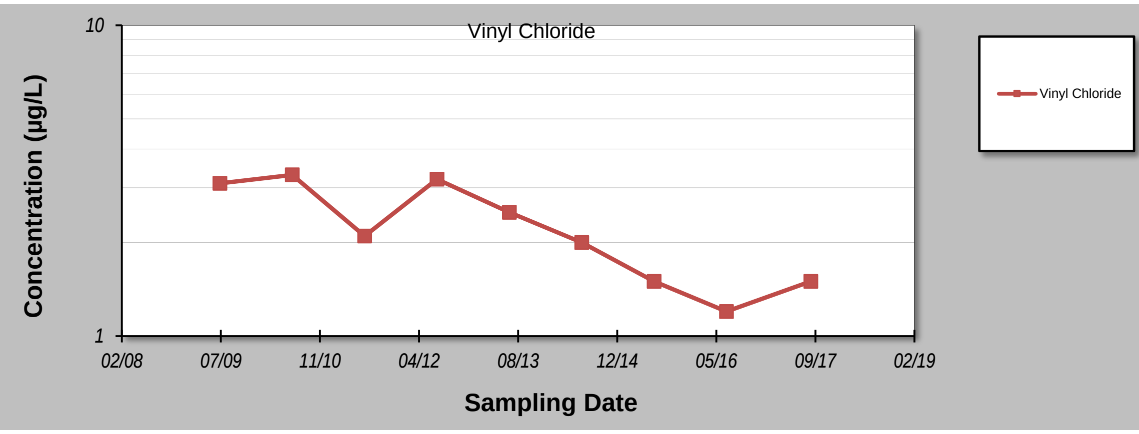
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**		Job ID:	**117-3008100**
Facility Name:	**Grace Acton**		Constituent:	**MLF**
Conducted By:	**Tt**		Concentration Units:	**µg/L**

Sampling Event	Sampling Date	VDC	Vinyl Chloride	Benzene				
	Sampling Point ID:	MLF CONCENTRATION (µg/L)						
1	2009	3.9	3.1	1.2				
2	2010	4.4	3.3	1				
3	2011	3.5	2.1	0.58				
4	2012	3.7	3.2	0.52				
5	2013	4.4	2.5	0.63				
6	2014	6.2	2	0.64				
7	2015	6	1.5	0.5				
8	2016	5.4	1.2	0.5				
9	2017	4.7	1.5	0.5				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:			0.35					
Mann-Kendall Statistic (S):			-25					
Confidence Factor:			99.6%					
Concentration Trend:			Decreasing					



Notes:

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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
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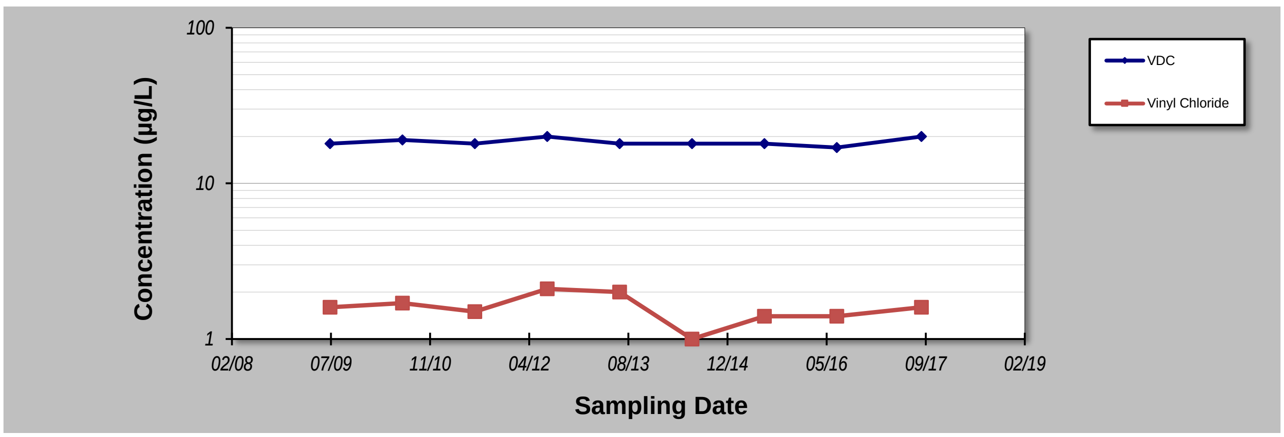
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**MW-04B**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Point ID:		VDC	**Vinyl Chloride**	**Benzene**				
Sampling Event	Sampling Date	MW-04B CONCENTRATION (µg/L)						
1	2009	18	1.6	1.5				
2	2010	19	1.7	1.1				
3	2011	18	1.5	1.2				
4	2012	20	2.1	1.3				
5	2013	18	2	1.1				
6	2014	18	1	1.2				
7	2015	18	1.4	1.1				
8	2016	17	1.4	0.97				
9	2017	20	1.6	1.3				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.05**	**0.21**					
Mann-Kendall Statistic (S):		**-3**	**-8**					
Confidence Factor:		**58.0%**	**76.2%**					
Concentration Trend:		Stable	Stable					



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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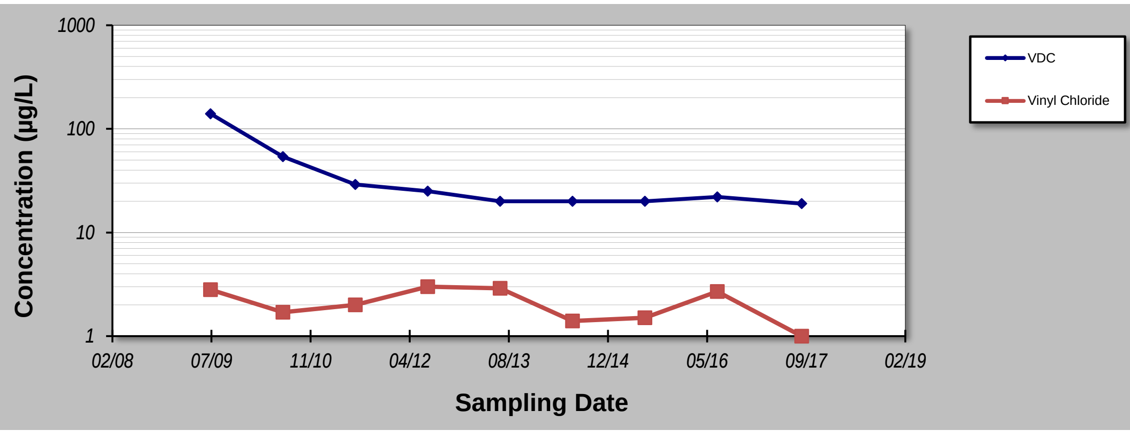
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	29-Nov-17	Job ID:	117-3008100
Facility Name:	Grace Acton	Constituent:	MW-06B
Conducted By:	Tt	Concentration Units:	µg/L

Sampling Event	Sampling Date	MW-06B CONCENTRATION (µg/L)						
Sampling Point ID:		VDC	Vinyl Chloride	Benzene				
1	2009	140	2.8	2				
2	2010	54	1.7	2.1				
3	2011	29	2	1.4				
4	2012	25	3	1.2				
5	2013	20	2.9	1				
6	2014	20	1.4	0.9				
7	2015	20	1.5	0.89				
8	2016	22	2.7	0.87				
9	2017	19	1	0.9				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.02	0.36					
Mann-Kendall Statistic (S):		-27	-12					
Confidence Factor:		99.8%	87.0%					
Concentration Trend:		Decreasing	Stable					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*

2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.

3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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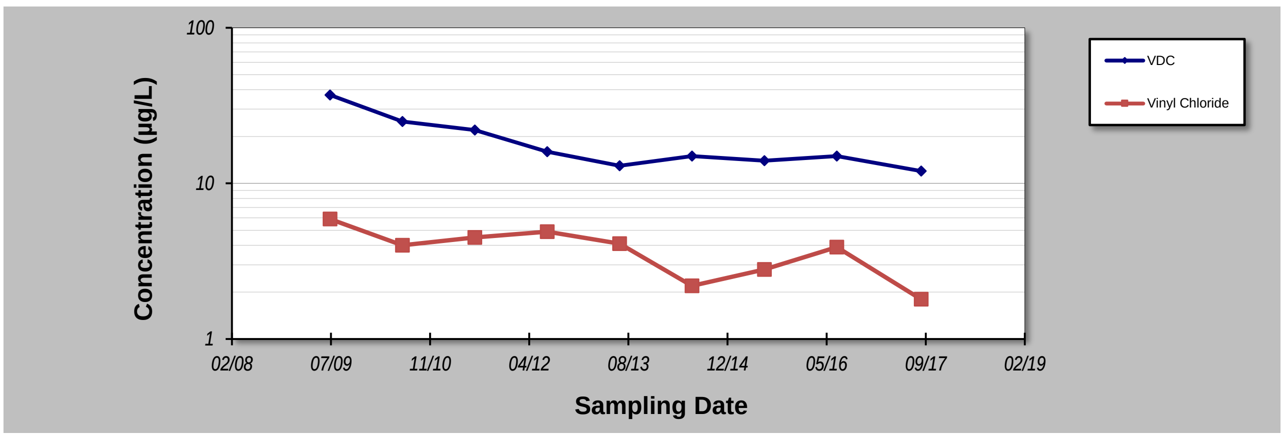
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**MW-07B**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Event	Sampling Date	VDC	Vinyl Chloride	Benzene				
		MW-07B CONCENTRATION (µg/L)						
1	2009	37	5.9	2.4				
2	2010	25	4	2.2				
3	2011	22	4.5	2.1				
4	2012	16	4.9	2.3				
5	2013	13	4.1	1.5				
6	2014	15	2.2	1.1				
7	2015	14	2.8	1				
8	2016	15	3.9	0.74				
9	2017	12	1.8	0.71				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.43	0.35					
Mann-Kendall Statistic (S):		-27	-22					
Confidence Factor:		99.8%	98.8%					
Concentration Trend:		Decreasing	Decreasing					



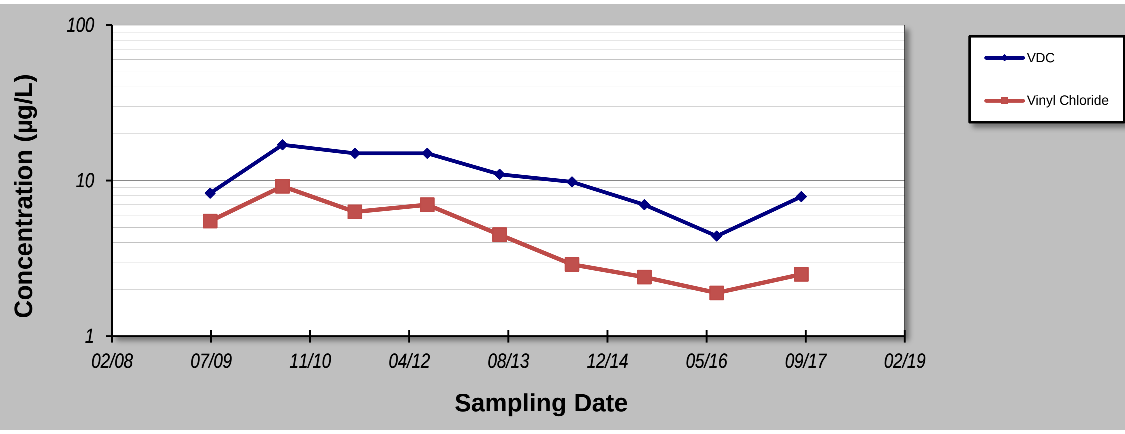
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
4. Non-detect results are in shaded cells with a value of half the detection limit.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **29-Nov-17** Job ID: **117-3008100**
Facility Name: **Grace Acton** Constituent: **MW-13B**
Conducted By: **Tt** Concentration Units: **µg/L**

Sampling Point ID:		VDC	**Vinyl Chloride**	**Benzene**				
Sampling Event	Sampling Date	MW-13B CONCENTRATION (µg/L)						
1	2009	8.3	5.5	1.7				
2	2010	17	9.2	1.4				
3	2011	15	6.3	0.8				
4	2012	15	7	0.68				
5	2013	11	4.5	1				
6	2014	9.8	2.9	1				
7	2015	7	2.4	0.5				
8	2016	4.4	1.9	0.5				
9	2017	7.9	2.5	0.5				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.40	0.53					
Mann-Kendall Statistic (S):		-21	-24					
Confidence Factor:		98.3%	99.4%					
Concentration Trend:		Decreasing	Decreasing					



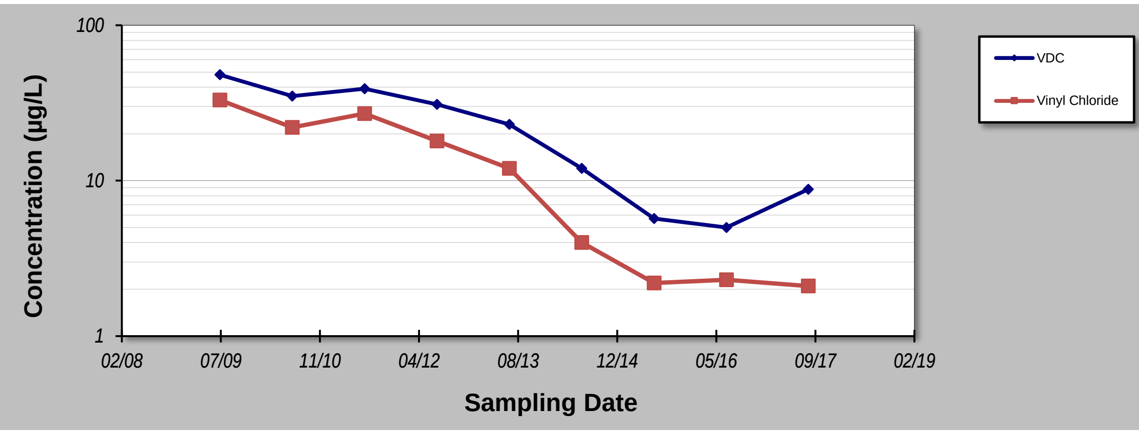
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
4. Non-detect results are in shaded cells with a value of half the detection limit.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	29-Nov-17	Job ID:	117-3008100
Facility Name:	Grace Acton	Constituent:	OSA-03BR
Conducted By:	Tt	Concentration Units:	µg/L

Sampling Event	Sampling Date	VDC	Vinyl Chloride	Benzene				
		OSA-03BR CONCENTRATION (µg/L)						
1	2009	48	33	2.9				
2	2010	35	22	2				
3	2011	39	27	2.3				
4	2012	31	18	1.8				
5	2013	23	12	1.5				
6	2014	12	4	0.44				
7	2015	5.7	2.2	0.5				
8	2016	5	2.3	0.5				
9	2017	8.8	2.1	0.5				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.69	0.87					
Mann-Kendall Statistic (S):		-30	-32					
Confidence Factor:		100.0%	>99.9%					
Concentration Trend:		Decreasing	Decreasing					



Notes:

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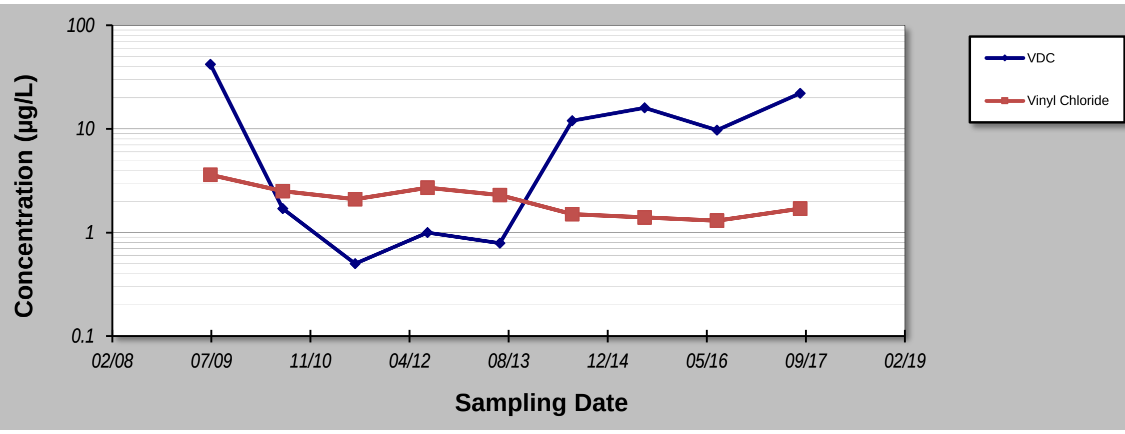
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
4. Non-detect results are in shaded cells with a value of half the detection limit.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**15-Nov-17**	Job ID:	**117-3008104**
Facility Name:	**Grace Acton**	Constituent:	**OSA-06BR**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Event	Sampling Date	VDC	**Vinyl Chloride**	**Benzene**				
		OSA-06BR CONCENTRATION (µg/L)						
1	2009	42	3.6	2.9				
2	2010	1.7	2.5	0.5				
3	2011	0.5	2.1	0.5				
4	2012	1	2.7	0.5				
5	2013	0.79	2.3	0.5				
6	2014	12	1.5	1.8				
7	2015	16	1.4	3				
8	2016	9.7	1.3	1.7				
9	2017	22	1.7	3				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.17	0.35					
Mann-Kendall Statistic (S):		8	-24					
Confidence Factor:		76.2%	99.4%					
Concentration Trend:		No Trend	Decreasing					



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.

3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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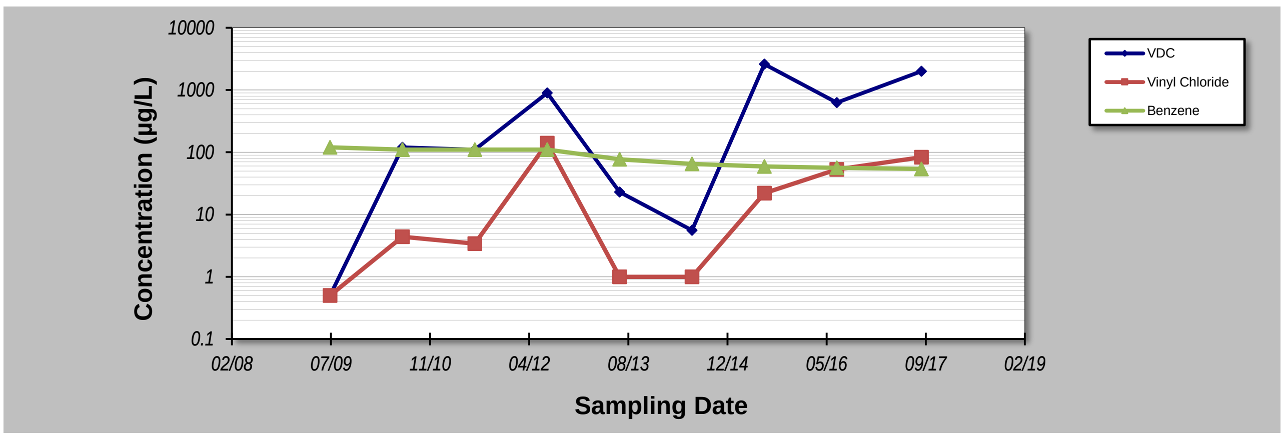
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**15-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**OSA-13B**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Event	Sampling Date	VDC	Vinyl Chloride	Benzene				
		OSA-13B CONCENTRATION (µg/L)						
1	2009	0.5	0.5	120				
2	2010	120	4.4	110				
3	2011	110	3.4	110				
4	2012	900	140	110				
5	2013	23	1	77				
6	2014	5.6	1	65				
7	2015	2600	22	59				
8	2016	630	53	56				
9	2017	2000	83	54				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.36	1.43	0.32				
Mann-Kendall Statistic (S):		14	15	-33				
Confidence Factor:		91.0%	92.5%	>99.9%				
Concentration Trend:		Prob. Increasing	Prob. Increasing	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*

2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**OSA-15B**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Event	Sampling Date	VDC	Vinyl Chloride	Benzene				
		OSA-15B CONCENTRATION (µg/L)						
1	2009	1.4	1.2	0.5				
2	2010	2.6	1.3	0.5				
3	2011	7.2	2.4	0.5				
4	2012	8.2	2.6	0.5				
5	2013	6.2	2.4	0.5				
6	2014	5.5	2.2	1				
7	2015	3.6	0.5	0.5				
8	2016	5.7	2.3	0.5				
9	2017	7.9	2.2	0.5				
10								
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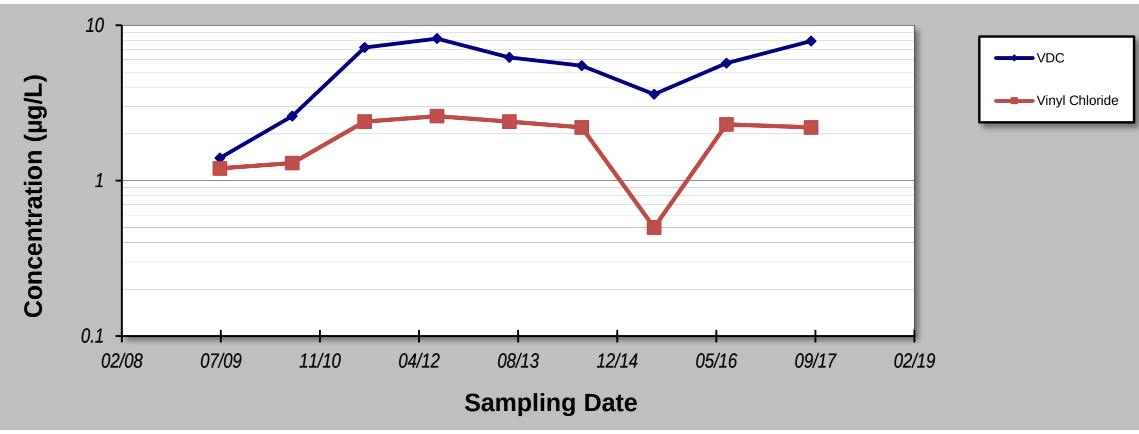
18								
19								
20								
Coefficient of Variation:		0.44	0.38					
Mann-Kendall Statistic (S):		10	0					
Confidence Factor:		82.1%	46.0%					
Concentration Trend:		No Trend	Stable					



Notes:

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	29-Nov-17	Job ID:	117-3008100
Facility Name:	Grace Acton	Constituent:	OSA-16B
Conducted By:	Tt	Concentration Units:	µg/L

Sampling Event	Sampling Date	OSA-16B CONCENTRATION (µg/L)						
Sampling Point ID:		VDC	Vinyl Chloride	Benzene				
1	2009	3.6	42	17				
2	2010	2.7	30	12				
3	2011	1.5	16	7.2				
4	2012	0.67	6.2	3.1				
5	2013	1.6	16	7.5				
6	2014	0.95	6.6	5.6				
7	2015	1.3	16	9				
8	2016	0.42	4.8	3.1				
9	2017	0.88	8	5.7				
10								
11								
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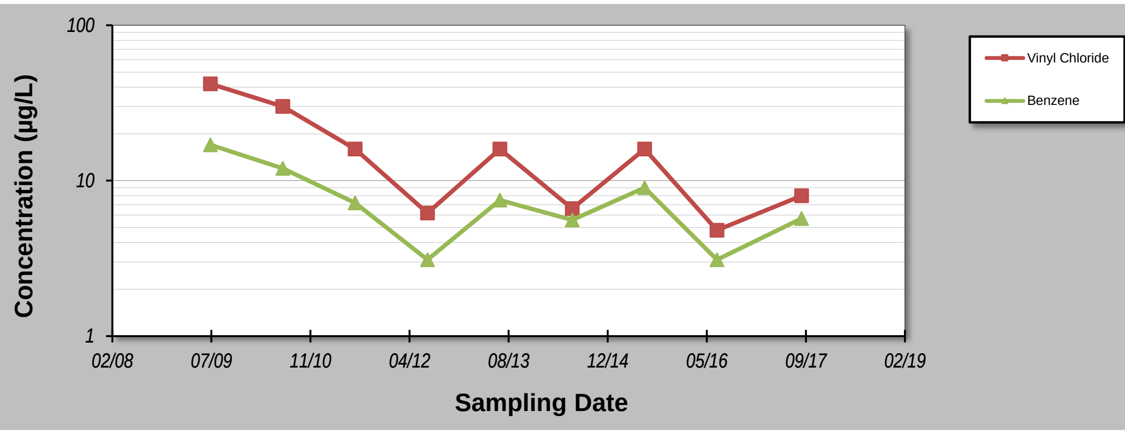
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:			0.77	0.57				
Mann-Kendall Statistic (S):			-19	-15				
Confidence Factor:			97.0%	92.5%				
Concentration Trend:			Decreasing	Prob. Decreasing				



Notes:

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	29-Nov-17		Job ID:	117-3008100
Facility Name:	Grace Acton		Constituent:	PS-22B
Conducted By:	Tt		Concentration Units:	µg/L

Sampling Point ID:		VDC	Vinyl Chloride	Benzene				
Sampling Event	**Sampling Date**	**PS-22B CONCENTRATION (µg/L)**						
1	2009	57	1.6	0.81				
2	2010	71	2.2	0.81				
3	2011	37	1	0.49				
4	2012	28	0.97	0.47				
5	2013	17	0.5	0.5				
6	2014	12	0.5	0.5				
7	2015	20	0.5	0.5				
8	2016	7.9	0.5	0.5				
9	2017	16	0.5	0.5				
10								
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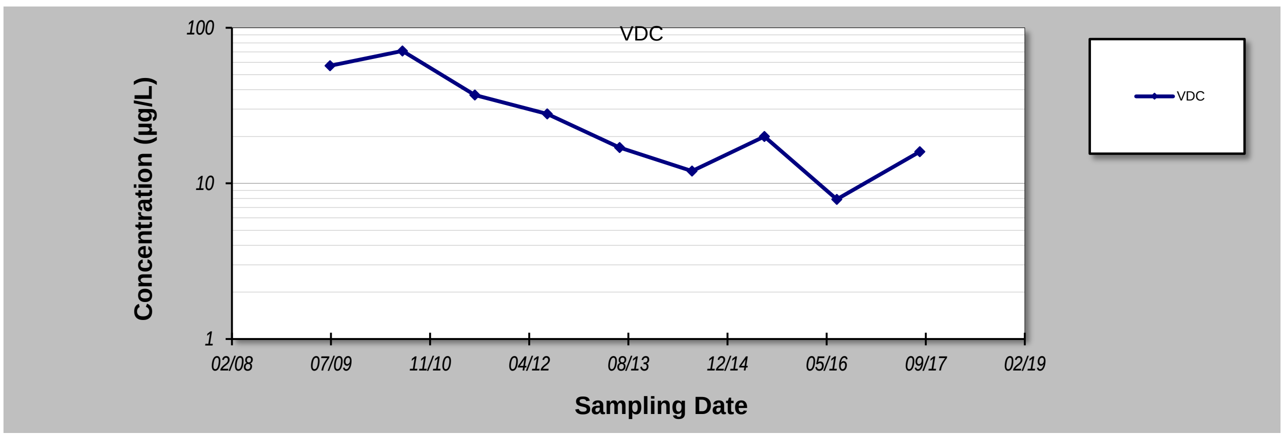
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.73						
Mann-Kendall Statistic (S):		-26						
Confidence Factor:		99.7%						
Concentration Trend:		Decreasing						



Notes:

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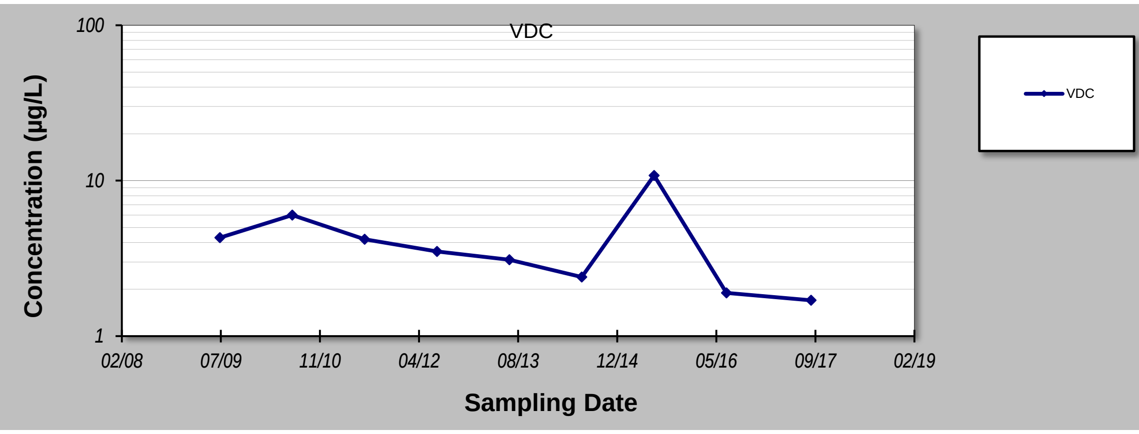
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **29-Nov-17**
Facility Name: **Grace Acton**
Conducted By: **Tt**
Job ID: **117-3008100**
Constituent: **Scribner**
Concentration Units: **µg/L**

Sampling Point ID:		VDC	Vinyl Chloride	Benzene				
Sampling Event	Sampling Date	SCRIBNER CONCENTRATION (µg/L)						
1	2009	4.3	0.5	0.5				
2	2010	6	0.5	0.5				
3	2011	4.2	0.5	0.5				
4	2012	3.5	0.25	0.5				
5	2013	3.1	0.5	0.5				
6	2014	2.4	0.5	0.5				
7	2015	10.8	0.5	0.5				
8	2016	1.9	0.5	0.5				
9	2017	1.7	0.5	0.5				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.67						
Mann-Kendall Statistic (S):		-22						
Confidence Factor:		98.8%						
Concentration Trend:		Decreasing						



Notes:

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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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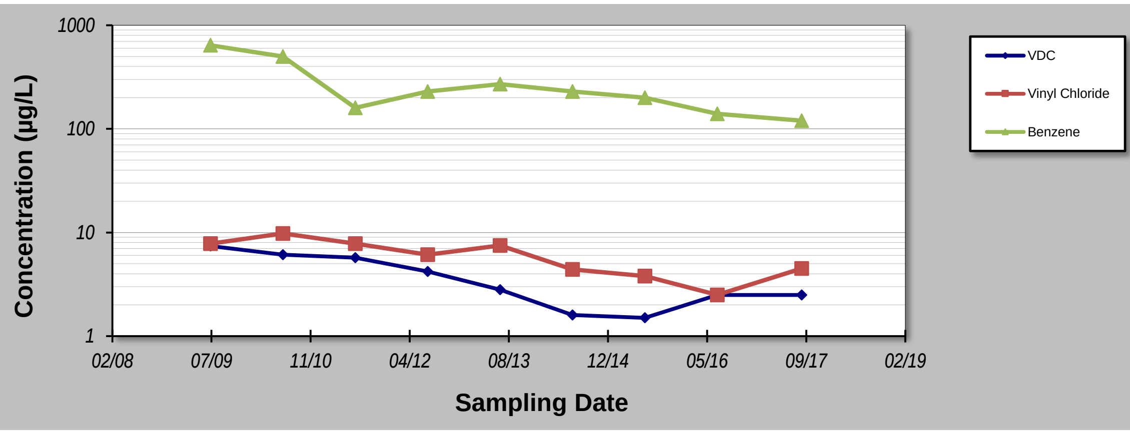
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**29-Nov-17**	Job ID:	**117-3008100**
Facility Name:	**Grace Acton**	Constituent:	**SELF-1**
Conducted By:	**Tt**	Concentration Units:	**µg/L**

Sampling Event	Sampling Date	VDC	**Vinyl Chloride**	**Benzene**				
		SELF-1 CONCENTRATION (µg/L)						
1	2009	7.4	7.8	640				
2	2010	6.1	9.8	500				
3	2011	5.7	7.8	160				
4	2012	4.2	6.1	230				
5	2013	2.8	7.5	270				
6	2014	1.6	4.4	230				
7	2015	1.5	3.8	200				
8	2016	2.5	2.5	140				
9	2017	2.5	4.5	120				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.56	0.39	0.64				
Mann-Kendall Statistic (S):		-27	-25	-25				
Confidence Factor:		99.8%	99.6%	99.6%				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



Notes:

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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
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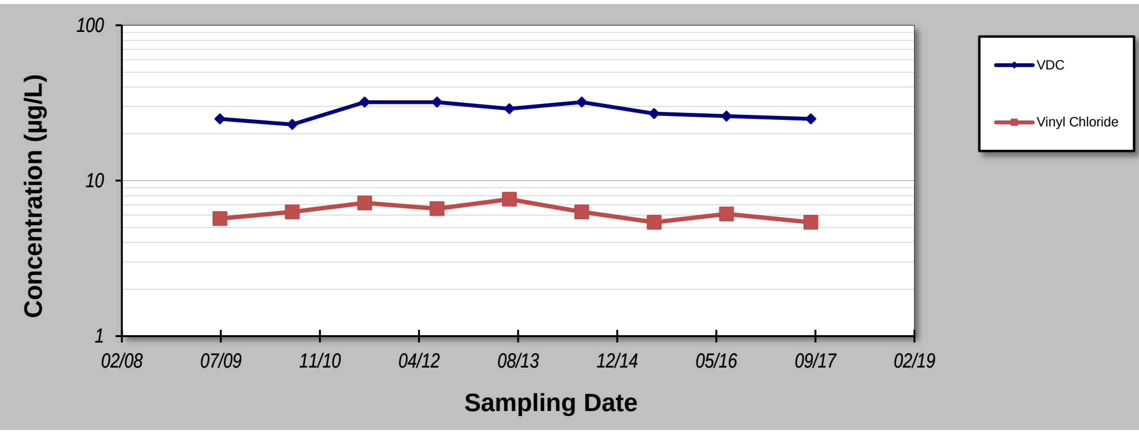
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	29-Nov-17	Job ID:	117-3008100
Facility Name:	Grace Acton	Constituent:	WLF
Conducted By:	Tt	Concentration Units:	µg/L

Sampling Point ID:		VDC	Vinyl Chloride	Benzene				
Sampling Event	Sampling Date	WLF CONCENTRATION (µg/L)						
1	2009	25	5.7	1.6				
2	2010	23	6.3	1.2				
3	2011	32	7.2	2.2				
4	2012	32	6.6	1.8				
5	2013	29	7.6	1.9				
6	2014	32	6.3	1.9				
7	2015	27	5.4	1.6				
8	2016	26	6.1	1.5				
9	2017	25	5.4	1.3				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.12	0.12					
Mann-Kendall Statistic (S):		-4	-10					
Confidence Factor:		61.9%	82.1%					
Concentration Trend:		Stable	Stable					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*

2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.

3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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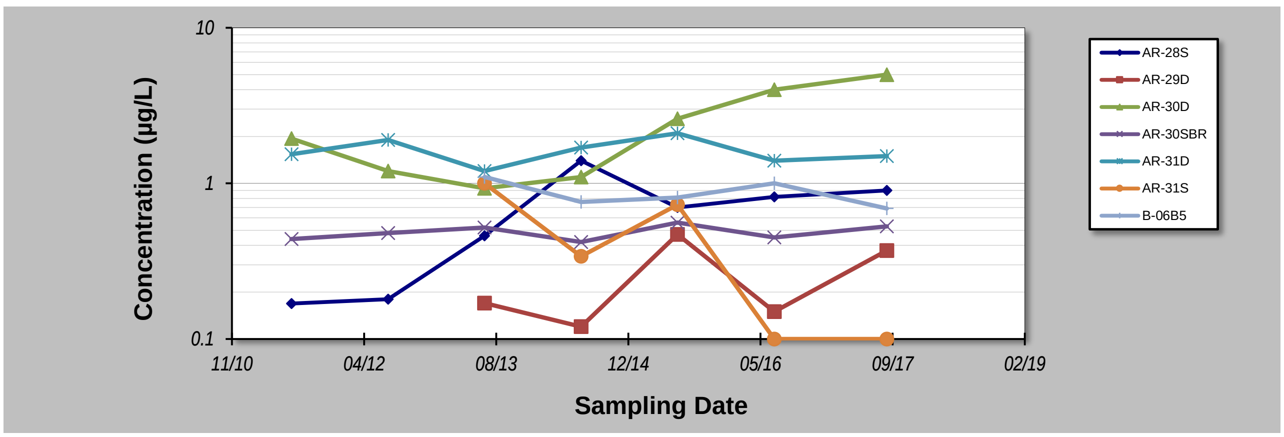
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **27-Nov-17**
Facility Name: **Grace Acton**
Conducted By: **Tt**
Job ID: **117-3008104**
Constituent: **1,4-Dioxane**
Concentration Units: **µg/L**

Sampling Point ID:		AR-28S	AR-29D	AR-30D	AR-30SBR	AR-31D	AR-31S	B-06B5
Sampling Event	Sampling Date	1,4-DIOXANE CONCENTRATION (µg/L)						
1	2011	0.169		1.94	0.439	1.54		
2	2012	0.18		1.2	0.48	1.9		
3	2013	0.46	0.17	0.93	0.52	1.2	1	1.1
4	2014	1.4	0.12	1.1	0.42	1.7	0.34	0.76
5	2015	0.7	0.47	2.6	0.56	2.1	0.73	0.81
6	2016	0.82	0.15	4	0.45	1.4	0.1	1
7	2017	0.9	0.37	5	0.53	1.5	0.1	0.69
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.66	0.60	0.66	0.11	0.19	0.88	0.20
Mann-Kendall Statistic (S):		15	2	11	7	-1	-7	-4
Confidence Factor:		98.5%	59.2%	93.2%	80.9%	50.0%	92.1%	75.8%
Concentration Trend:		Increasing	No Trend	Prob. Increasing	No Trend	Stable	Prob. Decreasing	Stable



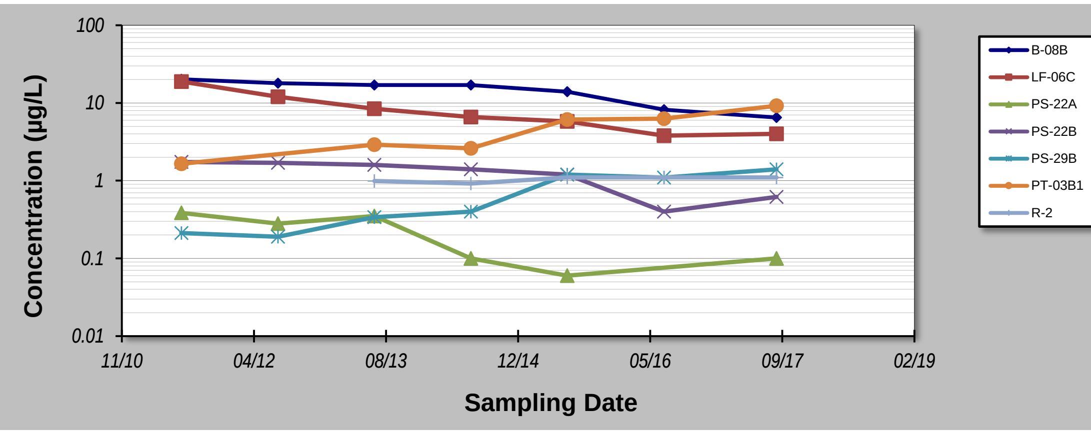
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
4. Non-detect results are in shaded cells with a value of half the detection limit.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	27-Nov-17	Job ID:	117-3008104
Facility Name:	Grace Acton	Constituent:	1,4-Dioxane
Conducted By:	Tt	Concentration Units:	µg/L

Sampling Point ID:		B-08B	LF-06C	PS-22A	PS-22B	PS-29B	PT-03B1	R-2
Sampling Event	Sampling Date	1,4-DIOXANE CONCENTRATION (µg/L)						
1	2011	20.2	18.9	0.385	1.74	0.212	1.65	
2	2012	18	12	0.28	1.7	0.19		
3	2013	17	8.4	0.35	1.6	0.34	2.9	0.99
4	2014	17	6.6	0.1	1.4	0.4	2.6	0.92
5	2015	14	5.8	0.06	1.2	1.2	6.1	1.1
6	2016	8.2	3.8		0.4	1.1	6.3	1.1
7	2017	6.5	4	0.1	0.62	1.4	9.2	1.1
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.36	0.63	0.67	0.43	0.75	0.60	0.08
Mann-Kendall Statistic (S):		-20	-19	-10	-19	17	13	5
Confidence Factor:		100.0%	99.9%	95.2%	99.9%	99.5%	99.2%	82.1%
Concentration Trend:		Decreasing	Decreasing	Decreasing	Decreasing	Increasing	Increasing	No Trend



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*

2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.

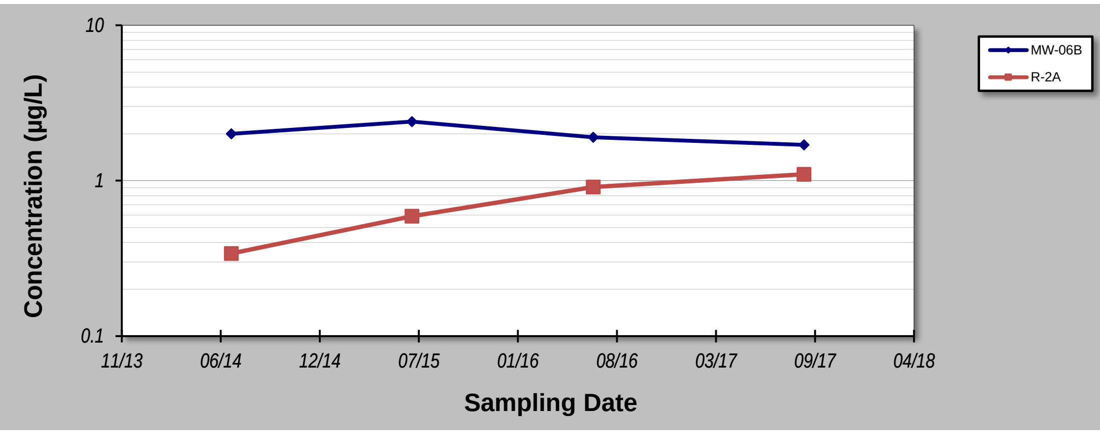
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

4 Non-detect results are in shaded cells with a value of half the detection limit.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	27-Nov-17	Job ID:	117-3008104
Facility Name:	Grace Acton	Constituent:	1,4-Dioxane
Conducted By:	Tt	Concentration Units:	µg/L

Sampling Event	Sampling Date	MW-06B	R-2A					
	Sampling Point ID:	1,4-DIOXANE CONCENTRATION (µg/L)						
1	2014	2	0.34					
2	2015	2.4	0.59					
3	2016	1.9	0.91					
4	2017	1.7	1.1					
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	0.15	0.46					
	Mann-Kendall Statistic (S):	-4	6					
	Confidence Factor:	83.3%	95.8%					
	Concentration Trend:	Stable	Increasing					



Notes:

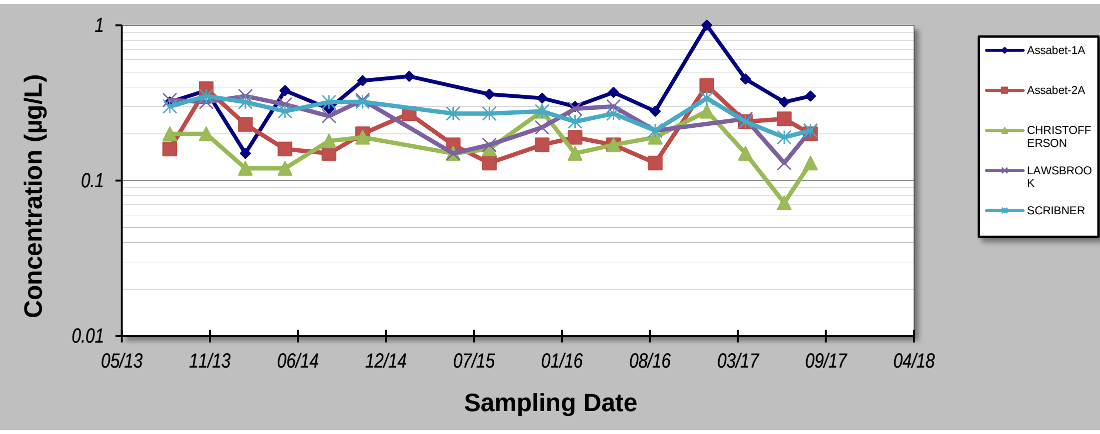
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
4. Non-detect results are in shaded cells with a value of half the detection limit.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **27-Nov-17**
Facility Name: **Grace Acton**
Conducted By: **Tt**

Job ID: **117-3008104**
Constituent: **1,4-Dioxane**
Concentration Units: **µg/L**

Sampling Event	Sampling Date	Assabet-1A	Assabet-2A	CHRISTOFFERSON	LAWSBROOK	SCRIBNER		
		1,4-DIOXANE CONCENTRATION (µg/L)						
1	Aug-13	0.32	0.16	0.2	0.33	0.3		
2	Nov-13	0.38	0.39	0.2	0.32	0.35		
3	Feb-14	0.15	0.23	0.12	0.35	0.32		
4	May-14	0.38	0.16	0.12	0.31	0.28		
5	Aug-14	0.29	0.15	0.18	0.26	0.32		
6	Nov-14	0.44	0.2	0.19	0.33	0.321		
7	Feb-15	0.47	0.27					
8	May-15		0.17	0.15	0.15	0.27		
9	Aug-15	0.36	0.13	0.16	0.17	0.27		
10	Dec-15	0.34	0.17	0.28	0.22	0.28		
11	Mar-16	0.3	0.19	0.15	0.29	0.24		
12	May-16	0.37	0.17	0.17	0.3	0.27		
13	Aug-16	0.28	0.13	0.19	0.21	0.21		
14	Dec-16	1	0.41	0.28		0.34		
15	Mar-17	0.45	0.24	0.15	0.25	0.24		
16	Jun-17	0.32	0.25	0.072	0.13	0.19		
17	Aug-17	0.35	0.2	0.13	0.21	0.21		
18								
19								
20								
Coefficient of Variation:		0.47	0.38	0.32	0.28	0.17		
Mann-Kendall Statistic (S):		10	14	-17	-51	-65		
Confidence Factor:		65.5%	70.1%	76.1%	99.4%	99.9%		
Concentration Trend:		No Trend	No Trend	Stable	Decreasing	Decreasing		



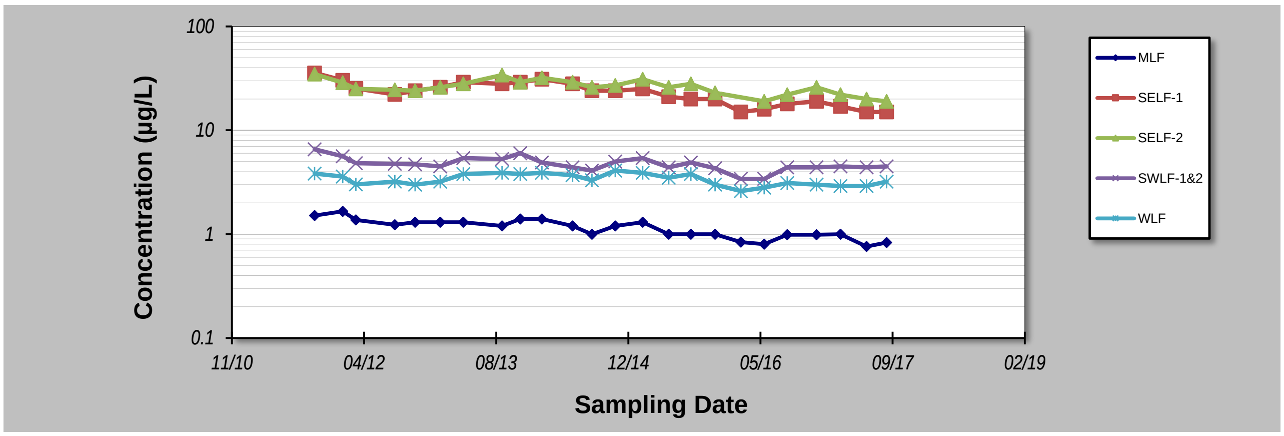
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	27-Nov-17	Job ID:	117-3008104
Facility Name:	Grace Acton	Constituent:	1,4-Dioxane
Conducted By:	Tt	Concentration Units:	µg/L

	Sampling Point ID:	MLF	SELF-1	SELF-2	SWLF-1&2	WLF		
Sampling Event	Sampling Date	1,4-DIOXANE CONCENTRATION (µg/L)						
1	Sep-11	1.51	35.7	34.7	6.56	3.84		
2	Jan-12	1.66	30.3	28.7	5.61	3.59		
3	Mar-12	1.37	25.3	25	4.83	3.01		
4	Jul-12	1.23	22.1	24.5	4.76	3.21		
5	Oct-12	1.3	24	24	4.7	3		
6	Jan-13	1.3	26	26	4.5	3.2		
7	Apr-13	1.3	29	28	5.4	3.8		
8	Sep-13	1.2	28	34	5.3	3.9		
9	Nov-13	1.4	29	29	6	3.8		
10	Feb-14	1.4	31	32	4.9	3.9		
11	May-14	1.2	28	29	4.4	3.7		
12	Aug-14	1	24	26	4.1	3.3		
13	Nov-14	1.2	24	27	5	4.1		
14	Feb-15	1.3	25	31	5.4	3.9		
15	May-15	1	21	26	4.4	3.5		
16	Aug-15	1	20	28	4.9	3.8		
17	Nov-15	1	20	23	4.3	3		
18	Feb-16	0.84	15		3.4	2.6		
19	May-16	0.8	16	19	3.4	2.8		
20	Aug-16	0.99	18	22	4.4	3.1		
21	Dec-16	0.99	19	26	4.4	3		
22	Mar-17	1	17	22	4.5	2.9		
23	Jun-17	0.76	15	20	4.4	2.9		
24	Aug-17	0.83	15	19	4.5	3.2		
25								
	Coefficient of Variation:	0.21	0.25	0.17	0.15	0.13		
	Mann-Kendall Statistic (S):	-191	-181	-105	-114	-79		
	Confidence Factor:	>99.9%	>99.9%	99.7%	99.8%	97.4%		
	Concentration Trend:	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing		



Notes:

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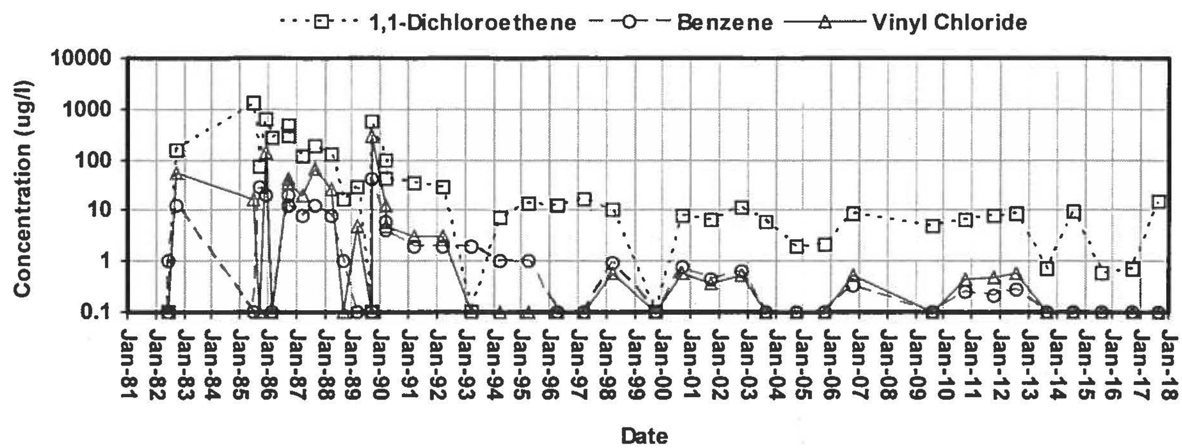
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

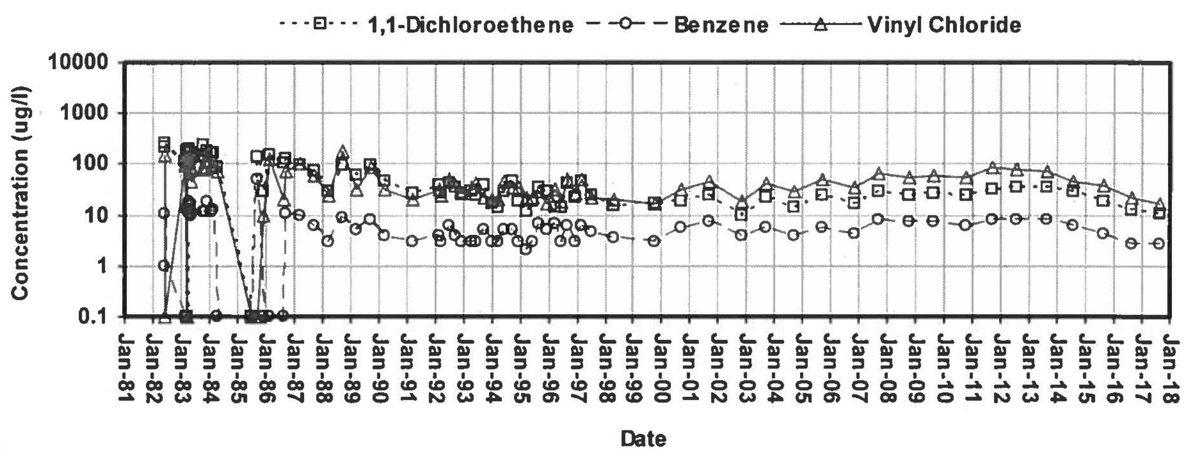
ATTACHMENT F

VDC, VINYL CHLORIDE AND BENZENE VERSUS TIME GRAPHS

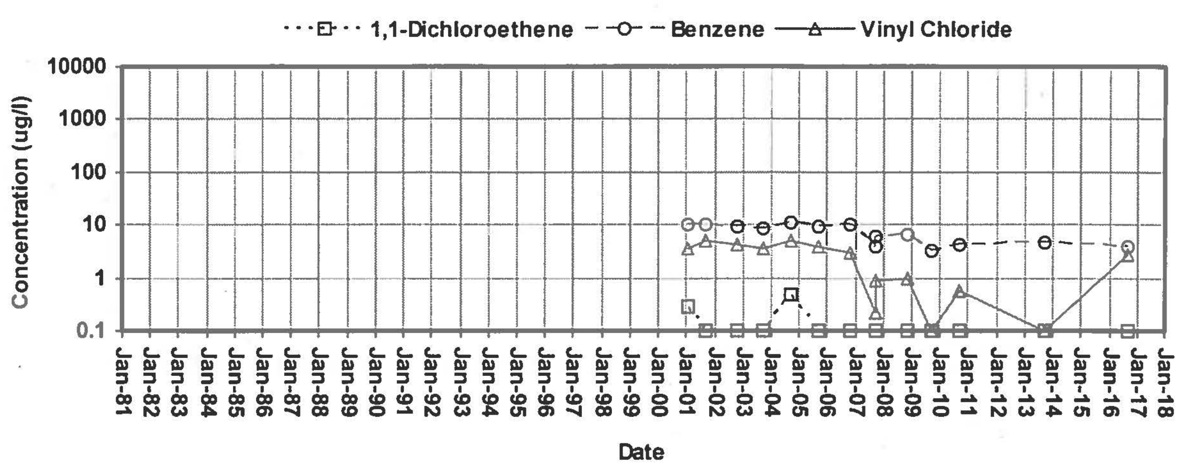
Concentration Plot for: AR-03B1
BOS elevation: 4 (BR)



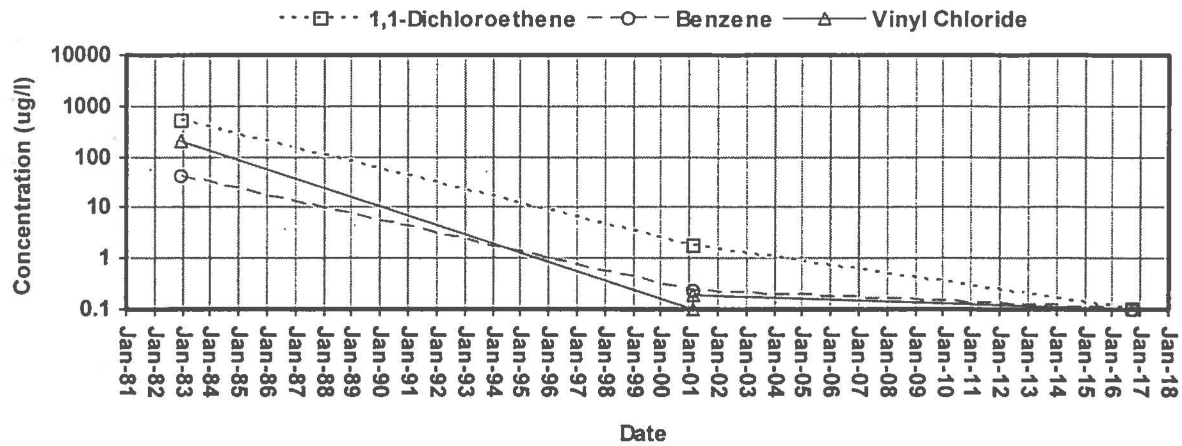
Concentration Plot for: AR-11B2
BOS elevation: 101



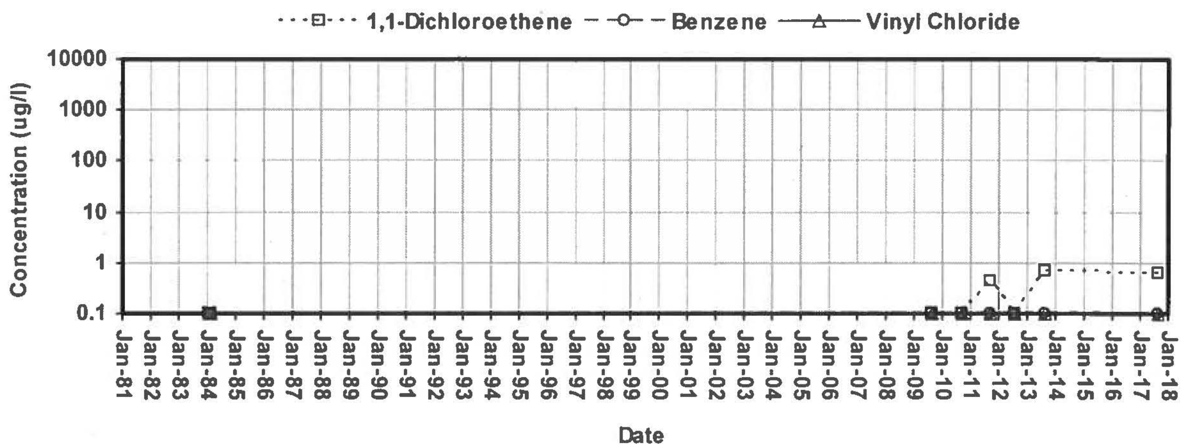
Concentration Plot for: AR-11SBR
BOS elevation: 60 (BR)



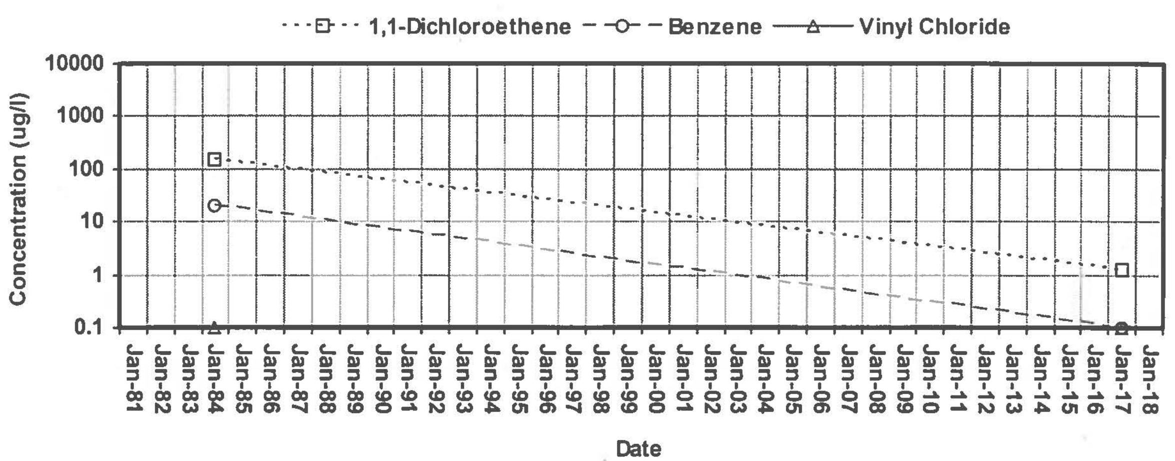
Concentration Plot for: AR-14B1
BOS elevation: 70



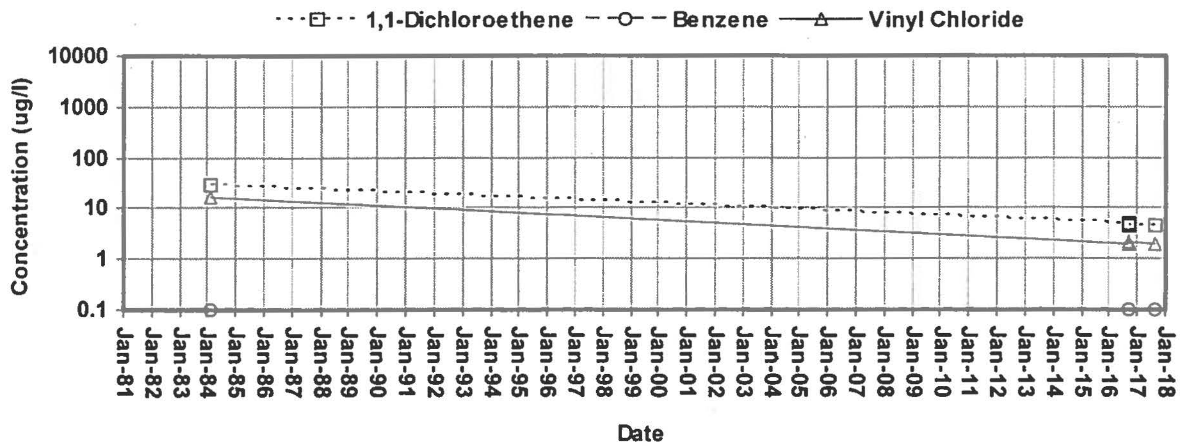
Concentration Plot for: AR-19AB1
BOS elevation: 60 (BR)



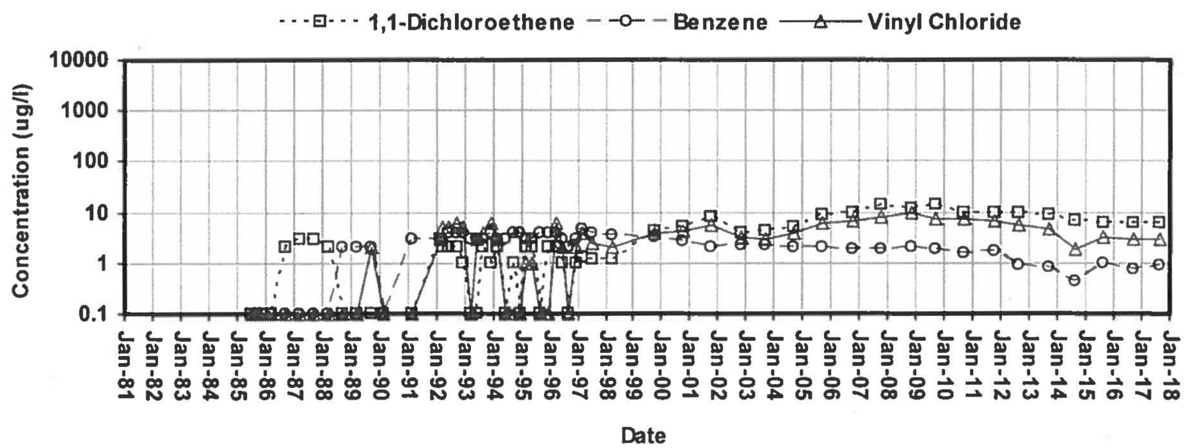
Concentration Plot for: AR-19ASH
BOS elevation: 122



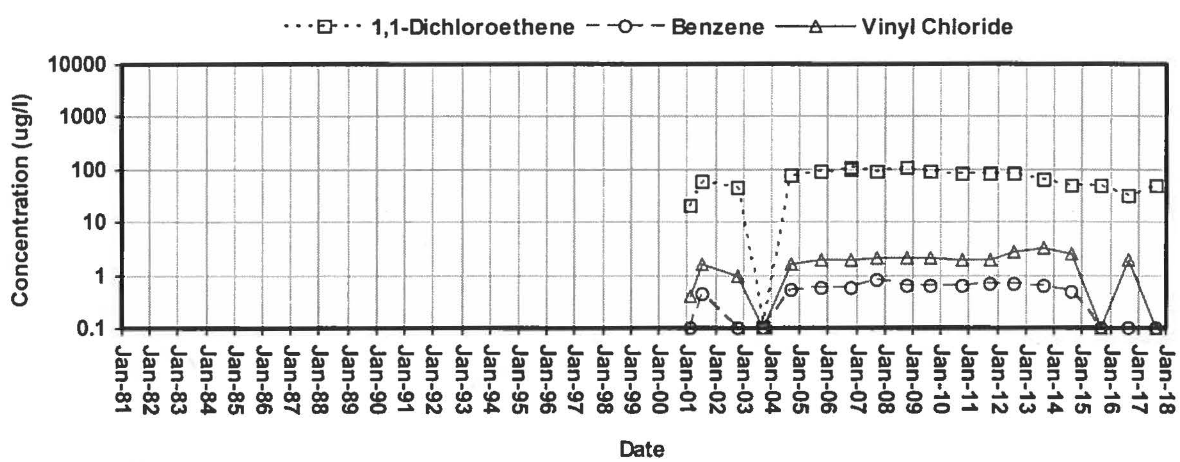
Concentration Plot for: AR-19BDP
BOS elevation: 84



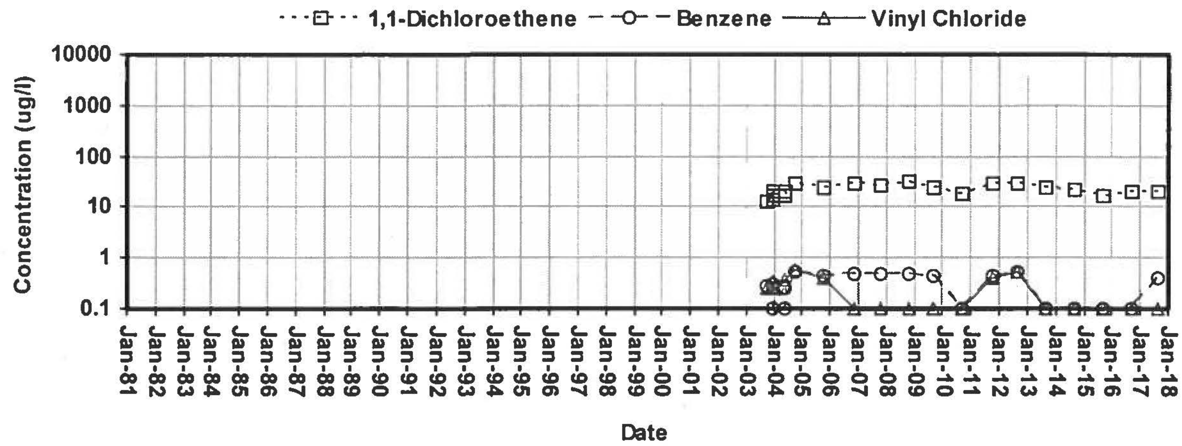
Concentration Plot for: AR-20
BOS elevation: 87 (BR)



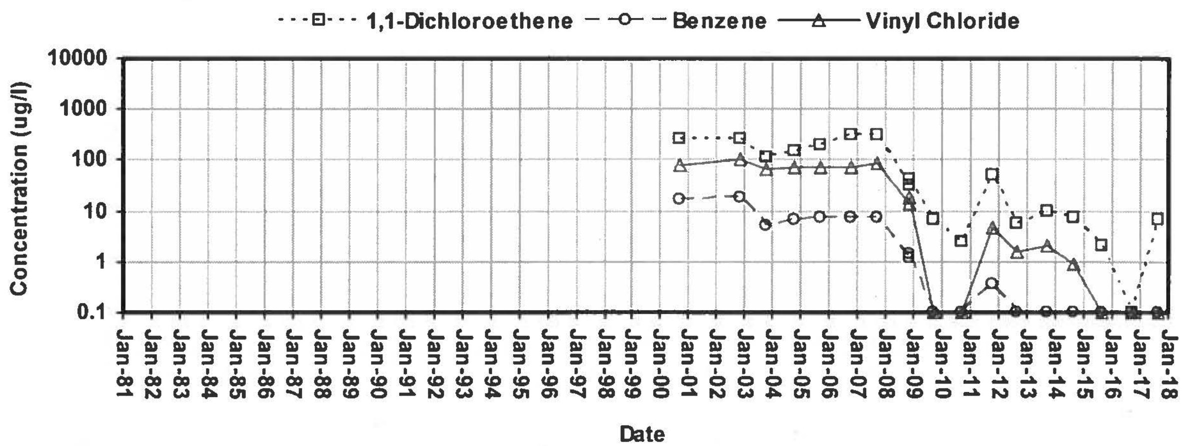
Concentration Plot for: AR-31D
BOS elevation: 82



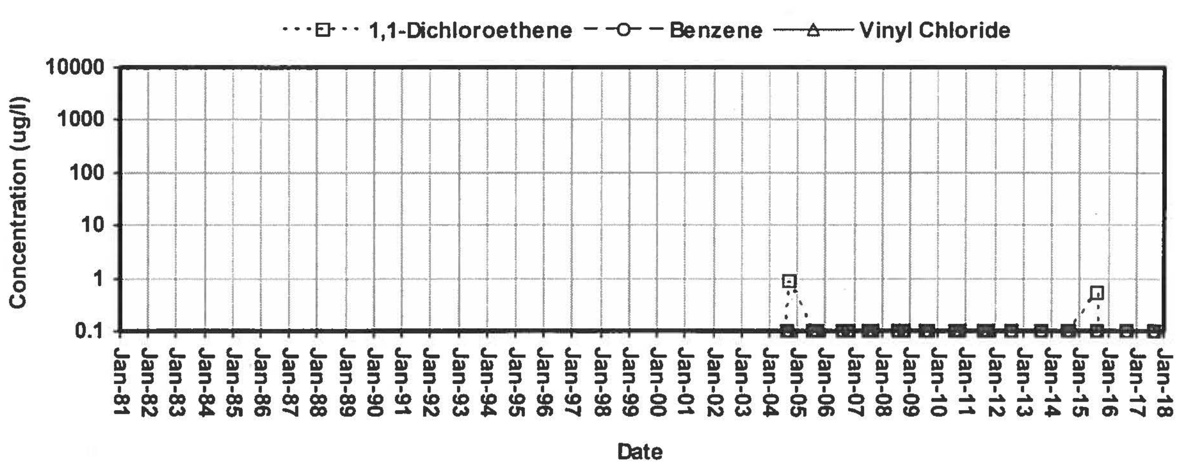
Concentration Plot for: AR-35MBR
BOS elevation: -88 (BR)



Concentration Plot for: ASBRV-T6A
BOS elevation:

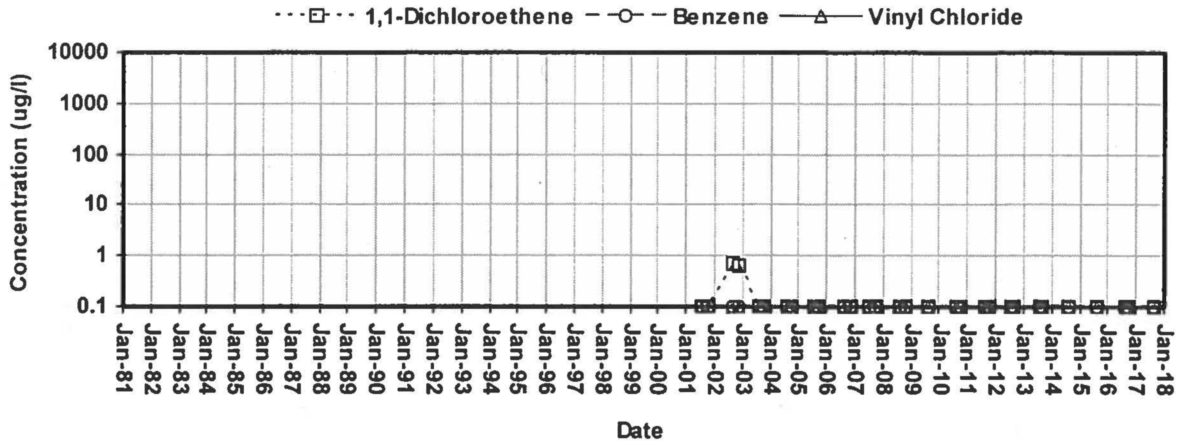


Concentration Plot for: Assabet-1A
BOS elevation: 78



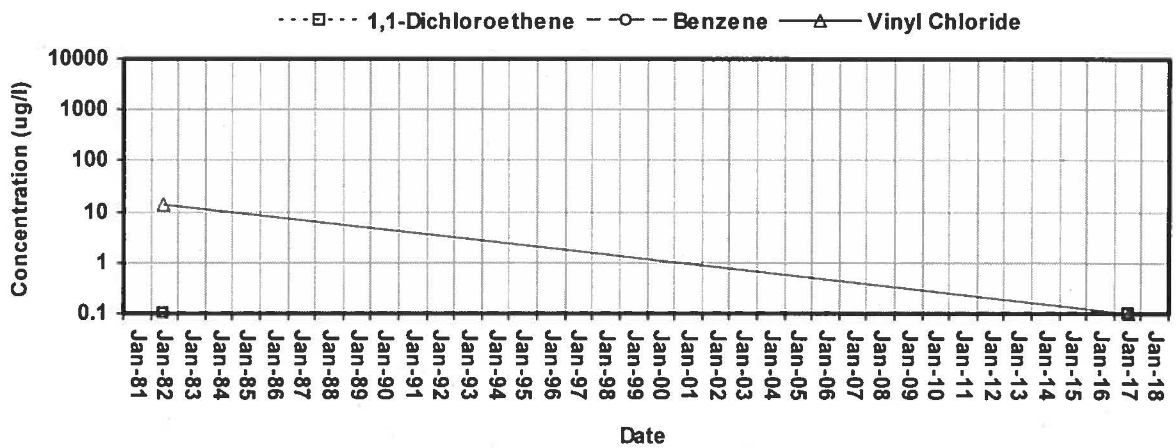
Concentration Plot for: Assabet-2A

BOS elevation: 98



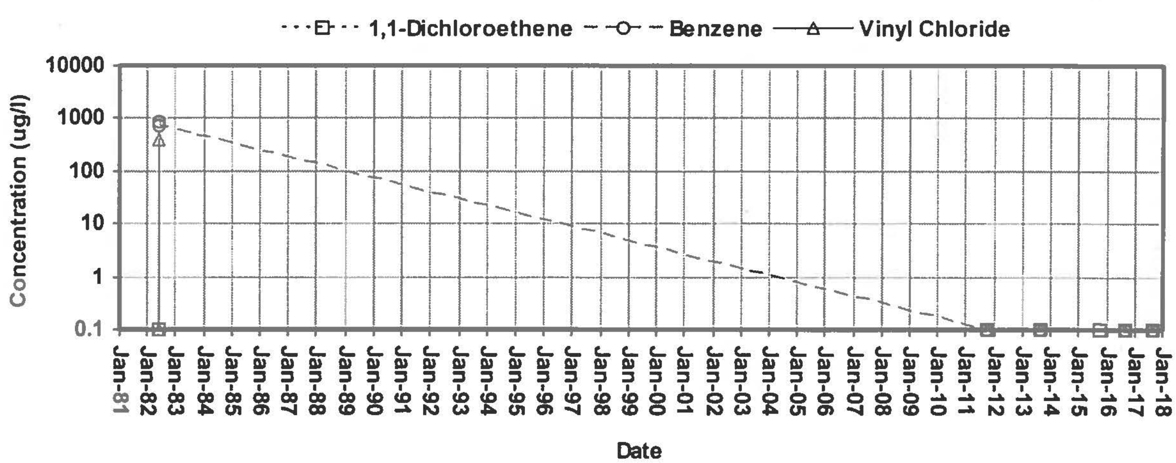
Concentration Plot for: B-04B2

BOS elevation: 106



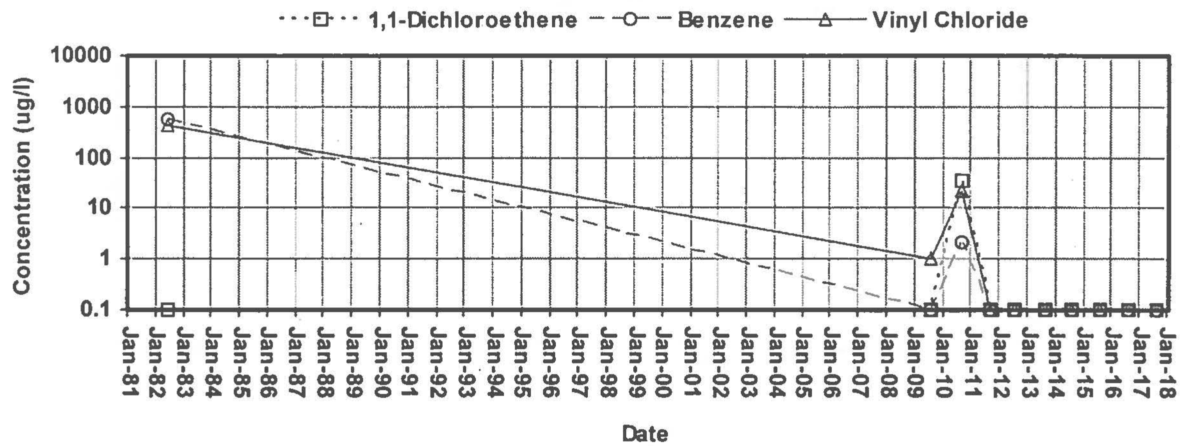
Concentration Plot for: B-04B3

BOS elevation: 93

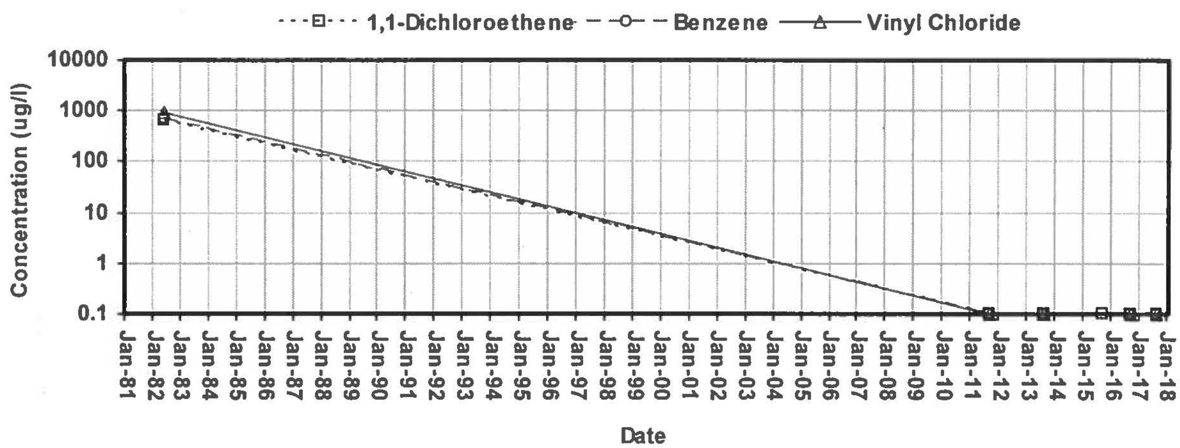


P:\PROJECT\WRGACTON\Database\Access2007\N099db_2011.accdb FRM

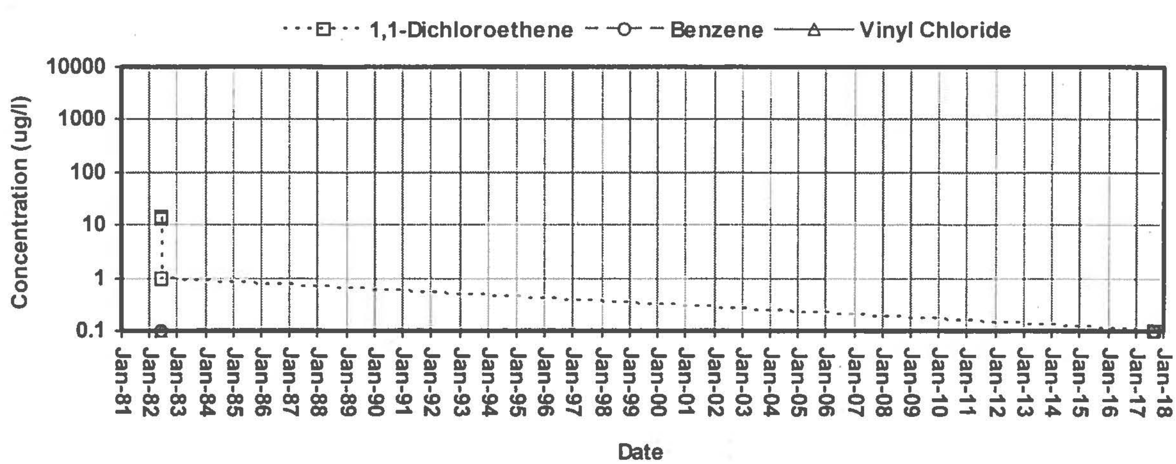
Concentration Plot for: B-04B4
BOS elevation: 73



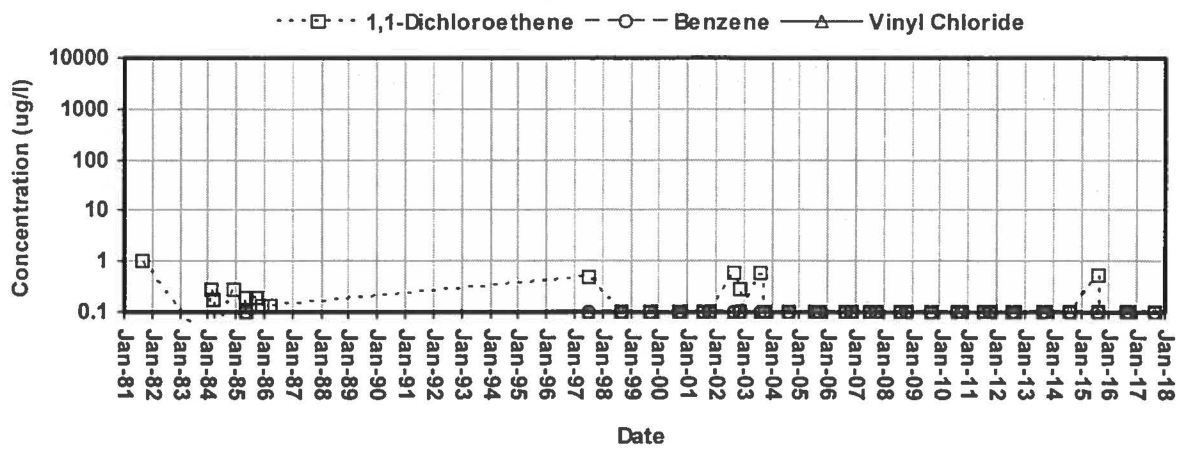
Concentration Plot for: B-04B5
BOS elevation: 57



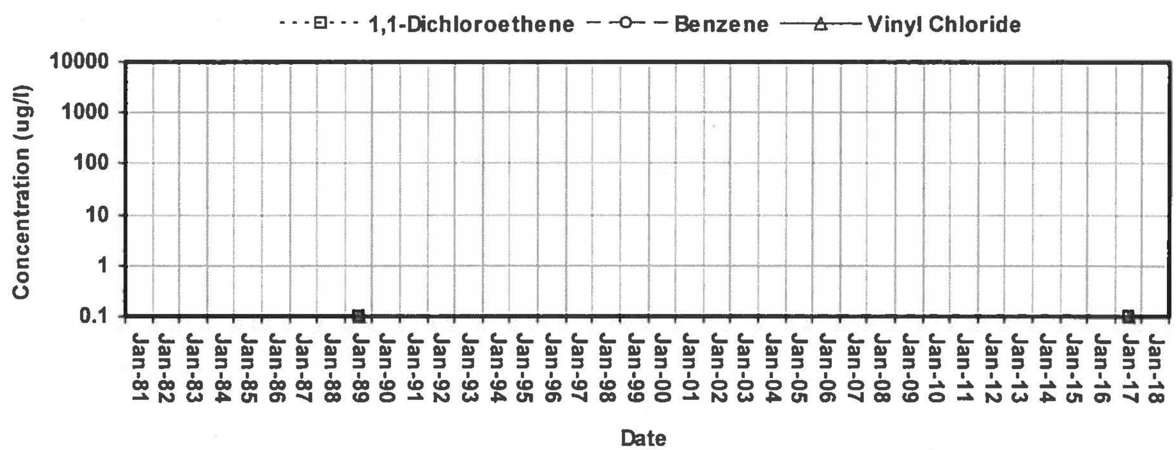
Concentration Plot for: B-04P
BOS elevation: 128



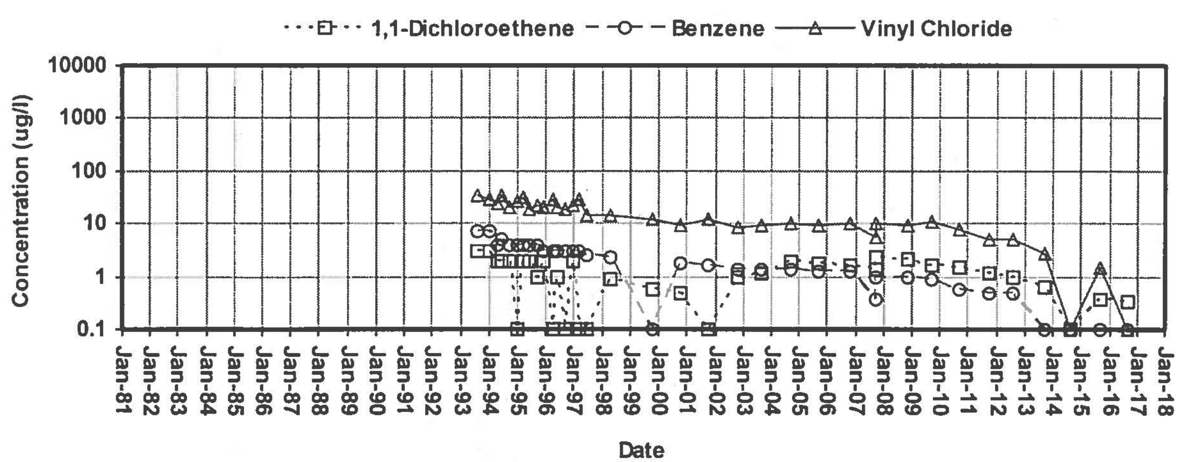
Concentration Plot for: CHRISTOFFERSON
BOS elevation: 86



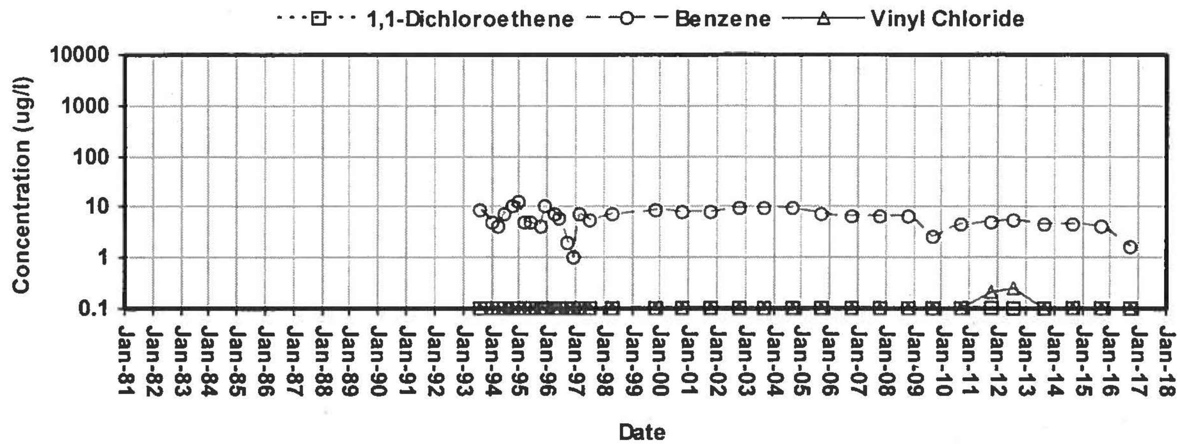
Concentration Plot for: EL-3
BOS elevation: 123



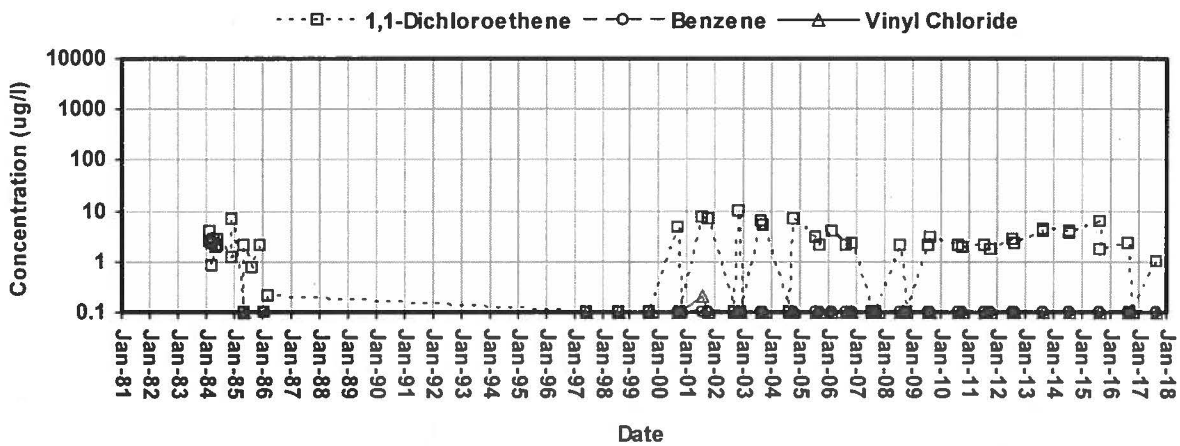
Concentration Plot for: G-3A
BOS elevation: 43



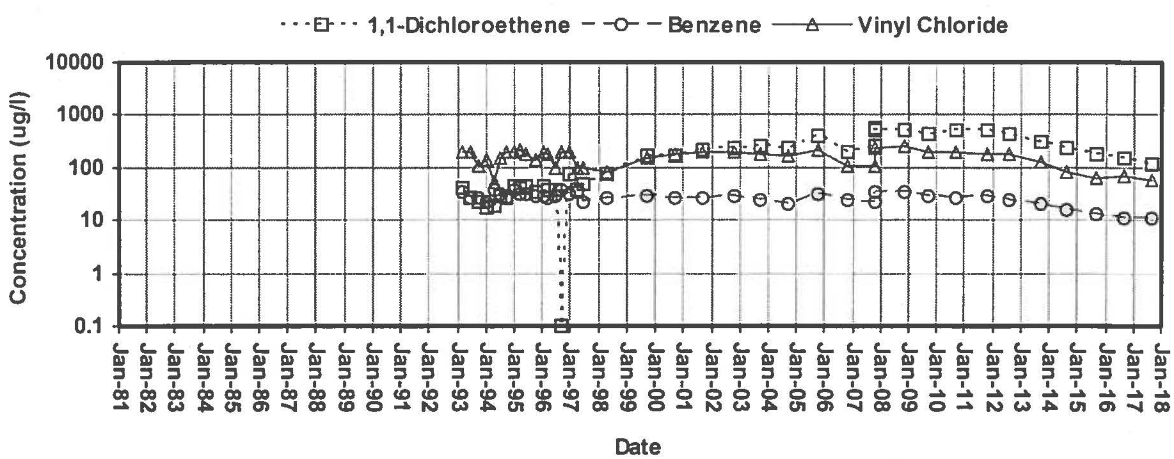
Concentration Plot for: G-3BR
BOS elevation: 10 (BR)



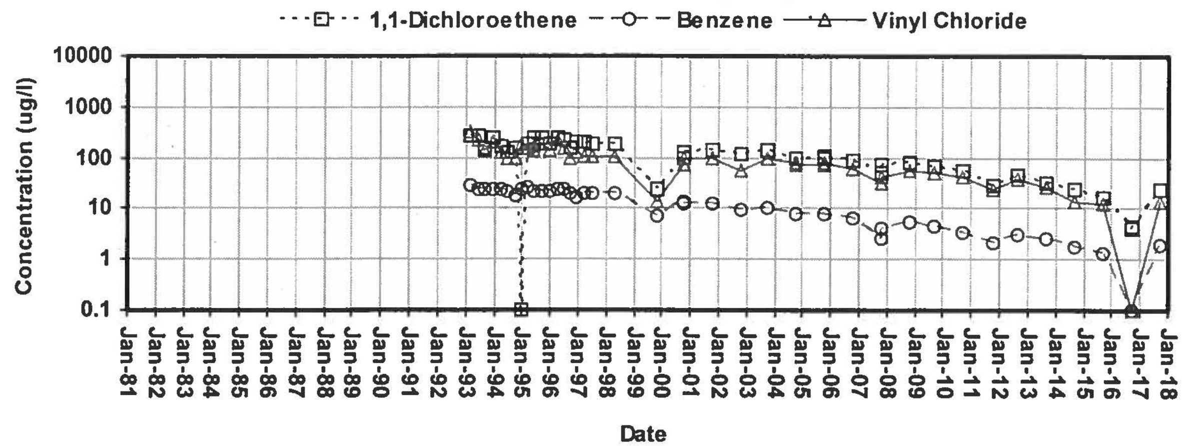
Concentration Plot for: LAWSBROOK
BOS elevation: 108



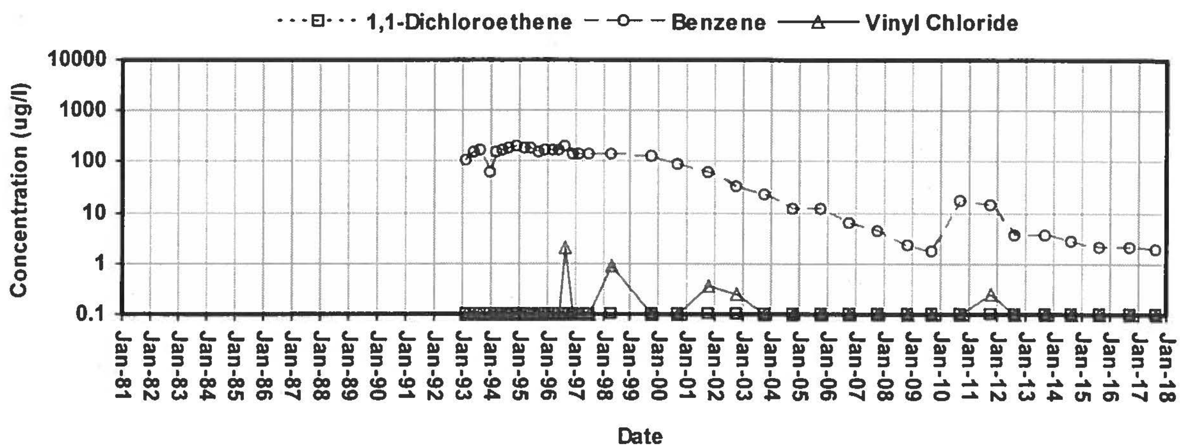
Concentration Plot for: LF-02A
BOS elevation: 35 (BR)



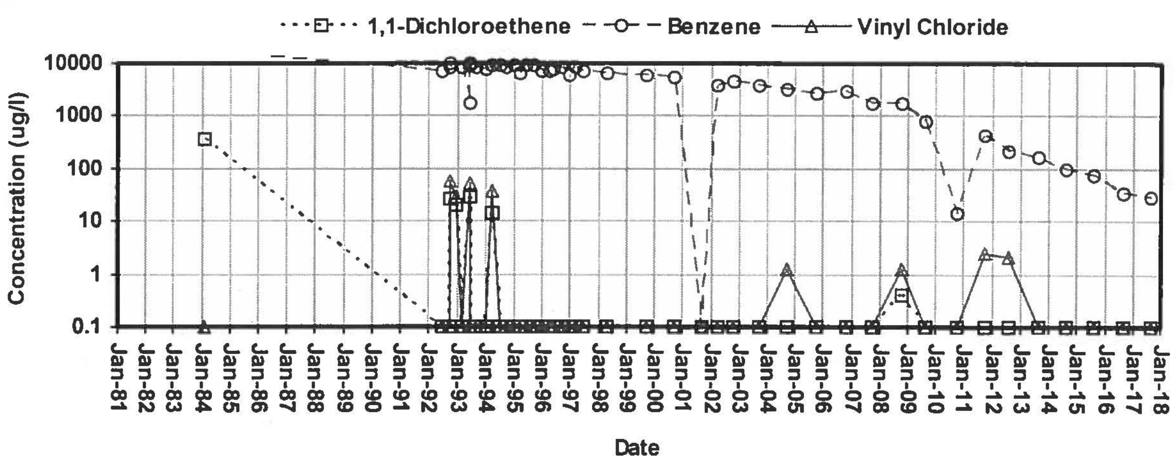
Concentration Plot for: LF-05E
BOS elevation: 96



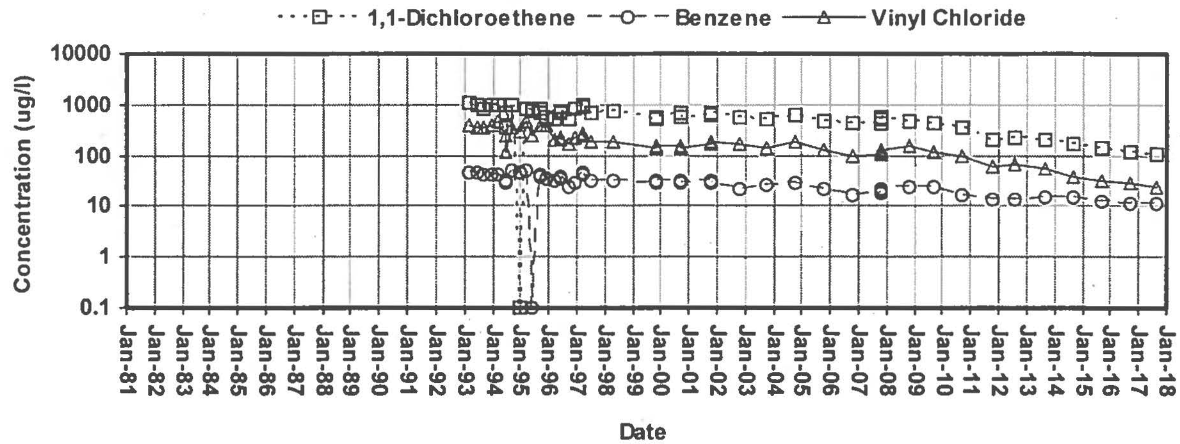
Concentration Plot for: LF-06
BOS elevation: 26 (BR)



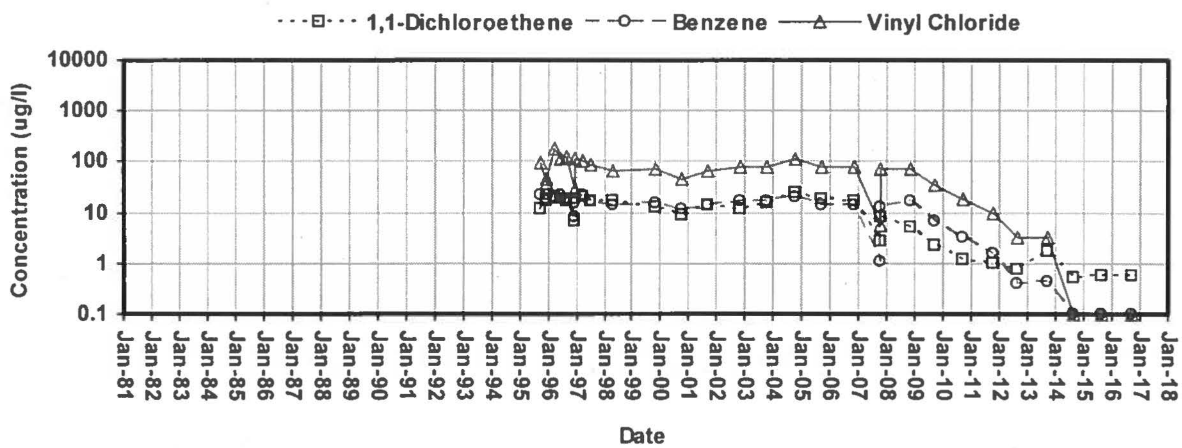
Concentration Plot for: LF-06C
BOS elevation: 105



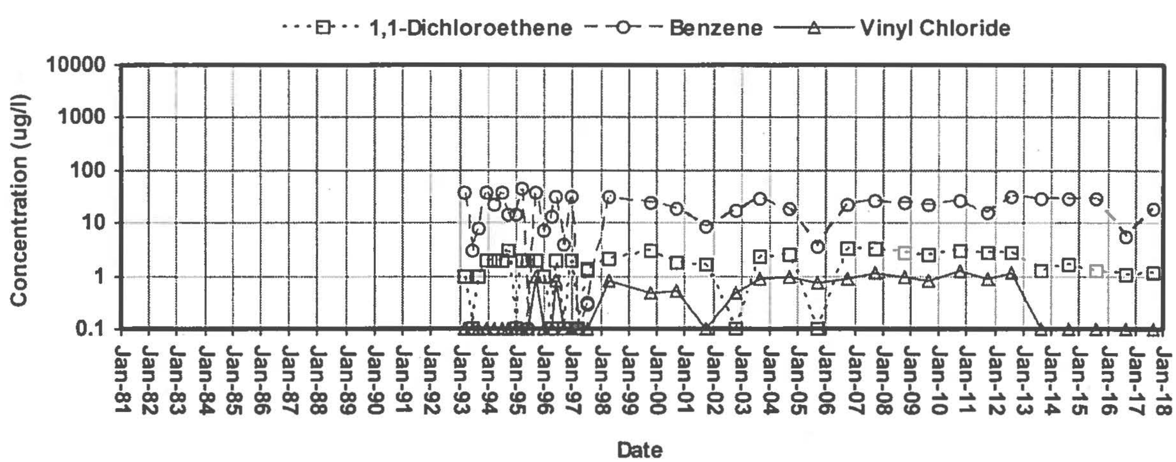
Concentration Plot for: LF-10
BOS elevation: 35



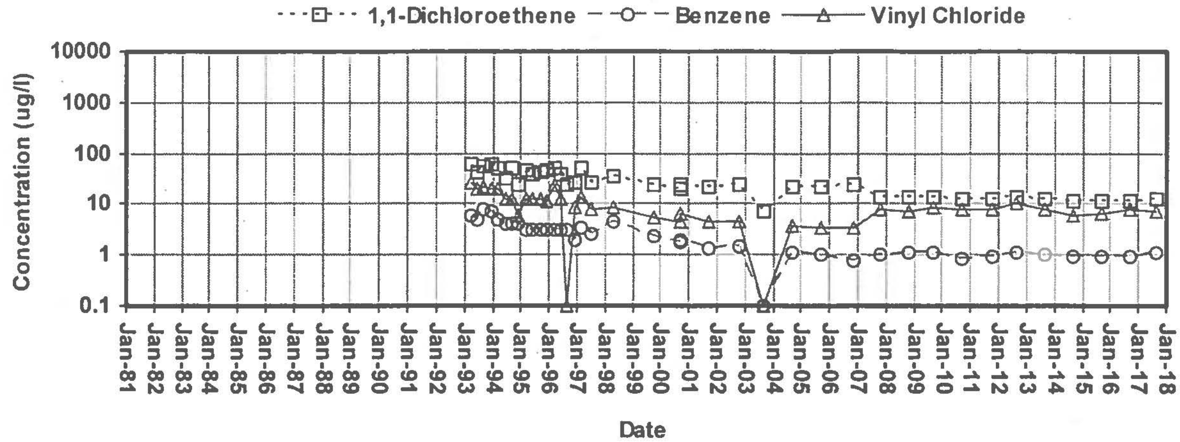
Concentration Plot for: LF-11AR
BOS elevation: 40



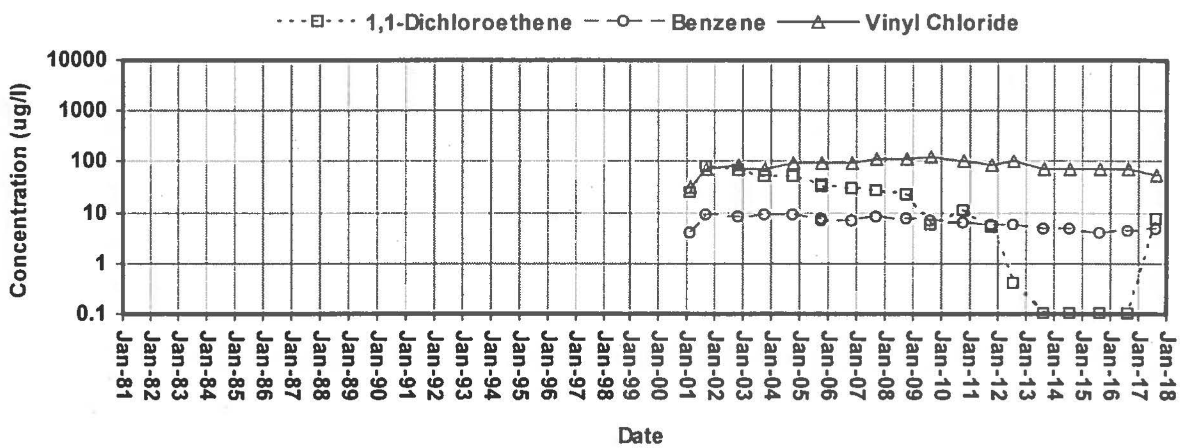
Concentration Plot for: LF-12
BOS elevation: 88



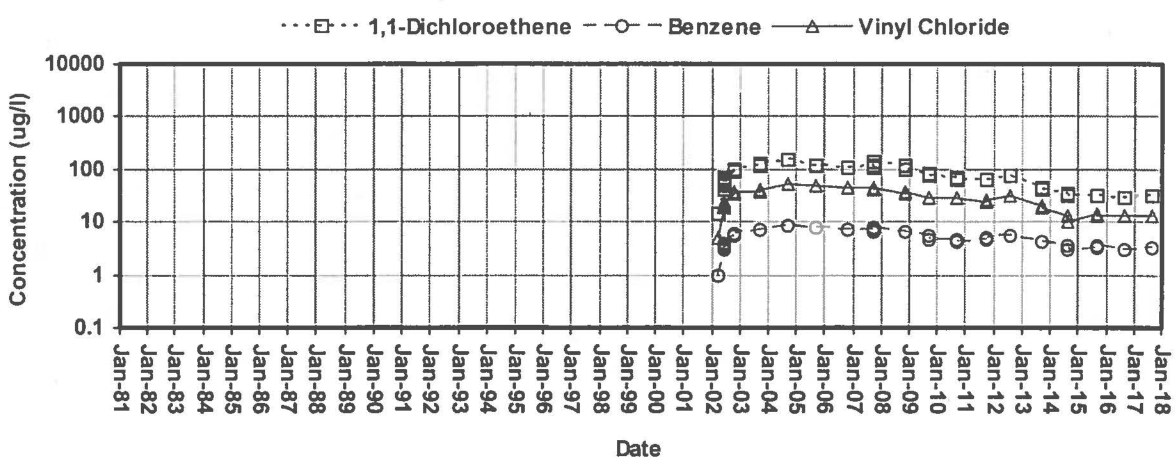
Concentration Plot for: LF-13A
BOS elevation: 90



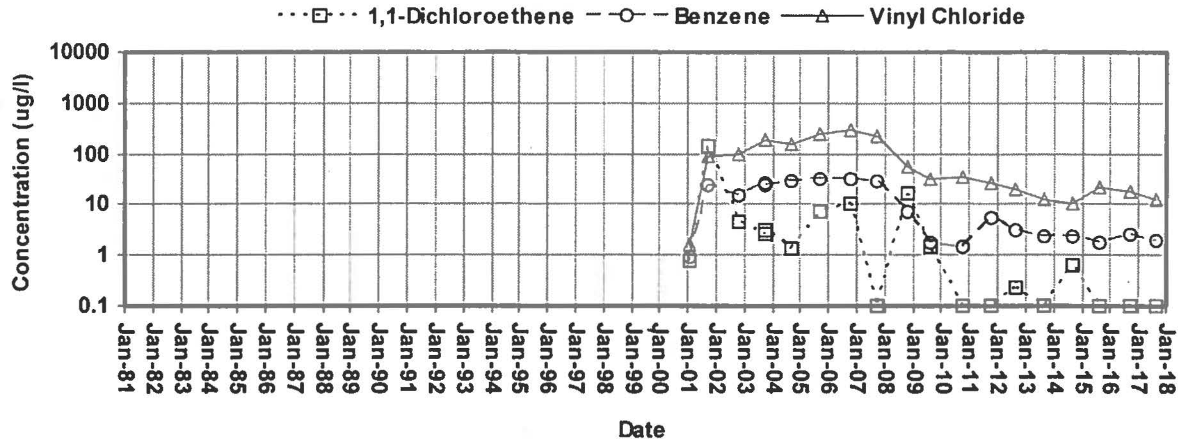
Concentration Plot for: LF-17D
BOS elevation: 83



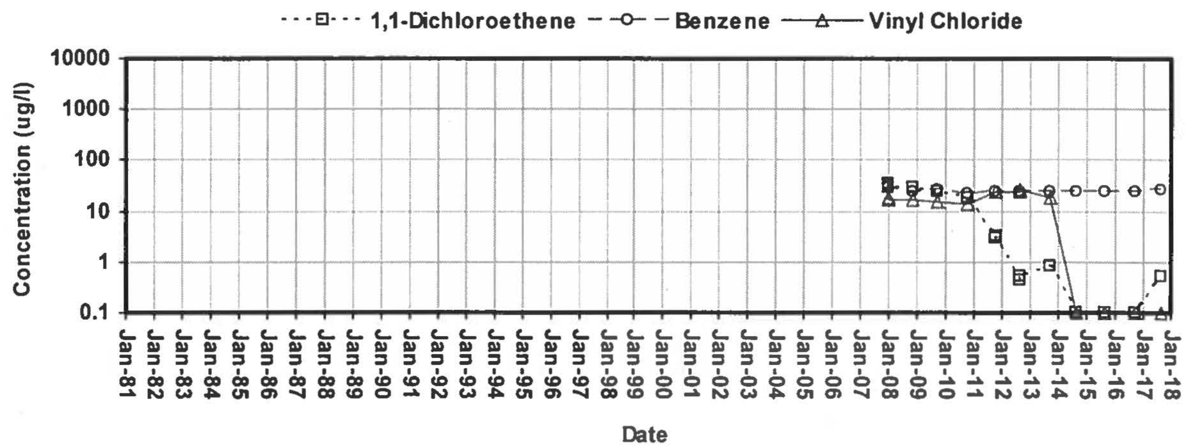
Concentration Plot for: LF-18D
BOS elevation: 53



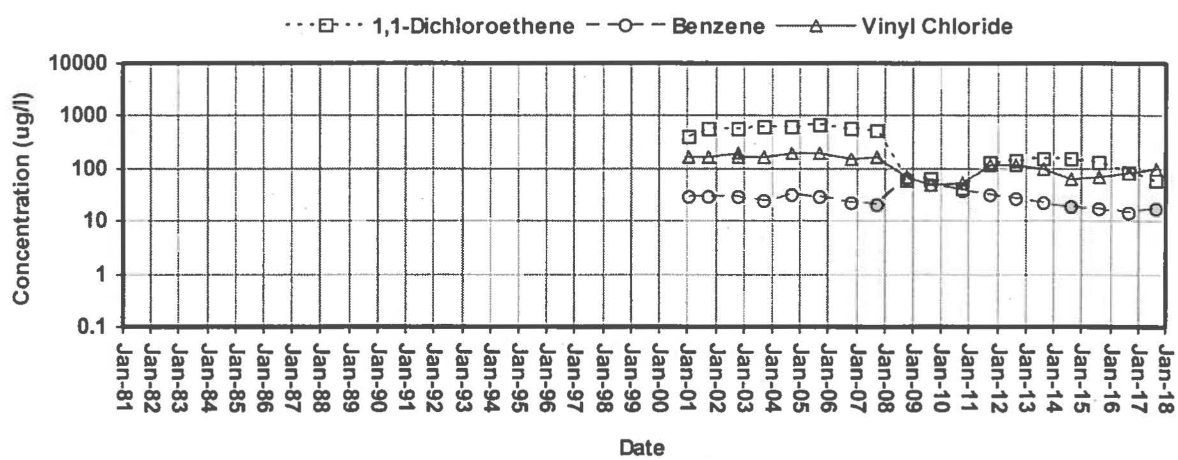
Concentration Plot for: LF-19D
BOS elevation: 50



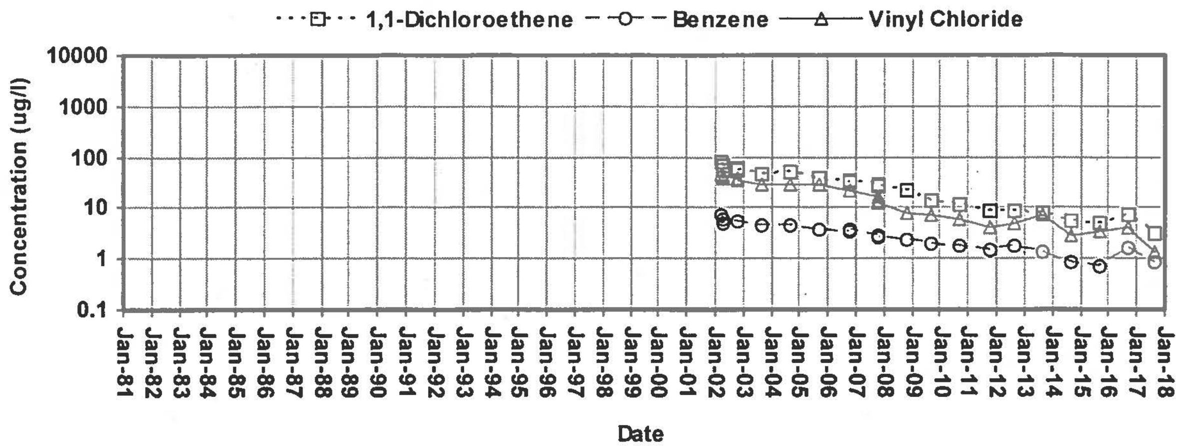
Concentration Plot for: LF-19MBR
BOS elevation: -23 (BR)



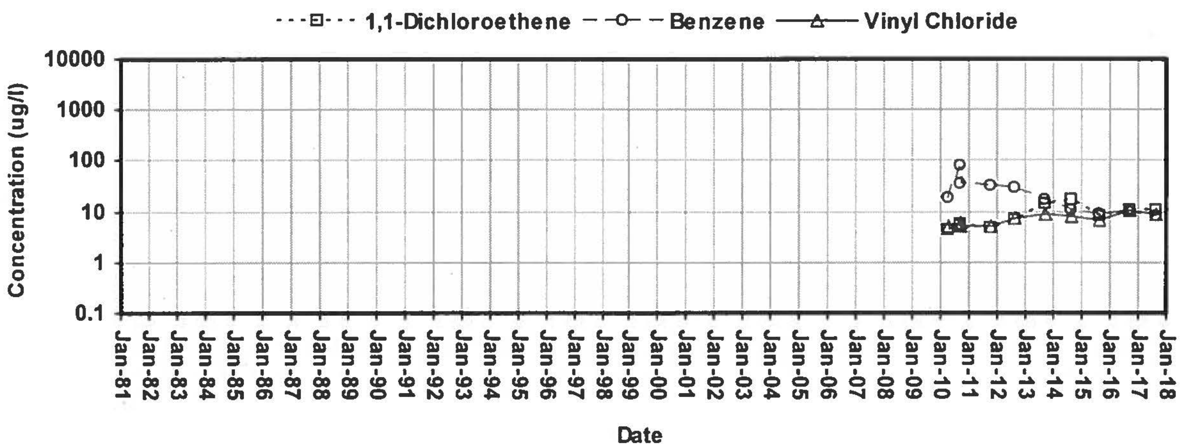
Concentration Plot for: LF-19SBR
BOS elevation: 11 (BR)



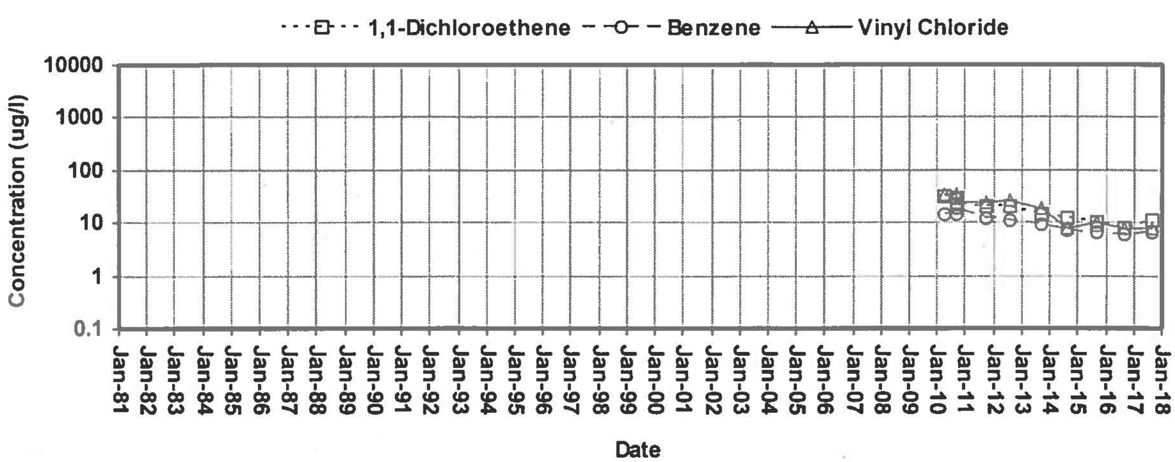
Concentration Plot for: LF-20D
BOS elevation: 34



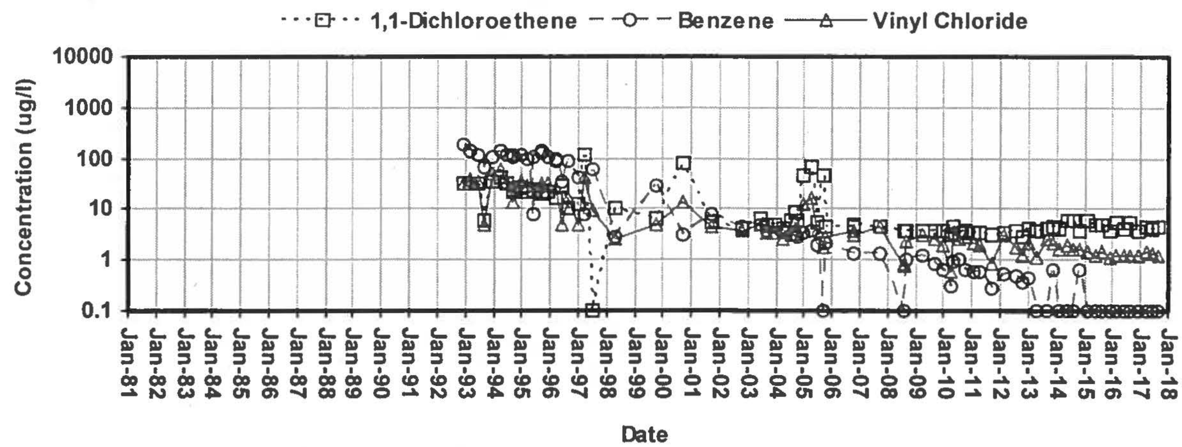
Concentration Plot for: LF-22D
BOS elevation: 80



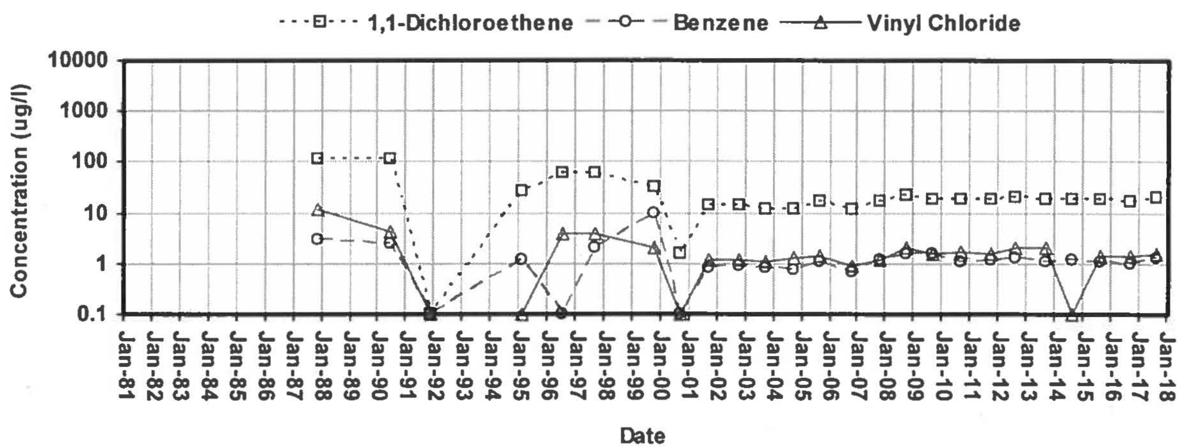
Concentration Plot for: LF-22S
BOS elevation: 100



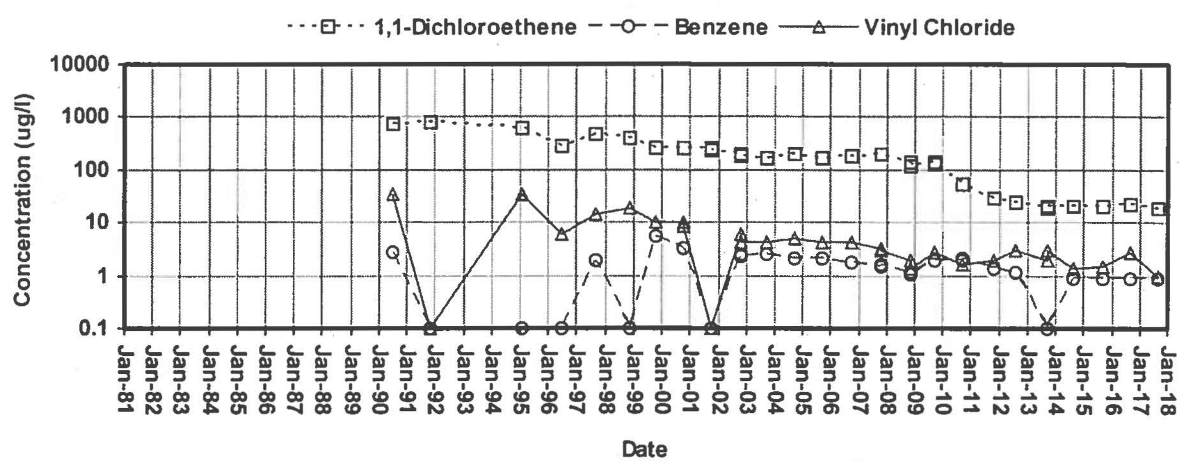
Concentration Plot for: MLF
BOS elevation: 83



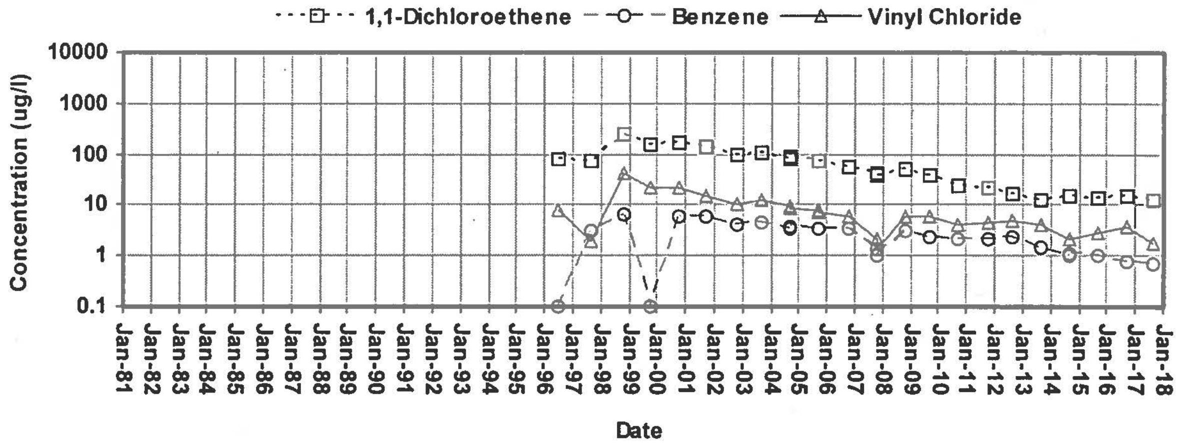
Concentration Plot for: MW-04B
BOS elevation: 36 (BR)



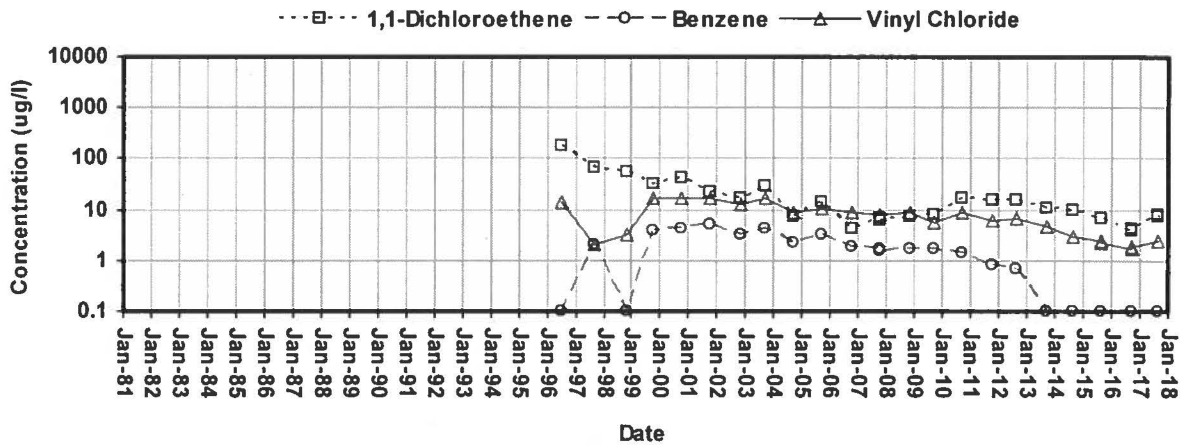
Concentration Plot for: MW-06B
BOS elevation: 40 (BR)



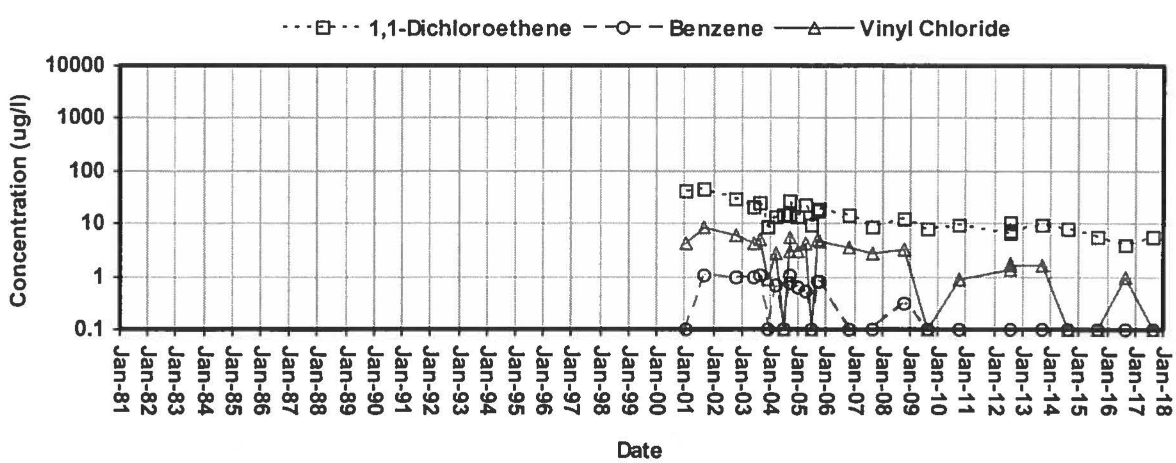
Concentration Plot for: MW-07B
BOS elevation: 50 (BR)



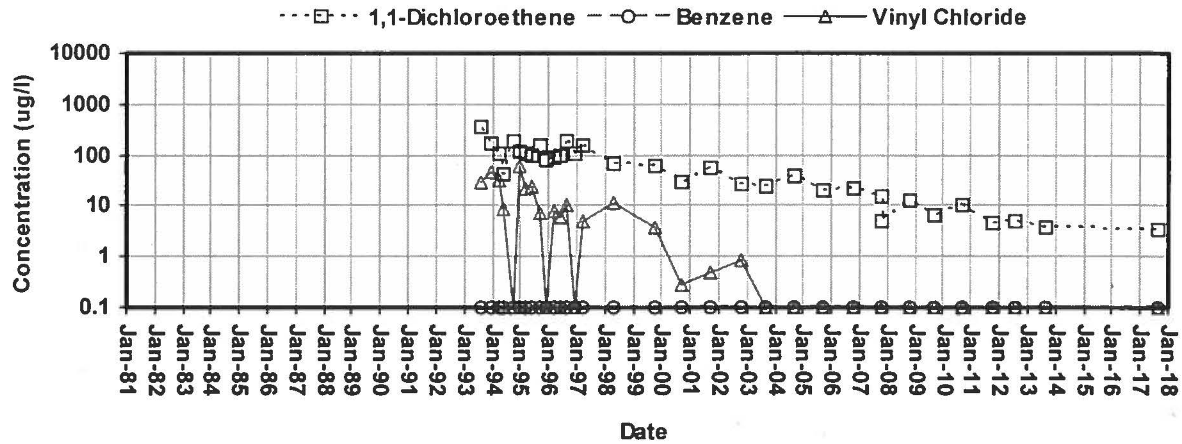
Concentration Plot for: MW-13B
BOS elevation: 46 (BR)



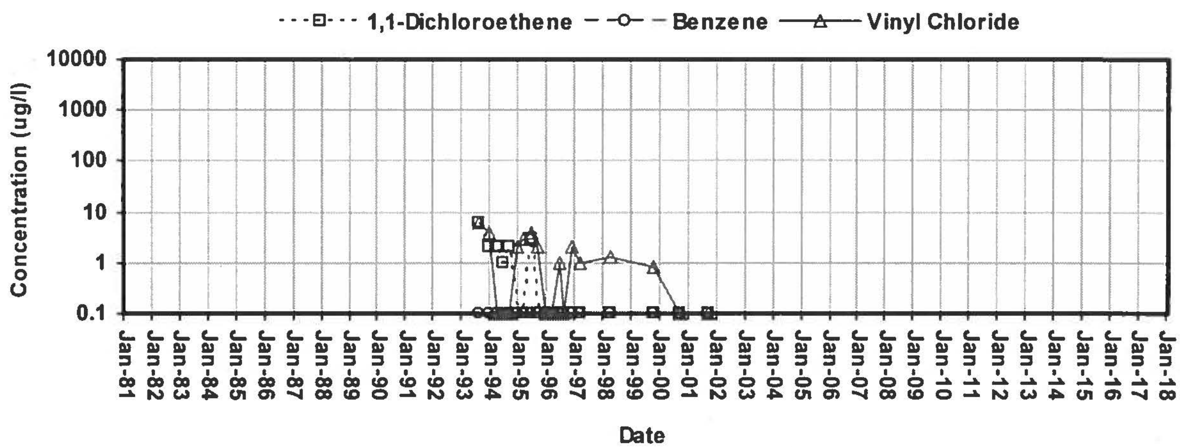
Concentration Plot for: NLBR-R
BOS elevation: 75 (BR)



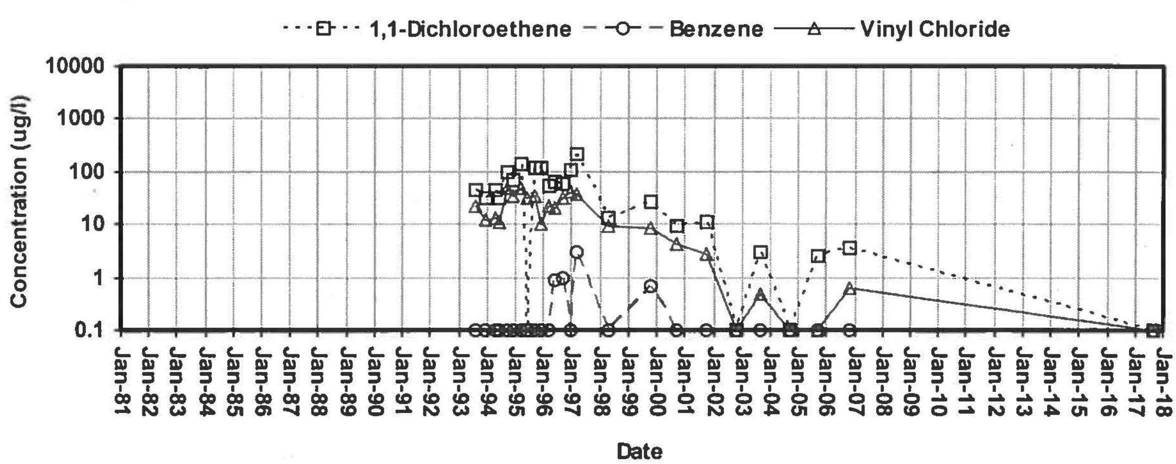
Concentration Plot for: OSA-01A
BOS elevation: 128



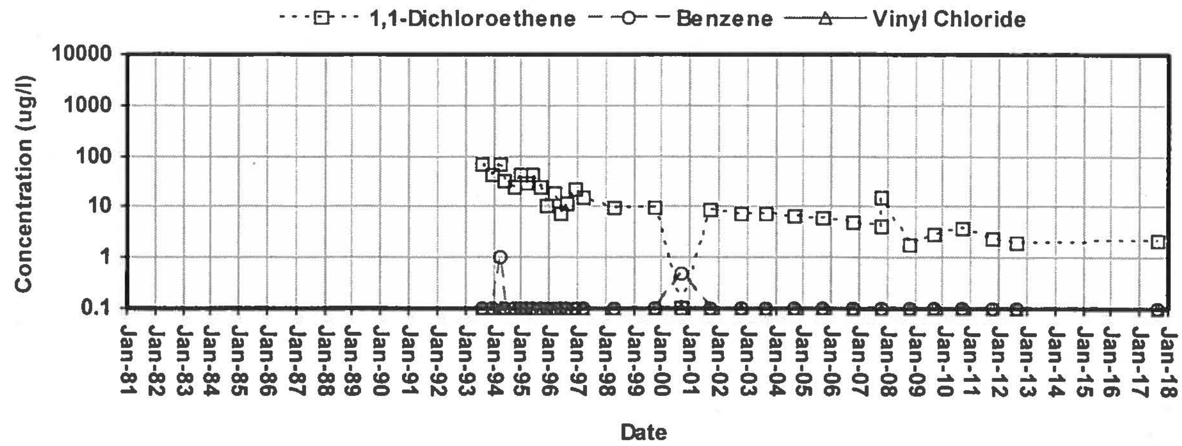
Concentration Plot for: OSA-01B
BOS elevation: 98



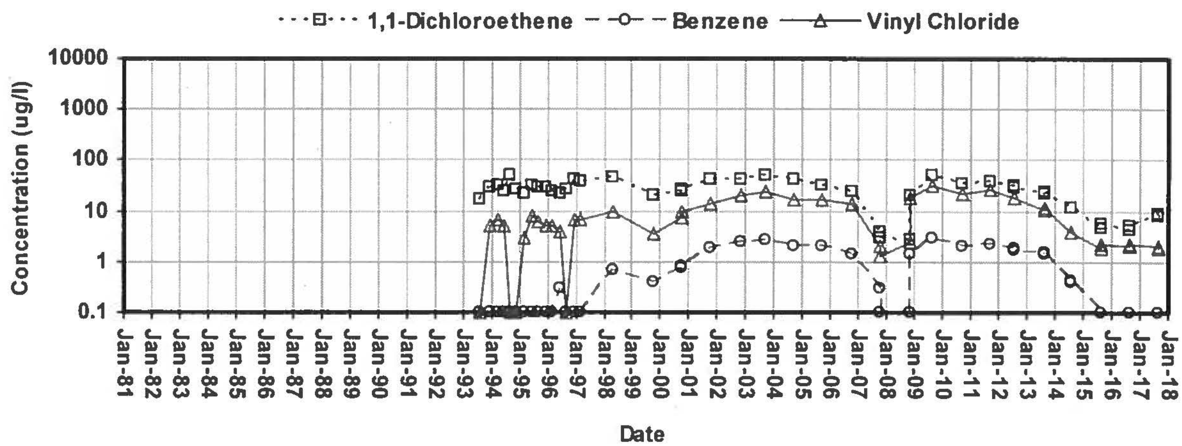
Concentration Plot for: OSA-01BR
BOS elevation: 62 (BR)



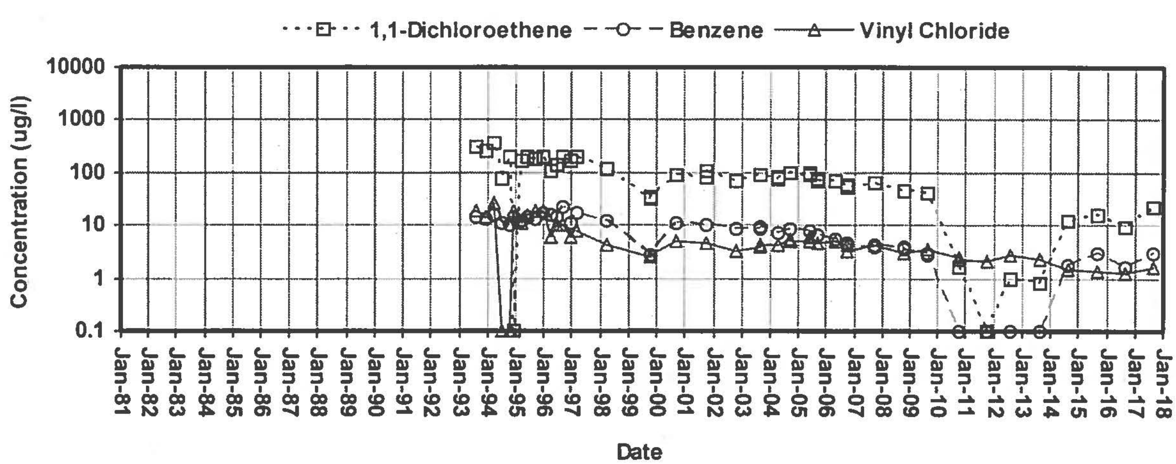
Concentration Plot for: OSA-01C
BOS elevation: 80



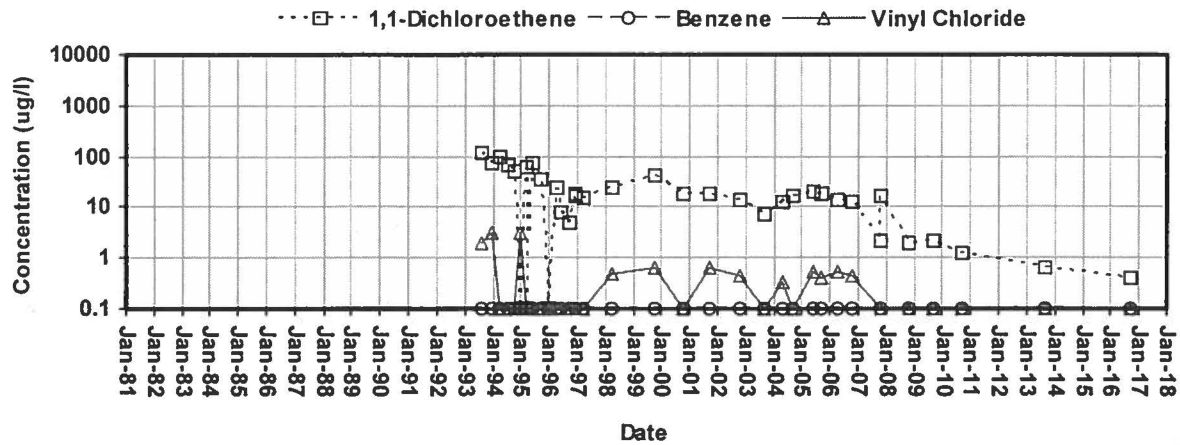
Concentration Plot for: OSA-03BR
BOS elevation: 55 (BR)



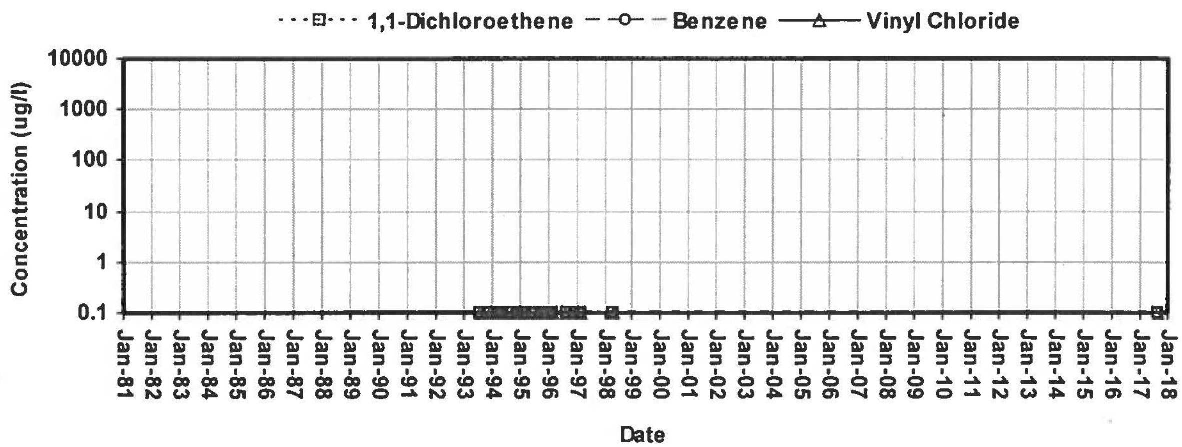
Concentration Plot for: OSA-06BR
BOS elevation: 51 (BR)



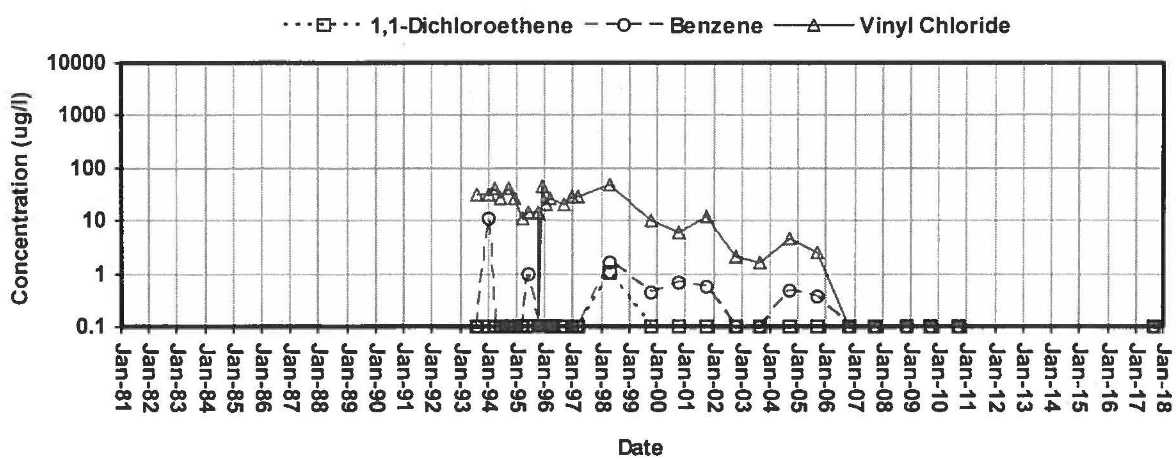
Concentration Plot for: OSA-07B
BOS elevation: 89



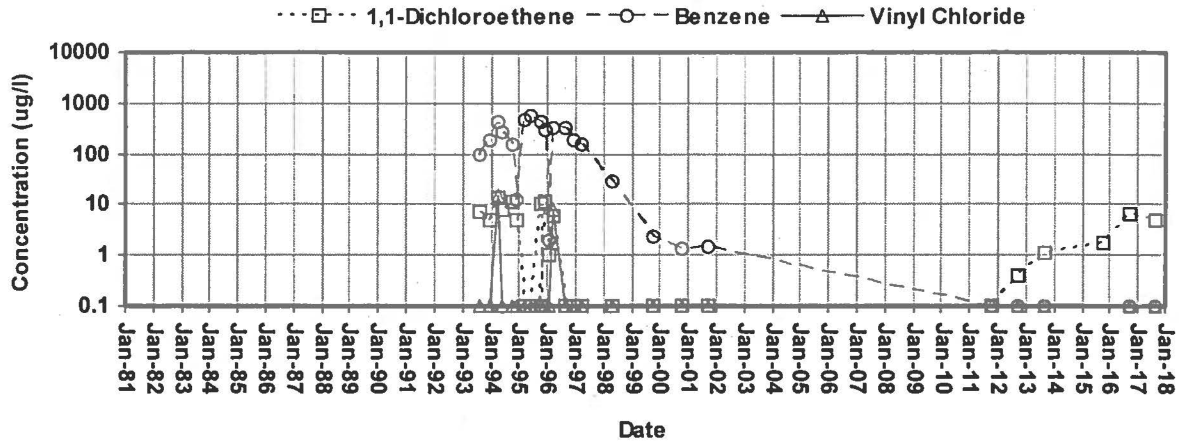
Concentration Plot for: OSA-12A
BOS elevation: 125



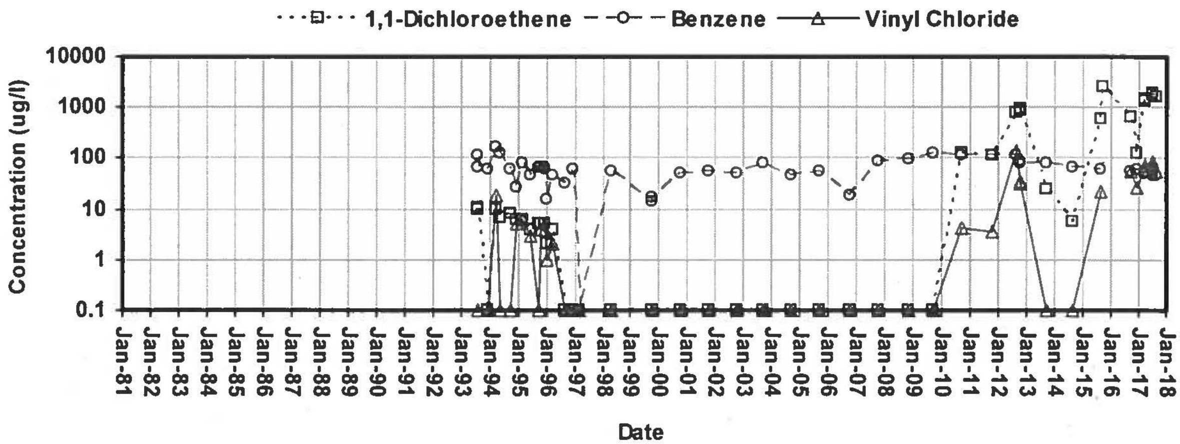
Concentration Plot for: OSA-12B
BOS elevation: 68



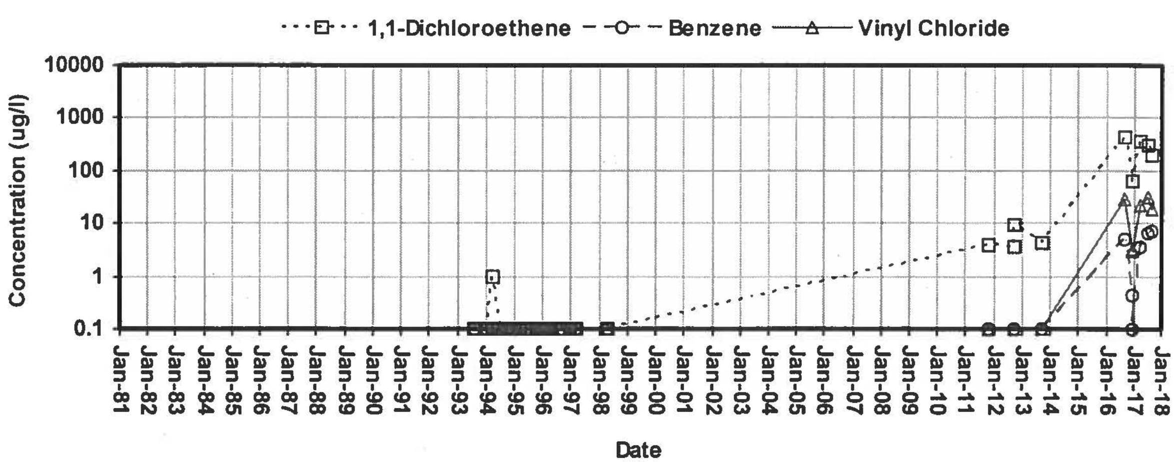
Concentration Plot for: OSA-13A
BOS elevation: 123



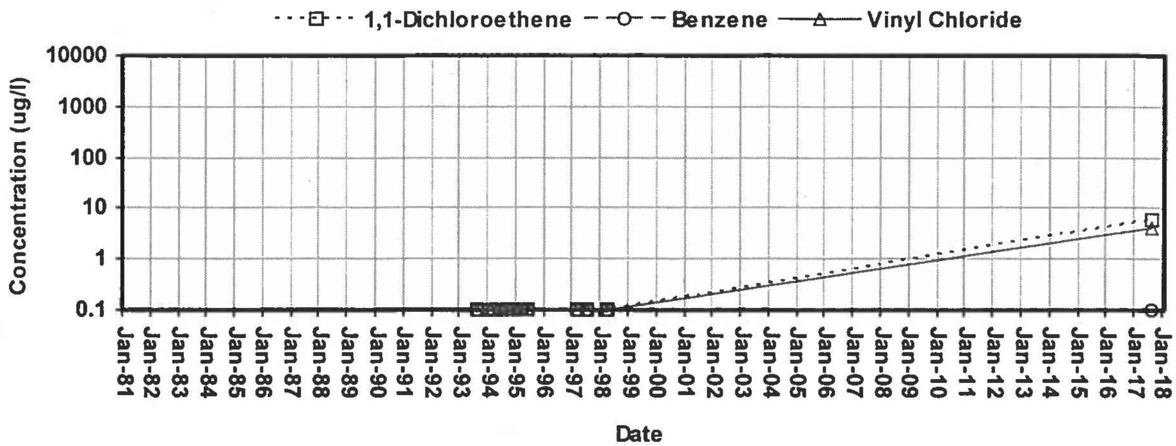
Concentration Plot for: OSA-13B
BOS elevation: 105



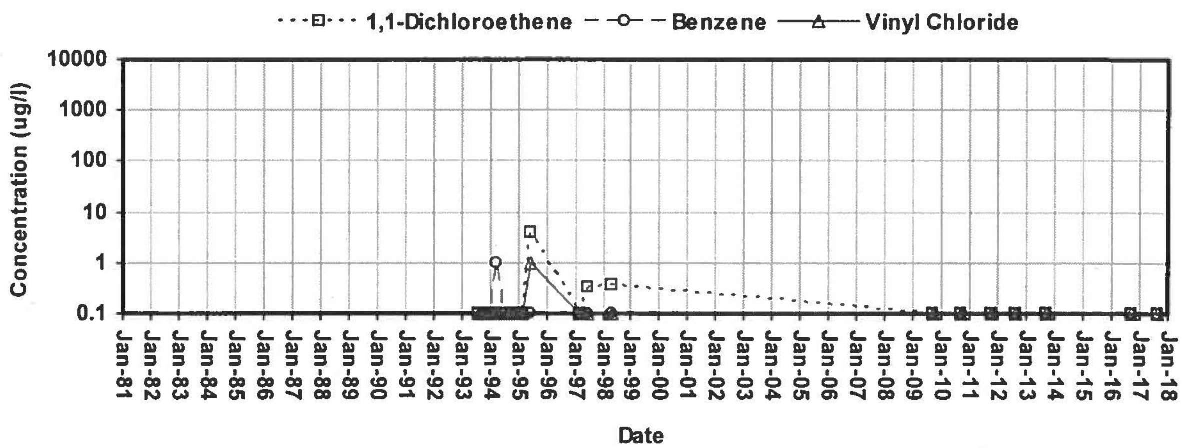
Concentration Plot for: OSA-13C
BOS elevation: 73



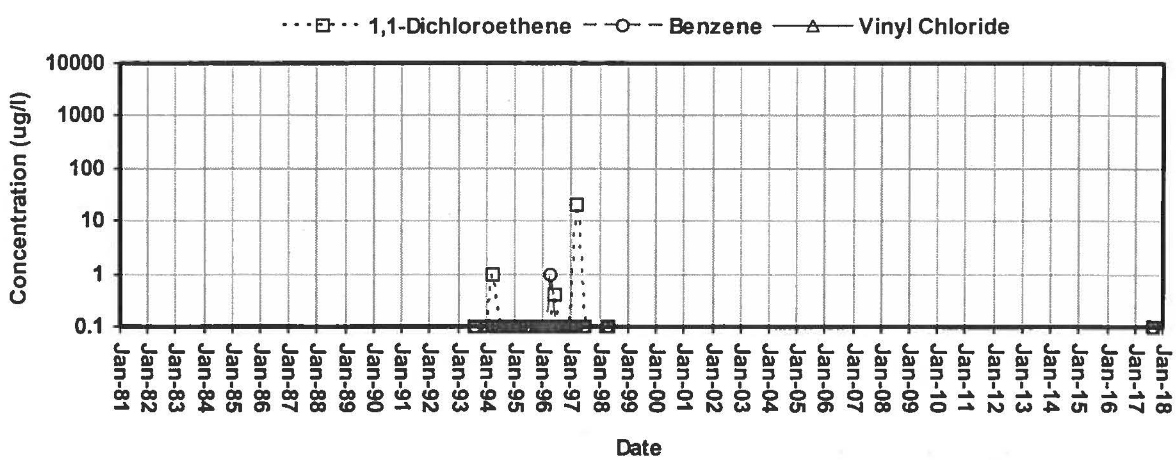
Concentration Plot for: OSA-14A
BOS elevation: 125



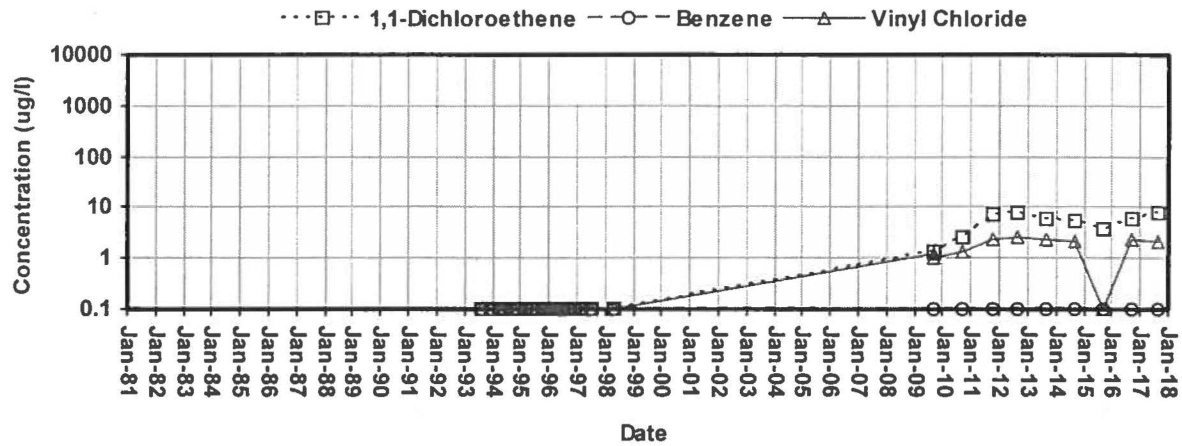
Concentration Plot for: OSA-14B
BOS elevation: 79



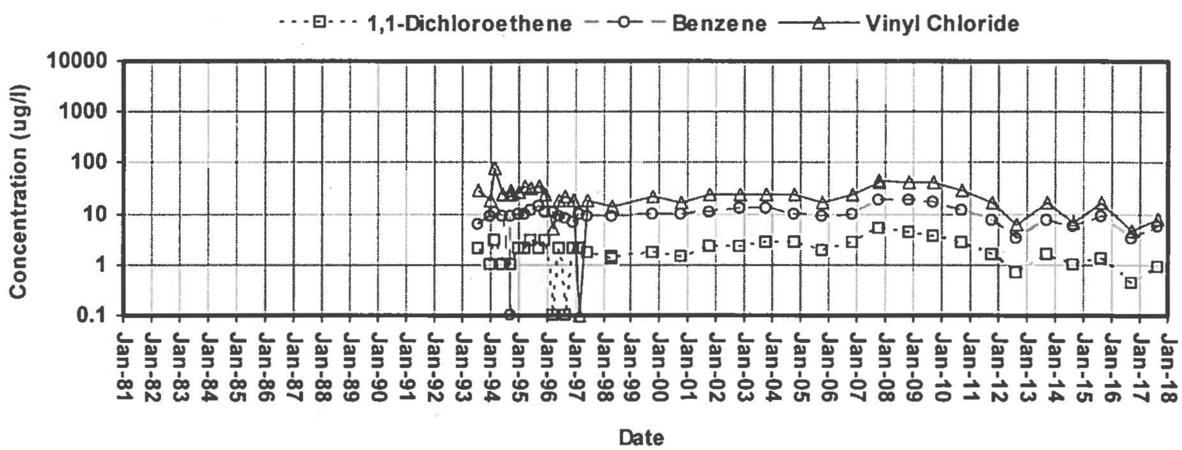
Concentration Plot for: OSA-15A
BOS elevation: 129



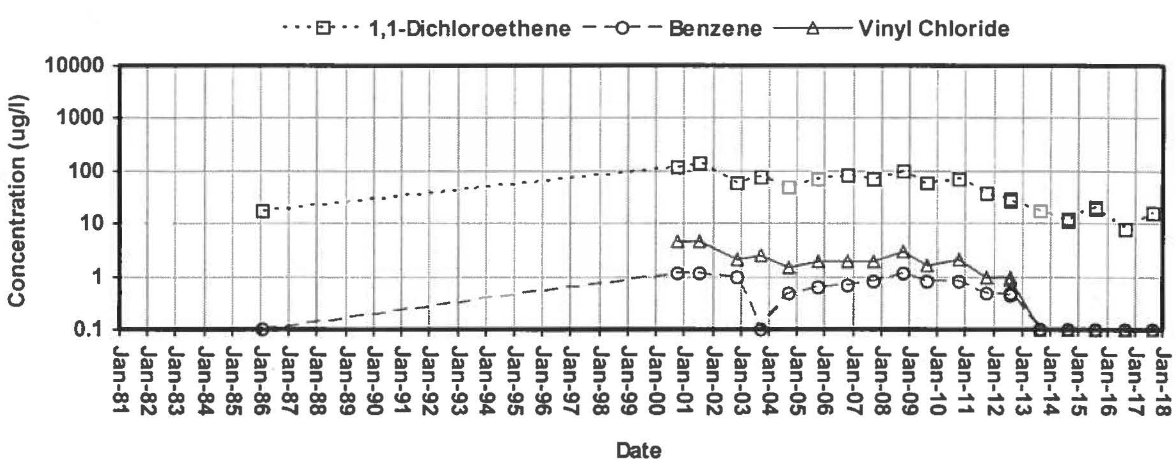
Concentration Plot for: OSA-15B
BOS elevation: 73



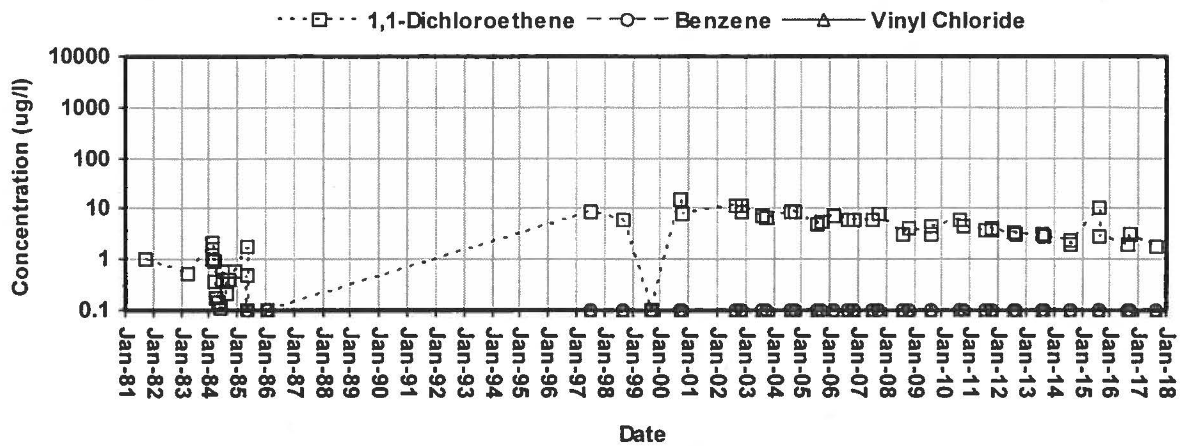
Concentration Plot for: OSA-16B
BOS elevation: 54



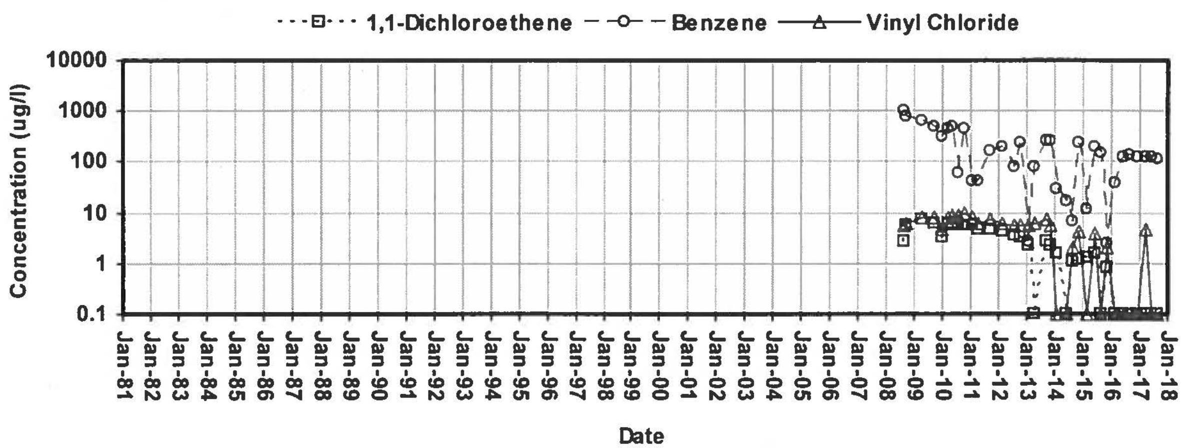
Concentration Plot for: PS-22B
BOS elevation: 96



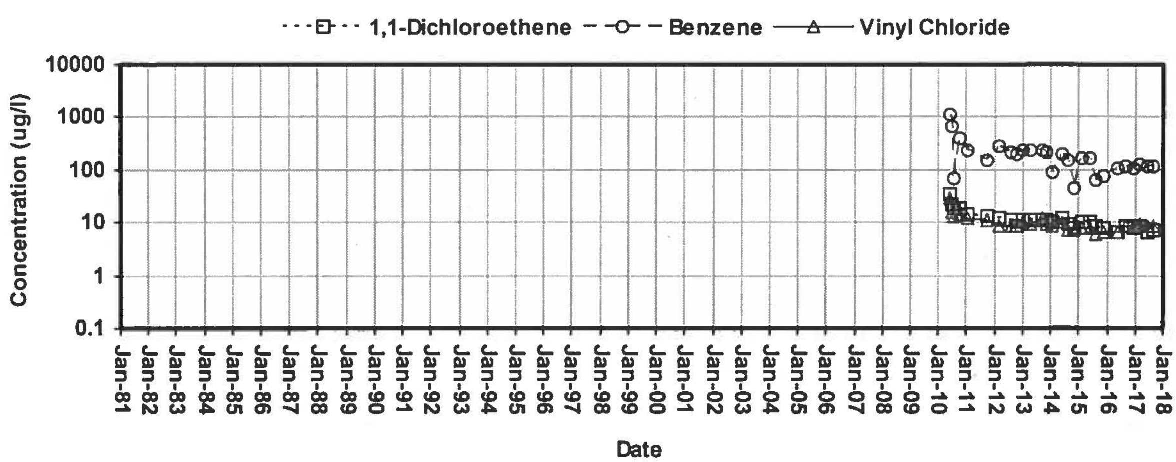
Concentration Plot for: SCRIBNER
BOS elevation:



Concentration Plot for: SELF-1
BOS elevation: 95



Concentration Plot for: SELF-2
BOS elevation: 85



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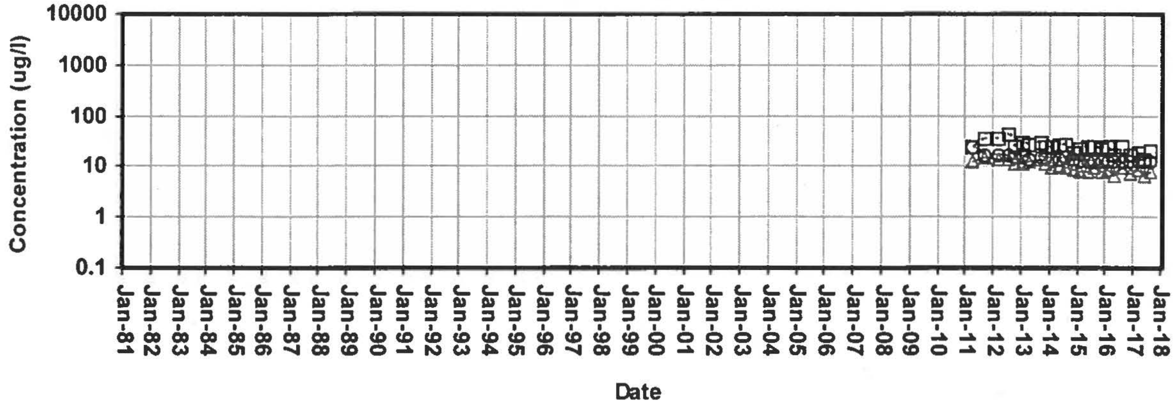
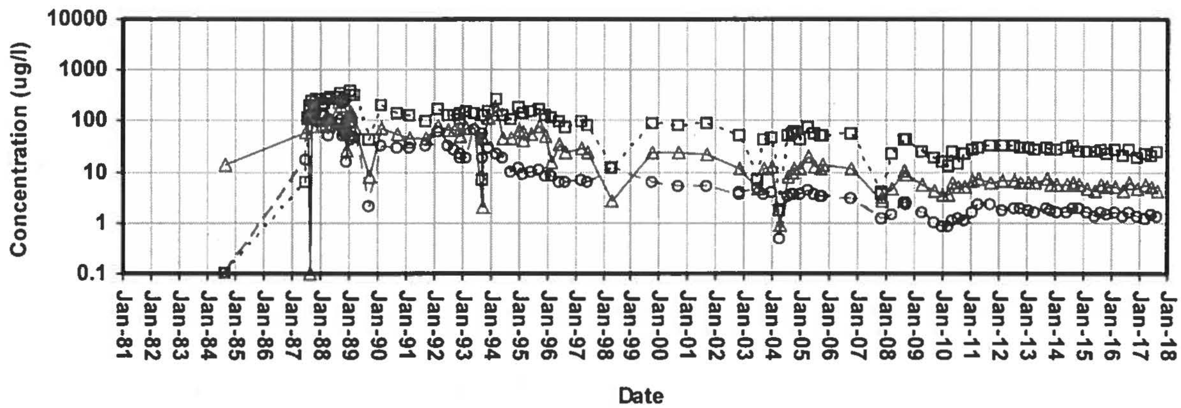
Tetra Tech
Friday, December 01, 2017

Concentration Plot for: SWLF-2
BOS elevation: -25 (BR)



Concentration Plot for: WLF
BOS elevation: 86

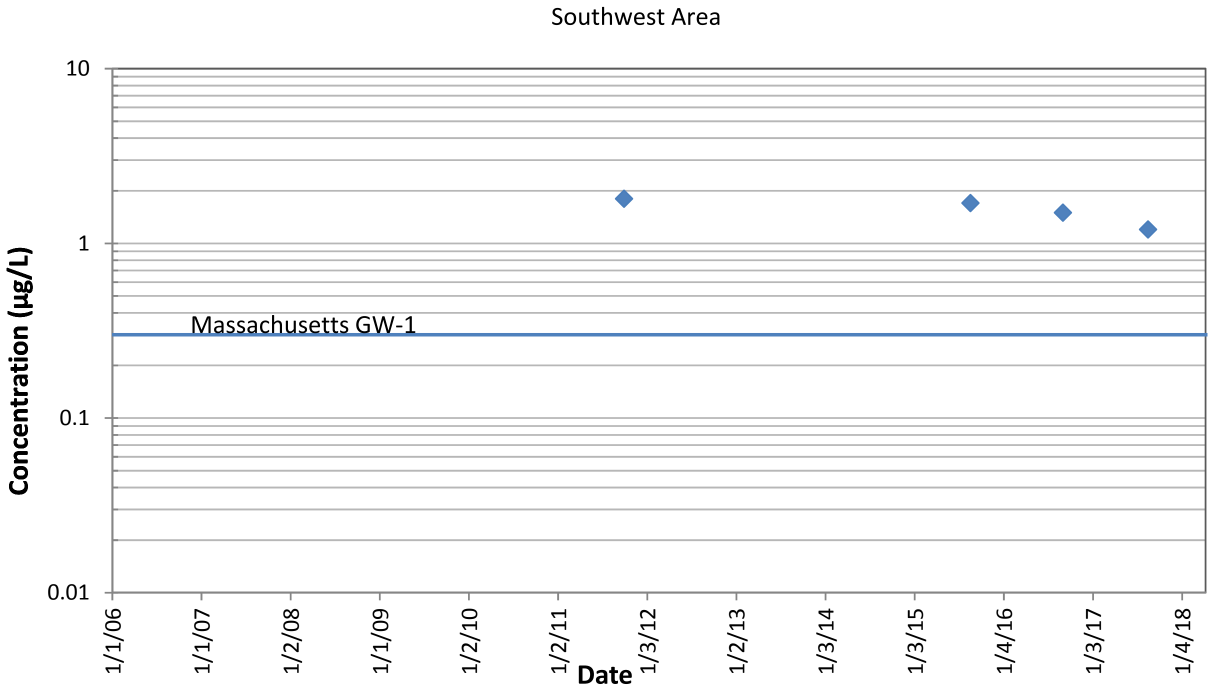


Concentration Plot for:
BOS elevation:

ATTACHMENT G

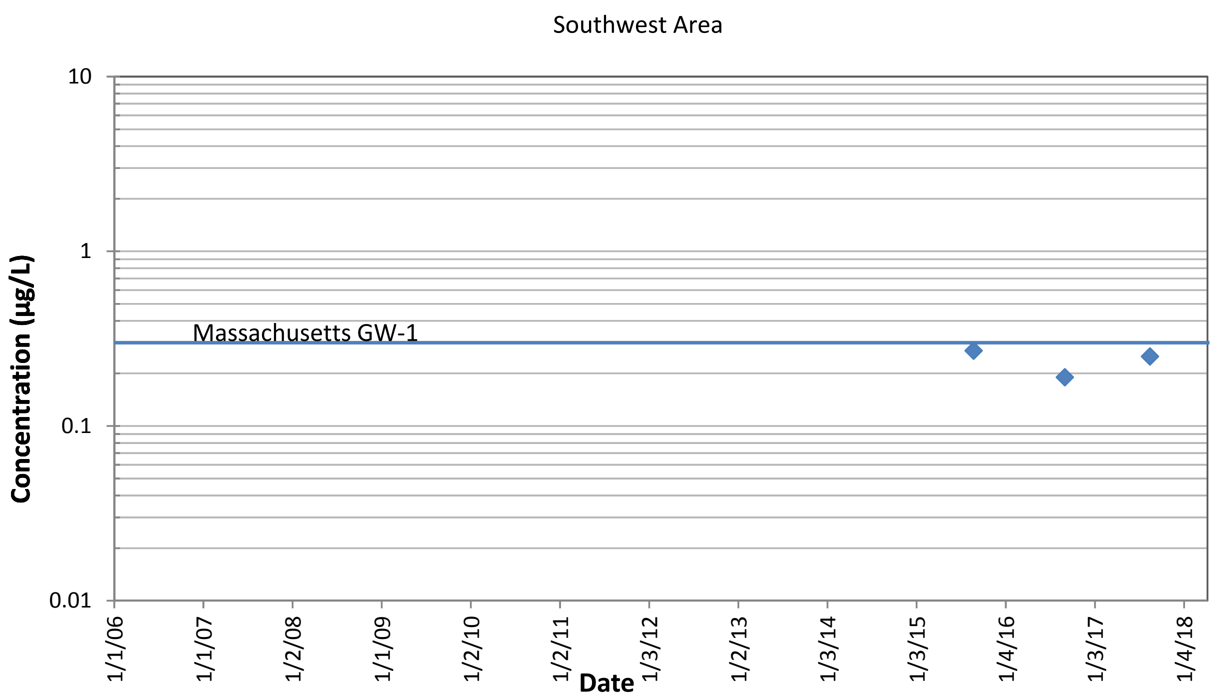
1,4-DIOXANE VERSUS TIME GRAPHS

AR-03B1

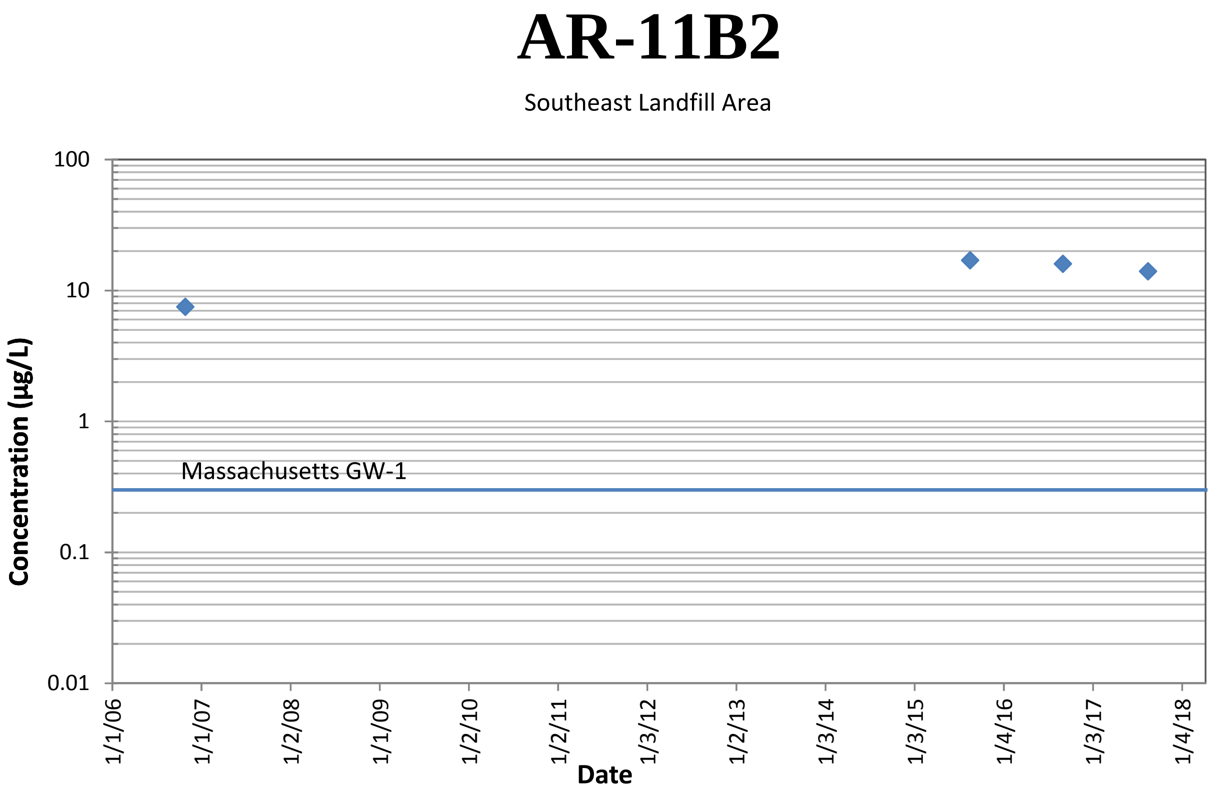


AR-03B1: 1,4-Dioxane Concentrations versus Time

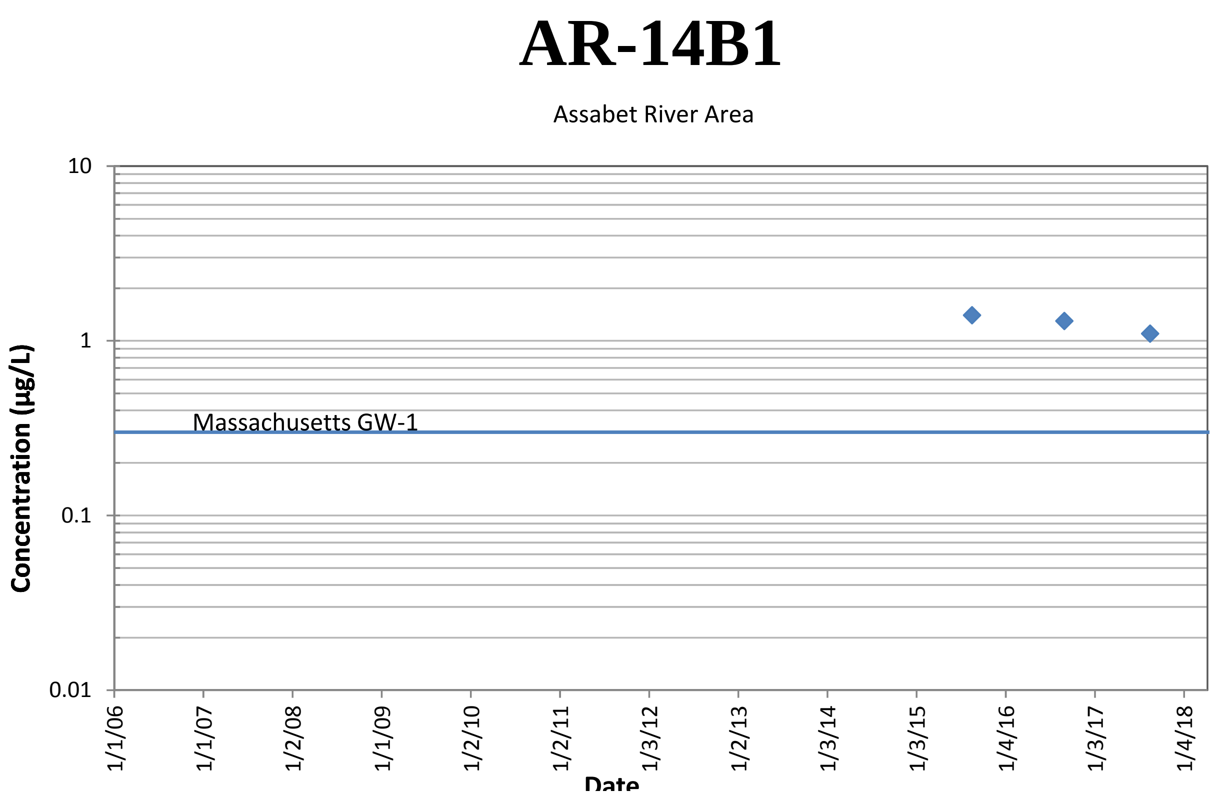
AR-03P



AR-03P: 1,4-Dioxane Concentrations versus Time

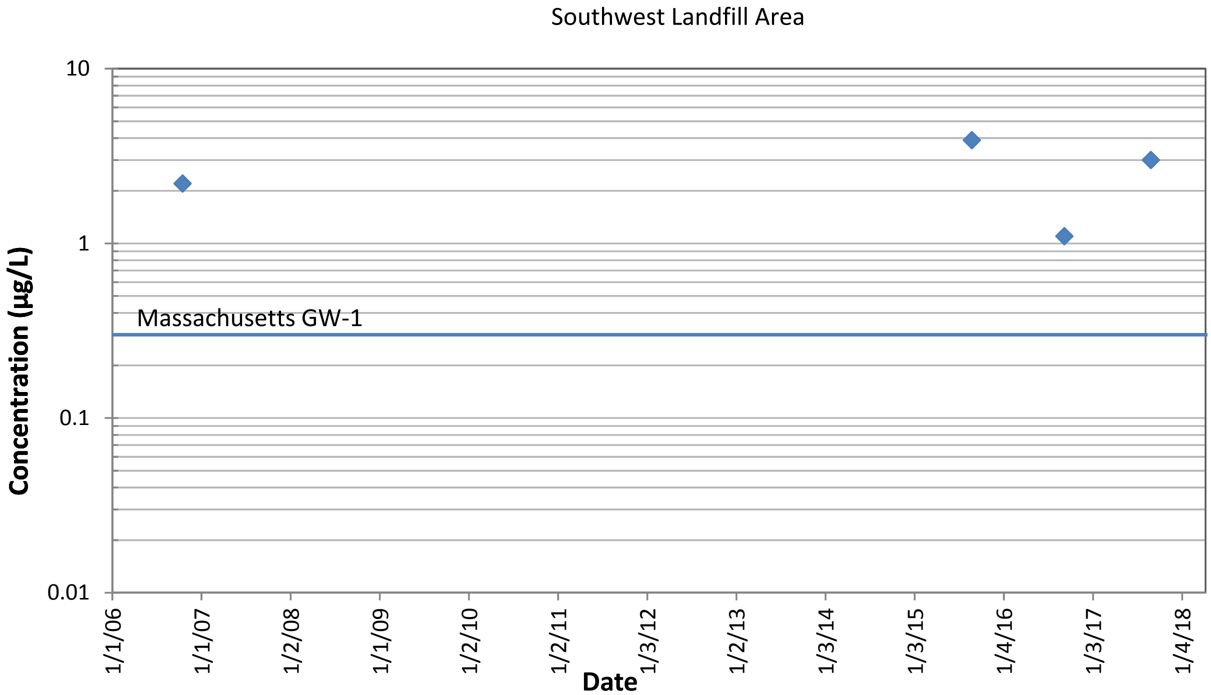


AR-11B2: 1,4-Dioxane Concentrations versus Time



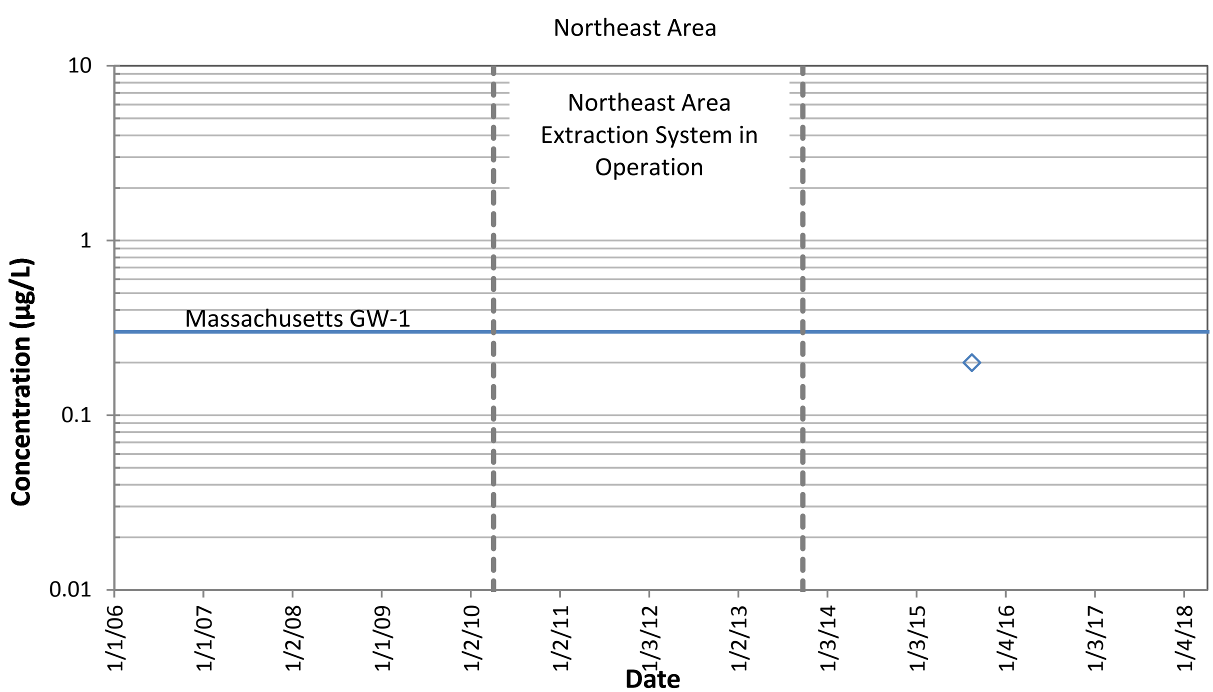
AR-14B1: 1,4-Dioxane Concentrations versus Time

AR-20



AR-20: 1,4-Dioxane Concentrations versus Time

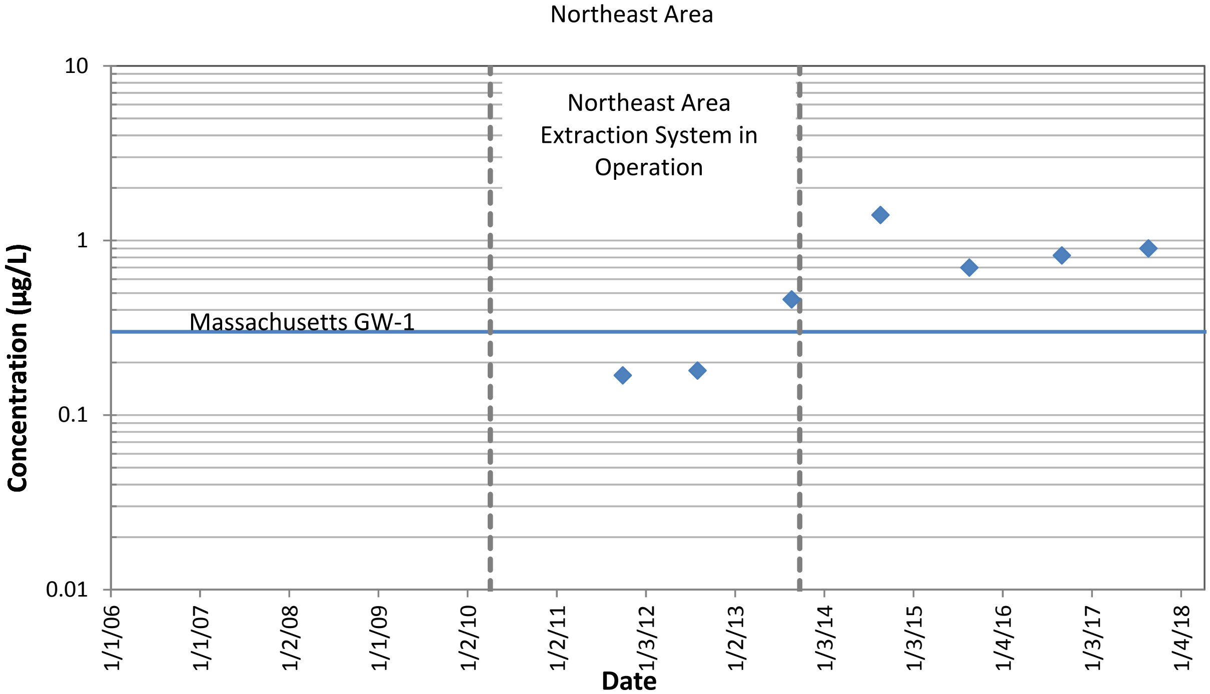
AR-27SBR



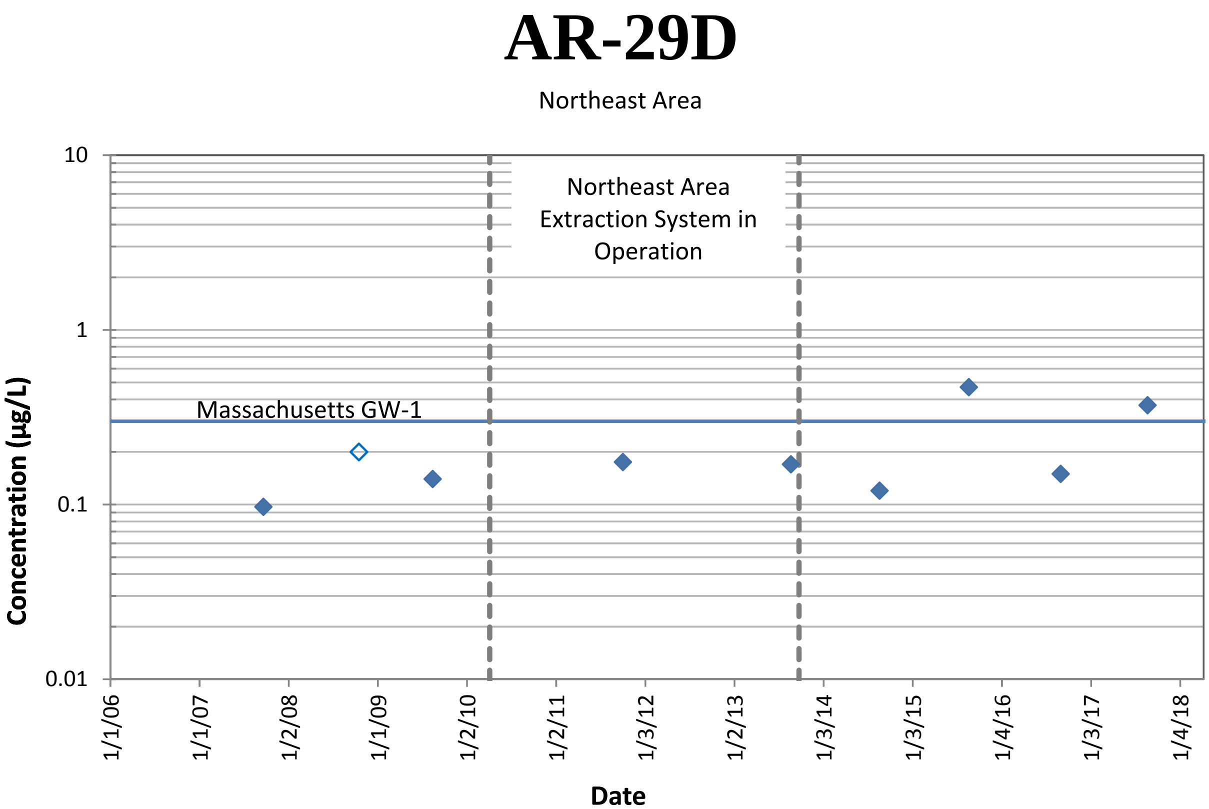
Note: Non-detects plotted at the reporting limit with open symbols.

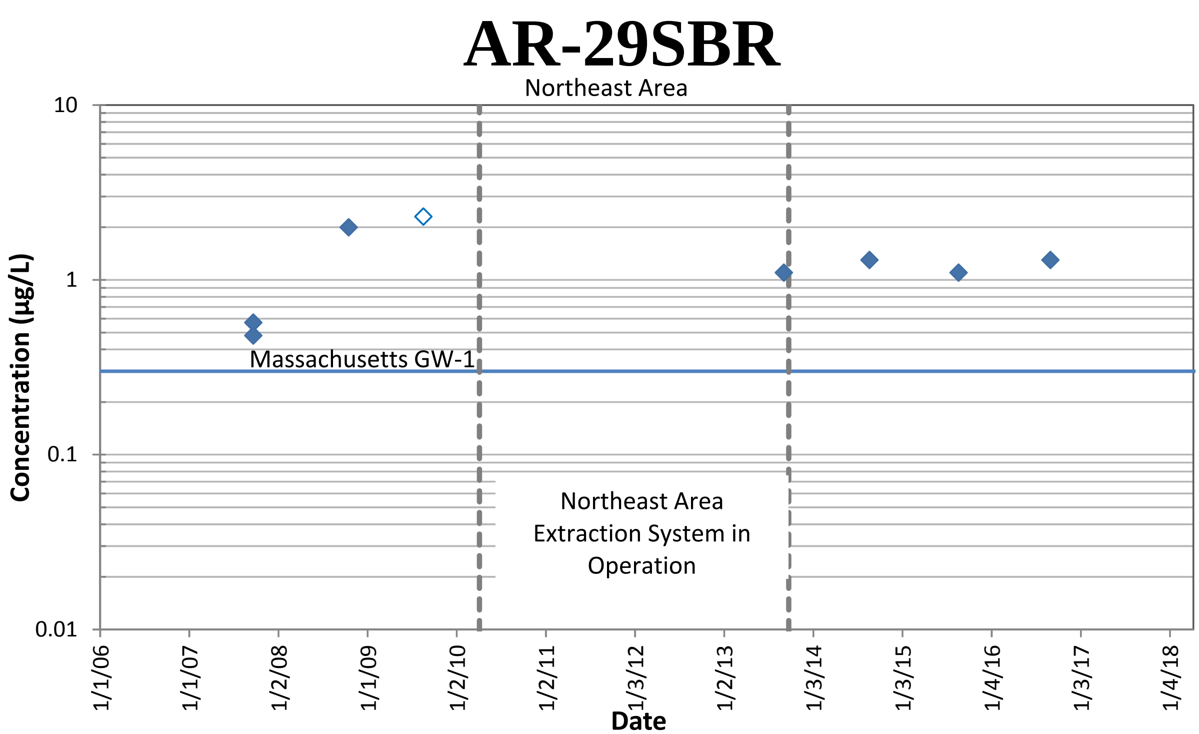
AR-27SBR: 1,4-Dioxane Concentrations versus Time

AR-28S



AR-28S: 1,4-Dioxane Concentrations versus Time

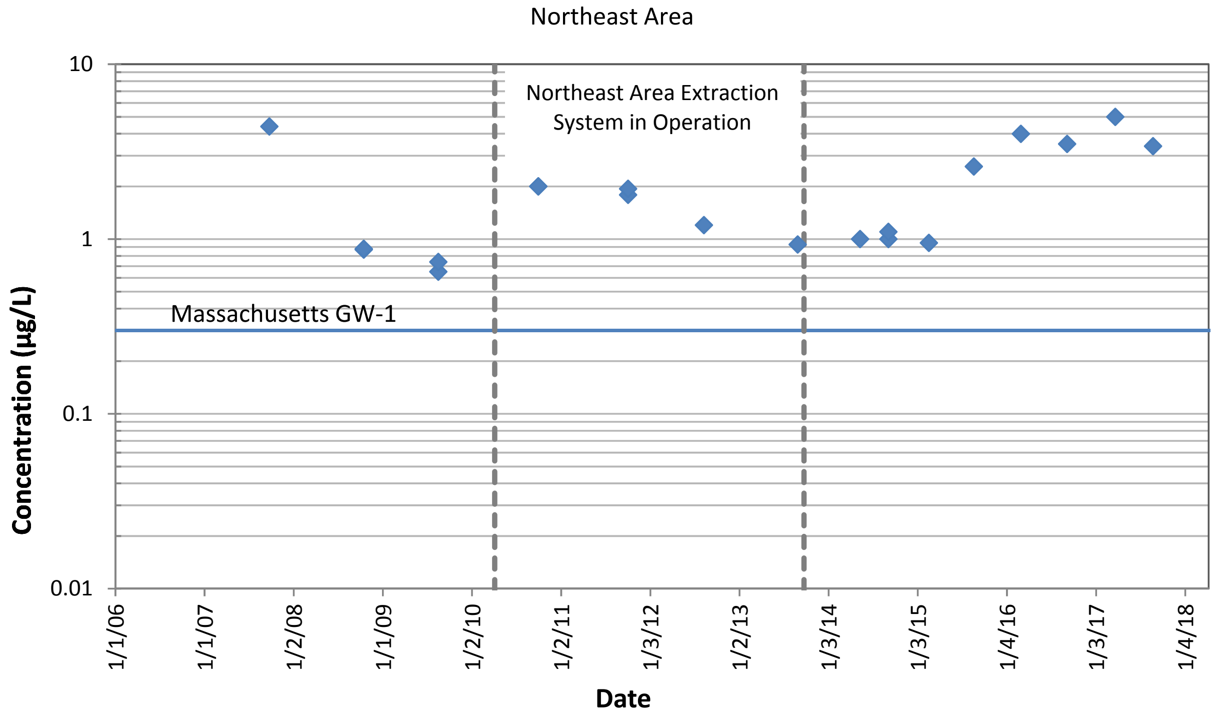




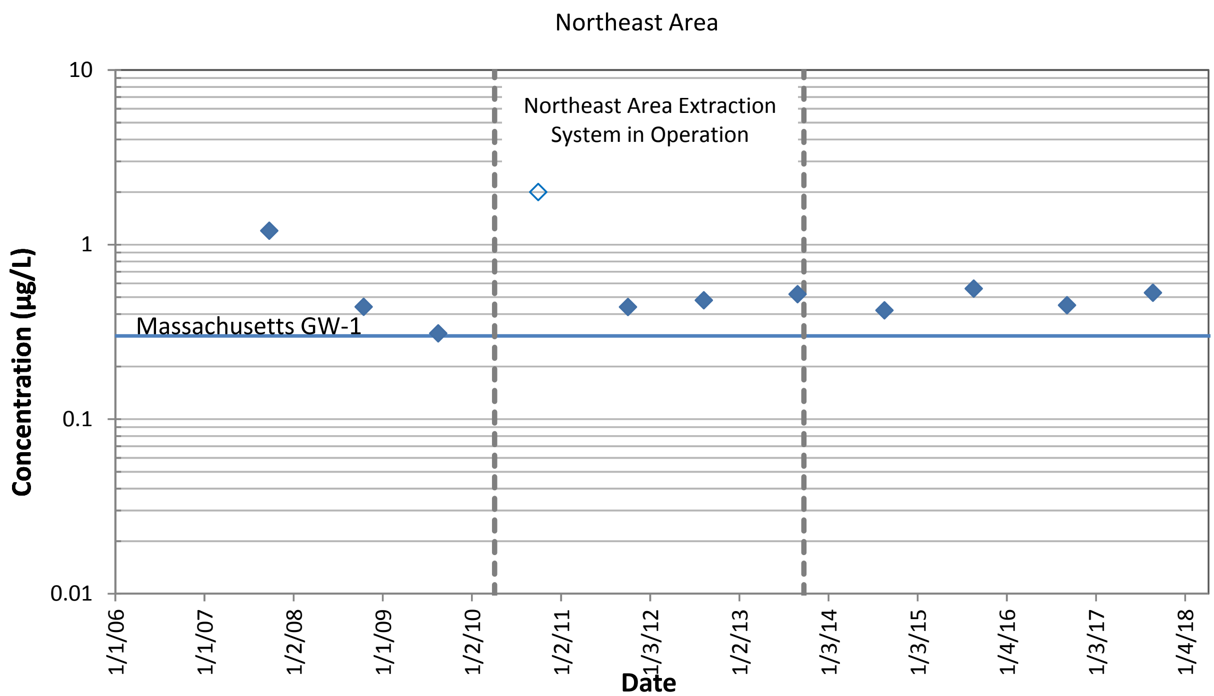
Note: Non-detects plotted at the reporting limit with open symbols. AR-29SBR was non-detect in 2017 but at a highly elevated detection limit due to lab issues.

AR-29D and AR-29SBR: 1,4-Dioxane Concentrations versus Time

AR-30D



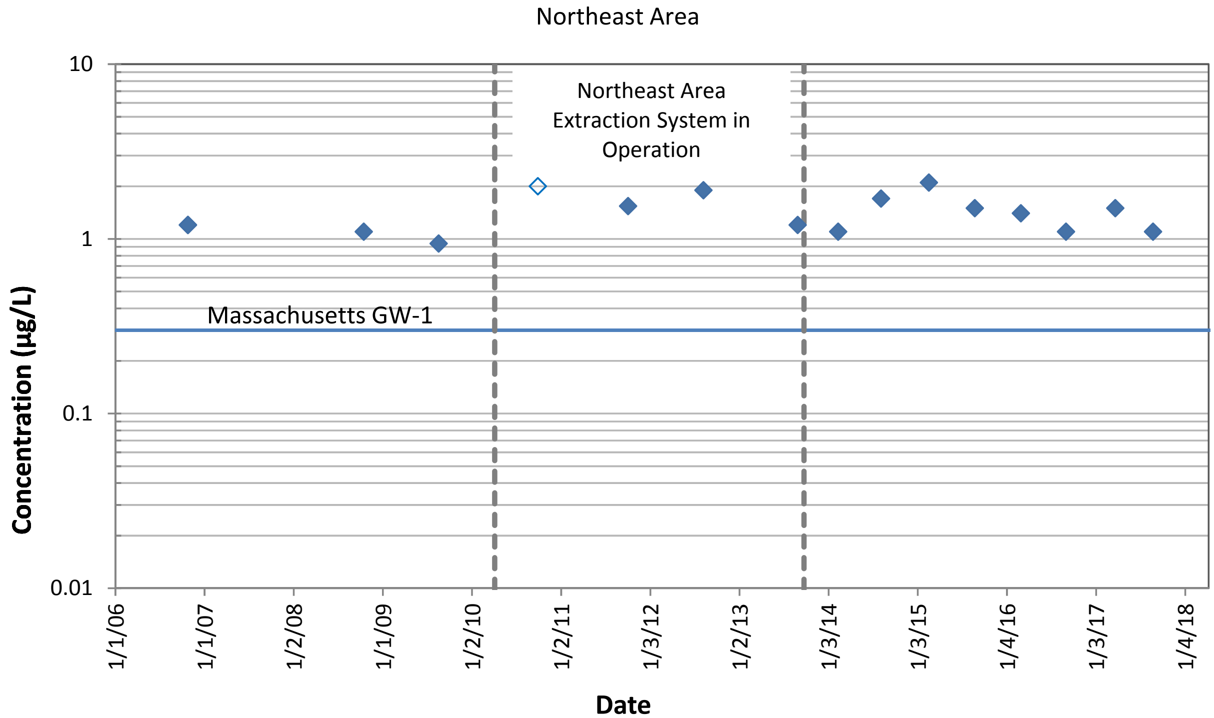
AR-30SBR



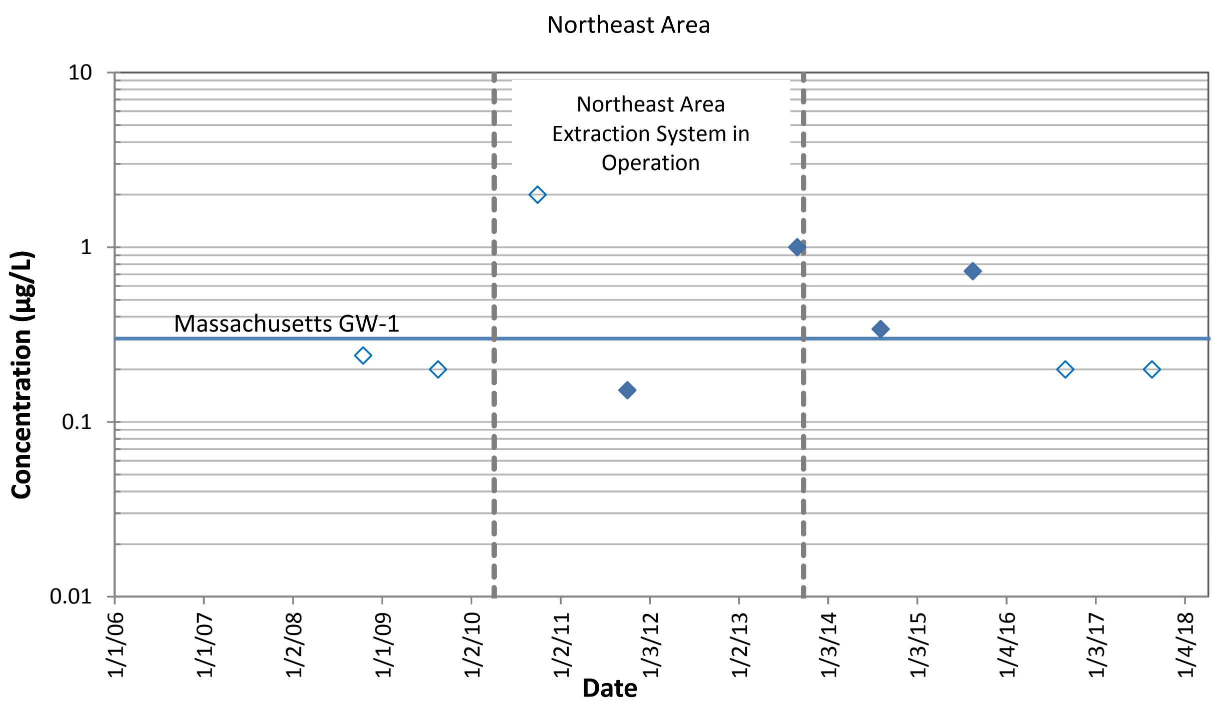
Note: Non-detects plotted at the reporting limit with open symbols.

AR-30D and AR-30SBR: 1,4-Dioxane Concentrations versus Time

AR-31D

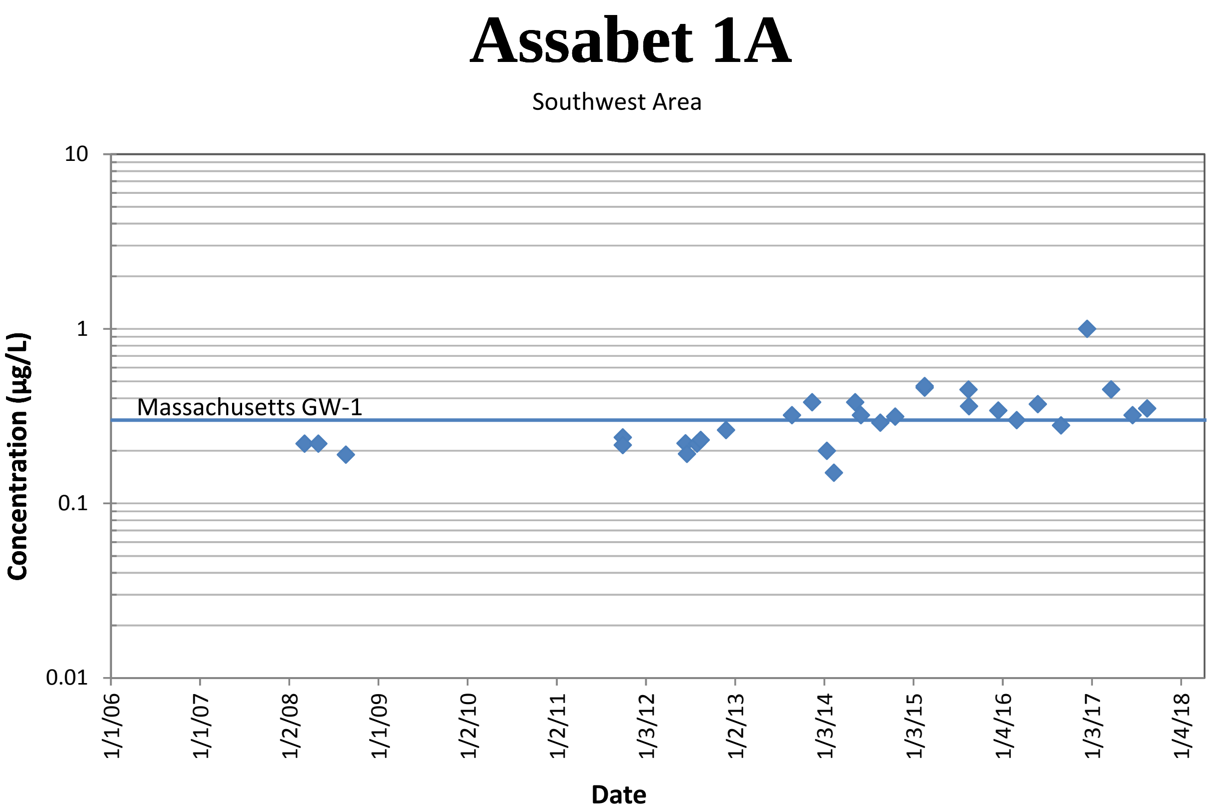


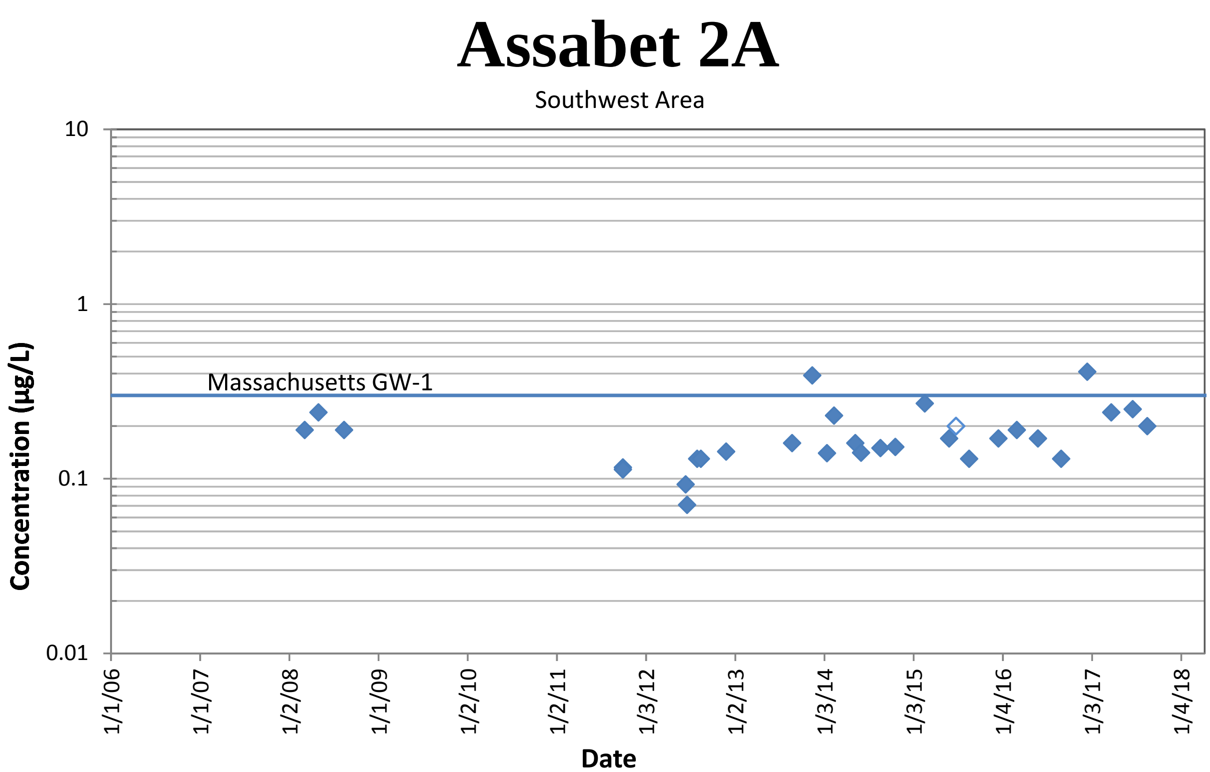
AR-31S



Note: Non-detects plotted at the reporting limit with open symbols.

AR-31D and AR-31S: 1,4-Dioxane Concentrations versus Time

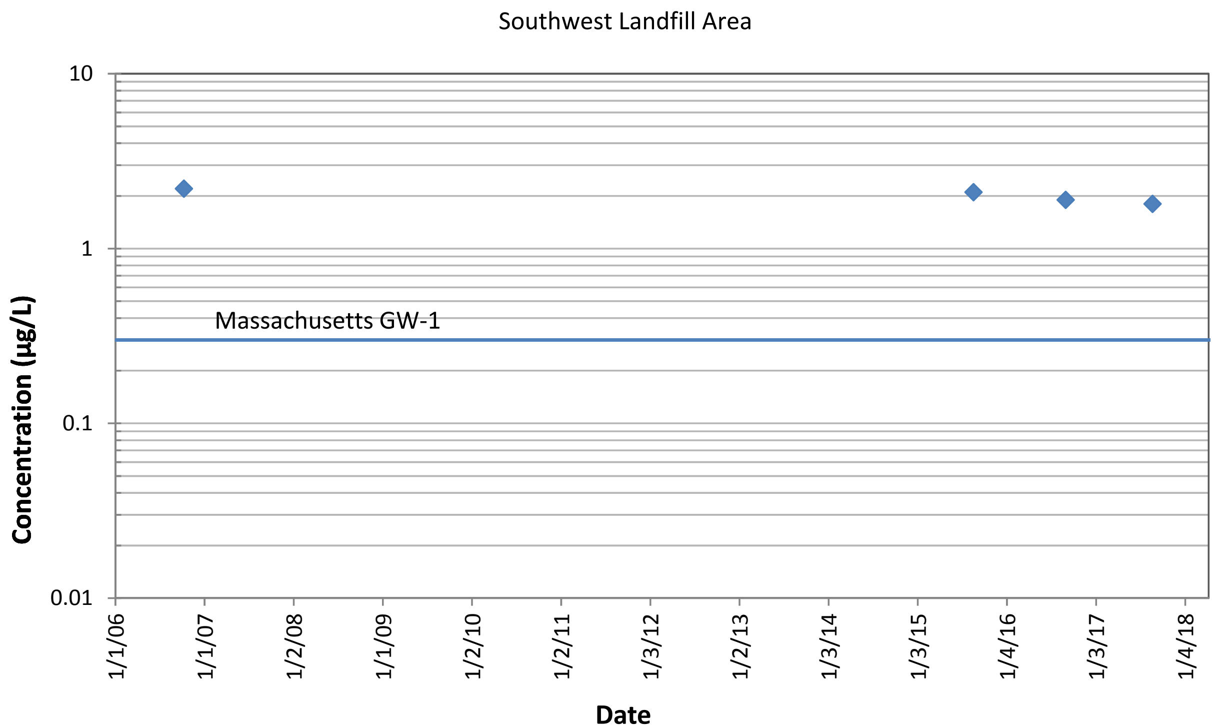




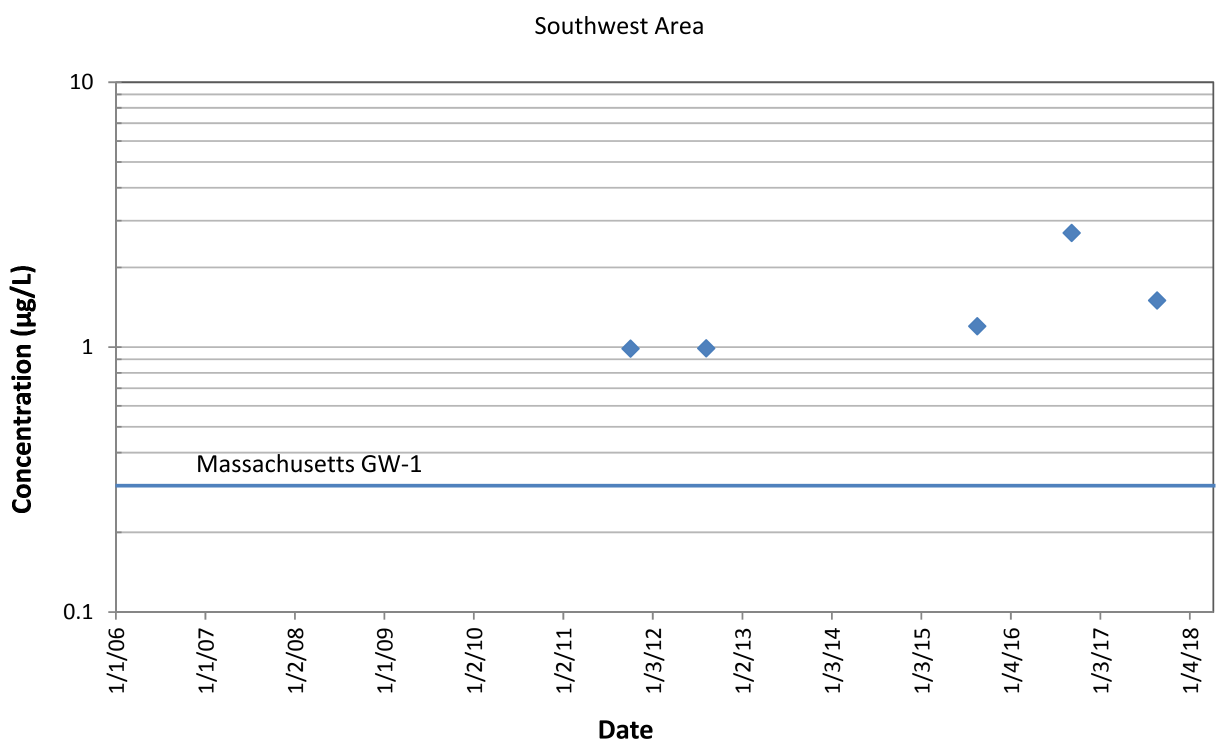
Note: Non-detects plotted at the reporting limit with open symbols.

Assabet 1A and Assabet 2A: 1,4-Dioxane Concentrations versus Time

B-03B3



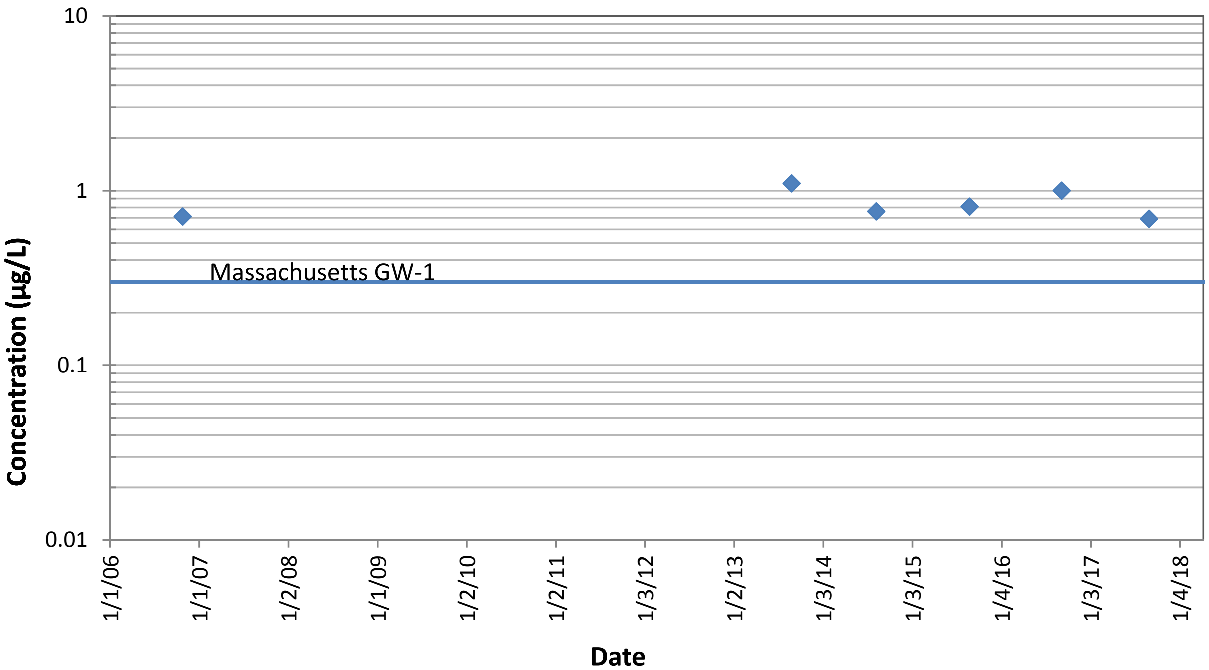
B-05B4



B-03B3 and B-05B4: 1,4-Dioxane Concentrations versus Time

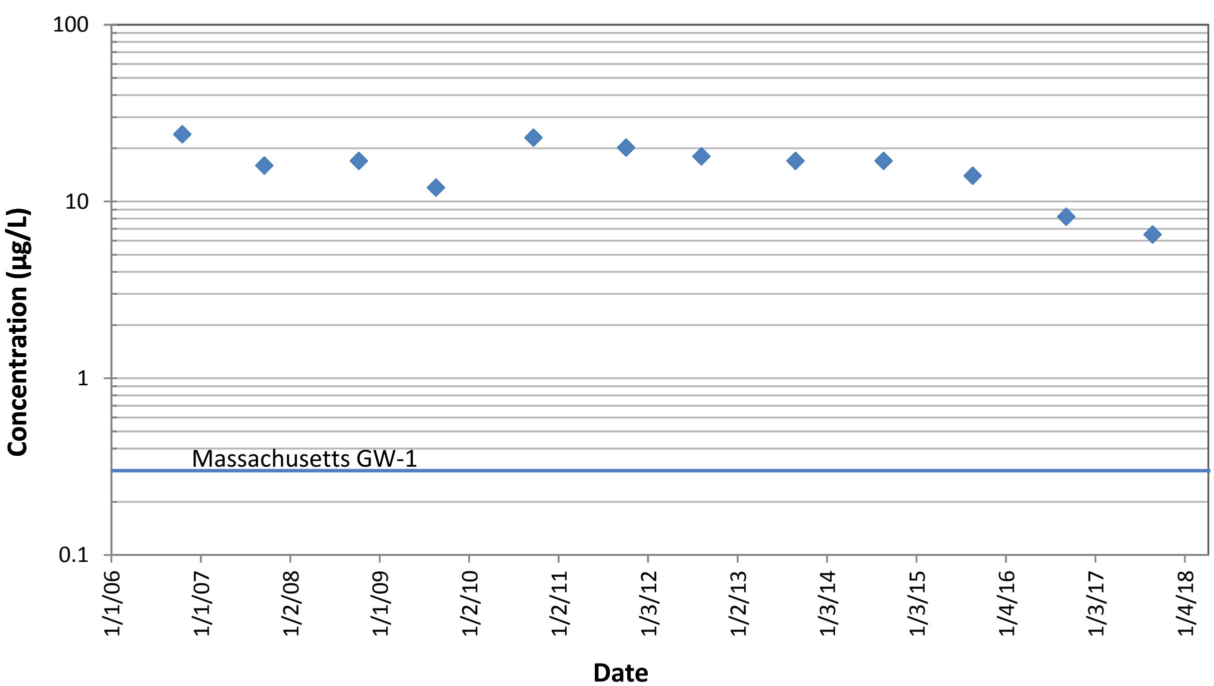
B-06B5

Southwest Area



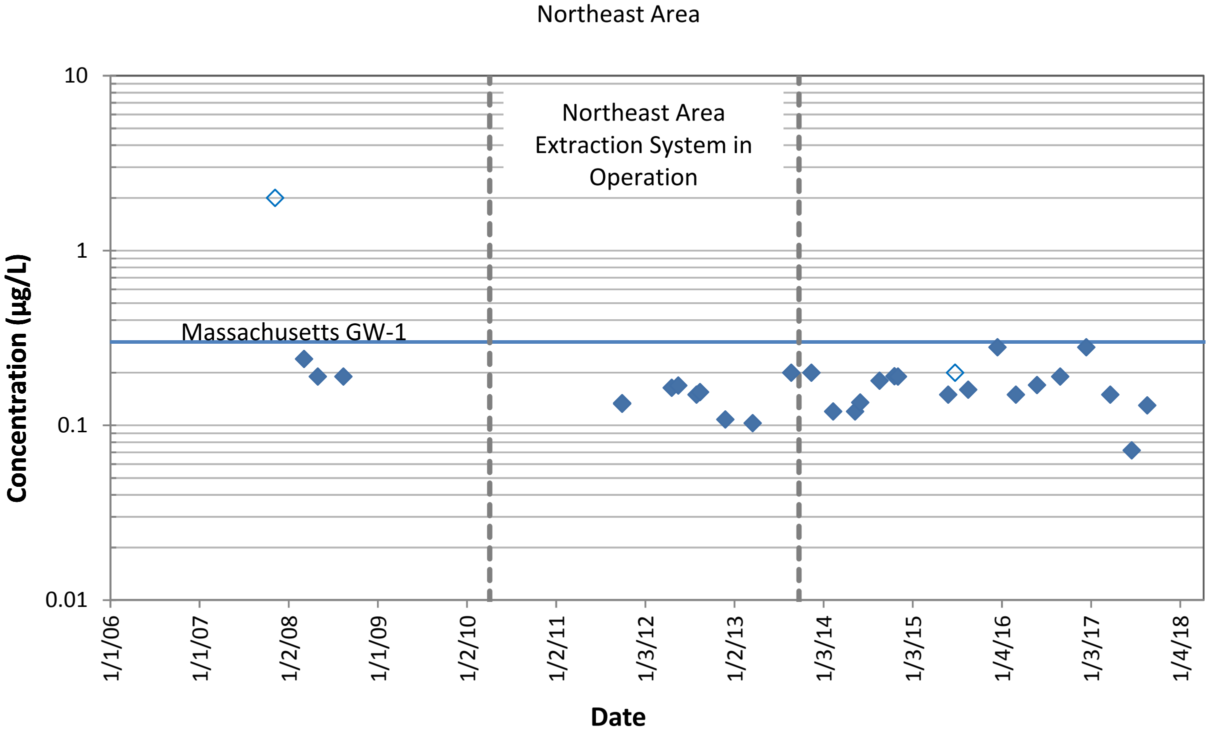
B-08B

Southeast Landfill Area

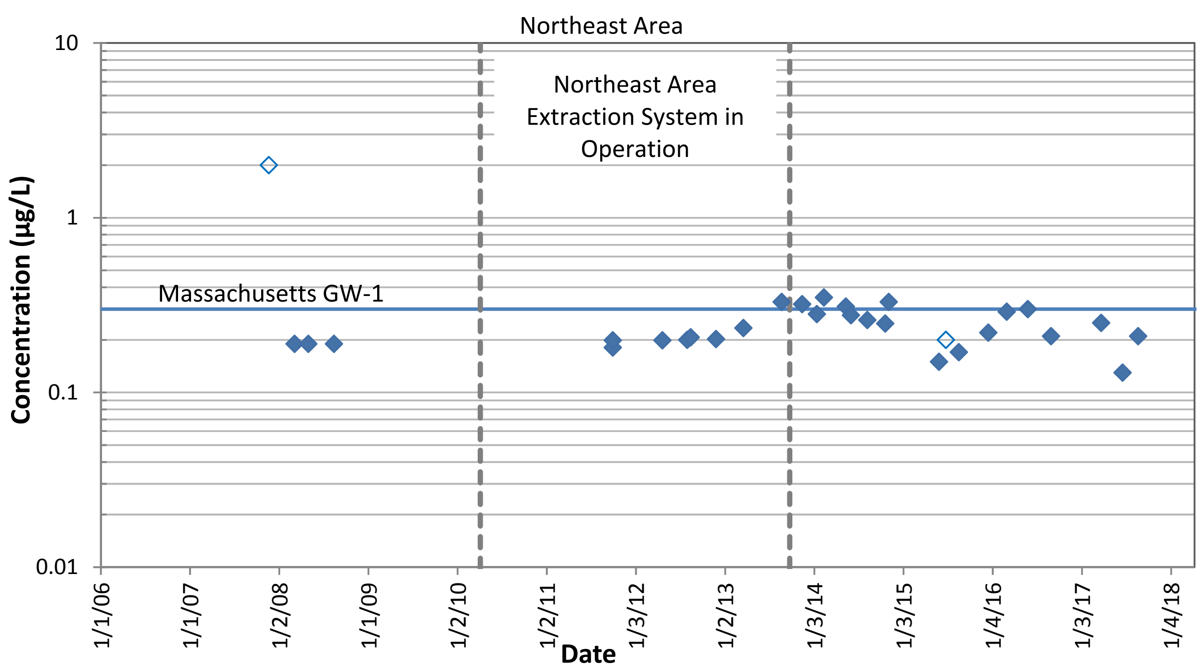


B-06B5 and B-08B: 1,4-Dioxane Concentrations versus Time

Christofferson



Lawsbrook

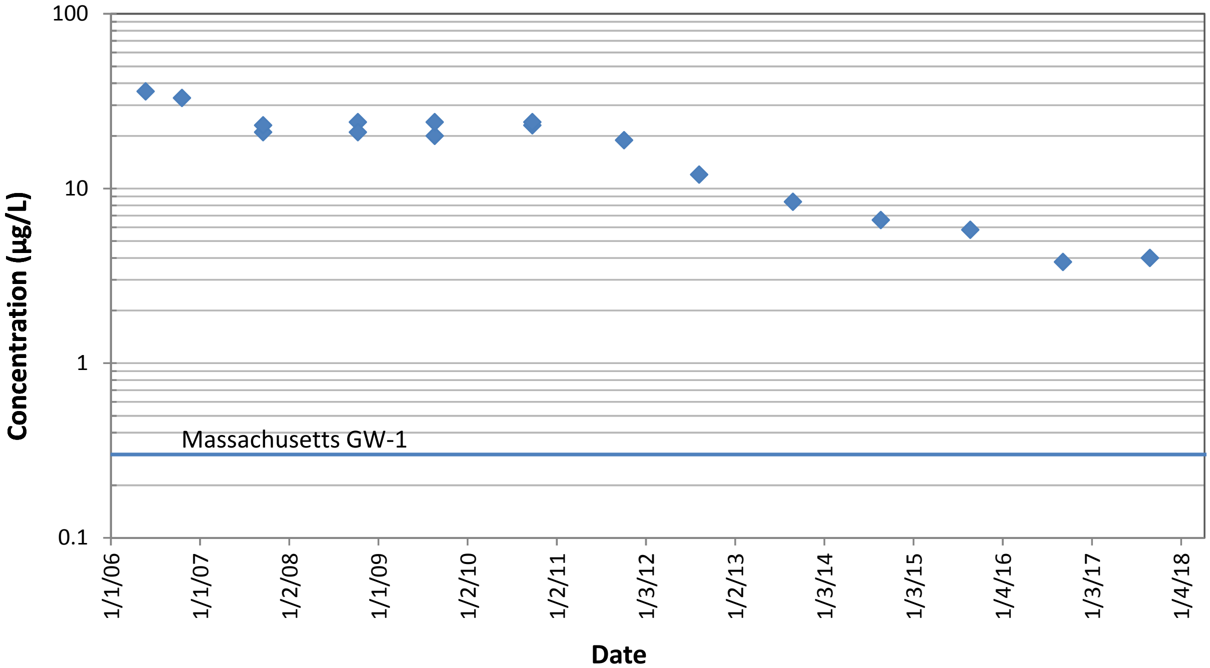


Note: Non-detects plotted at the reporting limit with open symbols. Reporting limit for 2007 samples unknown; results plotted at 2 µg/L.

Christofferson and Lawsbrook: 1,4-Dioxane Concentrations versus Time

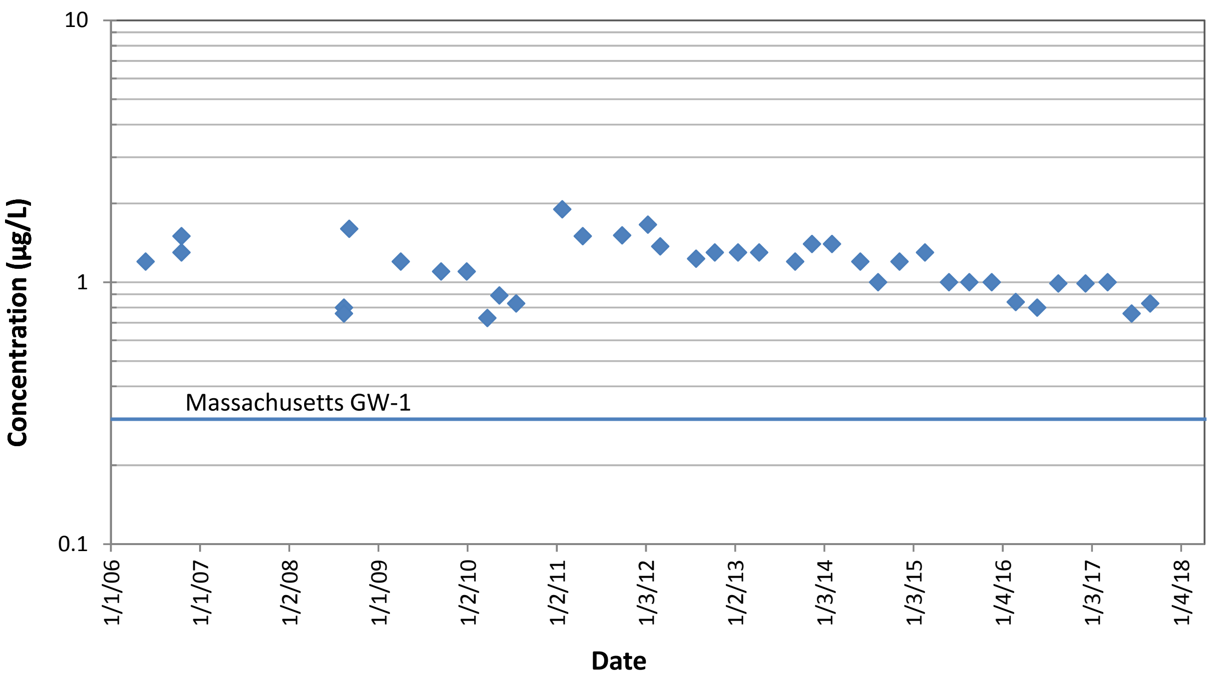
LF-06C

Southeast Landfill Area



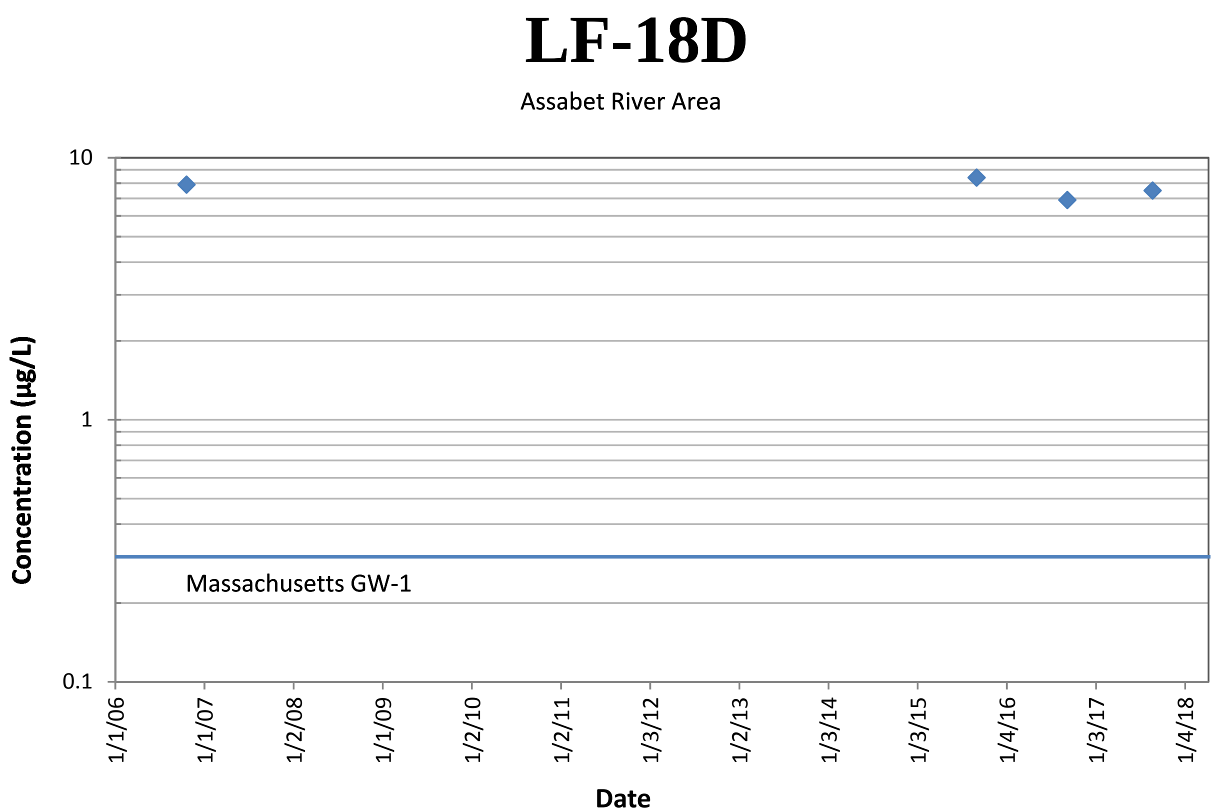
MLF

Southwest Landfill Area

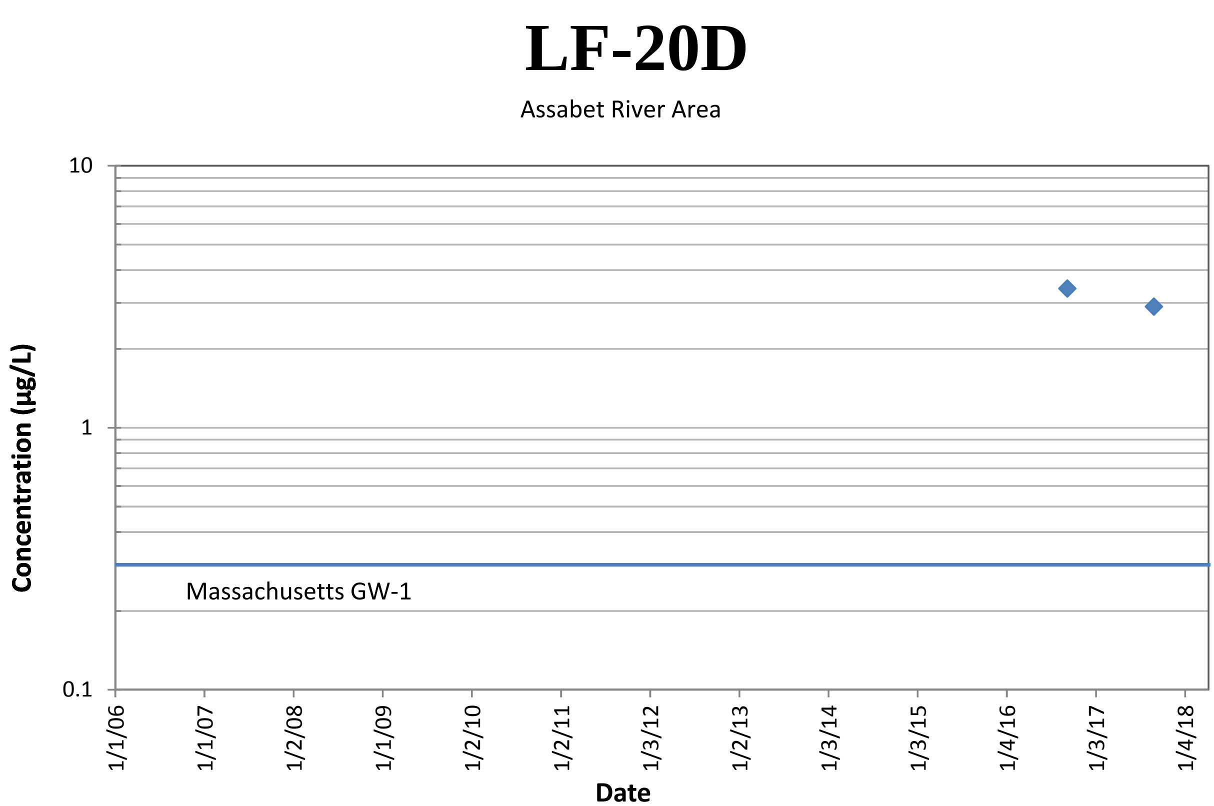


Note: Non-detects plotted at the reporting limit with open symbols.

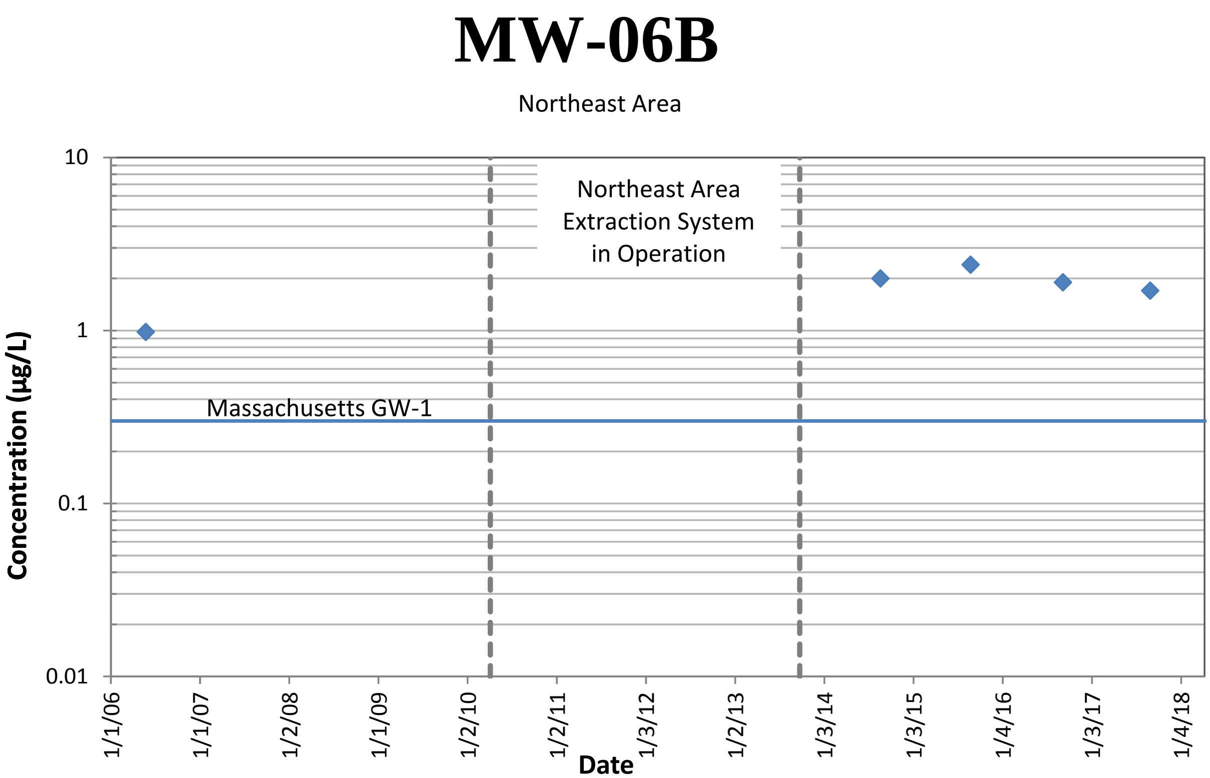
LF-06C and MLF: 1,4-Dioxane Concentrations versus Time

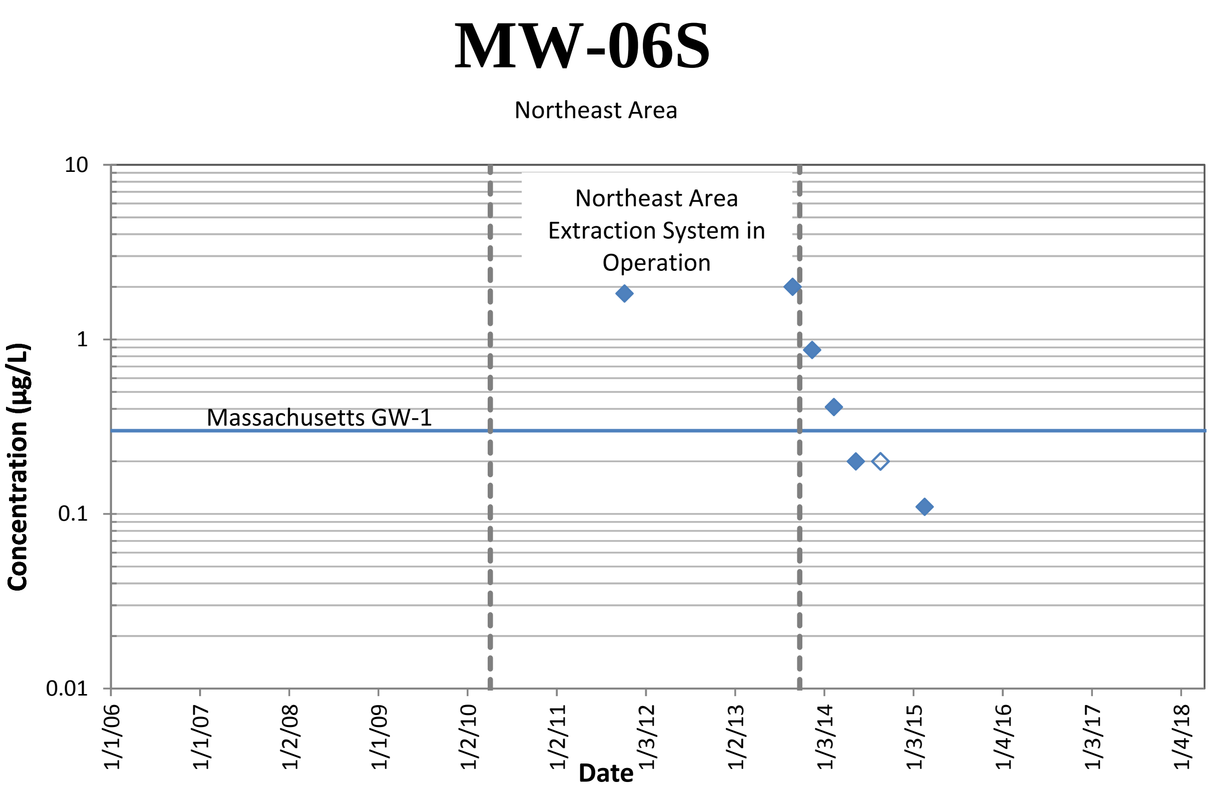


LF-18D: 1,4-Dioxane Concentrations versus Time



LF-20D: 1,4-Dioxane Concentrations versus Time

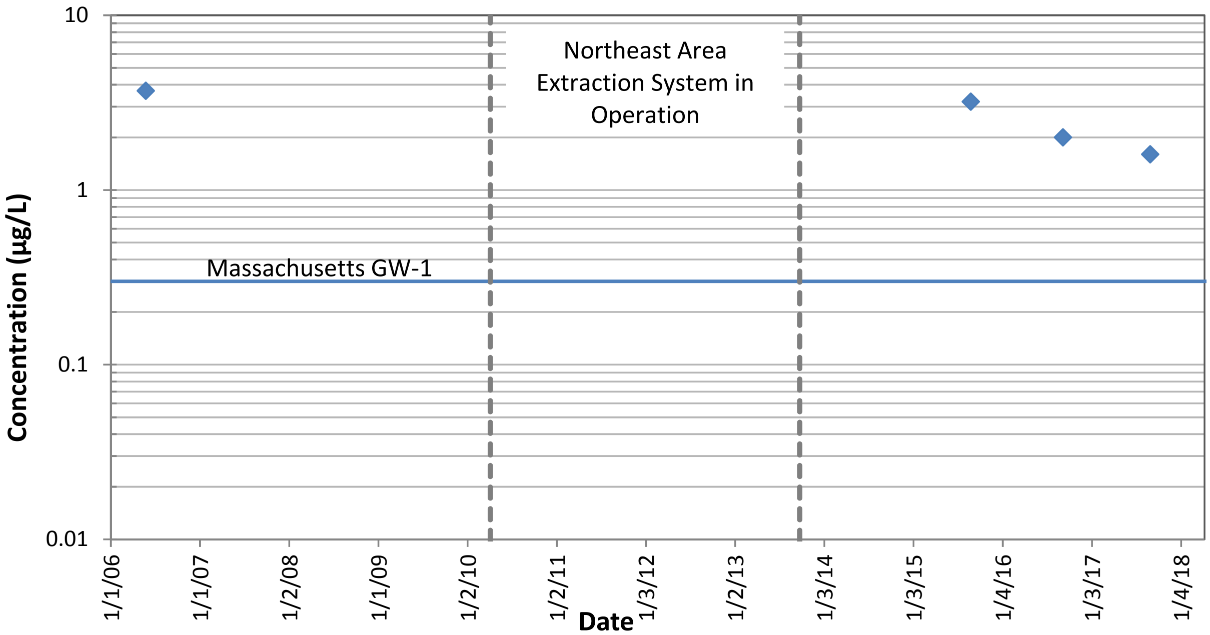




MW-06B and MW-06S: 1,4-Dioxane Concentrations versus Time

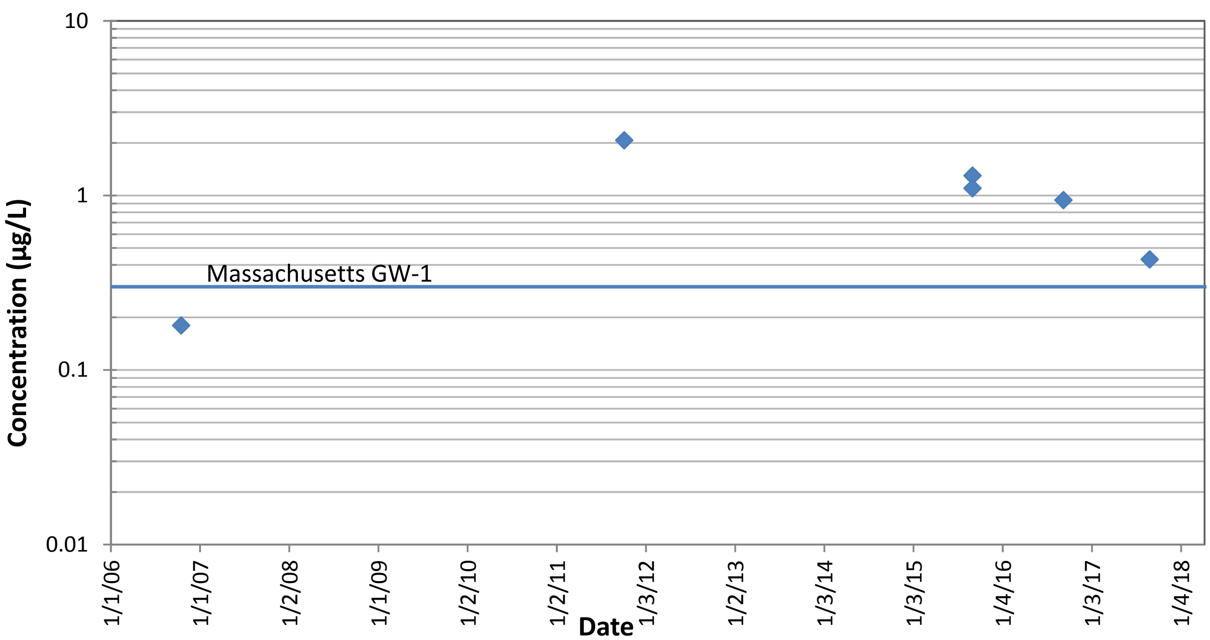
MW-07B

Northeast Area



OSA-13B

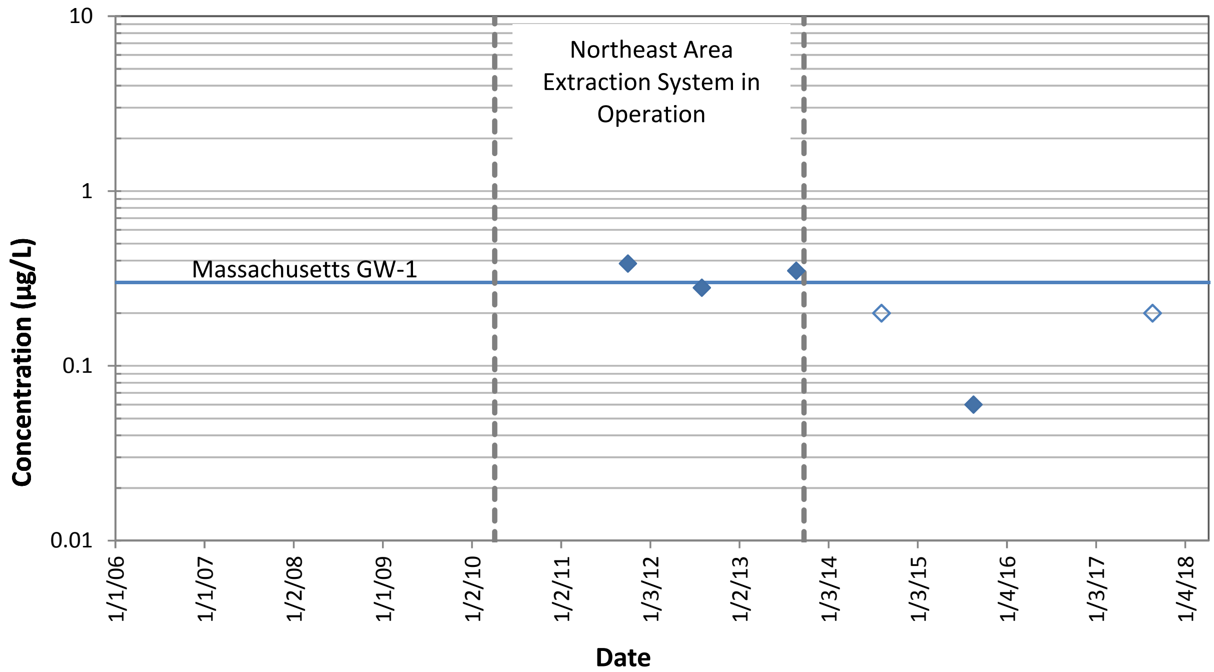
Former Lagoon Area



MW-07B and OSA-13B: 1,4-Dioxane Concentrations versus Time

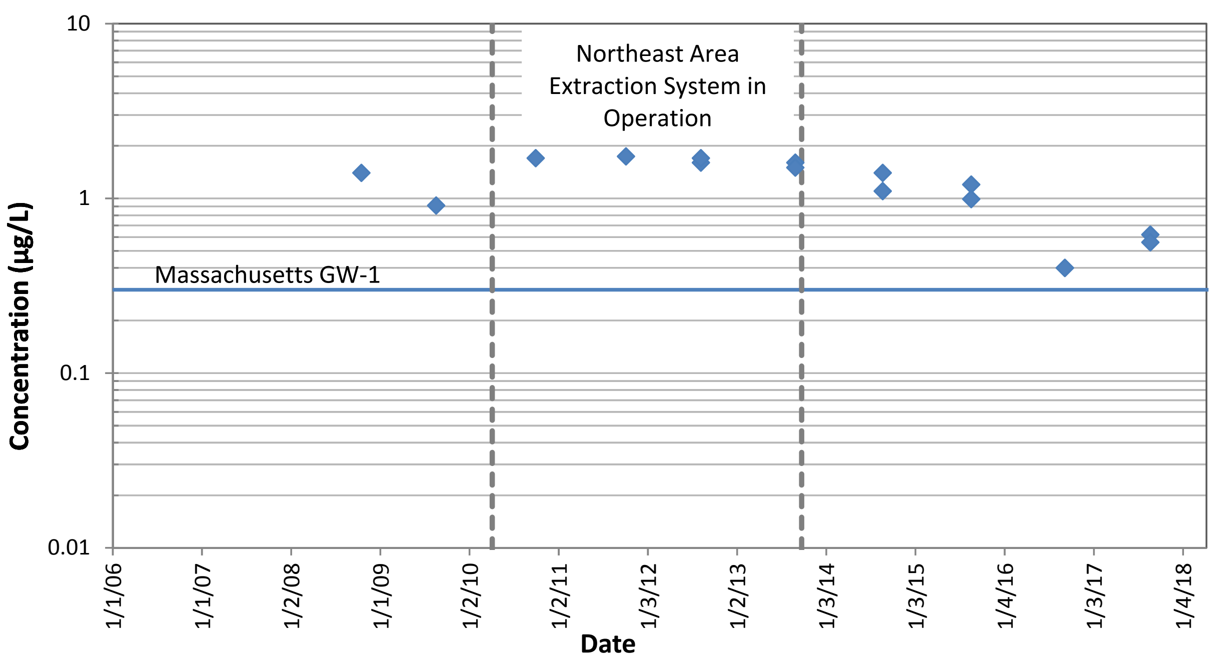
PS-22A

Northeast Area



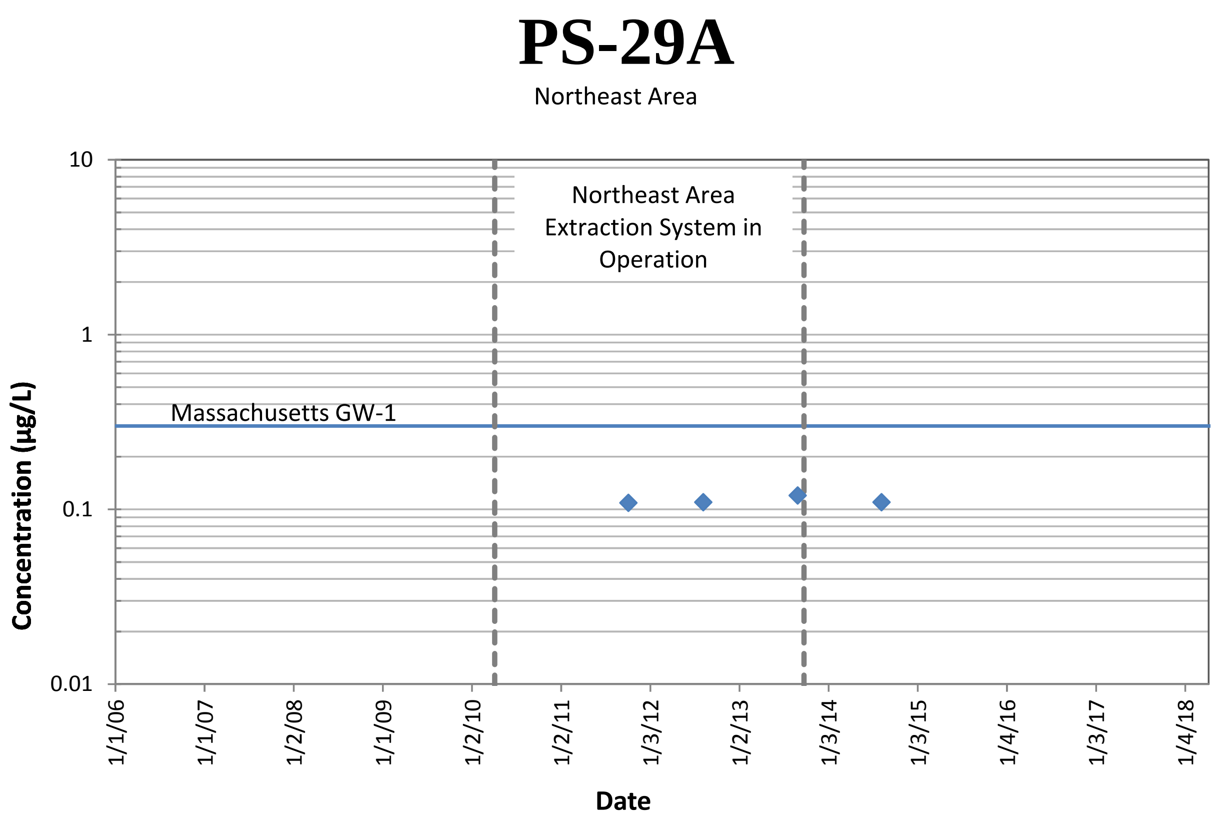
PS-22B

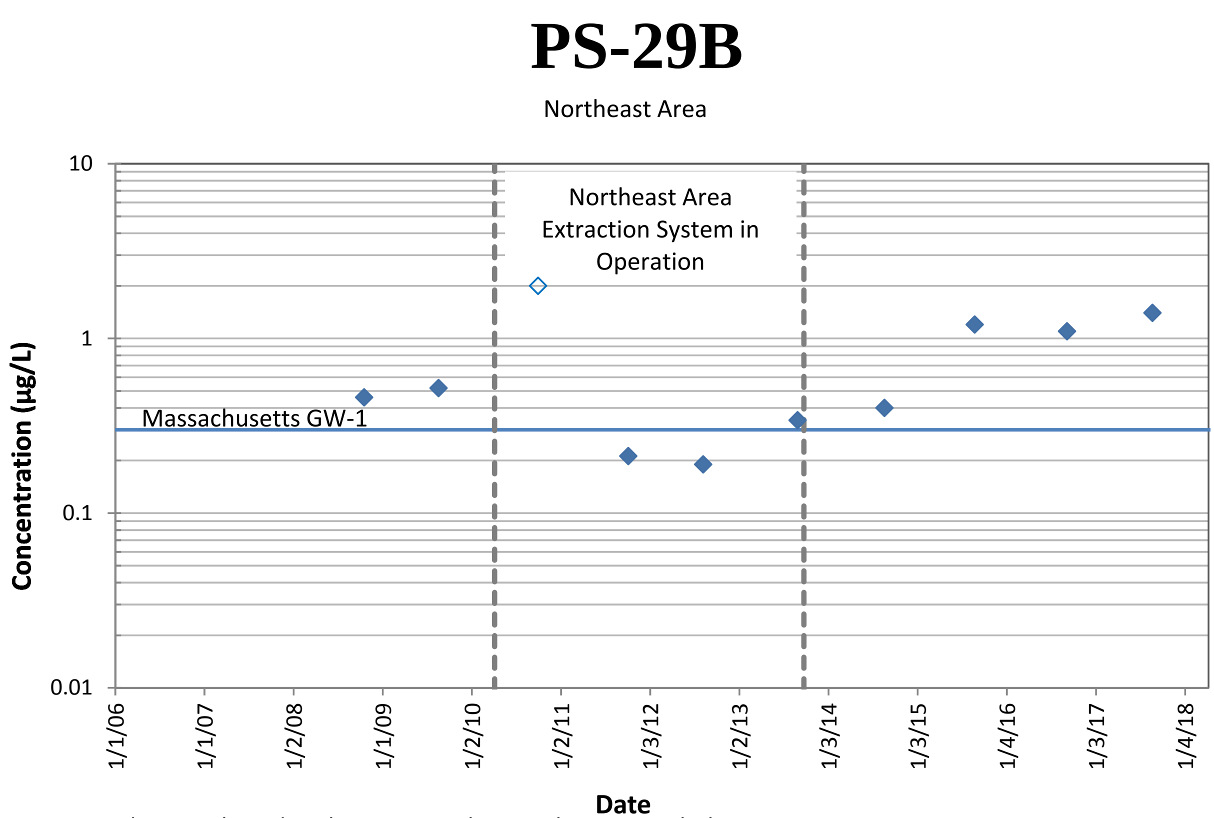
Northeast Area



PS-22A and PS-22B: 1,4-Dioxane Concentrations versus Time

\\Tts044fs1\geolitvol1\COMMON\DOCs\WRGrace\Acton\2017\ActonAnnualReport\DioxaneGraphs2017.xlsxPS22A_PS22BGraph



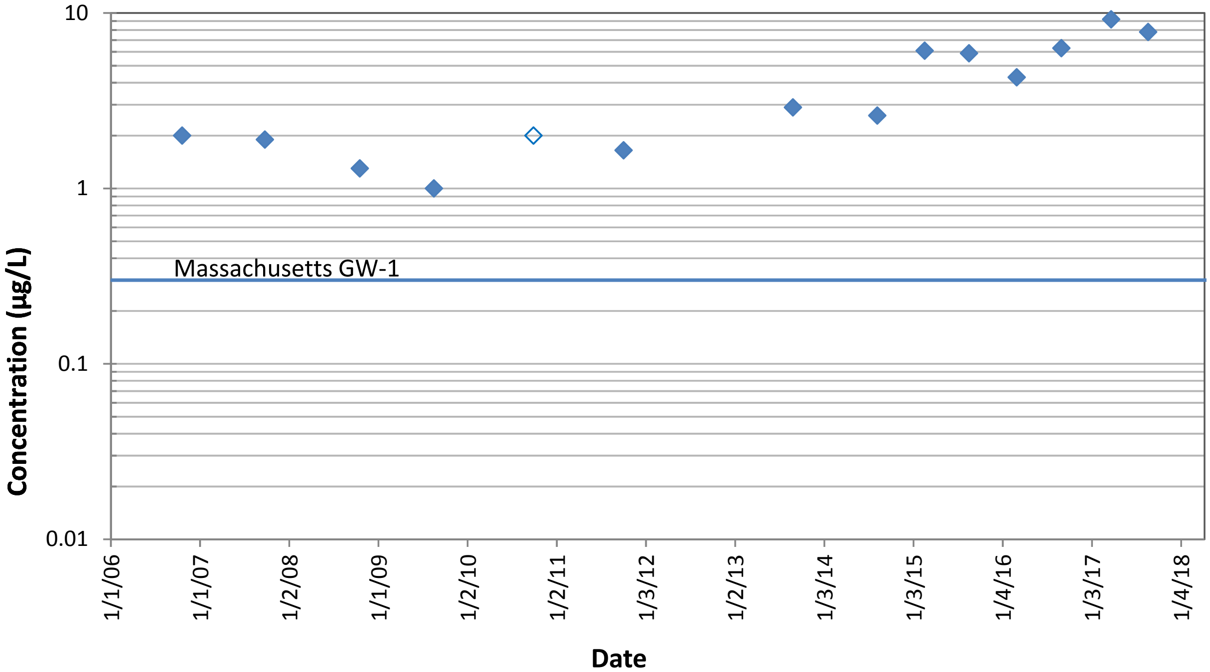


Note: Non-detects plotted at the reporting limit with open symbols.

PS-29A and PS-29B: 1,4-Dioxane Concentrations versus Time

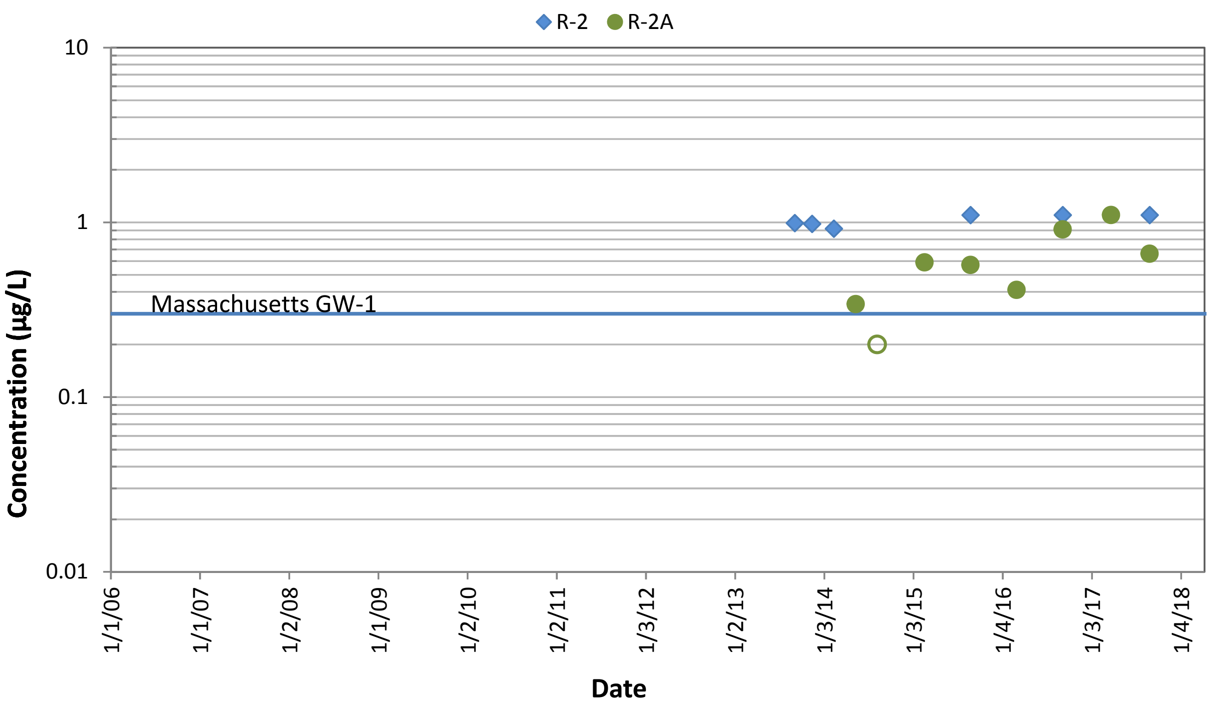
PT-03B1

Southwest Area



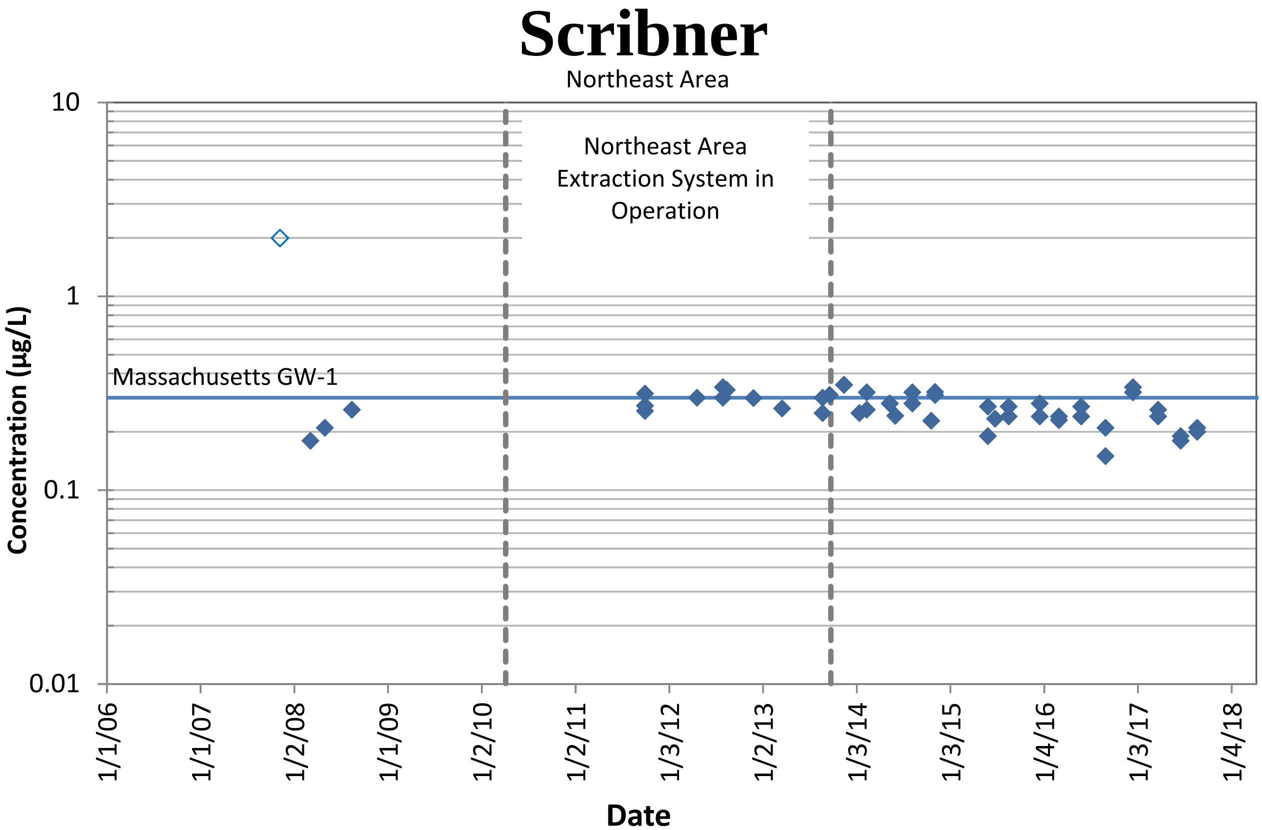
R-2/R-2A

Southwest Area

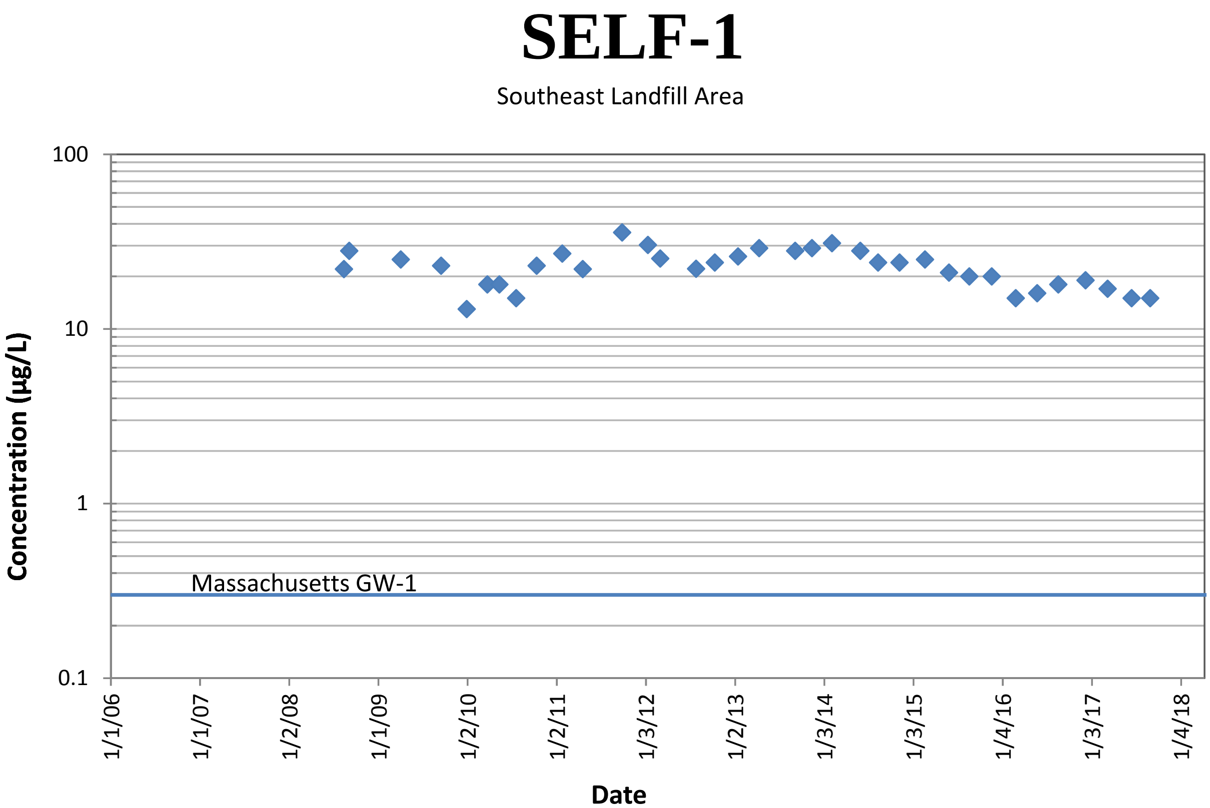


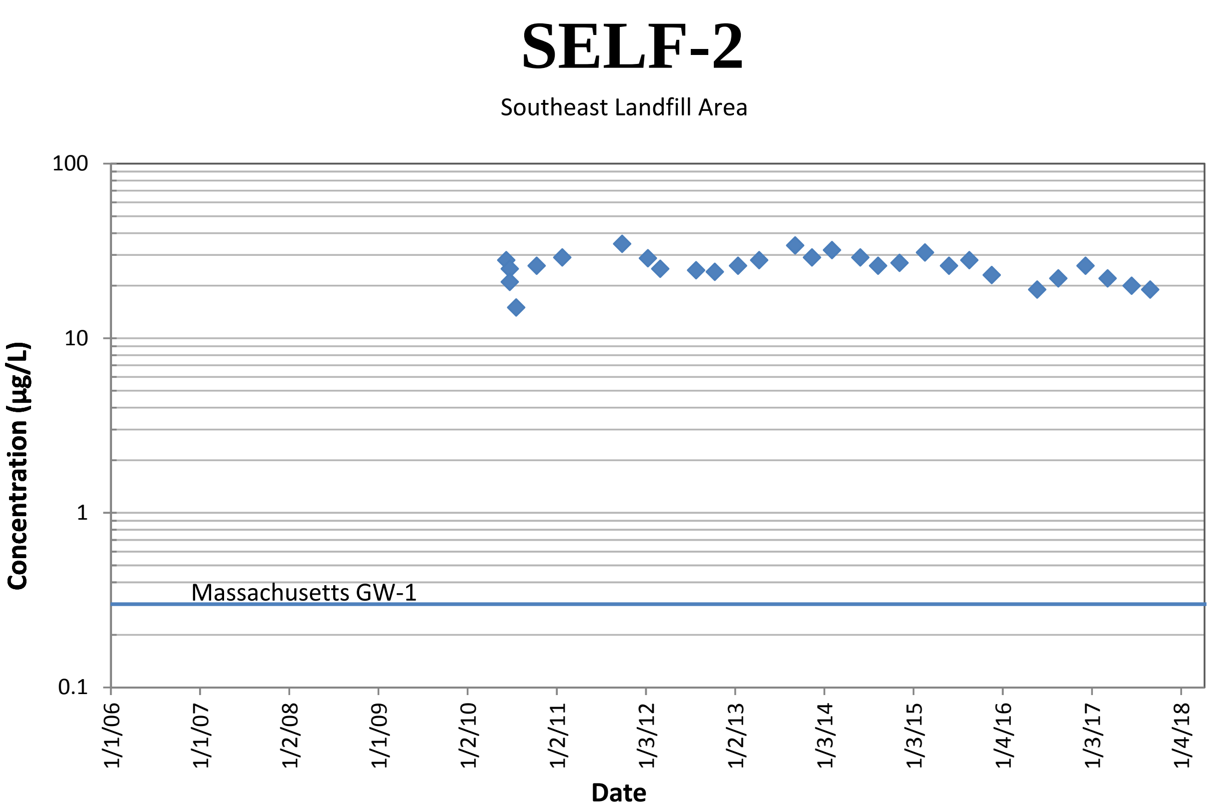
Note: Non-detects plotted at the reporting limit with open symbols.

PT-03B1 and R-2/R-2A: 1,4-Dioxane Concentrations versus Time



Note: Non-detects plotted at the reportig limit with open symbols. Reporting limit for 2007 sample unknown; result plotted at 2 µg/L.





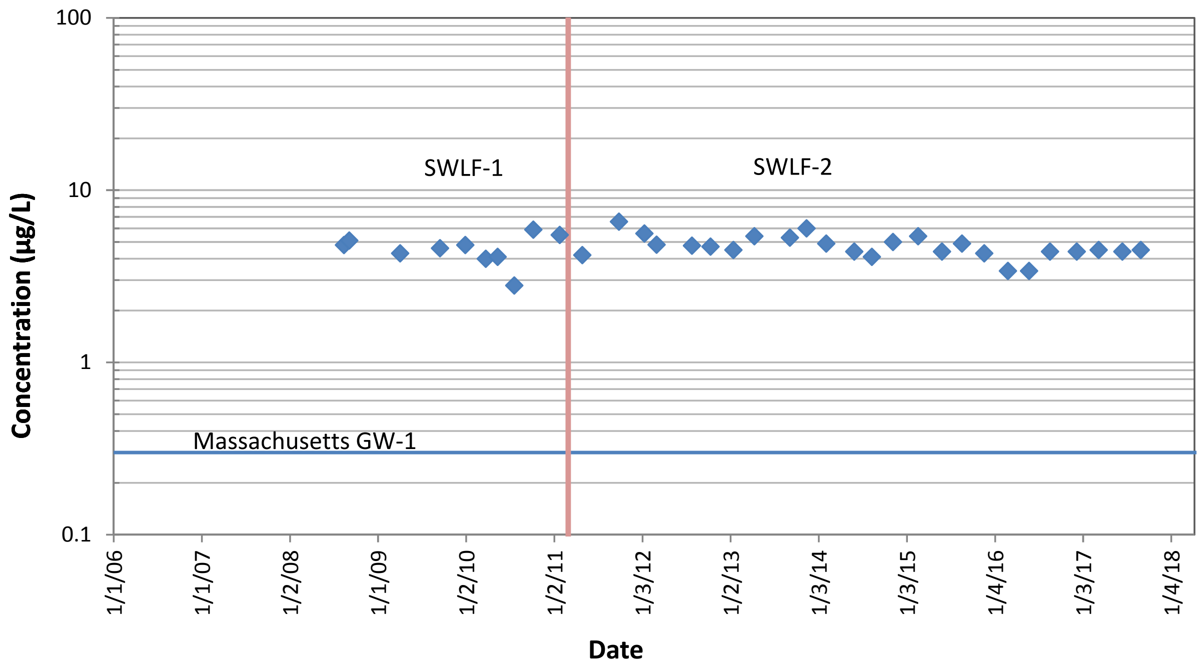
Note: Non-detects plotted at the reporting limit with open symbols.

SELF-1 and SELF-2: 1,4-Dioxane Concentrations versus Time

\\Tts044fs1\geolitvol1\COMMON\DOCs\WRGrace\Acton\2017\ActonAnnualReport\DioxaneGraphs2017.xlsxSELF-1_2 Graph

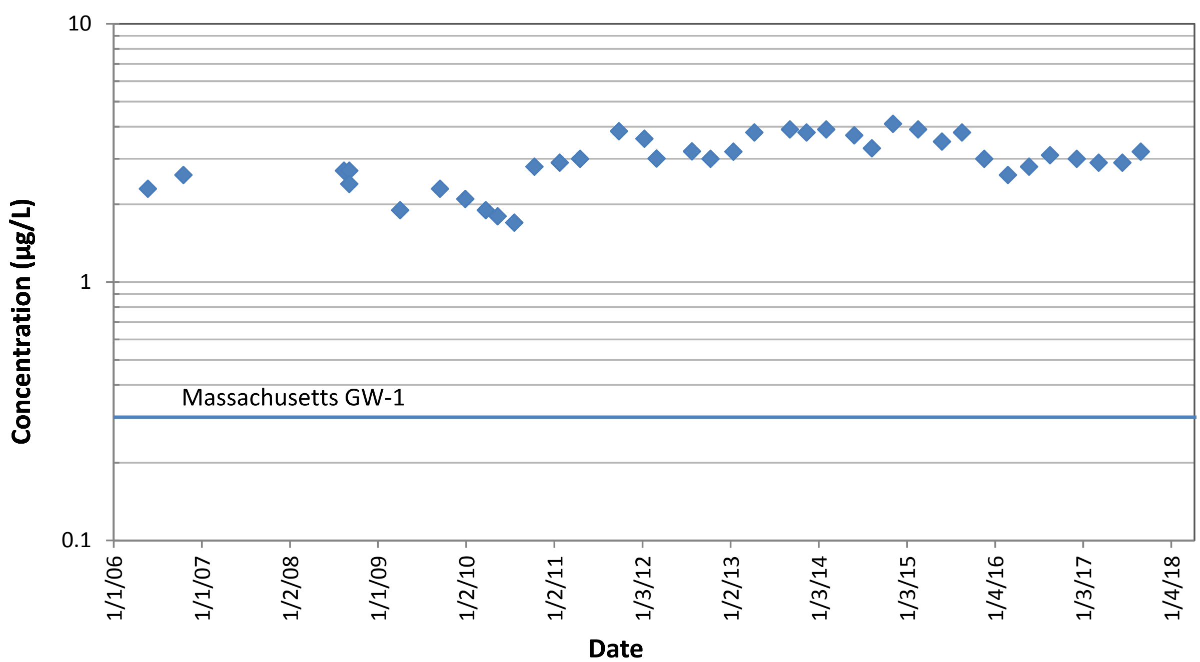
SWLF-1 & SWLF-2

Southwest Landfill Area



WLF

Southwest Landfill Area



Note: Non-detects plotted at the reporting limit with open symbols.

SWLF1&2 and WLF: 1,4-Dioxane Concentrations versus Time