

**Pinellas County, Florida, Site
Environmental Restoration Project**

**Semiannual Progress Report
for the 4.5 Acre Site**

June Through November 2016

January 2017



U.S. DEPARTMENT OF
ENERGY

Legacy
Management

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Appendix A Laboratory Reports, September 2016 Semiannual Monitoring

Abbreviations

amsl	above mean sea level (feet)
cDCE	<i>cis</i> -1,2-dichloroethene
COPC	contaminant of potential concern
CTL	cleanup target level
DOE	U.S. Department of Energy
RPD	relative percent difference
STAR Center	Young - Rainey Science, Technology, and Research Center
TCE	trichloroethene
TCOPC	total contaminants of potential concern
tDCE	<i>trans</i> -1,2-dichloroethene
VC	vinyl chloride
VOC	volatile organic compound

1.0 Introduction

This *Pinellas County, Florida, Site Environmental Restoration Project Semiannual Progress Report for the 4.5 Acre Site* describes environmental restoration activities for the 4.5 Acre Site located in Pinellas County, Largo, Florida (Figure 1). The former U.S. Department of Energy (DOE) Pinellas Plant facility consisted of the 4.5 Acre Site and what is now the STAR Center (Young - Rainey Science, Technology, and Research Center). Both the 4.5 Acre Site and the STAR Center are part of the overall Pinellas County, Florida, Site (Figure 2).

The 4.5 Acre Site is located immediately northwest of the STAR Center, in the northeast quarter of Section 13, Township 30 South, Range 15 East. DOE owned this parcel from 1957 to 1972, at which time it was sold to a private landowner. During the period of DOE ownership, the property was used for the disposal of drums of waste resins and solvents. As a result of this practice, the surficial aquifer was impacted by volatile organic compounds (VOCs)—trichloroethene (TCE), *cis*-1,2-dichloroethene (cDCE), *trans*-1,2-dichloroethene (tDCE), vinyl chloride (VC), and benzene.

Detailed background information for the site is contained in the *Long-Term Surveillance and Maintenance Plan for the Pinellas Site* (DOE 2016). That document and other site-related documents can be accessed at this website: <http://www.lm.doe.gov/Pinellas/Sites.aspx>.

Recent remediation activities consist of the injection of emulsified soybean oil and the microorganism *Dehalococcoides mccartyi* (formerly known as *Dehalococcoides ethenogenes*) into the subsurface in February 2010 and again in July 2013 to enhance contaminant biodegradation (hereafter described as bioinjection). Monitoring the performance of these actions, in the form of monitoring well sampling, is ongoing.

1.1 Site Activities

The following work took place during the June through November 2016 period:

- Conducted semiannual sampling, which consisted of collecting groundwater samples for VOCs analysis from 17 monitoring wells on September 9 and 12, and measured water levels in all accessible wells on September 7.
- Reported the results of the semiannual monitoring (this document).
- Injection of emulsified soybean oil and *Dehalococcoides mccartyi* at 126 locations began in late October and will be completed in December. The approximate injection locations are shown in Figure 3.

2.0 Monitoring Data

2.1 Groundwater Elevations and Flow

During this reporting period, depth-to-water measurements were taken in all accessible monitoring wells at the 4.5 Acre Site on September 7, 2016. The depth to water in each well was measured with an electronic water-level indicator. The groundwater elevation data are listed in

Table 1. Surface water elevations for the West Pond (to the east) and Pond 5 (to the southeast) are listed in Table 2. The water elevation data were used to construct contours of water levels in the shallow and deep portions of the surficial aquifer (Figures 4 and 5).

In September 2016, the flow patterns in both the shallow and deep surficial aquifers (Figures 4 and 5) generally indicate radial flow from the center of the site, with flow to the northwest in the northern part of the site, to the west-southwest on the west side of the site, and also a component of flow toward the south or southeast in the southern part of the site. The average hydraulic gradient was approximately 0.002 to 0.004 foot per foot across most of the site, with an unusually high gradient of about 0.01 in the northwest area. This gradient is higher than those observed during the previous few years, possibly due to significant rainfall during the previous several days before the water levels were measured. Calculations using Darcy's law, along with approximations of 1 foot per day for hydraulic conductivity and 0.3 for effective porosity, indicate that groundwater at the site is estimated to move about 2.4 to 4.8 feet per year across most of the site and 12 feet per year at the northwest area. Groundwater velocities at the site have historically ranged from 2 to 10 feet per year.

2.2 Groundwater Sampling

During the routine monitoring event in September 2016, groundwater samples for VOCs analysis were collected from the 11 onsite routine monitoring wells. In addition, the six monitoring wells offsite to the west were sampled during this event.

All samples were collected in accordance with the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites (LMS/PRO/S04351)*, using Florida Department of Environmental Protection procedures. All monitoring wells were micropurged using high-density polyethylene tubing or dedicated Teflon tubing in the well and a peristaltic pump at the surface, and sampling was performed when the field measurements stabilized.

Table 3 lists the September 2016 field measurements of temperature, specific conductance, turbidity, pH, oxidation–reduction potential, and dissolved oxygen recorded at the time the samples were collected. Measurements were made using a calibrated multiparameter meter with a flow cell, and turbidity was measured using a nephelometer.

All samples were submitted to TestAmerica Laboratories in Denver, Colorado, for analysis. TestAmerica Denver is accredited by the Florida Department of Health in accordance with the National Environmental Laboratory Accreditation Conference (certification number E87667). VOCs were analyzed using U.S. Environmental Protection Agency SW-846 method 8260B.

2.3 Groundwater Analytical Results

Table 4 presents individual contaminant of potential concern (COPC) concentrations in samples collected from the 11 routine monitoring wells since March 2014. Table 4 also includes the September 2016 results for the six offsite wells. Figure 6 shows the total COPCs (TCOPCs) concentrations (the sum of the individual COPCs concentrations) for September 2016. The COPCs for the 4.5 Acre Site are TCE, cDCE, tDCE, VC, and benzene. Only VC exceeded its

cleanup target level (CTL); a VC plume map is included as Figure 7. The laboratory report for samples collected in September 2016 is provided in Appendix A.

2.4 Quality Assurance/Quality Control

The results from the analytical laboratory, TestAmerica, were checked for quality assurance/quality control through duplicate samples, trip blanks, and equipment blanks. Detected analytes for the duplicate samples collected from the 4.5 Acre Site in September 2016 are listed in Table 5. The duplicate sample results were compared, and the relative percent differences (RPDs) between the results were calculated. VC in well PIN20-M059 had an RPD value that exceeded the EPA-recommended laboratory duplicate criterion of less than 20 RPD for results that are greater than 5 times the method detection limit. There is no explanation for this poor RPD value.

As specified in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*, duplicate samples should be collected at a frequency of 1 duplicate for every 20 or fewer samples. During the September 2016 event, 17 samples were collected and 1 duplicate sample was collected, so this criterion was met.

A data-validation software module for identifying and tracking anomalous groundwater data was used to generate a report of analytical results that fall outside of historical minimum or maximum values. There were no anomalies associated with these results, and the data are acceptable as qualified.

3.0 Data Interpretation

Trend plots for the 11 routine monitoring wells are shown as Figures 8–18. Since March 2014, TCE has not been detected and benzene has been detected only below its CTL, so only cDCE, tDCE, and VC are shown on these plots. The goal of bioinjection at the 4.5 Acre Site is to decrease contaminant concentrations to maximum contaminant levels along the west and southwest property boundaries (to meet risk-based corrective action requirements) and to minimize the extent of the plume in the interior of the site.

Contaminant concentrations generally decreased following the emulsified soybean oil injection events in 2010 and 2013, but are not approaching the remediation goals at all locations. A third bioinjection event commenced in late October and will be completed in December 2016 (Figure 3).

4.0 Upcoming Tasks

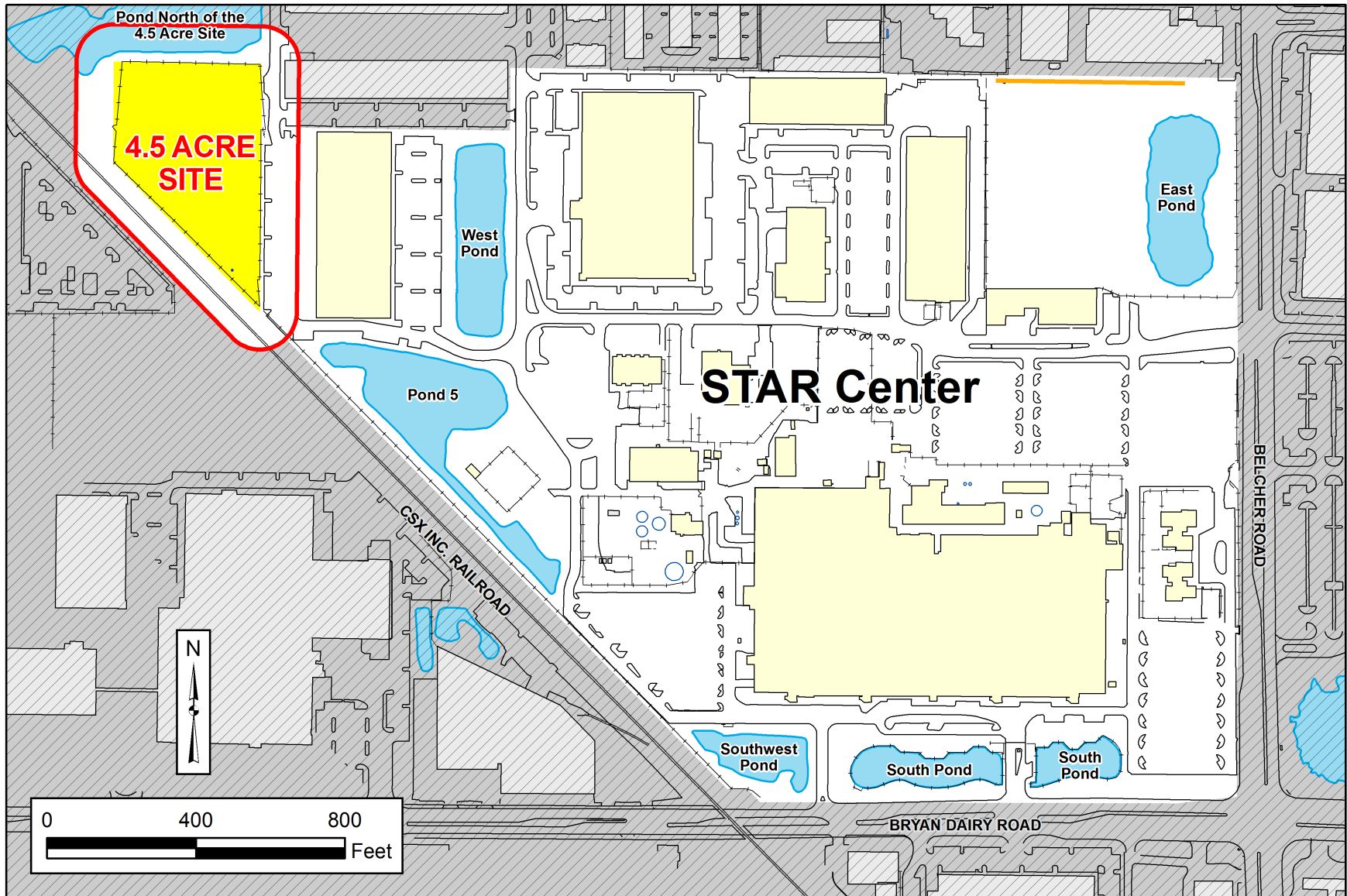
The following tasks are planned for the December 2016 through May 2017 period:

- Injection of emulsified soybean oil and *Dehalococcoides mccartyi* will be completed in December.
- The March semiannual sampling event may be significantly reduced because most monitoring wells could be negatively impacted by the soybean oil injection.

5.0 References

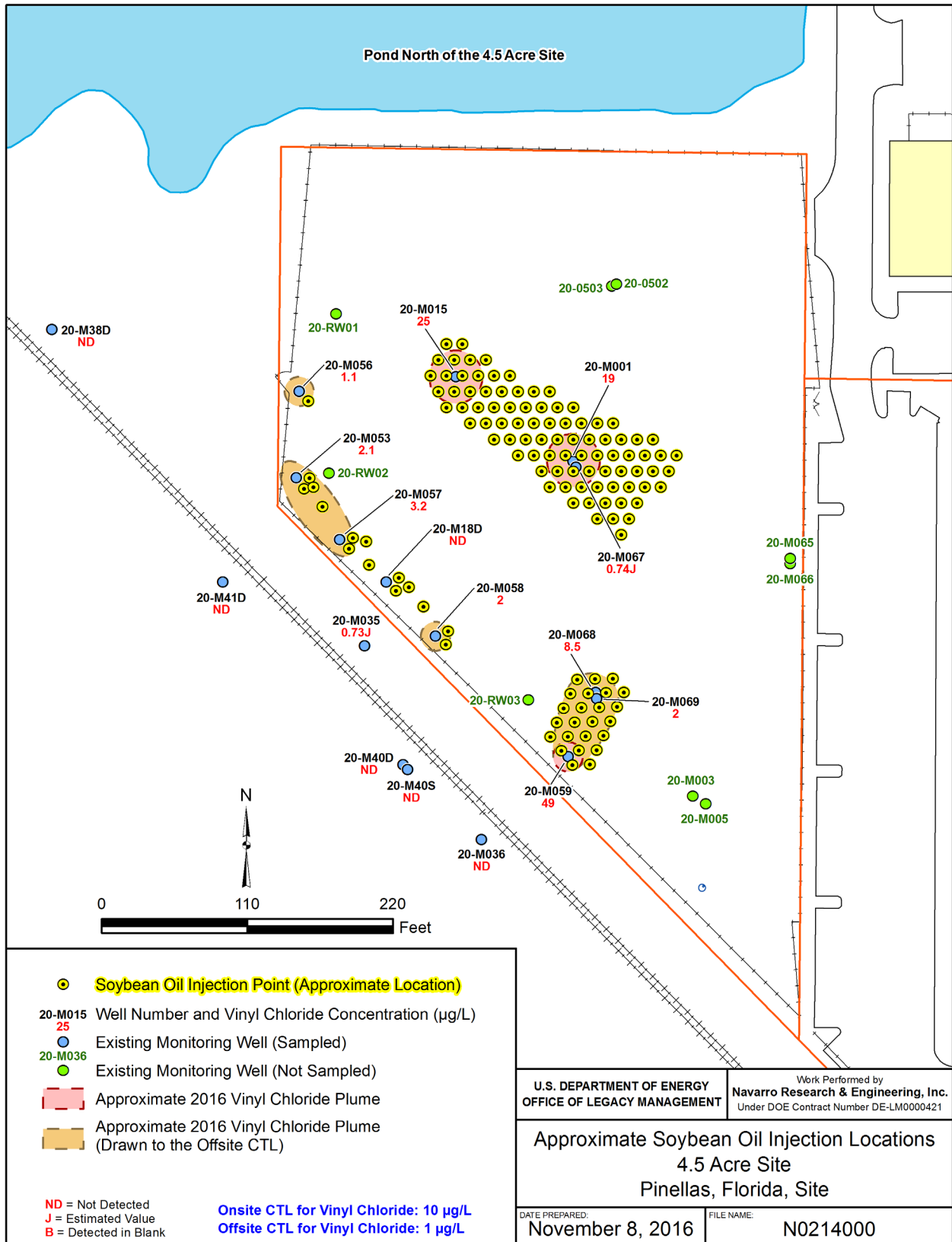
DOE (U.S. Department of Energy), 2016. *Long-Term Surveillance and Maintenance Plan for the Pinellas Site*, LMS/PIN/N01058, Office of Legacy Management, September.

Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites, LMS/PRO/S04351, continually updated, prepared by Navarro Research and Engineering, Inc., for the U.S. Department of Energy Office of Legacy Management.



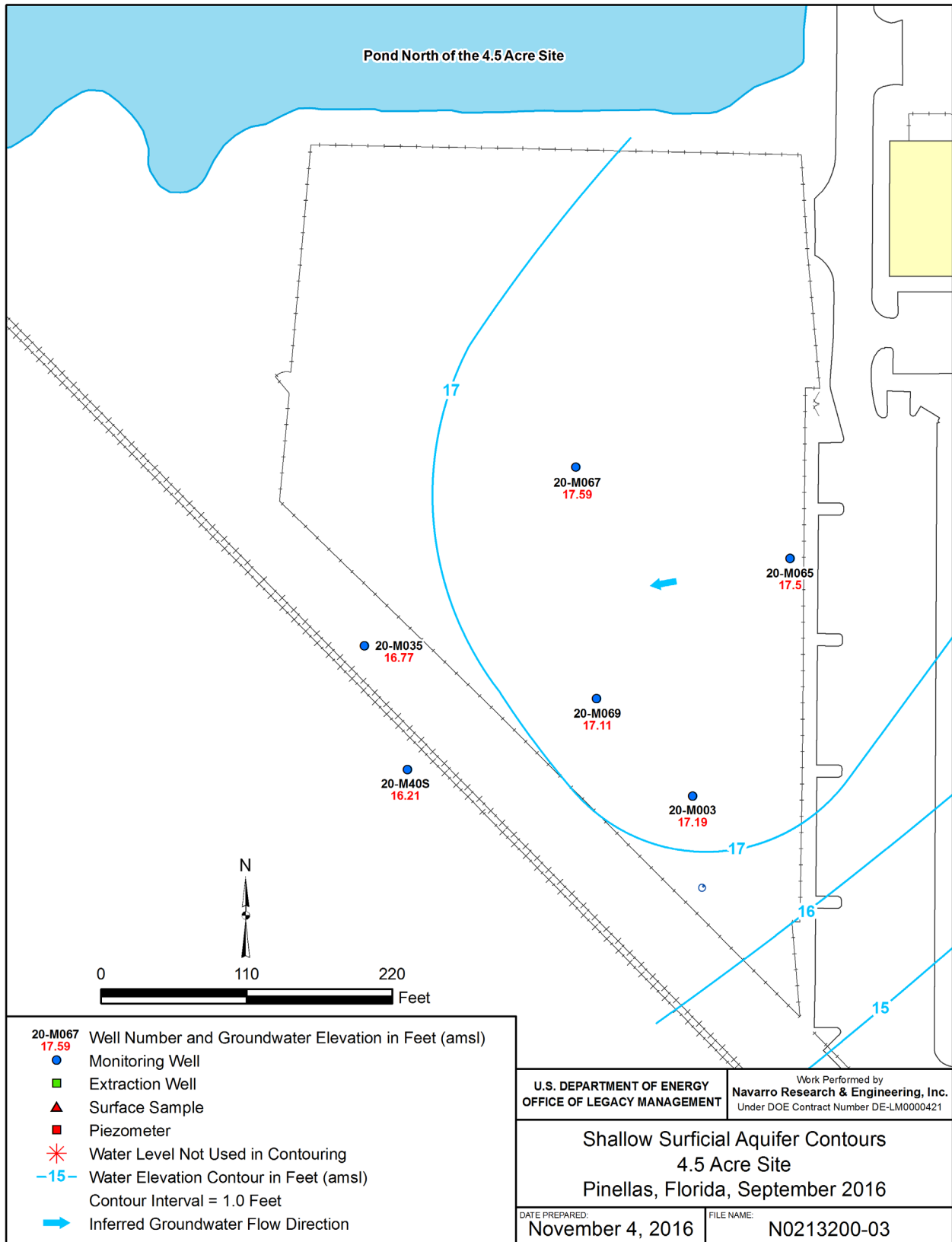
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Figure 2. 4.5 Acre Site Location



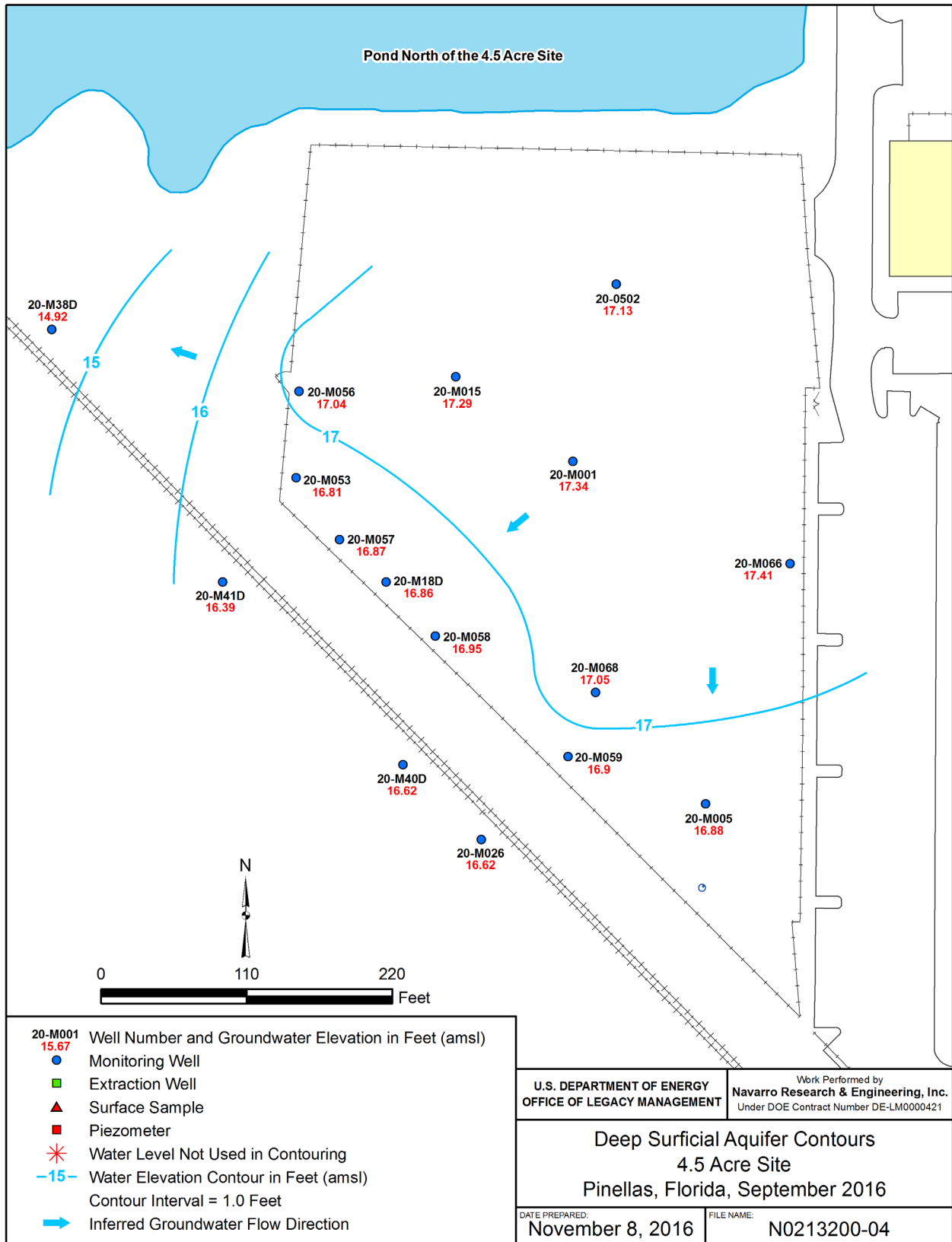
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Figure 3. 2016 Bioinjection Locations



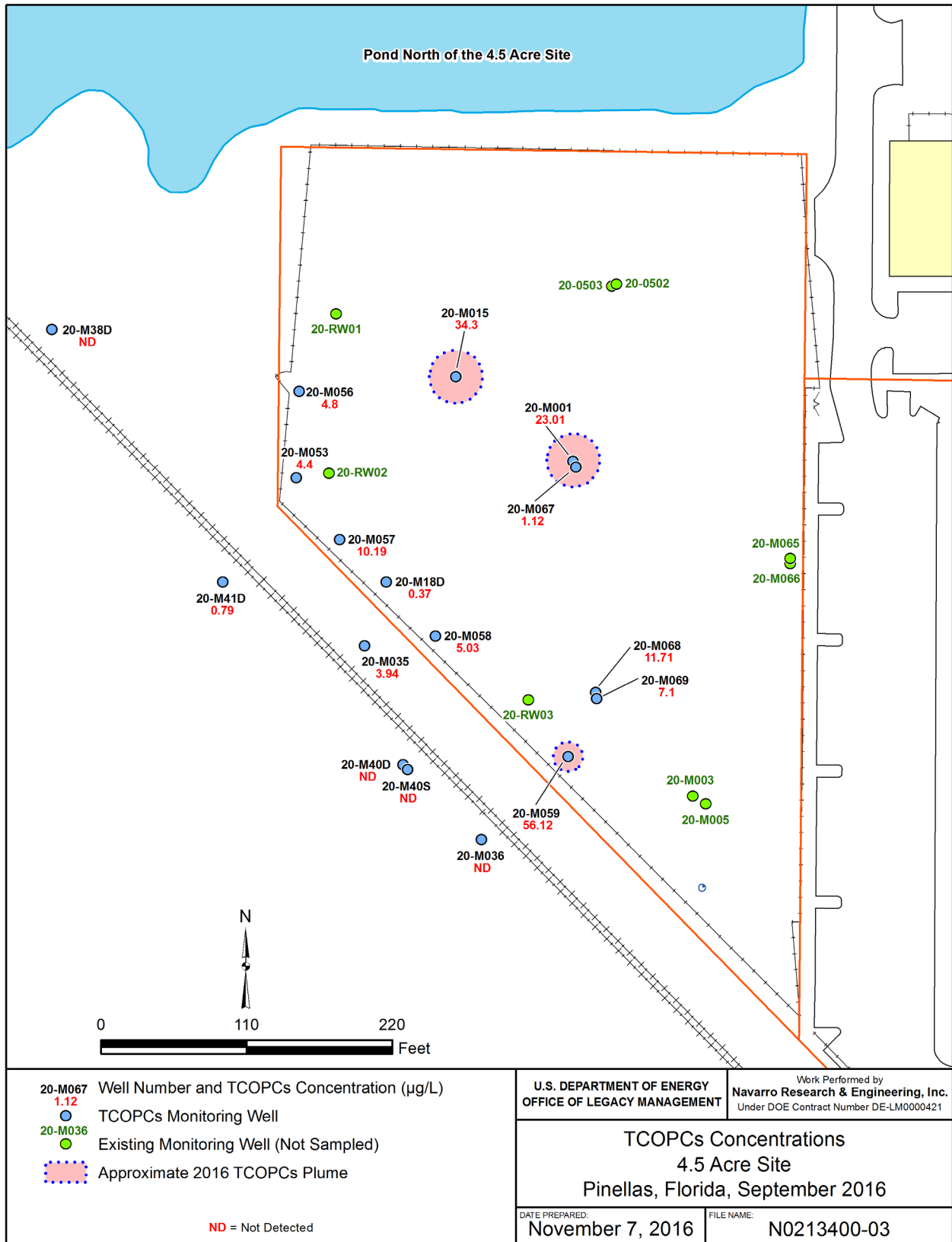
\\LMess\Env\Projects\EBM\PIN04\10010\17\000\N02132\N0213200-03.mxd smithw 11/04/2016 1:56:27 PM

Figure 4. Shallow Surficial Aquifer Flow, September 2016



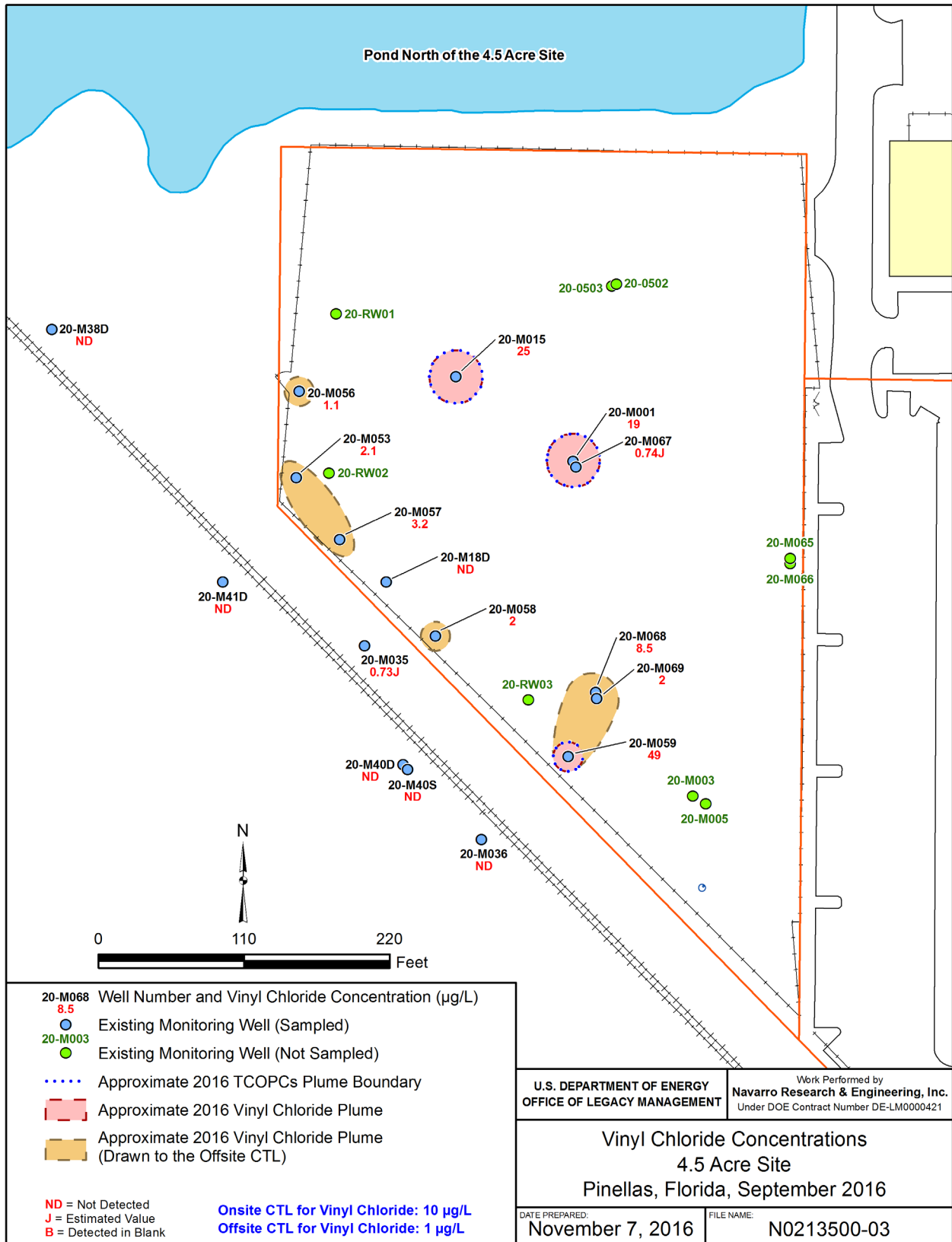
\\L\Mess\Env\Projects\EBM\PIN04\10010\17\000\N02132\N0213200-04.mxd smithw 11/08/2016 12:28:06 PM

Figure 5. Deep Surficial Aquifer Flow, September 2016



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Figure 6. Total COPCs Concentrations, September 2016



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Figure 7. Vinyl Chloride Concentrations, September 2016

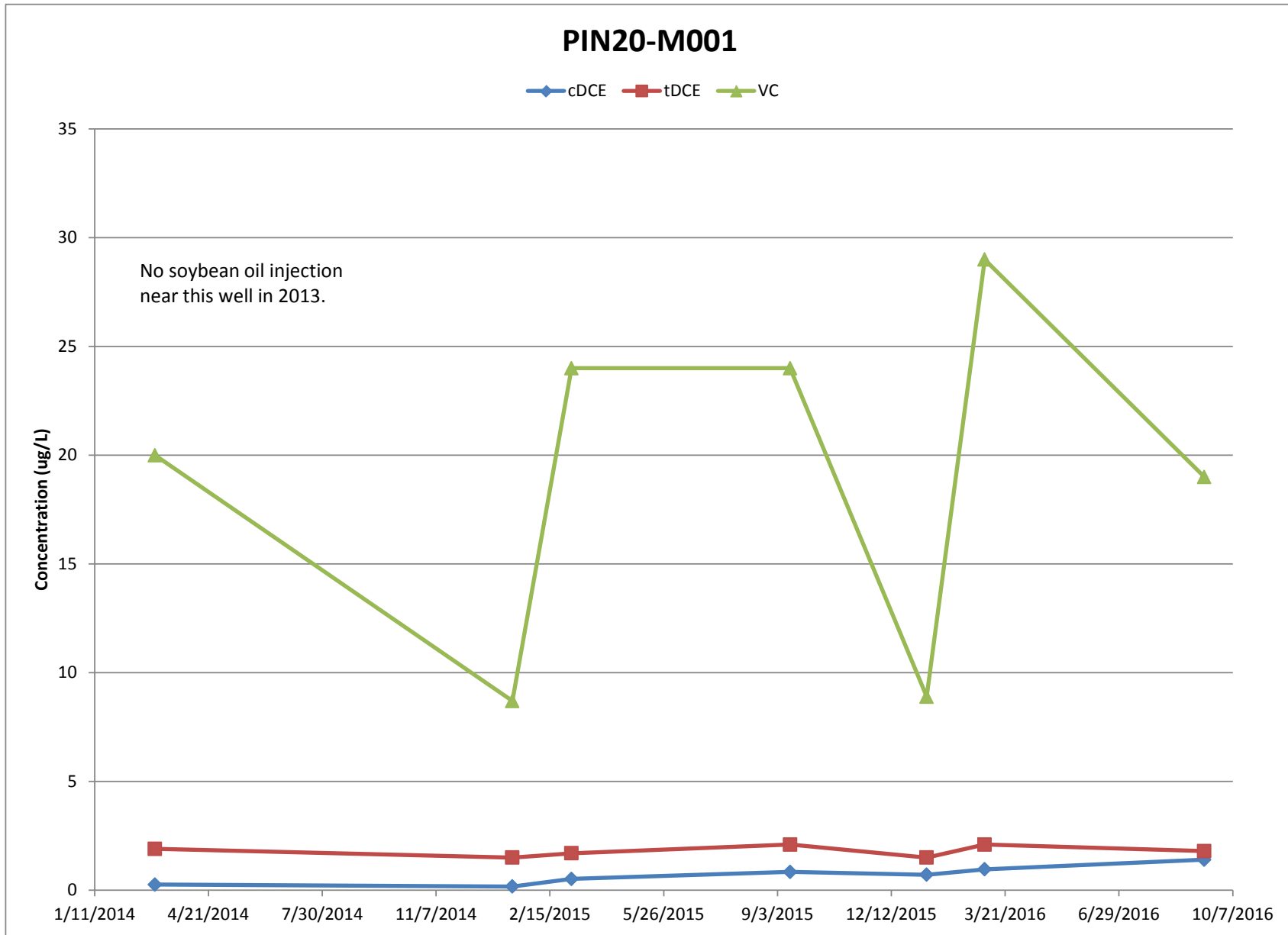


Figure 8. cDCE, tDCE, and VC in Well PIN20-M001

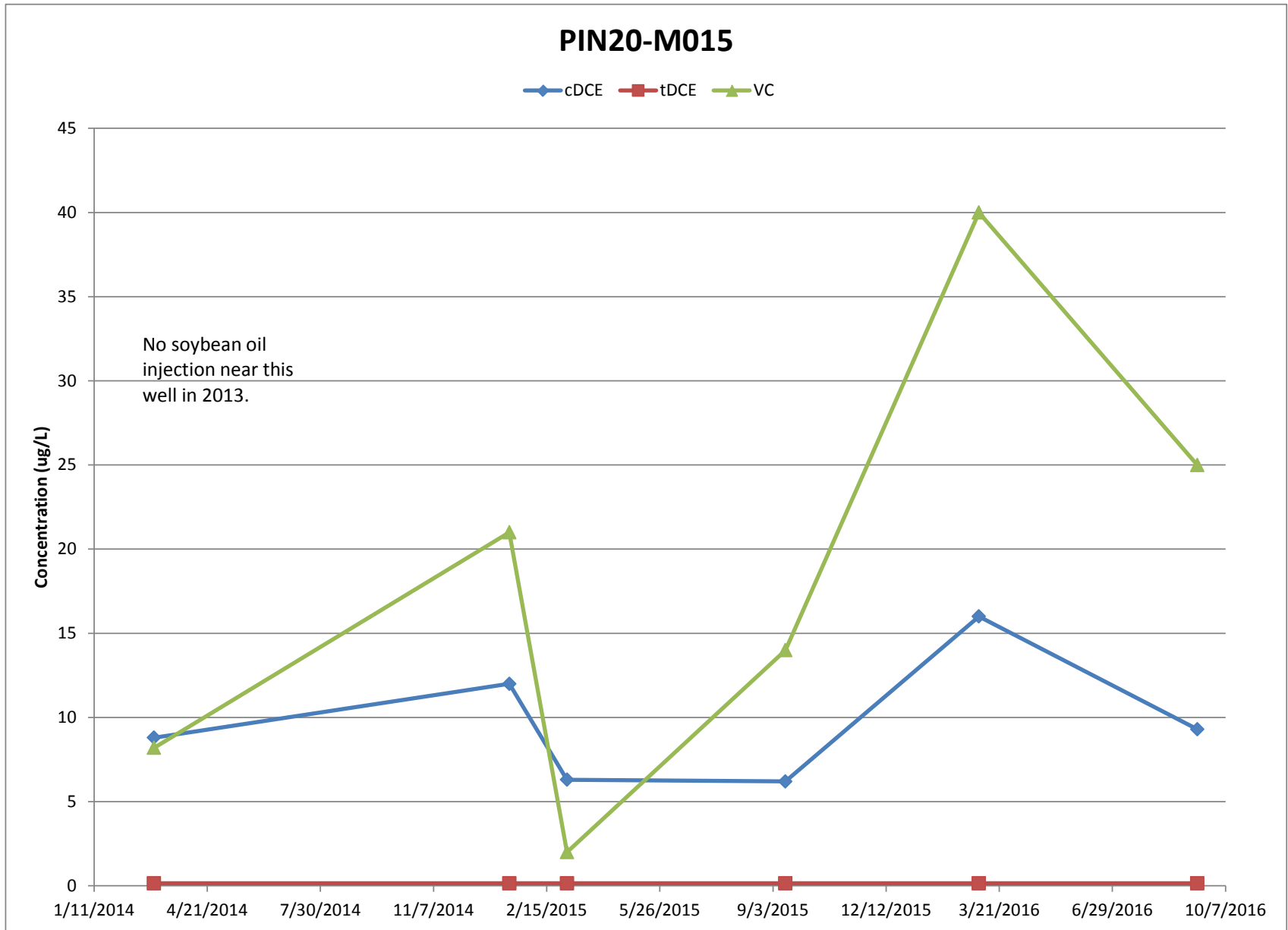


Figure 9. cDCE, tDCE, and VC in Well PIN20-M015

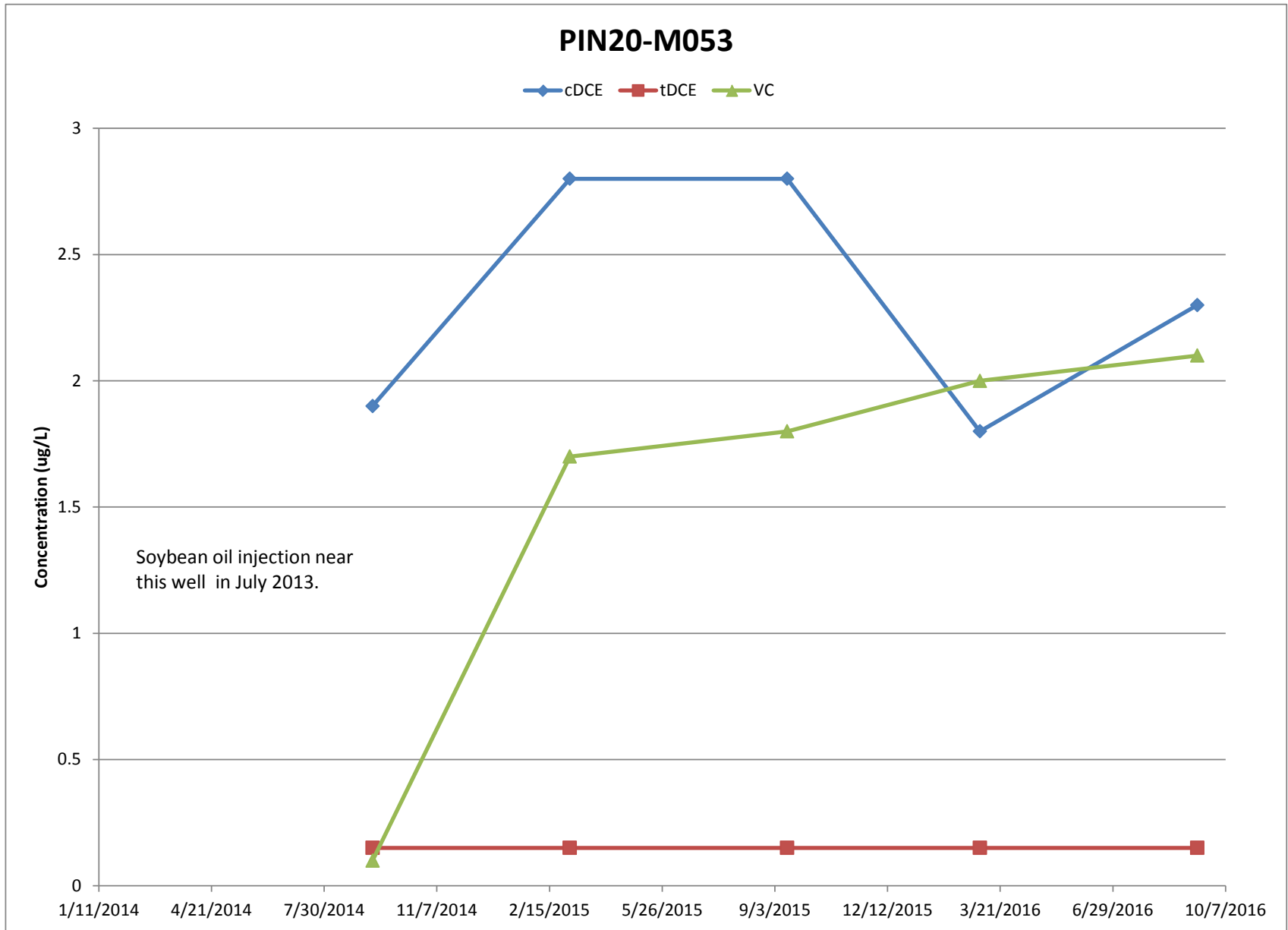


Figure 10. cDCE, tDCE, and VC in Well PIN20-M053

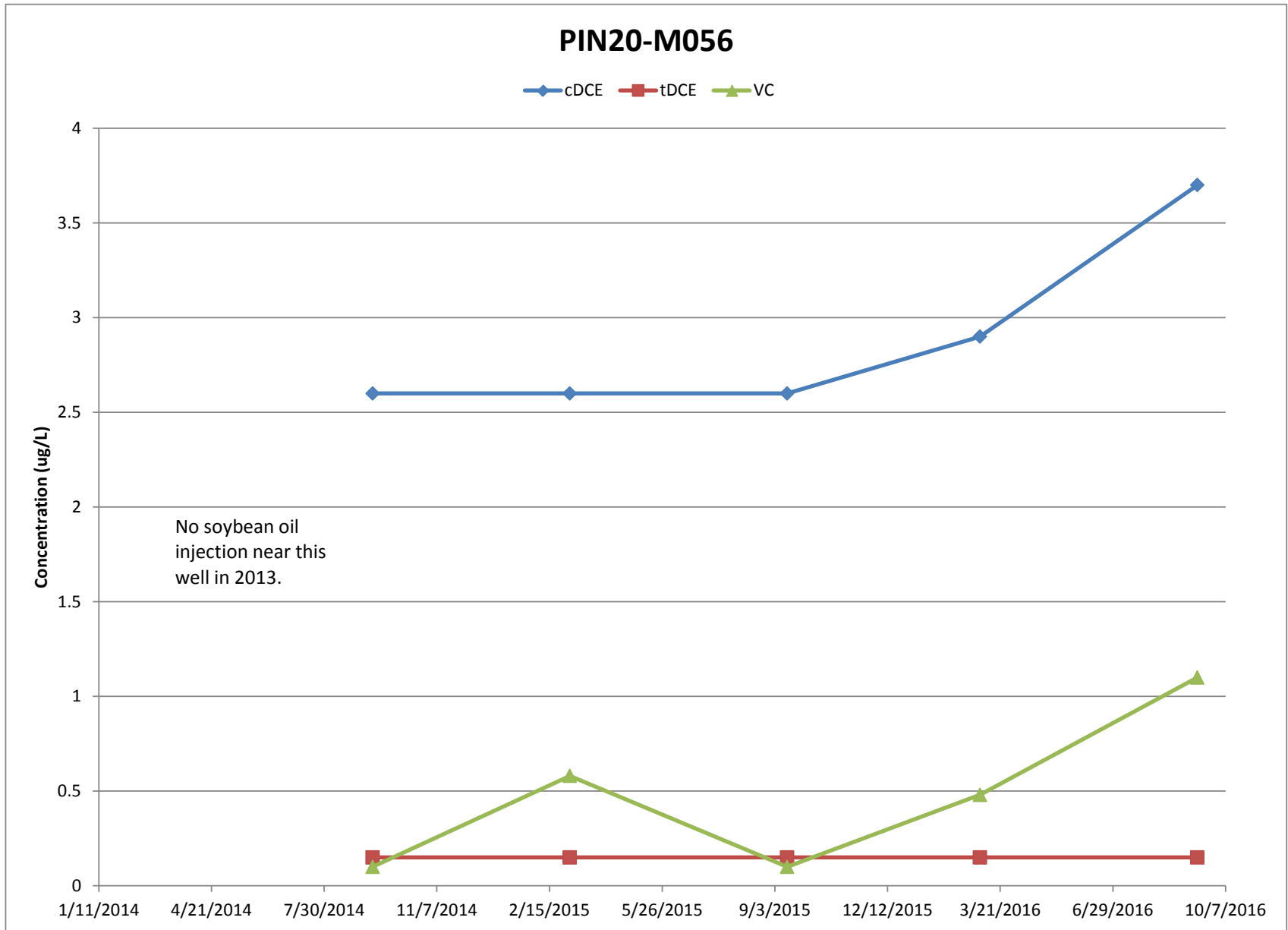


Figure 11. cDCE, tDCE, and VC in Well PIN20-M056

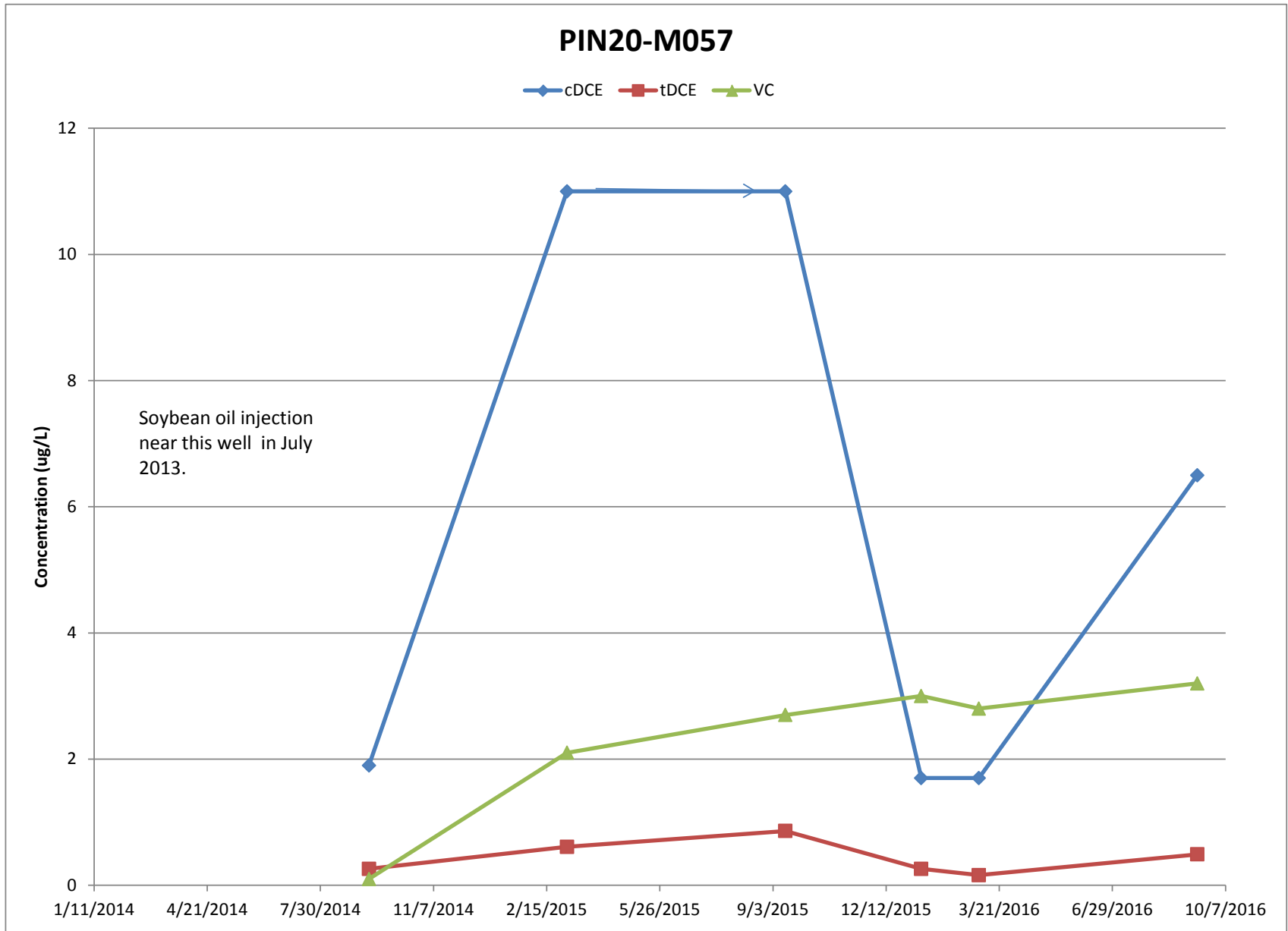


Figure 12. cDCE, tDCE, and VC in Well PIN20-M057

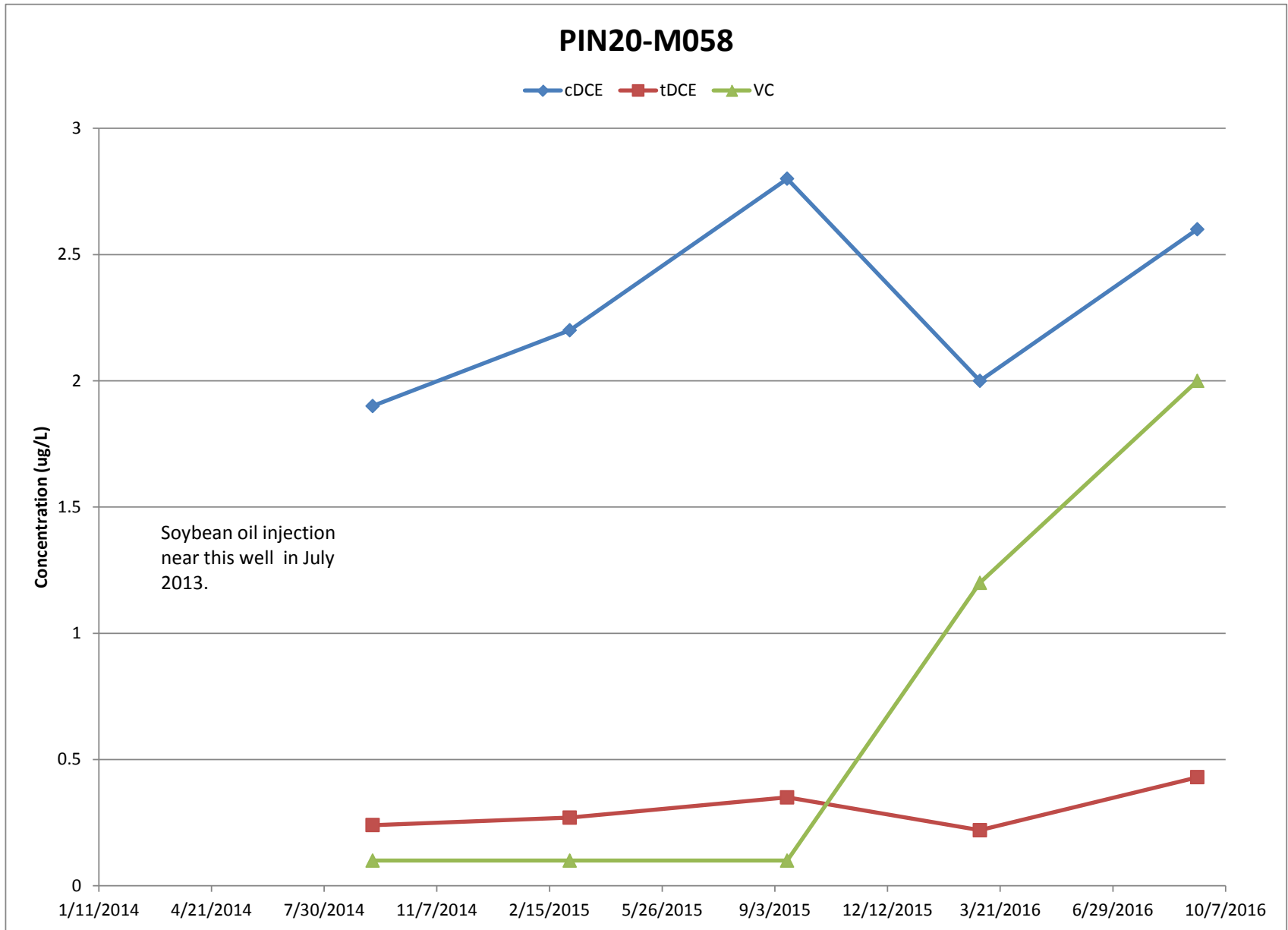


Figure 13. cDCE, tDCE, and VC in Well PIN20-M058

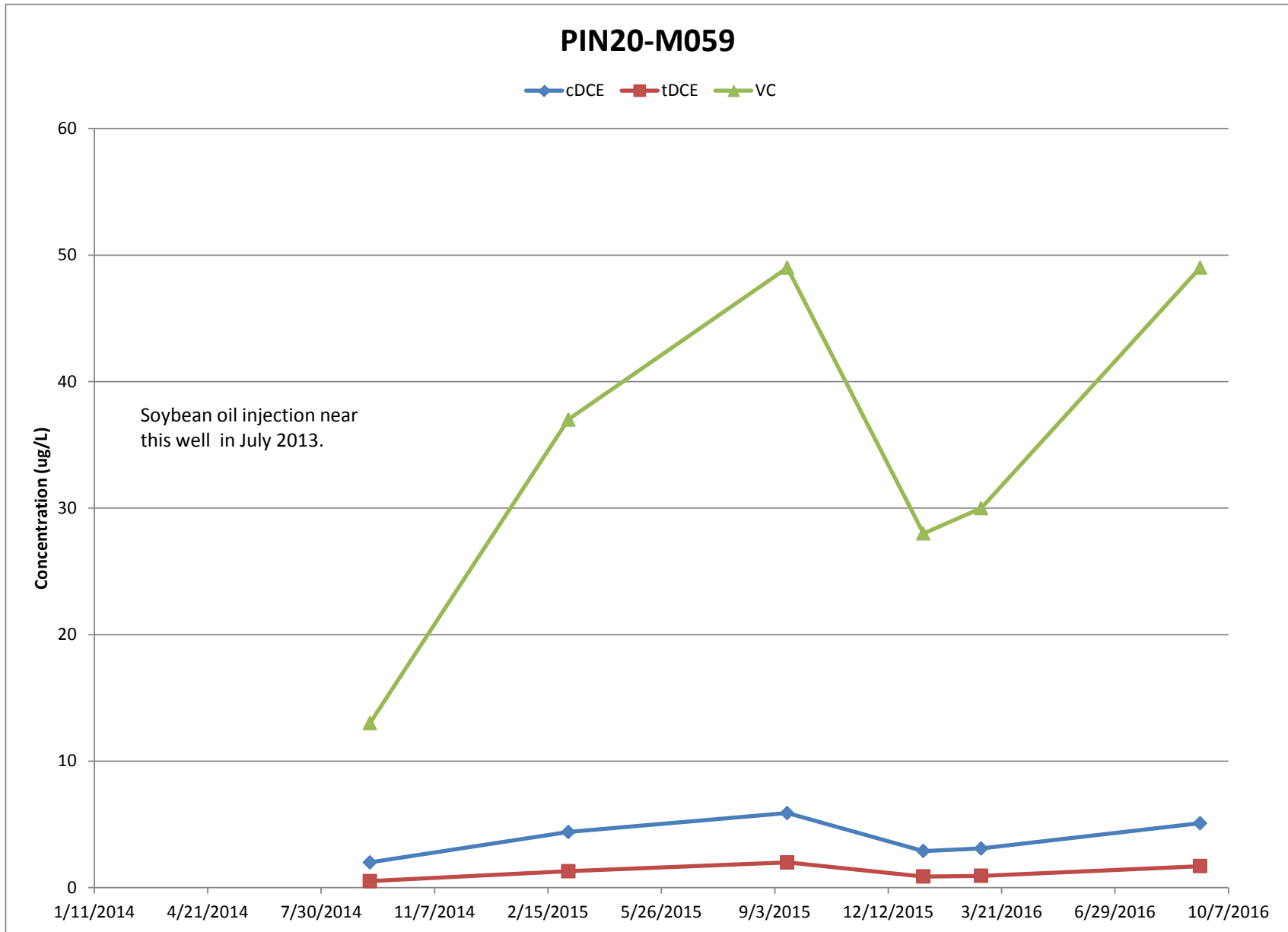


Figure 14. cDCE, tDCE, and VC in Well PIN20-M059

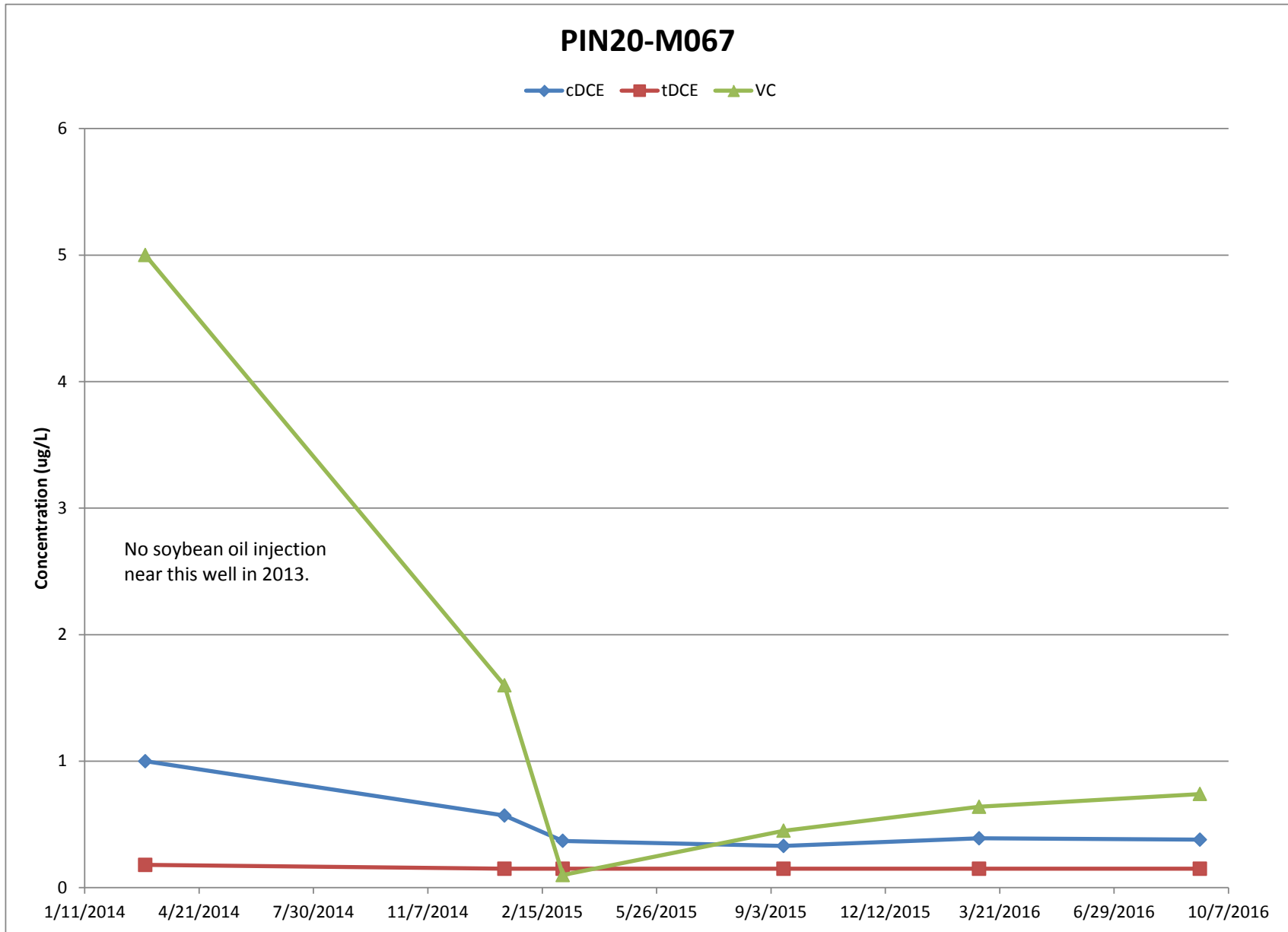


Figure 15. cDCE, tDCE, and VC in Well PIN20-M067

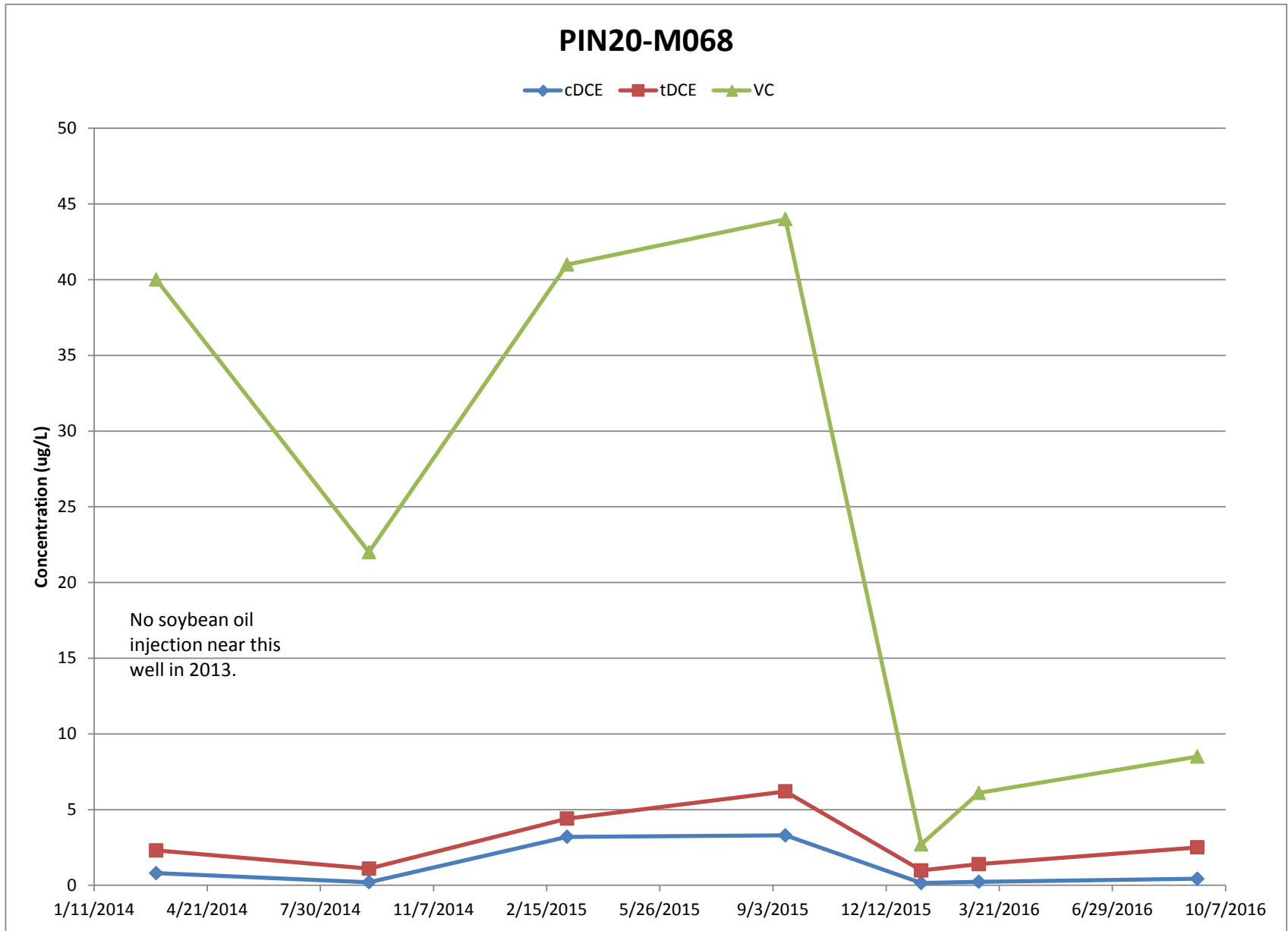


Figure 16. cDCE, tDCE, and VC in Well PIN20-M068

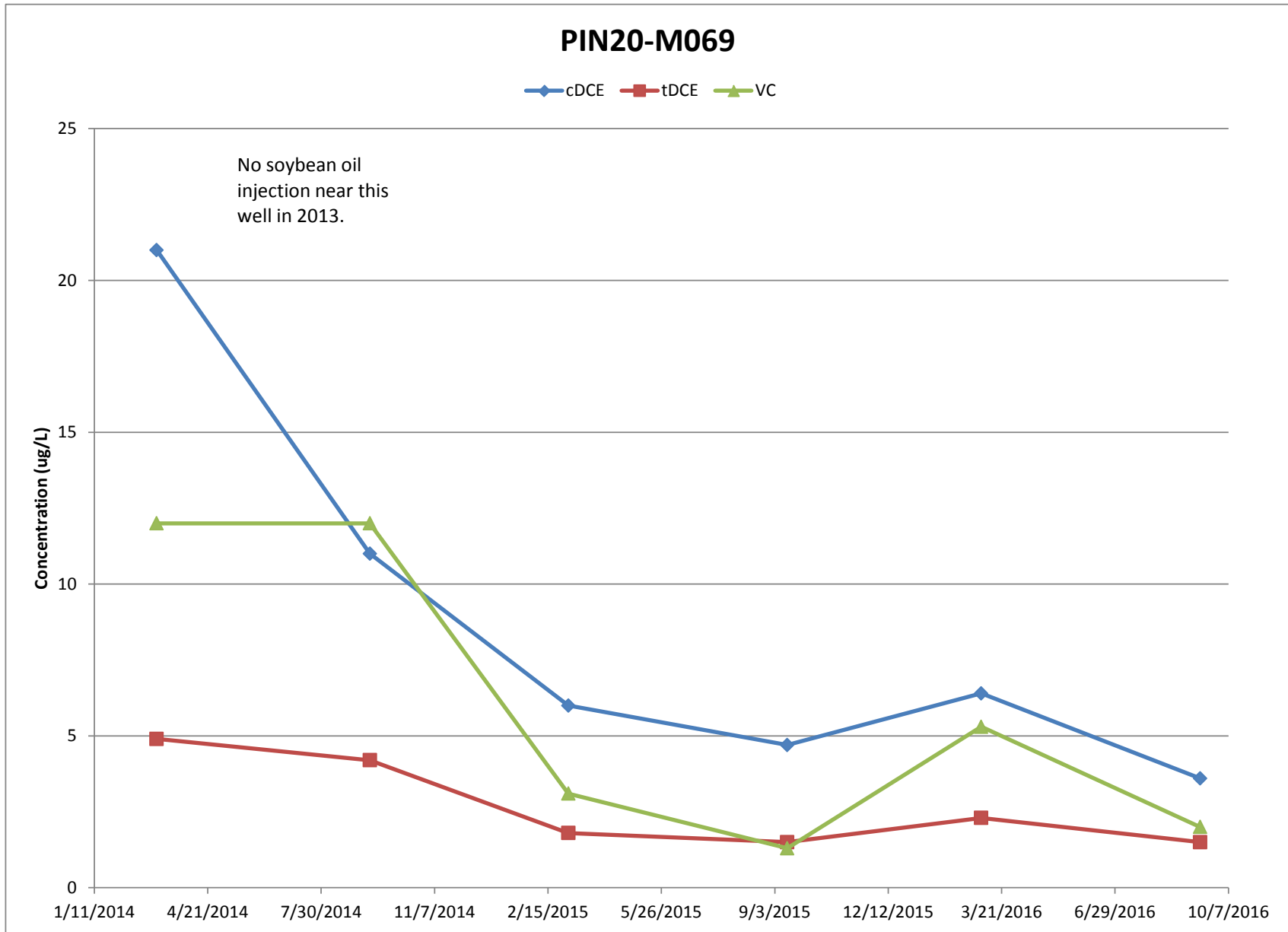


Figure 17. cDCE, tDCE, and VC in Well PIN20-M069

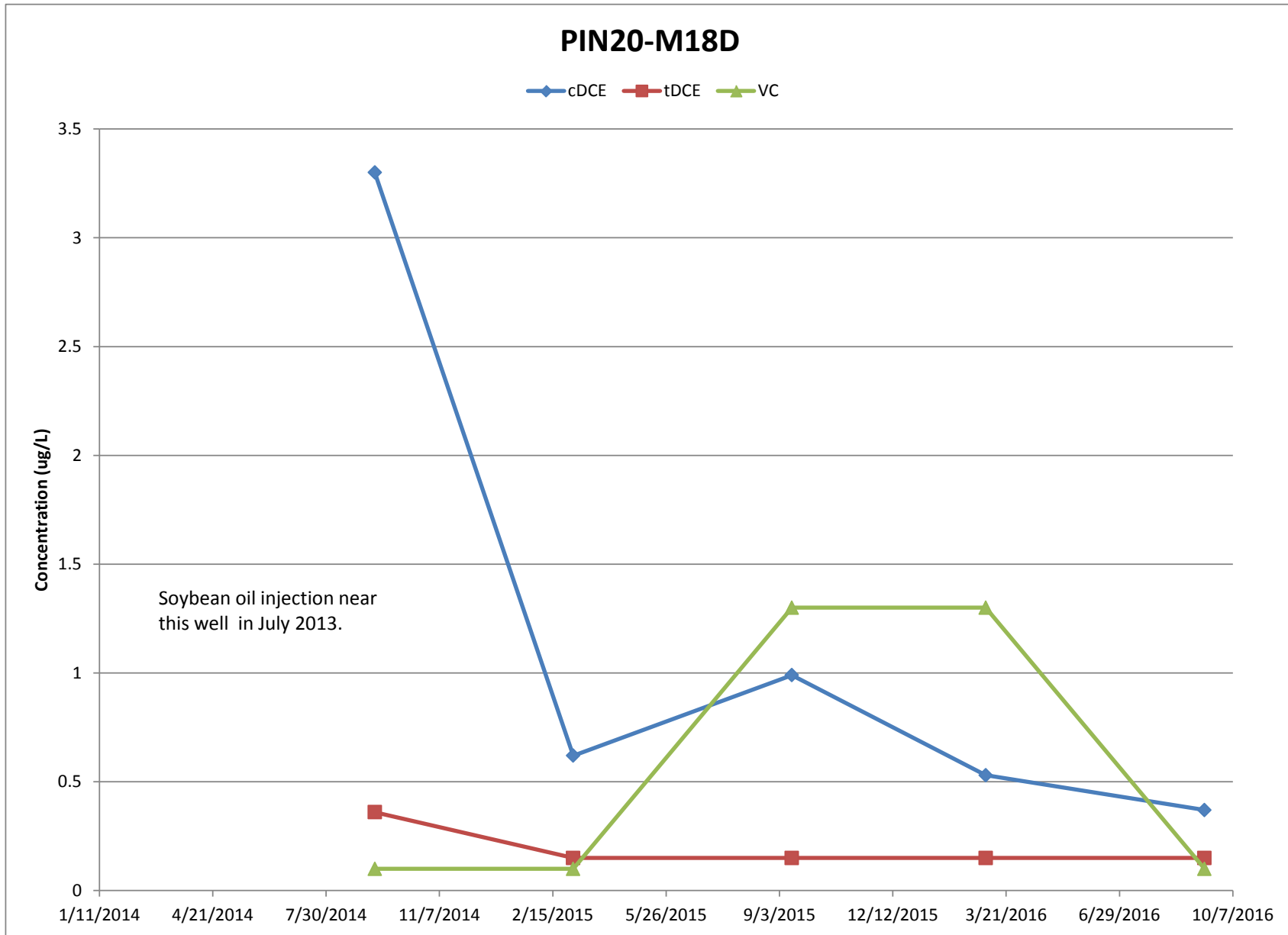


Figure 18. cDCE, tDCE, and VC in Well PIN20-M18D

Table 1. Groundwater Elevation Data at the 4.5 Acre Site, September 2016

Location	Measurement		Water Depth (ft bls)	Groundwater Elevation (ft amsl)
	Date	Time		
PIN20				
0502	9/7/2016	08:04	0.27	17.13
0503	9/7/2016	08:08	0.30	17.10
M001	9/7/2016	08:17	0.26	17.34
M003	9/7/2016	13:03	0.71	17.19
M005	9/7/2016	13:16	1.42	16.88
M015	9/7/2016	13:31	1.10	17.29
M035	9/7/2016	10:58	2.03	16.77
M036	9/7/2016	10:51	2.68	16.62
M053	9/7/2016	12:48	0.39	16.81
M056	9/7/2016	12:39	0.06	17.04
M057	9/7/2016	12:49	1.03	16.87
M058	9/7/2016	12:57	0.75	16.95
M059	9/7/2016	13:00	0.90	16.90
M065	9/7/2016	13:18	0.90	17.50
M066	9/7/2016	13:28	0.79	17.41
M067	9/7/2016	08:19	1.11	17.59
M068	9/7/2016	13:35	1.10	17.05
M069	9/7/2016	13:36	0.89	17.11
M18D	9/7/2016	12:51	0.84	16.86
M38D	9/7/2016	09:55	3.58	14.92
M40D	9/7/2016	10:40	2.78	16.62
M40S	9/7/2016	10:50	2.99	16.21
M41D	9/7/2016	11:01	2.71	16.39

Abbreviations:

ft amsl = feet above mean sea level

ft bls = feet below land surface

Table 2. Surface Water Elevations at the 4.5 Acre Site, September 2016

Location	Measurement		Surface Water Elevation (ft amsl)
	Date	Time	
PIN01	Pond 5		
P501	9/7/2016	09:18	14.24
P502	–	–	not measured
PIN02	West Pond		
W005	9/7/2016	09:18	14.25

Abbreviation:

ft amsl = feet above mean sea level

Table 3. Field Measurements of Samples Collected at the 4.5 Acre Site, September 2016

Location	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmho/cm) ^a	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)
PIN20							
M001	20–25	–	–	18	–	–	–
M015	20.8–25.8	27.5	1796	8	6.85	–96	
M035	9–14	–	–	16	–	–	–
M036	25–30	29.1	797	2	6.82	–88	1.1
M053	20–30	–	–	6	–	–	–
M056	19–29	–	–	5	–	–	–
M057	20–30	–	–	9	–	–	–
M058	18–28	–	–	11	–	–	–
M059	19–29	–	–	16	–	–	–
M067	10–20	–	–	29	–	–	–
M068	20–30	–	–	47	–	–	–
M069	10–20	–	–	33	–	–	–
M18D	20–30	–	–	6	–	–	–
M38D	20–30	26.6	733	2	6.98	–81	1.3
M40D	18–28	27.0	2338	5	6.78	–94	1.3
M40S	4–14	27.8	363	6	6.46	–28	0.7
M41D	16–26	26.4	2261	13	6.81	–104	0.9

Notes:

^a Temperature corrected to 25 °C.

Abbreviations:

– = not measured
 ft bls = feet below land surface
 µmho/cm = micromho per centimeter
 mg/L = milligrams/liter
 mV = millivolts
 NTU = nephelometric turbidity units

Table 4. COPC Concentrations Since March 2014 ($\mu\text{g/L}$)^{a,b}

Location (all IDs start with "PIN20-")	Screen Depth (ft bls)	Date Sampled	TCE	cDCE	tDCE	VC	Benzene	TCOPCs
Cleanup Target Level^c			30	700	1000	10	10	
M001	20–25	3/5/2014	<0.16	0.26J	1.9	20	0.73J	22.89
		1/13/2015	<0.16	0.17J	1.5	8.7	0.45J	10.82
		3/6/2015	<0.16	0.52J	1.7	24	0.61J	26.83
		9/14/2015	<0.16	0.84J	2.1	24	0.72J	27.66
		1/12/2016	<0.16	0.71J	1.5	8.9	0.72J	11.83
		3/3/2016	<0.16	0.96J	2.1	29	0.89J	32.95
		9/12/2016	<0.16	1.4	1.8	19	0.81J	23.01
M015	20.8–25.8	3/5/2014	<0.16	8.8	<0.15	8.2	<0.16	17
		1/13/2015	<0.16	12	<0.15	21	<0.16	33
		3/5/2015	<0.16	6.3	<0.15	2	<0.16	8.3
		9/14/2015	<0.16	6.2	<0.15	14	<0.16	20.2
		1/12/2016	<0.16	18	<0.15	37	<0.16	55
		3/3/2016	<0.16	16	<0.15	40	<0.16	56
		9/12/2016	<0.16	9.3	<0.15	25	<0.16	34.3
M053	20–30	9/11/2014	<0.16	1.9	<0.15	<0.1	<0.16	1.9
		3/5/2015	<0.16	2.8	<0.15	1.7	<0.16	4.5
		9/14/2015	<0.16	2.8	<0.15	1.8	<0.16	4.6
		3/3/2016	<0.16	1.8	<0.15	2	<0.16	3.8
		9/12/2016	<0.16	2.3	<0.15	2.1	<0.16	4.4
M056	19–29	9/11/2014	<0.16	2.6	<0.15	<0.1	<0.16	2.6
		3/5/2015	<0.16	2.6	<0.15	0.58J	<0.16	3.18
		9/14/2015	<0.16	2.6	<0.15	<0.1	<0.16	2.6
		3/3/2016	<0.16	2.9	<0.15	0.48J	<0.16	3.38
		9/12/2016	<0.16	3.7	<0.15	1.1	<0.16	4.8
M057	20–30	9/11/2014	<0.16	1.9	0.26J	<0.1	<0.16	2.16
		3/5/2015	<0.16	11	0.61J	2.1	<0.16	13.71
		9/14/2015	<0.16	11J	0.86J	2.7J	<0.16	14.56
		1/12/2016	<0.16	1.7	0.26J	3	<0.16	4.96
		3/3/2016	<0.16	1.7	0.16J	2.8	<0.16	4.66
		9/12/2016	<0.16	6.5	0.49J	3.2	<0.16	10.19
M058	18–28	9/11/2014	<0.16	1.9	0.24J	<0.1	<0.16	2.14
		3/5/2015	<0.16	2.2	0.27J	<0.1	<0.16	2.47
		9/14/2015	<0.16	2.8	0.35J	<0.1	<0.16	3.15
		3/3/2016	<0.16	2	0.22J	1.2	<0.16	3.42
		9/12/2016	<0.16	2.6	0.43J	2	<0.16	5.03

Table 4 (continued). COPC Concentrations Since March 2014 (µg/L)^a

Location (all IDs start with "PIN20-")	Screen Depth (ft bls)	Date Sampled	TCE	cDCE	tDCE	VC	Benzene	TCOPCs
Cleanup Target Level^c			30	700	1000	10	10	
M059	19–29	9/11/2014	<0.16	2	0.52J	13	0.22J	15.74
		3/5/2015	<0.16	4.4	1.3	37	0.26J	42.96
		9/14/2015	<0.16	5.9	2	49	0.29J	57.19
		1/12/2016	<0.16	2.9	0.88J	28	0.28J	32.06
		3/3/2016	<0.16	3.1	0.94J	30	0.3J	34.34
		9/12/2016	<0.16	5.1	1.7	49	0.32J	56.12
M067	10–20	3/5/2014	<0.16	1	0.18J	5	<0.16	6.18
		1/13/2015	<0.16	0.57J	<0.15	1.6	<0.16	2.17
		3/5/2015	<0.16	0.37J	<0.15	<0.1	<0.16	0.37
		9/14/2015	<0.16	0.33J	<0.15	0.45J	<0.16	0.78
		3/3/2016	<0.16	0.39J	<0.15	0.64J	<0.16	1.03
		9/12/2016	<0.16	0.38J	<0.15	0.74J	<0.16	1.12
M068	20–30	3/7/2014	<0.16	0.8J	2.3	40	0.37J	43.47
		9/11/2014	<0.16	0.2J	1.1	22	0.36J	23.66
		3/5/2015	<0.16	3.2	4.4	41	0.25J	48.85
		9/14/2015	<0.16	3.3	6.2	44	0.26J	53.76
		1/12/2016	<0.16	<0.15	0.98J	2.7	0.29J	3.97
		3/3/2016	<0.16	0.23J	1.4	6.1	0.28J	8.01
M069	10–20	9/12/2016	<0.16	0.43J	2.5	8.5	0.28J	11.71
		3/7/2014	<0.16	21	4.9	12	<0.16	37.9
		9/11/2014	<0.16	11	4.2	12	<0.16	27.2
		3/5/2015	<0.16	6	1.8	3.1	<0.16	10.9
		9/14/2015	<0.16	4.7	1.5	1.3	<0.16	7.5
		3/3/2016	<0.16	6.4	2.3	5.3	<0.16	14
M18D	20–30	9/12/2016	<0.16	3.6	1.5	2	<0.16	7.1
		9/11/2014	<0.16	3.3	0.36J	<0.1	<0.16	3.66
		3/5/2015	<0.16	0.62J	<0.15	<0.1	<0.16	0.62
		9/14/2015	<0.16	0.99J	<0.15	1.3J	<0.16	2.29
		3/3/2016	<0.16	0.53J	<0.15	1.3	<0.16	1.83
M035	9–14	9/9/2016	<0.16	2.7	0.51J	0.73J	<0.16	3.94
M036	25–30	9/9/2016	<0.16	<0.15	<0.15	<0.1	<0.16	ND
M38D	20–30	9/9/2016	<0.16	<0.15	<0.15	<0.1	<0.16	ND
M40D	18–28	9/9/2016	<0.16	<0.15	<0.15	<0.1	<0.16	ND
M40S	4–14	9/9/2016	<0.16	<0.15	<0.15	<0.1	<0.16	ND
M41D	16–26	9/9/2016	<0.16	0.79J	<0.15	<0.1	<0.16	0.79

Notes:

^a The "<" values are method detection limits.

^b Not all wells were sampled during every sampling event.

^c The offsite CTL is a factor of 10 lower than the listed onsite (poor water quality) CTL.

Abbreviations:

ft bls = feet below land surface

J = estimated value

ND = not detected

µg/L = micrograms per liter

Table 5. Relative Percent Difference for Duplicate Samples, September 2016 (reported in µg/L)

Sample ID	Duplicate ID	Analyte	Result	Duplicate Result	MDL	RPD
PIN20-M059	PIN20-2860	Vinyl chloride	49	40	0.10	20
		<i>cis</i> -1,2-Dichloroethene	5.1	4.8	0.15	6
		<i>trans</i> -1,2-Dichloroethene	1.7	1.6	0.15	6

Abbreviations:

MDL = method detection limit

RPD = relative percent difference

µg/L = micrograms per liter

Appendix A

Laboratory Reports

September 2016 Semiannual Monitoring

ANALYTICAL REPORT

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Pages have been deleted from this laboratory report file to reduce file size. The deleted pages contain raw data and instrument calibrations. If the full laboratory report is needed, contact Scott.Surovchak@lm.doe.gov

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CASE NARRATIVE

Client: Navarro Research and Engineering, Inc

Project: PINELLAS MONITORING - 16087997

Report Number: 280-88070-1

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted. Calculations are performed before rounding to avoid round-off errors in calculated results.

This report includes reporting limits (RLs) less than TestAmerica Denver's practical quantitation limits. These reporting limits are being used specifically at the client's request to meet the needs of this project. Please note that data are not normally reported to these levels without qualification, since they are inherently less reliable and potentially less defensible than required by the current NELAC standards.

Results between the method detection limit (MDL) and reporting limit (RL) are flagged with a "J" qualifier to indicate an estimated value. These results are statistically less reliable than results greater than or equal to the RL and should be considered a qualitative value.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 9/13/2016 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.6° C and 2.1° C.

GC/MS VOLATILES - SW846 8260B

The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch 280-342635 recovered outside the control limits, biased high, for Hexachlorobutadiene. Associated samples were non-detect for this analyte. It can be noted, this is not a compound of interest. Therefore, data was not affected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DATA REPORTING QUALIFIERS

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Lab Section	Qualifier	Description
GC/MS VOA	U	Indicates the analyte was analyzed for but not detected.
	*	LCS or LCSD is outside acceptance limits.
	F1	MS and/or MSD Recovery is outside acceptance limits.
	F2	MS/MSD RPD exceeds control limits
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

SAMPLE SUMMARY

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1
Sdg Number: 16087997

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-88070-1	PIN20-M035	Water	09/09/2016 0855	09/13/2016 0935
280-88070-1MS	PIN20-M035	Water	09/09/2016 0855	09/13/2016 0935
280-88070-1MSD	PIN20-M035	Water	09/09/2016 0855	09/13/2016 0935
280-88070-2	PIN20-M036	Water	09/09/2016 1155	09/13/2016 0935
280-88070-3	PIN20-M38D	Water	09/09/2016 0930	09/13/2016 0935
280-88070-4	PIN20-M40D	Water	09/09/2016 1125	09/13/2016 0935
280-88070-5	PIN20-M40S	Water	09/09/2016 1100	09/13/2016 0935
280-88070-6	PIN20-M41D	Water	09/09/2016 1005	09/13/2016 0935

EXECUTIVE SUMMARY - Detections

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Lab Sample ID	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-88070-1	PIN20-M035					
cis-1,2-Dichloroethene		2.7		1.0	ug/L	8260B
trans-1,2-Dichloroethene		0.51	J	1.0	ug/L	8260B
Vinyl chloride		0.73	J	1.0	ug/L	8260B
280-88070-5	PIN20-M40S					
Chloromethane		0.61	J	1.0	ug/L	8260B
280-88070-6	PIN20-M41D					
cis-1,2-Dichloroethene		0.79	J	1.0	ug/L	8260B

METHOD SUMMARY

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1
Sdg Number: 16087997

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL DEN	SW846 8260B	
Purge and Trap	TAL DEN		SW846 5030B

Lab References:

TAL DEN = TestAmerica Denver

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Method	Analyst	Analyst ID
SW846 8260B	Moan, Matthew R	MRM

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Client Sample ID: PIN20-M035

Lab Sample ID: 280-88070-1

Date Sampled: 09/09/2016 0855

Client Matrix: Water

Date Received: 09/13/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-342635	Instrument ID: VMS_Z
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Z0842.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/19/2016 1104		Final Weight/Volume: 20 mL
Prep Date: 09/19/2016 1104		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.9	U F1 F2	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	2.7		0.15	1.0
trans-1,2-Dichloroethene	0.51	J	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U * F1	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U F2	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Client Sample ID: PIN20-M035

Lab Sample ID: 280-88070-1

Date Sampled: 09/09/2016 0855

Client Matrix: Water

Date Received: 09/13/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-342635	Instrument ID: VMS_Z
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Z0842.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/19/2016 1104		Final Weight/Volume: 20 mL
Prep Date: 09/19/2016 1104		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	0.73	J	0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	80		70 - 127
Toluene-d8 (Surr)	98		80 - 125
4-Bromofluorobenzene (Surr)	85		78 - 120
Dibromofluoromethane (Surr)	93		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Client Sample ID: PIN20-M036

Lab Sample ID: 280-88070-2

Date Sampled: 09/09/2016 1155

Client Matrix: Water

Date Received: 09/13/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-342635	Instrument ID: VMS_Z
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Z0852.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/19/2016 1450		Final Weight/Volume: 20 mL
Prep Date: 09/19/2016 1450		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.9	U	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	0.15	U	0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U *	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Client Sample ID: PIN20-M036

Lab Sample ID: 280-88070-2

Client Matrix: Water

Date Sampled: 09/09/2016 1155

Date Received: 09/13/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-342635	Instrument ID: VMS_Z
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Z0852.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/19/2016 1450		Final Weight/Volume: 20 mL
Prep Date: 09/19/2016 1450		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	0.10	U	0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	85		70 - 127
Toluene-d8 (Surr)	96		80 - 125
4-Bromofluorobenzene (Surr)	84		78 - 120
Dibromofluoromethane (Surr)	99		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Client Sample ID: PIN20-M38D

Lab Sample ID: 280-88070-3

Date Sampled: 09/09/2016 0930

Client Matrix: Water

Date Received: 09/13/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-342635	Instrument ID: VMS_Z
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Z0853.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/19/2016 1512		Final Weight/Volume: 20 mL
Prep Date: 09/19/2016 1512		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.9	U	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	0.15	U	0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U *	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Client Sample ID: PIN20-M38D

Lab Sample ID: 280-88070-3

Date Sampled: 09/09/2016 0930

Client Matrix: Water

Date Received: 09/13/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-342635	Instrument ID: VMS_Z
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Z0853.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/19/2016 1512		Final Weight/Volume: 20 mL
Prep Date: 09/19/2016 1512		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	0.10	U	0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	86		70 - 127
Toluene-d8 (Surr)	96		80 - 125
4-Bromofluorobenzene (Surr)	87		78 - 120
Dibromofluoromethane (Surr)	99		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Client Sample ID: PIN20-M40D

Lab Sample ID: 280-88070-4

Date Sampled: 09/09/2016 1125

Client Matrix: Water

Date Received: 09/13/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-342635	Instrument ID: VMS_Z
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Z0854.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/19/2016 1535		Final Weight/Volume: 20 mL
Prep Date: 09/19/2016 1535		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.9	U	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	0.15	U	0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U *	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Client Sample ID: PIN20-M40D

Lab Sample ID: 280-88070-4

Date Sampled: 09/09/2016 1125

Client Matrix: Water

Date Received: 09/13/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-342635	Instrument ID: VMS_Z
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Z0854.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/19/2016 1535		Final Weight/Volume: 20 mL
Prep Date: 09/19/2016 1535		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	0.10	U	0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	85		70 - 127
Toluene-d8 (Surr)	94		80 - 125
4-Bromofluorobenzene (Surr)	86		78 - 120
Dibromofluoromethane (Surr)	96		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Client Sample ID: PIN20-M40S

Lab Sample ID: 280-88070-5

Date Sampled: 09/09/2016 1100

Client Matrix: Water

Date Received: 09/13/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-342635	Instrument ID: VMS_Z
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Z0855.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/19/2016 1558		Final Weight/Volume: 20 mL
Prep Date: 09/19/2016 1558		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.9	U	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.61	J	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	0.15	U	0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U *	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Client Sample ID: PIN20-M40S

Lab Sample ID: 280-88070-5

Date Sampled: 09/09/2016 1100

Client Matrix: Water

Date Received: 09/13/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-342635	Instrument ID: VMS_Z
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Z0855.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/19/2016 1558		Final Weight/Volume: 20 mL
Prep Date: 09/19/2016 1558		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	0.10	U	0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	87		70 - 127
Toluene-d8 (Surr)	94		80 - 125
4-Bromofluorobenzene (Surr)	84		78 - 120
Dibromofluoromethane (Surr)	98		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Client Sample ID: PIN20-M41D

Lab Sample ID: 280-88070-6

Date Sampled: 09/09/2016 1005

Client Matrix: Water

Date Received: 09/13/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-342635	Instrument ID: VMS_Z
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Z0856.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/19/2016 1620		Final Weight/Volume: 20 mL
Prep Date: 09/19/2016 1620		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.9	U	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	0.79	J	0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U *	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Client Sample ID: PIN20-M41D

Lab Sample ID: 280-88070-6

Date Sampled: 09/09/2016 1005

Client Matrix: Water

Date Received: 09/13/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-342635	Instrument ID:	VMS_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z0856.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	09/19/2016 1620			Final Weight/Volume:	20 mL
Prep Date:	09/19/2016 1620				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	0.10	U	0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	87		70 - 127
Toluene-d8 (Surr)	94		80 - 125
4-Bromofluorobenzene (Surr)	86		78 - 120
Dibromofluoromethane (Surr)	97		77 - 120

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TOL %Rec	BFB %Rec
280-88070-1	PIN20-M035	93	80	98	85
280-88070-2	PIN20-M036	99	85	96	84
280-88070-3	PIN20-M38D	99	86	96	87
280-88070-4	PIN20-M40D	96	85	94	86
280-88070-5	PIN20-M40S	98	87	94	84
280-88070-6	PIN20-M41D	97	87	94	86
MB 280-342635/6		108	92	106	93
LCS 280-342635/4		95	88	107	85
280-88070-1 MS	PIN20-M035 MS	94	86	99	86
280-88070-1 MSD	PIN20-M035 MSD	95	90	106	89

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane (Surr)	77-120
DCA = 1,2-Dichloroethane-d4 (Surr)	70-127
TOL = Toluene-d8 (Surr)	80-125
BFB = 4-Bromofluorobenzene (Surr)	78-120

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Method Blank - Batch: 280-342635

Method: 8260B

Preparation: 5030B

Lab Sample ID: MB 280-342635/6
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 09/19/2016 0826
 Prep Date: 09/19/2016 0826
 Leach Date: N/A

Analysis Batch: 280-342635
 Prep Batch: N/A
 Leach Batch: N/A
 Units: ug/L

Instrument ID: VMS_Z
 Lab File ID: Z0835.D
 Initial Weight/Volume: 20 mL
 Final Weight/Volume: 20 mL

Analyte	Result	Qual	MDL	RL
Acetone	1.9	U	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	0.15	U	0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

Method Blank - Batch: 280-342635

Method: 8260B

Preparation: 5030B

Lab Sample ID: MB 280-342635/6
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 09/19/2016 0826
 Prep Date: 09/19/2016 0826
 Leach Date: N/A

Analysis Batch: 280-342635
 Prep Batch: N/A
 Leach Batch: N/A
 Units: ug/L

Instrument ID: VMS_Z
 Lab File ID: Z0835.D
 Initial Weight/Volume: 20 mL
 Final Weight/Volume: 20 mL

Analyte	Result	Qual	MDL	RL
n-Propylbenzene	0.16	U	0.16	1.0
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	0.10	U	0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	92	70 - 127
Toluene-d8 (Surr)	106	80 - 125
4-Bromofluorobenzene (Surr)	93	78 - 120
Dibromofluoromethane (Surr)	108	77 - 120

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1
Sdg Number: 16087997

Lab Control Sample - Batch: 280-342635

Method: 8260B
Preparation: 5030B

Lab Sample ID:	LCS 280-342635/4	Analysis Batch:	280-342635	Instrument ID:	VMS_Z
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Z0833.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	09/19/2016 0740	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	09/19/2016 0740				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Benzene	5.00	4.73	95	65 - 135	
Bromodichloromethane	5.00	4.61	92	65 - 135	
Carbon tetrachloride	5.00	5.00	100	65 - 135	
Chlorobenzene	5.00	4.79	96	65 - 135	
Chloroform	5.00	4.74	95	65 - 135	
1,3-Dichlorobenzene	5.00	4.79	96	65 - 135	
1,1-Dichloroethane	5.00	4.59	92	65 - 135	
trans-1,2-Dichloroethene	5.00	5.32	106	65 - 135	
1,1-Dichloroethene	5.00	5.38	108	65 - 136	
1,2-Dichloropropane	5.00	4.85	97	64 - 135	
Ethylbenzene	5.00	4.81	96	65 - 135	
Methylene Chloride	5.00	3.43	69	54 - 141	
Tetrachloroethene	5.00	5.05	101	65 - 135	
Toluene	5.00	4.95	99	65 - 135	
1,1,1-Trichloroethane	5.00	4.91	98	65 - 135	
Trichloroethene	5.00	5.51	110	65 - 135	
Surrogate		% Rec		Acceptance Limits	
1,2-Dichloroethane-d4 (Surr)		88		70 - 127	
Toluene-d8 (Surr)		107		80 - 125	
4-Bromofluorobenzene (Surr)		85		78 - 120	
Dibromofluoromethane (Surr)		95		77 - 120	

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-342635**

**Method: 8260B
Preparation: 5030B**

MS Lab Sample ID: 280-88070-1	Analysis Batch: 280-342635	Instrument ID: VMS_Z
Client Matrix: Water	Prep Batch: N/A	Lab File ID: Z0843.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 20 mL
Analysis Date: 09/19/2016 1127		Final Weight/Volume: 20 mL
Prep Date: 09/19/2016 1127		20 mL
Leach Date: N/A		

MSD Lab Sample ID: 280-88070-1	Analysis Batch: 280-342635	Instrument ID: VMS_Z
Client Matrix: Water	Prep Batch: N/A	Lab File ID: Z0844.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 20 mL
Analysis Date: 09/19/2016 1149		Final Weight/Volume: 20 mL
Prep Date: 09/19/2016 1149		20 mL
Leach Date: N/A		

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Benzene	89	94	65 - 135	5	20		
Bromodichloromethane	87	96	65 - 135	10	20		
Carbon tetrachloride	101	101	65 - 135	0	21		
Chlorobenzene	87	98	65 - 135	12	20		
Chloroform	90	97	65 - 135	7	20		
1,3-Dichlorobenzene	84	97	65 - 135	15	20		
1,1-Dichloroethane	87	92	65 - 135	6	21		
trans-1,2-Dichloroethene	100	103	65 - 135	3	24		
1,1-Dichloroethene	101	106	65 - 136	5	20		
1,2-Dichloropropane	97	91	64 - 135	7	20		
Ethylbenzene	89	100	65 - 135	12	20		
Methylene Chloride	59	66	54 - 141	10	26		
Tetrachloroethene	91	103	65 - 135	13	20		
Toluene	96	98	65 - 135	3	20		
1,1,1-Trichloroethane	94	98	65 - 135	4	20		
Trichloroethene	100	109	65 - 135	9	20		
Surrogate		MS % Rec	MSD % Rec			Acceptance Limits	
1,2-Dichloroethane-d4 (Surr)		86	90			70 - 127	
Toluene-d8 (Surr)		99	106			80 - 125	
4-Bromofluorobenzene (Surr)		86	89			78 - 120	
Dibromofluoromethane (Surr)		94	95			77 - 120	

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1
Sdg Number: 16087997

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-342635**

**Method: 8260B
Preparation: 5030B**

MS Lab Sample ID: 280-88070-1 Units: ug/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 09/19/2016 1127
Prep Date: 09/19/2016 1127
Leach Date: N/A

MSD Lab Sample ID: 280-88070-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 09/19/2016 1149
Prep Date: 09/19/2016 1149
Leach Date: N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Benzene	0.16 U		5.00	5.00	4.44	4.69
Bromodichloromethane	0.17 U		5.00	5.00	4.33	4.79
Carbon tetrachloride	0.19 U		5.00	5.00	5.07	5.07
Chlorobenzene	0.17 U		5.00	5.00	4.36	4.92
Chloroform	0.16 U		5.00	5.00	4.51	4.84
1,3-Dichlorobenzene	0.13 U		5.00	5.00	4.19	4.85
1,1-Dichloroethane	0.22 U		5.00	5.00	4.33	4.60
trans-1,2-Dichloroethene	0.51 J		5.00	5.00	5.50	5.64
1,1-Dichloroethene	0.23 U		5.00	5.00	5.04	5.28
1,2-Dichloropropane	0.18 U		5.00	5.00	4.86	4.55
Ethylbenzene	0.16 U		5.00	5.00	4.43	5.00
Methylene Chloride	0.32 U		5.00	5.00	2.97	3.28
Tetrachloroethene	0.20 U		5.00	5.00	4.53	5.14
Toluene	0.17 U		5.00	5.00	4.78	4.90
1,1,1-Trichloroethane	0.16 U		5.00	5.00	4.69	4.90
Trichloroethene	0.16 U		5.00	5.00	5.01	5.46

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88070-1

Sdg Number: 16087997

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:280-342635					
LCS 280-342635/4	Lab Control Sample	T	Water	8260B	
MB 280-342635/6	Method Blank	T	Water	8260B	
280-88070-1	PIN20-M035	T	Water	8260B	
280-88070-1MS	Matrix Spike	T	Water	8260B	
280-88070-1MSD	Matrix Spike Duplicate	T	Water	8260B	
280-88070-2	PIN20-M036	T	Water	8260B	
280-88070-3	PIN20-M38D	T	Water	8260B	
280-88070-4	PIN20-M40D	T	Water	8260B	
280-88070-5	PIN20-M40S	T	Water	8260B	
280-88070-6	PIN20-M41D	T	Water	8260B	

Report Basis

T = Total

ANALYTICAL REPORT

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CASE NARRATIVE

Client: Navarro Research and Engineering, Inc

Project: PINELLAS MONITORING - 16087997

Report Number: 280-88348-1

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted. Calculations are performed before rounding to avoid round-off errors in calculated results.

This report includes reporting limits (RLs) less than TestAmerica Denver's practical quantitation limits. These reporting limits are being used specifically at the client's request to meet the needs of this project. Please note that data are not normally reported to these levels without qualification, since they are inherently less reliable and potentially less defensible than required by the current NELAC standards.

Results between the method detection limit (MDL) and reporting limit (RL) are flagged with a "J" qualifier to indicate an estimated value. These results are statistically less reliable than results greater than or equal to the RL and should be considered a qualitative value.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 9/16/2016 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.8° C.

GC/MS VOLATILES - SW846 8260B

Surrogate Dibromofluoromethane (Surr) recovered outside the upper control limit for sample PIN20-2861 (OJS 974). As the sample does not contain any detectable concentrations above the reporting limit for constituents associated with this surrogate, corrective action is deemed unnecessary. Usability of the sample data is not compromised.

The reporting limit provided for the following analyte falls below the laboratory's lowest calibration standard: Carbon Tetrachloride at 1ppb. Results reported below the lowest calibration standard have less certainty (i.e., are estimated).

Methylene Chloride, a common laboratory contaminant, was detected in method blank MB 280-343793/6 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Methylene Chloride failed the recovery criteria high for the MSD of sample PIN20-2860 (OJS 973) in batch 280-343420.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DATA REPORTING QUALIFIERS

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Lab Section	Qualifier	Description
GC/MS VOA	B	Compound was found in the blank and sample.
	U	Indicates the analyte was analyzed for but not detected.
	F1	MS and/or MSD Recovery is outside acceptance limits.
	4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
	X	Surrogate is outside control limits

SAMPLE SUMMARY

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1
Sdg Number: 16087997

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-88348-1	PIN20-2860	Water	09/12/2016 1200	09/16/2016 0935
280-88348-1MS	PIN20-2860	Water	09/12/2016 1200	09/16/2016 0935
280-88348-1MSD	PIN20-2860	Water	09/12/2016 1200	09/16/2016 0935
280-88348-2	PIN20-2861	Water	09/12/2016 0800	09/16/2016 0935
280-88348-3	PIN20-M001	Water	09/12/2016 1355	09/16/2016 0935
280-88348-4	PIN20-M015	Water	09/12/2016 1425	09/16/2016 0935
280-88348-5	PIN20-M053	Water	09/12/2016 0920	09/16/2016 0935
280-88348-6	PIN20-M056	Water	09/12/2016 0845	09/16/2016 0935
280-88348-7	PIN20-M057	Water	09/12/2016 0945	09/16/2016 0935
280-88348-8	PIN20-M058	Water	09/12/2016 1035	09/16/2016 0935
280-88348-9	PIN20-M059	Water	09/12/2016 1125	09/16/2016 0935
280-88348-10	PIN20-M067	Water	09/12/2016 1335	09/16/2016 0935
280-88348-11	PIN20-M068	Water	09/12/2016 1230	09/16/2016 0935
280-88348-12	PIN20-M069	Water	09/12/2016 1250	09/16/2016 0935
280-88348-13	PIN20-M18D	Water	09/12/2016 1010	09/16/2016 0935

EXECUTIVE SUMMARY - Detections

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Lab Sample ID	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-88348-1	PIN20-2860					
Benzene		0.32	J	1.0	ug/L	8260B
cis-1,2-Dichloroethene		4.8		1.0	ug/L	8260B
trans-1,2-Dichloroethene		1.6		1.0	ug/L	8260B
Vinyl chloride		40		1.0	ug/L	8260B
280-88348-3	PIN20-M001					
Acetone		3.2	J	10	ug/L	8260B
Benzene		0.81	J	1.0	ug/L	8260B
cis-1,2-Dichloroethene		1.4		1.0	ug/L	8260B
trans-1,2-Dichloroethene		1.8		1.0	ug/L	8260B
1,1-Dichloropropene		0.60	J	1.0	ug/L	8260B
Methylene Chloride		0.34	J	1.0	ug/L	8260B
Vinyl chloride		19		1.0	ug/L	8260B
280-88348-4	PIN20-M015					
cis-1,2-Dichloroethene		9.3		1.0	ug/L	8260B
Vinyl chloride		25		1.0	ug/L	8260B
280-88348-5	PIN20-M053					
cis-1,2-Dichloroethene		2.3		1.0	ug/L	8260B
Vinyl chloride		2.1		1.0	ug/L	8260B
280-88348-6	PIN20-M056					
Acetone		2.7	J	10	ug/L	8260B
cis-1,2-Dichloroethene		3.7		1.0	ug/L	8260B
Vinyl chloride		1.1		1.0	ug/L	8260B
280-88348-7	PIN20-M057					
Acetone		3.2	J	10	ug/L	8260B
cis-1,2-Dichloroethene		6.5		1.0	ug/L	8260B
trans-1,2-Dichloroethene		0.49	J	1.0	ug/L	8260B
Vinyl chloride		3.2		1.0	ug/L	8260B
280-88348-8	PIN20-M058					
Acetone		3.1	J	10	ug/L	8260B
cis-1,2-Dichloroethene		2.6		1.0	ug/L	8260B
trans-1,2-Dichloroethene		0.43	J	1.0	ug/L	8260B
Vinyl chloride		2.0		1.0	ug/L	8260B

EXECUTIVE SUMMARY - Detections

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Lab Sample ID Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-88348-9	PIN20-M059					
Benzene		0.32	J	1.0	ug/L	8260B
cis-1,2-Dichloroethene		5.1		1.0	ug/L	8260B
trans-1,2-Dichloroethene		1.7		1.0	ug/L	8260B
Vinyl chloride		49		1.0	ug/L	8260B
280-88348-10	PIN20-M067					
Acetone		4.9	J	10	ug/L	8260B
cis-1,2-Dichloroethene		0.38	J	1.0	ug/L	8260B
Vinyl chloride		0.74	J	1.0	ug/L	8260B
280-88348-11	PIN20-M068					
Acetone		3.6	J	10	ug/L	8260B
Benzene		0.28	J	1.0	ug/L	8260B
cis-1,2-Dichloroethene		0.43	J	1.0	ug/L	8260B
trans-1,2-Dichloroethene		2.5		1.0	ug/L	8260B
Vinyl chloride		8.5		1.0	ug/L	8260B
280-88348-12	PIN20-M069					
Acetone		4.5	J	10	ug/L	8260B
cis-1,2-Dichloroethene		3.6		1.0	ug/L	8260B
trans-1,2-Dichloroethene		1.5		1.0	ug/L	8260B
Vinyl chloride		2.0		1.0	ug/L	8260B
280-88348-13	PIN20-M18D					
Acetone		3.9	J	10	ug/L	8260B
cis-1,2-Dichloroethene		0.37	J	1.0	ug/L	8260B
Methylene Chloride		0.32	J B	1.0	ug/L	8260B

METHOD SUMMARY

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1
Sdg Number: 16087997

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL DEN	SW846 8260B	
Purge and Trap	TAL DEN		SW846 5030B

Lab References:

TAL DEN = TestAmerica Denver

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Method	Analyst	Analyst ID
SW846 8260B	Lines, Jeremy N	JNL
SW846 8260B	Seifert, Judy L	JLS

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-2860

Lab Sample ID: 280-88348-1

Date Sampled: 09/12/2016 1200

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343420	Instrument ID: VMS_Q
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Q9971.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/23/2016 1345		Final Weight/Volume: 20 mL
Prep Date: 09/23/2016 1345		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.9	U	1.9	10
Benzene	0.32	J	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U F1	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U F1	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U F1	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	4.8		0.15	1.0
trans-1,2-Dichloroethene	1.6		0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U F1	0.32	1.0
4-Methyl-2-pentanone	0.98	U F1	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-2860

Lab Sample ID: 280-88348-1

Date Sampled: 09/12/2016 1200

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343420	Instrument ID: VMS_Q
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Q9971.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/23/2016 1345		Final Weight/Volume: 20 mL
Prep Date: 09/23/2016 1345		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	40		0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	109		70 - 127
Toluene-d8 (Surr)	115		80 - 125
4-Bromofluorobenzene (Surr)	111		78 - 120
Dibromofluoromethane (Surr)	107		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-2861

Lab Sample ID: 280-88348-2

Date Sampled: 09/12/2016 0800

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343420	Instrument ID: VMS_Q
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Q9974.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/23/2016 1447		Final Weight/Volume: 20 mL
Prep Date: 09/23/2016 1447		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.9	U	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	0.15	U	0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-2861

Lab Sample ID: 280-88348-2

Date Sampled: 09/12/2016 0800

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343420	Instrument ID: VMS_Q
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Q9974.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/23/2016 1447		Final Weight/Volume: 20 mL
Prep Date: 09/23/2016 1447		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	0.10	U	0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	118		70 - 127
Toluene-d8 (Surr)	115		80 - 125
4-Bromofluorobenzene (Surr)	91		78 - 120
Dibromofluoromethane (Surr)	121	X	77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M001

Lab Sample ID: 280-88348-3

Date Sampled: 09/12/2016 1355

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343420	Instrument ID: VMS_Q
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Q9969.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/23/2016 1304		Final Weight/Volume: 20 mL
Prep Date: 09/23/2016 1304		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	3.2	J	1.9	10
Benzene	0.81	J	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	1.4		0.15	1.0
trans-1,2-Dichloroethene	1.8		0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.60	J	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.34	J	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M001

Lab Sample ID: 280-88348-3

Date Sampled: 09/12/2016 1355

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343420	Instrument ID: VMS_Q
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Q9969.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/23/2016 1304		Final Weight/Volume: 20 mL
Prep Date: 09/23/2016 1304		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	19		0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	106		70 - 127
Toluene-d8 (Surr)	112		80 - 125
4-Bromofluorobenzene (Surr)	106		78 - 120
Dibromofluoromethane (Surr)	110		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M015

Lab Sample ID: 280-88348-4

Client Matrix: Water

Date Sampled: 09/12/2016 1425

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-343420	Instrument ID:	VMS_Q
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Q9970.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	09/23/2016 1324			Final Weight/Volume:	20 mL
Prep Date:	09/23/2016 1324				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.9	U	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	9.3		0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M015

Lab Sample ID: 280-88348-4

Date Sampled: 09/12/2016 1425

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343420	Instrument ID: VMS_Q
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Q9970.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/23/2016 1324		Final Weight/Volume: 20 mL
Prep Date: 09/23/2016 1324		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	25		0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	109		70 - 127
Toluene-d8 (Surr)	113		80 - 125
4-Bromofluorobenzene (Surr)	95		78 - 120
Dibromofluoromethane (Surr)	112		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M053

Lab Sample ID: 280-88348-5

Date Sampled: 09/12/2016 0920

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343420	Instrument ID: VMS_Q
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Q9975.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/23/2016 1507		Final Weight/Volume: 20 mL
Prep Date: 09/23/2016 1507		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.9	U	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	2.3		0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M053

Lab Sample ID: 280-88348-5

Date Sampled: 09/12/2016 0920

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343420	Instrument ID: VMS_Q
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Q9975.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/23/2016 1507		Final Weight/Volume: 20 mL
Prep Date: 09/23/2016 1507		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	2.1		0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	118		70 - 127
Toluene-d8 (Surr)	114		80 - 125
4-Bromofluorobenzene (Surr)	98		78 - 120
Dibromofluoromethane (Surr)	118		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M056

Lab Sample ID: 280-88348-6

Date Sampled: 09/12/2016 0845

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9249.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/26/2016 1949		Final Weight/Volume: 20 mL
Prep Date: 09/26/2016 1949		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	2.7	J	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	3.7		0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M056

Lab Sample ID: 280-88348-6

Client Matrix: Water

Date Sampled: 09/12/2016 0845

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9249.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/26/2016 1949		Final Weight/Volume: 20 mL
Prep Date: 09/26/2016 1949		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	1.1		0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	93		70 - 127
Toluene-d8 (Surr)	99		80 - 125
4-Bromofluorobenzene (Surr)	94		78 - 120
Dibromofluoromethane (Surr)	96		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M057

Lab Sample ID: 280-88348-7

Date Sampled: 09/12/2016 0945

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9250.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/26/2016 2010		Final Weight/Volume: 20 mL
Prep Date: 09/26/2016 2010		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	3.2	J	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	6.5		0.15	1.0
trans-1,2-Dichloroethene	0.49	J	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M057

Lab Sample ID: 280-88348-7

Date Sampled: 09/12/2016 0945

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9250.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/26/2016 2010		Final Weight/Volume: 20 mL
Prep Date: 09/26/2016 2010		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	3.2		0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	111		70 - 127
Toluene-d8 (Surr)	103		80 - 125
4-Bromofluorobenzene (Surr)	100		78 - 120
Dibromofluoromethane (Surr)	109		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M058

Lab Sample ID: 280-88348-8

Date Sampled: 09/12/2016 1035

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9251.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/26/2016 2032		Final Weight/Volume: 20 mL
Prep Date: 09/26/2016 2032		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	3.1	J	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	2.6		0.15	1.0
trans-1,2-Dichloroethene	0.43	J	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M058

Lab Sample ID: 280-88348-8

Date Sampled: 09/12/2016 1035

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9251.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/26/2016 2032		Final Weight/Volume: 20 mL
Prep Date: 09/26/2016 2032		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	2.0		0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	118		70 - 127
Toluene-d8 (Surr)	105		80 - 125
4-Bromofluorobenzene (Surr)	104		78 - 120
Dibromofluoromethane (Surr)	116		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M059

Lab Sample ID: 280-88348-9

Date Sampled: 09/12/2016 1125

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-343420	Instrument ID:	VMS_Q
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Q9979.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	09/23/2016 1630			Final Weight/Volume:	20 mL
Prep Date:	09/23/2016 1630				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.9	U	1.9	10
Benzene	0.32	J	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	5.1		0.15	1.0
trans-1,2-Dichloroethene	1.7		0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M059

Lab Sample ID: 280-88348-9

Date Sampled: 09/12/2016 1125

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343420	Instrument ID: VMS_Q
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: Q9979.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/23/2016 1630		Final Weight/Volume: 20 mL
Prep Date: 09/23/2016 1630		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	49		0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	123		70 - 127
Toluene-d8 (Surr)	114		80 - 125
4-Bromofluorobenzene (Surr)	96		78 - 120
Dibromofluoromethane (Surr)	120		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M067

Lab Sample ID: 280-88348-10

Date Sampled: 09/12/2016 1335

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9	
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9252.D	
Dilution: 1.0		Initial Weight/Volume: 20 mL	
Analysis Date: 09/26/2016 2053		Final Weight/Volume: 20 mL	
Prep Date: 09/26/2016 2053			

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	4.9	J	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	0.38	J	0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M067

Lab Sample ID: 280-88348-10

Date Sampled: 09/12/2016 1335

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9252.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/26/2016 2053		Final Weight/Volume: 20 mL
Prep Date: 09/26/2016 2053		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	0.74	J	0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	109		70 - 127
Toluene-d8 (Surr)	95		80 - 125
4-Bromofluorobenzene (Surr)	92		78 - 120
Dibromofluoromethane (Surr)	104		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M068

Lab Sample ID: 280-88348-11

Date Sampled: 09/12/2016 1230

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9	
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9253.D	
Dilution: 1.0		Initial Weight/Volume: 20 mL	
Analysis Date: 09/26/2016 2114		Final Weight/Volume: 20 mL	
Prep Date: 09/26/2016 2114			

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	3.6	J	1.9	10
Benzene	0.28	J	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	0.43	J	0.15	1.0
trans-1,2-Dichloroethene	2.5		0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M068

Lab Sample ID: 280-88348-11

Date Sampled: 09/12/2016 1230

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9253.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/26/2016 2114		Final Weight/Volume: 20 mL
Prep Date: 09/26/2016 2114		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	8.5		0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	118		70 - 127
Toluene-d8 (Surr)	105		80 - 125
4-Bromofluorobenzene (Surr)	105		78 - 120
Dibromofluoromethane (Surr)	113		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M069

Lab Sample ID: 280-88348-12

Date Sampled: 09/12/2016 1250

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9254.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/26/2016 2135		Final Weight/Volume: 20 mL
Prep Date: 09/26/2016 2135		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	4.5	J	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	3.6		0.15	1.0
trans-1,2-Dichloroethene	1.5		0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M069

Lab Sample ID: 280-88348-12

Date Sampled: 09/12/2016 1250

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9254.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/26/2016 2135		Final Weight/Volume: 20 mL
Prep Date: 09/26/2016 2135		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	2.0		0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	116		70 - 127
Toluene-d8 (Surr)	99		80 - 125
4-Bromofluorobenzene (Surr)	97		78 - 120
Dibromofluoromethane (Surr)	109		77 - 120

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M18D

Lab Sample ID: 280-88348-13

Date Sampled: 09/12/2016 1010

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9	
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9255.D	
Dilution: 1.0		Initial Weight/Volume: 20 mL	
Analysis Date: 09/26/2016 2156		Final Weight/Volume: 20 mL	
Prep Date: 09/26/2016 2156			

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	3.9	J	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	0.37	J	0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	J B	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0
n-Propylbenzene	0.16	U	0.16	1.0

Analytical Data

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Client Sample ID: PIN20-M18D

Lab Sample ID: 280-88348-13

Date Sampled: 09/12/2016 1010

Client Matrix: Water

Date Received: 09/16/2016 0935

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 280-343793	Instrument ID: VMS_MS9
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: MS9_9255.D
Dilution: 1.0		Initial Weight/Volume: 20 mL
Analysis Date: 09/26/2016 2156		Final Weight/Volume: 20 mL
Prep Date: 09/26/2016 2156		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	0.10	U	0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	122		70 - 127
Toluene-d8 (Surr)	106		80 - 125
4-Bromofluorobenzene (Surr)	101		78 - 120
Dibromofluoromethane (Surr)	117		77 - 120

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TOL %Rec	BFB %Rec
280-88348-1	PIN20-2860	107	109	115	111
280-88348-2	PIN20-2861	121X	118	115	91
280-88348-3	PIN20-M001	110	106	112	106
280-88348-4	PIN20-M015	112	109	113	95
280-88348-5	PIN20-M053	118	118	114	98
280-88348-6	PIN20-M056	96	93	99	94
280-88348-7	PIN20-M057	109	111	103	100
280-88348-8	PIN20-M058	116	118	105	104
280-88348-9	PIN20-M059	120	123	114	96
280-88348-10	PIN20-M067	104	109	95	92
280-88348-11	PIN20-M068	113	118	105	105
280-88348-12	PIN20-M069	109	116	99	97
280-88348-13	PIN20-M18D	117	122	106	101
MB 280-343420/6		113	108	114	92
MB 280-343793/6		100	99	96	96
LCS 280-343420/4		117	111	113	87
LCS 280-343793/4		101	99	100	94
280-88348-1 MS	PIN20-2860 MS	112	112	113	101
280-88293-G-2 MS		118	121	109	101
280-88348-1 MSD	PIN20-2860 MSD	120	117	108	91
280-88293-G-2 MSD		118	120	109	104

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane (Surr)	77-120
DCA = 1,2-Dichloroethane-d4 (Surr)	70-127
TOL = Toluene-d8 (Surr)	80-125
BFB = 4-Bromofluorobenzene (Surr)	78-120

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Method Blank - Batch: 280-343420

Method: 8260B

Preparation: 5030B

Lab Sample ID: MB 280-343420/6
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 09/23/2016 0959
 Prep Date: 09/23/2016 0959
 Leach Date: N/A

Analysis Batch: 280-343420
 Prep Batch: N/A
 Leach Batch: N/A
 Units: ug/L

Instrument ID: VMS_Q
 Lab File ID: Q9960.D
 Initial Weight/Volume: 20 mL
 Final Weight/Volume: 20 mL

Analyte	Result	Qual	MDL	RL
Acetone	1.9	U	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	0.15	U	0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.32	U	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Method Blank - Batch: 280-343420

Method: 8260B

Preparation: 5030B

Lab Sample ID: MB 280-343420/6
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 09/23/2016 0959
 Prep Date: 09/23/2016 0959
 Leach Date: N/A

Analysis Batch: 280-343420
 Prep Batch: N/A
 Leach Batch: N/A
 Units: ug/L

Instrument ID: VMS_Q
 Lab File ID: Q9960.D
 Initial Weight/Volume: 20 mL
 Final Weight/Volume: 20 mL

Analyte	Result	Qual	MDL	RL
n-Propylbenzene	0.16	U	0.16	1.0
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	0.10	U	0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	108	70 - 127
Toluene-d8 (Surr)	114	80 - 125
4-Bromofluorobenzene (Surr)	92	78 - 120
Dibromofluoromethane (Surr)	113	77 - 120

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Lab Control Sample - Batch: 280-343420

Method: 8260B

Preparation: 5030B

Lab Sample ID: LCS 280-343420/4	Analysis Batch: 280-343420	Instrument ID: VMS_Q
Client Matrix: Water	Prep Batch: N/A	Lab File ID: Q9961.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 20 mL
Analysis Date: 09/23/2016 1019	Units: ug/L	Final Weight/Volume: 20 mL
Prep Date: 09/23/2016 1019		
Leach Date: N/A		

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Benzene	5.00	5.16	103	65 - 135	
Bromodichloromethane	5.00	4.70	94	65 - 135	
Carbon tetrachloride	5.00	4.39	88	65 - 135	
Chlorobenzene	5.00	4.63	93	65 - 135	
Chloroform	5.00	5.31	106	65 - 135	
1,3-Dichlorobenzene	5.00	4.65	93	65 - 135	
1,1-Dichloroethane	5.00	5.38	108	65 - 135	
trans-1,2-Dichloroethene	5.00	5.32	106	65 - 135	
1,1-Dichloroethene	5.00	4.80	96	65 - 136	
1,2-Dichloropropane	5.00	5.23	105	64 - 135	
Ethylbenzene	5.00	4.50	90	65 - 135	
Methylene Chloride	5.00	5.80	116	54 - 141	
Tetrachloroethene	5.00	4.34	87	65 - 135	
Toluene	5.00	4.71	94	65 - 135	
1,1,1-Trichloroethane	5.00	4.31	86	65 - 135	
Trichloroethene	5.00	4.83	97	65 - 135	
Surrogate		% Rec		Acceptance Limits	
1,2-Dichloroethane-d4 (Surr)		111		70 - 127	
Toluene-d8 (Surr)		113		80 - 125	
4-Bromofluorobenzene (Surr)		87		78 - 120	
Dibromofluoromethane (Surr)		117		77 - 120	

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-343420**

**Method: 8260B
Preparation: 5030B**

MS Lab Sample ID: 280-88348-1	Analysis Batch: 280-343420	Instrument ID: VMS_Q
Client Matrix: Water	Prep Batch: N/A	Lab File ID: Q9972.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 20 mL
Analysis Date: 09/23/2016 1405		Final Weight/Volume: 20 mL
Prep Date: 09/23/2016 1405		20 mL
Leach Date: N/A		

MSD Lab Sample ID: 280-88348-1	Analysis Batch: 280-343420	Instrument ID: VMS_Q
Client Matrix: Water	Prep Batch: N/A	Lab File ID: Q9973.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 20 mL
Analysis Date: 09/23/2016 1426		Final Weight/Volume: 20 mL
Prep Date: 09/23/2016 1426		20 mL
Leach Date: N/A		

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Benzene	101	106	65 - 135	5	20		
Bromodichloromethane	106	99	65 - 135	6	20		
Carbon tetrachloride	99	120	65 - 135	19	21		
Chlorobenzene	90	93	65 - 135	3	20		
Chloroform	98	109	65 - 135	11	20		
1,3-Dichlorobenzene	88	91	65 - 135	4	20		
1,1-Dichloroethane	102	115	65 - 135	13	21		
trans-1,2-Dichloroethene	109	125	65 - 135	11	24		
1,1-Dichloroethene	113	130	65 - 136	14	20		
1,2-Dichloropropane	111	114	64 - 135	3	20		
Ethylbenzene	86	95	65 - 135	10	20		
Methylene Chloride	133	143	54 - 141	7	26		F1
Tetrachloroethene	80	88	65 - 135	10	20		
Toluene	109	106	65 - 135	3	20		
1,1,1-Trichloroethane	99	116	65 - 135	16	20		
Trichloroethene	96	105	65 - 135	8	20		
Surrogate		MS % Rec	MSD % Rec		Acceptance Limits		
1,2-Dichloroethane-d4 (Surr)		112	117		70 - 127		
Toluene-d8 (Surr)		113	108		80 - 125		
4-Bromofluorobenzene (Surr)		101	91		78 - 120		
Dibromofluoromethane (Surr)		112	120		77 - 120		

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1
Sdg Number: 16087997

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-343420**

**Method: 8260B
Preparation: 5030B**

MS Lab Sample ID: 280-88348-1 Units: ug/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 09/23/2016 1405
Prep Date: 09/23/2016 1405
Leach Date: N/A

MSD Lab Sample ID: 280-88348-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 09/23/2016 1426
Prep Date: 09/23/2016 1426
Leach Date: N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual	
Benzene	0.32	J	5.00	5.00	5.37	5.64	
Bromodichloromethane	0.17	U	5.00	5.00	5.29	4.97	
Carbon tetrachloride	0.19	U	5.00	5.00	4.97	6.02	
Chlorobenzene	0.17	U	5.00	5.00	4.49	4.65	
Chloroform	0.16	U	5.00	5.00	4.90	5.47	
1,3-Dichlorobenzene	0.13	U	5.00	5.00	4.40	4.57	
1,1-Dichloroethane	0.22	U	5.00	5.00	5.08	5.77	
trans-1,2-Dichloroethene	1.6		5.00	5.00	7.08	7.89	
1,1-Dichloroethene	0.23	U	5.00	5.00	5.63	6.49	
1,2-Dichloropropane	0.18	U	5.00	5.00	5.53	5.69	
Ethylbenzene	0.16	U	5.00	5.00	4.30	4.74	
Methylene Chloride	0.32	U	5.00	5.00	6.67	7.16	F1
Tetrachloroethene	0.20	U	5.00	5.00	4.00	4.41	
Toluene	0.17	U	5.00	5.00	5.44	5.28	
1,1,1-Trichloroethane	0.16	U	5.00	5.00	4.94	5.82	
Trichloroethene	0.16	U	5.00	5.00	4.81	5.24	

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Method Blank - Batch: 280-343793

Method: 8260B

Preparation: 5030B

Lab Sample ID: MB 280-343793/6
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 09/26/2016 1912
 Prep Date: 09/26/2016 1912
 Leach Date: N/A

Analysis Batch: 280-343793
 Prep Batch: N/A
 Leach Batch: N/A
 Units: ug/L

Instrument ID: VMS_MS9
 Lab File ID: MS9_9248.D
 Initial Weight/Volume: 20 mL
 Final Weight/Volume: 20 mL

Analyte	Result	Qual	MDL	RL
Acetone	1.9	U	1.9	10
Benzene	0.16	U	0.16	1.0
Bromobenzene	0.17	U	0.17	1.0
Bromochloromethane	0.10	U	0.10	1.0
Bromodichloromethane	0.17	U	0.17	1.0
Bromoform	0.19	U	0.19	1.0
Bromomethane	0.21	U	0.21	1.0
2-Butanone (MEK)	2.0	U	2.0	5.0
n-Butylbenzene	0.32	U	0.32	1.0
sec-Butylbenzene	0.17	U	0.17	1.0
tert-Butylbenzene	0.16	U	0.16	1.0
Carbon disulfide	0.45	U	0.45	1.0
Carbon tetrachloride	0.19	U	0.19	1.0
Chlorobenzene	0.17	U	0.17	1.0
Dibromochloromethane	0.17	U	0.17	1.0
Chloroethane	0.41	U	0.41	1.0
Chloroform	0.16	U	0.16	1.0
Chloromethane	0.30	U	0.30	1.0
2-Chlorotoluene	0.17	U	0.17	1.0
4-Chlorotoluene	0.21	U	0.21	1.0
1,2-Dibromo-3-Chloropropane	0.47	U	0.47	1.0
Dibromomethane	0.17	U	0.17	1.0
1,2-Dichlorobenzene	0.15	U	0.15	1.0
1,3-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dichlorobenzene	0.16	U	0.16	1.0
Dichlorodifluoromethane	0.31	U	0.31	1.0
1,1-Dichloroethane	0.22	U	0.22	1.0
1,2-Dichloroethane	0.13	U	0.13	1.0
cis-1,2-Dichloroethene	0.15	U	0.15	1.0
trans-1,2-Dichloroethene	0.15	U	0.15	1.0
1,1-Dichloroethene	0.23	U	0.23	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichloropropane	0.22	U	0.22	1.0
2,2-Dichloropropane	0.18	U	0.18	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
1,1-Dichloropropene	0.19	U	0.19	1.0
Ethylbenzene	0.16	U	0.16	1.0
Hexachlorobutadiene	0.36	U	0.36	1.0
2-Hexanone	1.7	U	1.7	5.0
Isopropylbenzene	0.19	U	0.19	1.0
4-Isopropyltoluene	0.20	U	0.20	1.0
Methylene Chloride	0.347	J	0.32	1.0
4-Methyl-2-pentanone	0.98	U	0.98	5.0
Naphthalene	0.22	U	0.22	1.0

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Method Blank - Batch: 280-343793

Method: 8260B

Preparation: 5030B

Lab Sample ID: MB 280-343793/6
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 09/26/2016 1912
 Prep Date: 09/26/2016 1912
 Leach Date: N/A

Analysis Batch: 280-343793
 Prep Batch: N/A
 Leach Batch: N/A
 Units: ug/L

Instrument ID: VMS_MS9
 Lab File ID: MS9_9248.D
 Initial Weight/Volume: 20 mL
 Final Weight/Volume: 20 mL

Analyte	Result	Qual	MDL	RL
n-Propylbenzene	0.16	U	0.16	1.0
Styrene	0.17	U	0.17	1.0
1,1,1,2-Tetrachloroethane	0.21	U	0.21	1.0
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.0
Tetrachloroethene	0.20	U	0.20	1.0
Toluene	0.17	U	0.17	1.0
1,2,3-Trichlorobenzene	0.21	U	0.21	1.0
1,2,4-Trichlorobenzene	0.21	U	0.21	1.0
1,1,1-Trichloroethane	0.16	U	0.16	1.0
1,1,2-Trichloroethane	0.27	U	0.27	1.0
Trichloroethene	0.16	U	0.16	1.0
Trichlorofluoromethane	0.29	U	0.29	1.0
1,2,3-Trichloropropane	0.33	U	0.33	1.0
1,2,4-Trimethylbenzene	0.15	U	0.15	1.0
1,3,5-Trimethylbenzene	0.16	U	0.16	1.0
Vinyl chloride	0.10	U	0.10	1.0
Xylenes, Total	0.19	U	0.19	1.0
1,2-Dibromoethane	0.18	U	0.18	1.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	99	70 - 127
Toluene-d8 (Surr)	96	80 - 125
4-Bromofluorobenzene (Surr)	96	78 - 120
Dibromofluoromethane (Surr)	100	77 - 120

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

Lab Control Sample - Batch: 280-343793

Method: 8260B

Preparation: 5030B

Lab Sample ID: LCS 280-343793/4
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 09/26/2016 1851
 Prep Date: 09/26/2016 1851
 Leach Date: N/A

Analysis Batch: 280-343793
 Prep Batch: N/A
 Leach Batch: N/A
 Units: ug/L

Instrument ID: VMS_MS9
 Lab File ID: MS9_9247.D
 Initial Weight/Volume: 20 mL
 Final Weight/Volume: 20 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Benzene	5.00	4.95	99	65 - 135	
Bromodichloromethane	5.00	4.69	94	65 - 135	
Carbon tetrachloride	5.00	4.85	97	65 - 135	
Chlorobenzene	5.00	5.20	104	65 - 135	
Chloroform	5.00	4.95	99	65 - 135	
1,3-Dichlorobenzene	5.00	5.20	104	65 - 135	
1,1-Dichloroethane	5.00	4.70	94	65 - 135	
trans-1,2-Dichloroethene	5.00	4.96	99	65 - 135	
1,1-Dichloroethene	5.00	5.36	107	65 - 136	
1,2-Dichloropropane	5.00	4.77	95	64 - 135	
Ethylbenzene	5.00	5.09	102	65 - 135	
Methylene Chloride	5.00	4.54	91	54 - 141	
Tetrachloroethene	5.00	5.49	110	65 - 135	
Toluene	5.00	4.71	94	65 - 135	
1,1,1-Trichloroethane	5.00	4.74	95	65 - 135	
Trichloroethene	5.00	5.05	101	65 - 135	
Surrogate		% Rec		Acceptance Limits	
1,2-Dichloroethane-d4 (Surr)		99		70 - 127	
Toluene-d8 (Surr)		100		80 - 125	
4-Bromofluorobenzene (Surr)		94		78 - 120	
Dibromofluoromethane (Surr)		101		77 - 120	

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-343793**

**Method: 8260B
Preparation: 5030B**

MS Lab Sample ID: 280-88293-G-2 MS	Analysis Batch: 280-343793	Instrument ID: VMS_MS9
Client Matrix: Water	Prep Batch: N/A	Lab File ID: MS9_9259.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 20 mL
Analysis Date: 09/26/2016 2321		Final Weight/Volume: 20 mL
Prep Date: 09/26/2016 2321		20 mL
Leach Date: N/A		

MSD Lab Sample ID: 280-88293-G-2 MSD	Analysis Batch: 280-343793	Instrument ID: VMS_MS9
Client Matrix: Water	Prep Batch: N/A	Lab File ID: MS9_9260.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 20 mL
Analysis Date: 09/26/2016 2342		Final Weight/Volume: 20 mL
Prep Date: 09/26/2016 2342		20 mL
Leach Date: N/A		

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Benzene	94	105	65 - 135	11	20		
Bromodichloromethane	97	106	65 - 135	9	20		
Carbon tetrachloride	97	108	65 - 135	11	21		
Chlorobenzene	100	111	65 - 135	10	20		
Chloroform	100	109	65 - 135	8	20		
1,3-Dichlorobenzene	99	107	65 - 135	8	20		
1,1-Dichloroethane	94	105	65 - 135	10	21		
trans-1,2-Dichloroethene	96	108	65 - 135	12	24		
1,1-Dichloroethene	98	112	65 - 136	13	20		
1,2-Dichloropropane	94	104	64 - 135	11	20		
Ethylbenzene	94	105	65 - 135	11	20		
Methylene Chloride	90	99	54 - 141	10	26		
Tetrachloroethene	97	111	65 - 135	14	20		
Toluene	92	102	65 - 135	11	20		
1,1,1-Trichloroethane	94	106	65 - 135	12	20		
Trichloroethene	93	104	65 - 135	11	20		
Surrogate		MS % Rec	MSD % Rec			Acceptance Limits	
1,2-Dichloroethane-d4 (Surr)		121	120			70 - 127	
Toluene-d8 (Surr)		109	109			80 - 125	
4-Bromofluorobenzene (Surr)		101	104			78 - 120	
Dibromofluoromethane (Surr)		118	118			77 - 120	

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1
Sdg Number: 16087997

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-343793**

**Method: 8260B
Preparation: 5030B**

MS Lab Sample ID: 280-88293-G-2 MS Units: ug/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 09/26/2016 2321
Prep Date: 09/26/2016 2321
Leach Date: N/A

MSD Lab Sample ID: 280-88293-G-2 MSD
Client Matrix: Water
Dilution: 1.0
Analysis Date: 09/26/2016 2342
Prep Date: 09/26/2016 2342
Leach Date: N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Benzene	0.16	U	5.00	5.00	4.71	5.27
Bromodichloromethane	0.17	U	5.00	5.00	4.85	5.32
Carbon tetrachloride	0.19	U	5.00	5.00	4.84	5.41
Chlorobenzene	0.17	U	5.00	5.00	5.02	5.56
Chloroform	0.16	U	5.00	5.00	5.00	5.45
1,3-Dichlorobenzene	0.13	U	5.00	5.00	4.93	5.35
1,1-Dichloroethane	0.22	U	5.00	5.00	4.72	5.23
trans-1,2-Dichloroethene	0.15	U	5.00	5.00	4.79	5.39
1,1-Dichloroethene	0.23	U	5.00	5.00	4.91	5.60
1,2-Dichloropropane	0.18	U	5.00	5.00	4.68	5.21
Ethylbenzene	0.16	U	5.00	5.00	4.70	5.27
Methylene Chloride	0.32	U	5.00	5.00	4.50	4.95
Tetrachloroethene	0.20	U	5.00	5.00	4.84	5.56
Toluene	0.17	U	5.00	5.00	4.59	5.12
1,1,1-Trichloroethane	0.16	U	5.00	5.00	4.71	5.30
Trichloroethene	0.16	U	5.00	5.00	4.63	5.18

Quality Control Results

Client: Navarro Research and Engineering, Inc

Job Number: 280-88348-1

Sdg Number: 16087997

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:280-343420					
LCS 280-343420/4	Lab Control Sample	T	Water	8260B	
MB 280-343420/6	Method Blank	T	Water	8260B	
280-88348-1	PIN20-2860	T	Water	8260B	
280-88348-1MS	Matrix Spike	T	Water	8260B	
280-88348-1MSD	Matrix Spike Duplicate	T	Water	8260B	
280-88348-2	PIN20-2861	T	Water	8260B	
280-88348-3	PIN20-M001	T	Water	8260B	
280-88348-4	PIN20-M015	T	Water	8260B	
280-88348-5	PIN20-M053	T	Water	8260B	
280-88348-9	PIN20-M059	T	Water	8260B	
Analysis Batch:280-343793					
LCS 280-343793/4	Lab Control Sample	T	Water	8260B	
MB 280-343793/6	Method Blank	T	Water	8260B	
280-88293-G-2 MS	Matrix Spike	T	Water	8260B	
280-88293-G-2 MSD	Matrix Spike Duplicate	T	Water	8260B	
280-88348-6	PIN20-M056	T	Water	8260B	
280-88348-7	PIN20-M057	T	Water	8260B	
280-88348-8	PIN20-M058	T	Water	8260B	
280-88348-10	PIN20-M067	T	Water	8260B	
280-88348-11	PIN20-M068	T	Water	8260B	
280-88348-12	PIN20-M069	T	Water	8260B	
280-88348-13	PIN20-M18D	T	Water	8260B	

Report Basis

T = Total