ERM NC, Inc.

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March 28, 2016

Mr. Sean Boyles
NC Department of Environment Quality
Division of Waste Management-Superfund Section
225 Green Street, Suite 714
Fayetteville, North Carolina 28301

Submitted by electronic mail

Re: Progress Report for 3rd and 4th Quarters 2015
Former Abbott Labs Facility, Solvent Release Incident
Laurinburg, Scotland County, North Carolina
NCDENR DWM Site #NONCD-000-0040

Dear Mr. Boyles:

ERM NC, Inc. (ERM), on behalf of Abbott Laboratories (Abbott), is pleased to submit the report *Progress Report for 3rd and 4th Quarters 2015: Groundwater Monitoring Program* for the above-referenced site. An electronic version (pdf file) of the subject report is enclosed with this letter.

The current Progress Report provides data and results of the second 2015 semi-annual groundwater sampling event conducted at the site in December 2015. Additionally, this Progress Report also includes the annual remediation effectiveness evaluation.

Based on the most recent monitoring results, it is clear that sufficient data has been collected at the site to date that largely demonstrates plume stability. Additionally and assuming continued industrial or commercial use of the property, there is low risk to the site and surrounding community from residual VOCs in groundwater. As such, Abbott proposes no additional groundwater monitoring at this time, and further requests a meeting with the NCDEQ to discuss pursuing a Risk Based Closure for the site under the recently signed Regulatory Reform Act (HB 765).

Please contact Rick Tarravechia at 704.409.3440 or Ed Hollifield at 704.409.3431 with any questions regarding this report.

Sincerely,

Rick Tarravechia, PG, RSM
Partner

Ed Hollifield, PG
Project Manager

Attachment: *Progress Report for 3rd and 4th Quarters 2015*

Professional Certification Page

Progress Report for 3rd and 4th Quarters 2015: Groundwater Monitoring and Annual Remediation Effectiveness Evaluation
Former Abbott Facility
Solvent Release Remediation
Laurinburg, Scotland County, North Carolina

Case # NOCD 000 0040
March 2016

"I certify that, to the best of my knowledge, after thorough investigation, the information contained in or accompanying this certification is true, accurate, and complete."

Mr. Curtis R. Michols
Senior Principal Specialist
Abbott Laboratories

OFFICIAL SEAL
LINDA J DORR
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 06/30/2017

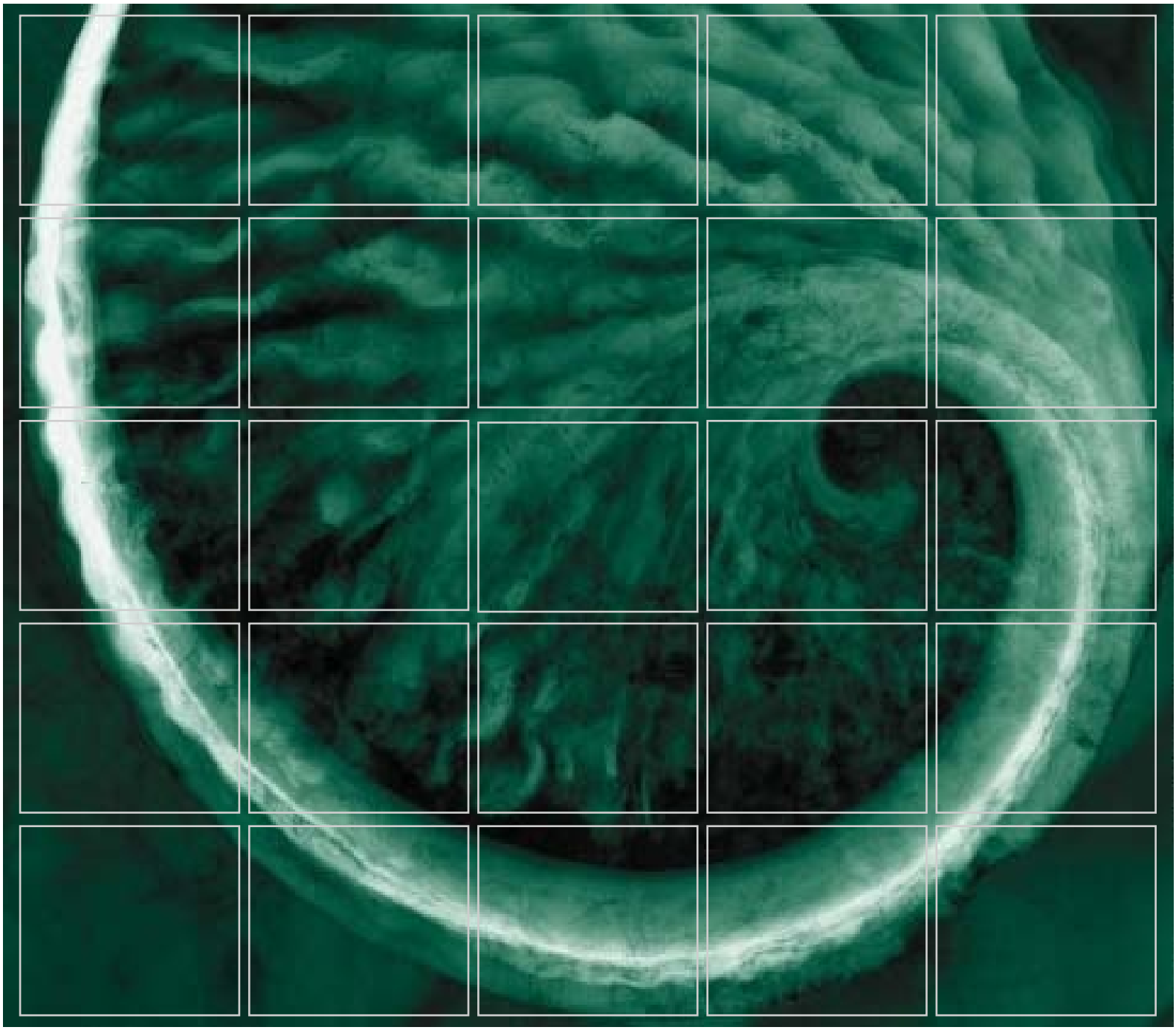
3/14/2016

Mr. Rick Tarravechia, P.G., RSM
Principal in Charge
ERM NC, Inc.

NORTH CAROLINA LICENSED SEAL 1076 GEOLOGIST RICHARD J. TARRAVECHIA

DEBRA C PRESSLEY
Notary Public
North Carolina
Union County

3/28/2016



Abbott Laboratories

Groundwater Monitoring / Annual Remediation Effectiveness Evaluation Progress Report for 3rd and 4th Quarters 2015

Former Abbott Facility
Solvent Release Remediation
NCDENR ID: NONCD-000-0040
Laurinburg, Scotland County, NC

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Abbott Laboratories

Groundwater Monitoring /Annual Remediation Effectiveness Evaluation Report for 3rd and 4th Quarters 2015:

Former Abbott Facility
Solvent Release Remediation
Laurinburg, Scotland County, North Carolina
NCDEQ ID: NONCD-000-0040

March 28, 2016

Project No. 0272871

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ACRONYMS

Freon 113	1,1,2-trichloro-1,2,2-trifluoroethane
Abbott	Abbott Laboratories
ABC®	Anaerobic Biochem
COC	contaminant of concern
DHC	*Dehalococcoides spp.*
DCA	dichloroethane
DCE	dichloroethene
DWM	Division of Waste Management
ERM	ERM NC, Inc.
ft bls	feet below land surface
HSA	hollow-stem auger
HRC®	Hydrogen Release Compound®
IHSB	Inactive Hazardous Sites Branch
MEE	methane/ethane/ethene
MEK	methyl ethyl ketone
µg/L	micrograms per liter
MMPE	mobile multi-phase extraction
MNA	monitored natural attenuation
NCDEQ	North Carolina Department of Environmental Quality
PDBs	passive diffusion bags
Phoenix	Phoenix Environmental Associates, Inc.
PVC	polyvinyl chloride
RI	Remedial Investigation
TICs	tentatively identified compounds
TOC	Total organic carbon
TCA	trichloroethane
TCE	trichloroethene
VC	vinyl chloride
VOCs	volatile organic compounds

1.0 INTRODUCTION

On behalf of Abbott Laboratories (Abbott), ERM NC, Inc. (ERM) has prepared this 3rd and 4th Quarters 2015 semi-annual groundwater monitoring and remediation effectiveness report for the former Abbott facility located at 16000 Joy Street in Laurinburg, Scotland County, North Carolina (the "Site"). The Site is under the regulatory supervision of the North Carolina Department of Environmental Quality (NCDEQ) Division of Waste Management (DWM) Superfund Section, Inactive Hazardous Sites Branch (IHSB), State lead program. This report presents the monitoring results for the 3rd and 4th Quarters of 2015, the annual effectiveness evaluation for the ongoing groundwater remediation program and the results of the supplemental monitor well installation along the southern property boundary.

Abbott is responsible for performing routine groundwater monitoring as part of an ongoing *in-situ* bioremediation remedy used at the Site. The significant monitoring plans associated with the bioremediation project are provided in the following documents:

Summary of Environmental Monitoring Plans

Date	Governing Monitoring Plan	Consultant
2006 – 2008	Phase II Preconstruction Report Addendum	Phoenix Environmental Associates, Inc. [Phoenix], 2006
2008 - 2010	Remedial Action Plan Amendment 2	Phoenix, 2008
2010 - Present	Preconstruction Report: Supplemental Organic Substrate Injections	AECOM, 2010

For the current reporting period, groundwater monitoring was conducted in general accordance with Section 4.0 of the *Preconstruction Report - Supplemental Organic Substrate Injections* (AECOM September 2010). Groundwater sampling methodology using passive diffusion bags, and a supplemental monitor well installation along the southern downgradient property boundary was conducted in accordance with the *Property Boundary Well Installation and Modified Groundwater Monitoring Program Work Plan* (ERM November 9, 2015) that was verbally approved by NCDEQ on December 2, 2015.

1.1 SITE DESCRIPTION & BACKGROUND

The former Abbott facility is located on approximately 51 acres of land at the northeast intersection of U.S. Highway 401 and U.S. Highway 15-501 in Laurinburg, North Carolina (Figure 1). The current property infrastructure includes a main plant building, warehouse, several smaller support buildings, adjacent parking lots and service roads. The facility was constructed by Abbott

on agricultural land in 1969 (Radian, 1993). A site plan with locations of existing monitor wells, buildings, and other Site features is provided as Figure 2. A summary of the property ownership and use is provided below.

Summary of Property Ownership & Use

Date	Owner / Operator	Operation & Chemical Use
1970 – June 2002	Abbott Laboratories	• Abbott used the facility to manufacture medical devices for their Hospital Products Division. • Medical devices manufactured at the facility included polyvinyl chloride (PVC) tubing and adapters that were used for intravenous drug administration and health maintenance equipment. • The manufacturing process included injection molding of PVC and other plastics, parts washing, parts assembly, packaging, and ethylene oxide sterilization. • Chemicals used in the manufacturing process included cyclohexanone, methyl ethyl ketone (MEK); toluene; acetone; 1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113); di(2-ethylhexyl) phthalate; xylene; and various chlorinated volatile organic compounds (VOCs) such as trichloroethene (TCE) and methylene chloride. • As part of their facility operations, Abbott operated a solvent evaporation pit at the Site from 1970 through 1976. Solvents, including TCE, were disposed of in the pit located north of the main plant building (Radian, 1993).
June 2002 – December 2013	Marketta, LLC. / QualPak, LLC (a business division of GOJO, Inc.)	• QualPak, LLC (QualPak) previously used the facility to manufacture, package, and store alcohol-based hand sanitizer products (Purell®). • In July 2010 Marketta obtained a Brownfields Agreement with the NCDEQ for the Site property. Operations at the QualPak facility ceased in late 2011.
December 2013 – July 2014	Connelly Springs Road, LLC	• Vacant
July 2014 - Present	John & Jeff Schwarz, LLC	• The main manufacturing plant building has remained vacant since late 2011 when QualPak ceased operations and shuttered the facility. • The remote warehouses on the east side of the property have maintained a commercial lease tenant for several years.

1.2 REMEDIAL INVESTIGATIONS (1990 – 2015)

In 1989, Abbott notified the NCDEQ-DWM Superfund Section of the presence of a former solvent evaporation pit on Site. Following this notification, Abbott entered into a regulatory Administrative Order and conducted initial site assessments and multiple Remedial Investigation (RI) phases from 1990 through April 2015 to evaluate the impact of the solvent evaporation pit. Work plans were developed, submitted to NCDEQ and approved by the agency prior to

conducting each phase of the RI and related sampling programs. These historical RI documents (work plans and associated reports) are on file with NCDEQ with the collective results summarized in the *Work Plan for Supplemental Remedial Investigation* (ERM - February 2015). Results of the additional RI activities are provided in the *RI Addendum Report* (ERM August 17, 2015). Following completion of the RI addendum, the NCDEQ requested the installation of one additional well (MW-106C) along the southern property boundary, which was installed during the current reporting period and discussed in this report.

1.3 HISTORICAL REMEDIAL ACTIONS (1994 – 2010)

Abbott has developed and implemented several phases of remediation at the Site since 1994. Remedial actions have been documented in past reports submitted to the NCDEQ. Details of the historical remedial actions and their results prior to October 2010 were previously summarized in the *Work Plan for Supplemental Subsurface Investigation and Remedial Actions* (AECOM, 2009) and in the *Work Plan for Supplemental Remedial Investigation* (ERM, 2015). These reports, as well as other historical documents, should be consulted for details of the past remediation activities at the Site. The major phases of historical remedial actions, their associated reports and results are briefly discussed in the following chronology.

Summary of Site Remedial Activities

Date, Title, Author	Remedial Action Description
1994 Remedial Action Plan, Radian Engineering, Inc. and RUST Environment and Infrastructure	• Specified use of an innovative in situ mixing and volatilization tool (i.e., the MecTool™) for the solvent disposal pit source area soil and shallow groundwater, combined with multi-phase vacuum extraction technology for the shallow groundwater plume and conventional groundwater extraction and treatment (Pump & Treat) for the deeper plume. • The MecTool™ *in situ* mixing/volatilization process was used at the waste pit area from August 1995 to January 1996. The groundwater recovery systems operated from 1993 until 2006 (Phoenix, 2006). • Abbott also began free product removal efforts at wells MW-100A and MW-101A using a mobile multi-phase extraction (MMPE) system. Multiple MMPE events were completed in 2004 and in 2006.
2002 Remedial Action Plan Amendment, Matrix Environmental Southeast, Inc. (Matrix)	• Abbott proposed *in-situ* anaerobic bioremediation via reductive dechlorination processes, discontinuation of the groundwater extraction and treatment in the north yard source area, and continued short-term operation of the south yard groundwater extraction system. • Three injections of Hydrogen Release Compound® (HRC®) were conducted as part of the bioremediation effort beginning with an initial injection event (Phase I) at the waste pit source area in November 2002. Two additional HRC® injection events were conducted in June 2004 (Phase 2) and in September 2006 (Phase 3).
2006 Phase II Preconstruction Report Addendum, Phoenix	• The final HRC ® injection event was accompanied by a shutdown of the south yard groundwater extraction system, and the subsequent semi-annual groundwater monitoring program were performed.

Date, Title, Author	Remedial Action Description
2008 Remedial Action Plan Amendment No. 2, Phoenix	• Summarized the effectiveness of ongoing bioremediation programs, and included contaminant fate and transport modeling analysis of the remaining TCE plume. • A modified plan for continued bioremediation and monitored natural attenuation (MNA) of VOCs in groundwater was selected based on the modeling results. • A contingency remedy was included that specified additional HRC® enhanced bioremediation should the progress of the MNA remediation deviate from the plume model predictions (Phoenix, 2008). This remedial action contingency allowed additional engineered bioremediation to be initiated in the future on an as-needed basis.
2010 Preconstruction Report, AECOM	• *Preconstruction Report: Supplemental Organic Substrate Injections to Enhance Groundwater Bioremediation* • Provided a detailed plan and design basis for additional electron donor (i.e., organic substrate) injections to continue the bioremediation enhancements, as allowed under the RAP Amendment 2 (Phoenix, 2008). • Supplemental injections of the organic substrate Anaerobic Biochem (ABC®) occurred from October 15, 2010 to November 1, 2010 to enhance and accelerate the ongoing groundwater bioremediation program. Additionally, a bio-augmentation pilot study was initiated by performing limited injections of RTB-1, a proprietary culture of *Dehalococcoides spp.* (DHC) dechlorinating microbes, into the aquifer upgradient of the MW-102 well cluster. • The October to November 2010 ABC® electron donor injections were the last engineered remediation enhancements used at the Site. Performance monitoring of the ongoing bioremediation and MNA processes has continued since that time.

Based on the positive results of the previous remediation efforts, there are currently no active remedial activities being conducted at the Site. Current Site activities are largely focused on evaluation of the on-going post injection bioremediation program and associated MNA process. The potential to allow a risk-based remediation strategy for the Site is currently being evaluated.

2.0 REMEDIAL INVESTIGATION ADDENDUM

In accordance with the *Property Boundary Well Installation and Modified Groundwater Monitoring Program Work Plan* (ERM November 2015), verbally approved by NCDEQ on December 2, 2015, one type II monitor well (MW-106C) was installed at the Site on December 9, 2015. This well was installed at the request of NCDEQ to monitor the VOC concentrations in groundwater over time at the downgradient southern property boundary. Monitor well installation was accomplished through the advancement of a soil boring using hollow-stem auger (HSA) drilling methods to a depth of 59 feet below land surface (ft bls). A type II monitor well was then installed in the resulting borehole and was constructed with 10 feet of 2-inch diameter, 0.010-inch machine slotted schedule 40 PVC well screen and 49 feet of 2-inch PVC riser. Standard operating procedures describing the well installation methodology are included in Appendix A. Following installation, the location and elevation of the new well (MW-106C) was surveyed by North Carolina Registered Taylor Wiseman & Taylor of Cary, North Carolina. Copies of the well construction record, boring log and updated survey are included in Appendix B.

The newly installed monitor well was appropriately developed utilizing procedures outlined in the EPA's Field Branches Quality System and Technical Procedures. An initial groundwater sample was collected from the new well during the December 2015 monitoring event and the data is incorporated in this report.

3.0 GROUNDWATER REMEDIATION & MONITORING PROGRAM

Site routine groundwater monitoring is conducted in general accordance with Section 4.0 (Performance Monitoring and Evaluation Plan) of the *Preconstruction Report* (AECOM, 2010). The monitoring plan allows for updates and modifications to the monitoring program based on dynamic conditions at the Site. Following the completion of each groundwater monitoring event, the monitoring plan is evaluated and, if needed, changes are proposed to NCDEQ for the upcoming event(s).

The most recent modifications to the groundwater monitoring plan were described in *Property Boundary Well Installation and Modified Groundwater Monitoring Program Work Plan* (ERM November 2015). As a modification to the sampling methodology, ERM requested permission from the NCDEQ to allow the use of passive diffusion bags (PDBs) to sample 9 of the 25 Site wells during the second half 2015 monitoring event. Permission was granted by the State and PDBs were employed in the designated wells.

3.1 CURRENT GROUNDWATER MONITORING PROGRAM

A Site plan with the locations of the existing monitor well network is provided as Figure 2. To demonstrate the progress of historical remediation and current MNA of the residual groundwater impact plume, sampling and analysis for VOCs is conducted in 25 of the 28 active Site monitoring wells at least once per year with the three remaining wells used for additional water level gauging. A monitor well construction summary is included as Table 1. Table 2 summarizes the groundwater monitoring plan followed for the December 2015 sampling event.

3.2 GROUNDWATER SAMPLING METHODS

Groundwater samples were collected using either low-flow methods or PBDs in accordance with the approved monitoring plan (Table 2). Standard operating procedures describing the sampling methodologies are included in Appendix A.

3.3 GROUNDWATER ANALYTICAL METHODS

Groundwater samples collected during the December 2015 event and analysis was coordinated by AbbVie Labs of Waukegan, Illinois. Groundwater samples were analyzed as follows:

- VOCs, plus tentatively identified compounds (TICs) via EPA Method 8260B by; Test America of University Park, Illinois, and

- Total organic carbon (TOC) via SM5310 B-11/SW9060A, and chloride via EPA 300/SW846 9056A, as discretionary analytical parameters for this sampling event by SGS Labs (currently Accutest) of Orlando Florida.

4.0 GROUNDWATER MONITORING RESULTS

This section presents results of both the current (December 2015) groundwater monitoring event and long term concentrations trends. During the December 2015 monitoring event, the discretionary analyses for organic metabolic acids, microbial speciation, dissolved hydrogen, alkalinity, methane/ethane/ethene (MEE), iron (total and ferrous), manganese, carbon dioxide, and sulfate were not conducted. In these cases, the historical bio-geochemical data are presented herein by reference to illustrate bioremediation processes and trends.

4.1 GROUNDWATER FLOW & HYDROLOGY

Water level measurements collected prior to groundwater sampling on December 29, 2015 are listed in Table 3. Due to unseasonable heavy rainfall in the preceding weeks prior to the sampling event, the shallow water table ranged from 4 to 14 feet higher across the site than historical averages, and the site water table had not reached equilibrium condition. As such, water level measurements in the Site monitor wells were deemed non representative of natural conditions and thus groundwater potentiometric maps based on the December 2015 data were not generated for this report.

Historical potentiometric maps indicate that shallow groundwater flow in the upper 30 feet of the water table aquifer is generally toward the south-southeast. This is considered the A Zone. Groundwater flow in the deeper hydrostratigraphic aquifer zone (30 to 78 ft bls), is predominantly toward the south, but has been observed to flow southeast and southwest. This is considered the B Zone. Average groundwater flow directions for the two monitored aquifer zones are included on the Figure 3 and Figure 4.

4.2 GROUNDWATER ANALYTICAL RESULTS

Groundwater samples were collected between December 28-30, 2015 from 25 Site monitor wells, including the newly installed MW106C. Analytical results are summarized in Table 4. Copies of the field data sheets and the laboratory analytical reports are included as Appendix C and Appendix D, respectively.

Table 4 also includes five years of VOC data collected since the October 2010 (pre-ABC® injection) baseline sampling event for comparison. These combined data sets represent five years of performance monitoring, from October 2010 through December 2015, inclusive of pre-injection and post-injection VOC results.

Groundwater analytical results for VOCs were compared to the current North Carolina Administrative Code Title 15A, Subchapter 2L Groundwater Quality Standards (2L Standards; revised effective April 1, 2013). A summary of VOCs that exceed NCAC 2L groundwater standards is provided below.

Summary of VOCs that Exceed NC 2L Standards

VOC Name	2L Standard (µg/L)	Number of Detections/ Exceedances	Maximum Concentration (µg/L)	Well Containing Maximum Concentration
1,1,1-Trichloroethane	200	5 / **2**	1200	MW-100B
1,1-Dichloroethane	6	3 / **2**	110	MW-100B
1,2-Dichloroethane	0.4	3 / **3**	140	MW-100B
Tetrachloroethene	0.7	5/ **4**	39	MW-100B
Trichloroethene	3	16 / **10**	210	MW-102C
cis-1,2-Dichloroethene	70	21 / **8**	63,000	MW-100B
1,1-Dichloroethene	350	3 / **1**	870	MW-100B
Vinyl Chloride	0.03	10 / **10**	78	MW-100B
Chloroform	70	6 / **1**	180	MW-100B
Methylene Chloride	5	1 / **1**	56	MW-102C
Benzene	1	4 / **2**	30	MW-100B
Toluene	600	6 / **3**	29,00	MW-100B

µg/L = micrograms per liter

4.3 TCE DISTRIBUTION

TCE is the main historical contaminant of concern (COC) in Site groundwater. This is based on its historically elevated concentrations, its widespread occurrence and its relatively low 2L Standard compared to many of the other groundwater Site COCs. Historically, TCE has had the largest numbers and frequencies of concentrations that exceed the 2L Standard compared to other VOCs in Site groundwater. During the December 2015 sampling event, TCE was detected at concentrations above its 2L Standard of 3.0 micrograms per liter (µg/L) in groundwater samples collected from ten Site wells (Table 4).

Concentrations of TCE in groundwater collected from shallow Zone A wells are shown on Figure 3. This map illustrates that the shallow TCE plume in groundwater currently extends from the former waste pit source area approximately 300 feet south. TCE is not detected in groundwater samples collected from off-site wells at detectable concentrations in the shallow hydrostratigraphic zone. The extent of the shallow TCE plume has not changed significantly in the past few years, indicating that the dissolved plume remains stable and is not expanding in the shallow aquifer units. TCE concentrations

have been declining steadily in shallow groundwater at the northern source areas treated with enhanced biodegradation.

TCE concentrations in groundwater samples collected from wells installed in the Zone B wells are shown on Figure 4. The TCE plume in deeper aquifer strata migrates generally toward the south downgradient from the former disposal pit area, and then appears to migrate southwest near the southern Site property boundary.

Historical data from off-site well MW-18D confirm that since the late 1990's TCE had previously migrated off-site in deeper groundwater toward the south at very low concentrations, detected below either the 2L Standard or below detection limits (which are also below the TCE 2L Standard). TCE was again detected in the groundwater sample collected from the newly installed southern property boundary monitor well (MW-106C) at a concentration below the 2L standard during this monitoring effort. The continued absence of detectable TCE at downgradient property boundary line well MW-105C demonstrates that the deeper TCE plume is not migrating off-Site in the southwest direction.

The TCE biodegradation daughter products cis-1,2-dichloroethene (DCE) and vinyl chloride (VC) were detected in groundwater samples above their respective 2L Standards. In December 2015, VC was detected above its 2L Standard in ten wells including the newly-installed southern property boundary well (MW-106C) and cis-1,2-DCE exceeded its respective 2L standard at eight Site wells. The degradation compound 1,1-DCE was detected above its 2L Standard limit in groundwater at one well. 1,1-DCE is formed by either biological dechlorination of TCE or by abiotic degradation of trichloroethane (TCA).

5.0 REMEDIATION EFFECTIVENESS EVALUATION

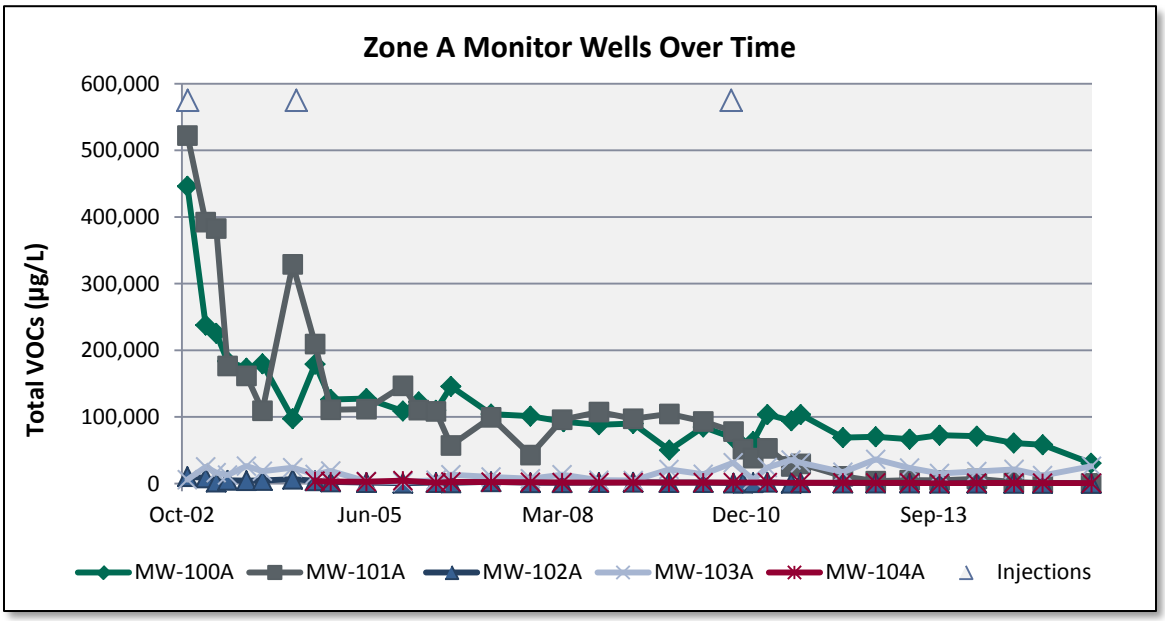
5.1 CONTAMINANT TREND ANALYSIS

The overall remediation strategy for the site consists of source area VOC depletion followed by monitored natural attenuation. Enhanced anaerobic bioremediation injections conducted between 2002 and 2010 have been effective in reducing contaminant mass within the source areas. As a result of depletion of the contaminant mass within the source area, an overall decreasing trend of VOCs in site monitor wells and a stable or shrinking contaminant plume is observed, as discussed below.

Trends in total VOC concentration over time are discussed below. Total VOC concentrations are being used to account for changes in contaminant concentrations that may be the result of incomplete remediation (i.e. the conversion of TCE to cis-1,2-DCE). Monitoring the total VOC concentration over time will allow for a more accurate measurement of decreasing contaminant mass within the saturated zone.

Zone A Monitor Wells

Trends in total VOC concentrations over time for monitor wells screened in Zone A are depicted below.

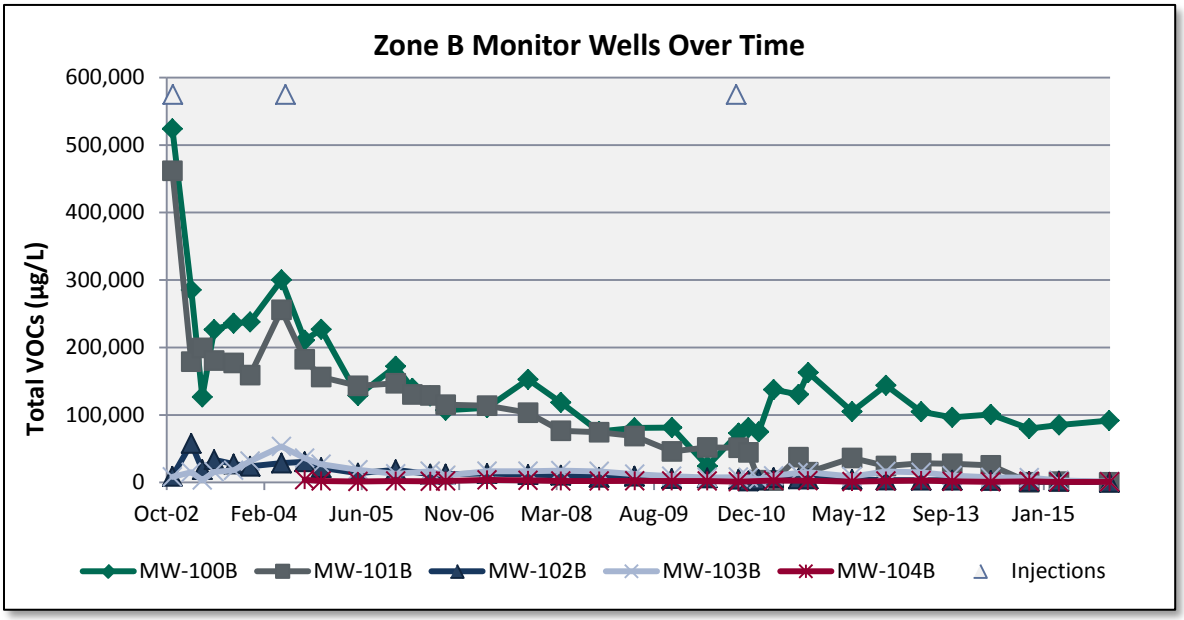


As shown above, the total VOC concentration trend for all of the wells screened in Zone A are decreasing as a result of enhanced anaerobic bioremediation

injections conducted in the source area. Concentrations have decreased from a maximum total VOC concentration of 522,150 µg/L in monitor well MW-101A in October 2002, to a maximum total VOC concentration of 30,519 µg/L observed in monitor well MW-100A in December 2015. Anaerobic biodegradation appears to be on-going in the area surrounding the MW-100 well cluster.

Zone B Monitor Wells

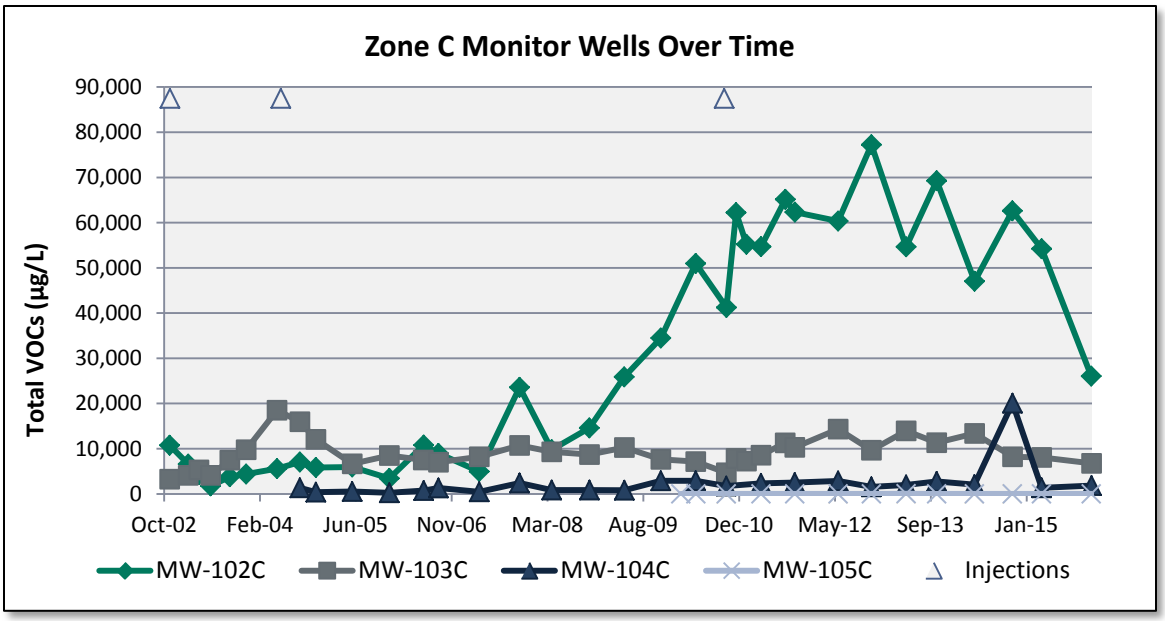
Trends in total VOC concentrations over time for monitor wells screened in Zone B are depicted below.



Overall decreasing concentration trends are observed in the samples collected from monitor wells screened in Zone B. The total VOC concentration in monitor well MW-101B has decreased from 461,800 µg/L in October 2002 to 183 µg/L in December 2015. The highest concentration of total VOCs observed in Zone B are found in monitor well MW-100B. Anaerobic biodegradation appears to be on-going in the area surrounding the MW-100 well cluster.

Zone C Monitor Wells

Trends in total VOC concentrations over time for monitor wells screened in Zone C are depicted below.



Total VOC concentrations in groundwater samples collected from wells screened in Zone C have remained low (below 20,000 µg/L) throughout the duration of remediation efforts, with the exception of monitor well MW-102C. Total VOC concentrations, primarily in the form of cis-1,2-DCE, in MW-102C increased following the 2010 ABC injection. Total VOC concentrations have exhibited an overall decreasing trend in MW-102C since concentrations peaked at 77,219 µg/L in November 2012. Anaerobic biodegradation appears to be on-going MW-102C well cluster.

Trichloroethene Source Mass Depletion

The main COC at this Site is TCE. A summary of the reduction in TCE concentration since anaerobic bioremediation efforts began in 2002 is provided below. Refer to the concentration trend graphs (Appendix E) and the historical concentrations data tables (Appendix F) for more details.

TCE Concentration Reductions (2002–2015)

Well ID	2002 TCE Concentration	December 2015 Concentration	% Reduction
MW-100A	150,000	**8**	99.995%
MW-100B	190,000	**99**	99.95%
MW-101A	390,000	**7**	99.998%
MW-101B	380,000	**64**	99.983%
MW-102A	6,200	0.46 J	99.99%
MW-102B	7,400	<0.50	100%
MW-102C	8,000	**210**	97.4%

The reductions of TCE concentrations are greater than 97% for all of the source area wells (MW-100, 101 and 102 clusters) and over 99% for six of the seven source area wells. TCE concentrations prior to remediation were within 35% of the saturation concentration of TCE. The highest concentration of TCE observed in the source area during the December 2015 sampling event was 210 µg/L, in the sample collected from monitor well MW-102C. As such, enhanced anaerobic biodegradation has been extremely effective in reducing source mass within all three aquifer zones.

5.2 MANN KENDALL ANALYSIS

Concentration trends over time at Site monitor wells along the centerline of the plume were evaluated using the Mann-Kendall statistical test. The Mann-Kendall test is a non-parametric test that can be used to assess whether concentrations exhibit increasing or decreasing trends over time to a specified level of confidence. Separate trend tests can be performed on each well for each contaminant and requires a minimum of four sampling events. The results are provided as "Increasing", "Decreasing", or "No Trend" at the 80% and 90% confidence level.

The Mann-Kendall test was performed for impacted plume wells on and off-Site. The test was run at the 80% and 90% confidence interval using the past ten monitoring events. The Mann-Kendall analysis tables are provided in Appendix G, and concentration trends are summarized in the following table.

Summary of Mann Kendall Statistical Analysis

COC	# of Wells Tested	80% Confidence Level			90% Confidence Level		
		Decreasing	*Increasing*	*No Trend/ Stable*	*Decreasing*	*Increasing*	*No Trend*
PCE	*5*	**4**	0	**1**	**2**	0	**3**
TCE	*13*	**12**	0	**1**	**11**	0	**2**
cis-1,2-DCE	*13*	**9**	**2**	**2**	**7**	**1**	**5**
VC	*6*	**1**	**3**	**2**	**1**	**2**	**3**
1,1-DCE	*4*	**4**	0	0	**4**	0	0
1,1-DCA	*1*	**1**	0	0	**1**	0	0
1,2-DCA	*2*	**2**	0	0	**2**	0	0
1,1,1-TCA	*4*	**4**	0	0	**4**	0	0
Toluene	*5*	**4**	**1**	0	**4**	0	**1**
Methylene Chloride	*2*	**2**	0	0	**2**	0	0
Chloroform	*2*	**2**	0	0	**2**	0	0
Totals	**57**	**45**	**6**	6	**40**	**3**	14

At the 90% confidence interval, the only compounds exhibiting an increasing trend are cis-1,2-DCE in MW-19D, and VC in MW-103C and MW-104C. During enhanced anaerobic biodegradation TCE is converted through cDCE and VC to non-chlorinated daughter products such as ethene, ethane, and methane. Increasing concentration trends for these compounds are evidence that reductive dechlorination is taking place. Concentrations trends for the remaining VOCs in all remaining monitor wells are either stable or decreasing.

5.3 GROUNDWATER GEOCHEMISTRY

Field parameters, including temperature, DO, pH, conductivity, ORP, and turbidity were recorded during the December 2015 sampling event. Laboratory analyses of TOC and chloride were also performed on various groundwater samples.

Field water quality parameters and groundwater geochemical data are presented in Table 5 and in Table 6, respectively. Post-injection trend graphs of field parameters are included in Appendix H.

Geochemical parameters for monitor wells with total VOC concentrations above 1,000 µg/L are summarized below.

Summary of Groundwater Geochemistry Analysis

Well ID	pH (Standard Units)	DO (mg/L)	ORP (mV)	TOC (mg/L)	Chloride (mg/L)
Optimal Range for Enhanced Reductive Dechlorination	**5 - 9**	**<1**	**< -200**	**>20**	**Increased**
MW-100A	**5.83**	**0.33**	-52	**164**	**74.6**
MW-100B	**5.44**	**0.58**	-31.4	**398**	**137**
MW-102C	4.66	**0.38**	62.2	**167**	23

Bold *values indicate parameters that are favorable to Enhanced Reductive Dechlorination*
-- = Data not available (instrument failure or not analyzed)

It appears that sufficient carbon substrate remains in the source area aquifer zone to drive continued biological dechlorination reactions in the remaining site monitor wells with total VOC concentrations over 1,000 µg/L. The required reducing conditions, as evidenced by a negative ORP, are present in MW-100A and MW-100B. Although the ORP value measured in December 2015 in monitor well MW-102C is positive, the DO concentration is very low and MW-102 has historically exhibited a negative ORP. The pH in monitor well MW-102C appears to be outside of the optimal range for reductive dechlorination, however, the pH in this well has ranged from 4.3 to 5.4 since 2010 and has not appeared to

adversely impact contaminant reduction. The total VOC concentration in MW-102C has decreased by 58% since the last carbon injection was completed in 2010.

5.4 PROPERTY BOUNDARY WELLS

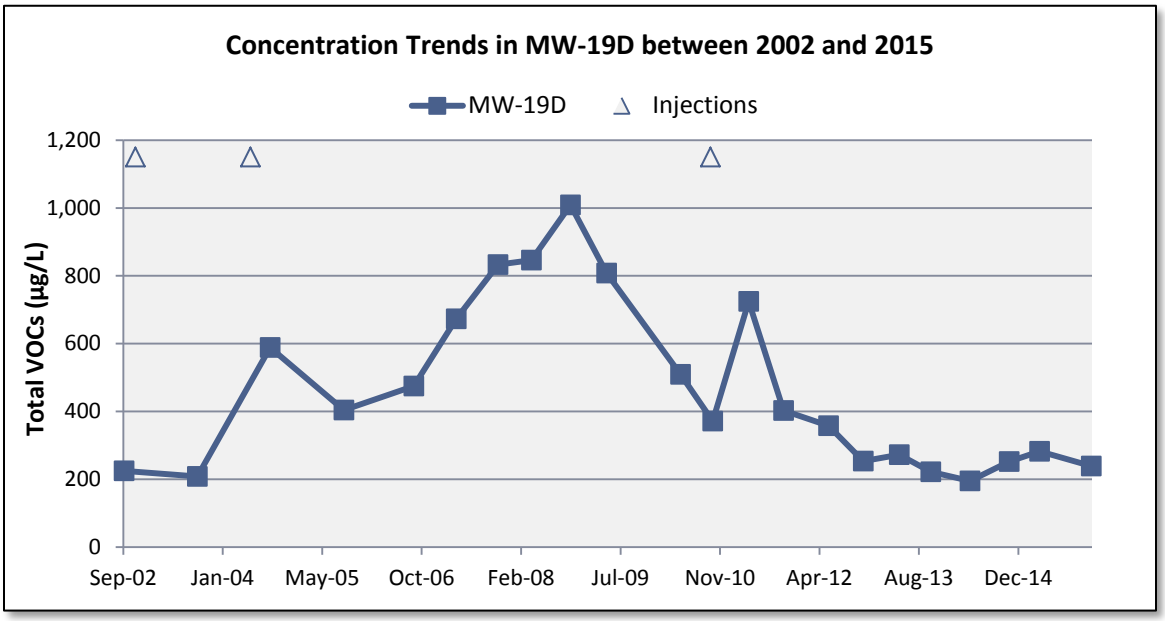
Changes in total VOC concentration at the property boundary monitor wells between 2002 and 2015 are summarized below.

VOC Concentrations in Property Boundary Wells

Monitor Wells	Pre-Remediation (September 2002)	December 2015	Percent Reduction
Shallow Property Boundary Monitor Wells			
MW-16B	29.6	11.6	61%
MW-19B	175.6	ND	100%
MW-20B	ND	ND	--
Deep Property Boundary Monitor Wells			
MW-16D	1000.3	22.5	98%
MW-19D	224.8	238.9	increase
MW-20D	0.87	1.36	increase

The concentration of total VOCs in monitor wells screened in the shallow aquifer zone has decreased between 61% and 100% since the first carbon injection was completed in the source area in 2002. A large decrease in total VOC concentration has also been observed in monitor wells MW-16D (98%) since 2002. While statistically, VOC concentrations in MW-20D have increase over the entire period of groundwater sampling activities, total VOC concentrations in have remained below 2 µg/L since source area remediation began in 2002.

The trend in the total VOC concentration in MW-19D is presented below.



Concentrations in monitor well MW-19D have varied since remediation began in 2002. A maximum total VOC concentration of 1,009 µg/L was observed in MW-19D in October 2008. A reduction in total VOC concentration of 76% has been observed since that time.

Overall, contaminant concentrations in the downgradient property boundary wells for both the shallow and deep zones are responding favorably to remediation efforts conducted in the source area. Only two property boundary wells (MW-19D and MW-106C) exhibit contaminant concentrations in excess of the 2L standards.

5.5 PLUME SHAPE AND SIZE

The extent of total VOCs that exceed the NC 2L Standards in 2002, prior to remediation efforts, and the current extent of the total VOCs that exceed the NC 2L Standards, based on the December 2015 sampling data, are depicted in Figure 5. The overall foot print of the plume, as measured by the area exceeding 4 µg/L of total VOCs, had decreased by 70% since 2002. The maximum concentration observed in 2002 was 488,900 µg/L in MW-100B. The maximum concentration observed in 2015 was 68,607 in monitor well MW-100B, a decrease of 86%. Only three wells have total VOC concentrations over 1,000 µg/L in 2015 as compared with seven wells in 2002. Source area remediation conducted between 2002 and 2010 has decreased the overall strength and size of the overall VOC plume.

6.0 MONITORING AND REMEDIATION CONCLUSIONS

The second semi-annual groundwater monitoring event conducted in December 2015 was completed in accordance with the November 9, 2015 letter to NCDEQ. The following conclusions and recommendations for future sampling programs are based on results of the historical and current sampling events, as well as the 2015 annual remediation effectiveness evaluation.

- During the December 2015 monitoring event, groundwater elevations were greatly increased due to unseasonably high rainfall. Flow patterns at the Site are assumed to be generally consistent with historical gauging events. Shallow groundwater flow at the Site was predominantly to the south-southeast, and deep groundwater flow was toward the south. Historical data have shown multi-directional flow patterns ranging from southeast to southwest.

- The chlorinated ethenes PCE, TCE, cis-1,2-DCE, 1,1-DCE, and VC were detected at concentrations above the 2L Standard in multiple Site monitor wells.

- The chlorinated ethanes 1,1,1-TCA and 1,1-DCA were detected at concentrations above their 2L Standard at two Site wells located in the primary source area. 1,2-DCA was detected above its 2L Standard in two wells in the primary source area (MW-100A and MW-100B) and one well in the mid-plume area (MW-104A).

- Toluene was detected at concentrations above the 2L Standard in source area wells MW-100A, MW-100B, and MW-102C. Since October 2010, toluene has also been detected above its 2L Standard in wells MW-101A and MW-102B, and concentrations have been increasing in MW-102C. Toluene was most likely desorbed and increased at MW-102C due to changes in aqueous solubility caused by the ABC® substrate injections.

- Methylene chloride was detected above its 2L Standard in source area monitor well MW-102C. MEK has not been detected above its 2L Standard for the past five years. Methylene chloride and MEK were not detected in any other groundwater samples collected from the southern boundary plume area.

- Freon 113 was detected at concentrations above the laboratory reporting limits in 21 of the Site monitor wells, and concentrations exceeded 20 mg/L at monitor well MW-103A. However, it was not detected at concentrations above the 2L Standard in any Site monitor wells. These

data confirm the widespread distribution of Freon 113 in groundwater throughout the shallow and deeper aquifer zones.

- Historical trends show that TCE concentrations in the primary source area well clusters MW-100A/B and MW-101A/B have decreased more than 99.5 percent since the in situ bioremediation remedy began in November 2002. The largest reduction of 99.998 percent has occurred at MW-101A, where TCE was reduced from 390,000 µg/L in October 2002 to 7 µg/L in December 2015.

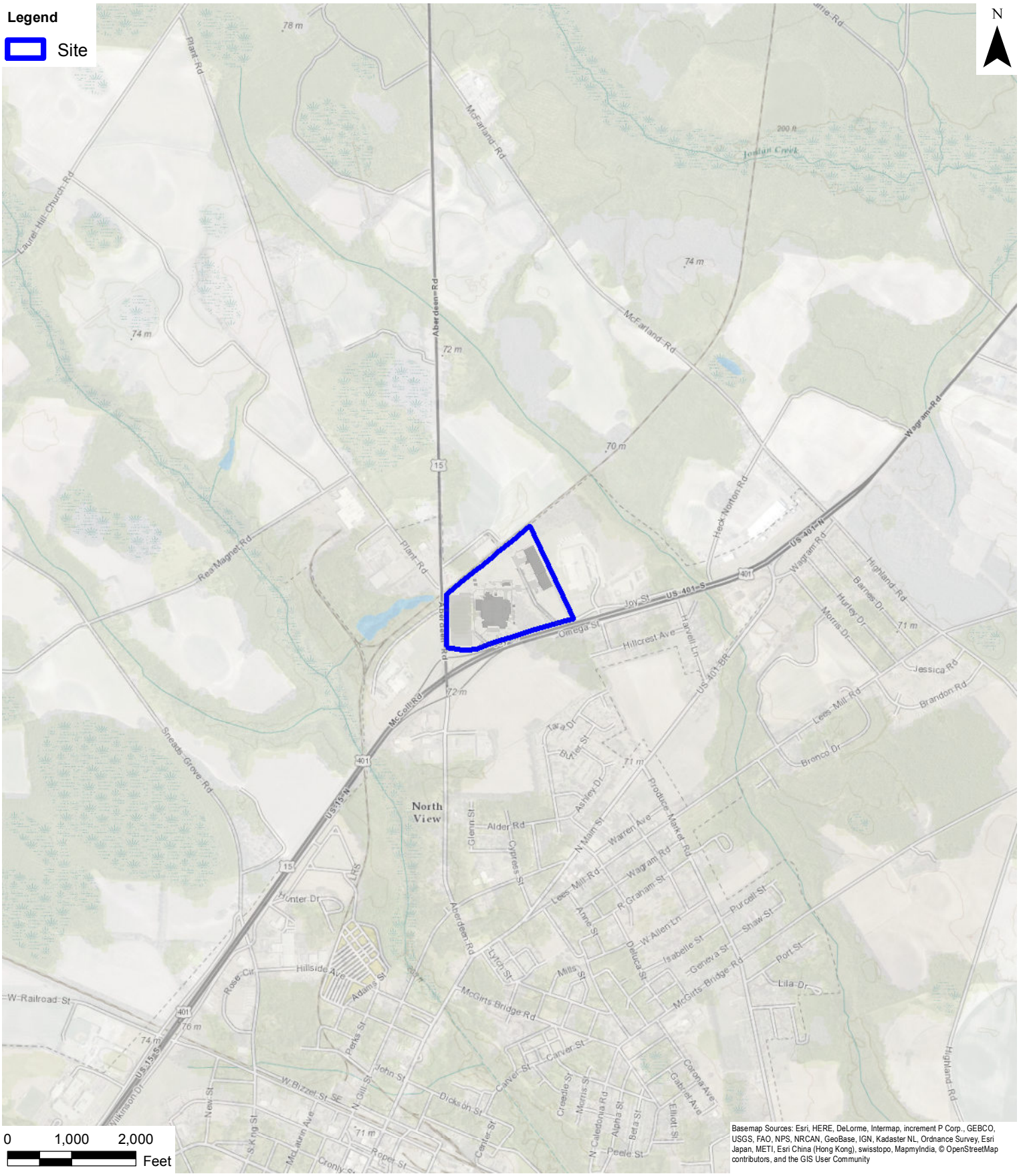
- Historical trends in the southern plume area show relatively stable TCE concentrations with an overall decrease in cis-1,2-DCE since the September 2006 HRC® injections on that portion of the Site property.

- Groundwater geochemical data indicate that TOC concentrations increased in most primary source area wells immediately following the October 2010 injections and concentrations are currently equal to or greater than pre-injection conditions in most wells. The site groundwater conditions remain anaerobic and anoxic.

- Current data demonstrate that the bioremediation remedy has been very effective and the 2010 ABC® substrate injections were effective at rejuvenating the declining TOC concentrations in groundwater and at further suppressing groundwater ORP. As a result of these enhanced bio-geochemical conditions, the rate of in situ chlorinated VOC biodegradation has been accelerated in the source area for the past four years. Additionally, the strong co-solvent properties of the ABC® organic substrate also caused significant matrix desorption and increased aqueous solubility of contaminant mass in the aquifer for more effective biological treatment. This co-solvent desorption reaction has eliminated the free phase product and it is expected to minimize future dissolved VOC rebound caused by matrix diffusion.

- Based on the most recent monitoring results, it is clear that sufficient data has been collected at the site to date that largely demonstrates plume stability. Additionally and assuming continued industrial or commercial use of the property, there is low risk to the site and surrounding community from residual VOCs in groundwater. As such, Abbott proposes no additional groundwater monitoring at this time, and further requests a meeting with the NCDEQ to discuss pursuing a Risk Based Closure for the site under the recently signed Regulatory Reform Act (HB 765).

FIGURES



Basemap Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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FIGURE 1
Site Location Map

Former Abbott Laboratories Facility

Laurinburg, Scotland County
North Carolina

Legend

- Site
- Parcels

Bioremediation Well Network

- Upper Zone Monitor Well
- Mid Zone Monitor Well
- Lower Zone Monitor Well

Recovery System Well Network

- Upper Zone Monitor Well
- Lower Zone Monitor Well

RI Addendum Temporary Monitoring Point

- Groundwater Sample
- Surface Water Sample

Former Wells

- Abandoned Monitor Well
- Former Recovery System Well
- Former Recovery Well

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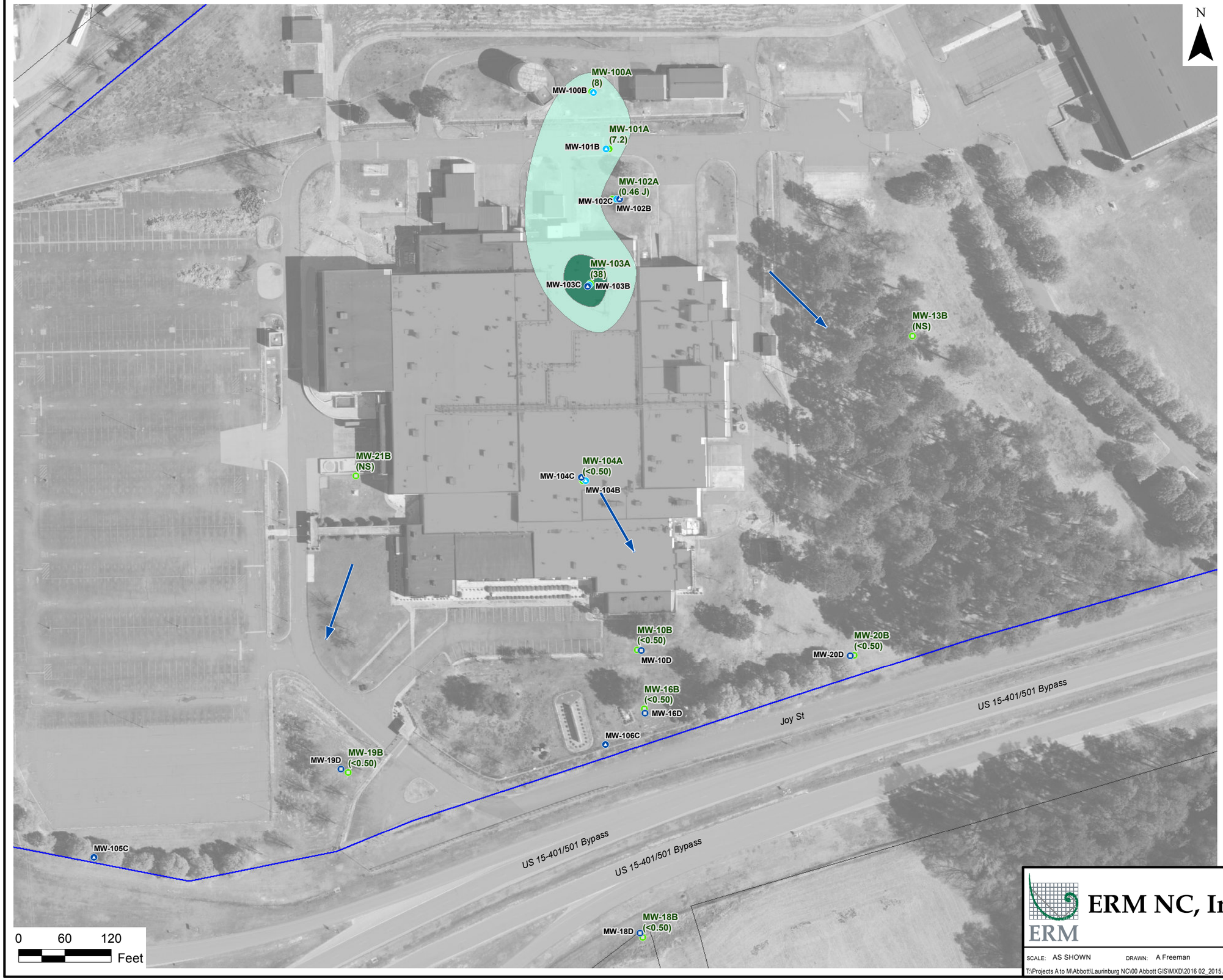
FIGURE 2
Site Plan

Former Abbott Laboratories Facility
Laurinburg, Scotland County
North Carolina



Legend

Site

Parcels

Bioremediation Well Network

Upper Zone Monitor Well

Mid Zone Monitor Well

Lower Zone Monitor Well

Recovery System Well Network

Upper Zone Monitor Well

Lower Zone Monitor Well

TCE Isoconcentration

> 30 ug/L

> 3 ug/L

Generalized Groundwater Flow (based on historical data)

TCE = Trichloroethene

ug/L = micrograms per liter

Groundwater samples collected December 2015

Basemap NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board.

ERM NC, Inc.

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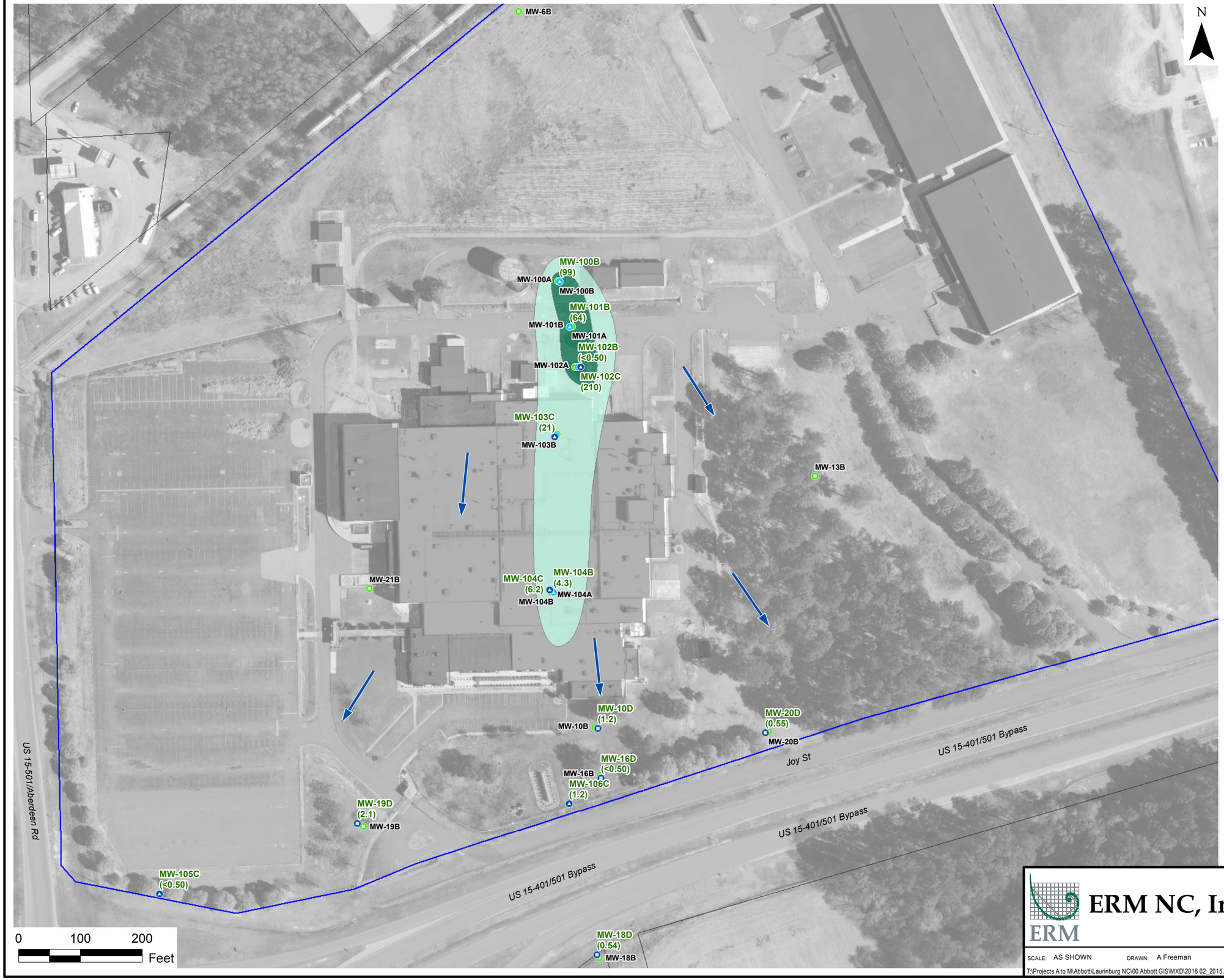
FIGURE 3
Shallow TCE Concentrations

Former Abbott Laboratories Facility

Laurinburg, Scotland County
North Carolina



Legend

Site

Parcels

Bioremediation Well Network

Upper Zone Monitor Well

Mid Zone Monitor Well

Lower Zone Monitor Well

Recovery System Well Network

Upper Zone Monitor Well

Lower Zone Monitor Well

TCE Isoconcentration

> 30 ug/L

> 3 ug/L

Generalized Groundwater Flow (based on historical data)

TCE = Trichloroethene

ug/L = micrograms per liter

Groundwater samples collected December 2015

Basemap NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board.

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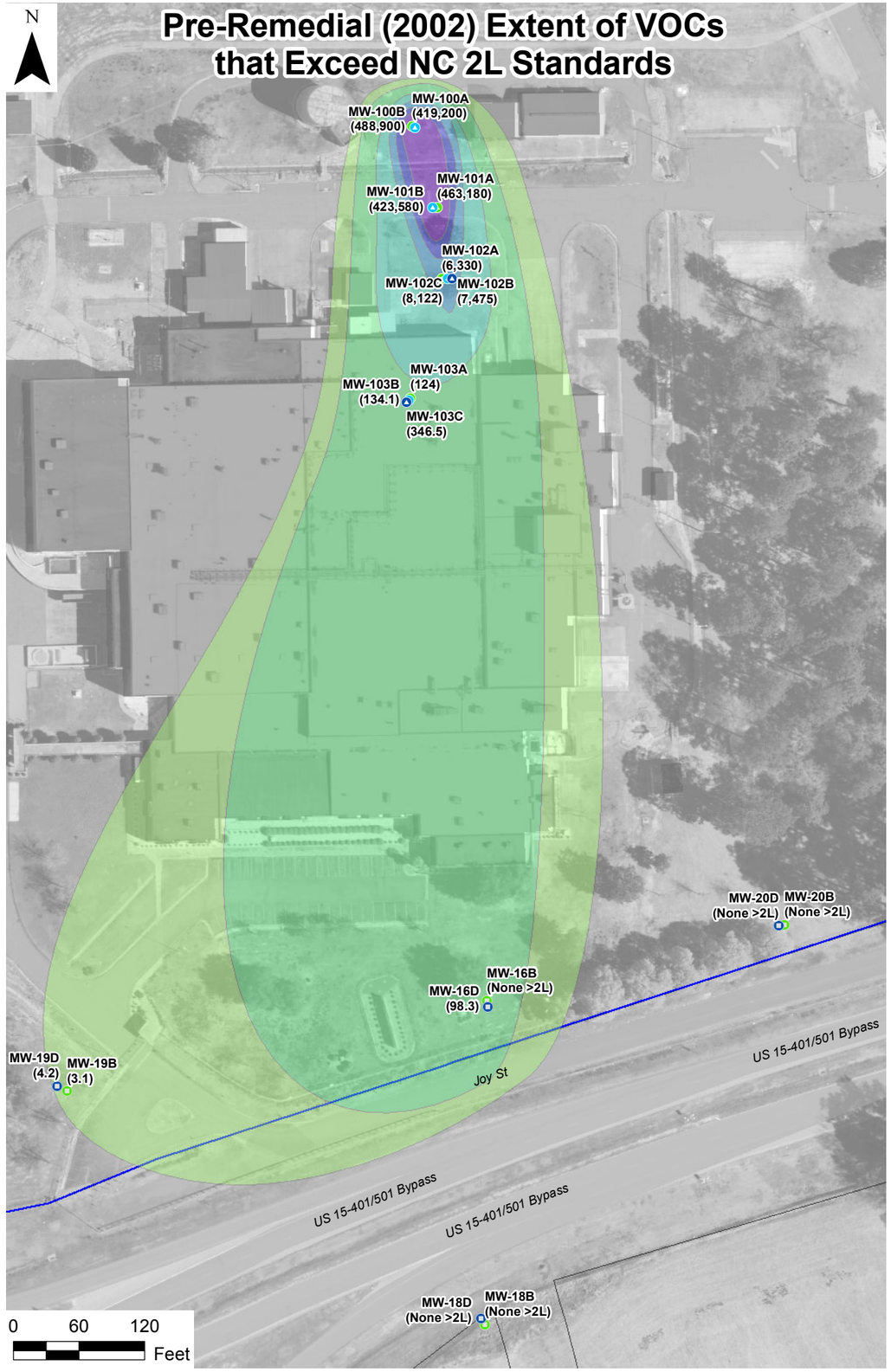
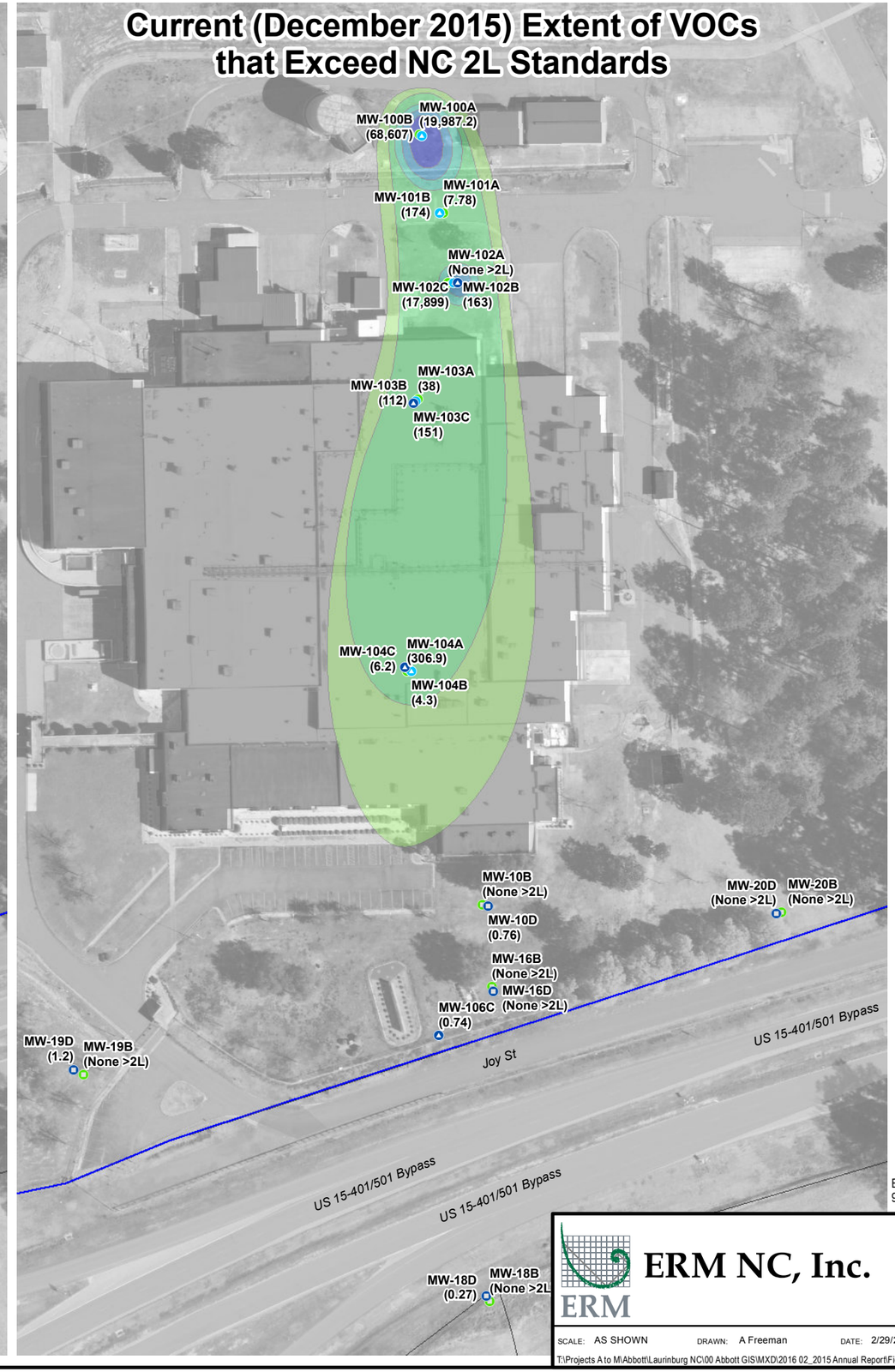
FIGURE 4
Deep TCE Concentrations

Former Abbott Laboratories Facility

Laurinburg, Scotland County
North Carolina





Legend

Site

Parcels

Bioremediation Well Network

Upper Zone Monitor Well

Mid Zone Monitor Well

Lower Zone Monitor Well

Recovery System Well Network

Upper Zone Monitor Well

Lower Zone Monitor Well

Total VOC Concentration > 2L Standards

>400,000 ug/L

>40,000 ug/L

>4,000 ug/L

>400 ug/L

>40 ug/L

>4 ug/L

VOCs = Total Volatile Organic Compounds (sum of constituents detected at concentrations greater than NC 2L standards)

ug/L = micrograms per liter

Vertical maximum concentration used for contours

Basemap NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board.

ERM NC, Inc.

SCALE: AS SHOWN DRAWN: A Freeman DATE: 2/29/2016

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FIGURE 5
Total VOC Plume Reduction (2002-2015)
Former Abbott Laboratories Facility
Laurinburg, Scotland County
North Carolina

TABLES

Table 1: Monitor Well Construction Details

Well Number*	Date Installed	Northing Coordinate (ft)	Easting Coordinate (ft)	Top of Casing MP Elevation (ft, msl)	Screened Interval (ft, bgs)	Total Well Depth (ft, bgs)	Total Well Depth (ft, msl)
MW-100A	10/8/2002	382724.50	1863347.72	228.86	20 - 30	30.00	198.86
MW-100B	10/7/2002	382723.78	1863349.92	228.92	35 - 45	45.00	183.92
MW-101A	10/11/2002	382650.77	1863370.26	228.18	20 - 30	30.00	198.18
MW-101B	10/11/2002	382650.59	1863366.52	228.17	35 - 45	45.00	183.17
MW-102A	10/11/2002	382585.41	1863374.92	229.56	20 - 30	30.00	199.56
MW-102B	10/10/2002	382585.32	1863380.16	229.47	35 - 45	45.00	184.47
MW-102C	10/10/2002	382585.65	1863383.87	229.54	55 - 65	65.00	164.54
MW-103A	10/9/2002	382476.36	1863346.14	230.58	20 - 30	30.00	200.58
MW-103B	10/8/2002	382474.21	1863344.38	230.58	35 - 45	45.00	185.58
MW-103C	10/9/2002	382472.21	1863342.25	230.60	55 - 65	65.00	165.60
MW-104A	6/5/2004	382220.64	1863336.06	230.58	2 - 12	12.00	218.58
MW-104B	6/5/2004	382220.42	1863339.99	230.59	35 - 45	45.00	185.59
MW-104C	6/5/2004	382224.47	1863334.27	230.56	63.5 - 73.5	73.50	157.06
MW-105C	2/9/2009	381732.29	1862702.32	233.25	54 - 64	64.00	169.25
MW-106C	12/9/2015	381878.96	1863357.48	227.88	49 - 59	59.00	168.88
MW-6B	7/25/1990	383160.99	1863284.10	230.30	14 - 19	19.00	211.30
MW-10B	7/24/1990	382001.25	1863406.99	229.10	16.5 - 26.5	26.50	202.60
MW-10D	1/17/1996	382000.37	1863412.15	228.70	30 - 40	40.00	188.70
MW-13B	7/18/1991	382408.35	1863763.78	230.30	9.3 - 18	18.00	212.30
MW-16B	1/17/1991	381924.59	1863415.83	227.90	15.25 - 24.25	24.25	203.65
MW-16D	1/18/1991	381919.60	1863416.98	228.90	62.5 - 71.5	71.50	157.40
MW-18B	2/5/1992	381628.77	1863414.00	228.70	5.5 - 14.5	14.50	214.20
MW-18D	2/7/1992	381634.10	1863410.43	228.70	48.1 - 57.1	57.10	171.60
MW-19B	4/24/1992	381842.10	1863032.15	228.70	15 - 25	25.00	203.70
MW-19D	4/27/1992	381846.60	1863022.78	228.70	63.8 - 73.8	73.80	154.90
MW-20B	4/28/1992	381994.24	1863688.14	227.90	17 - 27	27.00	200.90
MW-20D	4/27/1992	381993.30	1863682.90	228.10	68 - 78	78.00	150.10
MW-21B	1996	382226.66	1863041.97	227.00	15 - 25	25.00	202.00
FR-6D	5/1/2000	382310.07	1863638.42	230.62	14.5 - 19.5	19.50	209.12

Notes:
*Only existing wells are listed in this table. Previously abandoned site wells are excluded.
[1]Well construction logs are not available for MW-21B. Screened intervals are estimates.
ft = feet
bgs = below ground surface
msl = mean sea level
MP = monitoring point

Table 2: Summary of Groundwater Monitoring Program: December 2015

Well No.	Fixed-Base Laboratory Analyses[1]				Field Measurements	
	VOCs (Method 8260B)	VOCs + TICs (Method 8260B)	Total Organic Carbon (SM-5310B)	Total Chloride (EPA 300/9056A)	Water Quality Indicators[2]	Water Level
Number of Samples	**25**	**8**	**13**	**14**	**16**	**28**
MW-100A	X	X	X	X	X	X
MW-100B	X	X	X	X	X	X
MW-101A	X	X	X	X	X	X
MW-101B	X	X	X	X	X	X
MW-102A	X	X	X	X	X	X
MW-102B	X	X	X	X	X	X
MW-102C	X	X	X	X	X	X
MW-103A	X		X	X	X	X
MW-103B	X		X	X	X	X
MW-103C	X		X	X	X	X
MW-104A	X		X		X	X
MW-104B	X		X	X	X	X
MW-104C	X		X	X	X	X
MW-105C	X					X
MW-106C	X	X			X	X
MW-6B						X
MW-10B	X			X	X	X
MW-10D	X			X	X	X
MW-13B						X
MW-16B	X					X
MW-16D	X					X
MW-18B	X					X
MW-18D	X					X
MW-19B	X					X
MW-19D	X					X
MW-20B	X					X
MW-20D	X					X
MW-21B						X

Notes:

[1] Fixed-base laboratories include Accutest Laboratories and AbbVie EHS Laboratory (formerly Abbott EHS Laboratory)

[2] Water quality indicators include pH, temperature, dissolved oxygen, oxidation-reduction potential, turbidity, and specific conductance

VOCs = volatile organic compounds

MW-105C Shaded cells indicate wells proposed to be sampled via passive diffusion bags

Table 3: Groundwater Level Gauging and Elevation Data: November 2014 - December 2015

Well Identication	TOC Elevation (ft msl)	November-14		April-15		December-15	
		Depth to Water (ft btoc)	Groundwater Elevation (ft msl)	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)
MW-100A	228.86	8.41	220.45	4.12	224.74	3.22	225.64
MW-100B	228.92	10.79	218.13	5.65	223.27	3.92	225.00
MW-101A	228.18	9.47	218.71	4.71	223.47	2.97	225.21
MW-101B	228.17	10.53	217.64	5.39	222.78	3.42	224.75
MW-102A	229.56	9.67	219.89	5.51	224.05	3.58	225.98
MW-102B	229.47	12.12	217.35	6.95	222.52	4.80	224.67
MW-102C	229.54	12.76	216.78	7.39	222.15	5.18	224.36
MW-103A	230.58	10.47	220.11	6.01	224.57	4.53	226.05
MW-103B	230.58	12.58	218.00	7.59	222.99	5.55	225.03
MW-103C	230.60	13.61	216.99	8.32	222.28	6.23	224.37
MW-104A	230.58	10.82	219.76	6.11	224.47	4.40	226.18
MW-104B	230.59	12.07	218.52	7.08	223.51	5.10	225.49
MW-104C	230.56	13.67	216.89	5.28	225.28	6.01	224.55
MW-105C	233.25	16.97	216.28	12.20	221.05	9.91	223.34
MW-106C	227.88					4.50	223.38
MW-6B	230.30	8.72	221.58	4.71	225.59	3.83	226.47
MW-10B	229.10	9.98	219.12	4.96	224.14	2.81	226.29
MW-10D	228.70	11.90	216.80	6.70	222.00	4.35	224.35
MW-13B	230.30	11.43	218.87	5.59	224.71	3.46	226.84
MW-16B	227.90	9.67	218.23	4.69	223.21	2.38	225.52
MW-16D	228.90	12.13	216.77	6.83	222.07	4.51	224.39
MW-18B	228.70	10.60	218.10	6.43	222.27	2.99	225.71
MW-18D	228.70	12.64	216.06	7.39	221.31	4.88	223.82
MW-19B	228.70	9.50	219.20	4.31	224.39	1.73	226.97
MW-19D	228.70	19.94	208.76	7.89	220.81	5.62	223.08
MW-20B	227.90	9.80	218.10	3.79	224.11	1.34	226.56
MW-20D	228.10	11.96	216.14	6.48	221.62	4.05	224.05
MW-21B	227.00	6.96	220.04	2.75	224.25	1.08	225.92
FR-6D	230.62			6.10	224.52	NM	NM

Notes:

Water levels were measured on December 29, 2015
TOC: Top of Casing
ft: Feet
ft btoc: feet below the top of casing
msl: mean sea level
NM - not measured

Table 4: Volatile Organic Compound Analytical Results in Groundwater: October 2010 to December 2015

Chemical Name**			Chlorinated Ethanes (µg/L)					Chlorinated Ethenes (µg/L)						Chlorinated Methanes (µg/L)		Other Compounds (µg/L)																
			1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,2-Dichloroethane	Chloroethane	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene[a]	Vinyl Chloride	Chloroform	Methylene Chloride	Acetone	Benzene	Ethyl-benzene	Isopropyl-benzene	Methyl Ethyl Ketone (MEK)	Methyl Isobutyl Ketone	Methyl tert Butyl Ether (MTBE)*	Naphthalene	Styrene	Toluene	Xylenes	1,2,4-Trimethylbenzene	Vinyl Acetate	Freon-11 (Trichlorofluoromethane)	Freon-12 (Dichlorodifluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	1,4-Dioxane
2L Standard (µg/L)			200	0.6	6	0.4	3,000	0.7	3	70	100	350	0.03	70	5	6,000	1	600	70	4,000	100	20	6	70	600	500	400	88	2,000	1,000	200,000	3
Sample ID	Sample Method	Date																														
MW-100A	Low Flow	10/12/10	630	<500	<500	<500	<500	<500	<500	38,000	<500	600	<500	<500	790	<2,500	<500	<500	<500	4,200	<2,500	<500	<500	<500	2,400	<1,500	<500	<2,500	<500	<2,500	22,000	NA
MW-100A	Low Flow	12/02/11	<500	<500	<500	<500	<500	<500	<500	38,000	<500	<500	<500	<500	1,400	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	2,400	<1,500	<500	<2,500	<500	<2,500	14,000	NA
MW-100A	Low Flow	01/25/11	640	<500	<500	<500	<500	<500	<500	36,000	<500	540	<500	<500	5,400	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	2,500	<1,500	<500	<2,500	<500	<2,500	18,000	NA
MW-100A	Low Flow	04/21/11	1,600	<100	<100	200	<100	<100	810	51,000	<100	770	110	180	21,000	<500	<100	<100	<100	<500	<500	<100	<100	<100	2,900	<300	<100	<500	<100	<500	25,000	NA
MW-100A	Low Flow	08/17/11	1,700	<100	<100	190	<100	<100	940	48,000	320	750	<100	200	20,000	<500	<100	<100	<100	1,400	<500	<100	<100	<100	2,500	120	<100	<500	<100	<500	18,000	NA
MW-100A	Low Flow	10/05/11	2,000	<100	<100	170	<100	<100	880	50,000	<100	740	<100	240	27,000	<500	<100	<100	<100	<500	<500	<100	<100	<100	2,600	<300	<100	<500	<100	<500	20,000	NA
MW-100A	Low Flow	05/17/12	1,200	<20	91	120	<20	37	80	40,000	22	750	81	160	1,800	<100	23	22	<20	<100	<100	<20	<20	<20	2,600	90	<20	<100	<20	<100	22,000	NA
MW-100A	Low Flow	11/07/12	1,100	<50	81	100	<50	<50	69	47,000	<1.0	660	62	160	1,900	580	<50	<50	<50	<5.0	<5.0	<1.0	<50	<50	2,000	50	<50	<5.0	<1.0	<5.0	17,000	NA
MW-100A	Low Flow	05/07/13	790	4.20	87	91	<1.0	36	63	41,000	22	600	120	150	810	518	17	21	2.1	3,500	100	<1.0	7.2	4.6	2,100	92	4	5	<1.0	150	16,000	NA
MW-100A	Low Flow	10/23/13	610	<50	99	100	<50	27 J	35	48,000	<50	600	92	130	<250	370	22 J	17 J	<50	3,400	<250	<50	<50	<50	2,100	66 J	<50	<100	<50	<250	17,000	NA
MW-100A	Low Flow	04/29/14	880	<50	110	120	<50	26	25	49,000	<50	<50	90	160	<250	520	21	20	<50	<250	<250	<250	<50	<50	2,300	86	<50	<100	<50	<250	18,000	NA
MW-100A	Low Flow	11/12/14	580	<50	87	87	<50	<50	25	45,000	<50	570	69	110	260	420	17 J	15 J	<50	<250	<250	<50	<50	<50	1,700	58 J	<50	<100	<50	<250	12,000	NA
MW-100A	Low Flow	04/15/15	720	<100	110	110	<100	<100	<50	41,000	<100	640	120	140	<500	530	<50	<50	<100	<500	<500	<100	<100	<100	1,800	64 J	<100	<200	<100	<500	13,000	NA
MW-100A	Low Flow	12/28/15	240	<10	35	52	<10	8.2 J	8	19,000	10	230	33	60	<50	600	9.2	6.6	<10	3,900	<50	<10	<10	<10	610	64 J	<10	<20	<10	<50	5,700	NA
MW-100B	Low Flow	10/13/10	800	<500	<500	<500	<500	<500	2,300	41,000	<500	540	<500	<500	660	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	2,700	<1,500	<500	<2,500	<500	<2,500	25,000	NA
MW-100B	Low Flow	12/02/10	810	<500	<500	<500	<500	<500	13,000	42,000	<500	700	<500	<500	8,200	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	3,300	<1,500	<500	<2,500	<500	<2,500	13,000	NA
MW-100B	Low Flow	01/25/11	700	<500	<500	<500	<500	<500	11,000	36,000	<500	640	<500	<500	9,700	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	2,900	<1,500	<500	<2,500	<500	<2,500	14,000	NA
MW-100B	Low Flow	04/21/11	1,500	<100	<100	250	<100	120	8,600	56,000	<100	930	130	190	35,000	<500	<100	<100	<100	<500	<500	<100	<100	<100	3,700	<300	<100	<500	<100	<500	31,000	NA
MW-100B	Low Flow	08/17/11	1,700	<100	<100	270	<100	<100	7,600	56,000	380	970	110	260	37,000	<500	<100	<100	<100	510	<500	<100	<100	<100	3,600	<300	<100	<500	100	<500	22,000	NA
MW-100B	Low Flow	10/05/11	2,400	<100	110	300	<100	<100	6,900	66,000	<100	1,100	110	340	57,000	<500	<100	<100	<100	<500	<500	<100	<100	<100	3,600	<300	<100	<500	<100	<500	25,000	NA
MW-100B	Low Flow	05/17/12	1,500	<20	94	210	<20	54	3,600	52,000	26	910	110	230	25,000	<100	29	25	<20	<100	<100	<20	<20	<20	3,300	99	<20	<100	<20	<100	18,000	NA
MW-100B	Low Flow	11/07/12	1,700	<200	<200	200	<200	<200	1,600	79,000	<200	1,000	<200	260	27,000	<200	<200	<200	<200	<200	<200	<200	<200	<200	3,600	29	<200	<200	<200	<1,000	23,000	NA
MW-100B Dup	Duplicate	11/07/12	2,000	<200	<200	210	<200	<200	1,700	80,000	<200	1,100	<200	270	29,000	<200	<200	<200	<200	<200	<200	<200	<200	<200	3,700	<600	<200	<200	<200	<1,000	26,000	NA
MW-100B	Low Flow	05/07/13	1,600	6.70	90	150	<5.0	57	1,100	62,000	25	940	95	200	11,000	<5.0	24	28	<5.0	1,600	92	<5.0	8.9	6.5	3,400	118	5.5	<25	<5.0	140	22,000	NA
MW-100B Dup	Duplicate	05/07/13	1,600	7.10	89	150	<1.0	55	1,100	59,000	24	910	92	200	11,000	326	24	28	<1.0	1,600	94	<5.0	10	6.7	3,400	119	5.7	5.5	<5.0	130	20,000	NA
MW-100B	Low Flow	10/23/13	1,300	<50	100	150	<50	44 J	1,000	63,000	<50	830	91	180	5,300	<250	29	27	<50	<250	<250	<50	<50	<50	3,300	103	<50	100	<50	<250	21,000	NA
MW-100B	Low Flow	04/29/14	1,500	<50	110	180	<50	34	430	69,000	<50	<50	86	210	2,500	360	28	29	<50	<250	<250	<250	<50	<50	3,300	112	<50	<100	<50	<250	23,000	NA
MW-100B	Low Flow	11/12/14	1,100	<50	98	130	<50	<50	820	57,000	<50	740	90	150	1,100	<250	22 J	20 J	<50	<250	<250	<50	<50	<50	2,700	78 J	<50	<100	<50	<250	16,000	NA
MW-100B	Low Flow	04/15/15	1,300	<200	120 J	<200	<200	<200	220	61,000	<200	850	98 J	170 J	<1000	<1000	<100	<100	<200	<1000	<1000	<200	<200	<200	2,800	110 J	<200	<400	<200	<1000	19,000	30
MW-100B Dup	Duplicate	04/15/15	1,200	<200	130 J	<200	<200	<200	220	62,000	<200	810	97 J	190 J	<1000	<1000	<100	<100	<200	<1000	<1000	<200	<200	<200	2,900	110 J	<200	<400	<200	<1000	18,000	24
MW-100B	Low Flow	12/28/15	1,200	<50	110	140	<50	39 J	99	63,000	27 J	870	78	180	<250	700	30	27	<50	3,200	<250	<50	<50	<50	2,900	110 J	<50	<100	<50	<250	19,000	NA
MW-101A	Low Flow	10/13/10	3,700	<500	<500	<500	<500	<500	44,000	5,600	<500	<500	<500	<500	<500	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	1,900	<1,500	<500	<2,500	<500	<2,500	23,000	NA
MW-101A DUP	Duplicate	10/13/10	3,600	<500	<500	<500	<500	<500	44,000	5,400	<500	<500	<500	<500	<500	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	1,900	<1,500	<500	<2,500	<500	<2,500	23,000	NA
MW-101A	Low Flow	12/02/10	1,600	<500	<500	<500	<500	<500	13,000	15,000	<500	<500	<500	<500	<500	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	1,100	<1,500	<500	<2,500	<500	<2,500	21,000	NA
MW-101A	Low Flow	01/25/11	1,000	<500	<500	<500	<500	<500	1,600	13,000	<500	<500	<500	<500	<500	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	810	<1,500	<500	<2,500	<500	<2,500	22,000	NA
MW-101A	Low Flow	04/19/11	1,100	<20	<20	<20	<20	97	790	8,300	<20	140	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	630	49	<20	<100	<20	<100	42,000	NA
MW-101A	Low Flow	08/16/11	720	<20	<20	<20	<20	49	940	1,700	<20	120	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	260	25	<20	<100	<20	<100	22,000	NA
MW-101A	Low Flow	10/05/11	820	<50	<50	<50	<50	<50	1,800	2,700	<50	<50	<50	<50	<50	<250	<50	<50	<50	<250	<250	<50	<50	<50	310	<150	<50	<250	<50	<250	24,000	NA
MW-101A	Low Flow	05/17/12	160	<20	<20	<20	<20	40	310	470	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	94	<20	<20	<100	<20	<100	9,800	NA
MW-101A	Low Flow	11/07/12	60	<5.0	<5.0	<5.0	<5.0	10	86	140	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<5.0	<5.0	<5.0	<25	<25	<5.0	<5.0	<5.0	24	<15	<5.0	<25	<5.0	<25	3,300	NA
MW-101A	Low Flow	05/08/13	56	<5.0	<5.0	<5.0	<5.0	18	110	190	<5.0	<5.0	<5.0	5.2	<5.0	<25	<5.0	<5.0	<5.0	100	<25	<5.0	<5.0	<5.0	29	<15	<5.0	<25	<5.0	<25	4,700	NA
MW-101A	Low Flow	10/23/13	31	<10	<10	<10	<10	9.4 J	32	34	<10	<10	<5.0	<10	<10	<50	<5.0	<5.0	<10	<50	<50	<10	<10	<10	4.8 J	<15	<10	<20	<10	<50	4,900	NA
MW-101A DUP	Duplicate	10/23/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.8	68	<1.0	<1.0	0.8	<1.0	<1.0	<5.0	0.5 J	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	<1.0	<5.0	150	NA
MW-101A	Low Flow	04/29/14	19	<10	<10	<10	<10	19	100	350	<10	<10	<10	<10	<10	<50	<5.0	3	<10	<50	<50	<50	<10	<10	32	9.3	<10	<20	<10	<50	6,600	NA
MW-101A	Low Flow	11/12/14	<10	<10	<10	<10	<10	<10	12	22	<10	<10	<5.0	<10	<50	<50	<5.0	<5.0	<10	<50	<50	<10	<10	<10	<5.0	<10	<10	<20	<10	<50	2,200	NA
MW-101A	Low Flow	04/15/15	3.9	<1.0	0.59 J	<1.0	<1.0	2.5	5.9	48	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	0.34 J	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	2.5	1.52 J	<1.0	<2.0	<1.0	<5.0	710	NA
MW-101A	Low Flow	12/28/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	7.2	11	<1.0	<1.0	0.58	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	110 J	<1.0	<2.0	<1.0	<5.0	320	NA
MW-101B	Low Flow	10/13/10	1,500	<500	<500	<500	<500	<500	4,500	30,000	<500	<500	<500	<500	<500	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	1,400	<1,500	<500	<2,500	<500	<2,500	14,000	NA
MW-101B	Low Flow	12/02/10	1,500	<500	<500	<500	<500	<500	1,800	29,000	<500	<500	<500	<500	<500	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	1,200	<1,500	<500	<2,500	<500	<2,500	11,000	NA

Table 4: Volatile Organic Compound Analytical Results in Groundwater: October 2010 to December 2015

Chemical Name**			Chlorinated Ethanes (µg/L)					Chlorinated Ethenes (µg/L)						Chlorinated Methanes (µg/L)		Other Compounds (µg/L)																
			1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,2-Dichloroethane	Chloroethane	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene[a]	Vinyl Chloride	Chloroform	Methylene Chloride	Acetone	Benzene	Ethyl-benzene	Isopropyl-benzene	Methyl Ethyl Ketone (MEK)	Methyl Isobutyl Ketone	Methyl tert Butyl Ether (MTBE)*	Naphthalene	Styrene	Toluene	Xylenes	1,2,4-Trimethylbenzene	Vinyl Acetate	Freon-11 (Trichlorofluoromethane)	Freon-12 (Dichlorodifluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	1,4-Dioxane
2L Standard (µg/L)			200	0.6	6	0.4	3,000	0.7	3	70	100	350	0.03	70	5	6,000	1	600	70	4,000	100	20	6	70	600	500	400	88	2,000	1,000	200,000	3
Sample ID	Sample Method	Date																														
MW-101B	Low Flow	01/25/11	77	<20	<20	<20	<20	<20	<20	2,800	<20	26	<20	<20	20	<100	<20	<20	<20	<100	<100	<20	<20	<20	47	<60	<20	<100	<20	<100	300	NA
MW-101B	Low Flow	04/19/11	83	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	2,000	<5.0	23	<5.0	<5.0	10	<25	<5.0	<5.0	<5.0	<25	<25	<5.0	<5.0	<5.0	71	<15	<5.0	<25	<5.0	<25	660	NA
MW-101B	Low Flow	08/16/11	1,500	<20	42	<20	<20	37	1,300	23,000	99	230	<20	<20	52	<100	<20	<20	<20	<100	<100	<20	<20	<20	1,100	<60	<20	<100	<20	<100	10,000	NA
MW-101B	Low Flow	10/05/11	770	<20	23	<20	<20	<20	110	8,200	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	560	<60	<20	<100	<20	<100	5,600	NA
MW-101B	Low Flow	05/17/12	1,200	<20	31	<20	<20	50	360	16,000	<20	190	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	1,300	42	<20	<100	<20	<100	17,000	NA
MW-101B	Low Flow	11/07/12	610	<10	17	<10	<10	47	410	9,400	<10	120	<10	<10	<10	<50	<10	12	<10	<50	<50	<10	<10	<10	840	50	<10	<50	<10	<50	13,000	NA
MW-101B	Low Flow	05/08/13	500	<5.0	14	<5.0	<5.0	61	400	8,600	<5.0	100	<5.0	11	14	<25	<5.0	13	<5.0	140	<25	<5.0	<5.0	<5.0	770	53	<5.0	<25	<5.0	39	18,000	NA
MW-101B	Low Flow	10/23/13	490	<20	13 J	<20	<20	64	110	9,200	<20	85	<10	<20	<100	<100	<10	13	<20	<100	<100	<20	<20	<20	750	49	<20	<40	<20	<100	17,000	NA
MW-101B	Low Flow	04/29/14	460	<20	14	<20	<20	49	40	9,100	<20	<20	<10	<20	<100	<100	<10	12	<20	<100	<100	<20	<20	<20	680	48	<20	<40	<20	<100	15,000	NA
MW-101B Dup	Duplicate	04/29/14	480	<20	16	<20	<20	51	44	9,300	<20	<20	<10	<20	<100	<100	<10	12	<20	<100	<100	<20	<20	<20	710	51	<20	<40	<20	<100	16,000	NA
MW-101B	Low Flow	11/12/14	0.54 J	<1.0	<1.0	<1.0	<1.0	0.64 J	40	120	0.54 J	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.31 J	<1.0	<1.0	<2.0	<1.0	<5.0	7.4	NA
MW-101B	Low Flow	04/14/15	27	<1.0	0.93 J	<1.0	<1.0	2.1	19	510	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	4.2	0.58 J	<1.0	<2.0	<1.0	<5.0	680	<2.0
MW-101B	Low Flow	12/28/15	0.6 J	<1.0	<1.0	<1.0	<1.0	0.87 J	64	110	0.72 J	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	1.52 J	<1.0	<2.0	<1.0	<5.0	9.2	NA
MW-102A	Low Flow	10/13/10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	<20	<60	<20	<100	<20	<100	890	NA
MW-102A	Low Flow	12/02/10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	<20	<60	<20	<100	<20	<100	760	NA
MW-102A	Low Flow	01/25/11	<10	<10	<10	<10	<10	<10	<10	19	<10	<10	<10	<10	<10	<50	<10	<10	<10	<50	<50	<10	<10	<10	<10	<30	<10	<50	<10	<50	1,300	NA
MW-102A	Low Flow	04/20/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.5	23	<1.0	9.2	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	1,900	NA
MW-102A	Low Flow	08/16/11	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	<20	<60	<20	<100	<20	<100	710	NA
MW-102A	Low Flow	10/05/11	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	18	<2.0	<2.0	<2.0	<2	<2.0	<10	<2.0	<2.0	<2.0	<10	<10	<2.0	<2.0	<2.0	<2.0	<6	<2.0	<10	<2.0	<10	1,200	NA
MW-102A	Low Flow	05/17/12	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	23	<2.0	<2.0	<2.0	<2	<2.0	<10	<2.0	<2.0	<2.0	<10	<10	<2.0	<2.0	<2.0	<2.0	<6	<2.0	<10	<2.0	19	920	NA
MW-102A	Low Flow	11/07/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.8	20	<1.0	9.1	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	830	NA
MW-102A	Low Flow	05/08/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.1	35	<1.0	16	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	5.9	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	59	710	NA
MW-102A	Low Flow	10/23/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.6	25	<1.0	13	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.3 J	<1.5	<1.0	<2.0	<1.0	<5.0	580	NA
MW-102A	Low Flow	04/29/14	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	32	<2.0	<2.0	<1.0	<2.0	<10	<10	<1.0	<1.0	<2.0	<10	<10	<10	<2.0	<2.0	<1.0	<3.0	<2.0	<4	<2.0	<10	580	NA
MW-102A	Low Flow	11/12/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.41 J	21	<1.0	12	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.36 J	<1.0	<1.0	<2.0	<1.0	<5.0	450	NA
MW-102A	Low Flow	04/14/15	<1.0	<1.0	<1.0	<1.0	2.9	<1.0	1.8	33	<1.0	17	0.59	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.9	1.4 J	<1.0	<2.0	<1.0	<5.0	300	NA
MW-102A	Low Flow	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.46 J	19	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	0.58 J	<1.0	<2.0	<1.0	<5.0	300	NA
MW-102B	Low Flow	10/13/10	<50	<50	<50	<50	<50	<50	480	810	<50	89	<50	<50	<50	<250	<50	<50	<50	<250	<250	<50	<50	<50	<50	<150	<50	<250	<50	<250	3,400	NA
MW-102B	Low Flow	12/02/10	<50	<50	<50	<50	<50	<50	78	410	<50	<50	<50	<50	<50	<250	<50	<50	<50	<250	<250	<50	<50	<50	<50	<150	<50	<250	<50	<250	1,600	NA
MW-102B	Low Flow	01/25/11	<50	<50	<50	<50	<50	<50	<50	550	<50	<50	<50	<50	<50	<250	<50	<50	<50	<250	<250	<50	<50	<50	<50	<150	<50	<250	<50	<250	3,300	NA
MW-102B	Low Flow	04/20/11	<10	<10	<10	<10	<10	<10	<10	1,500	<10	<10	<10	<10	<10	<50	<10	<10	<10	<50	<50	<10	<10	<10	810	<30	<10	<50	<10	<50	4,700	NA
MW-102B	Low Flow	08/16/11	21	<10	<10	<10	<10	<10	<10	1,100	<10	67	<10	<10	<10	71	<10	<10	<10	100	<50	<10	<10	<10	51	11	<10	<50	<10	<50	3,700	NA
MW-102B	Low Flow	10/05/11	19	<10	<10	<10	<10	<10	<10	910	<10	63	<10	<10	<10	<50	<10	<10	<10	<50	<50	<10	<10	<10	54	<30	<10	<50	<10	<50	4,100	NA
MW-102B	Low Flow	05/17/12	<2.0	<2.0	<2.0	<2.0	<2.0	4.3	5	910	<2.0	<2.0	2.5	<2	<2.0	<10	<2.0	<2.0	<2.0	<10	<10	<2.0	<2.0	<2.0	47	<6	<2.0	<10	<2.0	64	3,600	NA
MW-102B	Low Flow	11/07/12	9.7	<2.0	<2.0	<2.0	<2.0	3.5	1.2	630	<2.0	79	<2.0	<2	<2.0	<10	<2.0	<2.0	<2.0	<10	<10	<2.0	<2.0	<2.0	35	2.4	<2.0	<10	<2.0	<10	2,900	NA
MW-102B	Low Flow	05/08/13	6.8	<1.0	1.3	<1.0	<1.0	3.6	1.2	450	<1.0	68	1.8	1.1	<1.0	7.6	<1.0	<1.0	<1.0	23	<5.0	<1.0	<1.0	<1.0	28	2.3	<1.0	<5.0	<1.0	120	2,700	NA
MW-102B	Low Flow	10/23/13	5.8	<5.0	<5.0	<5.0	<5.0	3.8 J	<2.5	580	<5.0	69	<2.5	<5.0	<25	<25	<2.5	<2.5	<5.0	<25	<25	<5.0	<5.0	<5.0	36	2.3	<5.0	<10	<5.0	<25	2,500	NA
MW-102B	Low Flow	04/29/14	6	<5.0	<5.0	<5.0	<5.0	3.6	1.8	520	<5.0	<5.0	2.8	<5.0	<25	<25	<2.5	<2.5	<5.0	<25	<25	<5.0	<5.0	<5.0	32	2.5 J	<5.0	<10	<5.0	<25	2,300	NA
MW-102B	Low Flow	11/12/14	3.6	<2.0	1.1 J	<2.0	<2.0	2.3	<1.0	420	<2.0	31	3.5	<2.0	<10	<10	<1.0	<1.0	<2.0	<10	<10	<2.0	<2.0	<2.0	21	1.4 J	<2.0	<4.0	<2.0	<10	860	NA
MW-102B Dup	Duplicate	11/12/14	<5.0	<5.0	<5.0	<5.0	<5.0	3.3 J	<2.5	510	<5.0	39	4.4	<5.0	<25	<25	<2.5	<2.5	<5.0	<25	<25	<5.0	<5.0	<5.0	29	<5.0	<5.0	<10	<5.0	<25	1,300	NA
MW-102B	Low Flow	04/14/15	5	<1.0	1.3	<1.0	<1.0	1.5	0.85	510	<1.0	33	3	<1.0	<5.0	<5.0	<0.50	0.71	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	27	2.64	<1.0	<2.0	<1.0	<5.0	1,200	NA
MW-102B	Low Flow	12/29/15	0.6 J	<1.0	0.55 J	<1.0	<1.0	1	<0.50	160	<1.0	14	2	<1.0	<5.0	8.1	<0.50	<0.50	<1.0	12	<5.0	<1.0	<1.0	<1.0	6.5	1.4 J	<1.0	<2.0	<1.0	<5.0	87	NA
MW-102B Dup	Duplicate	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	<0.50	160	<1.0	14	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	11	<5.0	<1.0	<1.0	<1.0	6.9	2.64	<1.0	<2.0	<1.0	<5.0	88	NA
MW-102C	Low Flow	10/13/10	<500	<500	<500	<500	<500	<500	5,900	25,000	<500	720	<500	<500	<500	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	<500	<1,500	<500	<2,500	<500	<2,500	9,600	NA
MW-102C DUP	Duplicate	10/13/10	<500	<500	<500	<500	<500	<500	4,800	21,000	<500	580	<500	<500	<500	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	<500	<1,500	<500	<2,500	<500	<2,500	8,700	NA
MW-102C	Low Flow	12/02/10	<500	<500	<500	<500	<500	<500	2,000	46,000	<500	1,200	<500	<500	<500	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	<500	<1,500	<500	<2,500	<500	<2,500	13,000	NA
MW-102C	Low Flow	01/25/11	<500	<500	<500	<500	<500	<500	8,000	36,000	<500	950	<500	<500	<500	<2,500	<500	<500	<500	<2,500	<2,500	<500	<500	<500	570	<1,500	<500	<2,500	<500	<2,500	9,700	NA
MW-102C	Low Flow	04/20/11	<100	<100	<100	<100	<100	<100	13,000	30,000	<100	<100	<100	<100	<100	<500	<100	<100	<100	<500	<500	<100	<100	<100	690	<300	<100	<500	<100	<500	11,000	NA
MW-102C	Low Flow	08/16/11	140	<100	<100	<100	<100	<100	21,000	32,000	160	1,200	<100	<100	110	<500	<100	<100	<100	<500	<500	<100	<100	<100	740	<300	<100	<500	<100	<500	9,800	NA

Table 4: Volatile Organic Compound Analytical Results in Groundwater: October 2010 to December 2015

Chemical Name**			Chlorinated Ethanes (µg/L)					Chlorinated Ethenes (µg/L)						Chlorinated Methanes (µg/L)		Other Compounds (µg/L)																
			1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,2-Dichloroethane	Chloroethane	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene[a]	Vinyl Chloride	Chloroform	Methylene Chloride	Acetone	Benzene	Ethyl-benzene	Isopropyl-benzene	Methyl Ethyl Ketone (MEK)	Methyl Isobutyl Ketone	Methyl tert Butyl Ether (MTBE)*	Naphthalene	Styrene	Toluene	Xylenes	1,2,4-Trimethylbenzene	Vinyl Acetate	Freon-11 (Trichlorofluoromethane)	Freon-12 (Dichlorodifluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	1,4-Dioxane
2L Standard (µg/L)			200	0.6	6	0.4	3,000	0.7	3	70	100	350	0.03	70	5	6,000	1	600	70	4,000	100	20	6	70	600	500	400	88	2,000	1,000	200,000	3
Sample ID	Sample Method	Date																														
MW-102C	Low Flow	10/05/11	<20	<20	<20	<20	<20	27	21,000	29,000	<20	1,100	<20	59	130	<100	<20	<20	<20	<100	<100	<20	<20	<20	1,000	<60	<20	<100	<20	<100	10,000	NA
MW-102C	Low Flow	05/17/12	<20	<20	<20	<20	<20	<20	4,700	44,000	<20	1,200	<20	56	170	<100	<20	<20	<20	<100	<100	<20	<20	<20	700	20	<20	<100	<20	<100	9,500	NA
MW-102C	Low Flow	11/07/12	160	<50	<50	<50	<50	<50	12,000	48,000	<50	1,500	<50	59	<50	<250	<50	<50	<50	<250	<250	<50	<50	<50	1,500	<150	<50	<250	<50	<250	14,000	NA
MW-102C	Low Flow	05/08/13	100	<50	<50	<50	<50	<50	5,300	38,000	<50	1,000	<50	<50	110	<250	<50	<50	<50	<250	<250	<50	<50	<50	1,100	<150	<50	<250	<50	<250	9,100	NA
MW-102C	Low Flow	10/23/13	100	<50	<50	<50	<50	32	5,100	48,000	<50	1,200	<25	57	<250	<250	13 J	10 J	<50	<250	<250	<50	<50	<50	1,700	41.1 J	<50	<100	<50	<250	13,000	NA
MW-102C	Low Flow	04/29/14	74	<20	<20	<20	<20	21	1,800	33,000	<20	790	<10	32	110	<100	8.6	9.3	<20	<100	<100	<20	<20	<20	1,200	26	<20	<40	<20	<100	10,000	NA
MW-102C	Low Flow	11/12/14	100	<50	<50	<50	<50	37 J	8,300	41,000	<50	1,100	<25	35 J	310	<250	<25	<25	<50	<250	<250	<50	<50	<50	1,800	40.6 J	<50	<100	<50	<250	10,000	NA
MW-102C	Low Flow	04/14/15	79	<50	<50	<50	<50	<50	5,400	38,000	<50	980	<25	30 J	360	<250	<25	<25	<50	<250	<250	<50	<50	<50	1,300	<50	<50	<100	<50	<250	8,100	NA
MW-102C	PDB	04/14/15	82 J	<100	<100	<100	<100	<100	570	44,000	<100	1,200	<50	<100	<500	<500	<50	<50	<100	<500	<500	<100	<100	<100	2,000	89 J	<100	<200	<100	<500	13,000	NA
MW-102C	Low Flow	12/29/15	27	<10	<10	<10	<10	13	210	17,000	<10	<10	<5.0	16	56	130	<5.0	5.1	<10	62	<50	<10	<10	<10	620	<50	<10	<20	<10	<50	7,900	NA
MW-103A	Low Flow	10/12/10	<50	<50	<50	<50	<50	<50	54	71	<50	100	<50	<50	<50	<250	<50	<50	<50	<250	<250	<50	<50	<50	<50	<150	<50	<250	<50	<250	31,000	NA
MW-103A	Low Flow	01/25/11	<50	<50	<50	<50	<50	<50	<50	210	<50	<50	<50	<50	<50	<250	<50	<50	<50	<250	<250	<50	<50	<50	<50	<150	<50	<250	<50	<250	5,700	NA
MW-103A	Low Flow	04/20/11	<50	<50	<50	<50	<50	<50	64	180	<50	<50	<50	<50	<50	<250	<50	<50	<50	<250	<250	<50	<50	<50	<50	<150	<50	<250	<50	<250	24,000	NA
MW-103A	Low Flow	08/15/11	<50	<50	<50	<50	<50	<50	78	230	<50	<50	<50	<50	<50	<250	<50	<50	<50	<250	<250	<50	<50	<50	<50	<150	<50	<250	<50	<250	35,000	NA
MW-103A	Low Flow	10/04/11	<100	<100	<100	<100	<100	<100	<100	160	<100	100	<100	<100	<100	<500	<100	<100	<100	<500	<500	<100	<100	<100	<100	<300	<100	<500	<100	<500	31,000	NA
MW-103A	Low Flow	05/16/12	<20	<20	<20	<20	<20	<20	<20	200	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	<20	<60	<20	<100	<20	<100	17,000	NA
MW-103A	Low Flow	11/07/12	<50	<50	<50	<50	<50	<50	79	180	<50	<50	<50	<50	<50	<250	<50	<50	<50	<250	<250	<50	<50	<50	<50	<150	<50	<250	<50	<250	36,000	NA
MW-103A	Low Flow	05/08/13	<1.0	<1.0	1.9	1.6	<1.0	1.5	40	190	<1.0	<1.0	8	4.9	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	4	<3.0	<1.0	<5.0	<1.0	100	23,000	NA
MW-103A	Low Flow	10/22/13	<20	<20	<20	<20	<20	<20	26	170	<20	<20	<10	<20	<20	<100	<20	<10	<20	<100	<100	<20	<20	<20	12	<30	<20	<40	<20	<100	15,000	NA
MW-103A	Low Flow	04/29/14	<20	<20	<20	<20	<20	<20	33	130	<20	<20	7.6	<20	<100	<100	<10	<10	<20	<100	<100	<20	<20	<20	<10	<30	<20	<40	<20	<100	18,000	NA
MW-103A	Low Flow	11/13/14	<50	<50	<50	<50	<50	<50	43	140	<50	<50	<25	<50	<250	<250	<25	<25	<50	<250	<250	<50	<50	<50	<25	<50	<50	<100	<50	<250	21,000	NA
MW-103A	Low Flow	04/14/15	<50	<50	<50	<50	<50	<50	<25	140	<50	<50	<25	<50	<250	<250	<25	<25	<50	<250	<250	<50	<50	<50	18 J	<50	<50	<100	<50	<250	12,000	NA
MW-103A	Low Flow	12/30/15	<50	<50	<50	<50	<50	<50	38	55	<50	<50	<25	<50	<250	<250	<25	<25	<50	<250	<250	<50	<50	<50	<25	89 J	<50	<100	<50	<250	26,000	NA
MW-103B	Low Flow	10/12/10	<50	<50	<50	<50	<50	<50	<50	160	<50	<50	<50	<50	<50	<250	<50	<50	<50	<250	<250	<50	<50	<50	<50	<150	<50	<250	<50	<250	7,600	NA
MW-103B	Low Flow	12/02/10	<100	<100	<100	<100	<100	<100	<100	230	<100	<100	<100	<100	<100	<500	<100	<100	<100	<500	<500	<100	<100	<100	<100	<300	<100	<500	<100	<500	7,200	NA
MW-103B	Low Flow	01/25/11	<50	<50	<50	<50	<50	<50	<50	160	<50	<50	<50	<50	<50	<250	<50	<50	<50	<250	<250	<50	<50	<50	<50	<150	<50	<250	<50	<250	4,600	NA
MW-103B	Low Flow	04/20/11	<20	<20	<20	<20	<20	<20	32	210	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	<20	<60	<20	<100	<20	<100	9,400	NA
MW-103B DUP	Duplicate	04/20/11	<20	<20	<20	<20	<20	<20	38	210	<20	<20	11	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	<20	<60	<20	<100	<20	<100	13,000	NA
MW-103B	Low Flow	08/15/11	<20	<20	<20	<20	<20	<20	36	170	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	<20	<60	<20	<100	<20	<100	14,000	NA
MW-103B	Low Flow	10/04/11	<20	<20	<20	<20	<20	<20	41	180	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	<20	<60	<20	<100	<20	<100	15,000	NA
MW-103B DUP	Low Flow	10/04/11	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<250	<50	<50	<50	<250	<250	<50	<50	<50	<50	<150	<50	<250	<50	<250	17,000	NA
MW-103B	Low Flow	05/17/12	<10	<10	<10	<10	<10	<10	<10	250	<10	<10	14	<10	<10	<50	<10	<10	<10	<50	<50	<10	<10	<10	<10	<30	<10	<50	<10	<50	8,600	NA
MW-103B DUP	Duplicate	05/17/12	<20	<20	<20	<20	<20	<20	20	220	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	<20	<60	<20	<100	<20	<100	6,700	NA
MW-103B	Low Flow	11/07/12	<10	<10	<10	<10	<10	<10	63	170	<10	<10	<10	<10	<10	<50	<10	<10	<10	<50	<50	<10	<10	<10	7.5	<30	<10	<50	<10	<50	16,000	NA
MW-103B	Low Flow	05/08/13	<1.0	<1.0	1.6	1.9	<1.0	<1.0	35	160	<1.0	<1.0	7.5	2.7	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	2.5	<3.0	<1.0	<5.0	<1.0	80	15,000	NA
MW-103B DUP	Duplicate	05/08/13	<1.0	<1.0	1.7	1.9	<1.0	<1.0	36	160	<1.0	<1.0	8	2.7	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	2.7	<3.0	<1.0	<5.0	<1.0	80	14,000	NA
MW-103B	Low Flow	10/22/13	<10	<10	<10	<10	<10	<10	22	160	<10	<10	11	<10	<10	<50	<5.0	<5.0	<10	<50	<50	<10	<10	<10	3.5 J	<15	<10	<20	<10	<50	10,000	NA
MW-103B DUP	Duplicate	10/22/13	<10	<10	<10	<10	<10	<10	22	170	<10	<10	12	<10	<10	<50	<5.0	<5.0	<10	<50	<50	<10	<10	<10	3.6 J	<15	<10	<20	<10	<50	10,000	NA
MW-103B	Low Flow	04/29/14	<10	<10	<10	<10	<10	<10	16	140	<10	<10	10	<10	<50	<50	<5.0	<5.0	<10	<50	<50	<10	<10	<10	<5.0	<15	<10	<20	<10	<50	7,300	NA
MW-103B	Low Flow	11/13/14	<20	<20	<20	<20	<20	<20	16	160	<20	<20	<10	<20	<100	<100	<10	<10	<20	<100	<100	<20	<20	<20	8.2 J	<20	<20	<40	<20	<100	6,900	NA
MW-103B	Low Flow	04/14/15	<1.0	<1.0	2.2	1.9	<1.0	<1.0	8.1	150	0.72 J	<1.0	13	0.64 J	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<2.0	<1.0	<5.0	3,000	NA
MW-103B	Low Flow	12/30/15	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.4	99	<5.0	<5.0	7.6	<5.0	<25	<25	<2.5	<2.5	<5.0	<25	<25	<5.0	<5.0	<5.0	1.3 J	<50	<5.0	<10	<5.0	<25	1,100	NA
MW-103C	Low Flow	10/12/10	<10	<10	<10	<10	<10	<10	27	240	<10	19	<10	<10	<10	<50	<10	<10	<10	<50	<50	<10	<10	<10	<10	<30	<10	<50	<10	<50	4,400	NA
MW-103C	Low Flow	12/02/10	<100	<100	<100	<100	<100	<100	<100	260	<100	<100	<100	<100	<100	<500	<100	<100	<100	<500	<500	<100	<100	<100	<100	<300	<100	<500	<100	<500	7,600	NA
MW-103C	Low Flow	01/25/11	<10	<10	<10	<10	<10	<10	43	310	<10	<10	10	<10	<10	<50	<10	<10	<10	<50	<50	<10	<10	<10	<10	<30	<10	<50	<10	<50	6,900	NA
MW-103C	Low Flow	04/20/11	<20	<20	<20	<20	<20	<20	49	310	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	<20	<60	<20	<100	<20	<100	8,200	NA
MW-103C	Low Flow	08/15/11	<20	<20	<20	<20	<20	<20	40	270	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	<20	<60	<20	<100	<20	<100	11,000	NA
MW-103C	Low Flow	10/04/11	<20	<20	<20	<20	<20	<20	41	270	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	<20	<60	<20	<100	<20	<100	10,000	NA
MW-103C	Low Flow	05/16/12	<20	<20	<20	<20	<20	<20	59	280	<20	<20	<20	<20	<20	<100	<20	<20	<20	<100	<100	<20	<20	<20	<20	<60	<20	<100	<20	<100	14,000	NA

Table 4: Volatile Organic Compound Analytical Results in Groundwater: October 2010 to December 2015

Chemical Name**			Chlorinated Ethanes (µg/L)					Chlorinated Ethenes (µg/L)						Chlorinated Methanes (µg/L)		Other Compounds (µg/L)																
			1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,2-Dichloroethane	Chloroethane	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene[a]	Vinyl Chloride	Chloroform	Methylene Chloride	Acetone	Benzene	Ethyl-benzene	Isopropyl-benzene	Methyl Ethyl Ketone (MEK)	Methyl Isobutyl Ketone	Methyl tert Butyl Ether (MTBE)*	Naphthalene	Styrene	Toluene	Xylenes	1,2,4-Trimethylbenzene	Vinyl Acetate	Freon-11 (Trichlorofluoromethane)	Freon-12 (Dichlorodifluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	1,4-Dioxane
2L Standard (µg/L)			200	0.6	6	0.4	3,000	0.7	3	70	100	350	0.03	70	5	6,000	1	600	70	4,000	100	20	6	70	600	500	400	88	2,000	1,000	200,000	3
Sample ID	Sample Method	Date																														
MW-103C	Low Flow	11/07/12	<10	<10	<10	<10	<10	<10	44	210	<10	<10	7.9	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<30	<10	<10	<10	<50	9,400	NA
MW-103C	Low Flow	05/08/13	<1.0	<1.0	2.2	3.1	<1.0	<1.0	68	300	<1.0	<1.0	8.9	3.9	<1.0	18	<1.0	<1.0	<1.0	8	<1.0	<1.0	<1.0	<1.0	1.4	<3.0	<1.0	<5.0	<1.0	110	13,000	NA
MW-103C	Low Flow	10/22/13	<20	<20	<20	<20	<20	<20	56	290	<20	<20	<10	<20	<20	<100	<10	<10	<20	<100	<100	<20	<20	<20	<10	<15	<20	<40	<20	<100	11,000	NA
MW-103C	Low Flow	04/29/14	<20	<20	<20	<20	<20	<20	65	310	<20	<20	10	<20	<100	<100	<10	<10	<20	<100	<100	<20	<20	<20	<10	<30	<20	<40	<20	<100	13,000	NA
MW-103C	Low Flow	11/13/14	<20	<20	<20	<20	<20	<20	28	200	<20	<20	<10	<20	<100	<100	<10	<10	<20	<100	<100	<20	<20	<20	<10	<20	<20	<40	<20	<100	8,000	NA
MW-103C	Low Flow	04/14/15	<20	<20	<20	<20	<20	<20	20	150	<20	<20	11	<20	<100	<100	<10	<10	<20	<100	<100	<20	<20	<20	7.1 J	<20	<20	<40	<20	<100	7,900	NA
MW-103C	Low Flow	12/30/15	<20	<20	<20	<20	<20	<20	21	130	<20	<20	<10	<20	<100	<100	<10	<10	<20	<100	<100	<20	<20	<20	<10	<1.0	<20	<40	<20	<100	6,600	NA
MW-104A	Low Flow	10/12/10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	740	<5.0	5.3	19	<5.0	<5.0	<25	<5.0	<5.0	<5.0	<25	<25	<5.0	<5.0	<5.0	<5.0	<15	<5.0	<25	<5.0	<25	780	NA
MW-104A	Low Flow	04/20/11	<2.0	<2.0	2.5	<2.0	<2.0	<2.0	2.2	600	2.4	<2.0	9.4	<2.0	<2.0	<10	<2.0	<2.0	<2.0	<10	<10	<2.0	<2.0	<2.0	<2.0	<6	<2.0	<10	<2.0	<10	910	NA
MW-104A	Low Flow	10/04/11	<1.0	<1.0	3.1	<1.0	<1.0	<1.0	1.9	440	1.9	<1.0	8.4	1.1	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	650	NA
MW-104A	Low Flow	05/16/12	<2.0	<2.0	<2.0	3.2	<2.0	<2.0	<2.0	470	2.2	<2.0	9.3	<2.0	<2.0	<10	<2.0	<2.0	<2.0	<10	<10	<2.0	<2.0	<2.0	<2.0	<6	<2.0	<10	<2.0	<10	950	NA
MW-104A	Low Flow	11/07/12	<1.0	<1.0	1.6	2	<1.0	<1.0	1.5	340	1.4	1.1	4.9	1	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	730	NA
MW-104A Dup	Duplicate	11/07/12	<1.0	<1.0	1.6	2.1	<1.0	<1.0	1.6	360	1.4	1.1	5.1	1.1	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	740	NA
MW-104A	Low Flow	05/08/13	<1.0	<1.0	1.5	2	<1.0	<1.0	1.8	300	1.5	1.8	6.6	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	91	660	NA
MW-104A	Low Flow	10/22/13	<1.0	<1.0	1.6	1.9	3	<1.0	1.4	32	1.7	<1.0	7.9	1	<1.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.5	<1.0	<5.0	<1.0	<5.0	47	NA
MW-104A	Low Flow	04/28/14	<1.0	<1.0	1.9	2.1	<1.0	<1.0	1.7	400	1.9	<1.0	21	0.77 J	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	<1.0	<5.0	500	NA
MW-104A Dup-01	Duplicate	04/28/14	<2.0	<2.0	1.9 J	<2.0	<2.0	<2.0	1.9	450	1.9 J	<2.0	20	<2.0	<10	<10	<1.0	<1.0	<2.0	<10	<10	<2.0	<2.0	<2.0	<1.0	<3.0	<2.0	<4	<2.0	<10	540	NA
MW-104A	Low Flow	11/13/14	<2.0	<2.0	1.8 J	1.9 J	<2.0	<2.0	1.7	390	1.7 J	<2.0	15	<2.0	<10	<10	<1.0	<1.0	<2.0	<10	<10	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<4.0	<2.0	<10	610	NA
MW-104A	Low Flow	04/14/15	<1.0	<1.0	2	2.1	<1.0	<1.0	1.5	370	1.8	<1.0	25	0.81 J	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.49 J	<1.0	<1.0	<2.0	<1.0	<5.0	390	NA
MW-104A	Low Flow	12/30/15	<1.0	<1.0	1.6	1.9	<1.0	<1.0	<0.50	290	1.3	<1.0	15	1.2	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<20	<1.0	<2.0	<1.0	<5.0	240	NA
MW-104B	Low Flow	10/12/10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	15	67	<5.0	18	<5.0	<5.0	<5.0	<25	<5.0	<5.0	<5.0	<25	<25	<5.0	<5.0	<5.0	<5.0	<15	<5.0	<25	<5.0	<25	1,100	NA
MW-104B	Low Flow	04/20/11	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	13	44	<5.0	9.2	<5.0	<5.0	<5.0	<25	<5.0	<5.0	<5.0	<25	<25	9.2	<5.0	<5.0	<5.0	<15	<5.0	<25	<5.0	<25	2,800	NA
MW-104B	Low Flow	10/04/11	<10	<10	<10	<10	<10	<10	<10	35	<10	<10	<10	<10	<10	<50	<10	<10	<10	<50	<50	<10	<10	<10	<10	<30	<10	<50	<10	<50	2,500	NA
MW-104B	Low Flow	05/16/12	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	11	32	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0	<10	<10	5.1	<2.0	<2.0	<2.0	<6	<2.0	<10	<2.0	<10	1,100	NA
MW-104B	Low Flow	11/07/12	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	7.8	26	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0	<10	<10	5.1	<2.0	<2.0	<2.0	<6	<2.0	<10	2.1	<10	2,000	NA
MW-104B	Low Flow	05/08/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	7.8	24	<1.0	15	<1.0	1.4	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	3.7	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	11	<5.0	2,900	NA
MW-104B	Low Flow	10/22/13	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6.2	25	<5.0	<5.0	<2.5	<5.0	<25	<25	<2.5	<2.5	<5.0	<25	<25	2.9 J	<5.0	<5.0	<2.5	< 7.5	<5.0	<10	<50	<25	1,700	NA
MW-104B	Low Flow	04/28/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	7.1	30	<1.0	<1.0	1.3	<5.0	<5.0	10	<0.50	<0.50	<1.0	<5.0	<5.0	4.1	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	1.1	<5.0	880	NA
MW-104B	Low Flow	11/13/14	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7.3	24	<5.0	<5.0	2 J	<5.0	<25	<25	<2.5	<2.5	<5.0	<25	<25	<5.0	<5.0	<5.0	<2.5	<5.0	<5.0	<10	<5.0	<25	1,600	NA
MW-104B	Low Flow	04/14/15	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	4.6	29	<2.0	<2.0	1.3	<2.0	<10	<10	<1.0	<1.0	<2.0	<10	<10	2	<2.0	<2.0	0.91 J	<2.0	<2.0	<4.0	<2.0	<10	610	NA
MW-104B	Low Flow	12/30/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.3	19	<1.0	<1.0	<0.50	1.3	<5.0	<5.0	0.26 J	<0.50	<1.0	<5.0	<5.0	2.5	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	890	NA
MW-104C	Low Flow	10/12/10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	12	110	<5.0	19	<5.0	<5.0	<5.0	<25	<5.0	<5.0	<5.0	<25	<25	6	<5.0	<5.0	<5.0	<15	<5.0	<25	<5.0	<25	1,600	NA
MW-104C	Low Flow	04/20/11	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	13	100	<5.0	7.7	<5.0	<5.0	<5.0	<25	<5.0	<5.0	<5.0	<25	<25	7.4	<5.0	<5.0	<5.0	<15	<5.0	<25	<5.0	<25	2,200	NA
MW-104C	Low Flow	10/04/11	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	13	87	<2.0	<2.0	<2.0	3.8	<2.0	<10	<2.0	<2.0	<2.0	<10	<10	9.6	<2.0	<2.0	<2.0	<6	<2.0	<10	<2.0	<10	2,400	NA
MW-104C	Low Flow	05/16/12	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	9.8	65	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<5.0	<5.0	<5.0	<25	<25	7.6	<5.0	<5.0	<5.0	<15	<5.0	<25	<5.0	<25	2,800	NA
MW-104C	Low Flow	11/07/12	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	7.8	55	<2.0	<2.0	<2.0	2.1	<2.0	<10	<2.0	<2.0	<2.0	<10	<10	5.8	<2.0	<2.0	<2.0	<6	<2.0	<10	2.6	<10	1,500	NA
MW-104C	Low Flow	05/08/13	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	9.6	130	<1.0	12	<1.0	1.9	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	3.3	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	16	1,800	NA
MW-104C	Low Flow	10/22/13	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7.8	51	<5.0	<5.0	<2.5	<5.0	<5.0	<25	<2.5	<2.5	<5.0	<25	<25	3.9 J	<5.0	<5.0	<2.5	< 7.5	<5.0	<10	<5.0	<50	2,700	NA
MW-104C	Low Flow	04/29/14	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7	52	<5.0	<5.0	2.1	<5.0	<25	<25	<2.5	<2.5	<5.0	<25	<25	4.1	<5.0	<5.0	<2.5	< 7.5	<5.0	<10	<5.0	<25	2,000	NA
MW-104C	Low Flow	11/13/14	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	8	54	<5.0	<5.0	2.6	<5.0	<25	<25	<2.5	<2.5	<5.0	<25	<25	3.9 J	<5.0	<5.0	<2.5	<5.0	<5.0	<10	<5.0	<25	20,000	NA
MW-104C	Low Flow	04/14/15	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.1	43	<5.0	<5.0	2.1 J	<5.0	<25	<25	<2.5	<2.5	<5.0	<25	<25	3.6 J	<5.0	<5.0	1.9 J	<5.0	<5.0	<10	<5.0	<25	1,300	NA
MW-104C	PDB	04/14/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.5	53	<1.0	<1.0	1.4	1.7	<5.0	<5.0	0.54	<0.50	<1.0	<5.0	<5.0	4.2	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	1,800	<20
MW-104C	Low Flow	12/30/15	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6.2	41	<5.0	<5.0	<2.5	<5.0	<25	<25	<2.5	<2.5	<5.0	<25	<25	3.6 J	<5.0	<5.0	<2.5	<2.0	<5.0	<10	<5.0	<25	1,800	NA
MW-105C	Low Flow	10/12/10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-105C	Low Flow	04/19/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<1.0	NA
MW-105C	Low Flow	10/04/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<1.0	NA
MW-105C	Low Flow	05/16/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-105C	Low Flow	11/06/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-105C	Low Flow	05/07/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	13	<1.0	<1.0	<1.0	<1.0	2.1	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	1	<3.0	<1.0	<5.0	<1.0	<5.0	9.8	NA

Table 4: Volatile Organic Compound Analytical Results in Groundwater: October 2010 to December 2015

Chemical Name**			Chlorinated Ethanes (µg/L)					Chlorinated Ethenes (µg/L)						Chlorinated Methanes (µg/L)		Other Compounds (µg/L)																
			1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,2-Dichloroethane	Chloroethane	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene[a]	Vinyl Chloride	Chloroform	Methylene Chloride	Acetone	Benzene	Ethyl-benzene	Isopropyl-benzene	Methyl Ethyl Ketone (MEK)	Methyl Isobutyl Ketone	Methyl tert Butyl Ether (MTBE)*	Naphthalene	Styrene	Toluene	Xylenes	1,2,4-Trimethylbenzene	Vinyl Acetate	Freon-11 (Trichlorofluoromethane)	Freon-12 (Dichlorodifluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	1,4-Dioxane
2L Standard (µg/L)			200	0.6	6	0.4	3,000	0.7	3	70	100	350	0.03	70	5	6,000	1	600	70	4,000	100	20	6	70	600	500	400	88	2,000	1,000	200,000	3
Sample ID	Sample Method	Date																														
MW-105C	Low Flow	10/22/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	0.5 J	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-105C	Low Flow	04/28/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	0.69 J	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-105C	Low Flow	11/12/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	0.74 J	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-105C	Low Flow	04/13/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	5.6	<0.50	<0.50	<1.0	<5.0	<5.0	0.89 J	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-105C	PDB	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<5.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-106C	Low Flow	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	34	<1.0	<1.0	**0.74**	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	390	NA
MW-10B	Low Flow	10/11/10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	67	<5.0	9.7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<5.0	<5.0	<5.0	<25	580	NA
MW-10B	Low Flow	04/19/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.8	40	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	1.8	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	490	NA
MW-10B	Low Flow	10/04/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	18	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	1.5	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	140	NA
MW-10B	Low Flow	05/16/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	31	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	420	NA
MW-10B	Low Flow	11/06/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	18	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	2.4	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	190	NA
MW-10B	Low Flow	05/07/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	16	<1.0	3.2	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	1.4	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	230	NA
MW-10B	Low Flow	10/22/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	24	<1.0	<1.0	<0.50	<1.0	<1.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	0.8 J	<1.0	<1.0	<0.50	<1.5	<1.0	<5.0	<1.0	<5.0	340	NA
MW-10B	Low Flow	04/29/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	25	<1.0	<1.0	**0.97**	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	1.6	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	<1.0	<5.0	380	NA
MW-10B	Low Flow	11/11/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1	17	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	1.2	<1.0	<1.0	0.36 J	<1.0	<1.0	<2.0	<1.0	<5.0	230	NA
MW-10B	Low Flow	04/14/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	15	<1.0	<1.0	**0.52**	0.74 J	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	2.3	<1.0	<1.0	0.31 J	<1.0	<1.0	<2.0	<1.0	<5.0	180	NA
MW-10B	Low Flow	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	7.7	<1.0	<1.0	<0.50	1.5	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	81	NA
MW-10D	Low Flow	10/11/10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**110**	<5.0	13	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<5.0	<5.0	<5.0	<25	830	NA
MW-10D	Low Flow	04/19/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.5	46	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	2.7	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	470	NA
MW-10D	Low Flow	10/04/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.7	27	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	1.7	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	180	NA
MW-10D	Low Flow	05/16/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.7	48	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	750	NA
MW-10D	Low Flow	11/06/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	17	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	1.9	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	150	NA
MW-10D	Low Flow	05/07/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10	<1.0	1.2	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	1.6	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	96	NA
MW-10D	Low Flow	10/22/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.9	30	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	1.2	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	<1.0	<5.0	460	NA
MW-10D	Low Flow	04/29/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**3.1**	67	<1.0	<1.0	**2.7**	0.89 J	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	1.2	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	<1.0	<5.0	970	NA
MW-10D	Low Flow	11/11/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	28	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	2.1	<1.0	<1.0	1.3	<1.0	<1.0	<2.0	<1.0	<5.0	290	NA
MW-10D Dup	Duplicate	11/11/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	26	<1.0	<1.0	**0.6**	0.52 J	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	1.3	<1.0	<1.0	0.69	<1.0	<1.0	<2.0	<1.0	<5.0	330	NA
MW-10D	Low Flow	04/14/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.5	64	<1.0	<1.0	**3**	0.83 J	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	1.2	<1.0	<1.0	0.3 J	<1.0	<1.0	<2.0	<1.0	<5.0	700	NA
MW-10D	Low Flow	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	21	<1.0	<1.0	**0.76**	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	240	NA
MW-16B	Low Flow	10/11/10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.5	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	1.5	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	44	NA
MW-16B	Low Flow	04/19/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	18	NA
MW-16B	Low Flow	10/04/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.3	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	22	NA
MW-16B	Low Flow	05/16/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.6	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	33	NA
MW-16B	Low Flow	11/06/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	6.6	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	6.9	NA
MW-16B	Low Flow	05/07/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.9	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	27	NA
MW-16B	Low Flow	10/22/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.4 J	2	<1.0	<1.0	<0.50	<1.0	<1.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	0.8 J	<1.0	<1.0	<1.0	<1.5	<1.0	<5.0	<1.0	<5.0	24	NA
MW-16B	Low Flow	04/28/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.53	2.5	<1.0	<1.0	<0.50	0.58 J	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	1.2	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	<1.0	<5.0	30	NA
MW-16B	Low Flow	11/11/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	1	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.46 J	<1.0	<1.0	<2.0	<1.0	<5.0	12	NA
MW-16B	Low Flow	04/14/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.51	2.5	<1.0	<1.0	<0.50	0.96 J	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	1.4	<1.0	<1.0	0.34 J	<1.0	<1.0	<2.0	<1.0	<5.0	22	NA
MW-16B	PDB	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	1.7	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.22 J	<1.0	<1.0	<2.0	<1.0	<5.0	9.9	NA
MW-16D	Low Flow	10/11/10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.5	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-16D	Low Flow	04/19/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.3	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<1.0	NA
MW-16D	Low Flow	10/04/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	13	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<1.0	NA
MW-16D	Low Flow	05/16/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.4	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-16D	Low Flow	11/06/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.8	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	5.2	NA
MW-16D	Low Flow	05/07/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5.7	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-16D	Low Flow	10/22/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5.8	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	6.5	NA
MW-16D	Low Flow	04/28/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	10	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	<1.0	<5.0	9	NA
MW-16D	Low Flow	11/11/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	5.5	<1.0	<1.0	<0.50	<1.0	0.69 J	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.37 J	<1.0	<1.0	<2.0	<1.0	0.39 J	35	NA

Table 4: Volatile Organic Compound Analytical Results in Groundwater: October 2010 to December 2015

Chemical Name**			Chlorinated Ethanes (µg/L)					Chlorinated Ethenes (µg/L)						Chlorinated Methanes (µg/L)		Other Compounds (µg/L)																
			1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,2-Dichloroethane	Chloroethane	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene[a]	Vinyl Chloride	Chloroform	Methylene Chloride	Acetone	Benzene	Ethyl-benzene	Isopropyl-benzene	Methyl Ethyl Ketone (MEK)	Methyl Isobutyl Ketone	Methyl tert Butyl Ether (MTBE)*	Naphthalene	Styrene	Toluene	Xylenes	1,2,4-Trimethylbenzene	Vinyl Acetate	Freon-11 (Trichlorofluoromethane)	Freon-12 (Dichlorodifluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	1,4-Dioxane
2L Standard (µg/L)			200	0.6	6	0.4	3,000	0.7	3	70	100	350	0.03	70	5	6,000	1	600	70	4,000	100	20	6	70	600	500	400	88	2,000	1,000	200,000	3
Sample ID	Sample Method	Date																														
MW-16D	Low Flow	04/14/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	4.9	<1.0	<1.0	<0.50	<1.0	<5.0	21	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.33 J	<1.0	<1.0	<2.0	<1.0	<5.0	27	NA
MW-16D	PDB	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	4.5	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	18	NA
MW-18B	Low Flow	10/12/10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-18B	Low Flow	10/03/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	68	NA
MW-18B	Low Flow	11/06/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-18B	Low Flow	10/22/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-18B	Low Flow	11/12/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.32 J	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-18B	Low Flow	04/16/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	<1.0
MW-18B	PDB	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-18D	Low Flow	10/11/10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	15	<1.0	1.9	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	190	NA
MW-18D	Low Flow	04/19/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	150	NA
MW-18D	Low Flow	10/03/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	1.3	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	120	NA
MW-18D	Low Flow	05/16/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.9	7.9	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	1.3	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	100	NA
MW-18D	Low Flow	11/06/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.5	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	1	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	110	NA
MW-18D	Low Flow	05/07/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.7	<1.0	1.1	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	1	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	140	NA
MW-18D	Low Flow	10/22/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.7	9.4	<1.0	<1.0	<0.50	<1.0	<1.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	1	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	<1.0	<5.0	110	NA
MW-18D	Low Flow	04/29/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.87	9.5	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	1.2	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	<1.0	<5.0	110	NA
MW-18D	Low Flow	11/12/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.87	12	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.43 J	<1.0	<1.0	<2.0	<1.0	<5.0	130	NA
MW-18D	Low Flow	04/16/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.68	10	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	92	<1.0
MW-18D	PDB	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.54	9.6	<1.0	<1.0	**0.27 J**	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	98	NA
MW-19B	Low Flow	10/12/10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-19B	Low Flow	10/04/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-19B	Low Flow	11/06/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-19B	Low Flow	10/22/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.5	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-19B	Low Flow	11/11/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.33 J	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-19B	PDB	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-19D	Low Flow	10/11/10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**6.6**	51	<1.0	2.1	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	2	<5.0	310	NA
MW-19D	Low Flow	04/19/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**6.3**	66	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	2	<5.0	650	NA
MW-19D DUP	Duplicate	04/19/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**6.4**	66	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	2.2	<5.0	610	NA
MW-19D	Low Flow	10/04/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**4.6**	58	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	340	NA
MW-19D DUP	Duplicate	10/04/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**4.8**	63	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	1.4	<5.0	340	NA
MW-19D	Low Flow	05/16/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**4.7**	63	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	240	NA
MW-19D DUP	Duplicate	05/16/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**4.6**	65	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	290	NA
MW-19D	Low Flow	11/06/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**3.4**	60	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	190	NA
MW-19D	Low Flow	05/07/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**3.7**	**76**	<1.0	<1.0	<1.0	<1.0	2	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	13	180	NA
MW-19D	Low Flow	10/22/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.7	68	<1.0	<1.0	**0.8**	<1.0	<5.0	<5.0	0.5	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	<1.0	<5.0	150	NA
MW-19D	Low Flow	04/28/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.3	62	<1.0	<1.0	**0.8**	<1.0	<5.0	<5.0	0.36 J	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.5	<1.0	<2.0	<1.0	<5.0	130	NA
MW-19D	Low Flow	11/11/14	<1.0	<1.0	<1.0	**0.48 J**	<1.0	<1.0	2.3	64	<1.0	<1.0	**1**	<1.0	<5.0	<5.0	0.49 J	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.34 J	<1.0	<1.0	<2.0	<1.0	15	170	NA
MW-19D	Low Flow	04/13/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.6	**78**	<1.0	<1.0	**1.1**	<1.0	<5.0	<5.0	0.54	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	200	<2.0
MW-19D	PDB	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.1	61	<1.0	<1.0	**1.2**	<1.0	<5.0	14	0.66	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	160	NA
MW-20B	Low Flow	10/11/10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-20B	Low Flow	10/03/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	13	NA
MW-20B	Low Flow	11/06/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-20B	Low Flow	10/22/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	0.4 J	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-20B	Low Flow	11/12/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-20B	Low Flow	04/13/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-20B	PDB	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-20B DUP	Duplicate	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA

Table 4: Volatile Organic Compound Analytical Results in Groundwater: October 2010 to December 2015

Chemical Name**			Chlorinated Ethanes (µg/L)					Chlorinated Ethenes (µg/L)						Chlorinated Methanes (µg/L)		Other Compounds (µg/L)																
			1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,2-Dichloroethane	Chloroethane	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene[a]	Vinyl Chloride	Chloroform	Methylene Chloride	Acetone	Benzene	Ethyl-benzene	Isopropyl-benzene	Methyl Ethyl Ketone (MEK)	Methyl Isobutyl Ketone	Methyl tert Butyl Ether (MTBE)*	Naphthalene	Styrene	Toluene	Xylenes	1,2,4-Trimethylbenzene	Vinyl Acetate	Freon-11 (Trichlorofluoromethane)	Freon-12 (Dichlorodifluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	1,4-Dioxane
2L Standard (µg/L)			200	0.6	6	0.4	3,000	0.7	3	70	100	350	0.03	70	5	6,000	1	600	70	4,000	100	20	6	70	600	500	400	88	2,000	1,000	200,000	3
Sample ID	Sample Method	Date																														
MW-20D	Low Flow	10/11/10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-20D	Low Flow	10/03/11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-20D	Low Flow	11/06/12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.6	1.7	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<5.0	<1.0	<5.0	<5.0	NA
MW-20D	Low Flow	10/22/13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.4 J	0.7 J	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.5	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.5	<1.0	<5.0	<1.0	<5.0	0.6 J	NA
MW-20D	Low Flow	11/12/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.49 J	0.68 J	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.35 J	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-20D	Low Flow	04/13/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.47 J	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-20D	PDB	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.55	0.81 J	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
MW-21B	Low Flow	04/13/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
FR-6D	Low Flow	04/13/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	21	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
RI(A1)-GW01 (51-55)	Low Flow	04/15/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.53	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
RI(A1)-GW02 (51-55)	Low Flow	04/16/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	1.7	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
RI(A1)-GW03 (51-55)	Low Flow	04/15/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.54	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
RI(A1)-GW04 (51-55)	Low Flow	04/15/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.61	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	7.6	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.76	<1.0	<1.0	<2.0	<1.0	<5.0	2.5 J	NA
RI(A1)-GW04 (71-75)	Low Flow	04/15/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.65	1.8	<1.0	<1.0	<0.50	<1.0	<5.0	18	0.41 J	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.89	<1.0	<1.0	<2.0	<1.0	<5.0	6.4	NA
RI(A1)-GW05 (51-55)	Low Flow	04/16/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.26 J	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
RI(A1)-GW06 (51-55)	Low Flow	04/15/15	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	**3.3**	57	<2.0	<2.0	**0.91 J**	<2.0	<10	<10	<1.0	<1.0	<2.0	<10	<10	<2.0	<2.0	<2.0	1.2	<2.0	<2.0	<4.0	<2.0	<10	330	NA
RI(A1)-GW06 (71-75)	Low Flow	04/15/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	10	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.53	<1.0	<1.0	<2.0	<1.0	<5.0	84	NA
RI(A1)-GW07 (51-55)	Low Flow	04/15/15	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	**3.7**	**90**	<2.0	<2.0	**4**	1.6 J	<10	<10	<1.0	<1.0	<2.0	<10	<10	<2.0	<2.0	<2.0	0.8 J	<2.0	<2.0	<4.0	<2.0	<10	630	NA
RI(A1)-GW08 (51-55)	Low Flow	04/16/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	14	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.42 J	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
RI(A1)-GW09 (51-55)	Low Flow	04/16/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	<5.0	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA
RI(A1)-GW09 (71-75)	Low Flow	04/16/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<5.0	9.6	<0.50	<0.50	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	0.43 J	<1.0	<1.0	<2.0	<1.0	<5.0	<5.0	NA

* During April 2011 sampling event, matrix spike duplicate (MSD) exceeded the control limits, though the associated laboratory control spike and matrix spike recovery met acceptance criteria. The relative percent difference (RPD) value was outside of quality control criteria.

** Only those VOCs detected in one or more wells during the October 2010 through April 2015 sampling events are listed in this table.

2L Standard: North Carolina Administrative Code (15A NCAC) Subchapter 2L Groundwater Standards (updates effective April 1, 2013)

µg/L: micrograms per liter

[a] The NCDENR approved a change to the 2L Standard for 1,1-DCE , to increase from 7 ug/L to 350 ug/L, in January 10, 2013. The final 2L standard 2013 updates are dated April 1, 2013.

Bold and Shaded: Constituent concentration reported above the NCAC 2L Groundwater Standard (current 2L updates dated April 1, 2013)

Table 5: Field Water Quality Measurements (2010-2015)

Field Parameter		Temperature	pH	Specific Conductivity	Dissolved Oxygen	ORP	Turbidity	*Ferrous Iron	*Carbon Dioxide
Sample ID	Date	°C	SU	µS/cm	mg/L	mV	NTU	mg/L	mg/L
MW-100A	10/12/10	23.25	5.60	910	0.24	-60.2	12.4	3.3	> 500
MW-100A	12/02/10	19.88	5.16	1009	0.12	-134.2	NM	NM	NM
MW-100A	01/25/11	16.57	5.44	899	0.21	-69.3	9.3	NM	435
MW-100A	04/21/11	17.95	5.42	916	0.19	-12.9	9.8	NM	> 500
MW-100A	08/17/11	23.89	5.50	879	0.55	21.2	NM	3.2	> 500
MW-100A	10/05/11	22.77	5.44	834	0.14	10.7	171	4	> 500
MW-100A	05/17/12	21.78	5.91	862	0.12	-72.1	6.61	NM	> 100
MW-100A	11/07/12	21.43	5.39	851	0.3	-48.8	1.04	NM	NM
MW-100A	05/07/13	18.59	4.93	923	0.35	-32.7	47.2	NM	NM
MW-100A	10/23/13	20.30	5.67	930	0.31	-33.7	6.78	NM	NM
MW-100A	04/29/14	16.70	5.55	824	0.22	-20.5	58.4	NM	NM
MW-100A	11/12/14	23.72	5.36	809	0.23	-29.1	1.83	NM	NM
MW-100A	04/15/15	16.08	5.68	850	0.38	-168	0	NM	NM
MW-100A	12/28/15	19.80	5.83	535.2	0.33	-52	22.4	NM	NM
MW-100B	10/13/10	22.54	5.55	945	0.28	-79.2	8.55	25.12	> 500
MW-100B	12/02/10	20.05	5.19	1019	0.42	-30	NM	NM	NM
MW-100B	01/25/11	17.20	5.28	921	0.19	-31.7	8.9	NM	400
MW-100B	04/21/11	18.75	5.24	1030	0.67	-59.8	7.77	NM	> 500
MW-100B	08/17/11	24.32	5.51	1132	0.31	16.9	NM	4.2	> 500
MW-100B	10/05/11	22.64	5.41	1099	0.11	-5.2	8.68	4.6	> 500
MW-100B	05/17/12	22.75	5.66	1074	0.35	-0.3	9.06	NM	> 100
MW-100B	11/07/12	20.04	5.45	1001	0.19	-55.5	3.1	NM	NM
MW-100B	05/07/13	19.03	5.43	965	0.44	39.2	5.43	NM	> 350
MW-100B	10/23/13	19.90	5.51	1036	0.49	-27.5	2.83	NM	NM
MW-100B	04/29/14	17.90	5.44	925	0.16	-19.4	22.9	NM	NM
MW-100B	11/12/14	23.86	5.21	951	0.29	-46.1	2.5	NM	NM
MW-100B	04/15/15	15.68	5.62	1060	0.18	-144	3.9	NM	NM
MW-100B	12/28/15	22.10	5.44	973	0.58	-31.4	2.25	NM	NM
MW-101A	10/13/10	24.90	5.84	166	NM**	-0.8	4.99	8.7	165
MW-101A	12/02/10	19.79	5.74	256	0.5	-58.9	NM	NM	NM
MW-101A	01/25/11	16.50	6.06	189	0.36	-91.4	60	NM	95
MW-101A	04/19/11	20.63	6.33	114	0.13	-59.7	12.1	NM	55
MW-101A	08/16/11	24.47	5.77	105	0.46	27.1	NM	3.2	95
MW-101A	10/05/11	23.72	5.88	109	0.19	13.3	20.1	NM	NM
MW-101A	05/17/12	21.35	5.76	98	0.17	-24.7	22.2	NM	> 100
MW-101A	11/07/12	22.01	5.00	53	0.26	81.9	3.9	NM	NM
MW-101A	05/08/13	19.83	5.18	73	0.27	194.8	5.41	NM	NM
MW-101A	10/23/13	22.30	4.94	48.2	0.4	138.4	5.4	NM	NM
MW-101A	04/29/14	19.20	5.76	108.3	0.14	16.7	6.93	NM	NM
MW-101A	11/12/14	23.83	4.18	43	0.66	81.5	3.07	NM	NM
MW-101A	04/15/15	17.71	5.17	58	0.69	-89	1.6	NM	NM
MW-101A	12/28/15	21.10	7.20	8.1	10.39**	100.1	6.5	NM	NM
MW-101B	10/13/10	23.54	4.81	222	0.44	30.9	5.21	7.75	125
MW-101B	12/02/10	19.57	4.95	239	0.27	-114.5	NM	NM	NM
MW-101B	01/25/11	17.78	6.49	82	0.29	-47.9	13	NM	30
MW-101B	04/19/11	21.88	6.08	220	0.28	-62.3	31.5	NM	175
MW-101B	08/16/11	25.91	4.82	379	0.24	92.5	NM	3.2	395
MW-101B	10/05/11	24.85	6.21	119	0.25	-43.2	3.13	NM	NM
MW-101B	05/17/12	21.78	5.64	305	0.16	-47.9	14	NM	> 100

Table 5: Field Water Quality Measurements (2010-2015)

Field Parameter		Temperature	pH	Specific Conductivity	Dissolved Oxygen	ORP	Turbidity	*Ferrous Iron	*Carbon Dioxide
Sample ID	Date	°C	SU	µS/cm	mg/L	mV	NTU	mg/L	mg/L
MW-101B	11/07/12	20.85	5.39	222	0.21	-39.5	8.1	NM	NM
MW-101B	05/08/13	20.30	4.08	221	0.28	-27.5	7.25	NM	215
MW-101B	10/23/13	22.20	6.07	238	0.18	-60.5	3.02	NM	NM
MW-101B	04/29/14	20.50	6.03	209	0.16	-59	11.8	NM	NM
MW-101B	11/12/14	23.27	6.38	87	2.25	116.6	0.85	NM	NM
MW-101B	04/14/15	21.82	7.13	114	0.44	-48	0	NM	NM
MW-101B	12/28/15	22.40	7.17	7	9**	80.5	3.88	NM	NM
MW-102A	10/13/10	21.61	3.82	130	0.38	163	9.04	0.75	60
MW-102A	12/02/10	17.79	4.34	122	0.79	-103.5		NM	NM
MW-102A	01/25/11	15.85	4.73	97	0.41	-26.5	12	NM	60
MW-102A	04/20/11	18.60	5.15	91	0.18	30	9.79	NM	150
MW-102A	08/16/11	21.92	5.09	81	0.63	62	NM	2.6	125
MW-102A	10/05/11	20.67	4.99	82	0.4	49.5	2.67	3.2	175
MW-102A	05/17/12	18.86	5.26	83	0.47	11.1	13.6	NM	> 100
MW-102A	11/07/12	19.93	5.03	76	0.37	-15.9	1.25	NM	NM
MW-102A	05/08/13	18.34	3.96	84	0.43	-0.2	3.98	NM	NM
MW-102A	10/23/13	21.30	6.19	80	0.3	67.6	7.7	NM	NM
MW-102A	04/29/14	19.20	5.08	73	0.14	39.5	7.76	NM	NM
MW-102A	11/12/14	20.55	4.90	64	0.43	33.1	5.46	NM	NM
MW-102A	04/14/15	19.75	5.11	85	0.83	-157	0.8	NM	NM
MW-102A	12/29/15	20.60	11.12	67.2	0.6	-165.4	1.11	NM	NM
MW-102B	10/13/10	20.26	5.43	125	0.45	-18.2	9.4	4.89	95
MW-102B	12/02/10	18.35	5.09	342	0.44	11.6		NM	NM
MW-102B	01/25/11	16.75	5.29	312	0.27	-8.4	10	NM	200
MW-102B	04/20/11	19.72	5.61	331	0.24	-15.9	13.4	NM	125
MW-102B	08/16/11	22.18	5.73	275	0.51	-11.5	NM	2.8	250
MW-102B	10/05/11	19.66	5.80	242	0.43	-28	0.05	5.4	200
MW-102B	05/17/12	19.83	6.00	254	0.41	-1.8	0.81	NM	> 100
MW-102B	11/07/12	19.09	5.72	224	0.27	-81.6	6.27	NM	NM
MW-102B	05/08/13	19.19	5.68	223	0.19	41.7	50.6	NM	235
MW-102B	10/23/13	20.30	6.13	82	0.14	21.3	5.53	NM	NM
MW-102B	04/29/14	18.90	5.98	193	0.13	-74.6	2.93	NM	NM
MW-102B	11/12/14	19.49	5.64	163	0.33	-42.6	3.96	NM	NM
MW-102B	04/14/15	20.68	6.17	199	0.74	-199	0	NM	NM
MW-102B	12/29/15	20.20	11.34	166.4	0.49	-169.3	2.09	NM	NM
MW-102C	10/13/10	20.11	4.86	240	36**	-6.9	5.54	8.76	110
MW-102C	12/02/10	17.83	4.38	165	0.31	-101.5		NM	NM
MW-102C	01/25/11	17.05	4.93	263	0.14	45.4	45	NM	235
MW-102C	04/20/11	19.53	5.08	306	0.25	27.7	9.5	NM	85
MW-102C	08/16/11	22.54	5.20	331	0.25	50.7	NM	4.4	375
MW-102C	10/05/11	18.61	4.80	339	0.17	53.7	766	2.5	450
MW-102C	05/17/12	19.87	5.40	264	0.36	34.4	2.5	NM	> 100
MW-102C	11/07/12	19.22	4.98	270	0.27	27.4	1.99	NM	NM
MW-102C	05/08/13	19.33	4.85	383	0.27	187.8	12.9	NM	275
MW-102C	10/23/13	20.10	5.30	490	0.15	19.2	5.63	NM	NM
MW-102C	04/29/14	19.80	5.14	298	0.11	35.8	9.72	NM	NM
MW-102C	11/12/14	18.05	4.30	242	0.38	44.8	2.12	NM	NM
MW-102C	04/14/15	19.84	5.06	426	0.45	-118	68.7	NM	NM

Table 5: Field Water Quality Measurements (2010-2015)

Field Parameter		Temperature	pH	Specific Conductivity	Dissolved Oxygen	ORP	Turbidity	*Ferrous Iron	*Carbon Dioxide
Sample ID	Date	°C	SU	µS/cm	mg/L	mV	NTU	mg/L	mg/L
MW-102C	12/29/15	19.70	4.66	290.6	0.38	62.2	9.13	NM	NM
MW-103A	10/12/10	21.64	4.54	92	0.44	214.6	9.2	NM	NM
MW-103A	12/02/10	NM	NM	NM	NM	NM	NM	NM	NM
MW-103A	01/25/11	21.46	6.34	217	0.26	-57.6	8.8	NM	NM
MW-103A	04/20/11	21.76	5.17	103	0.13	148.9	7.67	NM	NM
MW-103A	08/15/11	21.60	7.53	226	0.6	-15.8	NM	2.6	135
MW-103A	10/04/11	21.68	5.20	97	0.22	67.8	18.1	NM	NM
MW-103A	05/16/12	21.61	6.29	181	0.14	-27	41.6	NM	> 100
MW-103A	11/07/12	21.60	5.72	120	0.19	71.9	53.4	NM	NM
MW-103A	05/07/13	20.89	5.95	188	0.56	65.9	2.11	NM	150
MW-103A	10/22/13	21.70	6.04	183.5	0.4	-14.9	3.56	NM	NM
MW-103A	04/29/14	19.70	5.78	163.2	0.22	79.1	24.2	NM	NM
MW-103A	11/13/14	20.64	5.12	97	0.35	107.2	4.69	NM	NM
MW-103A	04/14/15	18.61	6.02	108	6.88**	-53	0.6	NM	NM
MW-103A	12/30/15	21.60	4.60	92.7	0.63	268.8	1.96	NM	NM
MW-103B	10/12/10	21.26	5.97	230	0.31	-32	4.42	NM	NM
MW-103B	12/02/10	21.44	6.40	212	0.71	-52.9	NM	NM	NM
MW-103B	01/25/11	21.25	6.48	213	0.38	-80.4	11	NM	NM
MW-103B	04/20/11	21.44	6.23	210	0.17	-37.1	0.19	NM	NM
MW-103B	08/15/11	21.48	8.04	226	0.47	-54.6	NM	4.2	115
MW-103B	10/04/11	21.49	6.45	203	0.24	-80.9	7.24	NM	NM
MW-103B	05/17/12	21.52	6.36	220	0.26	-48.8	2.69	NM	> 100
MW-103B	11/07/12	20.97	6.48	257	0.24	-106.1	6.39	NM	NM
MW-103B	05/07/13	20.90	6.27	200	0.4	55.1	1.73	NM	25
MW-103B	10/22/13	21.90	6.39	199.8	0.24	-86.7	0.95	NM	NM
MW-103B	04/29/14	19.90	6.31	221.1	0.22	-64.2	2.59	NM	NM
MW-103B	11/13/14	20.37	6.23	216	0.46	-80.6	0.45	NM	NM
MW-103B	04/14/15	19.05	6.50	148	7.01**	-148	2.1	NM	NM
MW-103B	12/30/15	21.50	10.78	215	0.49	-154	1.94	NM	NM
MW-103C	10/12/10	21.49	5.77	187	0.67	-17.5	10.3	NM	NM
MW-103C	12/02/10	21.18	6.26	174	0.37	-61.4	NM	NM	NM
MW-103C	01/25/11	21.04	5.83	128	0.3	-26.5	5.4	NM	NM
MW-103C	04/20/11	21.35	5.90	157	0.29	20.1	< 2	NM	NM
MW-103C	08/15/11	21.55	7.71	139	0.56	23.5	NM	2.25	140
MW-103C	10/04/11	21.45	5.89	184	0.2	-2.8	4.38	NM	NM
MW-103C	05/16/12	21.09	5.34	101	0.33	-17.1	1.35	NM	> 100
MW-103C	11/07/12	21.11	6.08	177	0.26	-90.7	20.2	NM	NM
MW-103C	05/08/13	20.45	5.51	128	0.33	-29.8	22.9	NM	150
MW-103C	10/22/13	21.00	5.38	110.3	0.46	5.5	2.04	NM	NM
MW-103C	04/29/14	19.90	5.26	136.6	0.29	13.8	2.41	NM	NM
MW-103C	11/13/14	20.21	5.78	134	0.27	-31.9	0.31	NM	NM
MW-103C	04/14/15	20.90	6.18	116	6.93**	-223	0.7	NM	NM
MW-103C	12/30/15	21.40	5.98	165.8	0.53	41.6	2.71	NM	NM
MW-104A	10/12/10	22.12	5.45	157	NM **	24.2	3.55	NM	NM
MW-104A	04/20/11	21.88	5.32	135	0.88	142.4	6.5	NM	NM
MW-104A	10/04/11	21.90	5.42	150	1.19	52.4	37.9	NM	NM
MW-104A	05/16/12	22.00	5.21	124	0.49	-14.4	4.26	NM	NM
MW-104A	11/07/12	22.57	5.47	110	0.59	65.9	7.83	NM	NM

Table 5: Field Water Quality Measurements (2010-2015)

Field Parameter		Temperature	pH	Specific Conductivity	Dissolved Oxygen	ORP	Turbidity	*Ferrous Iron	*Carbon Dioxide
Sample ID	Date	°C	SU	µS/cm	mg/L	mV	NTU	mg/L	mg/L
MW-104A	05/08/13	21.50	5.33	118	1.22	107.3	2.12	NM	NM
MW-104A	10/22/13	23.30	5.33	114	0.41	108.9	9.67	NM	NM
MW-104A	04/28/14	19.80	5.16	139.9	0.79	237.1	3.76	NM	NM
MW-104A	11/13/14	21.16	4.71	98	0.63	5.2	4.7	NM	NM
MW-104A	04/14/15	20.56	5.12	114	1.46	114	0.5	NM	NM
MW-104A	12/30/15	21.50	10.12	115.3	3.23	-110.2	1.67	NM	NM
MW-104B	10/12/10	21.12	4.65	85	NM **	325.3	1.46	NM	NM
MW-104B	04/20/11	21.44	4.83	97	0.24	259.2	0.9	NM	NM
MW-104B	10/04/11	21.69	4.69	109	0.38	102.6	0.49	0	75
MW-104B	05/16/12	21.65	4.90	91	0.17	10.5	0.97	NM	> 100
MW-104B	11/07/12	21.66	5.00	97	0.37	180.5	2.07	NM	NM
MW-104B	05/08/13	20.62	4.83	93	0.47	141.5	0.47	NM	NM
MW-104B	10/22/13	22.20	4.92	86	0.14	335.6	3.87	NM	NM
MW-104B	04/28/14	20.80	4.75	97.8	0.16	305	0.56	NM	NM
MW-104B	11/13/14	21.03	4.30	73	0.75	117.4	2.46	NM	NM
MW-104B	04/14/15	19.08	4.79	77	0.68	149	0	NM	NM
MW-104B	12/30/15	21.40	5.32	100.1	2.84	161.2	1.37	NM	NM
MW-104C	10/12/10	20.99	5.05	95	NM **	227.1	60.8	NM	NM
MW-104C	04/20/11	21.62	5.18	97	0.22	224.2	39.4	NM	NM
MW-104C	10/04/11	21.68	5.10	104	0.34	89.3	19.1	0	40
MW-104C	05/16/12	21.80	5.09	105	0.46	-15.4	13.1	NM	> 100
MW-104C	11/07/12	21.37	5.27	104	0.36	189.1	36.1	NM	NM
MW-104C	05/08/12	21.05	5.14	76	0.32	17.9	0.54	NM	NM
MW-104C	10/22/13	21.80	5.22	99	0.14	319.7	7.53	NM	NM
MW-104C	04/28/14	20.80	5.26	92	0.14	205.8	2.17	NM	NM
MW-104C	11/13/14	21.05	4.64	84	0.9	135.2	2.07	NM	NM
MW-104C	04/14/15	18.22	5.48	103	0.65	116	1.9	NM	NM
MW-104C	12/30/15	21.50	6.63	93.9	0.56	53.3	1.24	NM	NM
MW-105C	10/12/10	22.10	5.20	101	0.76	129.2	6.18	NM	NM
MW-105C	04/19/11	20.36	5.10	72	2.15	206.5	1.5	NM	NM
MW-105C	10/04/11	22.25	4.71	72	0.87	102.6	1.17	NM	NM
MW-105C	05/16/12	21.66	4.89	73	1.28	32.8	3.26	NM	NM
MW-105C	11/06/12	18.04	4.94	70	1.37	207.9	1.81	NM	NM
MW-105C	05/07/13	20.90	4.43	70	1.33	38.3	4.77	NM	NM
MW-105C	10/22/13	21.20	4.85	70	1	305.8	5.13	NM	NM
MW-105C	04/28/14	21.60	4.84	66	1.08	204	5.71	NM	NM
MW-105C	11/12/14	22.19	4.01	63	1.21	162.2	1.26	NM	NM
MW-105C	04/13/15	23.18	4.98	57	3.73**	336	5.6	NM	NM
MW-105C	12/29/15	NM - Sample collected via passive diffusion bailer							
MW-106C	12/29/15	20.90	4.76	52.8	0.75	242.5	4.05	NM	NM
MW-10B	10/11/10	22.51	5.07	81	3.08	65.1	3.1	NM	NM
MW-10B	04/19/11	17.74	4.95	57	0.22	187.8	6.05	NM	NM
MW-10B	10/04/11	21.67	5.39	79	0.29	41.3	2.9	NM	NM
MW-10B	05/16/12	20.81	4.98	74	0.17	-4.7	6.4	NM	NM
MW-10B	11/06/12	19.46	4.91	59	0.58	179.9	1.49	NM	NM
MW-10B	05/07/13	18.99	4.94	70	0.47	135.3	4.54	NM	NM
MW-10B	10/22/13	20.90	4.96	73.8	0.7	108.4	25.8	NM	NM
MW-10B	04/28/14	20.30	4.86	88.4	0.22	78.3	25.8	NM	NM

Table 5: Field Water Quality Measurements (2010-2015)

Field Parameter		Temperature	pH	Specific Conductivity	Dissolved Oxygen	ORP	Turbidity	*Ferrous Iron	*Carbon Dioxide
Sample ID	Date	°C	SU	µS/cm	mg/L	mV	NTU	mg/L	mg/L
MW-10B	11/11/14	21.41	3.51	60	0.54	159.7	5.32	NM	NM
MW-10B	04/14/15	21.18	5.14	46	5.45**	240	2.6	NM	NM
MW-10B	12/29/15	22.20	10.34	75.8	2.25	-105.6	5.93	NM	NM
MW-10D	10/11/10	22.43	5.16	100	0.52	34.8	2.21	NM	NM
MW-10D	04/19/10	18.95	4.73	60	0.8	-20	0	NM	NM
MW-10D	10/04/11	21.97	5.32	84	0.27	24	0	NM	NM
MW-10D	05/16/12	21.44	5.26	87	0.23	1.1	2.2	NM	NM
MW-10D	11/06/12	19.91	4.83	61	0.38	180.6	7.23	NM	NM
MW-10D	05/07/13	18.79	4.72	60	0.5	189	2.84	NM	NM
MW-10D	10/22/13	20.40	5.28	81.8	0.17	100.6	3.98	NM	NM
MW-10D	04/28/14	20.90	4.89	99.1	0.17	97.5	9.45	NM	NM
MW-10D	11/11/14	23.61	5.09	108	0.47	172.7	5.12	NM	NM
MW-10D	04/14/15	20.69	5.10	57	6.03**	158	8.3	NM	NM
MW-10D	12/29/15	20.40	4.93	66.3	0.62	183.4	1.79	NM	NM
MW-16B	10/11/10	21.93	4.41	65	3.55	272.6	5.47	NM	NM
MW-16B	04/19/11	17.34	4.81	42	2.48	223.1	3	NM	NM
MW-16B	10/04/11	20.20	5.02	69	0.46	138.4	1.96	NM	NM
MW-16B	05/16/12	21.34	4.67	68	0.49	8.7	13.2	NM	NM
MW-16B	11/06/12	20.20	4.85	50	1.6	251.7	1.87	NM	NM
MW-16B	05/07/13	18.50	4.65	68	1.35	138.2	0.51	NM	NM
MW-16B	10/22/13	20.00	5.00	61	3.53	81.2	0.49	NM	NM
MW-16B	04/28/14	18.90	5.01	61	0.18	199.4	4.93	NM	NM
MW-16B	11/11/14	20.48	3.35	45	0.45	185.2	2.67	NM	NM
MW-16B	04/14/15	22.64	5.21	46	5.71**	281	0.1	NM	NM
MW-16B	12/29/15	NM - Sample collected via passive diffusion bailer							
MW-16D	10/11/10	21.75	5.82	72	3.09	111.7	46.2	NM	NM
MW-16D	04/19/11	18.78	5.36	57	1.25	2.5	9.8	NM	NM
MW-16D	10/04/11	20.10	6.16	84	0.38	-3.7	22.2	NM	NM
MW-16D	05/16/12	21.30	6.05	67	1.23	-2.4	56.3	NM	NM
MW-16D	11/06/12	20.07	6.15	60	0.29	115.7	2.31	NM	NM
MW-16D	05/07/13	19.35	5.95	72	1.37	97.2	8.1	NM	NM
MW-16D	10/22/13	19.60	6.30	106	0.21	12.9	10.7	NM	NM
MW-16D	04/28/14	19.20	6.00	123.7	0.16	42	12.9	NM	NM
MW-16D	11/11/14	20.91	6.23	95	0.35	138.3	5.01	NM	NM
MW-16D	04/14/15	NM	NM	NM	NM	NM	NM	NM	NM
MW-16D	12/29/15	NM - Sample collected via passive diffusion bailer							
MW-18B	10/12/10	20.95	5.65	172	4.97	181.9	46	NM	NM
MW-18B	10/03/11	22.08	5.51	126	3.77	71.4	9.97	NM	NM
MW-18B	11/06/12	19.10	5.04	100	4.73	240.9	20.3	NM	NM
MW-18B	10/22/13	20.00	5.28	115	4.99	257.7	38.2	NM	NM
MW-18B	11/12/14	19.95	4.80	101	3.98	232.7	8.65	NM	NM
MW-18B	04/16/15	12.56	5.65	107	6.79**	77	1.1	NM	NM
MW-18B	12/29/15	NM - Sample collected via passive diffusion bailer							
MW-18D	10/12/10	19.74	4.48	76	4.05	282.4	2.5	NM	NM
MW-18D	04/19/11	22.93	4.82	66	2.17	249.4	5.82	NM	NM
MW-18D	10/03/11	21.60	4.78	74	0.95	114.2	9.35	NM	NM
MW-18D	05/16/12	21.94	5.04	78	2.69	22.2	103	NM	NM
MW-18D	11/06/12	19.48	4.93	68	1.19	204.7	1.57	NM	NM

Table 5: Field Water Quality Measurements (2010-2015)

Field Parameter		Temperature	pH	Specific Conductivity	Dissolved Oxygen	ORP	Turbidity	*Ferrous Iron	*Carbon Dioxide
Sample ID	Date	°C	SU	µS/cm	mg/L	mV	NTU	mg/L	mg/L
MW-18D	05/07/13	18.95	4.30	70	1.18	78.9	3.17	NM	NM
MW-18D	10/22/13	18.80	4.78	67	0.67	211.5	7.86	NM	NM
MW-18D	04/28/14	21.10	4.94	63	1.59	178	1.9	NM	NM
MW-18D	11/12/14	20.64	4.44	61	0.69	216.9	0.89	NM	NM
MW-18D	04/16/15	11.76	4.73	67	1.86	143	0.7	NM	NM
MW-18D	12/29/15	NM - Sample collected via passive diffusion bailer							
MW-19B	10/12/10	21.98	4.49	55	3.82	320.4	2.28	NM	NM
MW-19B	10/04/11	22.96	4.78	52	1.5	91.1	0.91	NM	NM
MW-19B	11/06/12	17.09	5.06	41	1	182.1	23.2	NM	NM
MW-19B	10/22/13	20.50	4.99	93.3	1.03	123.9	1.8	NM	NM
MW-19B	11/11/14	20.07	3.98	43	0.98	186.7	4.49	NM	NM
MW-19B	12/29/15	NM - Sample collected via passive diffusion bailer							
MW-19D	10/12/10	20.71	4.75	83	4.15	440.7	8.02	NM	NM
MW-19D	04/19/11	19.20	4.23	65	0.79	-51.2	19.5	NM	NM
MW-19D	10/04/11	21.43	5.01	70	0.41	45.2	115	NM	NM
MW-19D	05/16/12	20.53	5.35	73	0.5	11.9	6.96	NM	NM
MW-19D	11/06/12	18.26	5.33	73	0.46	104.4	7.7	NM	NM
MW-19D	05/07/13	19.43	4.69	61	0.49	170.9	6.47	NM	NM
MW-19D	10/22/13	19.70	5.14	55.9	0.32	89.9	7.05	NM	NM
MW-19D	04/28/14	19.70	5.27	64	0.18	126.5	9.13	NM	NM
MW-19D	11/11/14	20.00	5.59	110	0.52	105.4	4.28	NM	NM
MW-19D	04/13/15	NM	NM	NM	NM	NM	NM	NM	NM
MW-19D	12/29/15	NM - Sample collected via passive diffusion bailer							
MW-20B	10/11/10	21.47	3.51	80	1.77	165.4	0.47	NM	NM
MW-20B	04/19/11	18.81	4.54	50	1.48	182.8	0	NM	NM
MW-20B	10/03/11	20.97	4.29	53	1.37	180.5	0	NM	NM
MW-20B	11/06/12	19.68	4.51	46	1.47	238.9	0.29	NM	NM
MW-20B	10/22/13	20.10	4.65	49.2	0.79	126	2.78	NM	NM
MW-20B	11/12/14	18.78	4.09	54	2.38	167	0.18	NM	NM
MW-20B	04/13/15	22.23	4.55	61	1.73	162	0	NM	NM
MW-20B	12/29/15	NM - Sample collected via passive diffusion bailer							
MW-20D	10/11/10	20.76	3.86	74	6.95	183.5	0.75	NM	NM
MW-20D	10/03/11	19.32	3.87	48	6.92	170	4.24	NM	NM
MW-20D	11/06/12	19.17	5.38	48	4.77	211	0.59	NM	NM
MW-20D	10/22/13	19.60	5.00	49.9	5.49	150.3	2.11	NM	NM
MW-20D	11/12/14	20.21	3.78	40	6.16	233	5.72	NM	NM
MW-20D	04/13/15	22.36	4.75	48	5.3**	175	1.1	NM	NM
MW-20D	12/29/15	NM - Sample collected via passive diffusion bailer							

Notes:

uS/cm: microseimens per centimeter
mg/L: milligrams per liter
ug/L: micrograms per liter
SU: Standard Units
°C: Degrees Celsius
NM: Not Measured
TOC: total organic carbon
ORP: oxidation-reduction potential
NTU: Nephelometric Turbidity Units
mV: millivolts
*Ferrous iron and carbon dioxide measurements were analyzed using a HACH field Colorimeter.
**DO probe on one of the field instruments not working properly.

Table 6: Geochemical Parameters in Groundwater (2010 - 2015)

Sample ID	Chemical Name	Ethane	Ethene	Methane	Dissolved Hydrogen	*Carbon Dioxide	Alkalinity	TOC	Chloride	Sulfate	Iron	Manganese	*Ferrous Iron
	Date	ug/L	ug/L	ug/L	nM	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-100A	10/12/2010	24	145	2640	710	500 +	128	246	125	< 5.0	188	0.457	3.3
MW-100A	12/2/2010	NA	NA	NA	NA	NA	NA	1150	155	NA	NA	NA	NA
MW-100A	1/25/2011	15.3	82.9	1930	130000	435	NA	NA	129	< 5.0	191	0.505	NA
MW-100A	4/21/2011	NA	NA	NA	35000	500 +	220	391	140	NA	NA	NA	NA
MW-100A	8/17/2011	16	70.4	4050	NA	500 +	NA	NA	NA	NA	158	0.557	3.2
MW-100A	10/5/2011	< 10	< 10	14.3	NA	500 +	147	353	123	NA	NA	NA	4
MW-100A	5/17/2012	NA	NA	NA	NA	100 +	NA	289	NA	NA	NA	NA	NA
MW-100A	11/7/2012	NA	NA	NA	NA	NA	NA	415	153	NA	NA	NA	NA
MW-100A	5/7/2013	NA	NA	NA	NA	NA	NA	373	NA	NA	NA	NA	NA
MW-100A	10/23/2013	15.3	132	8,460 E	110	NA	NA	357	148	NA	NA	NA	NA
MW-100A	4/29/2014	NA	NA	NA	NA	NA	NA	338	NA	NA	NA	NA	NA
MW-100A	11/12/2014	NA	NA	NA	NA	NA	NA	333	126	NA	NA	NA	NA
MW-100A	4/15/2015	NA	NA	NA	NA	NA	NA	301	NA	NA	NA	NA	NA
MW-100A	12/28/2015	NA	NA	NA	NA	NA	NA	164	74.6	NA	NA	NA	NA
MW-100B	10/13/2010	24.8	122	3990	3700	500 +	188	304	113	< 5.0	196	0.392	25.12
MW-100B	12/2/2010	NA	NA	NA	NA	NA	NA	2360	123	NA	NA	NA	NA
MW-100B	1/25/2011	NA	NA	NA	180000	400	NA	NA	13.9	< 5.0	223	0.474	NA
MW-100B	4/21/2011	11.1	46	1020	98000	500 +	277	673	141	NA	NA	NA	NA
MW-100B	8/17/2011	19.6	95.4	3760	NA	500 +	NA	NA	NA	NA	244	0.698	4.2
MW-100B	10/5/2011	26.7	117	5990	NA	500 +	256	690	141	NA	NA	NA	4.6
MW-100B	5/17/2012	10.4	61	5260	NA	100 +	274	592	NA	NA	NA	NA	NA
MW-100B	11/7/2012	18	91.4	8070	NA	NA	NA	568	140	NA	NA	NA	NA
MW-100B	5/7/2013	17.6	97.6	11400	NA	350 +	131	484	NA	NA	NA	NA	NA
MW-100B	10/23/2013	9.4	57.7	4250	1600	NA	NA	467	145	NA	NA	NA	NA
MW-100B	4/29/2014	14.3	93.7	6840	NA	200	188	446	NA	NA	NA	NA	NA
MW-100B	11/12/2014	NA	NA	NA	NA	NA	NA	443	133	NA	NA	NA	NA
MW-100B	4/15/2015	8.4	67.1	4450 E	NA	NA	251	424	NA	NA	NA	NA	NA
MW-100B	12/28/2015	NA	NA	NA	NA	NA	NA	398	137	NA	NA	NA	NA
MW-101A	10/13/2010	< 10	< 10	794	NA	165	44.2	22	14.3	< 5.0	40.4	0.0408	8.7
MW-101A	12/2/2010	NA	NA	NA	NA	NA	NA	169	NA	NA	NA	NA	NA
MW-101A	1/25/2011	< 10	< 10	1200	NA	95	NA	NA	< 5.0	NA	NA	NA	NA
MW-101A	4/19/2011	NA	NA	NA	NA	55	50.6	24.5	14.2	NA	NA	NA	NA

Table 6: Geochemical Parameters in Groundwater (2010 - 2015)

Sample ID	Chemical Name	Ethane	Ethene	Methane	Dissolved Hydrogen	*Carbon Dioxide	Alkalinity	TOC	Chloride	Sulfate	Iron	Manganese	*Ferrous Iron
	Date	ug/L	ug/L	ug/L	nM	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-101A	8/17/2011	< 10	< 10	12800	NA	95	NA	NA	NA	NA	19.8	0.0182	3.2
MW-101A	10/5/2011	< 10	< 10	7100	NA	NA	35.4	10.4	10.5	NA	NA	NA	NA
MW-101A	5/17/2012	NA	NA	NA	NA	100 +	NA	7	NA	NA	NA	NA	NA
MW-101A	11/7/2012	NA	NA	NA	NA	NA	NA	5.6	8.4	NA	NA	NA	NA
MW-101A	5/8/2013	NA	NA	NA	NA	NA	NA	24.8	NA	NA	NA	NA	NA
MW-101A	10/23/2013	< 6.2	< 6.2	7780	NA	NA	NA	32.6	8.3	NA	NA	NA	NA
MW-101A	4/29/2014	NA	NA	NA	NA	NA	NA	7.2	NA	NA	NA	NA	NA
MW-101A	11/12/2014	NA	NA	NA	NA	NA	NA	0.95 B	8.6	NA	NA	NA	NA
MW-101A	4/15/2015	NA	NA	NA	NA	NA	NA	1.2	NA	NA	NA	NA	NA
MW-101A	12/28/2015	NA	NA	NA	NA	NA	NA	0.72 B	7.5	NA	NA	NA	NA
MW-101B	10/13/2010	< 10	< 10	1120	NA	125	6.2	102	24.6	< 5.0	32.6	0.0936	7.75
MW-101B	12/2/2010	NA	NA	NA	NA	NA	NA	403	NA	NA	NA	NA	NA
MW-101B	1/25/2011	NA	NA	NA	NA	30	NA	NA	12.4	NA	NA	NA	NA
MW-101B	4/19/2011	NA	NA	NA	NA	175	48.6	17.6	< 5.0	NA	NA	NA	NA
MW-101B	8/17/2011	< 10	< 10	4630	NA	395	NA	NA	NA	NA	75.6	0.111	3.2
MW-101B	10/5/2011	< 10	< 10	6650	NA	NA	59.4	128	16.3	NA	NA	NA	NA
MW-101B	5/17/2012	< 6.2	< 6.2	7300	NA	100 +	76.6	158	NA	NA	NA	NA	NA
MW-101B	11/7/2012	< 6.2	0.92 J	5290	NA	NA	NA	133	12.2	NA	NA	NA	NA
MW-101B	5/8/2013	< 6.2	< 6.2	5690	NA	215	56.4	90.6	NA	NA	NA	NA	NA
MW-101B	10/23/2013	< 6.2	< 6.2	8340	NA	NA	NA	34.9	13.6	NA	NA	NA	NA
MW-101B	4/29/2014	< 6.2	< 6.2	6340	NA	275	46.7	36.6	NA	NA	NA	NA	NA
MW-101B	11/12/2014	NA	NA	NA	NA	NA	NA	1.7	<0.80	NA	NA	NA	NA
MW-101B	4/14/2015	<1.0	<1.0	57.8	NA	NA	44	1.4	NA	NA	NA	NA	NA
MW-101B	12/28/2015	NA	NA	NA	NA	NA	NA	2	1.2 B	NA	NA	NA	NA
MW-102A	10/13/2010	< 10	< 10	2340	NA	60	< 5.0	3.1	10.8	< 5.0	0.688	0.0163	0.75
MW-102A	12/2/2010	NA	NA	NA	NA	NA	NA	143	NA	NA	NA	NA	NA
MW-102A	1/25/2011	< 10	< 10	3520	NA	60	NA	NA	11	NA	NA	NA	NA
MW-102A	4/20/2011	NA	NA	NA	NA	150	26	17.7	12.1	NA	NA	NA	NA
MW-102A	8/17/2011	< 10	< 10	4890	NA	125	NA	NA	NA	NA	12.1	13.9	2.6
MW-102A	10/5/2011	< 10	< 10	852	NA	175	13.5	12.3	10.9	NA	NA	NA	3.2
MW-102A	5/17/2012	NA	NA	NA	NA	100 +	NA	43.1	NA	NA	NA	NA	NA
MW-102A	11/7/2012	NA	NA	NA	NA	NA	NA	8.5	9.5	NA	NA	NA	NA

Table 6: Geochemical Parameters in Groundwater (2010 - 2015)

Sample ID	Chemical Name	Ethane	Ethene	Methane	Dissolved Hydrogen	*Carbon Dioxide	Alkalinity	TOC	Chloride	Sulfate	Iron	Manganese	*Ferrous Iron
	Date	ug/L	ug/L	ug/L	nM	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-102A	5/8/2013	NA	NA	NA	NA	NA	NA	10	NA	NA	NA	NA	NA
MW-102A	10/23/2013	1.8 J	< 6.2	8,840 E	NA	NA	NA	9.9	10.4	NA	NA	NA	NA
MW-102A	4/29/2014	NA	NA	NA	NA	NA	NA	9.8	NA	NA	NA	NA	NA
MW-102A	11/12/2014	NA	NA	NA	NA	NA	NA	1.8	9.9	NA	NA	NA	NA
MW-102A	4/14/2015	NA	NA	NA	NA	NA	NA	1.4	NA	NA	NA	NA	NA
MW-102A	12/29/2015	NA	NA	NA	NA	NA	NA	1.1	9.6	NA	NA	NA	NA
MW-102B	10/13/2010	< 10	< 10	7060	NA	95	43.2	4.7	11.6	< 5.0	22.1	0.0472	4.89
MW-102B	12/2/2010	NA	NA	NA	NA	NA	NA	311	NA	NA	NA	NA	NA
MW-102B	1/25/2011	NA	NA	NA	NA	200	NA	NA	< 5.0	NA	NA	NA	NA
MW-102B	4/20/2011	< 10	< 10	92.9	NA	125	130	101	12.3	NA	NA	NA	NA
MW-102B	8/17/2011	< 10	< 10	6240	NA	250	NA	NA	NA	NA	61.9	131	2.8
MW-102B	10/5/2011	< 10	< 10	17200	NA	200	NA	NA	NA	NA	NA	NA	5.4
MW-102B	5/17/2012	3.2 J	3.3 J	11800	NA	100 +	96.8	33.3	NA	NA	NA	NA	NA
MW-102B	11/7/2012	5.2 J	3.1 J	14000	NA	NA	NA	24.3	11.2	NA	NA	NA	NA
MW-102B	5/8/2013	4.4 J	2.5 J	14800	NA	235	45.3	17.8	NA	NA	NA	NA	NA
MW-102B	10/23/2013	< 6.2	< 6.2	388	4.7	NA	NA	16.5	11.4	NA	NA	NA	NA
MW-102B	4/29/2014	< 6.2	< 6.2	12,000 E	NA	240	51.7	13.3	NA	NA	NA	NA	NA
MW-102B	11/12/2014	NA	NA	NA	NA	NA	NA	6.4	11.1	NA	NA	NA	NA
MW-102B	4/14/2015	2.7	<1.0	5940	NA	NA	77.6	5.7	NA	NA	NA	NA	NA
MW-102B	12/29/2015	NA	NA	NA	NA	NA	NA	4.9	9.9	NA	NA	NA	NA
MW-102B	Duplicate	NA	NA	NA	NA	NA	NA	4.9	10.8	NA	NA	NA	NA
MW-102C	10/13/2010	< 10	< 10	7400	NA	110	48.4	92	19.9	< 5.0	43.2	0.236	8.76
MW-102C	12/2/2010	NA	NA	NA	NA	NA	NA	69.9	NA	NA	NA	NA	NA
MW-102C	1/25/2011	< 10	< 10	8170	NA	235	NA	NA	25.6	NA	NA	NA	NA
MW-102C	4/20/2011	NA	NA	NA	NA	85	84	198	25.6	NA	NA	NA	NA
MW-102C	8/17/2011	< 10	< 10	7840	NA	375	NA	NA	NA	NA	65.7	433	4.4
MW-102C	10/5/2011	12.5	< 10	12000	NA	450	56.2	512	24.6	NA	NA	NA	2.5
MW-102C	5/17/2012	NA	NA	NA	NA	100 +	49.4	92.7	NA	NA	NA	NA	NA
MW-102C	11/7/2012	NA	NA	NA	NA	NA	NA	396	31.2	NA	NA	NA	NA
MW-102C	5/8/2013	NA	NA	NA	NA	275	50.7	234	NA	NA	NA	NA	NA
MW-102C	10/23/2013	16.2	3.8 J	10,700 E	2100	NA	NA	266	31.7	NA	NA	NA	NA
MW-102C	4/29/2014	NA	NA	NA	NA	225	67.1	154	NA	NA	NA	NA	NA

Table 6: Geochemical Parameters in Groundwater (2010 - 2015)

Sample ID	Chemical Name	Ethane	Ethene	Methane	Dissolved Hydrogen	*Carbon Dioxide	Alkalinity	TOC	Chloride	Sulfate	Iron	Manganese	*Ferrous Iron
	Date	ug/L	ug/L	ug/L	nM	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-102C	11/12/2014	NA	NA	NA	NA	NA	NA	265	33.3	NA	NA	NA	NA
MW-102C	4/14/2015	NA	NA	NA	NA	NA	53.4	246	NA	NA	NA	NA	NA
MW-102C	12/29/2015	NA	NA	NA	NA	NA	NA	167	23	NA	NA	NA	NA
MW-103A	10/12/2010	<10.0	< 10	572	NA	NA	9.3	19.5	19.8	< 5.0	15.1	0.0607	NA
MW-103A	1/25/2011	NA	NA	NA	NA	NA	NA	2.9	NA	NA	NA	NA	NA
MW-103A	4/20/2011	NA	NA	NA	NA	NA	24	NA	NA	NA	NA	NA	NA
MW-103A	8/17/2011	< 10	31.2	3650	NA	135	NA	5.7	NA	NA	NA	NA	2.6
MW-103A	10/4/2011	< 10	41.8	3830	NA	NA	54.4	4.2	16.5	NA	NA	NA	NA
MW-103A	5/16/2012	NA	NA	NA	NA	100 +	NA	NA	NA	NA	NA	NA	NA
MW-103A	11/7/2012	NA	NA	NA	NA	NA	NA	5.1	20.4	NA	NA	NA	NA
MW-103A	5/7/2013	NA	NA	NA	NA	150	NA	NA	NA	NA	NA	NA	NA
MW-103A	10/22/2013	< 6.2	63.3	8,250 E	NA	NA	NA	2	18.6	NA	NA	NA	NA
MW-103A	4/29/2014	NA	NA	NA	NA	275	NA	NA	NA	NA	NA	NA	NA
MW-103A	11/13/2014	NA	NA	NA	NA	NA	NA	1.4	20.9	NA	NA	NA	NA
MW-103A	12/30/2015	NA	NA	NA	NA	NA	NA	1.1	20.6	NA	NA	NA	NA
MW-103B	10/12/2010	< 10	21.4	1510	NA	NA	26.8	3.4	12.2	< 5.0	40.7	0.144	NA
MW-103B	12/2/2010	NA	NA	NA	NA	NA	NA	3.1	NA	NA	NA	NA	NA
MW-103B	1/25/2011	NA	NA	NA	NA	NA	NA	2.9	NA	NA	NA	NA	NA
MW-103B	4/20/2011	< 10	49.9	3350	NA	NA	39	3.7	NA	NA	NA	NA	NA
MW-103B	8/17/2011	< 10	91.8	5450	NA	115	NA	32.4	NA	NA	NA	NA	4.2
MW-103B	10/4/2011	< 10	65	5440	NA	NA	41.8	3.7	12.1	NA	NA	NA	NA
MW-103B	5/17/2012	< 10	26.8	2600	NA	100 +	57.5	2.8	NA	NA	NA	NA	NA
MW-103B	11/7/2012	< 6.2	29.8	5340	NA	NA	NA	4.7	15.6	NA	NA	NA	NA
MW-103B	5/7/2013	< 6.2	33.7	5130	NA	25	32.1	4.6	NA	NA	NA	NA	NA
MW-103B	10/22/2013	< 6.2	50.3	5480	NA	NA	NA	3.8	12.7	NA	NA	NA	NA
MW-103B	4/29/2014	< 6.2	41.8	4010	NA	235	50.7	4.5	NA	NA	NA	NA	NA
MW-103B	11/13/2014	NA	NA	NA	NA	NA	NA	1.1	15.8	NA	NA	NA	NA
MW-103B	4/14/2015	0.41 J	32.3	2200	NA	NA	53.8	NA	NA	NA	NA	NA	NA
MW-103B	12/30/2015	NA	NA	NA	NA	NA	NA	0.81 B	18.1	NA	NA	NA	NA
MW-103C	10/12/2010	NA	NA	NA	NA	NA	45.1	3.1	15	< 5.0	25.1	0.112	NA
MW-103C	12/2/2010	NA	NA	NA	NA	NA	NA	2.9	NA	NA	NA	NA	NA
MW-103C	1/25/2011	< 10	39.3	2470	NA	NA	NA	2.6	NA	NA	NA	NA	NA

Table 6: Geochemical Parameters in Groundwater (2010 - 2015)

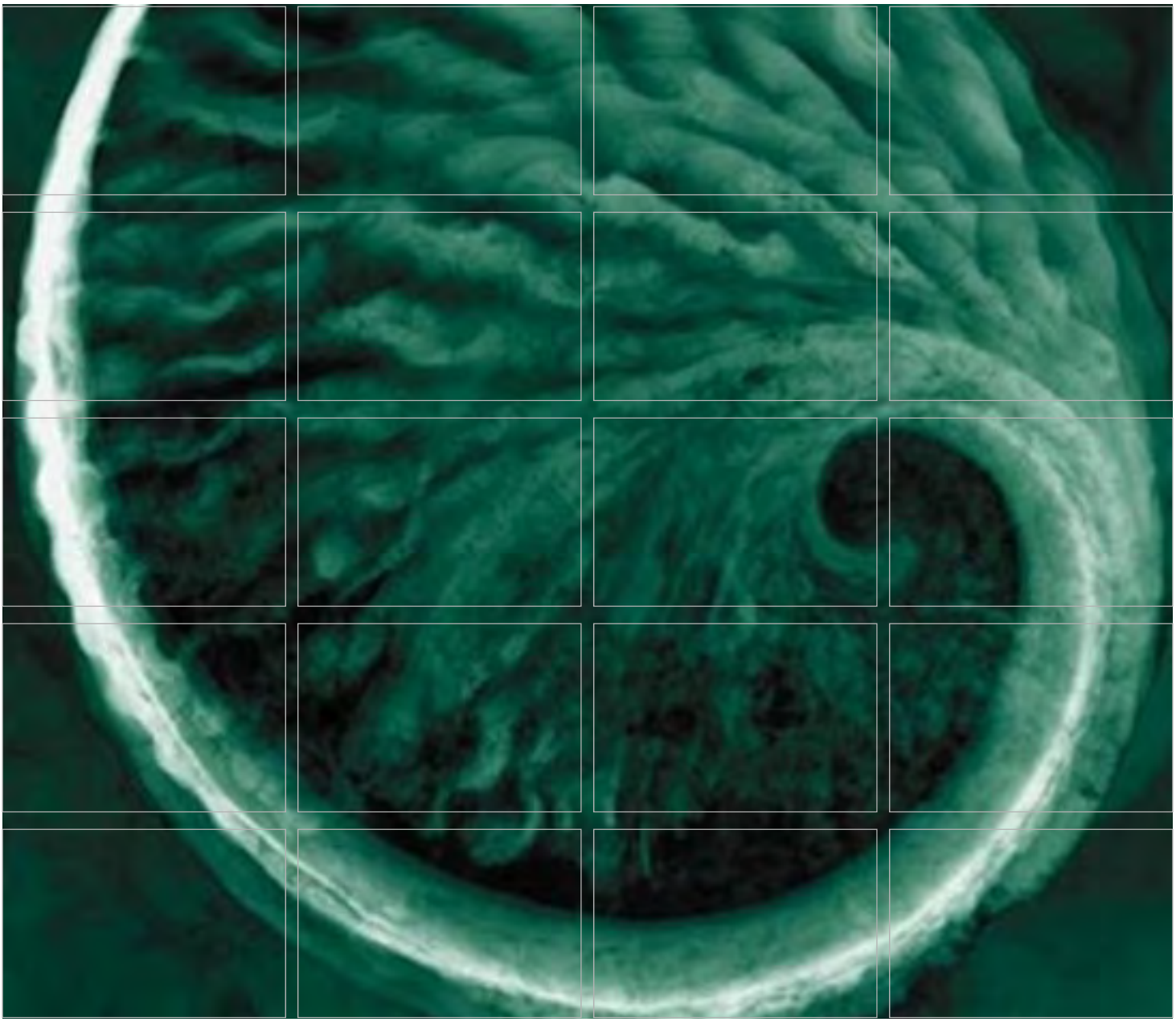
Sample ID	Chemical Name	Ethane	Ethene	Methane	Dissolved Hydrogen	*Carbon Dioxide	Alkalinity	TOC	Chloride	Sulfate	Iron	Manganese	*Ferrous Iron
	Date	ug/L	ug/L	ug/L	nM	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-103C	4/20/2011	NA	NA	NA	NA	NA	33	3.9	NA	NA	NA	NA	NA
MW-103C	8/17/2011	< 10	55.5	3320	NA	140	NA	4.1	NA	NA	NA	NA	2.25
MW-103C	10/4/2011	NA	NA	NA	NA	NA	43.9	27	15.1	NA	NA	NA	NA
MW-103C	5/16/2012	NA	NA	NA	NA	100 +	24.2	6.3	NA	NA	NA	NA	NA
MW-103C	11/7/2012	NA	NA	NA	NA	NA	NA	4.6	16	NA	NA	NA	NA
MW-103C	5/8/2013	NA	NA	NA	NA	150	26.5	12.9	NA	NA	NA	NA	NA
MW-103C	10/22/2013	NA	NA	NA	NA	NA	NA	16	17.7	NA	NA	NA	NA
MW-103C	4/29/2014	NA	NA	NA	NA	160	20	47.8	NA	NA	NA	NA	NA
MW-103C	11/13/2014	NA	NA	NA	NA	NA	NA	1.6	14.5	NA	NA	NA	NA
MW-103C	4/14/2015	NA	NA	NA	NA	NA	56.6	NA	NA	NA	NA	NA	NA
MW-103C	12/30/2015	NA	NA	NA	NA	NA	NA	2.4	14.9	NA	NA	NA	NA
MW-104A	10/4/2011	NA	NA	NA	NA	NA	NA	4	NA	NA	NA	NA	NA
MW-104A	11/7/2012	NA	NA	NA	NA	NA	NA	4.9	NA	NA	NA	NA	NA
MW-104A	10/22/2013	NA	NA	NA	NA	NA	NA	4.8	NA	NA	NA	NA	NA
MW-104A	11/13/2014	NA	NA	NA	NA	NA	NA	0.69 B	NA	NA	NA	NA	NA
MW-104A	12/30/2015	NA	NA	NA	NA	NA	NA	0.76 B	NA	NA	NA	NA	NA
MW-104B	10/12/2010	NA	NA	NA	NA	NA	< 5.0	2.3	14.9	NA	NA	NA	NA
MW-104B	10/4/2011	NA	NA	NA	NA	75	6.3	2.6	18.9	NA	NA	NA	0
MW-104B	5/16/2012	NA	NA	NA	NA	100 +	NA	NA	NA	NA	NA	NA	NA
MW-104B	11/7/2012	NA	NA	NA	NA	NA	NA	3.1	18	NA	NA	NA	NA
MW-104B	10/22/2013	NA	NA	NA	NA	NA	NA	3.9	15.2	NA	NA	NA	NA
MW-104B	11/13/2014	NA	NA	NA	NA	NA	NA	0.66 B	14.1	NA	NA	NA	NA
MW-104B	12/30/2015	NA	NA	NA	NA	NA	NA	0.5 B	14.1	NA	NA	NA	NA
MW-104C	10/12/2010	NA	NA	NA	NA	NA	9.3	3.1	17.2	NA	NA	NA	NA
MW-104C	10/4/2011	NA	NA	NA	NA	40	11.5	2.8	17.5	NA	NA	NA	0
MW-104C	5/16/2012	NA	NA	NA	NA	100 +	NA	NA	NA	NA	NA	NA	NA
MW-104C	11/7/2012	NA	NA	NA	NA	NA	NA	25	18.8	NA	NA	NA	NA
MW-104C	10/22/2013	NA	NA	NA	NA	NA	NA	29.8	18.3	NA	NA	NA	NA
MW-104C	11/13/2014	NA	NA	NA	NA	NA	NA	0.62 B	16.6	NA	NA	NA	NA
MW-104C	12/30/2015	NA	NA	NA	NA	NA	NA	0.48 B	16	NA	NA	NA	NA
MW-10B	10/11/2010	NA	NA	NA	NA	NA	NA	NA	19.7	NA	NA	NA	NA

Table 6: Geochemical Parameters in Groundwater (2010 - 2015)

Sample ID	Chemical Name	Ethane	Ethene	Methane	Dissolved Hydrogen	*Carbon Dioxide	Alkalinity	TOC	Chloride	Sulfate	Iron	Manganese	*Ferrous Iron
	Date	ug/L	ug/L	ug/L	nM	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-10B	10/4/2011	NA	NA	NA	NA	NA	NA	NA	11.4	NA	NA	NA	NA
MW-10B	11/6/2012	NA	NA	NA	NA	NA	NA	NA	13	NA	NA	NA	NA
MW-10B	10/22/2013	NA	NA	NA	NA	NA	NA	NA	14.4	NA	NA	NA	NA
MW-10B	11/11/2014	NA	NA	NA	NA	NA	NA	NA	12.2	NA	NA	NA	NA
MW-10B	12/29/2015	NA	NA	NA	NA	NA	NA	NA	9.4	NA	NA	NA	NA
MW-10D	10/11/2010	NA	NA	NA	NA	NA	NA	NA	18.4	NA	NA	NA	NA
MW-10D	10/4/2011	NA	NA	NA	NA	NA	NA	NA	12.1	NA	NA	NA	NA
MW-10D	11/6/2012	NA	NA	NA	NA	NA	NA	NA	11.5	NA	NA	NA	NA
MW-10D	10/22/2013	NA	NA	NA	NA	NA	NA	NA	14.4	NA	NA	NA	NA
MW-10D	11/11/2014	NA	NA	NA	NA	NA	NA	NA	13.6	NA	NA	NA	NA
MW-10D	12/29/2015	NA	NA	NA	NA	NA	NA	NA	12.1	NA	NA	NA	NA
MW-16D	10/11/2010	NA	NA	NA	NA	NA	NA	13	NA	NA	NA	NA	NA
MW-16D	10/4/2011	NA	NA	NA	NA	NA	NA	1.9	NA	NA	NA	NA	NA

Notes:
ug/L - micrograms per liter
mg/L - milligrams per liter
nM - nanoMoles per liter
TOC - total organic carbon
NA - not analyzed
cells/mL - cells per milliliter
*Ferrous iron and carbon dioxide measurements were analyzed using a HACH field Colorimeter.

APPENDIX A
STANDARD OPERATING PROCEDURES



CSM SOP 02
Drilling, Installation and Development of Groundwater Wells
Version 1.0
1 October 2013

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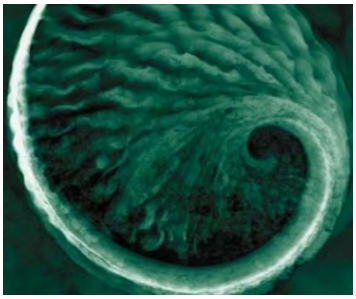

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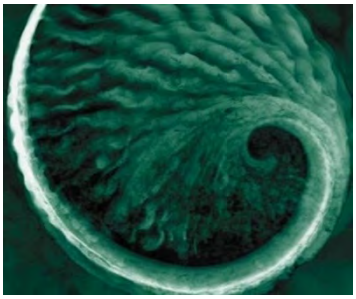
1 General Information



1.1 PURPOSE AND OBJECTIVES

The purpose of monitoring well installation is to enable gauging and groundwater sample collection for the purpose of measuring fluid levels and characterizing aquifer chemistry. The advancement of the monitoring well borehole enables observation of geological conditions and soil sample collection, both of which are covered under separate Standard Operating Procedures (SOPs).

The objective of the SOP is to provide procedures, methods and considerations to be used and observed by field personnel when designing and installing permanent and temporary groundwater monitoring wells to be used for collection of fluid level data and groundwater samples. This SOP is issued for global use; however, industry standards, equipment availability and regulatory requirements may vary regionally.

This series of SOPs was developed by senior CSM practitioners across ERM to provide our staff with a means of applying "best practice" to completion of tasks commonly performed during site investigation and other site management activities. Although referred to as "operating procedures," the procedures may not be implementable in their entirety on every project or every location. All CSM practitioners are, therefore, responsible for identifying instances where region-specific or client-specific procedures, guidance and/or regulations may supersede ERM's internal SOPs and complying with the local requirements.

Should field conditions be encountered or project requirements make a procedure(s) described in this SOP inappropriate, inadequate or impractical then an alternative procedure(s) will be agreed upon by the project team and the client as appropriate. The agreed-upon procedure should be documented for project files (e.g., within the field logbook), along with a description of the circumstances requiring its use.

1.2 HEALTH AND SAFETY

Standard operating procedures are designed to provide technical guidance for conducting work associated with Contaminated Site Management (CSM) and do not provide detailed or comprehensive guidance related to health and safety nor do they represent guidance on safe work procedures for the tasks described. Where considered,

appropriate tips related to health and safety issues associated with specific tasks may be included within technical descriptions for information's sake only.

Health and safety aspects of all projects and project tasks should be assessed and planned using ERM's established Health and Safety planning procedures, including the WARN system. Drilling and other subsurface intrusive work presents specific hazards and proper safety precautions must be observed performing any subsurface work. These hazards, as well as those associated with constructing and installing monitoring wells, should be addressed by a site-specific Health and Safety Plan (HASP). The safety guidelines within the HASP should be used to complement the judgment of an experienced professional.

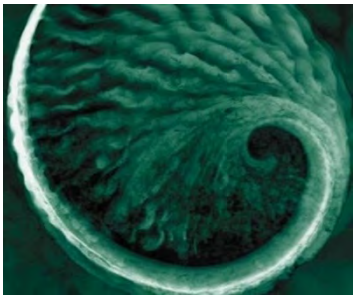
Safe Work Practices for subsurface obstruction and utility clearance (collectively, Subsurface Clearance Procedure or SSC for short) requirements must be used to prevent injury and avoid contact with subsurface structures prior to or during project-related ground disturbance activities. The SSC process has been developed to be broadly applicable across the jurisdictions in which ERM operates. However, it may sometimes be necessary to augment portions of this process by taking into account applicable legislative, regulatory or client-specific requirements which may augment ERM protocol. Compliance with such requirements is not optional. For additional ERM SSC documents, training, and related references, go to: http://minerva.erm.com/Support/HS.

1.3 ABBREVIATIONS

ASTM	American Society for Testing and Materials
CSM	Contaminated Site Management
DNAPL	Dense Non-Aqueous Phase Liquid
DTH	Down the Hole
H&S	Health and Safety
HASP	Health and Safety Plan
HAS	Hollow Stem Auger
HDPE	High Density Polyethylene
ID	Inside diameter
NAPL	Non-Aqueous Phase Liquid

OSHA	Occupational Safety and Health Association
ORP	Oxidation Reduction Potential
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
SOP	Standard Operating Procedure
SSC	Subsurface Clearance
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
WARN	Work Activity Risk Assessment

2 Monitoring Well Design Considerations



2.1 GENERAL

The design and installation of permanent monitoring wells involves drilling into various types of geologic formations that exhibit varying subsurface conditions. Designing and installing permanent monitoring wells in these geologic environments may require several different drilling methods and installation procedures. The selection of drilling methods and installation procedures should be based on field data collected during a hydrogeologic site investigation and/or a search of existing data. Each permanent monitoring well should be designed and installed to function properly throughout the duration of the monitoring program. When designing monitoring wells, the following should be considered:

- Short-and long-term objectives;
- Purpose of the well(s);
- Probable duration of the monitoring program;
- Contaminants likely to be monitored;
- Presence of shallow affected groundwater zone(s) which may impact a deeper unaffected groundwater zone;
- Surface and subsurface geologic conditions;
- Properties of the aquifer(s) to be monitored;
- Well screen placement;
- General site conditions; and
- Potential site health and safety hazards.

In designing permanent monitoring wells, the most reliable, obtainable data should be utilized. Once the data have been assembled and the well design(s) completed, a drilling method(s) must be selected.

The preferred drilling methods for installing monitoring wells are those that temporarily case the borehole during drilling and the construction of the well, e.g., hollow-stem augers (HSA) and sonic methods. However, site conditions or project criteria may not allow using these methods. When this occurs, alternate methods should be selected that will achieve the project objectives.

The following discussion of methods and procedures for designing and installing monitoring wells will cover the different aspects of selecting materials and methods, drilling boreholes, and installing monitoring devices.

2.1.1 Procedural Precautions

The following precautions should be considered when constructing and installing groundwater monitoring wells:

- Special care should be taken to prevent or limit to the degree practicable inadvertent cross-contamination between borehole locations. Equipment, tools and well materials should also be cleaned and/or decontaminated;
- In order to prevent inadvertent cross-contamination within a borehole the design of the monitoring well has to be defined based on the encountered geological profile and in accordance with the objectives of the investigation; and
- All field activities are documented in a bound logbook.

2.2 DRILLING METHODS

The following drilling methods may be used to install environmental monitoring wells or collect soil cores for logging or laboratory analysis under various subsurface conditions. While consideration will need to be given to the depth and nature of materials to be drilled through in order to install the monitoring well, the preferred drilling methods are generally those that case the hole during drilling (e.g., HSA or sonic drilling). However, other methods may be used where specific subsurface or project criteria dictate. The following sections describe common drilling techniques used for monitoring well installation.

2.2.1 Sonic Drilling

Sonic drilling is a combination of both rotary and percussion of a core barrel, with the added effect of high frequency vibration applied to the rod/barrel assembly. The vibration is in the audible frequency range, hence the term sonic. A telescopic casing system can be used up to a maximum depth of approximately 200 feet (61m). Performance is generally good except in very hard rock, where going can be slow. Provides good performance in nearly all other strata with very rapid advancement

(probably the fastest technique available), and it is possible to get undisturbed core samples to allow for field screening and geological logging.

2.2.2 Hollow Stem Auger (HSA)

There are two auger drilling methods which can be used in unconsolidated soils and semi-consolidated (weathered rock) soils (hollow-stem augers described here, and solid stem augers described in the following section). These auger drilling methods are not applicable to drilling in competent rock.

Auger drilling methods can be employed without introducing foreign materials into the borehole such as water or drilling fluids, which helps to limit the potential for cross contamination. Reducing the risk of cross contamination is one of the most important factors to consider when selecting the appropriate drilling method(s) for a project.

This type of auger consists of a hollow, steel stem or shaft with a continuous, spiraled steel flight, welded onto the exterior. A hollow auger bit, generally with carbide teeth, disturbs soil material when rotated, whereupon the spiral flights transport the cuttings to the surface.

The hollow auger and bit facilitate collection of soil core using Shelby tubes, split spoons, or split-barrel samplers that can be driven ahead of the bit. These cores provide lithologic data that allow the geoscientist to assess top and bottom of water-bearing units and interval(s) to set the well screen.

This method is best suited in soils that have a tendency to collapse when disturbed. A monitoring well can be installed inside of hollow-stem augers with little or no concern for the caving potential of the soils. If heaving (flowing) sands are present during monitoring well installations, a drilling rig must be used that has enough power to extract the augers from the borehole without having to rotate them.

If heaving sands are known to be present prior to drilling, a bottom plug, trap door, or pilot bit assembly can be used at the bottom of the augers to keep out most of the soils and/or water that have a tendency to enter the bottom of the augers during drilling. Potable water (analyzed for contaminants of concern) may be poured into the augers during drilling to equalize pressure to limit inflow of formation materials.

If continuously collecting soil core while drilling with hollow stem augers, a sampling tool (e.g., split spoon, Shelby tube or similar) is used to collect undisturbed soil cores in advance of the auger. Following sample collection the auger is advanced and the process repeated. Where refusal of the sampling tool (or flowing sand conditions) is encountered, the drilling can continue using an internal (or reverse) auger within the auger stem, or by inserting a bottom plug in the auger string.

Alternatively, when soil sampling or logging is not required during the drilling process, a bottom plug can be used to keep soil from entering the auger string. The bottom plug is wedged into the bottom of the auger bit and is knocked out at depth with drill pipe or the weight of the casing and screen assembly. The plug material should be compatible with the screen and casing materials. The use of chemically-treated wood bottom plugs is not acceptable. The type of bottom plug, trap door, or pilot bit assembly proposed for the drilling activity should be approved by a senior field geologist and project manager prior to drilling operations.

Boreholes can be augered to depths of 150 feet (45m) or more (depending on the auger size, lithology and size of the drill rig), but generally boreholes are augered to depths less than 100 feet (30m). Note: for wells deeper than 100 feet (30m), it is important to consider whether the driller's equipment is adequate in the event flowing sands or gravel/cobbles are encountered. Augers may become permanently trapped and the boring may need to be abandoned.

2.2.3 Solid Stem Auger

This type of auger consists of a sealed hollow or solid stem or shaft with a continuous spiraled steel flight welded on the outside of the stem. An auger bit connected to the bottom disturbs soil material when rotated and the helical flights transport cuttings to the surface. This method is less desirable than HSA in that collection of undisturbed soil core samples requires removal of the entire auger string. Lithologic logging generally involves describing cuttings that travel up the auger flights making accurate depiction of lithology difficult at best. To collect a soil core, the boring is advanced to the desired depth; the entire auger string is then removed to gain access to the bottom of the borehole. The core is then collected using a Shelby tube or split spoon. Note, if drilling through a shallow contaminated zone to a deeper unaffected zone, consideration should be made to setting surface or isolation casing to reduce the potential to carry affected materials downward (which may result from repeated trips of the augers into/out of the borehole).

This auger method is used in cohesive and semi-cohesive soils that do not have a tendency to collapse when disturbed. Caution should be taken when examining core samples to assess whether the upper portions may be slough from shallower portions of the borehole. Boreholes can be augered to depths of 200 feet (60m) or more (depending on the auger size, lithology, and size of the drill rig), but generally boreholes are augered to depths less than 100 feet (30 m).

2.2.4 Rotary Methods

These methods consist of a drill pipe or drill stem coupled to a drilling bit that rotates and cuts through the soils. The cuttings produced from the rotation of the drilling bit are

transported to the surface by drilling fluids, which generally consist of water, drilling mud, or air. The water, drilling mud, or air are forced down through the drill pipe, and out through the bottom of the drilling bit. The cuttings are then lifted to the surface between the borehole wall and the drill pipe, (or within a concentric drill stem in reverse rotary). With the exception of air rotary, the drilling fluid provides a hydrostatic pressure that reduces or prevents borehole collapse. When considering any rotary drilling method, there are several points that must be considered:

- Will the drilling fluid potentially cause cross-contamination of units if a shallow affected zone is encountered?
- Will the drilling fluid introduce contaminants to the subsurface (e.g., trace amounts of halogenated compounds in municipal water used as the drilling fluid or to mix the drilling mud)?
- Will soil samples be collected? Air rotary methods often heat rock to more than 100 degrees Fahrenheit (38 degrees Celsius) and may result in loss of volatile and semi-volatile constituents.

If shallow contaminated intervals are known to be present and the target water-bearing unit is not impacted or is not known to be affected, installation of surface casing across the contaminated interval should be considered. In any of the rotary methods, care must be exercised in the selection and use of compounds to prevent galling of drill stem threads.

Air Rotary

Air rotary drilling uses compressed air as a "drilling fluid" to entrain cuttings and carry them to the surface. High air velocities, and consequently large air volumes and compressor horsepower are required. "Down-the-hole" (DTH) percussion hammers driven by the air stream can be used with this method to penetrate bedrock materials. Where a casing through unconsolidated material is required to prevent borehole collapse, it can be driven in conjunction with advancement of the drill stem.

When using air rotary drilling in any zone of potential contamination, the cuttings exiting the borehole must be controlled. This can be done using the dual-tube reverse circulation method where cuttings are carried to the surface inside dual-wall drill pipe and separated with a cyclone separator. An air diverter with hose or pipe carrying cuttings to a waste container is also an acceptable alternative. Allowing cuttings to blow uncontrolled from the borehole is not acceptable. Another consideration when selecting air rotary methods is that when drilling through strata with organic contamination displacement of vapors can occur and cause build up at the surface resulting in aesthetic issues, potential exceedance of health screening levels in the work zone, or potential

explosive environments. These possibilities should be considered as part of the health and safety planning for a project.

When using air rotary, the issue of contaminants being introduced into the borehole by the air stream must be addressed. Screw compressor systems should have a coalescing filter system in good working order to capture excess entrained compressor oils. The lubricant to be used with DTH hammers as well as thread lubricants to be used on drill stem should be evaluated for their potential impact on analytical samples.

Mud Rotary

Mud rotary utilizes a drilling fluid consisting of water mixed with bentonite mud. The mud serves to circulate soil cuttings to the surface and cool the drill bit. The bentonite mud also coats shallow permeable zones that would otherwise allow infiltration of drilling fluids.

Mud rotary is sometimes considered a less desirable drilling method because contamination can be introduced into the borehole from the constituents in the drilling mud, cross-contamination can occur along the borehole column, and it is difficult to remove the drilling mud from the borehole after drilling and during well development. The drilling mud can also circulate affected material from a shallow contaminated zone to an uncontaminated zones. Note: if drilling through a shallow contaminated zone to a deeper unaffected zone, consideration should be made to setting surface or isolation casing to reduce the potential to carry affected materials downward. If isolation casing is used, the drilling mud should be flushed from the borehole and replaced with fresh mud before advancing the borehole deeper.

If mud rotary is selected, only potable water and pure (no additives) bentonite drilling mud should be used. Additional time for well development should be budgeted relative to other drilling methods. All materials used should have adequate documentation as to manufacturer's recommendations and product constituents. QA/QC samples of drilling mud and potable water should be sampled at a point of discharge from the circulation system to assure that pumps and piping systems are not contributing cross-contamination from previous use.

2.2.5 Other Methods

Less common methods are available for well installation including the cable-tool method, jetting method, and boring (bucket auger) method; and in some countries, may be the only technology available. Prior to using these methods, consult with a senior geologist regarding the considerations for use of these drilling methods and whether they can be used to safely meet a project's data quality objectives.

2.3 BOREHOLE AND WELL CONSTRUCTION

2.3.1 Annular Space

The borehole or hollow stem auger should be of sufficient diameter so that well construction can proceed without major difficulties. For open boreholes, the annular space should be at least 2 inches (5 cm) to allow the uniform deposition of well materials around the screen and riser, and to allow the passage of tremie pipes and well materials without unduly disturbing the borehole wall. For example, a 2 inch (5 cm) nominal diameter casing would typically require a 6 inch (15 cm) diameter (ID) borehole. However, local requirements governing the diameter of boreholes relative to a well's casing should be considered when preparing a work scope.

When drilling with HSA, the ID of the augers should be of sufficient size to allow the passage of a tremie pipe used for well grout placement, as well as free passage of filter sands or bentonite pellets dropped through the auger or casing. While there may be local regulation governing the diameters of boreholes relative to a well's casing, in general, using hollow stem augers with an internal diameter which is 2 to 4-inches (5 to 10 cm) larger than the nominal well casing diameter (e.g., using 4-1/4" (11 cm) ID augers for placement of 2" (5 cm) diameter wells) is recommended. Larger augers should be used where installation difficulties due to geologic conditions or greater depths are anticipated, e.g., larger augers might be required to place a bentonite pellet seal through a long water column.

If annular space is limited due to available equipment, pre-pack well screen may be utilized to assure an adequate filter pack around the well screen.

2.3.2 Over-drilling the Borehole

Sometimes it is necessary to over-drill the borehole in anticipation of material entering the augers during center bit removal or knocking out of the bottom plug. Normally, 3 to 5 feet (1 to 1.5m) is sufficient for over-drilling. The borehole can also be over-drilled to allow for an extra space or a "sump" area below the well screen. This "sump" area provides a space to attach a 2 to 3-foot (nominally 50-100 cm) section of well casing to the bottom of the well screen. The extra space or "sump" below the well screen serves as a catch basin or storage area for sediment that flows into the well and drops out of suspension. These "sumps" are added to the well screens when the wells are screened in aquifers that are naturally turbid and will not yield clear formation water (free of visible sediment) even after extensive development. The sediment can then be periodically pumped out of the "sump" preventing the well screen from clogging or "silting up."

If the borehole is inadvertently drilled deeper than desired, it can be backfilled to the design depth with bentonite pellets/chips, or the filter sand that is to be used for the filter pack. If using filter sand, however, care must be taken to consider whether installation of the well may create a potential for cross contamination to deeper water bearing units. If a potential exists, then bentonite should be used to backfill the borehole or the borehole should be abandoned and a new borehole advanced to the target depth for monitoring well installation.

Caution: over-drilling should not be done in areas where dense non-aqueous phase liquids (DNAPL) are anticipated.

Over-drilling can open a pathway for vertical migration of DNAPL.

2.3.3 Well Installation

The bore hole should be bored, drilled, or augered as close to vertical as possible.

Slanted boreholes are less desirable and should be noted in the boring logs and final construction logs and are generally only constructed to access strata beneath structures where vertical wells cannot be constructed. The depth and volume of the borehole, including the over-drilling if applicable, should have been calculated and the appropriate materials procured prior to initiating drilling activities.

The well casings should be secured to the well screen by flush-jointed threads, placed into the borehole, and plumbed by the use of centralizers and/or a plumb bob and level. If threaded well casings are not available then couplings can be used to secure the joints of well pipe, however, the use of chemical solvents or glues to join the pipe joints is prohibited. To secure the casing sections together, stainless steel screws may be used at the couplings.

Centralizers are highly recommended for wells deeper than 50 feet (approximately 15 meters) spaced approximately one per 20 feet (7 meters) above the well screen (not within the well screen interval however) to help maintain a straight well.

Another method of placing the well screen and casings into the borehole and plumbing them at the same time is to suspend the string of well screen and casings in the borehole by means of a hoist on the drill rig. This wireline method is especially useful if the borehole is deep and a long string of well screen and casings have to be set and plumbed and centralizers are not available.

No lubricating oils or grease should be used on casing threads. No glue of any type should be used to secure casing joints. Teflon “O” rings can also be used to help provide a tight fit and reduce the potential for leakage; however, “O” rings made of other

materials are not acceptable if the well is going to be sampled for organic compound analyses.

As mentioned, it is industry practice in some regions to place filter pack material under the bottom of the well to provide a firm base (nominally up to 6 inches (15 cm)) depending upon the geology and the nature of the contaminants (e.g., may not be applicable if a DNAPL is suspected). This should be discussed and agreed among the project team as part of the work scope development.

When installing the well screen and casings through hollow-stem augers, the augers should be slowly extracted as the filter pack, bentonite pellet seal, and grout are tremied and/or poured into place. The gradual extraction of the augers will allow the materials being placed in the augers to flow out of the bottom of the augers into the borehole. If the augers are not gradually extracted, the materials (sand, pellets, etc.) will accumulate at the bottom of the augers causing potential bridging problems.

The filter pack material should be placed around the well screen to the designated depth. With cased drilling methods, the sand should be poured into the casing or augers until the lower portion is filled. The casing or augers are then withdrawn, allowing the sand to flow into the evacuated space. With hollow stem augers, sand should always fill the augers 6-12 inches (15-30 cm), maintained by pouring the sand while checking the level with a weighted tag line. The filter pack sand in open boreholes should be installed by tremie methods, using water to wash the sand through the pipe to the point of placement.

After the filter pack has been installed, the bentonite seal (if used) should be placed directly on top of the filter pack. After the bentonite seal has hydrated for the time specified by the manufacturer, the grout should then be pumped by the tremie method (preferably using side vents or side discharge) into the annular space around the casings.

After the surface pad and protective casing are installed, bumper guards should be installed (if needed) as described above. For above-grade well completions, consider painting the outer protective casing with a highly visible paint. The wells (either above-grade or those completed at grade level) should be permanently marked with the well number and other information as needed or required by the client (e.g., date installed, site name, elevation, etc.) either on the cover or an appropriate place that will not be easily damaged and/or vandalized. The well casing should be topped with a well plug and the protective casing surrounding the well secured. For wells completed at ground level, expandable well plugs should be used to cap the well riser to prevent infiltration of rainwater that might enter the flush-mount cover and accumulate within the annular space adjacent to the top of the well.

2.3.4 Double-Cased Wells

Double-cased wells should be constructed when there is reason to believe that interconnection of two aquifers by well construction may cause cross-contamination or when flowing sands make it difficult to install monitoring wells using conventional methods. A contaminated shallow groundwater zone may also be cased off so that drilling may continue below the casing with reduced risk of cross contamination. A pilot borehole should be bored through the overburden and/or the contaminated zone into the clay confining layer or bedrock. An outer casing (sometimes called surface or pilot casings) should then be placed into the borehole and sealed with grout. The borehole and outer casing should extend into an unconsolidated confining unit (e.g., a clay soil horizon) a minimum of two feet (nominally 50 cm); however, if drilling into a consolidated confining unit (e.g., competent bedrock) greater depths may be required. The final depths should be approved by the Project Manager in consultation with a senior project geologist. The size of the outer casing should be of sufficient inside diameter to contain the inner casing, and the 2-inch (5 cm) minimum annular space. In addition, the borehole should be of sufficient size to contain the outer casing and the 2-inch (5 cm) minimum outer annular space, if applicable.

The outer casing should be sealed in place by introducing grout into the annular space between the outer casing and the borehole wall, ideally using a tremie pipe to fill from the bottom of the annular space up, or by pressure grouting methods (i.e., placing the grout within the casing and displacing it through the bottom of the casing and up through the adjacent annular space). A minimum of 24 hours should be allowed for the grout plug (seal) to cure before attempting to drill through it. The grout mixture should either be neat Type I Portland cement or a cement/bentonite grout mixture. Other grout mixtures may be allowable or recommended under local regulation.

The use of a pure bentonite grout for a bottom plug or seal is not acceptable, because the bentonite grout cures to a gel-like consistency, and is not rigid enough to withstand the stresses of drilling.

When drilling through the seal, care should be taken to avoid cracking, shattering, or washing out the seal. If caving conditions exist so that the outer casing cannot be sufficiently sealed by grouting, the outer casing should be driven into place and a grout seal placed in the bottom of the casing.

2.3.5 Bedrock Wells

The installation of monitoring wells into bedrock can be accomplished in two ways:

- The first method is to drill or bore a pilot borehole through the soil overburden into the bedrock. An outer casing is then installed into the borehole by setting it into the bedrock, and grouting it into place as described in the previous section. After the grout has set, the borehole can then be advanced through the grout seal into the bedrock. Roller cone bits are used in soft bedrock, but extreme caution should be taken when using a roller cone bit to advance through the grout seal in the bottom of the borehole because excessive water and "down" pressure can cause cracking, eroding (washing), and/or shattering of the seal. Low volume air hammers may be used to advance the borehole, but they have a tendency to shatter the seal because of the hammering action. If the structural integrity of the grout seal is in question, a pressure test can be utilized to check for leaks. If the seal leaks (detected by pressure testing) and/ or the core is cracked or shattered, or if no core is recovered because of washing, excessive down pressure, etc., the seal is not acceptable. The concern over the structural integrity of the grout seal applies to all double cased wells.

- Any proposed method of double casing and/or seal testing will be evaluated on its own merits, and will have to be approved by a senior field geologist before and during drilling activities, if applicable.

- Another limitation to the open rock well is that the entire bedrock interval serves as the monitoring zone. In this situation, it is very difficult or even impossible to monitor a specific zone, because the contaminants being monitored could be diluted to the extent of being non- detectable. However, some site conditions might exist, especially in cavernous limestone areas (karst topography) or in areas of highly fractured bedrock, where the installation of the filter pack and its structural integrity are questionable. Under these conditions, the design of open bedrock wells may be warranted.

- The second method of installing a monitoring well into bedrock is to install the outer surface casing and drill the borehole (by an approved method) into bedrock, and then install an inner casing and well screen with the filter pack, bentonite seal, and annular grout. The well is completed with a surface protective casing and concrete pad. This well installation method gives the flexibility of isolating the monitoring zone(s) and reducing the potential for inter-aquifer flow. In addition, it gives structural integrity to the well, especially in unstable areas (steeply dipping shale, etc.) where the bedrock has a tendency to shift or move when disturbed. Omitting the filter pack around the well screen is a general practice in some open rock borehole installations, especially in drinking water and irrigation wells. However, without the filter pack to protect the screened interval, sediment particles

from the well installation and/or from the monitoring zone could clog the well screen and/or fill the screened portion of the well rendering it inoperable. In addition, the filter pack serves as a barrier between the bentonite seal and the screened interval. The use of a pre-packed screen (if available locally) could be considered in these instances where installation of a filter pack by traditional means is not practicable. Rubber inflatable packers have been used to place the bentonite seal when the filter pack is omitted, but the packers have to remain in the well permanently and, over a period, will decompose and possibly could result in a preferential pathway for groundwater migration along the borehole.

2.4 WELL CONSTRUCTION MATERIALS AND TECHNIQUES

Well construction materials are chosen based on the goals and objectives of the proposed monitoring program and the geologic conditions at the site(s). In this section, the different types of available materials will be discussed.

2.4.1 Well Screen and Casing Materials

When selecting the materials for well construction, the prime concern should be to select materials that will not contribute foreign constituents, or remove contaminants of concern from the ground water. PVC materials are acceptable for monitoring identified organic compounds in a soluble aqueous phase where no incompatibilities are present. EPA document EPA/540/S-95/503, Nonaqueous Phase Liquids Compatibility with Materials Used in Well Construction, Sampling, and Remediation (http://www.epa.gov/ada/download/issue/napl.pdf) should be used for guidance in this area and in the use of PVC with non-aqueous phase liquids (NAPLs). Well screen and casing materials generally used in monitoring well construction include:

- Rigid PVC (e.g., meeting a locally recognized standard such as NSF Standard 14 (type WC));
- Stainless Steel (e.g., Grade 304 or 316); or
- Other materials (e.g., fiberglass or HDPE where applicable and based on local regulation and industry practice).

The diameter of well casings for groundwater monitoring may be regulated. The diameter is often dictated by the intended current or anticipated future use of the well (e.g., if it is anticipated that a monitor well may be converted to a recovery well, larger diameter casing and screen may be selected to facilitate installation of pumps and other ancillary equipment). However, in the absence of local regulation, the general nominal casing size for most permanent monitoring wells will be 2-inch (5 cm).

The length of well screens in permanent monitoring wells should be long enough to effectively monitor the interval or zone of interest but is generally limited to 10 feet (3m). Well screens designed for long term monitoring purposes should normally not be less than 5 feet (1.5m) in length. Well screens less than 5 feet (1.5m) long are generally only used in temporary monitoring wells where groundwater samples are collected for screening purposes.

2.4.2 Well Screen Design

The majority of monitoring wells are to be installed in the water table aquifer that consists of silts, clays, and sands in various combinations. These shallow aquifers are not generally characteristic of aquifers used for drinking water.

In formations consisting primarily of fines (silts and clays), the procedures for water well screen design may result in requirements for filter packs and screen slot sizes that are not available. In most of these cases, the use of 0.010-inch (0.3 mm) screen slots will be acceptable practice. For formations comprised mainly of coarse-grained materials, 0.020-inch (0.6 mm) screen slots can be utilized. The grain size of the filter pack media needs to be selected based on the well screen slot size.

The local geology can dictate the need for different screen and filter pack design. Please consult with the project management team prior to implementation in the field.

2.4.3 Filter Pack Placement

The filter pack materials should consist of clean, rounded to well-rounded, hard, insoluble particles of siliceous composition. Filter pack materials should be new material from a commercial supplier material and of a known composition and grain-size. However, all data and design proposals will be evaluated and approved by a senior staff geologist before field activities begin. It is not considered best practice to use cuttings from the borehole as filter pack materials or for backfilling the annular space above the screened interval.

The filter pack material should be paced around the well's screened interval and sump (if included in the well design). In some regions, it is industry practice to place filter pack material under the bottom of the well to provide a firm base (nominally up to 6-inches (15 cm)) depending upon the geology and the nature of the contaminants (e.g., may not be applicable if a DNAPL is suspected). This should be discussed and agreed among the project team as part of the work scope development.

In addition, the filter pack should extend a minimum of 2 feet (nominally 50 cm) above the top of the well screen to allow for settling and to isolate the screened interval from the grouting material (actual thickness may need adjustment depending on the depth to the top of the well screen).

In open boreholes, the filter pack should be placed by the tremie or positive displacement method. Placing the filter pack by pouring the sand into an open drill stem is acceptable with the use hollow stem augers, and other methods where the borehole is temporarily cased down to the filter pack.

The volume of filter pack needed to fill the annulus should be calculated prior to installation. This will help the field personnel determine if bridging has occurred if significantly less sand is needed than estimated. If more sand is needed than anticipated, it suggests significant washouts have occurred during drilling.

Size of filter pack material should also be considered. If the water-bearing unit is silt, a coarse-grained sand pack may be ineffective at keeping the formation from silting up the well. Placement of a finer-grained filter pack material (e.g., finer-grained sand) is also recommended for us in the top portion of the filter pack. This will help prevent infiltration of the overlying bentonite plug into the filter pack.

2.4.4 Filter Pack Seal – Bentonite Pellet Seal (Plug)

Bentonite pellets consist of ground, dried bentonite compacted into pellets or chips available in several sizes. Bentonite pellets/chips are compressed to a bulk density of 70-80 lbs/ft3 (860 kg/m3) and hydrate to a 30 percent min. solids material.

The purpose of placing a bentonite seal is to isolate the underlying filter pack from shallower groundwater bearing zones and from the overlying grout seal placed in the borehole. Based on local availability, this bentonite seal can consist of pellets, chips, or of a bentonite slurry prepared using bentonite powder and potable water.

Since bentonite pellets/chips begin hydrating rapidly, they can be very difficult to place properly. They are generally placed by pouring slowly into open boreholes, hollow stem augers or sonic drill pipe. In some cases, pellets are placed by tremie pipe and flushed into place with potable water. A tamper can be used to ensure that the material is being placed properly and to break up any pellet bridging that occurs. Bentonite slurry can be applied via tremie pipe, however, care must be taken to avoid slurry intrusion into the underlying filter pack (i.e., use a side-discharge and/or pump at low flow rates).

Bentonite seals should be designed for a minimum of 6-inch (15 cm) thickness of dry pellets above the filter pack, and generally an overall bentonite seal (i.e., combination of bentonite pellets, chips or grout) of 2-feet (nominally 50 cm) is desirable. Hydration may extend the height of the seal. Where neat cement grout is to be used above the bentonite seal, the pellets should be hydrated for eight hours, or the manufacturers' recommended hydration time, whichever is greater.

Where the water table is temporarily below the pellet seal, potable (or higher quality) water should be added repeatedly to hydrate the pellets prior to grouting.

2.4.5 Grouting the Annular Space

The annular space between the casing and the borehole wall should be filled with either a 30% solids bentonite grout, a neat cement grout, or a cement/bentonite grout. Each type of grout selected should be evaluated as to its intended use and integrity. Bentonite grouts are preferred unless the application dictates the use of another material.

Bentonite grout shall be a 30 percent solids pure bentonite grout. Drilling mud is not acceptable for grouting. The grout should be placed into the borehole, by the tremie method, from the top of the bentonite seal to within 2 feet (nominally 50 cm) of the ground surface or below the frost line, whichever is the greater depth. The bentonite pellet seal or filter pack should not be disturbed during grout placement, preferably by using a side discharge port on the tremie tube, or by maintaining clearance between the bottom of the tremie tube and the bentonite seal or filter pack. It is considered best practice to allow the grout to set for a minimum of 24 hours before the concrete surface pad is installed and this may be considered during the field program design.

The preferred method of achieving proper solids content is by measurement of ingredients per the manufacturer's specifications during mixing. However, some jurisdictions may require that the solids content be measured by using a grout balance after mixing. Bentonite grouts generally should have a minimum density of 10 lbs/gal (approximately 1 kg/L) to ensure proper gelling and low permeability. Evidence that the grout was mixed per the manufacturer's specifications should be documented in the field notes.

Cement grouts are generally dictated where a high level of dissolved solids or a particular dissolved constituent would prevent proper gelling of a bentonite grout or in the event that the grout is incompatible with shallow (free-phase) contaminants. Neat cement grouts (cement without additives) should be mixed using 6 gallons (23L) of water per 94-lb (43 kg) bag of Type 1 Portland cement to a density of 15 lbs/gal (approximately 2 kg/L). The addition of bentonite (5 to 10 percent) to the cement grout can be used to delay the "setting" time and reduce shrinkage. However, this may not be needed in all applications. The specific mixtures and other types of cement and/or grout

proposed should be evaluated on a case-by-case basis by a senior field geologist and someone experienced in well grouting procedures.

Note: curing cement grout generates heat that (if sufficient) may damage PVC well casing and/or affect the concentration of VOCs in groundwater adjacent to the well. For wells with grout sections greater than 30 feet (10 meters) and water levels that are below the level of the grout seal, consider installing grout in lifts of approximately 20 feet (7 meters) and allowing time between the lifts for heat to dissipate. Alternatively, stainless steel well casing could be considered over PVC.

2.4.6 Above Ground Riser Pipe and Outer Casing

Outer protective casing is installed to protect the well from damage but also to reduce the potential for tampering. The well casing, when installed and grouted, should extend above the ground surface a minimum of 2.5 feet (75 cm), or to a sufficient height based on client or site requirements. A vent hole should be drilled into the top of the well casing cap to permit pressure equalization, if applicable. Generally, outer protective casings used over 2-inch (5 cm) well casings are at least 4 inches by 4 inches (10 cm by 10 cm) by 5 feet (1.5 m) long. Similarly, protective casings used over 4-inch (10 cm) well casings are 6 inches by 6 inches (15 cm by 15 cm) and 5 feet (1.5 m) long. Other types of protective casing including those constructed of pipe are also acceptable.

All protective casings should have sufficient clearance around the inner well casings, so that the outer protective casings will not encounter the inner well casings after installation. The protective casings should have a weep hole to allow drainage of accumulated rain or spilled purge water. The weep hole should be approximately 1/4-inch (0.5 cm) in diameter and drilled into the protective casings just above the top of the concrete surface pad to prevent water from standing inside of the protective casings. Protective casings made of aluminum or other soft metals are less desirable than steel casings because they generally are not strong enough to resist tampering.

Aluminum protective casing may be used in very corrosive environments such as coastal areas.

Prior to installing the protective casing, the bentonite grout in the borehole annulus is excavated to a depth of approximately two feet (nominally 50 cm). The protective casing is installed by pouring concrete into the borehole on top of the grout. The protective casing is then pushed into the wet concrete and borehole a minimum of 2 feet (nominally 50cm). Extra concrete may be needed to fill the inside of the protective casing so that the level of the concrete inside of the protective casing is at or above the level of the surface pad. In areas where frost heave of the surface pad is possible, the protective casing should first be pressed into the top surface of the bentonite grout seal and concrete poured around the protective casing.

A granular material such as sand or gravel can then be used to fill the space between the riser and protective casing. The use of granular material instead of concrete between the protective casing and riser will also facilitate the future conversion of the well to a flush-mount completion, if required.

The protective casing should extend above the ground surface to a height so that the top of the inner well casing is exposed when the protective casing is opened. At each site, all locks on the outer protective casings should preferably be keyed alike.

2.4.7 Concrete Surface Pad

A concrete surface pad should be installed around each well at the same time as the outer protective casing is being installed. The surface pad should be formed around the well casing. Concrete should be placed into the pad forms and into the borehole (on top of the grout) in one operation making a contiguous unit.

The size of the concrete pad is sometimes dictated by local regulations. These regulations should be reviewed prior to mobilization in order to have adequate materials onsite. The size of the concrete surface pad is generally dependent on the well casing size. In the absence of specific regulation regarding well pads dimensions, a minimum pad dimension extending 2 feet (nominally 50 cm) in all directions from the outside of the well casing should be considered. The concrete surface pad can be either square or round. The finished pad should be slightly sloped so that drainage will flow away from the protective casing and off the pad (without creating a nuisance condition or trip hazard). When setting a well at grade in a concrete or other paved area, care must be taken to match the concrete surface pad to surrounding ground level. In unpaved areas, the ground surface should be made suitable for the placing of concrete. Rebar or mesh can be used within the concrete pad to help prevent them from failing, for instance, under the weight of mowing equipment or vehicle traffic.

If the monitoring wells are installed in a high traffic area such as a parking lot, in a residential yard, or along the side of a road it may be desirable to finish the wells at ground surface and install watertight flush-mounted traffic and/or manhole covers. Flush mounted traffic and manhole covers are designed to extend from the ground surface down into the concrete plug around the well casing. Although flush mounted covers may vary in design, they should have seals that make the unit watertight when closed and secured. The flush-mounted covers should be installed slightly above grade to reduce the potential for standing water over the well and promote runoff. Locking expandable well plugs should be used to cap the well riser to prevent infiltration of rainwater or other fluids that might enter the flush-mount cover and accumulate within the annular space adjacent to the top of the well.

2.4.8 Surface Protection – Bumper Guards (Bollards)

If monitoring wells with above-grade completions require protection from traffic of other hazards, the installation of bollards or bumper guards consisting of partially-buried steel pipes should be considered. The dimensions of such protective posts can be sized to meet site-specific conditions, however, these generally consist of steel pipes approximately 3 to 4 inches (8 to 10 cm) in diameter and buried approximately 40 percent of their total length (e.g., assuming a total length of 5 feet (1.5 m), the protective posts would nominally be installed to a depth of 2 feet (nominally 50 cm) below the ground surface and set in a concrete footing). Concrete may also be placed into the steel pipe to provide additional strength. Substantial steel rails and/or other steel materials can be used in place of steel pipe. Welding bars between the bumper guards can provide additional strength and protection in high traffic areas, however, keep in mind the need to access the well for sampling. It is also recommended that the bumper guards are painted yellow to increase visibility to traffic. Note: the size and length of bumper guards and even what color they should be painted may be dictated by the facility within which the wells are installed. It is prudent to check with a knowledgeable site contact prior to mobilization to determine the specific facility requirements.

2.5 SAFETY PROCEDURES FOR DRILLING ACTIVITIES

A site health and safety plan should be developed for approval by the Partner and other locally-required signatories (e.g., division H&S officer, client H&S officer) prior to any drilling activities, and should be followed during all drilling activities.

The driller or designated safety person should be responsible for the safety of the drilling team performing the drilling activities. All personnel conducting drilling activities should be qualified in proper drilling and safety procedures. Before any drilling activity is initiated, utilities should be marked or cleared by the appropriate state or municipal utility protection organization.

Although not all-encompassing the following minimum safety requirements should be adhered to while performing drilling activities:

- All drilling personnel should wear safety hats, safety glasses, and steel toed boots. Earplugs or other adequate hearing protection (e.g., ear muffs) are required.
- Appropriate work gloves (cotton, leather, etc.) should be worn when working around or while handling drilling equipment.
- The drill rig should be equipped with a kill switch that will immediately shut down the rig when activated. All personnel should know where the kill switch(s) is located in case of emergency.

- All personnel should stay clear of the drill rods or augers while in motion, and should not grab or attempt to attach a tool to the drill rods or augers until they have completely stopped rotating. Rod wipers, rather than gloves or bare hands should be used to remove mud, or other material, from drill stem as it is withdrawn from the borehole.

- Do not hold drill rods or any part of the safety hammer assembly while taking standard penetration tests or while the hammer is being operated.

- Do not lean against the drill rig or place hands on or near moving parts while it is operating.

- Keep the drilling area clear of any excess debris, tools, or drilling equipment.

- The driller will direct all drilling activities. No work on the rig or work on the drill site will be conducted outside of the driller's direction. Overall drill site activities will be in consultation with the site geologist.

- Each drill rig will have a first-aid kit and a fire extinguisher located on the rig in a location quickly accessible for emergencies. All drilling personnel will be familiarized with their location.

- Work clothes will be firm fitting, but comfortable and free of straps, loose ends, strings etc., that might catch on some moving part of the drill rig.

- Rings, watches, or other jewelry will not be worn while working around the drill rig.

- Drilling locations should be assessed for the presence of underground or overhead utilities in accordance with ERM's SSC procedures.

- The drill rig should not be operated within the minimum distance of overhead electrical power lines and/or buried utilities that might cause a safety hazard (ERM's minimum setback distances are defined in the subsurface clearance procedure, however, client or local regulatory requirements should also be applied). In addition, the drill rig should not be operated while there is lightening in the area of the drilling site. If an electrical storm moves in during drilling activities, if possible, the derrick will be lowered and the area will be vacated until it is safe to return; otherwise vacate the area immediately.

2.6 WELL DEVELOPMENT

The main purpose of developing new monitoring wells is to remove the fine-grained materials or drilling fluids introduced into the well during installation, and to improve hydraulic connectivity between the immediate vicinity of the well and the surrounding formation (Striggow, 2013). Well development methods vary with the physical characteristics of the geologic formation in which the monitoring well is screened, the construction details of the well, the drilling method used during the construction of the borehole in which the well is installed and the quality of the water (ASTM D5521-05).

A new monitoring well should ideally be developed until the column of water in the well is free of visible sediment, or at a minimum until further improvement in water clarity is not observed with continued groundwater removal. Development of a well should occur as soon as it is practical after installation, allowing for sufficient time for the annular materials and the surface completion to cure. Depending on the materials used this may require up to 48 hours. Note that wells screened in fine grained formations or installed using wet rotary methods may require higher volumes of water to be removed (say up to 10 well volumes or more) for groundwater clarity to improve. Ultimately, the level of development should be decided by the project team in consideration of local regulation and industry practice, client technical specifications (if applicable) and/or project-specific data quality objectives.

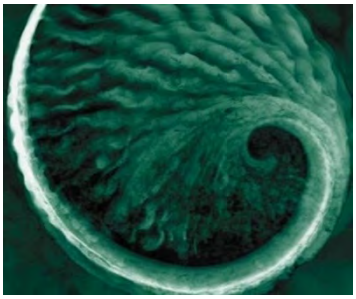
Well development generally involves surging using a purpose-built surge block or (if a surge block is not available) a bailer rapidly raised and lowered to induce water flow into and out of the well screen (to flush fine particles/mud from the filter pack and screen and into suspension where they can be removed from the well). Groundwater is then removed (ideally via pumping) at a rate which will remove the suspended fine-grained material and draw water through the screen flushing additional fine-grained material into the well. Peristaltic pumps or other low-flow sampling pumps are not appropriate for well development because they do not induce sufficient flow to flush out the fine material from the filter pack and adjacent formation and pull it into the well. It may be necessary to complete multiple sequences of surging followed by pumping in order to improve water clarity.

It is considered best practice to monitor groundwater quality parameters (e.g., temperature, conductivity, ORP and pH, if available) and to make an assessment of water clarity (either visually or using a turbidity meter where available) during purging activities. The development process should continue until groundwater quality parameters and groundwater clarity (turbidity) stabilizes to a point consistent with local regulation or best practice, or until a project-specific endpoint is reached. All field measurements, observations and decisions regarding the cessation of well development should be documented in the field logbook.

Note that volume based endpoints (e.g., removal of 10 well volumes) may not lead to improved hydraulic connection with the surrounding formation or improvement in the clarity of groundwater extracted from the well. The quality of development is generally a function of the effectiveness of the surging action and purging to draw fine materials into the well and remove them along with the extracted groundwater.

It is considered best practice that monitoring wells are not sampled on the same day as they are developed. This allows the well to re-equilibrate with the surrounding formation and for the collection of a groundwater sample which is more representative of conditions within the surrounding formation. Well equilibration is generally a function of the hydraulic conductivity of the formation; i.e., coarse sand aquifers will equilibrate faster than silt. A minimum equilibration period of 24-hours following well development, or where possible one week, should be taken before the well is sampled.

3 References



The following references provide guidance for the development of operating procedures for the drilling, installation and development of groundwater monitoring wells undertaken by ERM personnel. ERM personnel are responsible for determining if additional region-specific or client-specific standards or guidance are available.

American Society for Testing and Materials (ASTM). 2010. Standard Practice for Design and Installation of Groundwater Monitoring Wells. D5092 – 04(2010)e1.

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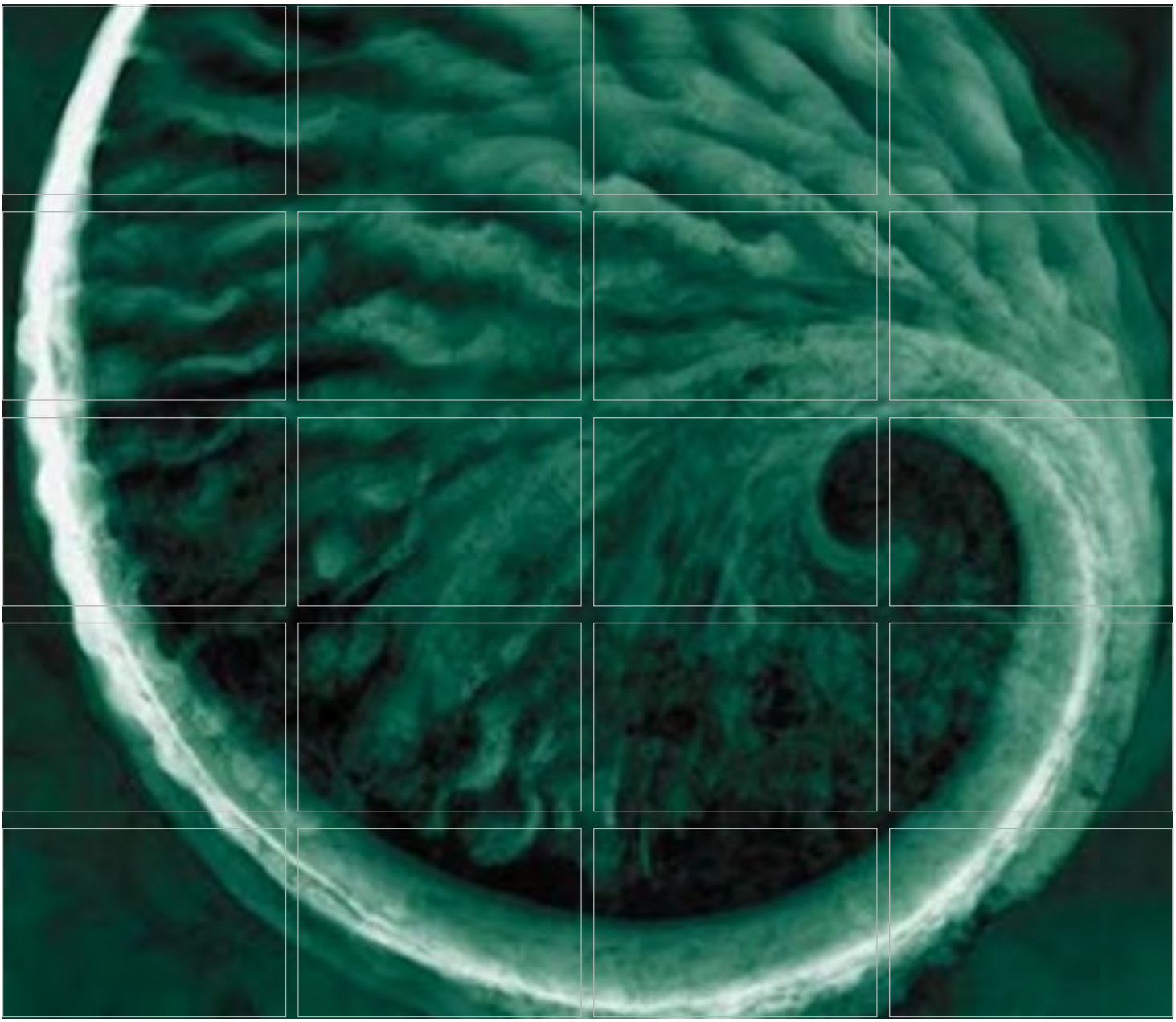
Striggow, Brian. 2013. Design and Installation of Monitoring Wells, Guidance. United States Environmental Protection Agency, Science and Ecosystem Support Division (SESD). Athens, Georgia; SESDGUID-101-R1; January 22; document available at: http://www.epa.gov/region4/sesd/fbqstp/Design-and-Installation-of-Monitoring-Wells.pdf (last accessed 21 Jun 2013).



CSM SOP 04
Fluid Level Gauging
Version 1.0
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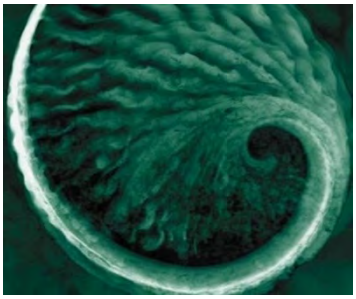

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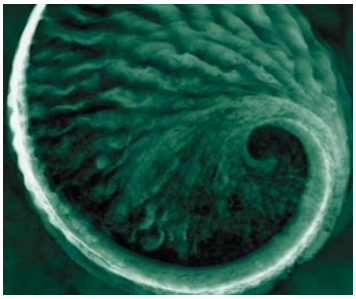
1 Introduction



1.1 PURPOSE AND OBJECTIVES

The purpose of groundwater gauging is to collect data to support construction of groundwater table or potentiometric surface maps for the site under investigation. The fluid level data are also used to calculate hydraulic gradient(s) and the horizontal groundwater flow direction(s) across the site.

The objective of fluid gauging is to accurately measure depth to water and separate phase product[1], if present, relative to a surveyed data point in monitoring wells to determine:

- ground water elevation; and
- thickness of phase separated product.

This SOP is issued for global use; however, industry standards, equipment availability and regulatory requirements may vary regionally.

This series of SOPs was developed by senior CSM practitioners across ERM to provide our staff with a means of applying "best practice" to completion of tasks commonly performed during site investigation and other site management activities. Although referred to as "operating procedures," the procedures may not be implementable in their entirety on every project or every location. All CSM practitioners are, therefore, responsible for identifying instances where region-specific or client-specific procedures, guidance and/or regulations may supersede ERM's internal SOPs and complying with the local requirements.

1.2 HEALTH AND SAFETY

Standard operating procedures (SOPs) are designed to provide technical guidance for conducting work associated with Contaminated Site Management (CSM) and do not

[1] Phase separated product may either be light non-aqueous phase liquid (LNAPL) or dense non-aqueous phase liquid (DNAPL), though DNAPL detection is often not possible to measure with standard equipment.

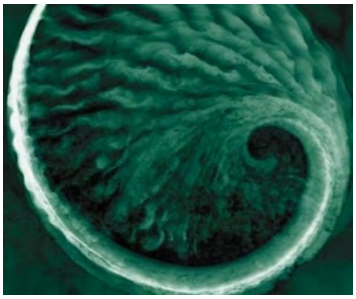
provide detailed or comprehensive guidance related to health and safety nor do they represent guidance on safe work procedures for the tasks described. Where considered, appropriate tips related to health and safety issues associated with specific tasks may be included within technical descriptions for information's sake only.

Health and safety aspects of all projects and project tasks should be assessed and planned using ERM's established Health and Safety planning procedures, including the WARN system.

1.3 ABBREVIATIONS

ASTM	American Society of Testing and Materials
COPCs	Constituents of Potential Concern
CDTW	Corrected Depth to Water
CWE	Corrected Water Elevation
CSM	Contaminated Site Management
DTP	Depth to Product
DTW	Depth to Water
DNAPL	Dense Non-aqueous Phase Liquid
HASP	Health and Safety Plan
LNAPL	Light Non-aqueous Phase Liquid
PID	Photoionization Detector
PPE	Personal Protective Equipment
PT	Product Thickness
SG	Specific Gravity
SOP	Standard Operating Procedure
TOC	Top of Casing
USEPA	United States Environmental Protection Agency
WARN	Work Activity Risk Assessment

2 Materials



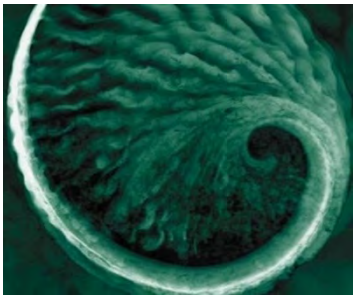
The following materials are typically required for fluid level gauging activities:

1. WARN Form/Health and Safety Plan.
2. Traffic protection equipment (e.g. traffic cones, barriers, high visibility vest).
3. Personal protective equipment (PPE) for splash protection (e.g. gloves, safety glasses).
4. Tools for removing the bolt down cover or manway, well cap, and keys for lock on well cap.
5. Small manually operated hand pump, or small cup for evacuating standing water from around the well casing, if water is above top of well casing within manway or well cover.
6. Decontamination solution, buckets, rinsate water (distilled or deionised water should be used (where available) rather than potable or tap water), clean rags and paper towels.
7. Interface meter for sites where phase separated product (LNAPL or DNAPL) is known or suspected to be present. If unknown, use an interface meter until the site is better understood. Water level meter for sites where phase separated product (LNAPL or DNAPL) is not anticipated.
8. Weighted cotton string – for sites with anticipated DNAPL, used as a backup for interface probe when thickness of DNAPL is too thin to register on the interface probe. String is lowered to the base of well suspected to have DNAPL to assess the presence of DNAPL by staining of the string.
9. Disposable bailers (if available) and string – to observe/measure very thin occurrences of LNAPL below the resolution of the interface probe.
10. Watch, field log book and/or gauging forms. It is also helpful to have a summary of well construction for the site, if available.

11. Boring logs or completion diagrams that describe the well diameter, well depth, stickup and screen interval.

12. Extra batteries for the water level meter and/or interface probe.

3 Methodology



The following methodology should be followed for fluid level gauging activities:

1. During the initial phase of monitoring, a calibrated photoionization detector (PID) could be used to gauge the air at the top of each well prior to conducting gauging activities if volatile organic contaminants are considered to be present. These data provide information as to whether additional PPE (e.g., respirators) may be needed during gauging. The calibration and voltage of bulb used in the PID should be selected based on the constituents of potential concern (COPCs) for the site.

   PID screening is not required during every site visit, provided that previous screening has indicated conditions consistently below COPC action levels defined in the site Health and Safety Plan (HASP). If conditions have not been monitored previously, or if PID screening results have indicated encroachment on the action level for the COPCs at the site, a PID should be taken to the site.

2. Prior to visiting the site, check that the Interface/Water Level meter is functioning properly by inserting the probe into a container of water and noting that the presence of water is signaled. Usually an intermittent flashing light on the unit and/or an audible signal sounds for the presence of water and a constant light and audible signal for the presence of product.

3. Develop a gauging plan. Measurements should be taken within a 24-hour period or less. The gauging plan should also consider:

   a) known information about the wells and historical water levels from previous field events. Field notes should be reviewed if available.

   b) other relevant activities to be undertaken at the same time and specific requirements relating to these, including the sequencing of events (eg, undertaking gas measurements).

   c) potential for tidal influences on fluid levels and the timing for collection of fluid levels. If the site is located in an area where groundwater elevations may be tidally influenced, considerations should be given to using data loggers or performing rapid measurement of water levels over a slack tide (ie, an hour

either side of either a high or low tide) to evaluate tidal effects on groundwater elevations.

d) potential difficulties in accessing the wells; such as:

   i. Are any of the wells located within process areas requiring permits from the facility?

   ii. Well cover bolts or well cap locks rusted?

   iii. Are there restrictions to access such as stream crossings or heavy brush with associated physical and biological hazards?

   iv. Are wells located in or near roadways requiring a traffic management plan and/or appropriate PPE (e.g., reflective vests)?

e) presence of non-aqueous phase liquids (NAPL) and/or high concentrations of dissolved-phase constituents in each well. Despite the use of decontamination techniques, it is prudent to proceed in gauging and sampling from least-impacted wells to the most-impacted wells, if known. If unknown, the suspected source area wells should be gauged last.

4. Remove the well cap as soon as possible to allow the water level to reach equilibrium before measurements are taken because pressure inside the well may have changed since the last measurement was taken due to rising of falling water levels. Pressure can also naturally build within a monitor well between measurement and sampling potentially making a loosened well cap a projectile. Therefore, caution should be taken when opening the wells to avoid potential sudden discharge of air pressure. Technicians should not look directly over the well when opening / removing the well cap. Also it is not uncommon in some domains to encounter poisonous inspects/spiders or snakes in well boxes, thus care should be taken when opening well boxes, vault lids, or manways.

5. Allow sufficient time for vapors that may have accumulated within the bore to dissipate.

6. If bailers have been left in the wells from previous sampling events and are completely submerged, measure the water level before removing the bailer as the static water level will be in equilibrium with the <u>submerged</u> bailer. However, if the bailer is partially submerged, do not collect a water level from within the bailer as it may not be representative of the water level in the well. If necessary, remove the bailer and allow the water level to equilibrate before measuring the water level.

7. Decontaminate the interface/water meter and the portion of the tape that is likely to contact the water.

8. If the interface probe has a grounding wire, attach it to the manway (gatic) cover, the well box, or to a metal rod driven into the ground prior to gauging. In the absence of a grounding wire, the technician should touch a grounded metal object to discharge built up static electricity.

9. The depth to water/product should be measured relative to an established surveyed reference point on the top of the well casing. The reference point on the well casing should be marked; as a default, if not marked, the top of casing (TOC) is presumed to be the **north** side of the casing and should be noted in the field forms or log book.

10. Begin with a decontaminated water level meter or interface probe. To measure the depth to water (no LNAPL), slowly lower the probe into the well until a signal (intermittent or constant beep) is heard. Repeat the recording three times by raising and then lowering the probe again across the water table (does not measure while raising the probe, as surface tension may result in aberrant readings). Record the depth to water in feet to two decimal places or meters to three decimal places (i.e., to the millimeter level).

11. To measure the depth of LNAPL, slowly lower the probe into the well until a signal (usually a solid beep) is heard, then record this number as the top of LNAPL. Next, lower the probe through the layer of LNAPL until the tone changes (usually an intermittent beep), this is the LNAPL/water interface. To facilitate accuracy, lower the probe below this interface three times and average the reading. As above, record the depth to water/LNAPL in feet to two decimal places or meters to three decimal places (i.e., to the millimeter level). If measurements are unusual or not historically supported, note in the field forms or logbook.

12. LNAPL presence should be confirmed by use of a disposable bailer lowered into the LNAPL layer and retrieved for viewing. Once color and/or other LNAPL characteristics have been recorded, LNAPL may be poured back into the well bore, unless there are regulatory restrictions to doing so or site and scope-specific procedures for storage/disposal of LNAPL waste. Testing with a disposable bailer should also be conducted in wells with suspected LNAPL but the thickness may be too thin to register on the interface probe.

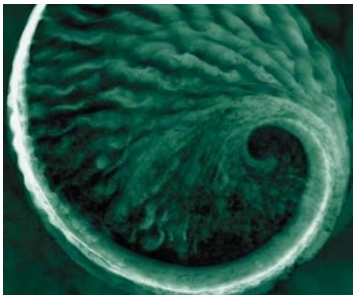
13. The total depth of the well should be measured to determine if the well is silting or damaged. This is done by lowering the probe into the well until the tape just becomes slack and recording the depth from the top of casing. If the well is to be sampled for metals, gauging of total depth should not be conducted until sampling has been completed due to potential to create turbid conditions within the well.

14. If gauging for the presence of DNAPL, the interface probe must be lowered carefully to the bottom of the well because DNAPL will collect at the bottom if the well has been appropriately designed (eg, screened at the base of the water bearing zone and

constructed with a sump below the screened interval). However, note that DNAPL gauging is typically used to evaluate the presence or absence of product and measurements may not be reliable. Alternatively, a weighted string (preferably cotton or a natural fiber where available) compatible with the contaminant may be carefully lowered to the bottom of the well and retrieve. DNAPL may appear as staining on the string when retrieved. The string should be properly disposed of when the measurement is complete. This method should not be used where LNAPL is present.

15. At the completion of the gauging (or total depth sounding), the Interface/Water Level meter tape should be retrieved carefully, wiping excess moisture, and/or LNAPL from the tape

4 Fluid Gauging Calculations



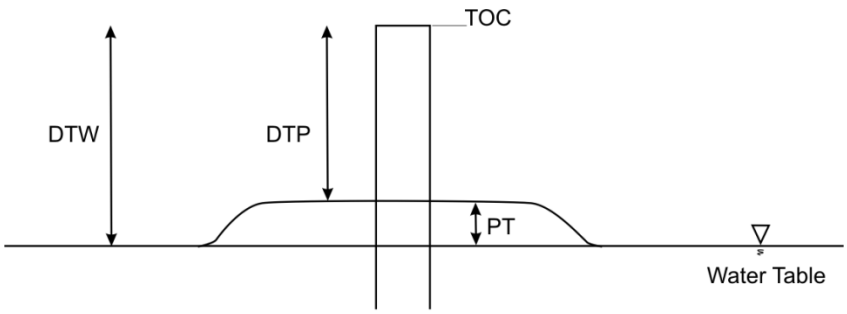


Figure 4.1 Subsurface Cross-section

where:

DTW = Measured Depth to Water

DPT = Depth to Product

TOC = Top of Casing Elevation

PT = Product Thickness

Note = The above is a schematic only and NAPL will actually displace water.

4.1 WATER TABLE ELEVATION (NO LNAPL)

Groundwater Elevation = TOC – DTW

where:

TOC = Top of Casing Elevation

DTW = Measured Depth to Water

4.2 CORRECTED DEPTH TO WATER (LNAPL PRESENT)

This calculation is performed to remove the effect of LNAPL on the measured depth to water because LNAPL will depress the water table beneath it.

CDTW = DTW – (PT x SG)

PT = DTW -DTP

where:

CDTW = Corrected Depth to Water

DTW = Measured Depth to Water

DTP = Measured Depth to Product (LNAPL)

PT = Product Thickness (Depth to Water (-) Depth to Product)

SG = The Product's Specific Gravity

(LNAPL present)

This calculation is performed to convert the water level in each well to an elevation that is relative to a common datum (see Figure 4.1 above). Therefore a groundwater elevation contour gradient map for the site can be prepared.

CWE = TOC - CDTW

where:

CWE = Corrected Water Elevation

TOC = Top of Casing Elevation (Determined by a Survey)

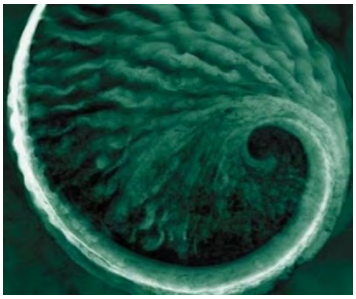
CDTW = Corrected Depth to Water

Table 4.1 Example Specific Gravities

Compound	Approximate Specific Gravity
BTEX	
Benzene	0.88
Toluene	0.87
m-xylene	0.88
p-xylene	0.86
o-xylene	0.88
Common Petroleum Products	
Gasoline	0.73
Kerosene	0.80
Diesel	0.83

1. Source: Total Petroleum Hydrocarbon Criteria Working Group Series.
2. http://www.simetric.co.uk/si_liquids.htm
3. http://www.csgnetwork.com/specificgravliqtable.html

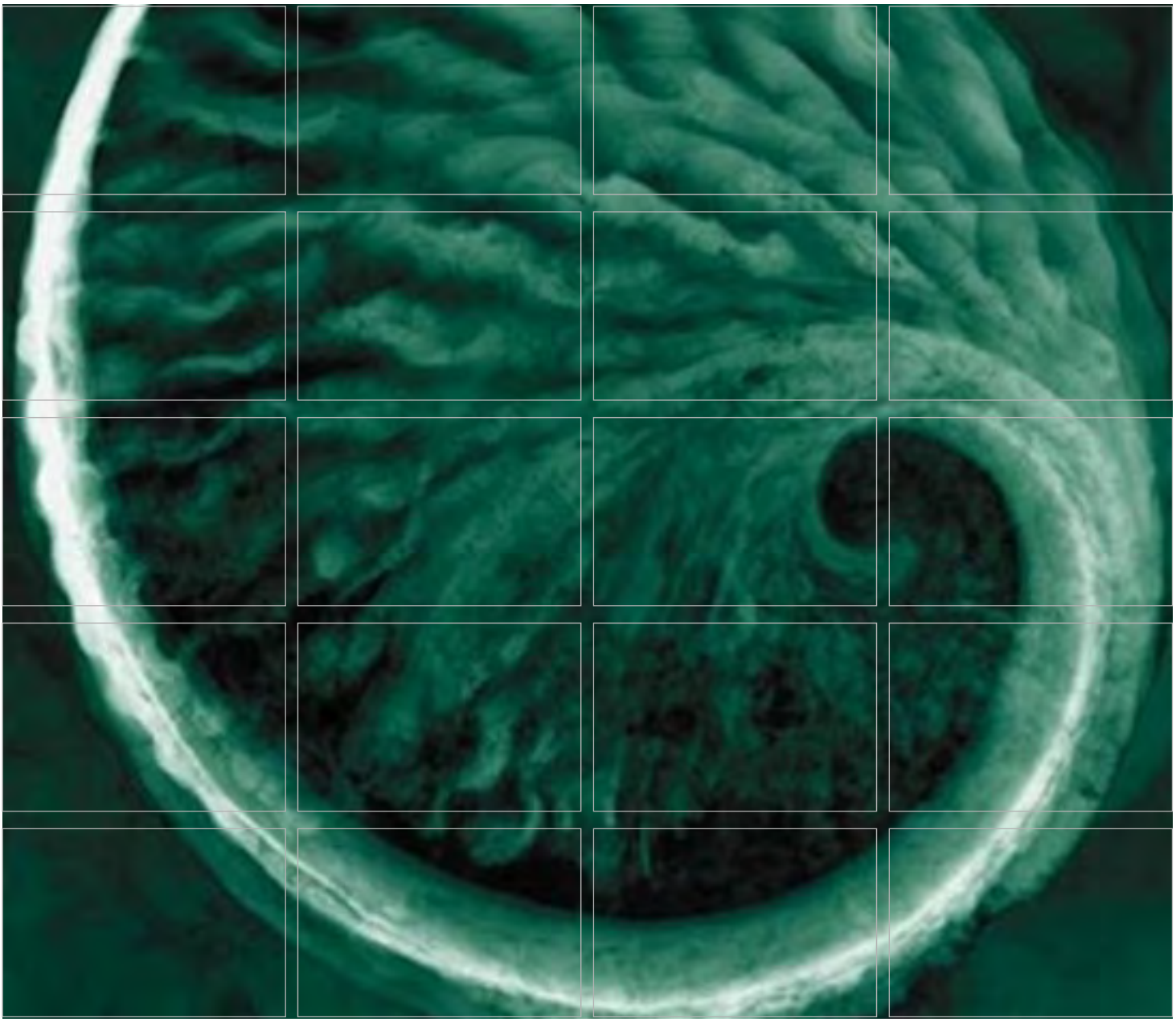
5 References



The following references provide guidance for the development of operating procedures for fluid level gauging undertaken by ERM personnel. ERM personnel are responsible for determining if additional region-specific or client-specific standards or guidance are available.

American Society of Testing and Materials (ASTM) D4448 - 01(2013) Guide for Sampling Ground-water Monitoring Wells.

United States Environmental Protection Agency (USEPA). 2013. Groundwater Level and Depth Measurement Operating Procedure. SESDPROC-105-R2. Region 4, Science and Ecosystem Support Division, January. http://www.epa.gov/region4/sesd/fbqstp/Groundwater-Level-Measurement.pdf (accessed 24 Jun 2013).



CSM SOP 05
Groundwater Sample Collection
Version 1.0
1 October 2013

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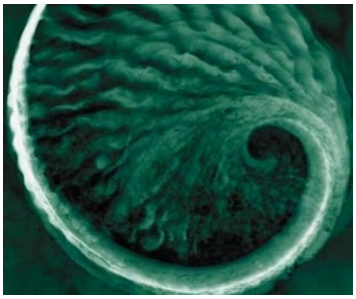

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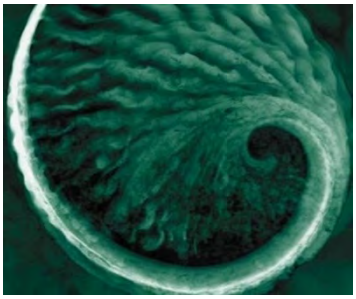
1 Introduction



1.1 PURPOSE AND OBJECTIVES

The purpose of groundwater sample collection is to obtain representative data and samples that meet project data quality objectives and industry acceptable standards of accuracy, precision, comparability, and completeness. Data collected during the purging and sampling process (e.g., measurement of fluid level depths or of groundwater field parameters like pH, electrical conductivity or temperature) can also be used to infer conditions within the aquifer or groundwater-bearing zone useful in interpreting laboratory analytical results and developing a conceptual site model.

The objective of this document is to describe field procedures for collecting groundwater samples from monitor wells. The field procedures described herein present the general methodology for sample collection, but formal field training by personnel experienced in groundwater sampling is required to supplement the procedures described.

This SOP is issued for global use; however, industry standards, equipment availability and regulatory requirements may vary regionally. This series of SOPs was developed by senior CSM practitioners across ERM to provide our staff with a means of applying "best practice" to completion of tasks commonly performed during site investigation and other site management activities. Although referred to as "operating procedures", the procedures may not be implementable in their entirety on every project or every location. All CSM practitioners are, therefore, responsible for identifying instances where region-specific or client-specific procedures, guidance and/or regulations may supersede ERM's internal SOPs and complying with the local requirements.

In the United States and some other countries, the preferred method for collection of samples is using low-flow (minimal drawdown) procedures as described in Puls and Barcelona, 2006 or other applicable local guidance. However, site-specific sampling and analysis plans, local regulatory agencies, or available equipment may dictate the sampling method to be used.

1.2 HEALTH AND SAFETY

Standard operating procedures (SOPs) are designed to provide technical guidance for conducting work associated with Contaminated Site Management (CSM) and do not provide detailed or comprehensive guidance related to health and safety nor do they

represent guidance on safe work procedures for the tasks described. Where considered, appropriate tips related to health and safety issues associated with specific tasks may be included within technical descriptions for information's sake only.

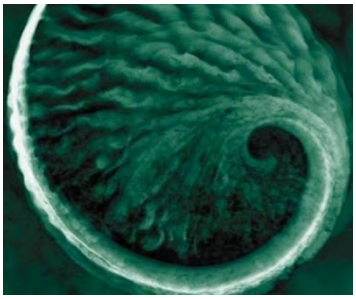
Health and safety aspects of all projects and project tasks should be assessed and planned using ERM's established Health and Safety planning procedures, including the WARN system.

1.3 ABBREVIATIONS

ASTM	American Society of Testing and Materials
COCs	Constituents of Concern
CSM	Contaminated Site Management
DQO	Data Quality Objective
DO	Dissolved oxygen
EC	Electrical Conductivity
FRC	Flame-resistant clothing
H&S	Health and Safety
HASP	Health and Safety Plan
ISO	International Organization for Standardization
LNAPL	Light Non-Aqueous Phase Liquid
mS/cm	millisiemens/centimeter
mV	millivolts
NTU	Nephelometric Turbidity Units
NAPL	Non-aqueous Phase Liquid
ORP	Oxidation-Reduction Potential
PAH	Polycyclic Aromatic Hydrocarbon
PIC	Partner in Charge
PM	Project Manager

PPE	Personal Protective Equipment
QA/QC	Quality Assurance / Quality Control
SAP	Sampling and Analysis Plan
SOP	Standard Operating Procedure
SC	Specific conductance
SVOC	Semivolatile Organic Compound
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
WARN	Work Activity Risk Assessment

2 Materials



The below items are typically required for collection of groundwater samples from monitor wells (depending upon the methodology adopted):

- Sampling and Analysis Plan (SAP) or local equivalent and previous monitoring results for reference;
- WARN Form/Health and Safety Plan (HASP);
- Field forms or field log book;
- A table with monitoring well completion information; alternatively borehole logs and/or well completion diagrams;

Equipment

- Pens;
- Keys for any locks on well boxes or well caps;
- Hand tools, such as:
  - wrench to open bolt-down well covers;
  - Large wrench (or spanner) to open drum lids;
  - Pry bar or screwdriver to lift manway (well) covers; and
  - Bolt cutters to cut locks from wells without keys or locks that are inoperable.
- Water level meter or, if product is present or suspected, an oil-water interface probe;
- Bailers and string or rope if needed;
- Purging/sampling pump, examples include:
  - peristaltic,

- o submersible bladder pump,
- o submersible centrifugal pump.

Note that pump type will be contingent on well diameter, depth-to-water, permeability of formation, and purging/sampling methodology;

- Power source for pump (e.g., battery, generator, air compressor) and extra batteries for instruments;
- Tubing – inert tubing compatible with constituents of concern in the ground water (commonly polyethylene, nylon, or Teflon®). If using a peristaltic pump, silicon or other manufacturer's recommended compatible tubing is required to pass through the pump head. Check to ensure tubing diameter(s) are of proper size;
- Flow measuring equipment (e.g., measuring container and watch);
- Flow-through cell (if available, closed cell with probe ports preferred);
- Note that combination (multi-parameter) meters are preferred if using a flow–through cell; individual meters may be used in a container if flow-through cells/multi-parameter meters are not available (See water quality meters section below).
- Water quality measuring instruments:

  Minimum requirement:

  - o Temperature,
  - o pH

  Recommended additional (as available/required):

  - o Specific Conductance (SC) or Electrical Conductivity [EC],
  - o Oxidation-Reduction Potential [ORP],
  - o Dissolved Oxygen [DO],
  - o Turbidity.

- Field filtration equipment if required. Several options are available including in-line disposable filter units, air-pressurized filter units, reusable filter holder cartridges for use with disposable filter papers and syringes. Consult local regulations for which type and size of filtration is acceptable;

- Container to collect purge water at well head (such as a 5-gallon (20 liter) plastic bucket);

- Large volume vessel(s) (such as 55-gallon drums (~200 liter) or plastic totes) to store purge water pending characterization and disposal; and

- Decontamination supplies.

PPE - See HASP, but may include:

- Surgical gloves, powder-free Nitrile, (8 mil thickness preferred);

- Cut-resistant or other sturdy gloves for use when opening drums and well covers;

- Flame-resistant clothing (FRC) – if required by the site;

- Chemical resistant coveralls (tyvek, for example)– if required by the HASP;

- Safety glasses or goggles (see HASP); and

- Respirator (half-faced or full-faced) and appropriate cartridges (if required by the HASP).

Sample bottles and supplies:

- Sample bottles, to be requested from laboratory or other source:

  - sufficient number of bottles for all wells to be sampled plus 10 percent extra for potential breakage;

  - bottles for QA/QC samples as required:

    - Blind duplicates;

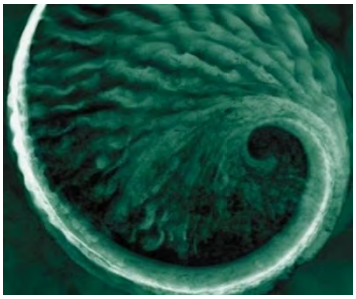
    - Matrix spike/Matrix spike duplicates;

    - Field blanks (if required, generally one per field day);

    - Rinsate blanks (if required);

    - Equipment blanks (if required); and
    - Trip Blanks – one for each cooler that will hold samples for volatile organic compound analyses.
  - Chain-of-custody forms;
  - Sufficient number of ice chests (coolers) to hold samples and sufficient ice to maintain temperature at 4 degrees Celsius; and
  - Distilled (or VOC-free) water for field, rinsate and equipment blanks. Deionized water (if available) is preferred for field, rinsate and equipment blanks if samples will be analysed for metals (see SAP).

3 Methodology



3.1 PREPARATION FOR GROUNDWATER SAMPLING EVENT

The following tasks should be completed prior to undertaking a groundwater sampling event:

Develop SAP, with Data Quality Objectives (DQOs) clearly defined to ensure that the required groundwater data are collected and that the laboratory detection limits are suitable for the adopted site assessment criteria.

Contact facility site manager or property owner to confirm date of sampling event and arrange for clear access to wells and work permits (if required). Confirm any site-specific health and safety training or PPE requirements (e.g., FRC) or other facility requirements (e.g., inspection of equipment).

Perform all necessary health and safety pre-planning as dictated by ERM and client-specific requirements. Pre-planning should include a review of the project HASP by all field team members.

Check availability of equipment and supplies either from in-house or outside sources and place order for rental and purchased equipment/supplies at least one week in advance of the sampling event to allow for shipping/stock delays. Longer lead time may be needed.

Ensure that you have keys for any locks on well boxes or well caps. If the condition of the locks is not known, bolt cutters and replacement locks may be required.

Upon receipt of equipment and supplies, check for proper operation, calibration of equipment, and quantities and sizes of supplies.

Place bottle order with laboratory at least one week in advance of field work – include enough bottle sets to cover all wells in the sampling program, all QA/QC samples, and a few 'contingency' bottles. If shipping bottles or samples via air freight, check with laboratory regarding special handling and shipping requirements.

Prepare paperwork for the field event, including HASP, field forms or field log books, site plan showing all sample locations, and previous monitoring data (if available), and any other required permits, forms, etc.

If shipping samples to another country for analysis, completion of customs forms may be required. Custom delays may result in exceeding holding times or temperature requirements. If available, select qualified local laboratories for time critical or temperature critical analyses (e.g., volatile organics). Provide ample packing material to make is easy for customs officials to adequately repack samples after inspection.

In order to reduce potential for cross-contamination, review previous groundwater monitoring results (if available), and if feasible, plan to sample wells in order of lowest to highest concentrations. *Note that samples for water analysis are not typically collected from wells with measurable Non-Aqueous Phase Liquids (NAPL), unless a sample of the NAPL is being collected for fingerprinting*.

3.2 PRE-SAMPLING ACTIVITIES

The following tasks should be completed prior to commencement of well purging or sampling:

1. Establish work area at each well upon arrival – ensure safety precautions are considered pursuant to HASP (e.g., traffic cones, barricades, positioning of vehicle);

2. Check the condition of the well(s) upon arrival, and make a note on the field form or in the field log book of any observed damage, water in flush (grade) mounted well enclosure (box or manway), or potential surface contamination. If there is water in the well box, remove all water to below the top of well casing before removing the well cap to avoid allowing potentially contaminated surface water from entering the well (safety note: it is not uncommon to encounter spiders or other harmful insects in well boxes; use caution when removing lids and perform an inspection prior to beginning activities);

3. Measure the depth-to-water (and light non-aqueous product [LNAPL], if present) and total depth of all wells before undertaking purging or sampling. Note: If sampling for metals, gauge total depth of well after sampling has been completed, so as to not disturb sediment that may have accumulated in the bottom of the well;

4. If bailers have been left in the wells from previous sampling events, measure the water level before removing a submerged bailer as the static water level will be in equilibrium with the submerged bailer. Remove the bailers and discard unless they are dedicated for permanent use; and

5. Verify calibration of water quality instruments and recalibrate if necessary using standard solutions in accordance with manufacturer's protocols.

3.3 PURGING AND SAMPLING ACTIVITIES

Field procedures for both low flow and volume-based purging are described in this section. The method of sampling to be adopted will depend upon a range of factors (including the DQOs) and these should be determined in consultation with the project manager (PM) and partner-in-charge (PIC). Low flow (micropurge) sampling is increasingly becoming the preferred method for the collection of high quality groundwater samples under most circumstances and use of this method is encouraged.

Note: "No purge" sampling techniques which are gaining acceptance in some regions (including passive diffusion samples and sleeve samplers, etc.) are not covered by this SOP. Procedures for sampling using these techniques are described by the equipment manufacturer. Prior to using one of these techniques, verification of data acceptance should be obtained from local regulatory agencies.

Low Flow Methodology

1. Once the well cap is removed and the depth-to-water has been recorded, lower the pump (if using submersible pump) and tubing into the well. The pump intake (or end of tubing if using a peristaltic pump) should be placed in the middle of the submerged portion of the well screen. If the well screen is greater than 10 feet (3 meters) in length and spans multiple permeable units, the project manager should be consulted regarding preferred depth of pump or tubing intake (Note: A table that includes water levels, intake depths, purge rates, etc. from previous sampling events is beneficial to maintain consistency between sampling events);

2. Measure the depth-to-water again with the pump/tubing in place, and use this measurement as your drawdown reference during purging. Leave the water level meter probe in the well to facilitate collecting water level measurements during purging;

3. Connect the discharge tube from the pump to the inlet of the flow through cell (if using a closed cell), or place the outlet of the discharge tube in the bottom of a container with the water quality probes. If using a container with probes placed within, care must be taken to limit turbulence (which may affect DO and, to some extent, ORP values). Ensure that the purge water ultimately discharges into a bucket or other collection vessel;

4. Start the pump (noting the time on the field forms or field log book) and measure and record the flow rate using a measuring container and stop watch (or similar). The ideal flow rate is less than 500 ml/min, and should be adjusted lower if excessive drawdown of the water level occurs (the US EPA guidelines indicate a maximum drawdown target of 10 cm, (approximately 0.33 feet). Note that one of the authors of the USEPA guidelines recently revised this guidance stating that the total

drawdown isn't as critical as ensuring that the water level eventually stabilizes above the top of the well screen;

5. Begin recording water quality parameters on the groundwater monitoring field form as soon as the probes are submerged. Each record should include: time of measurement, cumulative purge volume, depth-to-water and water quality parameters (note: record units for the parameters and whether the ORP reading is positive or negative). Also, it is important to note any changes to the visual clarity of the water during purging, as well as any unusual properties or odors. Plan to record this information every three to five minutes during purging, possibly more frequently at the beginning to record the larger changes that occur when purging is commenced.

   If erroneous measurements are noted (e.g., negative DO readings or high DO along with negative ORP) check calibration of the instruments. If erroneous measurements continue, contact project manager to discuss whether the sampling should be discontinued until replacement meters are available; and

6. Continue purging until the water quality parameters stabilize over three consecutive readings. The stabilization criteria are as follows:

Table 3.1 USEPA Recommended Water quality parameter stabilization criteria

Parameter	Stabilization criteria
pH	± 0.1 pH units
SC/EC	± 3% (µS/cm or mS/cm)
Temperature	± 0.5ºC
ORP	± 10 mV
DO	± 0.3 mg/L
Turbidity	± 10% NTUs (if measured)

Note that a well should not be considered stable after the first three or four readings. The well should be pumped at the highest sustained rate that does not induce drawdown that exceeds the criteria (with the exception of low-permeability wells). Generally, changes in water quality parameters are observed during initial pumping of the well. After a time, the parameters will begin to stabilize. This change is generally observed after 5 to 10 readings and represents equilibration with the formation water. If no changes are observed, this may indicate only casing water is being purged.

Also note that both ORP and DO are typically slower to stabilize than the other parameters, and may be particularly unstable when not using a closed flow-through cell. In this case, greater weight may be given to pH and EC as the 'stabilizing' parameters.

These criteria should be considered as a guide and failure to strictly adhere to the stabilization criteria for one or more parameters does not imply that a representative sample cannot be collected. The field personnel and project manager may use their professional judgment on a weight of evidence basis, in conjunction with the stabilization criteria to determine when a representative sample can be collected.

Guidance for low flow sampling indicates that the water level should never drop below the top of the well screen for wells with completely submerged screened intervals. In extremely low permeability formations this may be impossible, and in these cases the well can be purged dry and a sample collected once the well has recovered. Note the degree of recovery that is acceptable is generally dictated by the local regulatory agency. If no policy exists, sampling of water from the well within 24 hours of purging should be conducted. Also note that the integrity of the sample may be affected as air is allowed to enter the well screen and filter pack. Every attempt to collect a sample using a very low flow rate (<100 ml/min) should be made before resorting to this technique.

Once the parameters have stabilized, the sample(s) can be collected. Maintain or slightly reduce the pumping rate to minimize disturbance to the water column, put on fresh disposable gloves, and fill sample bottles directly from the discharge tube (Note: if using a closed flow through cell, disconnect the pump discharge tube from the flow through cell to ensure that water samples are collected before water passes through the cell), if using probes placed in a container, a short section of tubing should be removed prior to filling sample bottles as to avoid cross-contamination of the sample. The probes are often difficult to thoroughly decontaminate.

In general, samples should be collected in order of decreasing volatility. Vials for volatile organic compound (VOC) analysis should be collected first, followed by bottles for dissolved gases, semivolatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), pesticides and herbicides and finally inorganics (metals) and monitored natural attenuation samples (e.g., nitrate/nitrite, sulphates, alkalinity, etc.). If Quality Control/Quality Assurance (QA/QC) samples (blind duplicates and matrix spike/matrix spike duplicates) are to be collected from that well, samples should be collected in conjunction with the base sample (i.e., collect all VOC samples first, then all the SVOCs, etc.).

The pumping rate should be adjusted to provide a laminar (non-turbulent) flow into the sample bottles to reduce aeration of the sample, and the water should be allowed to run smoothly down the inside of the bottle. Additional tips for sample collection are provided below:

VOC vials must be filled with a positive meniscus (i.e., above the rim of the vial) to eliminate the formation of bubbles and headspace before capping (once the cap is screwed on, turn the vial upside down and gently tap the side of the bottle to see if any air bubbles are present. If there are bubbles, remove the cap, top off the vial and attempt

again). Use appropriate care while screwing on the cap, in tapping the vial, and in general handling of the glassware. Do not over tighten sample bottle lids as the bottles may shatter and become a cut hazard.

Care should be taken during sampling to prevent overflow of water in sample bottles containing acid preservative as the acid preservative may be washed out. If preserved sample bottles overflow, that bottle should be discarded, and replaced with a new bottle.

Note that in some areas, ground water may carry carbonate (limestone or dolomite) silt that will react with the acid preservative in VOC vials causing effervescence. If this occurs, empty the VOC vials and rinse with sample water. Fill the VOC vial as described above to create zero headspace. Submit to laboratory noting on the chain of custody that the sample is unpreserved. Be aware this significantly reduces the holding time for these samples and sample shipping schedules may need to be adjusted.

If the SAP specifies that the samples for inorganics are to be filtered, an in-line filter can be placed on the discharge tube and the sample can be pumped directly into the preserved sample bottles. Alternatively, the sample can be collected in "neat" bottles containing no preservative and later filtered into the preserved sample bottles.

Once all sample bottles have been filled, switch off the pump and remove the pump and tubing from the well. Take a final water level measurement (and total depth if required) once the pump has been removed.

The collected samples should be labeled with the appropriate information, and placed immediately in an ice-filled cooler pending shipment or delivery to the laboratory. Bottles should be wrapped in bubble pack or other comparable packing material to reduce the potential for breakage. Also, be careful not to overfill coolers with sample bottles as there is greater risk of breaking during transport and will have less room for ice to maintain temperature at 4 degrees Celsius. Be aware that coolers full of water samples and ice can be very heavy. Bring enough coolers to spread the load into manageable portions, and always use proper manual handling techniques when lifting or moving coolers.

Shipping samples (including shipping unfilled sample bottles containing preservative) requires the consideration of local regulations. Shipping samples internationally may add additional requirements. Determine requirements with the project PM/PIC prior to mobilization for the sampling event.

Any non-disposable equipment should be decontaminated between each well.

The purge water from each well should be stored in an appropriate container on site pending characterization and disposal. Ensure that the container is properly sealed before leaving site, and is labeled to identify its contents and provide contact details of

the client contact or PM in the event that site employees are unsure of the contents. Containers will become impossible to safely move without mechanical aid once full. Be sure to locate containers in a safe and accessible location on site that is suitable for short-term storage pending characterization and disposal of the waste water.

Volumetric Purging Methodology

The volumetric method of purging wells was used primarily prior to 2000 and prescribed removal of three casing (only the water inside the well casing) or borehole volumes (which includes casing volume plus the saturated portion of the filter pack) of water prior to sample collection. The rationale was to ensure that all the potentially stagnant water in the well was removed and replaced with fresh formation water. There is a range of conflicting and ambiguous guidance available in terms of how and why volumetric sampling should be undertaken. Generally, this method is dictated in older SAPs and may have been incorporated into older regulatory permits.

The method described below represents reasonable guidance. However, when adopting this methodology considerations include whether information is available regarding well diameter, screened interval, whether water is standing above the screened interval, whether it is appropriate to purge the casing volume or the casing volume plus the saturated volume of the annulus, and the potential to 'over-purge' the well which may result in heightened dilution or unnecessary alteration of the sample.

1. Before purging, the purge volume is either calculated as three times the volume of standing water in the well casing or the volume of the standing water in the well casing and pore space of the filter pack, according to the following equation:

Metric Units

$$V_{tot} = V_{well} \text{ \{casing volume only\}}$$

$$V_{tot} = V_{well} + V_{filter} \text{ \{casing volume and saturated volume of the annulus\}}$$

$$V_{well} = \pi\, r_1^2\, h_1; \text{ and}$$

$$V_{filter} = \pi\, (r_2^2 - r_1^2)\, h_2\, n$$

Where:

V_{tot} = Total Borehole volume (L);
V_{well} =Volume of water in well casing (L);
V_{filter} = Volume of water in filter pack (L);
r_1 = Inner radius (half the casing diameter) of well casing and screen (m);
r_2 = Radius of borehole (m);

h_1 = Height of water column in well casing (calculated as the difference between the total well depth and the water level depth) (m);
h_2 = Length of filter pack or height of water column in well (whichever is shorter) (m); and
n = porosity (use 0.30)

U.S./English Units

$$V_{tot} = V_{well} \text{ \{casing volume only\}}$$

$$V_{tot} = V_{well} + V_{filter} \text{ \{casing volume and saturated volume of the annulus\}}$$

$$V_{well} = 7.48\ \pi\ r_1^2\ h_1; \text{ and}$$

$$V_{filter} = 7.48\pi\ (r_2^2 - r_1^2)\ h_2\ n$$

Where:
V_{tot} = Total borehole volume (G);
V_{well} =*Casing v*olume of water in well casing (G);
V_{filter} = Volume of water in filter pack (G);
r_1 = Inner radius of well casing and screen (ft);
r_2 = Radius of borehole(ft);
h_1 = Height of water column in well casing (calculated as the difference between the total well depth and the water level depth) (ft);
h_2 = Length of filter pack or height of water column in well (whichever is shorter) (ft); and
n = porosity (use 0.30)

Table 3.2 Approximate water volume per meter of well casing and filter pack

Metric Units

Casing diameter	Water volume in well per meter (L)[a]	Water volume in filter pack per meter (L)[a]
50 mm[b]	**2**	**1.5**
100 mm[c]	**8**	**6**
150 mm[d]	**18**	**13**

a. Volumes rounded to nearest whole number
b. Assumes 100 mm borehole diameter
c. Assumes 200 mm borehole diameter
d Assumes 300 mm borehole diameter

U.S./English Units

Casing diameter	Water volume in well per foot (G)	Water volume in filter pack per foot (G)[a]
2-inch[e]	**0.16**	**0.94**
4-inch[f]	**0.7**	**1.6**
6-inch[f]	**1.5**	**1.3**

e. Assumes 8-inch borehole diameter

f. Assumes 12-inch borehole diameter

2. Proceed with set up and purging as per the low flow procedures described above, with the following exceptions:

   - For wells with a completely submerged screen, the pump intake should be set just below the water level so that the entire stagnant water column is purged and replaced with formation water drawn from the screened interval below (*Note: to avoid damaging the pump, the pump intake must remain underwater. As such, the pump may have to be lowered during purging to compensate for drawdown in the well*);

   - For wells where the water level is below the top of the well screen, set the pump intake half-way through the submerged portion of the screen and begin purging (Note: *to avoid damaging the pump, the pump intake must remain underwater. As such, the pump may have to be lowered during purging to compensate for drawdown in the well*);

   - The pumping rate can be increased to whatever the formation can support, although care should be taken to avoid drawing down the water level above the top of the well screen (for wells with fully submerged screens); and

   - Alternatively, bailers can also be used for this method of purging by carefully lowering the bailer repeatedly below the water level (just until it is submerged) and withdrawing water until the total volume is removed. Care should be taken to minimize disturbance of water in the well during the lowering and removal of the bailer.

3. While purging the well, record water quality parameters after each casing or borehole volume recovered. Regardless of the volume extracted, purging should continue until water quality parameters stabilize (pH and EC as a minimum). Dissolved oxygen (DO) measurements should not be taken (or should be treated with considerable caution) because they may be affected by aeration caused by the

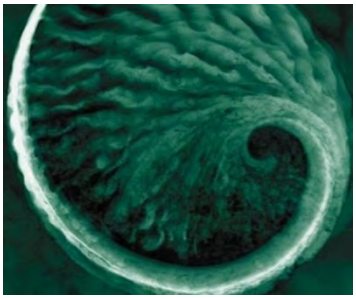
purging method. It may be necessary to purge more than three casing volumes if water quality parameters have not stabilized.

4. Following purging, samples are collected in the same manner previously described (if using bailers, special care must be taken when decanting water into the samples bottles to minimize aeration of the sample during collection).

5. The volume-based method of purging has the following disadvantages over other methods that should be taken into account when planning a groundwater sampling event:

   - it generates a large volume of purge water that must be managed;
   - the higher pumping rates typically result in greater mobilization of suspended fines in the water, which can increase the potential for an analytical bias;
   - the higher pumping rate may result in a greater disturbance of the water column, and promote loss of VOCs or dissolved gases and changes in water quality; and
   - the greater purge volume results in water being drawn to the well from further out in the formation, and may result in dilution of the specific analytes being targeted by the well.

4 References



The following references provide guidance for the operating procedures for the collection of groundwater samples undertaken by ERM personnel. ERM personnel are responsible for determining if additional region-specific or client-specific standards or guidance are available.

American Society of Testing and Materials (ASTM). 2012. Standard Guide for Planning and Preparing for a Groundwater Sampling Event. D5903-96 (2012).

International Organization for Standardization (ISO). 2009. Water quality – Sampling – Part 18: Guidance on sampling of groundwater at contaminated sites. ISO 5667-11:2009

United States Environmental Protection Agency (USEPA). 2006. Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures. (EPA/540/s-95/504). (Puls and Barcelona).

United States Environmental Protection Agency (USEPA). 2010. Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells. EQASOP-GW-001. Region 1. Revision No. 3. http://www.epa.gov/region1/lab/qa/pdfs/EQASOP-GW001.pdf (accessed 24 Jun 2013).

Nonparametric Statistical Tests for
Determining the Effectiveness of Natural Attenuation

Two nonparametric statistical tests are described here: the Mann-Kendall (S) and Mann-Whitney (U) statistical tests. These tests can be used to show whether groundwater contaminant concentrations in a monitoring well are increasing, stable or decreasing. However, neither test is able to determine the rate in which the concentrations are changing over time. The Mann-Kendall Test can be used with a minimum of four (4) rounds of sampling results; however, the Mann-Kendall Test is not valid for data that exhibit seasonal behavior. The Mann-Whitney U Test is applicable to data that may or may not exhibit seasonal behavior, but the test requires eight (8) consecutive rounds of quarterly or semi-annual sampling results. To demonstrate that natural attenuation is effective, the chosen statistical test must show decreasing contaminant concentrations at an appropriate confidence level, given in the test methodologies that follow.

Mann-Kendall Test

1. Assemble well data for at least four (4) sampling events for each contaminant in the order in which the data was collected. Include all contaminants that have exceeded the ES at one or more monitoring wells. Include data from:

    a. One or more contaminated monitoring wells near the downgradient plume margin, which may include piezometers,

    b. A monitoring well near the source zone, and

    c. At least one monitoring well along a flow line between the source zone well and plume margin well.

2. For purposes of the Mann-Kendall test, all non-detect data values should be assigned a single value that is less than the detection limit, even if the detection limit varies over time.

3. Tests for Seasonality in Data. For seasonally affected data, either remove the seasonality in the data (e.g., by only testing data from the seasons with the highest contaminant concentrations) or use a statistical test that is unaffected by seasonality, such as the Mann-Whitney U Test. To test for data seasonality:

    a. Determine if groundwater flow direction changes with season by comparing a water table map from each season that the contaminant concentrations are measured. If the flow direction changes from one sampling period to another and shifts the plume away from the wells being used in the statistical test, then data from those season(s) that are shifted away from the centerline monitoring wells can not be used in the Mann-Kendall Test.

b. Determine if groundwater elevation and contaminant concentration change seasonally. Plot contaminant concentration versus groundwater level for each well to be assessed by the Mann-Kendall Test. If groundwater concentrations change as water level changes, then the data is seasonally affected. The seasons with the highest contaminant concentrations should be included in the Mann-Kendall Test.

4. Calculate the Mann-Kendall Statistic (S) using a manual method or a DNR supplied spreadsheet. Assess all contaminants in the plume for the selected wells being assessed with the Mann-Kendall Test. Enter data for each contaminant in the order it was collected.

a. Manual Method to Calculate Mann-Kendall Statistic. Compare data sequentially, comparing sampling event 1 to sampling events 2 through n, then sampling event 2 to sampling events 3 through n, etc. Each row is filled in with a 1, 0 or –1, as follows:

Along row 2, if:
- Concentration of event x_i > event 1: Enter +1
- Concentration of event x_i = event 1: Enter 0
- Concentration of event x_i < event 1: Enter – 1

Where: n = total number of sampling events
x_i = value of given sample event, with i = 2 to n

Continue for the remaining rows. Sum each row and enter result at the end of the row. Add the sum of each row down to obtain the Mann-Kendall Statistic (S). See Table A as an example.

Table A
Mann-Kendall Statistic

	Sampling Event 1	Sampling Event 2	Sampling Event 3	Sampling Event 4	Sampling Event 5	Sum Rows
Contaminant concentration ›	100	50	85	75	50	
Compare to Event 1	›	-1	-1	-1	-1	- 4
Compare to Event 2		›	+1	+1	0	+ 2
Compare to Event 3			›	-1	-1	- 2
Compare to Event 4				›	-1	- 1
					Mann Kendall Statistic (Total) =	- 5

b. Manual Mann-Kendall Statistic Look up Table. Table B gives the maximum S statistic (S_{max}) to accept a declining trend alternative at an α level of significance. If the

computed S is greater than S_{max} (or S is a smaller negative number than S_{max}), then there is either a no-trend or an increasing trend in the data.

Table B
Mann-Kendall Statistic Look Up Table

N	Range of S	S_{max} $\alpha = 0.2$*
4	- 6 to + 6	- 4
5	- 10 to + 10	- 5
6	- 15 to + 15	- 6
7	- 21 to + 21	- 7
8	- 28 to + 28	- 8
9	- 36 to + 36	-10
10	- 45 to +45	-11

* The probability that the computed Mann-Kendall statistic $S \leq S_{max}$ is at most α.

5. Test for a declining trend. Evaluate data trends for each contaminant identified in the plume. Evaluate the null hypothesis of no trend against the alternative of a decreasing trend. The null hypothesis can be rejected in favor of a decreasing trend if both of the following conditions are met:

   a. S is a large negative number (see Table B for magnitude of S)

   b. The probability value, given n (number of data) and the absolute value of S, is LESS than the a priori significance level, α, of the test. An $\alpha \leq 0.2$ is acceptable.

6. Test for an increasing trend. An increasing trend alternative (i.e., an advancing plume) is shown if both of the following conditions are met:

   a. S is positive.

   b. $S \geq |S_{max}|$ at a given α level of significance (see Table B). If the computed S is equal to or greater than the absolute value of S_{max}, then it can be concluded the plume is advancing at an α level of significance. An $\alpha \leq 0.2$ is acceptable for this test.

7. Test for Plume Stability. If the Mann-Kendall Test indicates no-trend is present, perform the coefficient of variation test. As a non-parametric test, the Mann-Kendall Test does not take into account the magnitude of scatter in the data. A data set with a great deal of scatter may return a Mann-Kendall test indicating there is no trend, when, in fact, no conclusion can be drawn regarding trend because of data variability. In this case, additional data collection may be necessary to determine that the plume is stable, declining or advancing. As a simple test, the coefficient of variation can assess the scatter in the data:

$$CV = \frac{\text{standard deviation}}{\text{arithmetic mean}}$$

Where: CV = coefficient of variation

CV should be ≤ 1 to say that the no-trend hypothesis also indicates a stable plume configuration.

Mann-Whitney U Test. This test is equivalent to the Wilcoxon Rank Sum Test.

1. Assemble well data for the most recent eight (8) consecutive quarterly or semi-annual sampling events for each contaminant that has exceeded the ES at one or more monitoring wells. Include data from:

   a. One or more contaminated monitoring wells near the downgradient plume margin, which may include piezometers,

   b. A monitoring well near the source zone, and

   c. At least one monitoring well along a flow line between the source zone well and plume margin well.

2. Enter the data into a DNR supplied spreadsheet or manually assemble the data into a table (e.g., Table C) in the order the data was collected. Assign a rank to each sample value, with the smallest value ranked #1 and the largest value ranked #8.

3. For purposes of the Mann-Whitney U test, all non-detect values should be assigned a data value of zero (0).

Table C
Example Data Set for the Mann-Whitney U Statistical Test

Year/Date	Benzene Concentration (ug/l)	Rank	Rank Sum of 1st Year (Wrs)
1st Year, 1st Quarter	160	8	25
1st Year, 2nd Quarter	130	7	
1st Year, 3rd Quarter	80	4	
1st Year, 4th Quarter	100	6	
2nd Year, 1st Quarter	89	5	
2nd Year, 2nd Quarter	0	1	
2nd Year, 3rd Quarter	53	3	
2nd Year, 4th Quarter	24	2	
		U = 26 – Wrs	= 1

4. Sum the ranks for the data in the 1st year. Denote this sum as Wrs (or the Wilcoxon rank sum).

5. Calculate the U Statistic. U = 26 – Wrs

6. Interpreting U Statistic. For 2 groups of 4 samples, at $U \leq 3$, the probability that year 2 data show a decrease relative to year 1 data is at least 90%, and so $U \leq 3$ will be acceptable to show that contaminant concentration is declining.

7. If there are ties in sample data, calculate an average rank value for the tied data and assign this average rank to the tied sample data. See example in Table D.

Table D
Example of Rank Sum Value for Tied Data

Year/Date	Benzene Concentration (ug/l)	Check for Ties	Rank	Rank Sum of 1st Year (Wrs)
1st Year, 1st Quarter	300		8	
1st Year, 2nd Quarter	280		7	24.5
1st Year, 3rd Quarter	105		4	
1st Year, 4th Quarter	110	*	5.5	
2nd Year, 1st Quarter	83		3	
2nd Year, 2nd Quarter	50	√	1.5	
2nd Year, 3rd Quarter	110	*	5.5	
2nd Year, 4th Quarter	50	√	1.5	
			U = 26 – Wrs	= 1.5

8. Probability and the U Statistic. Table E shows the α value and the confidence level for values of U calculated for 2 groups of 4 samples each.

Table E
Probability and U Statistic
(For 2 Groups of 4 samples each)

U Statistic	Level of significance (α)	Confidence Level (%)
0	0.014	98.6
1	0.029	97.1
2	0.057	94.3
3	0.100	90.0

9. If more than 8 consecutive rounds of data are available, a Mann-Whitney U statistic can be calculated similar to the method presented here. Each set of data to be compared should represent the same span of time (e.g. 1 year) and the same time interval between samples (e.g., quarterly). The test must be conducted at a level of significance (α) of ≤ 0.10.

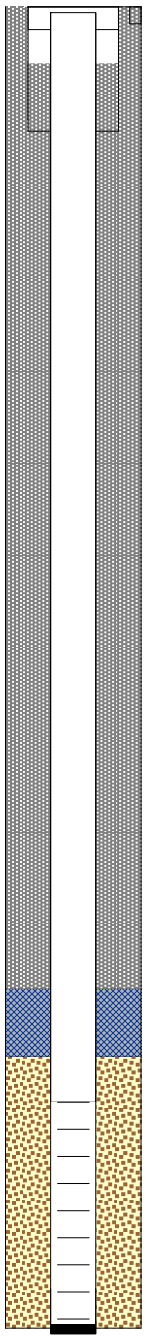
References:

Conover, W.J., Practical Nonparametric Statistics, 2nd Ed., John Wiley & Sons, 1971, pp. 216 223.

Gilbert, R.O., Statistical Methods for Environmental Pollution Monitoring, Van Nostrand Reinhold, 1987, pp. 204 – 240 and 272.

APPENDIX B
BORING LOG, WELL CONSTRUCTION RECORD & SURVEY

Client:	Former Abbott Laboratories	**Boring ID:**	MW-106C
Project:	Former Abbott Laboratories	**Date Started:**	12/9/15
Site Location:	160000 Joy Street, Laurinburg, NC	**Date Completed:**	12/9/15
Project Number:	0272871	**Northing:**	381878.56
Logged By:	Tom Naumann	**Easting:**	1863365.72

Depth	Lithology	Lithologic Description	Well Construction	Well Construction Details
0	-	Hand Auger per ERM Subsurface Clearance Policy		Flush Grade Locking Cap
4				
8				
12				Portland/Bentonite Grout
16				
20				8.25" Diameter Borehole
24				
28				2" Sch. 40 PVC Casing
32		Lithology Not Logged		
36				
40				
44				Bentonite Seal
48				
52				Well Sand Filter Pack
56				2" Sch. 40 PVC 0.010" Slot Screen
60				End Cap

Drilling Contractor:	Cascade Drilling	**Total Depth (ft):**	59
Drilling Method:	Hollow Stem Auger	**Screened Interval (ft):**	49-59
Responsible Professional:	John Allen	**Elevation (msl):**	227.88
Borehole Diameter:	8.25"		

ERM

WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

1. Well Contractor Information:

John Allen

Well Contractor Name

4196-B

NC Well Contractor Certification Number

Cascade Drilling

Company Name

2. Well Construction Permit #: _____

List all applicable well permits (i.e. County, State, Variance, Injection, etc.)

3. Well Use (check well use):

Water Supply Well:

☐Agricultural ☐Municipal/Public

☐Geothermal (Heating/Cooling Supply) ☐Residential Water Supply (single)

☐Industrial/Commercial ☐Residential Water Supply (shared)

☐Irrigation

Non-Water Supply Well:

☑Monitoring ☐Recovery

Injection Well:

☐Aquifer Recharge ☐Groundwater Remediation

☐Aquifer Storage and Recovery ☐Salinity Barrier

☐Aquifer Test ☐Stormwater Drainage

☐Experimental Technology ☐Subsidence Control

☐Geothermal (Closed Loop) ☐Tracer

☐Geothermal (Heating/Cooling Return) ☐Other (explain under #21 Remarks)

4. Date Well(s) Completed: 12/9/15 **Well ID#** MW-106C

5a. Well Location:

Abbott Labs

Facility/Owner Name

Facility ID# (if applicable)

16000 Joy Street, Laurinburg 28352

Physical Address, City, and Zip

Scotland

County

Parcel Identification No. (PIN)

5b. Latitude and Longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

34 47 55.6 N 79 27 19.5 W

6. Is (are) the well(s): ☑**Permanent** or ☐**Temporary**

7. Is this a repair to an existing well: ☐**Yes** or ☑**No**

If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. Number of wells constructed: 1

*For multiple injection or non-water supply wells ONLY with the **same construction**, you can submit one form.*

9. Total well depth below land surface: 59 **(ft.)**

For multiple wells list all depths if different (example- 3@200' and 2@100')

10. Static water level below top of casing: 15 **(ft.)**

If water level is above casing, use "+"

11. Borehole diameter: 8.5 **(in.)**

12. Well construction method: auger

(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ **Method of test:** _____

13b. Disinfection type: _____ **Amount:** _____

For Internal Use ONLY:

14. WATER ZONES

FROM	TO	DESCRIPTION
15 ft.	59 ft.	silty sand
ft.	ft.	

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
0 ft.	49 ft.	2 in.	Sch40	PVC

16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		
ft.	ft.	in.		

17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
49 ft.	59 ft.	2 in.	0.010	Sch40	PVC
ft.	ft.	in.			

18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
0 ft.	44 ft.	neat cement	pour
44 ft.	47 ft.	bentonite	pour through augers
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
47 ft.	59 ft.	#2 silica sand	pour through augers
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
ft.	ft.	See Consultant's log
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	

21. REMARKS

22. Certification:

Signature of Certified Well Contractor

12/11/15

Date

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

24b. For Injection Wells ONLY: In addition to sending the form to the address in 24a above, also submit a copy of this form within 30 days of completion of well construction to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

24c. For Water Supply & Injection Wells:

Also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

APPENDIX C
GROUNDWATER SAMPLING RECORDS

Table 1-1: Summary of Groundwater Monitoring Program: December 2015

12/29/15 Water Levels	Well No.	Fixed-Base Laboratory Analyses[1]				Field Measurements	
		VOCs (Method 8260B)	VOCs + TICs (Method 8260B)	Total Organic Carbon (SM-5310B)	Total Chloride (EPA 300/9056A)	Water Quality Indicators[2]	Water Level
	Number of Samples	25	8	13	14	16	28
3.22	MW-100A	X	X	X	X	X	X
3.92	MW-100B	X	X	X	X	X	X
2.97	MW-101A	X	X	X	X	X	X
3.42	MW-101B	X	X	X	X	X	X
3.58	MW-102A	X	X	X	X	X	X
4.80	MW-102B	X	X	X	X	X	X
5.18	MW-102C	X	X	X	X	X	X
4.53	MW-103A	X		X	X	X	X
5.55	MW-103B	X		X	X	X	X
6.23	MW-103C	X		X	X	X	X
4.40	MW-104A	X		X		X	X
5.10	MW-104B	X		X	X	X	X
6.01	MW-104C	X		X	X	X	X
9.91	MW-105C	X					X
4.50	MW-106C (proposed)	X	X			X	X
3.83	MW-6B						X
2.81	MW-10B	X			X	X	X
4.35	MW-10D	X			X	X	X
3.46	MW-13B						X
2.38	MW-16B	X					X
4.51	MW-16D	X					X
2.99	MW-18B	X					X
4.88	MW-18D	X					X
1.73	MW-19B	X					X
5.62	MW-19D	X					X
1.34	MW-20B	X					X
4.05	MW-20D	X					X
1.03	MW-21B						X

Notes:

[1] Fixed-base laboratories include Accutest Laboratories and AbbVie EHS Laboratory (formerly Abbott EHS Laboratory)

[2] Water quality indicators include pH, temperature, dissolved oxygen, oxidation-reduction potential, turbidity, and specific conductance

VOCs = volatile organic compounds

MW-105C Shaded cells indicate wells proposed to be sampled via passive diffusion bags

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-28-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-100A
Total Depth (ft)[1]: 30
Depth to Water (ft): 3.57
Well Diameter (in): 2
Well Volume (gal) = $0.041d^2h$:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): 25
Start/Stop Purge Time: 1505 / 1540
Purge Rate (L/min)[2]: 0.1
Total Purge Volume (L): 3.0

Sample Collection Time: 1545
Sample Purge Rate (L/min)[3]: 0.1
Sample ID: MW-100A
QA/QC Collected? NO
QA/QC I.D. NA +10 TICs
Laboratory Analyses: VOCs, TOC, Cl

Sampling Method (check all that apply): ☑ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☑ pump head discharge (inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1510	21.3	537.5	1.05	5.83	-25.2	21.9	0.5	3.53	Clear, smells bad
1515	21.9	535	1.31	5.84	-37.9	20.8	1.0	3.54	
1520	21.7	535	0.49	5.83	-51.5	21.5	1.5	3.56	
1525	21.6	536	0.44	5.83	-53.7	20.1	2.0	3.57	
1530	20.5	536	0.36	5.83	-56.1	18.5	2.5	3.58	
1535	19.8	535.2	0.33	5.83	-52.0	22.4	3.0	3.59	
1545 — SAMPLE TIME									
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories | Project No.: 272871 | Sampling Date: 12-28-15

Site/Location: 16000 Joy Street, Laurinburg, NC | Sampler's Name: S. Gurr / A. Neal

Well ID: MW-100B | Pump Type/Model: Peristaltic | Sample Collection Time: 1450

Total Depth (ft)[1]: 45 | Tubing Material: Polyethylene | Sample Purge Rate (L/min)[3]: 0.1

Depth to Water (ft): 3.93 | Pump Intake Depth (ft): 40 | Sample ID: MW-100B

Well Diameter (in): 2 | Start/Stop Purge Time: 1415 | QA/QC Collected? No

Well Volume (gal) = 0.041d²h: | Purge Rate (L/min)[2]: 0.1 | QA/QC I.D. NA +10 TICs

d = well diameter (inches) h = length of water column (feet) | Total Purge Volume (L): 2.5 | Laboratory Analyses: VOCs, TOC, Cl

Well Condition: Good | Sampling Method (check all that apply): ☐ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☑ pump head discharge (Inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1420	23.1	968	2.16	5.65	-26.6	9.09	0.5	3.98	Water clear, smells awful
1425	22.4	970	1.85	5.53	-29.8	3.52	1.0	4.02	
1430	22.2	970	1.53	5.44	-32.4	2.96	1.5	4.02	
1435	22.1	973	0.96	5.44	-32.0	2.48	2.0	4.02	
1440	22.1	973	0.58	5.44	-31.9	2.25	2.5	4.02	
1450	– SAMPLE TIME								
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12/28/15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-101A
Pump Type/Model: Peristaltic
Sample Collection Time: 1545
Total Depth (ft)[1]: 30
Tubing Material: Polyethylene
Sample Purge Rate (L/min)[3]: 0.1
Depth to Water (ft): 3.10
Pump Intake Depth (ft): 25
Sample ID: MW-101A
Well Diameter (in): 2
Start/Stop Purge Time: 1520
QA/QC Collected? NO
Well Volume (gal) = 0.041d²h:
Purge Rate (L/min)[2]: 0.1
QA/QC I.D. NA
d = well diameter (inches) h = length of water column (feet)
Total Purge Volume (L): 3.0
Laboratory Analyses: VOCs + 10 TICs, TOC, Cl
Well Condition: Good
Sampling Method (check all that apply): ☑ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☑ pump head discharge (Inorganics including cyanide)
☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1525	22.4	9.5	8.62	7.19	88.2	6.55	0.5	3.12	
1530	22.9	8.3	7.21	7.24	85.0	6.49	1.0	3.12	
1533	22.6	8.2	7.91	7.14	94.1	~~6.55~~	~~1.5~~	3.12	
1536	21.9	8.4	9.65	7.13	102.4	6.53	2.0	3.12	
1539	21.5	8.2	10.31	7.30	95.8	6.50	2.5	3.12	
1542	21.1	8.1	10.39	7.20	100.1	6.50	3.0	3.12	
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories | Project No.: 272871 | Sampling Date: 12/28/15

Site/Location: 16000 Joy Street, Laurinburg, NC | Sampler's Name: S. Gurr / A. Neal

Well ID: MW-101B | Pump Type/Model: Peristaltic | Sample Collection Time: 1500

Total Depth (ft)[1]: 45 | Tubing Material: Polyethylene | Sample Purge Rate (L/min)[3]: 0.1

Depth to Water (ft): 5.50 | Pump Intake Depth (ft): 40 | Sample ID: MW-101B

Well Diameter (in): 2 | Start/Stop Purge Time: 14:25 | QA/QC Collected? No

Well Volume (gal) = $0.041d^2h$: | Purge Rate (L/min)[2]: 0.1 | QA/QC I.D. NA

d = well diameter (inches) h = length of water column (feet) | Total Purge Volume (L): 3.0 | Laboratory Analyses: VOCs + TOTICS, TOC, Cl

Well Condition: Good | Sampling Method (check all that apply): ☑ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☑ pump head discharge (inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1430	22.9	9.3	9.12	7.28	72.8	3.35	0.5	6.30	lowered rate, raining
1435	23.4	6.9	8.76	7.64	57.9	3.99	1.0	6.25	
1440	23.2	8.4	8.86	7.38	63.7	3.89	1.5	6.25	
1445	23.2	7.6	8.77	7.19	80.8	3.88	2.0	6.25	
1450	22.9	7.3	8.85	7.20	81.1	3.87	2.5	6.25	
1455	22.4	7.0	9.00	7.17	80.5	3.88	3.0	6.25	
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-29-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-102A
Pump Type/Model: Peristaltic
Sample Collection Time: 1425
Total Depth (ft)[1]: 30
Tubing Material: Polyethylene
Sample Purge Rate (L/min)[3]: 0.1
Depth to Water (ft): 3.58
Pump Intake Depth (ft): 25
Sample ID: MW-102A
Well Diameter (in): 2
Start/Stop Purge Time: 1355/1420
QA/QC Collected? NO
Well Volume (gal) = 0.041d²h:
Purge Rate (L/min)[2]: 0.1
QA/QC I.D. NA
d = well diameter (inches) h = length of water column (feet)
Total Purge Volume (L): 3.0
Laboratory Analyses: VOCs + 10 TICs, TOC, Cl
Well Condition: Good
Sampling Method (check all that apply): ☑ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☑ pump head discharge (Inorganics including cyanide)
☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1355	20.6	68.1	1.50	9.15	-48.6	5.37	0.5	3.61	
1400	20.5	67.2	0.71	10.57	-122.2	4.18	1.0	3.64	
1405	20.7	68.3	0.53	10.96	-162.0	1.06	1.5	3.67	
1410	20.7	67.2	0.62	11.11	-164.3	0.68	2.0	3.71	
1415	20.6	67.2	0.60	11.11	-164.6	0.97	2.5	3.74	
1420	20.6	67.2	0.60	11.12	-165.4	1.11	3.0	3.77	
1425 - SAMPLE TIME									
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

GROUND WATER SAMPLING LOG SHEET

ERM

Client: Abbott Laboratories

Project No.: 272871

Site/Location: 16000 Joy Street, Laurinburg, NC

Sampling Date: 12-29-15

Sampler's Name: S. Gurr / A. Neal

Well ID: MW-102B

Total Depth (ft)[1]: 45

Depth to Water (ft): 4.90

Well Diameter (in): 2

Well Volume (gal) = $0.041d^2h$:

d = well diameter (inches) h = length of water column (feet)

Well Condition: Good

Pump Type/Model: Peristaltic

Tubing Material: Polyethylene

Pump Intake Depth (ft): 40

Start/Stop Purge Time: 1445/1505

Purge Rate (L/min)[2]: 0.1

Total Purge Volume (L): 2.5

Sampling Method (check all that apply): ☒ Soda straw (VOCs) ☐ vacuum jug (SVOCs) ☐ Bladder pump = pump discharge (all analytes)

Sample Collection Time: 1510

Sample Purge Rate (L/min)[3]: 0.1

Sample ID: MW-102B

QA/QC Collected? YES

QA/QC I.D. DUP-2

Laboratory Analyses: VOCs, +10 TICs, TOC, Cl

☒ pump head discharge (inorganics including cyanide)

☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1445	20.4	166.8	0.55	11.28	-170.4	1.43	0.5	4.84	
1450	20.2	167.1	0.53	11.37	-169.8	1.81	1.0	4.87	
1455	20.2	166.7	0.49	11.35	-169.7	4.61	1.5	4.91	
1500	20.2	166.6	0.50	11.30	-169.4	4.57	2.0	4.93	
1505	20.2	166.4	0.49	11.34	-169.3	2.09	2.5	4.96	
1510 —	SAMPLE TIME								
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

GROUND WATER SAMPLING LOG SHEET

ERM

Client: Abbott Laboratories

Project No.: 272871

Sampling Date: 12-29-15

Sampler's Name: S. Gurr / A. Neal

Site/Location: 16000 Joy Street, Laurinburg, NC

Well ID: MW-102C

Total Depth (ft)[1]: 65

Depth to Water (ft): 5.18

Well Diameter (in): 2

Well Volume (gal) = $0.041d^2h$:

d = well diameter (inches) h = length of water column (feet)

Well Condition: Good

Pump Type/Model: Peristaltic

Tubing Material: Polyethylene

Pump Intake Depth (ft): 60

Start/Stop Purge Time: 1610/1640

Purge Rate (L/min)[2]: 0.1

Total Purge Volume (L): 2.5

Sampling Method (check all that apply): ☑ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☐ Bladder pump = pump discharge (all analytes)

Sample Collection Time: 1640

Sample Purge Rate (L/min)[3]: NA

Sample ID: MW-102C

QA/QC Collected? No

QA/QC I.D. NA

Laboratory Analyses: VOCs + 10 TICs, TOC, Cl

☑ pump head discharge (inorganics including cyanide)

☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1610	19.9	293.6	0.68	4.62	89.6	9.93	0.5	5.19	
1615	19.8	293.7	0.53	4.63	83.7	10.1	1.0	5.19	
1620	19.8	292.8	0.43	4.65	73.7	9.61	1.5	5.19	
1625	19.8	290.8	0.41	4.66	62.3	9.36	2.0	5.19	
1630	19.7	290.6	0.38	4.66	62.2	9.13	2.5	5.19	
1640 - SAMPLE TIME									
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-30-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-103A
Pump Type/Model: Peristaltic
Sample Collection Time: 825
Total Depth (ft)[1]: 30
Tubing Material: Polyethylene
Sample Purge Rate (L/min)[3]: 0-1
Depth to Water (ft): 4.70
Pump Intake Depth (ft): 25
Sample ID: MW-103A
Well Diameter (in): 2
Start/Stop Purge Time: 755/815
QA/QC Collected? NO
Well Volume (gal) = 0.041d²h:
Purge Rate (L/min)[2]: 0.1
QA/QC I.D. NA
d = well diameter (inches) h = length of water column (feet)
Total Purge Volume (L): 2.5
Laboratory Analyses: VOCs, TOC, Cl
Well Condition: Good
Sampling Method (check all that apply): ☑ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☑ pump head discharge (Inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
755	21.5	103.4	1.58	4.84	246.5	2.65	0.5	4.70	
800	21.5	100.1	0.96	4.72	252.9	2.32	1.0	4.70	
805	21.5	~~26~~ 95.1	0.67	4.64	264.4	2.16	1.5	4.70	
810	21.6	93.2	0.65	4.61	266.9	1.88	2.0	4.70	
815	21.6	92.7	0.63	4.60	268.8	1.96	2.5	4.70	
825	- SAMPLE	TIME							
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-30-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-103B
Total Depth (ft)[1]: 45
Depth to Water (ft): 5.67
Well Diameter (in): 2
Well Volume (gal) = 0.041d²h:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): 40
Start/Stop Purge Time: 850 / 915
Purge Rate (L/min)[2]: 0.1
Total Purge Volume (L): 3.0

Sample Collection Time: 925
Sample Purge Rate (L/min)[3]: 0.1
Sample ID: MW-103B
QA/QC Collected? NO
QA/QC I.D. NA
Laboratory Analyses: VOC, TOC, Cl

Sampling Method (check all that apply): ☑ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☑ pump head discharge (Inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
850	21.4	214.1	1.16	10.37	-110.1	4.46	0.5	5.68	
855	21.4	215.7	0.86	10.49	-123.7	3.71	1.0	5.69	
900	21.5	216.1	0.56	10.66	-143.7	3.23	1.5	5.70	
905	21.5	215.5	0.52	10.72	-147.1	2.82	2.0	5.71	
910	21.5	215.3	0.49	10.76	-153.8	1.51	2.5	5.72	
915	21.5	215.0	0.49	10.78	-154.0	1.94	3.0	5.73	
925 - SAMPLE TIME									
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-30-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-103C
Pump Type/Model: Peristaltic
Sample Collection Time: 1020
Total Depth (ft)[1]: 65
Tubing Material: Polyethylene
Sample Purge Rate (L/min)[3]: 0.1
Depth to Water (ft): 6.23
Pump Intake Depth (ft): 60
Sample ID: MW-103C
Well Diameter (in): 2
Start/Stop Purge Time: 950/1020
QA/QC Collected? NO
Well Volume (gal) = 0.041d²h: -
Purge Rate (L/min)[2]: 0.1
QA/QC I.D. NA
d = well diameter (inches) h = length of water column (feet)
Total Purge Volume (L): 2.5
Laboratory Analyses: VOCs, TOC, Cl
Well Condition: Good

Sampling Method (check all that apply): ☑ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☑ pump head discharge (inorganics including cyanide)
☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
950	21.5	163.8	1.42	5.95	-8.8	9.88	0.5	6.24	
955	21.4	164.5	0.93	5.99	-31.6	3.01	1.0	6.25	
1000	21.4	165.6	0.63	5.99	-42.2	2.88	1.5	6.26	
1005	21.4	165.8	0.54	5.99	-41.9	2.98	2.0	6.26	
1010	21.4	165.8	0.53	5.98	-41.6	2.71	2.5	6.26	
1020 - SAMPLE TIME									
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-30-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-104A.
Total Depth (ft)[1]: 12
Depth to Water (ft): 4.55
Well Diameter (in): 2
Well Volume (gal) = 0.041d²h:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): 11.5
Start/Stop Purge Time: 1045/1105
Purge Rate (L/min)[2]: 0.1
Total Purge Volume (L): 2.5

Sample Collection Time: 1110
Sample Purge Rate (L/min)[3]: 0.1
Sample ID: MW-104A
QA/QC Collected? NO
QA/QC I.D. NA
Laboratory Analyses: VOCs, TOC

Sampling Method (check all that apply): ☒ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☒ pump head discharge (Inorganics including cyanide)
☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1045	21.5	115.7	3.59	9.60	-85.8	6.58	0.5	4.56	
1050	21.5	115.5	3.53	9.88	-78.7	3.63	1.0	4.56	
1055	21.4	115.4	3.46	10.04	-101.3	1.52	1.5	4.56	
1100	21.5	115.4	3.36	10.09	-105.7	0.98	2.0	4.56	
1105	21.5	115.3	3.23	10.12	-110.2	1.67	2.5	4.56	
1110 - SAMPLE TIME.									
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-30-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-104B
Pump Type/Model: Peristaltic
Sample Collection Time: 1235
Total Depth (ft)[1]: 45
Tubing Material: Polyethylene
Sample Purge Rate (L/min)[3]: 0.1
Depth to Water (ft): 5.16
Pump Intake Depth (ft): 40
Sample ID: MW-104B
Well Diameter (in): 2
Start/Stop Purge Time: 1205/1225
QA/QC Collected? NO
Well Volume (gal) = 0.041d²h:
Purge Rate (L/min)[2]: 0.1
QA/QC I.D. NA
d = well diameter (inches) h = length of water column (feet)
Total Purge Volume (L): 2.5
Laboratory Analyses: VOCs, TOC, Cl
Well Condition: Good

Sampling Method (check all that apply): ☑ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☐ pump head discharge (Inorganics including cyanide)
☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1205	21.5	100.7	4.06	5.56	101.9	1.95	0.5	5.18	
1210	21.5	100.5	3.88	5.41	136.6	1.47	1.0	5.19	
1215	21.4	100.4	3.79	5.32	174.5	2.89	1.5	5.19	
1220	21.4	100.3	3.18	5.33	168.7	2.11	2.0	5.20	
1225	21.4	100.1	2.84	5.32	161.2	1.37	2.5	5.20	
1235 - SAMPLE TIME									
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-30-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-104C
Total Depth (ft)[1]: 73.5
Depth to Water (ft): 6.03
Well Diameter (in): 2
Well Volume (gal) = 0.041d²h:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): 68.5
Start/Stop Purge Time: 1250/1315
Purge Rate (L/min)[2]: ~~0.5~~ 0.1
Total Purge Volume (L): 3.0

Sample Collection Time: 1320
Sample Purge Rate (L/min)[3]: 0.1
Sample ID: MW-104C
QA/QC Collected? no
QA/QC I.D. NA
Laboratory Analyses: VOCs, TOC, Cl

Sampling Method (check all that apply): ☑ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☑ pump head discharge (inorganics including cyanide)
☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1250	21.5	94.3	0.86	6.58	6.66	4.86	0.5	6.04	
1255	21.5	94.2	0.71	6.62	59.9	3.97	1.0	6.05	
1300	21.5	94.0	0.61	6.64	55.6	1.36	1.5	6.05	
1305	21.5	94.0	0.59	6.64	54.0	1.15	2.0	6.06	
1310	21.5	93.9	0.56	6.64	53.5	1.46	2.5	6.06	
1315	21.5	93.9	0.56	6.63	53.3	1.24	3.0	6.06	
1320 – SAMPLE TIME									
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-29-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-105C
Total Depth (ft)[1]: 64
Depth to Water (ft): 9.91
Well Diameter (in): 2
Well Volume (gal) = 0.041d²h:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): —
Start/Stop Purge Time: —
Purge Rate (L/min)[2]: —
Total Purge Volume (L): —

Sample Collection Time: 820
Sample Purge Rate (L/min)[3]: —
Sample ID: MW-105C
QA/QC Collected? NO
QA/QC I.D. NA
Laboratory Analyses: VOCs

Sampling Method (check all that apply): ☐ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☐ pump head discharge (Inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
									PDB
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-29-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-106C
Total Depth (ft)[1]: 59
Depth to Water (ft): 4.50
Well Diameter (in): 2
Well Volume (gal) = 0.041d²h:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): 54
Start/Stop Purge Time: 1125/1200
Purge Rate (L/min)[2]: 0.1
Total Purge Volume (L): 3

Sample Collection Time: 1200
Sample Purge Rate (L/min)[3]: 0.1
Sample ID: MW-106C
QA/QC Collected? NO
QA/QC I.D. NA
Laboratory Analyses: VOCs + 10 TICs

Sampling Method (check all that apply): ☑ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☑ pump head discharge (Inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1125	21.3	53.0	2.24	4.73	246.5	6.69	0.5	4.50	
1130	21.2	54.1	1.62	4.75	243.1	9.58	1.0	4.50	
1135	21.1	54.2	1.22	4.77	241.9	5.39	1.5	4.50	
1140	20.9	53.7	0.90	4.77	242.3	4.64	2.0	4.50	
1145	20.9	53.4	0.74	4.77	242.5	6.18	2.5	4.50	
1150	20.9	52.8	0.75	4.76	242.5	4.05	3.0	4.50	
1200 – SAMPLE TIME									
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories | Project No.: 272871 | Sampling Date: 12-29-15

Site/Location: 16000 Joy Street, Laurinburg, NC | Sampler's Name: S. Gurr / A. Neal

Well ID: MW-10B | Pump Type/Model: Peristaltic | Sample Collection Time: 1350

Total Depth (ft)[1]: 26.5 | Tubing Material: Polyethylene | Sample Purge Rate (L/min)[3]: 0.1

Depth to Water (ft): 2.81 | Pump Intake Depth (ft): 21.5 | Sample ID: MW-10B

Well Diameter (in): 2 | Start/Stop Purge Time: 1305 / 1350 | QA/QC Collected? NO

Well Volume (gal) = 0.041d²h: | Purge Rate (L/min)[2]: 0.1 | QA/QC I.D. NA

d = well diameter (inches) h = length of water column (feet) | Total Purge Volume (L): 4.5 | Laboratory Analyses: VOCs, Cl

Well Condition: Good | Sampling Method (check all that apply): ☒ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☒ pump head discharge (Inorganics including cyanide)

☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1305	21.9	103.0	3.08	9.44	-44.6	7.83	0.5	2.83	
1310	22.0	96.6	2.70	9.79	-81.3	8.08	1.0	2.83	
1315	22.0	81.9	2.23	10.23	-117.2	6.35	1.5	2.84	
1320	22.1	78.7	2.33	10.35	-124.4	7.45	2.0	2.84	
1325	22.4	78.2	2.35	10.26	-114.9	6.98	2.5	2.84	
1330	22.8	78.1	2.41	10.15	-103.8	6.20	3.0	2.85	
1335	22.6	77.0	2.31	10.30	-103.3	5.99	3.5	2.85	
1340	22.3	76.1	2.24	10.31	-105.2	5.46	4.0	2.85	
1345	22.2	75.8	2.25	10.34	-105.6	5.93	4.5	2.85	
1350 - SAMPLE TIME									
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-29-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-10D
Total Depth (ft)[1]: 40
Depth to Water (ft): 4.35
Well Diameter (in): 2
Well Volume (gal) = 0.041d²h: 5.8
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): 35
Start/Stop Purge Time: 1215 / 1545
Purge Rate (L/min)[2]: 0.1
Total Purge Volume (L): > 3WV

Sample Collection Time: 1550
Sample Purge Rate (L/min)[3]: 0.1
Sample ID: MW-10D
QA/QC Collected? NO
QA/QC I.D. NA
Laboratory Analyses: VOCs, ~~[illegible]~~ Cl

Sampling Method (check all that apply): ☑ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☑ pump head discharge (Inorganics including cyanide)
☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1215	23.2	68.5	2.39	5.09	193.1	9.58	0.5	4.86	Reduced flow rate due to excessive draw-
1220	23.6	68.7	1.22	5.08	185.1	5.27	1.0	4.95	down, well continued to draw down
									~~[illegible]~~ proceeded to purge 3 well volumes
									1 well vol = 5.8 gal
									3 well vol = 17.4 gal
1325	20.7	66.2	0.72	4.90	211.0	4.20	1WV	—	
1430	20.6	66.5	0.66	4.93	194.7	6.17	2WV	—	
1535	20.4	66.3	0.63	4.93	183.5	1.37	3WV	—	
1540	20.4	66.4	0.62	4.93	183.4	1.97	—	—	
1545	20.4	66.3	0.62	4.93	183.4	1.79	—	—	
1550 — SAMPLE TIME									
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
(6) - Monitor DTW every 5 min. Well drawdown to be 0.3 ft or less. Purge/sampling rate to be lowered as necessary to keep drawdown below 0.3 ft.
(7) - DO is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.
(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-29-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-16B
Total Depth (ft)[1]: 24.25
Depth to Water (ft): 2.38
Well Diameter (in): 2
Well Volume (gal) = 0.041d²h:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): —
Start/Stop Purge Time: —
Purge Rate (L/min)[2]: —
Total Purge Volume (L): —

Sample Collection Time: 935
Sample Purge Rate (L/min)[3]: —
Sample ID: MW-16B
QA/QC Collected? ~~YES~~ NO
QA/QC I.D. ~~DUPLICATE~~ NA
Laboratory Analyses: VOCs

Sampling Method (check all that apply): ☐ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☐ pump head discharge (Inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
									PDB
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
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(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-29-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-16D
Total Depth (ft)[1]: 71.5
Depth to Water (ft): 4.51
Well Diameter (in): 2
Well Volume (gal) = 0.041d²h:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): —
Start/Stop Purge Time: —
Purge Rate (L/min)[2]: —
Total Purge Volume (L): —

Sample Collection Time: 1000
Sample Purge Rate (L/min)[3]: —
Sample ID: MW-16D
QA/QC Collected? No
QA/QC I.D. NA
Laboratory Analyses: VOCs

Sampling Method (check all that apply): ☐ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☐ pump head discharge (Inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
									PDB
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

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(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-29-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-18B
Total Depth (ft)[1]: 14.5
Depth to Water (ft): 2.99
Well Diameter (in): 2
Well Volume (gal) = 0.041d²h:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): —
Start/Stop Purge Time: —
Purge Rate (L/min)[2]: —
Total Purge Volume (L): —

Sample Collection Time: 745
Sample Purge Rate (L/min)[3]: NA
Sample ID: MW-18B
QA/QC Collected? NO
QA/QC I.D. NA
Laboratory Analyses: VOCs

Sampling Method (check all that apply): ☐ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☐ pump head discharge (Inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
									PDB
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
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(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-29-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-18D
Total Depth (ft)[1]: ~~4~~ 57.1
Depth to Water (ft): 4.88
Well Diameter (in): 2
Well Volume (gal) = $0.041d^2h$:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): —
Start/Stop Purge Time: —
Purge Rate (L/min)[2]: —
Total Purge Volume (L): —

Sample Collection Time: 800
Sample Purge Rate (L/min)[3]: —
Sample ID: MW-18D
QA/QC Collected? No
QA/QC I.D. NA
Laboratory Analyses: VOCs

Sampling Method (check all that apply): ☐ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☐ pump head discharge (inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
									PDB
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.
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(8) - ORP is not a stabilization criterion for the "Groundwater sampling" SESD Standard Operating Procedure.

ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-29-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-19B
Total Depth (ft)[1]: 25
Depth to Water (ft): 1.73
Well Diameter (in): 2
Well Volume (gal) = 0.041d²h:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): —
Start/Stop Purge Time: —
Purge Rate (L/min)[2]: —
Total Purge Volume (L): —

Sample Collection Time: 850
Sample Purge Rate (L/min)[3]: —
Sample ID: MW-19B
QA/QC Collected? No
QA/QC I.D. NA
Laboratory Analyses: VOCs

Sampling Method (check all that apply): ☐ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☐ pump head discharge (inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
									PDB
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

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ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-29-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-19D
Total Depth (ft)[1]: 73.8
Depth to Water (ft): 5.62
Well Diameter (in): 2
Well Volume (gal) = 0.041d²h:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): —
Start/Stop Purge Time: —
Purge Rate (L/min)[2]: —
Total Purge Volume (L): —

Sample Collection Time: 915
Sample Purge Rate (L/min)[3]: —
Sample ID: MW-19D
QA/QC Collected? No
QA/QC I.D. NA
Laboratory Analyses: VOCs

Sampling Method (check all that apply): ☐ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☐ pump head discharge (inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
									PDB
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

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ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-29-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-20B
Total Depth (ft)[1]: 27
Depth to Water (ft): 1.34
Well Diameter (in): 2
Well Volume (gal) = 0.041d²h:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): —
Start/Stop Purge Time: —
Purge Rate (L/min)[2]: —
Total Purge Volume (L): —

Sample Collection Time: 1025
Sample Purge Rate (L/min)[3]: —
Sample ID: MW-20B
QA/QC Collected? YES
QA/QC I.D. DUP-1
Laboratory Analyses: VOCs

Sampling Method (check all that apply): ☐ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☐ pump head discharge (Inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
									PDB
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

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ERM

GROUND WATER SAMPLING LOG SHEET

Client: Abbott Laboratories
Project No.: 272871
Sampling Date: 12-29-15
Site/Location: 16000 Joy Street, Laurinburg, NC
Sampler's Name: S. Gurr / A. Neal

Well ID: MW-20D
Total Depth (ft)[1]: 78
Depth to Water (ft): 4.05
Well Diameter (in): 2
Well Volume (gal) = $0.041d^2h$:
d = well diameter (inches) h = length of water column (feet)
Well Condition: Good

Pump Type/Model: Peristaltic
Tubing Material: Polyethylene
Pump Intake Depth (ft): —
Start/Stop Purge Time: —
Purge Rate (L/min)[2]: —
Total Purge Volume (L): —

Sample Collection Time: 1100
Sample Purge Rate (L/min)[3]:
Sample ID: MW-20B
QA/QC Collected? NO
QA/QC I.D. NA
Laboratory Analyses: VOCs

Sampling Method (check all that apply): ☐ soda straw (VOCs) ☐ vacuum jug (SVOCs) ☐ pump head discharge (inorganics including cyanide) ☐ Bladder pump = pump discharge (all analytes) ☐ Bailer (only used if necessary)

Time	Temp. (°C)	Spec. Cond. (mS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTUs)	Purge Volume (L)	H_2O Depth (ft)	Notes (Water clarity, odor, purge rate, issues with pump/well/weather/etc.)
									PDB
Stabilizing Criteria[5]	+/- 1°C	+/- 3%	+/- 10% (see note below)[7]	+/- 0.1 unit	+/- 10 mV (see note below)[8]	+/- 10% or <10 NTUs	(see note below)[4]	(see note below)[6]	

(1) - Do not measure depth to bottom of well until after purging and sampling to reduce resuspending lines that may be resting on the well bottom.
(2) - Purge rate to be 0.5 lpm or less.
(3) - Sampling rate to be 0.25 lpm or less.
(4) - Field parameter measurements to be recorded every 3 to 5 minutes.
(5) - Stabilization criteria based on three most recent consecutive measurements.
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APPENDIX D
LABORATORY ANALYTICAL REPORTS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

TestAmerica Job ID: 500-105858-1
Client Project/Site: Laurinburg, NC VOC Testing (60135880)

For:
AbbVie US LLC
200 Abbott Park Road
Dept V5IH, Bldg AP 52N
North Chicago, Illinois 60064-6217

Attn: Pam Kramer

Authorized for release by:
1/14/2016 3:09:08 PM

Jim Knapp, Project Manager II
(630)758-0262
jim.knapp@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 500-105858-1

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-105858-1

Comments
No additional comments.

Receipt
The samples were received on 12/31/2015 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.4º C and 4.4º C.

Receipt Exceptions

A Chain-of-Custody (COC) was not received with these samples.

The following samples were listed on the Chain of Custody (COC); however, no samples were initially received. They arrived in a delayed FedEx shipment.
MW-101A
MW-101B
MW-102B
MW-102C
MW-105C
MW-106C
MW-10B
MW-10D
MW-18B

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

GC/MS VOA
Method(s) 8260B: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-100A (500-105858-1), MW-100B (500-105858-2), MW-102C (500-105858-7), MW-103A (500-105858-8), MW-103B (500-105858-9), MW-103C (500-105858-10) and MW-104C (500-105858-13). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The method blank for preparation batch 318328 contained Chloroform above the reporting limit (RL). The samples associated with this method blank also detected this analyte. Chlorofom is a suspected lab contaminant therefore the results have been flagged with a "B" flag to denote the probable lab contamination and the presence in the blank.

Method(s) 8260B: The laboratory control sample (LCS) for batch 318390 recovered outside control limits for the following analyte: 2-Butanone. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data has been reported.

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

Detection Summary

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-100A — Lab Sample ID: 500-105858-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	240		10	3.8	ug/L	10		8260B	Total/NA
1,1-Dichloroethane	35		10	4.1	ug/L	10		8260B	Total/NA
1,1-Dichloroethylene	230		10	3.9	ug/L	10		8260B	Total/NA
1,2-Dichloroethane	52		10	3.9	ug/L	10		8260B	Total/NA
Acetone	600		50	17	ug/L	10		8260B	Total/NA
Benzene	9.2		5.0	1.5	ug/L	10		8260B	Total/NA
Chloroform	60	B	10	3.7	ug/L	10		8260B	Total/NA
Ethylbenzene	6.6		5.0	1.8	ug/L	10		8260B	Total/NA
m&p-Xylene	18		10	1.8	ug/L	10		8260B	Total/NA
o-Xylene	7.2		5.0	2.2	ug/L	10		8260B	Total/NA
Perchloroethylene	8.2	J	10	3.7	ug/L	10		8260B	Total/NA
Toluene	610		5.0	1.5	ug/L	10		8260B	Total/NA
trans-1,2-Dichloroethene	10		10	3.5	ug/L	10		8260B	Total/NA
Trichloroethylene	8.0		5.0	1.6	ug/L	10		8260B	Total/NA
Vinyl chloride	33		5.0	2.0	ug/L	10		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane - DL	5700		500	46	ug/L	100		8260B	Total/NA
Methyl Ethyl Ketone - DL	3900		500	210	ug/L	100		8260B	Total/NA
cis-1,2-Dichloroethene - DL2	19000		500	200	ug/L	500		8260B	Total/NA

Client Sample ID: MW-100B — Lab Sample ID: 500-105858-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	1200		50	19	ug/L	50		8260B	Total/NA
1,1-Dichloroethane	110		50	21	ug/L	50		8260B	Total/NA
1,1-Dichloroethylene	870		50	20	ug/L	50		8260B	Total/NA
1,2-Dichloroethane	140		50	20	ug/L	50		8260B	Total/NA
Acetone	700		250	87	ug/L	50		8260B	Total/NA
Benzene	30		25	7.3	ug/L	50		8260B	Total/NA
Chloroform	180	B	50	19	ug/L	50		8260B	Total/NA
Ethylbenzene	27		25	9.2	ug/L	50		8260B	Total/NA
m&p-Xylene	78		50	9.1	ug/L	50		8260B	Total/NA
Methyl Ethyl Ketone	3200		250	110	ug/L	50		8260B	Total/NA
o-Xylene	27		25	11	ug/L	50		8260B	Total/NA
Perchloroethylene	39	J	50	19	ug/L	50		8260B	Total/NA
Toluene	2900		25	7.6	ug/L	50		8260B	Total/NA
trans-1,2-Dichloroethene	27	J	50	17	ug/L	50		8260B	Total/NA
Trichloroethylene	99		25	8.2	ug/L	50		8260B	Total/NA
Vinyl chloride	78		25	10	ug/L	50		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane - DL	19000		2500	230	ug/L	500		8260B	Total/NA
cis-1,2-Dichloroethene - DL	63000		500	200	ug/L	500		8260B	Total/NA

Client Sample ID: MW-101A — Lab Sample ID: 500-105858-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	11		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethylene	7.2		0.50	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.58		0.50	0.20	ug/L	1		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane - DL	320		50	4.6	ug/L	10		8260B	Total/NA

Client Sample ID: MW-101B — Lab Sample ID: 500-105858-4

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-101B (Continued) — Lab Sample ID: 500-105858-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	0.60	J	1.0	0.38	ug/L	1		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane	9.2		5.0	0.46	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	110		1.0	0.41	ug/L	1		8260B	Total/NA
Perchloroethylene	0.87	J	1.0	0.37	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.72	J	1.0	0.35	ug/L	1		8260B	Total/NA
Trichloroethylene	64		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: MW-102A — Lab Sample ID: 500-105858-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	19		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethylene	0.46	J	0.50	0.16	ug/L	1		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane - DL	300		50	4.6	ug/L	10		8260B	Total/NA

Client Sample ID: MW-102B — Lab Sample ID: 500-105858-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	0.60	J	1.0	0.38	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	0.55	J	1.0	0.41	ug/L	1		8260B	Total/NA
1,1-Dichloroethylene	14		1.0	0.39	ug/L	1		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane	87		5.0	0.46	ug/L	1		8260B	Total/NA
Acetone	8.1		5.0	1.7	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	160		1.0	0.41	ug/L	1		8260B	Total/NA
m&p-Xylene	0.71	J	1.0	0.18	ug/L	1		8260B	Total/NA
Methyl Ethyl Ketone	12		5.0	2.1	ug/L	1		8260B	Total/NA
Perchloroethylene	1.0		1.0	0.37	ug/L	1		8260B	Total/NA
Toluene	6.5		0.50	0.15	ug/L	1		8260B	Total/NA
Vinyl chloride	2.0		0.50	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-102C — Lab Sample ID: 500-105858-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	27		10	3.8	ug/L	10		8260B	Total/NA
Acetone	130		50	17	ug/L	10		8260B	Total/NA
Chloroform	16		10	3.7	ug/L	10		8260B	Total/NA
Ethylbenzene	5.1		5.0	1.8	ug/L	10		8260B	Total/NA
m&p-Xylene	17		10	1.8	ug/L	10		8260B	Total/NA
Methyl Ethyl Ketone	62		50	21	ug/L	10		8260B	Total/NA
Methylene Chloride	56		50	16	ug/L	10		8260B	Total/NA
o-Xylene	5.7		5.0	2.2	ug/L	10		8260B	Total/NA
Perchloroethylene	13		10	3.7	ug/L	10		8260B	Total/NA
Toluene	620		5.0	1.5	ug/L	10		8260B	Total/NA
Trichloroethylene	210		5.0	1.6	ug/L	10		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane - DL	7900		500	46	ug/L	100		8260B	Total/NA
cis-1,2-Dichloroethene - DL	17000		100	41	ug/L	100		8260B	Total/NA

Client Sample ID: MW-103A — Lab Sample ID: 500-105858-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	55		50	20	ug/L	50		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-103A (Continued) — Lab Sample ID: 500-105858-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethylene	38		25	8.2	ug/L	50		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane - DL	26000		2500	230	ug/L	500		8260B	Total/NA

Client Sample ID: MW-103B — Lab Sample ID: 500-105858-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	99		5.0	2.0	ug/L	5		8260B	Total/NA
Toluene	1.3	J	2.5	0.76	ug/L	5		8260B	Total/NA
Trichloroethylene	5.4		2.5	0.82	ug/L	5		8260B	Total/NA
Vinyl chloride	7.6		2.5	1.0	ug/L	5		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane - DL	1100		250	23	ug/L	50		8260B	Total/NA

Client Sample ID: MW-103C — Lab Sample ID: 500-105858-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	130		20	8.2	ug/L	20		8260B	Total/NA
Trichloroethylene	21		10	3.3	ug/L	20		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane - DL	6600		1000	92	ug/L	200		8260B	Total/NA

Client Sample ID: MW-104A — Lab Sample ID: 500-105858-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	1.6		1.0	0.41	ug/L	1		8260B	Total/NA
1,2-Dichloroethane	1.9		1.0	0.39	ug/L	1		8260B	Total/NA
Chloroform	1.2		1.0	0.37	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	1.3		1.0	0.35	ug/L	1		8260B	Total/NA
Vinyl chloride	15		0.50	0.20	ug/L	1		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane - DL	240		50	4.6	ug/L	10		8260B	Total/NA
cis-1,2-Dichloroethene - DL	290		10	4.1	ug/L	10		8260B	Total/NA

Client Sample ID: MW-104B — Lab Sample ID: 500-105858-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.26	J	0.50	0.15	ug/L	1		8260B	Total/NA
Chloroform	1.3		1.0	0.37	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	19		1.0	0.41	ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	2.5		1.0	0.39	ug/L	1		8260B	Total/NA
Trichloroethylene	4.3		0.50	0.16	ug/L	1		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane - DL	890		25	2.3	ug/L	5		8260B	Total/NA

Client Sample ID: MW-104C — Lab Sample ID: 500-105858-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	41		5.0	2.0	ug/L	5		8260B	Total/NA
Methyl tert-butyl ether	3.6	J	5.0	2.0	ug/L	5		8260B	Total/NA
Trichloroethylene	6.2		2.5	0.82	ug/L	5		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane - DL	1800		250	23	ug/L	50		8260B	Total/NA

Client Sample ID: MW-105C — Lab Sample ID: 500-105858-14

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Detection Summary

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-106C — Lab Sample ID: 500-105858-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	34		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethylene	1.2		0.50	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.74		0.50	0.20	ug/L	1		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane - DL	390		50	4.6	ug/L	10		8260B	Total/NA

Client Sample ID: MW-10B — Lab Sample ID: 500-105858-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichlorotrifluoroethane	81		5.0	0.46	ug/L	1		8260B	Total/NA
Chloroform	1.5		1.0	0.37	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	7.7		1.0	0.41	ug/L	1		8260B	Total/NA

Client Sample ID: MW-10D — Lab Sample ID: 500-105858-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	21		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethylene	1.2		0.50	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.76		0.50	0.20	ug/L	1		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane - DL	240		50	4.6	ug/L	10		8260B	Total/NA

Client Sample ID: MW-16B — Lab Sample ID: 500-105858-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichlorotrifluoroethane	9.9		5.0	0.46	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	1.7		1.0	0.41	ug/L	1		8260B	Total/NA
Toluene	0.22	J	0.50	0.15	ug/L	1		8260B	Total/NA

Client Sample ID: MW-16D — Lab Sample ID: 500-105858-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichlorotrifluoroethane	18		5.0	0.46	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	4.5		1.0	0.41	ug/L	1		8260B	Total/NA

Client Sample ID: MW-18B — Lab Sample ID: 500-105858-20

No Detections.

Client Sample ID: MW-18D — Lab Sample ID: 500-105858-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichlorotrifluoroethane	98		5.0	0.46	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	9.6		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethylene	0.54		0.50	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.27	J	0.50	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-19B — Lab Sample ID: 500-105858-22

No Detections.

Client Sample ID: MW-19D — Lab Sample ID: 500-105858-23

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-19D (Continued) — Lab Sample ID: 500-105858-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichlorotrifluoroethane	160		5.0	0.46	ug/L	1		8260B	Total/NA
Acetone	14		5.0	1.7	ug/L	1		8260B	Total/NA
Benzene	0.66		0.50	0.15	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	61		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethylene	2.1		0.50	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	1.2		0.50	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-20B — Lab Sample ID: 500-105858-24

No Detections.

Client Sample ID: MW-20D — Lab Sample ID: 500-105858-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.81	J	1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethylene	0.55		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: DUP-1 — Lab Sample ID: 500-105858-26

No Detections.

Client Sample ID: DUP-2 — Lab Sample ID: 500-105858-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethylene	14		1.0	0.39	ug/L	1		8260B	Total/NA
1,1,2-Trichlorotrifluoroethane	88		5.0	0.46	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	160		1.0	0.41	ug/L	1		8260B	Total/NA
Methyl Ethyl Ketone	11		5.0	2.1	ug/L	1		8260B	Total/NA
Perchloroethylene	1.2		1.0	0.37	ug/L	1		8260B	Total/NA
Toluene	6.9		0.50	0.15	ug/L	1		8260B	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 500-105858-28

No Detections.

Client Sample ID: Trip Blank — Lab Sample ID: 500-105858-29

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI

Protocol References:

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

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-105858-1	MW-100A	Water	12/28/15 15:45	12/31/15 10:20
500-105858-2	MW-100B	Water	12/28/15 14:50	12/31/15 10:20
500-105858-3	MW-101A	Water	12/28/15 15:45	12/31/15 10:20
500-105858-4	MW-101B	Water	12/28/15 15:00	12/31/15 10:20
500-105858-5	MW-102A	Water	12/29/15 14:25	12/31/15 10:20
500-105858-6	MW-102B	Water	12/29/15 15:10	12/31/15 10:20
500-105858-7	MW-102C	Water	12/29/15 16:40	12/31/15 10:20
500-105858-8	MW-103A	Water	12/30/15 08:25	12/31/15 10:20
500-105858-9	MW-103B	Water	12/30/15 09:25	12/31/15 10:20
500-105858-10	MW-103C	Water	12/30/15 10:20	12/31/15 10:20
500-105858-11	MW-104A	Water	12/30/15 11:10	12/31/15 10:20
500-105858-12	MW-104B	Water	12/30/15 12:35	12/31/15 10:20
500-105858-13	MW-104C	Water	12/30/15 13:20	12/31/15 10:20
500-105858-14	MW-105C	Water	12/29/15 08:20	12/31/15 10:20
500-105858-15	MW-106C	Water	12/29/15 12:00	12/31/15 10:20
500-105858-16	MW-10B	Water	12/29/15 13:50	12/31/15 10:20
500-105858-17	MW-10D	Water	12/29/15 15:50	12/31/15 10:20
500-105858-18	MW-16B	Water	12/29/15 09:35	12/31/15 10:20
500-105858-19	MW-16D	Water	12/29/15 11:00	12/31/15 10:20
500-105858-20	MW-18B	Water	12/29/15 07:45	12/31/15 10:20
500-105858-21	MW-18D	Water	12/29/15 08:00	12/31/15 10:20
500-105858-22	MW-19B	Water	12/29/15 08:50	12/31/15 10:20
500-105858-23	MW-19D	Water	12/29/15 09:15	12/31/15 10:20
500-105858-24	MW-20B	Water	12/29/15 10:25	12/31/15 10:20
500-105858-25	MW-20D	Water	12/29/15 11:00	12/31/15 10:20
500-105858-26	DUP-1	Water	12/29/15 00:00	12/31/15 10:20
500-105858-27	DUP-2	Water	12/29/15 00:00	12/31/15 10:20
500-105858-28	Trip Blank	Water	12/28/15 00:00	12/31/15 10:20
500-105858-29	Trip Blank	Water	12/28/15 00:00	12/31/15 10:20

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-100A

Date Collected: 12/28/15 15:45
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		10	4.6	ug/L			01/04/16 23:23	10
1,1,1-Trichloroethane	**240**		10	3.8	ug/L			01/04/16 23:23	10
1,1,2,2-Tetrachloroethane	ND		10	4.0	ug/L			01/04/16 23:23	10
1,1,2-Trichloroethane	ND		10	3.5	ug/L			01/04/16 23:23	10
1,1-Dichloroethane	**35**		10	4.1	ug/L			01/04/16 23:23	10
1,1-Dichloroethylene	**230**		10	3.9	ug/L			01/04/16 23:23	10
1,1-Dichloropropene	ND		10	3.0	ug/L			01/04/16 23:23	10
1,2,3-Trichlorobenzene	ND		10	4.6	ug/L			01/04/16 23:23	10
1,2,3-Trichloropropane	ND		10	4.1	ug/L			01/04/16 23:23	10
1,2,4-Trichlorobenzene	ND		10	3.4	ug/L			01/04/16 23:23	10
1,2,4-Trimethylbenzene	ND		10	3.6	ug/L			01/04/16 23:23	10
1,2-Dibromo-3-Chloropropane	ND	*	50	20	ug/L			01/04/16 23:23	10
1,2-Dibromoethane	ND		10	3.9	ug/L			01/04/16 23:23	10
1,2-Dichlorobenzene	ND		10	3.3	ug/L			01/04/16 23:23	10
1,2-Dichloroethane	**52**		10	3.9	ug/L			01/04/16 23:23	10
1,2-Dichloropropane	ND		10	4.3	ug/L			01/04/16 23:23	10
1,3,5-Trimethylbenzene	ND		10	2.5	ug/L			01/04/16 23:23	10
1,3-Dichlorobenzene	ND		10	4.0	ug/L			01/04/16 23:23	10
1,3-Dichloropropane	ND		10	3.6	ug/L			01/04/16 23:23	10
1,4-Dichlorobenzene	ND		10	3.6	ug/L			01/04/16 23:23	10
2,2-Dichloropropane	ND		10	4.4	ug/L			01/04/16 23:23	10
2-Chlorotoluene	ND		10	3.1	ug/L			01/04/16 23:23	10
2-Hexanone	ND		50	16	ug/L			01/04/16 23:23	10
4-Chlorotoluene	ND		10	3.5	ug/L			01/04/16 23:23	10
4-Isopropyltoluene	ND		20	3.6	ug/L			01/04/16 23:23	10
Acetone	**600**		50	17	ug/L			01/04/16 23:23	10
Benzene	**9.2**		5.0	1.5	ug/L			01/04/16 23:23	10
Bromobenzene	ND		10	3.6	ug/L			01/04/16 23:23	10
Bromodichloromethane	ND		10	3.7	ug/L			01/04/16 23:23	10
Bromoform	ND	*	10	4.8	ug/L			01/04/16 23:23	10
Bromomethane	ND		50	8.0	ug/L			01/04/16 23:23	10
Carbon disulfide	ND		20	4.5	ug/L			01/04/16 23:23	10
Carbon tetrachloride	ND		10	3.8	ug/L			01/04/16 23:23	10
Chlorobenzene	ND		10	3.9	ug/L			01/04/16 23:23	10
Chlorobromomethane	ND		10	4.3	ug/L			01/04/16 23:23	10
Vinyl acetate	ND		20	9.1	ug/L			01/04/16 23:23	10
Chloroethane	ND		10	5.1	ug/L			01/04/16 23:23	10
Chloroform	**60**	**B**	10	3.7	ug/L			01/04/16 23:23	10
Chloromethane	ND		10	3.2	ug/L			01/04/16 23:23	10
cis-1,3-Dichloropropene	ND		10	4.2	ug/L			01/04/16 23:23	10
Dibromochloromethane	ND		10	4.9	ug/L			01/04/16 23:23	10
Dibromomethane	ND		10	2.7	ug/L			01/04/16 23:23	10
Dichlorodifluoromethane	ND		50	6.7	ug/L			01/04/16 23:23	10
Ethylbenzene	**6.6**		5.0	1.8	ug/L			01/04/16 23:23	10
Hexachlorobutadiene	ND		10	4.5	ug/L			01/04/16 23:23	10
Isopropylbenzene	ND		10	3.9	ug/L			01/04/16 23:23	10
m&p-Xylene	**18**		10	1.8	ug/L			01/04/16 23:23	10
methyl isobutyl ketone	ND		50	22	ug/L			01/04/16 23:23	10
Methyl tert-butyl ether	ND		10	3.9	ug/L			01/04/16 23:23	10

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-100A

Date Collected: 12/28/15 15:45
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	ND		50	16	ug/L			01/04/16 23:23	10
Naphthalene	ND		10	3.4	ug/L			01/04/16 23:23	10
n-Butylbenzene	ND		10	3.9	ug/L			01/04/16 23:23	10
N-Propylbenzene	ND		10	4.1	ug/L			01/04/16 23:23	10
o-Xylene	**7.2**		5.0	2.2	ug/L			01/04/16 23:23	10
sec-Butylbenzene	ND		10	4.0	ug/L			01/04/16 23:23	10
Styrene	ND		10	3.9	ug/L			01/04/16 23:23	10
tert-Butylbenzene	ND		10	4.0	ug/L			01/04/16 23:23	10
Perchloroethylene	**8.2**	**J**	10	3.7	ug/L			01/04/16 23:23	10
Toluene	**610**		5.0	1.5	ug/L			01/04/16 23:23	10
trans-1,2-Dichloroethene	**10**		10	3.5	ug/L			01/04/16 23:23	10
trans-1,3-Dichloropropene	ND		10	3.6	ug/L			01/04/16 23:23	10
Trichloroethylene	**8.0**		5.0	1.6	ug/L			01/04/16 23:23	10
Trichlorofluoromethane	ND		10	4.3	ug/L			01/04/16 23:23	10
Vinyl chloride	**33**		5.0	2.0	ug/L			01/04/16 23:23	10

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Ethene, chlorotrifluoro-	*22000*	*T J N*	*ug/L*		*1.29*	*79-38-9*		*01/04/16 23:23*	*10*
Ethane, 1,2-dichloro-1,1,2-trifluoro-	*20000*	*T J N*	*ug/L*		*2.78*	*354-23-4*		*01/04/16 23:23*	*10*
Isopropyl alcohol	*ND*		*ug/L*		*3.28*	*67-63-0*		*01/04/16 23:23*	*10*
Cyclopentane, methyl-	*1700*	*T J N*	*ug/L*		*4.85*	*96-37-7*		*01/04/16 23:23*	*10*
Cyclohexane	*72*		*ug/L*		*5.60*	*110-82-7*		*01/04/16 23:23*	*10*
n-Heptane	*86*		*ug/L*		*6.30*	*142-82-5*		*01/04/16 23:23*	*10*
Methylcyclohexane	*130*		*ug/L*		*6.90*	*108-87-2*		*01/04/16 23:23*	*10*
Cyclopentane, ethyl-	*6300*	*T J N*	*ug/L*		*7.12*	*1640-89-7*		*01/04/16 23:23*	*10*
2-Hexanone, 5-methyl-	*3800*	*T J N*	*ug/L*		*7.94*	*110-12-3*		*01/04/16 23:23*	*10*
Cyclohexanone	*3100*		*ug/L*		*11.09*	*108-94-1*		*01/04/16 23:23*	*10*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*75 - 125*		*01/04/16 23:23*	*10*
4-Bromofluorobenzene (Surr)	*89*		*75 - 120*		*01/04/16 23:23*	*10*
Dibromofluoromethane	*86*		*75 - 120*		*01/04/16 23:23*	*10*
Toluene-d8 (Surr)	*97*		*75 - 120*		*01/04/16 23:23*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	**5700**		500	46	ug/L			01/04/16 23:49	100
Methyl Ethyl Ketone	**3900**		500	210	ug/L			01/04/16 23:49	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*85*		*75 - 125*		*01/04/16 23:49*	*100*
4-Bromofluorobenzene (Surr)	*88*		*75 - 120*		*01/04/16 23:49*	*100*
Dibromofluoromethane	*83*		*75 - 120*		*01/04/16 23:49*	*100*
Toluene-d8 (Surr)	*95*		*75 - 120*		*01/04/16 23:49*	*100*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	**19000**		500	200	ug/L			01/06/16 11:26	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 125*		*01/06/16 11:26*	*500*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-100A

Lab Sample ID: 500-105858-1

Date Collected: 12/28/15 15:45

Matrix: Water

Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL2 (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		75 - 120		01/06/16 11:26	500
Dibromofluoromethane	86		75 - 120		01/06/16 11:26	500
Toluene-d8 (Surr)	95		75 - 120		01/06/16 11:26	500

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-100B

Date Collected: 12/28/15 14:50
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-2

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		50	23	ug/L			01/05/16 00:15	50
1,1,1-Trichloroethane	**1200**		50	19	ug/L			01/05/16 00:15	50
1,1,2,2-Tetrachloroethane	ND		50	20	ug/L			01/05/16 00:15	50
1,1,2-Trichloroethane	ND		50	18	ug/L			01/05/16 00:15	50
1,1-Dichloroethane	**110**		50	21	ug/L			01/05/16 00:15	50
1,1-Dichloroethylene	**870**		50	20	ug/L			01/05/16 00:15	50
1,1-Dichloropropene	ND		50	15	ug/L			01/05/16 00:15	50
1,2,3-Trichlorobenzene	ND		50	23	ug/L			01/05/16 00:15	50
1,2,3-Trichloropropane	ND		50	21	ug/L			01/05/16 00:15	50
1,2,4-Trichlorobenzene	ND		50	17	ug/L			01/05/16 00:15	50
1,2,4-Trimethylbenzene	ND		50	18	ug/L			01/05/16 00:15	50
1,2-Dibromo-3-Chloropropane	ND	*	250	100	ug/L			01/05/16 00:15	50
1,2-Dibromoethane	ND		50	19	ug/L			01/05/16 00:15	50
1,2-Dichlorobenzene	ND		50	17	ug/L			01/05/16 00:15	50
1,2-Dichloroethane	**140**		50	20	ug/L			01/05/16 00:15	50
1,2-Dichloropropane	ND		50	21	ug/L			01/05/16 00:15	50
1,3,5-Trimethylbenzene	ND		50	13	ug/L			01/05/16 00:15	50
1,3-Dichlorobenzene	ND		50	20	ug/L			01/05/16 00:15	50
1,3-Dichloropropane	ND		50	18	ug/L			01/05/16 00:15	50
1,4-Dichlorobenzene	ND		50	18	ug/L			01/05/16 00:15	50
2,2-Dichloropropane	ND		50	22	ug/L			01/05/16 00:15	50
2-Chlorotoluene	ND		50	16	ug/L			01/05/16 00:15	50
2-Hexanone	ND		250	78	ug/L			01/05/16 00:15	50
4-Chlorotoluene	ND		50	17	ug/L			01/05/16 00:15	50
4-Isopropyltoluene	ND		100	18	ug/L			01/05/16 00:15	50
Acetone	**700**		250	87	ug/L			01/05/16 00:15	50
Benzene	**30**		25	7.3	ug/L			01/05/16 00:15	50
Bromobenzene	ND		50	18	ug/L			01/05/16 00:15	50
Bromodichloromethane	ND		50	19	ug/L			01/05/16 00:15	50
Bromoform	ND	*	50	24	ug/L			01/05/16 00:15	50
Bromomethane	ND		250	40	ug/L			01/05/16 00:15	50
Carbon disulfide	ND		100	22	ug/L			01/05/16 00:15	50
Carbon tetrachloride	ND		50	19	ug/L			01/05/16 00:15	50
Chlorobenzene	ND		50	19	ug/L			01/05/16 00:15	50
Chlorobromomethane	ND		50	21	ug/L			01/05/16 00:15	50
Vinyl acetate	ND		100	45	ug/L			01/05/16 00:15	50
Chloroethane	ND		50	25	ug/L			01/05/16 00:15	50
Chloroform	**180**	**B**	50	19	ug/L			01/05/16 00:15	50
Chloromethane	ND		50	16	ug/L			01/05/16 00:15	50
cis-1,3-Dichloropropene	ND		50	21	ug/L			01/05/16 00:15	50
Dibromochloromethane	ND		50	24	ug/L			01/05/16 00:15	50
Dibromomethane	ND		50	14	ug/L			01/05/16 00:15	50
Dichlorodifluoromethane	ND		250	34	ug/L			01/05/16 00:15	50
Ethylbenzene	**27**		25	9.2	ug/L			01/05/16 00:15	50
Hexachlorobutadiene	ND		50	22	ug/L			01/05/16 00:15	50
Isopropylbenzene	ND		50	19	ug/L			01/05/16 00:15	50
m&p-Xylene	**78**		50	9.1	ug/L			01/05/16 00:15	50
Methyl Ethyl Ketone	**3200**		250	110	ug/L			01/05/16 00:15	50
methyl isobutyl ketone	ND		250	110	ug/L			01/05/16 00:15	50

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-100B

Date Collected: 12/28/15 14:50
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-2

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		50	20	ug/L			01/05/16 00:15	50
Methylene Chloride	ND		250	82	ug/L			01/05/16 00:15	50
Naphthalene	ND		50	17	ug/L			01/05/16 00:15	50
n-Butylbenzene	ND		50	19	ug/L			01/05/16 00:15	50
N-Propylbenzene	ND		50	21	ug/L			01/05/16 00:15	50
o-Xylene	**27**		25	11	ug/L			01/05/16 00:15	50
sec-Butylbenzene	ND		50	20	ug/L			01/05/16 00:15	50
Styrene	ND		50	19	ug/L			01/05/16 00:15	50
tert-Butylbenzene	ND		50	20	ug/L			01/05/16 00:15	50
Perchloroethylene	**39**	**J**	50	19	ug/L			01/05/16 00:15	50
Toluene	**2900**		25	7.6	ug/L			01/05/16 00:15	50
trans-1,2-Dichloroethene	**27**	**J**	50	17	ug/L			01/05/16 00:15	50
trans-1,3-Dichloropropene	ND		50	18	ug/L			01/05/16 00:15	50
Trichloroethylene	**99**		25	8.2	ug/L			01/05/16 00:15	50
Trichlorofluoromethane	ND		50	21	ug/L			01/05/16 00:15	50
Vinyl chloride	**78**		25	10	ug/L			01/05/16 00:15	50

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Ethane, 1,2-dichloro-1,1,2-trifluoro-	*65000*	*T J N*	*ug/L*		*2.78*	*354-23-4*		*01/05/16 00:15*	*50*
Isopropyl alcohol	*ND*		*ug/L*		*3.28*	*67-63-0*		*01/05/16 00:15*	*50*
Cyclopentane, methyl-	*6600*	*T J N*	*ug/L*		*4.85*	*96-37-7*		*01/05/16 00:15*	*50*
Cyclohexane	*260*		*ug/L*		*5.60*	*110-82-7*		*01/05/16 00:15*	*50*
Hexane, 3-methyl-	*81*	*T J N*	*ug/L*		*5.80*	*589-34-4*		*01/05/16 00:15*	*50*
Cyclopentane, 1,2-dimethyl-, cis-	*79*	*T J N*	*ug/L*		*6.16*	*1192-18-3*		*01/05/16 00:15*	*50*
n-Heptane	*230*		*ug/L*		*6.30*	*142-82-5*		*01/05/16 00:15*	*50*
Methylcyclohexane	*410*		*ug/L*		*6.90*	*108-87-2*		*01/05/16 00:15*	*50*
Cyclopentane, ethyl-	*18000*	*T J N*	*ug/L*		*7.12*	*1640-89-7*		*01/05/16 00:15*	*50*
Cyclohexanol	*88*	*T J N*	*ug/L*		*10.78*	*108-93-0*		*01/05/16 00:15*	*50*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*87*		*75 - 125*		*01/05/16 00:15*	*50*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*01/05/16 00:15*	*50*
Dibromofluoromethane	*86*		*75 - 120*		*01/05/16 00:15*	*50*
Toluene-d8 (Surr)	*96*		*75 - 120*		*01/05/16 00:15*	*50*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	**19000**		2500	230	ug/L			01/05/16 00:41	500
cis-1,2-Dichloroethene	**63000**		500	200	ug/L			01/05/16 00:41	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*85*		*75 - 125*		*01/05/16 00:41*	*500*
4-Bromofluorobenzene (Surr)	*88*		*75 - 120*		*01/05/16 00:41*	*500*
Dibromofluoromethane	*85*		*75 - 120*		*01/05/16 00:41*	*500*
Toluene-d8 (Surr)	*96*		*75 - 120*		*01/05/16 00:41*	*500*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-101A

Date Collected: 12/28/15 15:45
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-3

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/06/16 12:46	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/06/16 12:46	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/06/16 12:46	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/06/16 12:46	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/06/16 12:46	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/06/16 12:46	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/06/16 12:46	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/06/16 12:46	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/06/16 12:46	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/06/16 12:46	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/06/16 12:46	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/06/16 12:46	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/06/16 12:46	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/06/16 12:46	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/06/16 12:46	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/06/16 12:46	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/06/16 12:46	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/06/16 12:46	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/06/16 12:46	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/06/16 12:46	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/06/16 12:46	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/06/16 12:46	1
2-Hexanone	ND		5.0	1.6	ug/L			01/06/16 12:46	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/06/16 12:46	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/06/16 12:46	1
Acetone	ND		5.0	1.7	ug/L			01/06/16 12:46	1
Benzene	ND		0.50	0.15	ug/L			01/06/16 12:46	1
Bromobenzene	ND		1.0	0.36	ug/L			01/06/16 12:46	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/06/16 12:46	1
Bromoform	ND		1.0	0.48	ug/L			01/06/16 12:46	1
Bromomethane	ND		5.0	0.80	ug/L			01/06/16 12:46	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/06/16 12:46	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/06/16 12:46	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/06/16 12:46	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/06/16 12:46	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/06/16 12:46	1
Chloroethane	ND		1.0	0.51	ug/L			01/06/16 12:46	1
Chloroform	ND		1.0	0.37	ug/L			01/06/16 12:46	1
Chloromethane	ND		1.0	0.32	ug/L			01/06/16 12:46	1
cis-1,2-Dichloroethene	**11**		1.0	0.41	ug/L			01/06/16 12:46	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/06/16 12:46	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/06/16 12:46	1
Dibromomethane	ND		1.0	0.27	ug/L			01/06/16 12:46	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/06/16 12:46	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/06/16 12:46	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/06/16 12:46	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/06/16 12:46	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/06/16 12:46	1
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/06/16 12:46	1

Client Sample ID: MW-101A

Lab Sample ID: 500-105858-3

Date Collected: 12/28/15 15:45

Matrix: Water

Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/06/16 12:46	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/06/16 12:46	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/06/16 12:46	1
Naphthalene	ND		1.0	0.34	ug/L			01/06/16 12:46	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/06/16 12:46	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/06/16 12:46	1
o-Xylene	ND		0.50	0.22	ug/L			01/06/16 12:46	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 12:46	1
Styrene	ND		1.0	0.39	ug/L			01/06/16 12:46	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 12:46	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/06/16 12:46	1
Toluene	ND		0.50	0.15	ug/L			01/06/16 12:46	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/06/16 12:46	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/06/16 12:46	1
Trichloroethylene	**7.2**		0.50	0.16	ug/L			01/06/16 12:46	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/06/16 12:46	1
Vinyl chloride	**0.58**		0.50	0.20	ug/L			01/06/16 12:46	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Hexane, 2-methyl-	*42*	*T J N*	*ug/L*		*4.91*	*591-76-4*		*01/06/16 12:46*	*1*
Undecane, 3-methylene-	*15*	*T J N*	*ug/L*		*5.34*	*71138-64-2*		*01/06/16 12:46*	*1*
Cyclopentane, 1,2-dimethyl-	*16*	*T J N*	*ug/L*		*5.47*	*2452-99-5*		*01/06/16 12:46*	*1*
n-Heptane	*210*	*E*	*ug/L*		*5.61*	*142-82-5*		*01/06/16 12:46*	*1*
Methylcyclohexane	*58*		*ug/L*		*6.27*	*108-87-2*		*01/06/16 12:46*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 125*		*01/06/16 12:46*	*1*
4-Bromofluorobenzene (Surr)	*95*		*75 - 120*		*01/06/16 12:46*	*1*
Dibromofluoromethane	*85*		*75 - 120*		*01/06/16 12:46*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*01/06/16 12:46*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	**320**		50	4.6	ug/L			01/06/16 13:13	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 125*		*01/06/16 13:13*	*10*
4-Bromofluorobenzene (Surr)	*93*		*75 - 120*		*01/06/16 13:13*	*10*
Dibromofluoromethane	*87*		*75 - 120*		*01/06/16 13:13*	*10*
Toluene-d8 (Surr)	*93*		*75 - 120*		*01/06/16 13:13*	*10*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-101B

Date Collected: 12/28/15 15:00
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-4

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/06/16 13:40	1
1,1,1-Trichloroethane	**0.60**	**J**	1.0	0.38	ug/L			01/06/16 13:40	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/06/16 13:40	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/06/16 13:40	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/06/16 13:40	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/06/16 13:40	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/06/16 13:40	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/06/16 13:40	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/06/16 13:40	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/06/16 13:40	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/06/16 13:40	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/06/16 13:40	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/06/16 13:40	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/06/16 13:40	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/06/16 13:40	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/06/16 13:40	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/06/16 13:40	1
1,1,2-Trichlorotrifluoroethane	**9.2**		5.0	0.46	ug/L			01/06/16 13:40	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/06/16 13:40	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/06/16 13:40	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/06/16 13:40	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/06/16 13:40	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/06/16 13:40	1
2-Hexanone	ND		5.0	1.6	ug/L			01/06/16 13:40	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/06/16 13:40	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/06/16 13:40	1
Acetone	ND		5.0	1.7	ug/L			01/06/16 13:40	1
Benzene	ND		0.50	0.15	ug/L			01/06/16 13:40	1
Bromobenzene	ND		1.0	0.36	ug/L			01/06/16 13:40	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/06/16 13:40	1
Bromoform	ND		1.0	0.48	ug/L			01/06/16 13:40	1
Bromomethane	ND		5.0	0.80	ug/L			01/06/16 13:40	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/06/16 13:40	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/06/16 13:40	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/06/16 13:40	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/06/16 13:40	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/06/16 13:40	1
Chloroethane	ND		1.0	0.51	ug/L			01/06/16 13:40	1
Chloroform	ND		1.0	0.37	ug/L			01/06/16 13:40	1
Chloromethane	ND		1.0	0.32	ug/L			01/06/16 13:40	1
cis-1,2-Dichloroethene	**110**		1.0	0.41	ug/L			01/06/16 13:40	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/06/16 13:40	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/06/16 13:40	1
Dibromomethane	ND		1.0	0.27	ug/L			01/06/16 13:40	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/06/16 13:40	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/06/16 13:40	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/06/16 13:40	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/06/16 13:40	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/06/16 13:40	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-101B

Date Collected: 12/28/15 15:00
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-4

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/06/16 13:40	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/06/16 13:40	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/06/16 13:40	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/06/16 13:40	1
Naphthalene	ND		1.0	0.34	ug/L			01/06/16 13:40	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/06/16 13:40	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/06/16 13:40	1
o-Xylene	ND		0.50	0.22	ug/L			01/06/16 13:40	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 13:40	1
Styrene	ND		1.0	0.39	ug/L			01/06/16 13:40	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 13:40	1
Perchloroethylene	**0.87**	**J**	1.0	0.37	ug/L			01/06/16 13:40	1
Toluene	ND		0.50	0.15	ug/L			01/06/16 13:40	1
trans-1,2-Dichloroethene	**0.72**	**J**	1.0	0.35	ug/L			01/06/16 13:40	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/06/16 13:40	1
Trichloroethylene	**64**		0.50	0.16	ug/L			01/06/16 13:40	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/06/16 13:40	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/06/16 13:40	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/L*					*01/06/16 13:40*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 125*		*01/06/16 13:40*	*1*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*		*01/06/16 13:40*	*1*
Dibromofluoromethane	*87*		*75 - 120*		*01/06/16 13:40*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/06/16 13:40*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-102A

Date Collected: 12/29/15 14:25
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-5

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/05/16 12:04	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/05/16 12:04	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/05/16 12:04	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/05/16 12:04	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/05/16 12:04	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/05/16 12:04	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/05/16 12:04	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/05/16 12:04	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/05/16 12:04	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/05/16 12:04	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/05/16 12:04	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/05/16 12:04	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/05/16 12:04	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/05/16 12:04	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/05/16 12:04	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/05/16 12:04	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/05/16 12:04	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/05/16 12:04	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/05/16 12:04	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/05/16 12:04	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/05/16 12:04	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/05/16 12:04	1
2-Hexanone	ND		5.0	1.6	ug/L			01/05/16 12:04	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/05/16 12:04	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/05/16 12:04	1
Acetone	ND		5.0	1.7	ug/L			01/05/16 12:04	1
Benzene	ND		0.50	0.15	ug/L			01/05/16 12:04	1
Bromobenzene	ND		1.0	0.36	ug/L			01/05/16 12:04	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/05/16 12:04	1
Bromoform	ND		1.0	0.48	ug/L			01/05/16 12:04	1
Bromomethane	ND		5.0	0.80	ug/L			01/05/16 12:04	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/05/16 12:04	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/05/16 12:04	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/05/16 12:04	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/05/16 12:04	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/05/16 12:04	1
Chloroethane	ND		1.0	0.51	ug/L			01/05/16 12:04	1
Chloroform	ND		1.0	0.37	ug/L			01/05/16 12:04	1
Chloromethane	ND		1.0	0.32	ug/L			01/05/16 12:04	1
cis-1,2-Dichloroethene	**19**		1.0	0.41	ug/L			01/05/16 12:04	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/05/16 12:04	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/05/16 12:04	1
Dibromomethane	ND		1.0	0.27	ug/L			01/05/16 12:04	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/05/16 12:04	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/05/16 12:04	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/05/16 12:04	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/05/16 12:04	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/05/16 12:04	1
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/05/16 12:04	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-102A

Date Collected: 12/29/15 14:25
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-5

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/05/16 12:04	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/05/16 12:04	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/05/16 12:04	1
Naphthalene	ND		1.0	0.34	ug/L			01/05/16 12:04	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/05/16 12:04	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/05/16 12:04	1
o-Xylene	ND		0.50	0.22	ug/L			01/05/16 12:04	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 12:04	1
Styrene	ND		1.0	0.39	ug/L			01/05/16 12:04	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 12:04	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/05/16 12:04	1
Toluene	ND		0.50	0.15	ug/L			01/05/16 12:04	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/05/16 12:04	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/05/16 12:04	1
Trichloroethylene	**0.46**	**J**	0.50	0.16	ug/L			01/05/16 12:04	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/05/16 12:04	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/05/16 12:04	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Enflurane	*10*	*T J N*	*ug/L*		*1.86*	*13838-16-9*		*01/05/16 12:04*	*1*
Ethane, 1,2-dichloro-1,1,2-trifluoro-	*39*	*T J N*	*ug/L*		*2.43*	*354-23-4*		*01/05/16 12:04*	*1*
Ethane, 1,2-dichloro-1,1,2-trifluoro-	*33*	*T J N*	*ug/L*		*2.48*	*354-23-4*		*01/05/16 12:04*	*1*
Cyclohexane	*2.8*		*ug/L*		*4.92*	*110-82-7*		*01/05/16 12:04*	*1*
Methylcyclohexane	*2.3*		*ug/L*		*6.27*	*108-87-2*		*01/05/16 12:04*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 125*		*01/05/16 12:04*	*1*
4-Bromofluorobenzene (Surr)	*93*		*75 - 120*		*01/05/16 12:04*	*1*
Dibromofluoromethane	*86*		*75 - 120*		*01/05/16 12:04*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*01/05/16 12:04*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	**300**		50	4.6	ug/L			01/05/16 12:31	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 125*		*01/05/16 12:31*	*10*
4-Bromofluorobenzene (Surr)	*96*		*75 - 120*		*01/05/16 12:31*	*10*
Dibromofluoromethane	*85*		*75 - 120*		*01/05/16 12:31*	*10*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/05/16 12:31*	*10*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-102B

Date Collected: 12/29/15 15:10
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-6

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/06/16 14:07	1
1,1,1-Trichloroethane	**0.60**	**J**	1.0	0.38	ug/L			01/06/16 14:07	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/06/16 14:07	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/06/16 14:07	1
1,1-Dichloroethane	**0.55**	**J**	1.0	0.41	ug/L			01/06/16 14:07	1
1,1-Dichloroethylene	**14**		1.0	0.39	ug/L			01/06/16 14:07	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/06/16 14:07	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/06/16 14:07	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/06/16 14:07	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/06/16 14:07	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/06/16 14:07	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/06/16 14:07	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/06/16 14:07	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/06/16 14:07	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/06/16 14:07	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/06/16 14:07	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/06/16 14:07	1
1,1,2-Trichlorotrifluoroethane	**87**		5.0	0.46	ug/L			01/06/16 14:07	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/06/16 14:07	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/06/16 14:07	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/06/16 14:07	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/06/16 14:07	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/06/16 14:07	1
2-Hexanone	ND		5.0	1.6	ug/L			01/06/16 14:07	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/06/16 14:07	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/06/16 14:07	1
Acetone	**8.1**		5.0	1.7	ug/L			01/06/16 14:07	1
Benzene	ND		0.50	0.15	ug/L			01/06/16 14:07	1
Bromobenzene	ND		1.0	0.36	ug/L			01/06/16 14:07	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/06/16 14:07	1
Bromoform	ND		1.0	0.48	ug/L			01/06/16 14:07	1
Bromomethane	ND		5.0	0.80	ug/L			01/06/16 14:07	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/06/16 14:07	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/06/16 14:07	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/06/16 14:07	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/06/16 14:07	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/06/16 14:07	1
Chloroethane	ND		1.0	0.51	ug/L			01/06/16 14:07	1
Chloroform	ND		1.0	0.37	ug/L			01/06/16 14:07	1
Chloromethane	ND		1.0	0.32	ug/L			01/06/16 14:07	1
cis-1,2-Dichloroethene	**160**		1.0	0.41	ug/L			01/06/16 14:07	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/06/16 14:07	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/06/16 14:07	1
Dibromomethane	ND		1.0	0.27	ug/L			01/06/16 14:07	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/06/16 14:07	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/06/16 14:07	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/06/16 14:07	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/06/16 14:07	1
m&p-Xylene	**0.71**	**J**	1.0	0.18	ug/L			01/06/16 14:07	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-102B

Date Collected: 12/29/15 15:10
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-6

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	**12**		5.0	2.1	ug/L			01/06/16 14:07	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/06/16 14:07	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/06/16 14:07	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/06/16 14:07	1
Naphthalene	ND		1.0	0.34	ug/L			01/06/16 14:07	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/06/16 14:07	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/06/16 14:07	1
o-Xylene	ND		0.50	0.22	ug/L			01/06/16 14:07	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 14:07	1
Styrene	ND		1.0	0.39	ug/L			01/06/16 14:07	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 14:07	1
Perchloroethylene	**1.0**		1.0	0.37	ug/L			01/06/16 14:07	1
Toluene	**6.5**		0.50	0.15	ug/L			01/06/16 14:07	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/06/16 14:07	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/06/16 14:07	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/06/16 14:07	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/06/16 14:07	1
Vinyl chloride	**2.0**		0.50	0.20	ug/L			01/06/16 14:07	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Ethene, chlorotrifluoro-	*410*	*T J N*	*ug/L*		*1.14*	*79-38-9*		*01/06/16 14:07*	*1*
Methane, dichlorofluoro-	*8.9*	*T J N*	*ug/L*		*1.86*	*75-43-4*		*01/06/16 14:07*	*1*
Ethane, 1,2-dichloro-1,1,2-trifluoro-	*50*	*T J N*	*ug/L*		*2.43*	*354-23-4*		*01/06/16 14:07*	*1*
Ethane, 1,2-dichloro-1,1,2-trifluoro-	*50*	*T J N*	*ug/L*		*2.49*	*354-23-4*		*01/06/16 14:07*	*1*
Methyl acetate	*12*		*ug/L*		*3.07*	*79-20-9*		*01/06/16 14:07*	*1*
Cyclohexane	*8.1*		*ug/L*		*4.92*	*110-82-7*		*01/06/16 14:07*	*1*
n-Heptane	*7.5*		*ug/L*		*5.60*	*142-82-5*		*01/06/16 14:07*	*1*
Methylcyclohexane	*9.6*		*ug/L*		*6.27*	*108-87-2*		*01/06/16 14:07*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 125*		*01/06/16 14:07*	*1*
4-Bromofluorobenzene (Surr)	*95*		*75 - 120*		*01/06/16 14:07*	*1*
Dibromofluoromethane	*89*		*75 - 120*		*01/06/16 14:07*	*1*
Toluene-d8 (Surr)	*93*		*75 - 120*		*01/06/16 14:07*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-102C

Date Collected: 12/29/15 16:40
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-7

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		10	4.6	ug/L			01/07/16 11:01	10
1,1,1-Trichloroethane	**27**		10	3.8	ug/L			01/07/16 11:01	10
1,1,2,2-Tetrachloroethane	ND		10	4.0	ug/L			01/07/16 11:01	10
1,1,2-Trichloroethane	ND		10	3.5	ug/L			01/07/16 11:01	10
1,1-Dichloroethane	ND		10	4.1	ug/L			01/07/16 11:01	10
1,1-Dichloroethylene	ND		10	3.9	ug/L			01/07/16 11:01	10
1,1-Dichloropropene	ND		10	3.0	ug/L			01/07/16 11:01	10
1,2,3-Trichlorobenzene	ND		10	4.6	ug/L			01/07/16 11:01	10
1,2,3-Trichloropropane	ND		10	4.1	ug/L			01/07/16 11:01	10
1,2,4-Trichlorobenzene	ND		10	3.4	ug/L			01/07/16 11:01	10
1,2,4-Trimethylbenzene	ND		10	3.6	ug/L			01/07/16 11:01	10
1,2-Dibromo-3-Chloropropane	ND		50	20	ug/L			01/07/16 11:01	10
1,2-Dibromoethane	ND		10	3.9	ug/L			01/07/16 11:01	10
1,2-Dichlorobenzene	ND		10	3.3	ug/L			01/07/16 11:01	10
1,2-Dichloroethane	ND		10	3.9	ug/L			01/07/16 11:01	10
1,2-Dichloropropane	ND		10	4.3	ug/L			01/07/16 11:01	10
1,3,5-Trimethylbenzene	ND		10	2.5	ug/L			01/07/16 11:01	10
1,3-Dichlorobenzene	ND		10	4.0	ug/L			01/07/16 11:01	10
1,3-Dichloropropane	ND		10	3.6	ug/L			01/07/16 11:01	10
1,4-Dichlorobenzene	ND		10	3.6	ug/L			01/07/16 11:01	10
2,2-Dichloropropane	ND		10	4.4	ug/L			01/07/16 11:01	10
2-Chlorotoluene	ND		10	3.1	ug/L			01/07/16 11:01	10
2-Hexanone	ND		50	16	ug/L			01/07/16 11:01	10
4-Chlorotoluene	ND		10	3.5	ug/L			01/07/16 11:01	10
4-Isopropyltoluene	ND		20	3.6	ug/L			01/07/16 11:01	10
Acetone	**130**		50	17	ug/L			01/07/16 11:01	10
Benzene	ND		5.0	1.5	ug/L			01/07/16 11:01	10
Bromobenzene	ND		10	3.6	ug/L			01/07/16 11:01	10
Bromodichloromethane	ND		10	3.7	ug/L			01/07/16 11:01	10
Bromoform	ND		10	4.8	ug/L			01/07/16 11:01	10
Bromomethane	ND		50	8.0	ug/L			01/07/16 11:01	10
Carbon disulfide	ND		20	4.5	ug/L			01/07/16 11:01	10
Carbon tetrachloride	ND		10	3.8	ug/L			01/07/16 11:01	10
Chlorobenzene	ND		10	3.9	ug/L			01/07/16 11:01	10
Chlorobromomethane	ND		10	4.3	ug/L			01/07/16 11:01	10
Vinyl acetate	ND		20	9.1	ug/L			01/07/16 11:01	10
Chloroethane	ND		10	5.1	ug/L			01/07/16 11:01	10
Chloroform	**16**		10	3.7	ug/L			01/07/16 11:01	10
Chloromethane	ND		10	3.2	ug/L			01/07/16 11:01	10
cis-1,3-Dichloropropene	ND		10	4.2	ug/L			01/07/16 11:01	10
Dibromochloromethane	ND		10	4.9	ug/L			01/07/16 11:01	10
Dibromomethane	ND		10	2.7	ug/L			01/07/16 11:01	10
Dichlorodifluoromethane	ND		50	6.7	ug/L			01/07/16 11:01	10
Ethylbenzene	**5.1**		5.0	1.8	ug/L			01/07/16 11:01	10
Hexachlorobutadiene	ND		10	4.5	ug/L			01/07/16 11:01	10
Isopropylbenzene	ND		10	3.9	ug/L			01/07/16 11:01	10
m&p-Xylene	**17**		10	1.8	ug/L			01/07/16 11:01	10
Methyl Ethyl Ketone	**62**		50	21	ug/L			01/07/16 11:01	10
methyl isobutyl ketone	ND		50	22	ug/L			01/07/16 11:01	10

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-102C

Lab Sample ID: 500-105858-7

Date Collected: 12/29/15 16:40
Matrix: Water
Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		10	3.9	ug/L			01/07/16 11:01	10
Methylene Chloride	**56**		50	16	ug/L			01/07/16 11:01	10
Naphthalene	ND		10	3.4	ug/L			01/07/16 11:01	10
n-Butylbenzene	ND		10	3.9	ug/L			01/07/16 11:01	10
N-Propylbenzene	ND		10	4.1	ug/L			01/07/16 11:01	10
o-Xylene	**5.7**		5.0	2.2	ug/L			01/07/16 11:01	10
sec-Butylbenzene	ND		10	4.0	ug/L			01/07/16 11:01	10
Styrene	ND		10	3.9	ug/L			01/07/16 11:01	10
tert-Butylbenzene	ND		10	4.0	ug/L			01/07/16 11:01	10
Perchloroethylene	**13**		10	3.7	ug/L			01/07/16 11:01	10
Toluene	**620**		5.0	1.5	ug/L			01/07/16 11:01	10
trans-1,2-Dichloroethene	ND		10	3.5	ug/L			01/07/16 11:01	10
trans-1,3-Dichloropropene	ND		10	3.6	ug/L			01/07/16 11:01	10
Trichloroethylene	**210**		5.0	1.6	ug/L			01/07/16 11:01	10
Trichlorofluoromethane	ND		10	4.3	ug/L			01/07/16 11:01	10
Vinyl chloride	ND		5.0	2.0	ug/L			01/07/16 11:01	10

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Carbon dioxide	*2200*	*T J N*	*ug/L*		*1.01*	*124-38-9*		*01/07/16 11:01*	*10*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 125*		*01/07/16 11:01*	*10*
4-Bromofluorobenzene (Surr)	*94*		*75 - 120*		*01/07/16 11:01*	*10*
Dibromofluoromethane	*89*		*75 - 120*		*01/07/16 11:01*	*10*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/07/16 11:01*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	**7900**		500	46	ug/L			01/06/16 15:27	100
cis-1,2-Dichloroethene	**17000**		100	41	ug/L			01/06/16 15:27	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 125*		*01/06/16 15:27*	*100*
4-Bromofluorobenzene (Surr)	*90*		*75 - 120*		*01/06/16 15:27*	*100*
Dibromofluoromethane	*88*		*75 - 120*		*01/06/16 15:27*	*100*
Toluene-d8 (Surr)	*93*		*75 - 120*		*01/06/16 15:27*	*100*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-103A

Date Collected: 12/30/15 08:25
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-8

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		50	23	ug/L			01/05/16 12:58	50
1,1,1-Trichloroethane	ND		50	19	ug/L			01/05/16 12:58	50
1,1,2,2-Tetrachloroethane	ND		50	20	ug/L			01/05/16 12:58	50
1,1,2-Trichloroethane	ND		50	18	ug/L			01/05/16 12:58	50
1,1-Dichloroethane	ND		50	21	ug/L			01/05/16 12:58	50
1,1-Dichloroethylene	ND		50	20	ug/L			01/05/16 12:58	50
1,1-Dichloropropene	ND		50	15	ug/L			01/05/16 12:58	50
1,2,3-Trichlorobenzene	ND		50	23	ug/L			01/05/16 12:58	50
1,2,3-Trichloropropane	ND		50	21	ug/L			01/05/16 12:58	50
1,2,4-Trichlorobenzene	ND		50	17	ug/L			01/05/16 12:58	50
1,2,4-Trimethylbenzene	ND		50	18	ug/L			01/05/16 12:58	50
1,2-Dibromo-3-Chloropropane	ND		250	100	ug/L			01/05/16 12:58	50
1,2-Dibromoethane	ND		50	19	ug/L			01/05/16 12:58	50
1,2-Dichlorobenzene	ND		50	17	ug/L			01/05/16 12:58	50
1,2-Dichloroethane	ND		50	20	ug/L			01/05/16 12:58	50
1,2-Dichloropropane	ND		50	21	ug/L			01/05/16 12:58	50
1,3,5-Trimethylbenzene	ND		50	13	ug/L			01/05/16 12:58	50
1,3-Dichlorobenzene	ND		50	20	ug/L			01/05/16 12:58	50
1,3-Dichloropropane	ND		50	18	ug/L			01/05/16 12:58	50
1,4-Dichlorobenzene	ND		50	18	ug/L			01/05/16 12:58	50
2,2-Dichloropropane	ND		50	22	ug/L			01/05/16 12:58	50
2-Chlorotoluene	ND		50	16	ug/L			01/05/16 12:58	50
2-Hexanone	ND		250	78	ug/L			01/05/16 12:58	50
4-Chlorotoluene	ND		50	17	ug/L			01/05/16 12:58	50
4-Isopropyltoluene	ND		100	18	ug/L			01/05/16 12:58	50
Acetone	ND		250	87	ug/L			01/05/16 12:58	50
Benzene	ND		25	7.3	ug/L			01/05/16 12:58	50
Bromobenzene	ND		50	18	ug/L			01/05/16 12:58	50
Bromodichloromethane	ND		50	19	ug/L			01/05/16 12:58	50
Bromoform	ND		50	24	ug/L			01/05/16 12:58	50
Bromomethane	ND		250	40	ug/L			01/05/16 12:58	50
Carbon disulfide	ND		100	22	ug/L			01/05/16 12:58	50
Carbon tetrachloride	ND		50	19	ug/L			01/05/16 12:58	50
Chlorobenzene	ND		50	19	ug/L			01/05/16 12:58	50
Chlorobromomethane	ND		50	21	ug/L			01/05/16 12:58	50
Vinyl acetate	ND		100	45	ug/L			01/05/16 12:58	50
Chloroethane	ND		50	25	ug/L			01/05/16 12:58	50
Chloroform	ND		50	19	ug/L			01/05/16 12:58	50
Chloromethane	ND		50	16	ug/L			01/05/16 12:58	50
cis-1,2-Dichloroethene	**55**		50	20	ug/L			01/05/16 12:58	50
cis-1,3-Dichloropropene	ND		50	21	ug/L			01/05/16 12:58	50
Dibromochloromethane	ND		50	24	ug/L			01/05/16 12:58	50
Dibromomethane	ND		50	14	ug/L			01/05/16 12:58	50
Dichlorodifluoromethane	ND		250	34	ug/L			01/05/16 12:58	50
Ethylbenzene	ND		25	9.2	ug/L			01/05/16 12:58	50
Hexachlorobutadiene	ND		50	22	ug/L			01/05/16 12:58	50
Isopropylbenzene	ND		50	19	ug/L			01/05/16 12:58	50
m&p-Xylene	ND		50	9.1	ug/L			01/05/16 12:58	50
Methyl Ethyl Ketone	ND		250	110	ug/L			01/05/16 12:58	50

Client Sample ID: MW-103A

Lab Sample ID: 500-105858-8

Date Collected: 12/30/15 08:25

Matrix: Water

Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
methyl isobutyl ketone	ND		250	110	ug/L			01/05/16 12:58	50
Methyl tert-butyl ether	ND		50	20	ug/L			01/05/16 12:58	50
Methylene Chloride	ND		250	82	ug/L			01/05/16 12:58	50
Naphthalene	ND		50	17	ug/L			01/05/16 12:58	50
n-Butylbenzene	ND		50	19	ug/L			01/05/16 12:58	50
N-Propylbenzene	ND		50	21	ug/L			01/05/16 12:58	50
o-Xylene	ND		25	11	ug/L			01/05/16 12:58	50
sec-Butylbenzene	ND		50	20	ug/L			01/05/16 12:58	50
Styrene	ND		50	19	ug/L			01/05/16 12:58	50
tert-Butylbenzene	ND		50	20	ug/L			01/05/16 12:58	50
Perchloroethylene	ND		50	19	ug/L			01/05/16 12:58	50
Toluene	ND		25	7.6	ug/L			01/05/16 12:58	50
trans-1,2-Dichloroethene	ND		50	17	ug/L			01/05/16 12:58	50
trans-1,3-Dichloropropene	ND		50	18	ug/L			01/05/16 12:58	50
Trichloroethylene	**38**		25	8.2	ug/L			01/05/16 12:58	50
Trichlorofluoromethane	ND		50	21	ug/L			01/05/16 12:58	50
Vinyl chloride	ND		25	10	ug/L			01/05/16 12:58	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 125*		*01/05/16 12:58*	*50*
4-Bromofluorobenzene (Surr)	*93*		*75 - 120*		*01/05/16 12:58*	*50*
Dibromofluoromethane	*85*		*75 - 120*		*01/05/16 12:58*	*50*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/05/16 12:58*	*50*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	**26000**		2500	230	ug/L			01/05/16 13:25	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 125*		*01/05/16 13:25*	*500*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*01/05/16 13:25*	*500*
Dibromofluoromethane	*85*		*75 - 120*		*01/05/16 13:25*	*500*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/05/16 13:25*	*500*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-103B

Date Collected: 12/30/15 09:25
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-9

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0	2.3	ug/L			01/05/16 13:51	5
1,1,1-Trichloroethane	ND		5.0	1.9	ug/L			01/05/16 13:51	5
1,1,2,2-Tetrachloroethane	ND		5.0	2.0	ug/L			01/05/16 13:51	5
1,1,2-Trichloroethane	ND		5.0	1.8	ug/L			01/05/16 13:51	5
1,1-Dichloroethane	ND		5.0	2.1	ug/L			01/05/16 13:51	5
1,1-Dichloroethylene	ND		5.0	2.0	ug/L			01/05/16 13:51	5
1,1-Dichloropropene	ND		5.0	1.5	ug/L			01/05/16 13:51	5
1,2,3-Trichlorobenzene	ND		5.0	2.3	ug/L			01/05/16 13:51	5
1,2,3-Trichloropropane	ND		5.0	2.1	ug/L			01/05/16 13:51	5
1,2,4-Trichlorobenzene	ND		5.0	1.7	ug/L			01/05/16 13:51	5
1,2,4-Trimethylbenzene	ND		5.0	1.8	ug/L			01/05/16 13:51	5
1,2-Dibromo-3-Chloropropane	ND		25	10	ug/L			01/05/16 13:51	5
1,2-Dibromoethane	ND		5.0	1.9	ug/L			01/05/16 13:51	5
1,2-Dichlorobenzene	ND		5.0	1.7	ug/L			01/05/16 13:51	5
1,2-Dichloroethane	ND		5.0	2.0	ug/L			01/05/16 13:51	5
1,2-Dichloropropane	ND		5.0	2.1	ug/L			01/05/16 13:51	5
1,3,5-Trimethylbenzene	ND		5.0	1.3	ug/L			01/05/16 13:51	5
1,3-Dichlorobenzene	ND		5.0	2.0	ug/L			01/05/16 13:51	5
1,3-Dichloropropane	ND		5.0	1.8	ug/L			01/05/16 13:51	5
1,4-Dichlorobenzene	ND		5.0	1.8	ug/L			01/05/16 13:51	5
2,2-Dichloropropane	ND		5.0	2.2	ug/L			01/05/16 13:51	5
2-Chlorotoluene	ND		5.0	1.6	ug/L			01/05/16 13:51	5
2-Hexanone	ND		25	7.8	ug/L			01/05/16 13:51	5
4-Chlorotoluene	ND		5.0	1.7	ug/L			01/05/16 13:51	5
4-Isopropyltoluene	ND		10	1.8	ug/L			01/05/16 13:51	5
Acetone	ND		25	8.7	ug/L			01/05/16 13:51	5
Benzene	ND		2.5	0.73	ug/L			01/05/16 13:51	5
Bromobenzene	ND		5.0	1.8	ug/L			01/05/16 13:51	5
Bromodichloromethane	ND		5.0	1.9	ug/L			01/05/16 13:51	5
Bromoform	ND		5.0	2.4	ug/L			01/05/16 13:51	5
Bromomethane	ND		25	4.0	ug/L			01/05/16 13:51	5
Carbon disulfide	ND		10	2.2	ug/L			01/05/16 13:51	5
Carbon tetrachloride	ND		5.0	1.9	ug/L			01/05/16 13:51	5
Chlorobenzene	ND		5.0	1.9	ug/L			01/05/16 13:51	5
Chlorobromomethane	ND		5.0	2.1	ug/L			01/05/16 13:51	5
Vinyl acetate	ND		10	4.5	ug/L			01/05/16 13:51	5
Chloroethane	ND		5.0	2.5	ug/L			01/05/16 13:51	5
Chloroform	ND		5.0	1.9	ug/L			01/05/16 13:51	5
Chloromethane	ND		5.0	1.6	ug/L			01/05/16 13:51	5
cis-1,2-Dichloroethene	**99**		5.0	2.0	ug/L			01/05/16 13:51	5
cis-1,3-Dichloropropene	ND		5.0	2.1	ug/L			01/05/16 13:51	5
Dibromochloromethane	ND		5.0	2.4	ug/L			01/05/16 13:51	5
Dibromomethane	ND		5.0	1.4	ug/L			01/05/16 13:51	5
Dichlorodifluoromethane	ND		25	3.4	ug/L			01/05/16 13:51	5
Ethylbenzene	ND		2.5	0.92	ug/L			01/05/16 13:51	5
Hexachlorobutadiene	ND		5.0	2.2	ug/L			01/05/16 13:51	5
Isopropylbenzene	ND		5.0	1.9	ug/L			01/05/16 13:51	5
m&p-Xylene	ND		5.0	0.91	ug/L			01/05/16 13:51	5
Methyl Ethyl Ketone	ND		25	11	ug/L			01/05/16 13:51	5

Client Sample ID: MW-103B

Lab Sample ID: 500-105858-9

Date Collected: 12/30/15 09:25

Matrix: Water

Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
methyl isobutyl ketone	ND		25	11	ug/L			01/05/16 13:51	5
Methyl tert-butyl ether	ND		5.0	2.0	ug/L			01/05/16 13:51	5
Methylene Chloride	ND		25	8.2	ug/L			01/05/16 13:51	5
Naphthalene	ND		5.0	1.7	ug/L			01/05/16 13:51	5
n-Butylbenzene	ND		5.0	1.9	ug/L			01/05/16 13:51	5
N-Propylbenzene	ND		5.0	2.1	ug/L			01/05/16 13:51	5
o-Xylene	ND		2.5	1.1	ug/L			01/05/16 13:51	5
sec-Butylbenzene	ND		5.0	2.0	ug/L			01/05/16 13:51	5
Styrene	ND		5.0	1.9	ug/L			01/05/16 13:51	5
tert-Butylbenzene	ND		5.0	2.0	ug/L			01/05/16 13:51	5
Perchloroethylene	ND		5.0	1.9	ug/L			01/05/16 13:51	5
Toluene	**1.3**	**J**	2.5	0.76	ug/L			01/05/16 13:51	5
trans-1,2-Dichloroethene	ND		5.0	1.7	ug/L			01/05/16 13:51	5
trans-1,3-Dichloropropene	ND		5.0	1.8	ug/L			01/05/16 13:51	5
Trichloroethylene	**5.4**		2.5	0.82	ug/L			01/05/16 13:51	5
Trichlorofluoromethane	ND		5.0	2.1	ug/L			01/05/16 13:51	5
Vinyl chloride	**7.6**		2.5	1.0	ug/L			01/05/16 13:51	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 125*		*01/05/16 13:51*	*5*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*01/05/16 13:51*	*5*
Dibromofluoromethane	*86*		*75 - 120*		*01/05/16 13:51*	*5*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/05/16 13:51*	*5*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	**1100**		250	23	ug/L			01/05/16 14:18	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 125*		*01/05/16 14:18*	*50*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*01/05/16 14:18*	*50*
Dibromofluoromethane	*86*		*75 - 120*		*01/05/16 14:18*	*50*
Toluene-d8 (Surr)	*93*		*75 - 120*		*01/05/16 14:18*	*50*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-103C

Lab Sample ID: 500-105858-10

Date Collected: 12/30/15 10:20
Date Received: 12/31/15 10:20

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		20	9.2	ug/L			01/05/16 14:45	20
1,1,1-Trichloroethane	ND		20	7.6	ug/L			01/05/16 14:45	20
1,1,2,2-Tetrachloroethane	ND		20	8.0	ug/L			01/05/16 14:45	20
1,1,2-Trichloroethane	ND		20	7.0	ug/L			01/05/16 14:45	20
1,1-Dichloroethane	ND		20	8.2	ug/L			01/05/16 14:45	20
1,1-Dichloroethylene	ND		20	7.8	ug/L			01/05/16 14:45	20
1,1-Dichloropropene	ND		20	5.9	ug/L			01/05/16 14:45	20
1,2,3-Trichlorobenzene	ND		20	9.2	ug/L			01/05/16 14:45	20
1,2,3-Trichloropropane	ND		20	8.3	ug/L			01/05/16 14:45	20
1,2,4-Trichlorobenzene	ND		20	6.8	ug/L			01/05/16 14:45	20
1,2,4-Trimethylbenzene	ND		20	7.2	ug/L			01/05/16 14:45	20
1,2-Dibromo-3-Chloropropane	ND		100	40	ug/L			01/05/16 14:45	20
1,2-Dibromoethane	ND		20	7.7	ug/L			01/05/16 14:45	20
1,2-Dichlorobenzene	ND		20	6.7	ug/L			01/05/16 14:45	20
1,2-Dichloroethane	ND		20	7.8	ug/L			01/05/16 14:45	20
1,2-Dichloropropane	ND		20	8.6	ug/L			01/05/16 14:45	20
1,3,5-Trimethylbenzene	ND		20	5.1	ug/L			01/05/16 14:45	20
1,3-Dichlorobenzene	ND		20	8.0	ug/L			01/05/16 14:45	20
1,3-Dichloropropane	ND		20	7.2	ug/L			01/05/16 14:45	20
1,4-Dichlorobenzene	ND		20	7.3	ug/L			01/05/16 14:45	20
2,2-Dichloropropane	ND		20	8.9	ug/L			01/05/16 14:45	20
2-Chlorotoluene	ND		20	6.3	ug/L			01/05/16 14:45	20
2-Hexanone	ND		100	31	ug/L			01/05/16 14:45	20
4-Chlorotoluene	ND		20	7.0	ug/L			01/05/16 14:45	20
4-Isopropyltoluene	ND		40	7.2	ug/L			01/05/16 14:45	20
Acetone	ND		100	35	ug/L			01/05/16 14:45	20
Benzene	ND		10	2.9	ug/L			01/05/16 14:45	20
Bromobenzene	ND		20	7.1	ug/L			01/05/16 14:45	20
Bromodichloromethane	ND		20	7.4	ug/L			01/05/16 14:45	20
Bromoform	ND		20	9.7	ug/L			01/05/16 14:45	20
Bromomethane	ND		100	16	ug/L			01/05/16 14:45	20
Carbon disulfide	ND		40	9.0	ug/L			01/05/16 14:45	20
Carbon tetrachloride	ND		20	7.7	ug/L			01/05/16 14:45	20
Chlorobenzene	ND		20	7.7	ug/L			01/05/16 14:45	20
Chlorobromomethane	ND		20	8.6	ug/L			01/05/16 14:45	20
Vinyl acetate	ND		40	18	ug/L			01/05/16 14:45	20
Chloroethane	ND		20	10	ug/L			01/05/16 14:45	20
Chloroform	ND		20	7.4	ug/L			01/05/16 14:45	20
Chloromethane	ND		20	6.4	ug/L			01/05/16 14:45	20
cis-1,2-Dichloroethene	**130**		20	8.2	ug/L			01/05/16 14:45	20
cis-1,3-Dichloropropene	ND		20	8.3	ug/L			01/05/16 14:45	20
Dibromochloromethane	ND		20	9.8	ug/L			01/05/16 14:45	20
Dibromomethane	ND		20	5.4	ug/L			01/05/16 14:45	20
Dichlorodifluoromethane	ND		100	13	ug/L			01/05/16 14:45	20
Ethylbenzene	ND		10	3.7	ug/L			01/05/16 14:45	20
Hexachlorobutadiene	ND		20	8.9	ug/L			01/05/16 14:45	20
Isopropylbenzene	ND		20	7.7	ug/L			01/05/16 14:45	20
m&p-Xylene	ND		20	3.6	ug/L			01/05/16 14:45	20
Methyl Ethyl Ketone	ND		100	42	ug/L			01/05/16 14:45	20

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-103C

Lab Sample ID: 500-105858-10

Date Collected: 12/30/15 10:20
Date Received: 12/31/15 10:20

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
methyl isobutyl ketone	ND		100	43	ug/L			01/05/16 14:45	20
Methyl tert-butyl ether	ND		20	7.9	ug/L			01/05/16 14:45	20
Methylene Chloride	ND		100	33	ug/L			01/05/16 14:45	20
Naphthalene	ND		20	6.7	ug/L			01/05/16 14:45	20
n-Butylbenzene	ND		20	7.8	ug/L			01/05/16 14:45	20
N-Propylbenzene	ND		20	8.3	ug/L			01/05/16 14:45	20
o-Xylene	ND		10	4.4	ug/L			01/05/16 14:45	20
sec-Butylbenzene	ND		20	8.0	ug/L			01/05/16 14:45	20
Styrene	ND		20	7.7	ug/L			01/05/16 14:45	20
tert-Butylbenzene	ND		20	8.0	ug/L			01/05/16 14:45	20
Perchloroethylene	ND		20	7.4	ug/L			01/05/16 14:45	20
Toluene	ND		10	3.0	ug/L			01/05/16 14:45	20
trans-1,2-Dichloroethene	ND		20	7.0	ug/L			01/05/16 14:45	20
trans-1,3-Dichloropropene	ND		20	7.2	ug/L			01/05/16 14:45	20
Trichloroethylene	**21**		10	3.3	ug/L			01/05/16 14:45	20
Trichlorofluoromethane	ND		20	8.5	ug/L			01/05/16 14:45	20
Vinyl chloride	ND		10	4.1	ug/L			01/05/16 14:45	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 125*		*01/05/16 14:45*	*20*
4-Bromofluorobenzene (Surr)	*93*		*75 - 120*		*01/05/16 14:45*	*20*
Dibromofluoromethane	*87*		*75 - 120*		*01/05/16 14:45*	*20*
Toluene-d8 (Surr)	*93*		*75 - 120*		*01/05/16 14:45*	*20*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	**6600**		1000	92	ug/L			01/05/16 15:12	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 125*		*01/05/16 15:12*	*200*
4-Bromofluorobenzene (Surr)	*94*		*75 - 120*		*01/05/16 15:12*	*200*
Dibromofluoromethane	*87*		*75 - 120*		*01/05/16 15:12*	*200*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/05/16 15:12*	*200*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-104A

Date Collected: 12/30/15 11:10
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-11

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/05/16 15:39	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/05/16 15:39	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/05/16 15:39	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/05/16 15:39	1
1,1-Dichloroethane	**1.6**		1.0	0.41	ug/L			01/05/16 15:39	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/05/16 15:39	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/05/16 15:39	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/05/16 15:39	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/05/16 15:39	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/05/16 15:39	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/05/16 15:39	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/05/16 15:39	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/05/16 15:39	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/05/16 15:39	1
1,2-Dichloroethane	**1.9**		1.0	0.39	ug/L			01/05/16 15:39	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/05/16 15:39	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/05/16 15:39	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/05/16 15:39	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/05/16 15:39	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/05/16 15:39	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/05/16 15:39	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/05/16 15:39	1
2-Hexanone	ND		5.0	1.6	ug/L			01/05/16 15:39	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/05/16 15:39	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/05/16 15:39	1
Acetone	ND		5.0	1.7	ug/L			01/05/16 15:39	1
Benzene	ND		0.50	0.15	ug/L			01/05/16 15:39	1
Bromobenzene	ND		1.0	0.36	ug/L			01/05/16 15:39	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/05/16 15:39	1
Bromoform	ND		1.0	0.48	ug/L			01/05/16 15:39	1
Bromomethane	ND		5.0	0.80	ug/L			01/05/16 15:39	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/05/16 15:39	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/05/16 15:39	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/05/16 15:39	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/05/16 15:39	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/05/16 15:39	1
Chloroethane	ND		1.0	0.51	ug/L			01/05/16 15:39	1
Chloroform	**1.2**		1.0	0.37	ug/L			01/05/16 15:39	1
Chloromethane	ND		1.0	0.32	ug/L			01/05/16 15:39	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/05/16 15:39	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/05/16 15:39	1
Dibromomethane	ND		1.0	0.27	ug/L			01/05/16 15:39	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/05/16 15:39	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/05/16 15:39	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/05/16 15:39	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/05/16 15:39	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/05/16 15:39	1
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/05/16 15:39	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/05/16 15:39	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-104A

Lab Sample ID: 500-105858-11

Date Collected: 12/30/15 11:10
Matrix: Water
Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/05/16 15:39	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/05/16 15:39	1
Naphthalene	ND		1.0	0.34	ug/L			01/05/16 15:39	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/05/16 15:39	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/05/16 15:39	1
o-Xylene	ND		0.50	0.22	ug/L			01/05/16 15:39	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 15:39	1
Styrene	ND		1.0	0.39	ug/L			01/05/16 15:39	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 15:39	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/05/16 15:39	1
Toluene	ND		0.50	0.15	ug/L			01/05/16 15:39	1
trans-1,2-Dichloroethene	**1.3**		1.0	0.35	ug/L			01/05/16 15:39	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/05/16 15:39	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/05/16 15:39	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/05/16 15:39	1
Vinyl chloride	**15**		0.50	0.20	ug/L			01/05/16 15:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 125*		*01/05/16 15:39*	*1*
4-Bromofluorobenzene (Surr)	*94*		*75 - 120*		*01/05/16 15:39*	*1*
Dibromofluoromethane	*90*		*75 - 120*		*01/05/16 15:39*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*01/05/16 15:39*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	**240**		50	4.6	ug/L			01/05/16 16:06	10
cis-1,2-Dichloroethene	**290**		10	4.1	ug/L			01/05/16 16:06	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 125*		*01/05/16 16:06*	*10*
4-Bromofluorobenzene (Surr)	*95*		*75 - 120*		*01/05/16 16:06*	*10*
Dibromofluoromethane	*86*		*75 - 120*		*01/05/16 16:06*	*10*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/05/16 16:06*	*10*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-104B

Date Collected: 12/30/15 12:35
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-12

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/06/16 11:52	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/06/16 11:52	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/06/16 11:52	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/06/16 11:52	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/06/16 11:52	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/06/16 11:52	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/06/16 11:52	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/06/16 11:52	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/06/16 11:52	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/06/16 11:52	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/06/16 11:52	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/06/16 11:52	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/06/16 11:52	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/06/16 11:52	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/06/16 11:52	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/06/16 11:52	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/06/16 11:52	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/06/16 11:52	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/06/16 11:52	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/06/16 11:52	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/06/16 11:52	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/06/16 11:52	1
2-Hexanone	ND		5.0	1.6	ug/L			01/06/16 11:52	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/06/16 11:52	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/06/16 11:52	1
Acetone	ND		5.0	1.7	ug/L			01/06/16 11:52	1
Benzene	**0.26**	**J**	0.50	0.15	ug/L			01/06/16 11:52	1
Bromobenzene	ND		1.0	0.36	ug/L			01/06/16 11:52	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/06/16 11:52	1
Bromoform	ND		1.0	0.48	ug/L			01/06/16 11:52	1
Bromomethane	ND		5.0	0.80	ug/L			01/06/16 11:52	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/06/16 11:52	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/06/16 11:52	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/06/16 11:52	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/06/16 11:52	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/06/16 11:52	1
Chloroethane	ND		1.0	0.51	ug/L			01/06/16 11:52	1
Chloroform	**1.3**		1.0	0.37	ug/L			01/06/16 11:52	1
Chloromethane	ND		1.0	0.32	ug/L			01/06/16 11:52	1
cis-1,2-Dichloroethene	**19**		1.0	0.41	ug/L			01/06/16 11:52	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/06/16 11:52	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/06/16 11:52	1
Dibromomethane	ND		1.0	0.27	ug/L			01/06/16 11:52	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/06/16 11:52	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/06/16 11:52	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/06/16 11:52	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/06/16 11:52	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/06/16 11:52	1
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/06/16 11:52	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-104B

Date Collected: 12/30/15 12:35
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-12

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/06/16 11:52	1
Methyl tert-butyl ether	**2.5**		1.0	0.39	ug/L			01/06/16 11:52	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/06/16 11:52	1
Naphthalene	ND		1.0	0.34	ug/L			01/06/16 11:52	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/06/16 11:52	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/06/16 11:52	1
o-Xylene	ND		0.50	0.22	ug/L			01/06/16 11:52	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 11:52	1
Styrene	ND		1.0	0.39	ug/L			01/06/16 11:52	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 11:52	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/06/16 11:52	1
Toluene	ND		0.50	0.15	ug/L			01/06/16 11:52	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/06/16 11:52	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/06/16 11:52	1
Trichloroethylene	**4.3**		0.50	0.16	ug/L			01/06/16 11:52	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/06/16 11:52	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/06/16 11:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 125*		*01/06/16 11:52*	*1*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*		*01/06/16 11:52*	*1*
Dibromofluoromethane	*87*		*75 - 120*		*01/06/16 11:52*	*1*
Toluene-d8 (Surr)	*93*		*75 - 120*		*01/06/16 11:52*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	**890**		25	2.3	ug/L			01/05/16 16:32	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 125*		*01/05/16 16:32*	*5*
4-Bromofluorobenzene (Surr)	*94*		*75 - 120*		*01/05/16 16:32*	*5*
Dibromofluoromethane	*87*		*75 - 120*		*01/05/16 16:32*	*5*
Toluene-d8 (Surr)	*93*		*75 - 120*		*01/05/16 16:32*	*5*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-104C

Date Collected: 12/30/15 13:20
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-13

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0	2.3	ug/L			01/05/16 17:26	5
1,1,1-Trichloroethane	ND		5.0	1.9	ug/L			01/05/16 17:26	5
1,1,2,2-Tetrachloroethane	ND		5.0	2.0	ug/L			01/05/16 17:26	5
1,1,2-Trichloroethane	ND		5.0	1.8	ug/L			01/05/16 17:26	5
1,1-Dichloroethane	ND		5.0	2.1	ug/L			01/05/16 17:26	5
1,1-Dichloroethylene	ND		5.0	2.0	ug/L			01/05/16 17:26	5
1,1-Dichloropropene	ND		5.0	1.5	ug/L			01/05/16 17:26	5
1,2,3-Trichlorobenzene	ND		5.0	2.3	ug/L			01/05/16 17:26	5
1,2,3-Trichloropropane	ND		5.0	2.1	ug/L			01/05/16 17:26	5
1,2,4-Trichlorobenzene	ND		5.0	1.7	ug/L			01/05/16 17:26	5
1,2,4-Trimethylbenzene	ND		5.0	1.8	ug/L			01/05/16 17:26	5
1,2-Dibromo-3-Chloropropane	ND		25	10	ug/L			01/05/16 17:26	5
1,2-Dibromoethane	ND		5.0	1.9	ug/L			01/05/16 17:26	5
1,2-Dichlorobenzene	ND		5.0	1.7	ug/L			01/05/16 17:26	5
1,2-Dichloroethane	ND		5.0	2.0	ug/L			01/05/16 17:26	5
1,2-Dichloropropane	ND		5.0	2.1	ug/L			01/05/16 17:26	5
1,3,5-Trimethylbenzene	ND		5.0	1.3	ug/L			01/05/16 17:26	5
1,3-Dichlorobenzene	ND		5.0	2.0	ug/L			01/05/16 17:26	5
1,3-Dichloropropane	ND		5.0	1.8	ug/L			01/05/16 17:26	5
1,4-Dichlorobenzene	ND		5.0	1.8	ug/L			01/05/16 17:26	5
2,2-Dichloropropane	ND		5.0	2.2	ug/L			01/05/16 17:26	5
2-Chlorotoluene	ND		5.0	1.6	ug/L			01/05/16 17:26	5
2-Hexanone	ND		25	7.8	ug/L			01/05/16 17:26	5
4-Chlorotoluene	ND		5.0	1.7	ug/L			01/05/16 17:26	5
4-Isopropyltoluene	ND		10	1.8	ug/L			01/05/16 17:26	5
Acetone	ND		25	8.7	ug/L			01/05/16 17:26	5
Benzene	ND		2.5	0.73	ug/L			01/05/16 17:26	5
Bromobenzene	ND		5.0	1.8	ug/L			01/05/16 17:26	5
Bromodichloromethane	ND		5.0	1.9	ug/L			01/05/16 17:26	5
Bromoform	ND		5.0	2.4	ug/L			01/05/16 17:26	5
Bromomethane	ND		25	4.0	ug/L			01/05/16 17:26	5
Carbon disulfide	ND		10	2.2	ug/L			01/05/16 17:26	5
Carbon tetrachloride	ND		5.0	1.9	ug/L			01/05/16 17:26	5
Chlorobenzene	ND		5.0	1.9	ug/L			01/05/16 17:26	5
Chlorobromomethane	ND		5.0	2.1	ug/L			01/05/16 17:26	5
Vinyl acetate	ND		10	4.5	ug/L			01/05/16 17:26	5
Chloroethane	ND		5.0	2.5	ug/L			01/05/16 17:26	5
Chloroform	ND		5.0	1.9	ug/L			01/05/16 17:26	5
Chloromethane	ND		5.0	1.6	ug/L			01/05/16 17:26	5
cis-1,2-Dichloroethene	**41**		5.0	2.0	ug/L			01/05/16 17:26	5
cis-1,3-Dichloropropene	ND		5.0	2.1	ug/L			01/05/16 17:26	5
Dibromochloromethane	ND		5.0	2.4	ug/L			01/05/16 17:26	5
Dibromomethane	ND		5.0	1.4	ug/L			01/05/16 17:26	5
Dichlorodifluoromethane	ND		25	3.4	ug/L			01/05/16 17:26	5
Ethylbenzene	ND		2.5	0.92	ug/L			01/05/16 17:26	5
Hexachlorobutadiene	ND		5.0	2.2	ug/L			01/05/16 17:26	5
Isopropylbenzene	ND		5.0	1.9	ug/L			01/05/16 17:26	5
m&p-Xylene	ND		5.0	0.91	ug/L			01/05/16 17:26	5
Methyl Ethyl Ketone	ND		25	11	ug/L			01/05/16 17:26	5

Client Sample ID: MW-104C

Lab Sample ID: 500-105858-13

Date Collected: 12/30/15 13:20

Matrix: Water

Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
methyl isobutyl ketone	ND		25	11	ug/L			01/05/16 17:26	5
Methyl tert-butyl ether	**3.6**	**J**	5.0	2.0	ug/L			01/05/16 17:26	5
Methylene Chloride	ND		25	8.2	ug/L			01/05/16 17:26	5
Naphthalene	ND		5.0	1.7	ug/L			01/05/16 17:26	5
n-Butylbenzene	ND		5.0	1.9	ug/L			01/05/16 17:26	5
N-Propylbenzene	ND		5.0	2.1	ug/L			01/05/16 17:26	5
o-Xylene	ND		2.5	1.1	ug/L			01/05/16 17:26	5
sec-Butylbenzene	ND		5.0	2.0	ug/L			01/05/16 17:26	5
Styrene	ND		5.0	1.9	ug/L			01/05/16 17:26	5
tert-Butylbenzene	ND		5.0	2.0	ug/L			01/05/16 17:26	5
Perchloroethylene	ND		5.0	1.9	ug/L			01/05/16 17:26	5
Toluene	ND		2.5	0.76	ug/L			01/05/16 17:26	5
trans-1,2-Dichloroethene	ND		5.0	1.7	ug/L			01/05/16 17:26	5
trans-1,3-Dichloropropene	ND		5.0	1.8	ug/L			01/05/16 17:26	5
Trichloroethylene	**6.2**		2.5	0.82	ug/L			01/05/16 17:26	5
Trichlorofluoromethane	ND		5.0	2.1	ug/L			01/05/16 17:26	5
Vinyl chloride	ND		2.5	1.0	ug/L			01/05/16 17:26	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 125*		*01/05/16 17:26*	*5*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*		*01/05/16 17:26*	*5*
Dibromofluoromethane	*88*		*75 - 120*		*01/05/16 17:26*	*5*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/05/16 17:26*	*5*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	**1800**		250	23	ug/L			01/06/16 12:19	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 125*		*01/06/16 12:19*	*50*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*01/06/16 12:19*	*50*
Dibromofluoromethane	*84*		*75 - 120*		*01/06/16 12:19*	*50*
Toluene-d8 (Surr)	*96*		*75 - 120*		*01/06/16 12:19*	*50*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-105C

Date Collected: 12/29/15 08:20
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-14

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/06/16 16:48	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/06/16 16:48	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/06/16 16:48	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/06/16 16:48	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/06/16 16:48	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/06/16 16:48	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/06/16 16:48	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/06/16 16:48	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/06/16 16:48	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/06/16 16:48	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/06/16 16:48	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/06/16 16:48	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/06/16 16:48	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/06/16 16:48	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/06/16 16:48	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/06/16 16:48	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/06/16 16:48	1
1,1,2-Trichlorotrifluoroethane	ND		5.0	0.46	ug/L			01/06/16 16:48	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/06/16 16:48	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/06/16 16:48	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/06/16 16:48	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/06/16 16:48	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/06/16 16:48	1
2-Hexanone	ND		5.0	1.6	ug/L			01/06/16 16:48	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/06/16 16:48	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/06/16 16:48	1
Acetone	ND		5.0	1.7	ug/L			01/06/16 16:48	1
Benzene	ND		0.50	0.15	ug/L			01/06/16 16:48	1
Bromobenzene	ND		1.0	0.36	ug/L			01/06/16 16:48	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/06/16 16:48	1
Bromoform	ND		1.0	0.48	ug/L			01/06/16 16:48	1
Bromomethane	ND		5.0	0.80	ug/L			01/06/16 16:48	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/06/16 16:48	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/06/16 16:48	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/06/16 16:48	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/06/16 16:48	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/06/16 16:48	1
Chloroethane	ND		1.0	0.51	ug/L			01/06/16 16:48	1
Chloroform	ND		1.0	0.37	ug/L			01/06/16 16:48	1
Chloromethane	ND		1.0	0.32	ug/L			01/06/16 16:48	1
cis-1,2-Dichloroethene	ND		1.0	0.41	ug/L			01/06/16 16:48	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/06/16 16:48	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/06/16 16:48	1
Dibromomethane	ND		1.0	0.27	ug/L			01/06/16 16:48	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/06/16 16:48	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/06/16 16:48	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/06/16 16:48	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/06/16 16:48	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/06/16 16:48	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-105C

Lab Sample ID: 500-105858-14

Date Collected: 12/29/15 08:20
Matrix: Water
Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/06/16 16:48	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/06/16 16:48	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/06/16 16:48	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/06/16 16:48	1
Naphthalene	ND		1.0	0.34	ug/L			01/06/16 16:48	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/06/16 16:48	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/06/16 16:48	1
o-Xylene	ND		0.50	0.22	ug/L			01/06/16 16:48	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 16:48	1
Styrene	ND		1.0	0.39	ug/L			01/06/16 16:48	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 16:48	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/06/16 16:48	1
Toluene	ND		0.50	0.15	ug/L			01/06/16 16:48	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/06/16 16:48	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/06/16 16:48	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/06/16 16:48	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/06/16 16:48	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/06/16 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 125*		*01/06/16 16:48*	*1*
4-Bromofluorobenzene (Surr)	*94*		*75 - 120*		*01/06/16 16:48*	*1*
Dibromofluoromethane	*88*		*75 - 120*		*01/06/16 16:48*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/06/16 16:48*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-106C

Date Collected: 12/29/15 12:00
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-15

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/06/16 17:15	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/06/16 17:15	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/06/16 17:15	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/06/16 17:15	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/06/16 17:15	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/06/16 17:15	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/06/16 17:15	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/06/16 17:15	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/06/16 17:15	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/06/16 17:15	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/06/16 17:15	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/06/16 17:15	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/06/16 17:15	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/06/16 17:15	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/06/16 17:15	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/06/16 17:15	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/06/16 17:15	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/06/16 17:15	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/06/16 17:15	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/06/16 17:15	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/06/16 17:15	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/06/16 17:15	1
2-Hexanone	ND		5.0	1.6	ug/L			01/06/16 17:15	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/06/16 17:15	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/06/16 17:15	1
Acetone	ND		5.0	1.7	ug/L			01/06/16 17:15	1
Benzene	ND		0.50	0.15	ug/L			01/06/16 17:15	1
Bromobenzene	ND		1.0	0.36	ug/L			01/06/16 17:15	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/06/16 17:15	1
Bromoform	ND		1.0	0.48	ug/L			01/06/16 17:15	1
Bromomethane	ND		5.0	0.80	ug/L			01/06/16 17:15	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/06/16 17:15	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/06/16 17:15	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/06/16 17:15	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/06/16 17:15	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/06/16 17:15	1
Chloroethane	ND		1.0	0.51	ug/L			01/06/16 17:15	1
Chloroform	ND		1.0	0.37	ug/L			01/06/16 17:15	1
Chloromethane	ND		1.0	0.32	ug/L			01/06/16 17:15	1
cis-1,2-Dichloroethene	**34**		1.0	0.41	ug/L			01/06/16 17:15	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/06/16 17:15	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/06/16 17:15	1
Dibromomethane	ND		1.0	0.27	ug/L			01/06/16 17:15	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/06/16 17:15	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/06/16 17:15	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/06/16 17:15	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/06/16 17:15	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/06/16 17:15	1
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/06/16 17:15	1

Client Sample ID: MW-106C

Lab Sample ID: 500-105858-15

Date Collected: 12/29/15 12:00

Matrix: Water

Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/06/16 17:15	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/06/16 17:15	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/06/16 17:15	1
Naphthalene	ND		1.0	0.34	ug/L			01/06/16 17:15	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/06/16 17:15	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/06/16 17:15	1
o-Xylene	ND		0.50	0.22	ug/L			01/06/16 17:15	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 17:15	1
Styrene	ND		1.0	0.39	ug/L			01/06/16 17:15	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 17:15	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/06/16 17:15	1
Toluene	ND		0.50	0.15	ug/L			01/06/16 17:15	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/06/16 17:15	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/06/16 17:15	1
Trichloroethylene	**1.2**		0.50	0.16	ug/L			01/06/16 17:15	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/06/16 17:15	1
Vinyl chloride	**0.74**		0.50	0.20	ug/L			01/06/16 17:15	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Borane, trichloro-	*6.4*	*T J N*	*ug/L*		*2.32*	*10294-34-5*		*01/06/16 17:15*	*1*
Ethane, 1,2-dichloro-1,1,2-trifluoro-	*15*	*T J N*	*ug/L*		*2.44*	*354-23-4*		*01/06/16 17:15*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 125*		*01/06/16 17:15*	*1*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*01/06/16 17:15*	*1*
Dibromofluoromethane	*89*		*75 - 120*		*01/06/16 17:15*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*01/06/16 17:15*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	**390**		50	4.6	ug/L			01/06/16 17:42	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 125*		*01/06/16 17:42*	*10*
4-Bromofluorobenzene (Surr)	*94*		*75 - 120*		*01/06/16 17:42*	*10*
Dibromofluoromethane	*86*		*75 - 120*		*01/06/16 17:42*	*10*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/06/16 17:42*	*10*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-10B

Date Collected: 12/29/15 13:50
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-16

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/06/16 18:08	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/06/16 18:08	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/06/16 18:08	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/06/16 18:08	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/06/16 18:08	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/06/16 18:08	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/06/16 18:08	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/06/16 18:08	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/06/16 18:08	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/06/16 18:08	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/06/16 18:08	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/06/16 18:08	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/06/16 18:08	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/06/16 18:08	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/06/16 18:08	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/06/16 18:08	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/06/16 18:08	1
1,1,2-Trichlorotrifluoroethane	**81**		5.0	0.46	ug/L			01/06/16 18:08	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/06/16 18:08	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/06/16 18:08	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/06/16 18:08	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/06/16 18:08	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/06/16 18:08	1
2-Hexanone	ND		5.0	1.6	ug/L			01/06/16 18:08	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/06/16 18:08	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/06/16 18:08	1
Acetone	ND		5.0	1.7	ug/L			01/06/16 18:08	1
Benzene	ND		0.50	0.15	ug/L			01/06/16 18:08	1
Bromobenzene	ND		1.0	0.36	ug/L			01/06/16 18:08	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/06/16 18:08	1
Bromoform	ND		1.0	0.48	ug/L			01/06/16 18:08	1
Bromomethane	ND		5.0	0.80	ug/L			01/06/16 18:08	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/06/16 18:08	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/06/16 18:08	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/06/16 18:08	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/06/16 18:08	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/06/16 18:08	1
Chloroethane	ND		1.0	0.51	ug/L			01/06/16 18:08	1
Chloroform	**1.5**		1.0	0.37	ug/L			01/06/16 18:08	1
Chloromethane	ND		1.0	0.32	ug/L			01/06/16 18:08	1
cis-1,2-Dichloroethene	**7.7**		1.0	0.41	ug/L			01/06/16 18:08	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/06/16 18:08	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/06/16 18:08	1
Dibromomethane	ND		1.0	0.27	ug/L			01/06/16 18:08	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/06/16 18:08	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/06/16 18:08	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/06/16 18:08	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/06/16 18:08	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/06/16 18:08	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-10B

Lab Sample ID: 500-105858-16

Date Collected: 12/29/15 13:50
Matrix: Water
Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/06/16 18:08	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/06/16 18:08	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/06/16 18:08	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/06/16 18:08	1
Naphthalene	ND		1.0	0.34	ug/L			01/06/16 18:08	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/06/16 18:08	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/06/16 18:08	1
o-Xylene	ND		0.50	0.22	ug/L			01/06/16 18:08	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 18:08	1
Styrene	ND		1.0	0.39	ug/L			01/06/16 18:08	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 18:08	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/06/16 18:08	1
Toluene	ND		0.50	0.15	ug/L			01/06/16 18:08	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/06/16 18:08	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/06/16 18:08	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/06/16 18:08	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/06/16 18:08	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/06/16 18:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 125*		*01/06/16 18:08*	*1*
4-Bromofluorobenzene (Surr)	*94*		*75 - 120*		*01/06/16 18:08*	*1*
Dibromofluoromethane	*88*		*75 - 120*		*01/06/16 18:08*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/06/16 18:08*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-10D

Date Collected: 12/29/15 15:50
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-17

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/06/16 18:35	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/06/16 18:35	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/06/16 18:35	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/06/16 18:35	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/06/16 18:35	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/06/16 18:35	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/06/16 18:35	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/06/16 18:35	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/06/16 18:35	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/06/16 18:35	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/06/16 18:35	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/06/16 18:35	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/06/16 18:35	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/06/16 18:35	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/06/16 18:35	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/06/16 18:35	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/06/16 18:35	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/06/16 18:35	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/06/16 18:35	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/06/16 18:35	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/06/16 18:35	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/06/16 18:35	1
2-Hexanone	ND		5.0	1.6	ug/L			01/06/16 18:35	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/06/16 18:35	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/06/16 18:35	1
Acetone	ND		5.0	1.7	ug/L			01/06/16 18:35	1
Benzene	ND		0.50	0.15	ug/L			01/06/16 18:35	1
Bromobenzene	ND		1.0	0.36	ug/L			01/06/16 18:35	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/06/16 18:35	1
Bromoform	ND		1.0	0.48	ug/L			01/06/16 18:35	1
Bromomethane	ND		5.0	0.80	ug/L			01/06/16 18:35	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/06/16 18:35	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/06/16 18:35	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/06/16 18:35	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/06/16 18:35	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/06/16 18:35	1
Chloroethane	ND		1.0	0.51	ug/L			01/06/16 18:35	1
Chloroform	ND		1.0	0.37	ug/L			01/06/16 18:35	1
Chloromethane	ND		1.0	0.32	ug/L			01/06/16 18:35	1
cis-1,2-Dichloroethene	**21**		1.0	0.41	ug/L			01/06/16 18:35	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/06/16 18:35	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/06/16 18:35	1
Dibromomethane	ND		1.0	0.27	ug/L			01/06/16 18:35	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/06/16 18:35	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/06/16 18:35	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/06/16 18:35	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/06/16 18:35	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/06/16 18:35	1
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/06/16 18:35	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-10D

Date Collected: 12/29/15 15:50
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-17

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/06/16 18:35	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/06/16 18:35	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/06/16 18:35	1
Naphthalene	ND		1.0	0.34	ug/L			01/06/16 18:35	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/06/16 18:35	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/06/16 18:35	1
o-Xylene	ND		0.50	0.22	ug/L			01/06/16 18:35	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 18:35	1
Styrene	ND		1.0	0.39	ug/L			01/06/16 18:35	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 18:35	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/06/16 18:35	1
Toluene	ND		0.50	0.15	ug/L			01/06/16 18:35	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/06/16 18:35	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/06/16 18:35	1
Trichloroethylene	**1.2**		0.50	0.16	ug/L			01/06/16 18:35	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/06/16 18:35	1
Vinyl chloride	**0.76**		0.50	0.20	ug/L			01/06/16 18:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 125*		*01/06/16 18:35*	*1*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*		*01/06/16 18:35*	*1*
Dibromofluoromethane	*90*		*75 - 120*		*01/06/16 18:35*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*01/06/16 18:35*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	**240**		50	4.6	ug/L			01/06/16 19:02	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 125*		*01/06/16 19:02*	*10*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*01/06/16 19:02*	*10*
Dibromofluoromethane	*86*		*75 - 120*		*01/06/16 19:02*	*10*
Toluene-d8 (Surr)	*93*		*75 - 120*		*01/06/16 19:02*	*10*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-16B

Date Collected: 12/29/15 09:35
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-18

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/05/16 18:20	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/05/16 18:20	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/05/16 18:20	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/05/16 18:20	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/05/16 18:20	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/05/16 18:20	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/05/16 18:20	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/05/16 18:20	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/05/16 18:20	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/05/16 18:20	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/05/16 18:20	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/05/16 18:20	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/05/16 18:20	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/05/16 18:20	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/05/16 18:20	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/05/16 18:20	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/05/16 18:20	1
1,1,2-Trichlorotrifluoroethane	**9.9**		5.0	0.46	ug/L			01/05/16 18:20	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/05/16 18:20	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/05/16 18:20	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/05/16 18:20	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/05/16 18:20	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/05/16 18:20	1
2-Hexanone	ND		5.0	1.6	ug/L			01/05/16 18:20	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/05/16 18:20	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/05/16 18:20	1
Acetone	ND	F2	5.0	1.7	ug/L			01/05/16 18:20	1
Benzene	ND		0.50	0.15	ug/L			01/05/16 18:20	1
Bromobenzene	ND		1.0	0.36	ug/L			01/05/16 18:20	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/05/16 18:20	1
Bromoform	ND		1.0	0.48	ug/L			01/05/16 18:20	1
Bromomethane	ND		5.0	0.80	ug/L			01/05/16 18:20	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/05/16 18:20	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/05/16 18:20	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/05/16 18:20	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/05/16 18:20	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/05/16 18:20	1
Chloroethane	ND	F2	1.0	0.51	ug/L			01/05/16 18:20	1
Chloroform	ND		1.0	0.37	ug/L			01/05/16 18:20	1
Chloromethane	ND		1.0	0.32	ug/L			01/05/16 18:20	1
cis-1,2-Dichloroethene	**1.7**		1.0	0.41	ug/L			01/05/16 18:20	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/05/16 18:20	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/05/16 18:20	1
Dibromomethane	ND		1.0	0.27	ug/L			01/05/16 18:20	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/05/16 18:20	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/05/16 18:20	1
Hexachlorobutadiene	ND	F2	1.0	0.45	ug/L			01/05/16 18:20	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/05/16 18:20	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/05/16 18:20	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-16B

Date Collected: 12/29/15 09:35
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-18

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/05/16 18:20	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/05/16 18:20	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/05/16 18:20	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/05/16 18:20	1
Naphthalene	ND		1.0	0.34	ug/L			01/05/16 18:20	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/05/16 18:20	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/05/16 18:20	1
o-Xylene	ND		0.50	0.22	ug/L			01/05/16 18:20	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 18:20	1
Styrene	ND		1.0	0.39	ug/L			01/05/16 18:20	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 18:20	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/05/16 18:20	1
Toluene	**0.22**	**J**	0.50	0.15	ug/L			01/05/16 18:20	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/05/16 18:20	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/05/16 18:20	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/05/16 18:20	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/05/16 18:20	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/05/16 18:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 125*		*01/05/16 18:20*	*1*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*		*01/05/16 18:20*	*1*
Dibromofluoromethane	*86*		*75 - 120*		*01/05/16 18:20*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*01/05/16 18:20*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-16D

Date Collected: 12/29/15 11:00
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-19

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/05/16 12:09	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/05/16 12:09	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/05/16 12:09	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/05/16 12:09	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/05/16 12:09	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/05/16 12:09	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/05/16 12:09	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/05/16 12:09	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/05/16 12:09	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/05/16 12:09	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/05/16 12:09	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/05/16 12:09	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/05/16 12:09	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/05/16 12:09	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/05/16 12:09	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/05/16 12:09	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/05/16 12:09	1
1,1,2-Trichlorotrifluoroethane	**18**		5.0	0.46	ug/L			01/05/16 12:09	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/05/16 12:09	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/05/16 12:09	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/05/16 12:09	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/05/16 12:09	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/05/16 12:09	1
2-Hexanone	ND		5.0	1.6	ug/L			01/05/16 12:09	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/05/16 12:09	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/05/16 12:09	1
Acetone	ND		5.0	1.7	ug/L			01/05/16 12:09	1
Benzene	ND		0.50	0.15	ug/L			01/05/16 12:09	1
Bromobenzene	ND		1.0	0.36	ug/L			01/05/16 12:09	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/05/16 12:09	1
Bromoform	ND		1.0	0.48	ug/L			01/05/16 12:09	1
Bromomethane	ND		5.0	0.80	ug/L			01/05/16 12:09	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/05/16 12:09	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/05/16 12:09	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/05/16 12:09	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/05/16 12:09	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/05/16 12:09	1
Chloroethane	ND		1.0	0.51	ug/L			01/05/16 12:09	1
Chloroform	ND		1.0	0.37	ug/L			01/05/16 12:09	1
Chloromethane	ND		1.0	0.32	ug/L			01/05/16 12:09	1
cis-1,2-Dichloroethene	**4.5**		1.0	0.41	ug/L			01/05/16 12:09	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/05/16 12:09	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/05/16 12:09	1
Dibromomethane	ND		1.0	0.27	ug/L			01/05/16 12:09	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/05/16 12:09	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/05/16 12:09	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/05/16 12:09	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/05/16 12:09	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/05/16 12:09	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-16D

Lab Sample ID: 500-105858-19

Date Collected: 12/29/15 11:00
Matrix: Water
Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND	*	5.0	2.1	ug/L			01/05/16 12:09	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/05/16 12:09	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/05/16 12:09	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/05/16 12:09	1
Naphthalene	ND		1.0	0.34	ug/L			01/05/16 12:09	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/05/16 12:09	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/05/16 12:09	1
o-Xylene	ND		0.50	0.22	ug/L			01/05/16 12:09	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 12:09	1
Styrene	ND		1.0	0.39	ug/L			01/05/16 12:09	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 12:09	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/05/16 12:09	1
Toluene	ND		0.50	0.15	ug/L			01/05/16 12:09	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/05/16 12:09	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/05/16 12:09	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/05/16 12:09	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/05/16 12:09	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/05/16 12:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*75 - 125*		*01/05/16 12:09*	*1*
4-Bromofluorobenzene (Surr)	*80*		*75 - 120*		*01/05/16 12:09*	*1*
Dibromofluoromethane	*101*		*75 - 120*		*01/05/16 12:09*	*1*
Toluene-d8 (Surr)	*97*		*75 - 120*		*01/05/16 12:09*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-18B

Date Collected: 12/29/15 07:45
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-20

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/06/16 19:29	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/06/16 19:29	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/06/16 19:29	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/06/16 19:29	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/06/16 19:29	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/06/16 19:29	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/06/16 19:29	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/06/16 19:29	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/06/16 19:29	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/06/16 19:29	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/06/16 19:29	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/06/16 19:29	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/06/16 19:29	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/06/16 19:29	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/06/16 19:29	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/06/16 19:29	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/06/16 19:29	1
1,1,2-Trichlorotrifluoroethane	ND		5.0	0.46	ug/L			01/06/16 19:29	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/06/16 19:29	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/06/16 19:29	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/06/16 19:29	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/06/16 19:29	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/06/16 19:29	1
2-Hexanone	ND		5.0	1.6	ug/L			01/06/16 19:29	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/06/16 19:29	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/06/16 19:29	1
Acetone	ND		5.0	1.7	ug/L			01/06/16 19:29	1
Benzene	ND		0.50	0.15	ug/L			01/06/16 19:29	1
Bromobenzene	ND		1.0	0.36	ug/L			01/06/16 19:29	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/06/16 19:29	1
Bromoform	ND		1.0	0.48	ug/L			01/06/16 19:29	1
Bromomethane	ND		5.0	0.80	ug/L			01/06/16 19:29	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/06/16 19:29	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/06/16 19:29	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/06/16 19:29	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/06/16 19:29	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/06/16 19:29	1
Chloroethane	ND		1.0	0.51	ug/L			01/06/16 19:29	1
Chloroform	ND		1.0	0.37	ug/L			01/06/16 19:29	1
Chloromethane	ND		1.0	0.32	ug/L			01/06/16 19:29	1
cis-1,2-Dichloroethene	ND		1.0	0.41	ug/L			01/06/16 19:29	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/06/16 19:29	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/06/16 19:29	1
Dibromomethane	ND		1.0	0.27	ug/L			01/06/16 19:29	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/06/16 19:29	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/06/16 19:29	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/06/16 19:29	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/06/16 19:29	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/06/16 19:29	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-18B

Lab Sample ID: 500-105858-20

Date Collected: 12/29/15 07:45
Matrix: Water
Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/06/16 19:29	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/06/16 19:29	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/06/16 19:29	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/06/16 19:29	1
Naphthalene	ND		1.0	0.34	ug/L			01/06/16 19:29	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/06/16 19:29	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/06/16 19:29	1
o-Xylene	ND		0.50	0.22	ug/L			01/06/16 19:29	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 19:29	1
Styrene	ND		1.0	0.39	ug/L			01/06/16 19:29	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 19:29	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/06/16 19:29	1
Toluene	ND		0.50	0.15	ug/L			01/06/16 19:29	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/06/16 19:29	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/06/16 19:29	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/06/16 19:29	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/06/16 19:29	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/06/16 19:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 125*		*01/06/16 19:29*	*1*
4-Bromofluorobenzene (Surr)	*94*		*75 - 120*		*01/06/16 19:29*	*1*
Dibromofluoromethane	*86*		*75 - 120*		*01/06/16 19:29*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*01/06/16 19:29*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-18D

Date Collected: 12/29/15 08:00
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-21

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/05/16 12:37	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/05/16 12:37	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/05/16 12:37	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/05/16 12:37	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/05/16 12:37	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/05/16 12:37	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/05/16 12:37	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/05/16 12:37	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/05/16 12:37	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/05/16 12:37	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/05/16 12:37	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/05/16 12:37	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/05/16 12:37	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/05/16 12:37	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/05/16 12:37	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/05/16 12:37	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/05/16 12:37	1
1,1,2-Trichlorotrifluoroethane	**98**		5.0	0.46	ug/L			01/05/16 12:37	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/05/16 12:37	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/05/16 12:37	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/05/16 12:37	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/05/16 12:37	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/05/16 12:37	1
2-Hexanone	ND		5.0	1.6	ug/L			01/05/16 12:37	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/05/16 12:37	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/05/16 12:37	1
Acetone	ND		5.0	1.7	ug/L			01/05/16 12:37	1
Benzene	ND		0.50	0.15	ug/L			01/05/16 12:37	1
Bromobenzene	ND		1.0	0.36	ug/L			01/05/16 12:37	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/05/16 12:37	1
Bromoform	ND		1.0	0.48	ug/L			01/05/16 12:37	1
Bromomethane	ND		5.0	0.80	ug/L			01/05/16 12:37	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/05/16 12:37	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/05/16 12:37	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/05/16 12:37	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/05/16 12:37	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/05/16 12:37	1
Chloroethane	ND		1.0	0.51	ug/L			01/05/16 12:37	1
Chloroform	ND		1.0	0.37	ug/L			01/05/16 12:37	1
Chloromethane	ND		1.0	0.32	ug/L			01/05/16 12:37	1
cis-1,2-Dichloroethene	**9.6**		1.0	0.41	ug/L			01/05/16 12:37	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/05/16 12:37	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/05/16 12:37	1
Dibromomethane	ND		1.0	0.27	ug/L			01/05/16 12:37	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/05/16 12:37	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/05/16 12:37	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/05/16 12:37	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/05/16 12:37	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/05/16 12:37	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-18D

Lab Sample ID: 500-105858-21

Date Collected: 12/29/15 08:00

Matrix: Water

Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND	*	5.0	2.1	ug/L			01/05/16 12:37	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/05/16 12:37	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/05/16 12:37	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/05/16 12:37	1
Naphthalene	ND		1.0	0.34	ug/L			01/05/16 12:37	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/05/16 12:37	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/05/16 12:37	1
o-Xylene	ND		0.50	0.22	ug/L			01/05/16 12:37	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 12:37	1
Styrene	ND		1.0	0.39	ug/L			01/05/16 12:37	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 12:37	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/05/16 12:37	1
Toluene	ND		0.50	0.15	ug/L			01/05/16 12:37	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/05/16 12:37	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/05/16 12:37	1
Trichloroethylene	**0.54**		0.50	0.16	ug/L			01/05/16 12:37	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/05/16 12:37	1
Vinyl chloride	**0.27**	**J**	0.50	0.20	ug/L			01/05/16 12:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*116*		*75 - 125*		*01/05/16 12:37*	*1*
4-Bromofluorobenzene (Surr)	*80*		*75 - 120*		*01/05/16 12:37*	*1*
Dibromofluoromethane	*100*		*75 - 120*		*01/05/16 12:37*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/05/16 12:37*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-19B

Date Collected: 12/29/15 08:50
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-22

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/05/16 13:05	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/05/16 13:05	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/05/16 13:05	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/05/16 13:05	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/05/16 13:05	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/05/16 13:05	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/05/16 13:05	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/05/16 13:05	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/05/16 13:05	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/05/16 13:05	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/05/16 13:05	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/05/16 13:05	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/05/16 13:05	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/05/16 13:05	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/05/16 13:05	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/05/16 13:05	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/05/16 13:05	1
1,1,2-Trichlorotrifluoroethane	ND		5.0	0.46	ug/L			01/05/16 13:05	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/05/16 13:05	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/05/16 13:05	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/05/16 13:05	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/05/16 13:05	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/05/16 13:05	1
2-Hexanone	ND		5.0	1.6	ug/L			01/05/16 13:05	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/05/16 13:05	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/05/16 13:05	1
Acetone	ND		5.0	1.7	ug/L			01/05/16 13:05	1
Benzene	ND		0.50	0.15	ug/L			01/05/16 13:05	1
Bromobenzene	ND		1.0	0.36	ug/L			01/05/16 13:05	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/05/16 13:05	1
Bromoform	ND		1.0	0.48	ug/L			01/05/16 13:05	1
Bromomethane	ND		5.0	0.80	ug/L			01/05/16 13:05	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/05/16 13:05	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/05/16 13:05	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/05/16 13:05	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/05/16 13:05	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/05/16 13:05	1
Chloroethane	ND		1.0	0.51	ug/L			01/05/16 13:05	1
Chloroform	ND		1.0	0.37	ug/L			01/05/16 13:05	1
Chloromethane	ND		1.0	0.32	ug/L			01/05/16 13:05	1
cis-1,2-Dichloroethene	ND		1.0	0.41	ug/L			01/05/16 13:05	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/05/16 13:05	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/05/16 13:05	1
Dibromomethane	ND		1.0	0.27	ug/L			01/05/16 13:05	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/05/16 13:05	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/05/16 13:05	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/05/16 13:05	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/05/16 13:05	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/05/16 13:05	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-19B

Lab Sample ID: 500-105858-22

Date Collected: 12/29/15 08:50
Matrix: Water
Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND	*	5.0	2.1	ug/L			01/05/16 13:05	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/05/16 13:05	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/05/16 13:05	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/05/16 13:05	1
Naphthalene	ND		1.0	0.34	ug/L			01/05/16 13:05	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/05/16 13:05	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/05/16 13:05	1
o-Xylene	ND		0.50	0.22	ug/L			01/05/16 13:05	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 13:05	1
Styrene	ND		1.0	0.39	ug/L			01/05/16 13:05	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 13:05	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/05/16 13:05	1
Toluene	ND		0.50	0.15	ug/L			01/05/16 13:05	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/05/16 13:05	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/05/16 13:05	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/05/16 13:05	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/05/16 13:05	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/05/16 13:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*118*		*75 - 125*		*01/05/16 13:05*	*1*
4-Bromofluorobenzene (Surr)	*82*		*75 - 120*		*01/05/16 13:05*	*1*
Dibromofluoromethane	*104*		*75 - 120*		*01/05/16 13:05*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*01/05/16 13:05*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-19D

Date Collected: 12/29/15 09:15
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-23

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/07/16 10:34	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/07/16 10:34	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/07/16 10:34	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/07/16 10:34	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/07/16 10:34	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/07/16 10:34	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/07/16 10:34	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/07/16 10:34	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/07/16 10:34	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/07/16 10:34	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/07/16 10:34	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/07/16 10:34	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/07/16 10:34	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/07/16 10:34	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/07/16 10:34	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/07/16 10:34	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/07/16 10:34	1
1,1,2-Trichlorotrifluoroethane	**160**		5.0	0.46	ug/L			01/07/16 10:34	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/07/16 10:34	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/07/16 10:34	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/07/16 10:34	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/07/16 10:34	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/07/16 10:34	1
2-Hexanone	ND		5.0	1.6	ug/L			01/07/16 10:34	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/07/16 10:34	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/07/16 10:34	1
Acetone	**14**		5.0	1.7	ug/L			01/07/16 10:34	1
Benzene	**0.66**		0.50	0.15	ug/L			01/07/16 10:34	1
Bromobenzene	ND		1.0	0.36	ug/L			01/07/16 10:34	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/07/16 10:34	1
Bromoform	ND		1.0	0.48	ug/L			01/07/16 10:34	1
Bromomethane	ND		5.0	0.80	ug/L			01/07/16 10:34	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/07/16 10:34	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/07/16 10:34	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/07/16 10:34	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/07/16 10:34	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/07/16 10:34	1
Chloroethane	ND		1.0	0.51	ug/L			01/07/16 10:34	1
Chloroform	ND		1.0	0.37	ug/L			01/07/16 10:34	1
Chloromethane	ND		1.0	0.32	ug/L			01/07/16 10:34	1
cis-1,2-Dichloroethene	**61**		1.0	0.41	ug/L			01/07/16 10:34	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/07/16 10:34	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/07/16 10:34	1
Dibromomethane	ND		1.0	0.27	ug/L			01/07/16 10:34	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/07/16 10:34	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/07/16 10:34	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/07/16 10:34	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/07/16 10:34	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/07/16 10:34	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-19D

Date Collected: 12/29/15 09:15
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-23

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/07/16 10:34	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/07/16 10:34	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/07/16 10:34	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/07/16 10:34	1
Naphthalene	ND		1.0	0.34	ug/L			01/07/16 10:34	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/07/16 10:34	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/07/16 10:34	1
o-Xylene	ND		0.50	0.22	ug/L			01/07/16 10:34	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/07/16 10:34	1
Styrene	ND		1.0	0.39	ug/L			01/07/16 10:34	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/07/16 10:34	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/07/16 10:34	1
Toluene	ND		0.50	0.15	ug/L			01/07/16 10:34	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/07/16 10:34	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/07/16 10:34	1
Trichloroethylene	**2.1**		0.50	0.16	ug/L			01/07/16 10:34	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/07/16 10:34	1
Vinyl chloride	**1.2**		0.50	0.20	ug/L			01/07/16 10:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 125*		*01/07/16 10:34*	*1*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*		*01/07/16 10:34*	*1*
Dibromofluoromethane	*88*		*75 - 120*		*01/07/16 10:34*	*1*
Toluene-d8 (Surr)	*95*		*75 - 120*		*01/07/16 10:34*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-20B

Date Collected: 12/29/15 10:25
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-24

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/05/16 13:33	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/05/16 13:33	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/05/16 13:33	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/05/16 13:33	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/05/16 13:33	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/05/16 13:33	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/05/16 13:33	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/05/16 13:33	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/05/16 13:33	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/05/16 13:33	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/05/16 13:33	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/05/16 13:33	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/05/16 13:33	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/05/16 13:33	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/05/16 13:33	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/05/16 13:33	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/05/16 13:33	1
1,1,2-Trichlorotrifluoroethane	ND		5.0	0.46	ug/L			01/05/16 13:33	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/05/16 13:33	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/05/16 13:33	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/05/16 13:33	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/05/16 13:33	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/05/16 13:33	1
2-Hexanone	ND		5.0	1.6	ug/L			01/05/16 13:33	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/05/16 13:33	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/05/16 13:33	1
Acetone	ND		5.0	1.7	ug/L			01/05/16 13:33	1
Benzene	ND		0.50	0.15	ug/L			01/05/16 13:33	1
Bromobenzene	ND		1.0	0.36	ug/L			01/05/16 13:33	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/05/16 13:33	1
Bromoform	ND		1.0	0.48	ug/L			01/05/16 13:33	1
Bromomethane	ND		5.0	0.80	ug/L			01/05/16 13:33	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/05/16 13:33	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/05/16 13:33	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/05/16 13:33	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/05/16 13:33	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/05/16 13:33	1
Chloroethane	ND		1.0	0.51	ug/L			01/05/16 13:33	1
Chloroform	ND		1.0	0.37	ug/L			01/05/16 13:33	1
Chloromethane	ND		1.0	0.32	ug/L			01/05/16 13:33	1
cis-1,2-Dichloroethene	ND		1.0	0.41	ug/L			01/05/16 13:33	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/05/16 13:33	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/05/16 13:33	1
Dibromomethane	ND		1.0	0.27	ug/L			01/05/16 13:33	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/05/16 13:33	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/05/16 13:33	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/05/16 13:33	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/05/16 13:33	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/05/16 13:33	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-20B

Lab Sample ID: 500-105858-24

Date Collected: 12/29/15 10:25
Matrix: Water
Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND	*	5.0	2.1	ug/L			01/05/16 13:33	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/05/16 13:33	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/05/16 13:33	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/05/16 13:33	1
Naphthalene	ND		1.0	0.34	ug/L			01/05/16 13:33	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/05/16 13:33	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/05/16 13:33	1
o-Xylene	ND		0.50	0.22	ug/L			01/05/16 13:33	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 13:33	1
Styrene	ND		1.0	0.39	ug/L			01/05/16 13:33	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 13:33	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/05/16 13:33	1
Toluene	ND		0.50	0.15	ug/L			01/05/16 13:33	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/05/16 13:33	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/05/16 13:33	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/05/16 13:33	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/05/16 13:33	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/05/16 13:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*75 - 125*		*01/05/16 13:33*	*1*
4-Bromofluorobenzene (Surr)	*80*		*75 - 120*		*01/05/16 13:33*	*1*
Dibromofluoromethane	*103*		*75 - 120*		*01/05/16 13:33*	*1*
Toluene-d8 (Surr)	*95*		*75 - 120*		*01/05/16 13:33*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-20D

Date Collected: 12/29/15 11:00
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-25

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/05/16 14:00	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/05/16 14:00	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/05/16 14:00	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/05/16 14:00	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/05/16 14:00	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/05/16 14:00	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/05/16 14:00	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/05/16 14:00	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/05/16 14:00	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/05/16 14:00	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/05/16 14:00	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/05/16 14:00	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/05/16 14:00	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/05/16 14:00	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/05/16 14:00	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/05/16 14:00	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/05/16 14:00	1
1,1,2-Trichlorotrifluoroethane	ND		5.0	0.46	ug/L			01/05/16 14:00	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/05/16 14:00	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/05/16 14:00	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/05/16 14:00	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/05/16 14:00	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/05/16 14:00	1
2-Hexanone	ND		5.0	1.6	ug/L			01/05/16 14:00	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/05/16 14:00	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/05/16 14:00	1
Acetone	ND		5.0	1.7	ug/L			01/05/16 14:00	1
Benzene	ND		0.50	0.15	ug/L			01/05/16 14:00	1
Bromobenzene	ND		1.0	0.36	ug/L			01/05/16 14:00	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/05/16 14:00	1
Bromoform	ND		1.0	0.48	ug/L			01/05/16 14:00	1
Bromomethane	ND		5.0	0.80	ug/L			01/05/16 14:00	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/05/16 14:00	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/05/16 14:00	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/05/16 14:00	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/05/16 14:00	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/05/16 14:00	1
Chloroethane	ND		1.0	0.51	ug/L			01/05/16 14:00	1
Chloroform	ND		1.0	0.37	ug/L			01/05/16 14:00	1
Chloromethane	ND		1.0	0.32	ug/L			01/05/16 14:00	1
cis-1,2-Dichloroethene	**0.81**	**J**	1.0	0.41	ug/L			01/05/16 14:00	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/05/16 14:00	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/05/16 14:00	1
Dibromomethane	ND		1.0	0.27	ug/L			01/05/16 14:00	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/05/16 14:00	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/05/16 14:00	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/05/16 14:00	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/05/16 14:00	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/05/16 14:00	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-20D

Date Collected: 12/29/15 11:00
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-25

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND	*	5.0	2.1	ug/L			01/05/16 14:00	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/05/16 14:00	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/05/16 14:00	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/05/16 14:00	1
Naphthalene	ND		1.0	0.34	ug/L			01/05/16 14:00	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/05/16 14:00	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/05/16 14:00	1
o-Xylene	ND		0.50	0.22	ug/L			01/05/16 14:00	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 14:00	1
Styrene	ND		1.0	0.39	ug/L			01/05/16 14:00	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 14:00	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/05/16 14:00	1
Toluene	ND		0.50	0.15	ug/L			01/05/16 14:00	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/05/16 14:00	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/05/16 14:00	1
Trichloroethylene	**0.55**		0.50	0.16	ug/L			01/05/16 14:00	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/05/16 14:00	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/05/16 14:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*75 - 125*		*01/05/16 14:00*	*1*
4-Bromofluorobenzene (Surr)	*79*		*75 - 120*		*01/05/16 14:00*	*1*
Dibromofluoromethane	*104*		*75 - 120*		*01/05/16 14:00*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*01/05/16 14:00*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: DUP-1

Date Collected: 12/29/15 00:00
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-26

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/05/16 14:28	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/05/16 14:28	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/05/16 14:28	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/05/16 14:28	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/05/16 14:28	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/05/16 14:28	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/05/16 14:28	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/05/16 14:28	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/05/16 14:28	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/05/16 14:28	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/05/16 14:28	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/05/16 14:28	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/05/16 14:28	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/05/16 14:28	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/05/16 14:28	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/05/16 14:28	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/05/16 14:28	1
1,1,2-Trichlorotrifluoroethane	ND		5.0	0.46	ug/L			01/05/16 14:28	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/05/16 14:28	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/05/16 14:28	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/05/16 14:28	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/05/16 14:28	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/05/16 14:28	1
2-Hexanone	ND		5.0	1.6	ug/L			01/05/16 14:28	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/05/16 14:28	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/05/16 14:28	1
Acetone	ND		5.0	1.7	ug/L			01/05/16 14:28	1
Benzene	ND		0.50	0.15	ug/L			01/05/16 14:28	1
Bromobenzene	ND		1.0	0.36	ug/L			01/05/16 14:28	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/05/16 14:28	1
Bromoform	ND		1.0	0.48	ug/L			01/05/16 14:28	1
Bromomethane	ND		5.0	0.80	ug/L			01/05/16 14:28	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/05/16 14:28	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/05/16 14:28	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/05/16 14:28	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/05/16 14:28	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/05/16 14:28	1
Chloroethane	ND		1.0	0.51	ug/L			01/05/16 14:28	1
Chloroform	ND		1.0	0.37	ug/L			01/05/16 14:28	1
Chloromethane	ND		1.0	0.32	ug/L			01/05/16 14:28	1
cis-1,2-Dichloroethene	ND		1.0	0.41	ug/L			01/05/16 14:28	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/05/16 14:28	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/05/16 14:28	1
Dibromomethane	ND		1.0	0.27	ug/L			01/05/16 14:28	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/05/16 14:28	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/05/16 14:28	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/05/16 14:28	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/05/16 14:28	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/05/16 14:28	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: DUP-1

Lab Sample ID: 500-105858-26

Date Collected: 12/29/15 00:00
Matrix: Water
Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND	*	5.0	2.1	ug/L			01/05/16 14:28	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/05/16 14:28	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/05/16 14:28	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/05/16 14:28	1
Naphthalene	ND		1.0	0.34	ug/L			01/05/16 14:28	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/05/16 14:28	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/05/16 14:28	1
o-Xylene	ND		0.50	0.22	ug/L			01/05/16 14:28	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 14:28	1
Styrene	ND		1.0	0.39	ug/L			01/05/16 14:28	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 14:28	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/05/16 14:28	1
Toluene	ND		0.50	0.15	ug/L			01/05/16 14:28	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/05/16 14:28	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/05/16 14:28	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/05/16 14:28	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/05/16 14:28	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/05/16 14:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*75 - 125*		*01/05/16 14:28*	*1*
4-Bromofluorobenzene (Surr)	*79*		*75 - 120*		*01/05/16 14:28*	*1*
Dibromofluoromethane	*104*		*75 - 120*		*01/05/16 14:28*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*01/05/16 14:28*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: DUP-2

Date Collected: 12/29/15 00:00
Date Received: 12/31/15 10:20

Lab Sample ID: 500-105858-27

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/06/16 19:56	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/06/16 19:56	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/06/16 19:56	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/06/16 19:56	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/06/16 19:56	1
1,1-Dichloroethylene	**14**		1.0	0.39	ug/L			01/06/16 19:56	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/06/16 19:56	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/06/16 19:56	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/06/16 19:56	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/06/16 19:56	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/06/16 19:56	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/06/16 19:56	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/06/16 19:56	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/06/16 19:56	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/06/16 19:56	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/06/16 19:56	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/06/16 19:56	1
1,1,2-Trichlorotrifluoroethane	**88**		5.0	0.46	ug/L			01/06/16 19:56	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/06/16 19:56	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/06/16 19:56	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/06/16 19:56	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/06/16 19:56	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/06/16 19:56	1
2-Hexanone	ND		5.0	1.6	ug/L			01/06/16 19:56	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/06/16 19:56	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/06/16 19:56	1
Acetone	ND		5.0	1.7	ug/L			01/06/16 19:56	1
Benzene	ND		0.50	0.15	ug/L			01/06/16 19:56	1
Bromobenzene	ND		1.0	0.36	ug/L			01/06/16 19:56	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/06/16 19:56	1
Bromoform	ND		1.0	0.48	ug/L			01/06/16 19:56	1
Bromomethane	ND		5.0	0.80	ug/L			01/06/16 19:56	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/06/16 19:56	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/06/16 19:56	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/06/16 19:56	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/06/16 19:56	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/06/16 19:56	1
Chloroethane	ND		1.0	0.51	ug/L			01/06/16 19:56	1
Chloroform	ND		1.0	0.37	ug/L			01/06/16 19:56	1
Chloromethane	ND		1.0	0.32	ug/L			01/06/16 19:56	1
cis-1,2-Dichloroethene	**160**		1.0	0.41	ug/L			01/06/16 19:56	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/06/16 19:56	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/06/16 19:56	1
Dibromomethane	ND		1.0	0.27	ug/L			01/06/16 19:56	1
Dichlorodifluoromethane	ND	F1	5.0	0.67	ug/L			01/06/16 19:56	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/06/16 19:56	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/06/16 19:56	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/06/16 19:56	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/06/16 19:56	1

Client Sample ID: DUP-2

Lab Sample ID: 500-105858-27

Date Collected: 12/29/15 00:00

Matrix: Water

Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	**11**		5.0	2.1	ug/L			01/06/16 19:56	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/06/16 19:56	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/06/16 19:56	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/06/16 19:56	1
Naphthalene	ND		1.0	0.34	ug/L			01/06/16 19:56	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/06/16 19:56	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/06/16 19:56	1
o-Xylene	ND		0.50	0.22	ug/L			01/06/16 19:56	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 19:56	1
Styrene	ND		1.0	0.39	ug/L			01/06/16 19:56	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 19:56	1
Perchloroethylene	**1.2**		1.0	0.37	ug/L			01/06/16 19:56	1
Toluene	**6.9**		0.50	0.15	ug/L			01/06/16 19:56	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/06/16 19:56	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/06/16 19:56	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/06/16 19:56	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/06/16 19:56	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/06/16 19:56	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Ethene, chlorotrifluoro-	*450*	*T J N*	*ug/L*		*1.14*	*79-38-9*		*01/06/16 19:56*	*1*
3,5-Cyclohexadiene-1,2-dione, 5-(hydroxy	*9.5*	*T J N*	*ug/L*		*1.86*	*77745-42-7*		*01/06/16 19:56*	*1*
Methyl acetate	*35*		*ug/L*		*3.07*	*79-20-9*		*01/06/16 19:56*	*1*
Cyclohexane	*7.5*		*ug/L*		*4.93*	*110-82-7*		*01/06/16 19:56*	*1*
n-Heptane	*7.6*		*ug/L*		*5.60*	*142-82-5*		*01/06/16 19:56*	*1*
Methylcyclohexane	*11*		*ug/L*		*6.27*	*108-87-2*		*01/06/16 19:56*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 125*		*01/06/16 19:56*	*1*
4-Bromofluorobenzene (Surr)	*95*		*75 - 120*		*01/06/16 19:56*	*1*
Dibromofluoromethane	*89*		*75 - 120*		*01/06/16 19:56*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/06/16 19:56*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: Trip Blank

Lab Sample ID: 500-105858-28

Date Collected: 12/28/15 00:00
Matrix: Water
Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/04/16 17:41	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/04/16 17:41	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/04/16 17:41	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/04/16 17:41	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/04/16 17:41	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/04/16 17:41	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/04/16 17:41	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/04/16 17:41	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/04/16 17:41	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/04/16 17:41	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/04/16 17:41	1
1,2-Dibromo-3-Chloropropane	ND	*	5.0	2.0	ug/L			01/04/16 17:41	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/04/16 17:41	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/04/16 17:41	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/04/16 17:41	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/04/16 17:41	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/04/16 17:41	1
1,1,2-Trichlorotrifluoroethane	ND		5.0	0.46	ug/L			01/04/16 17:41	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/04/16 17:41	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/04/16 17:41	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/04/16 17:41	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/04/16 17:41	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/04/16 17:41	1
2-Hexanone	ND		5.0	1.6	ug/L			01/04/16 17:41	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/04/16 17:41	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/04/16 17:41	1
Acetone	ND		5.0	1.7	ug/L			01/04/16 17:41	1
Benzene	ND		0.50	0.15	ug/L			01/04/16 17:41	1
Bromobenzene	ND		1.0	0.36	ug/L			01/04/16 17:41	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/04/16 17:41	1
Bromoform	ND	*	1.0	0.48	ug/L			01/04/16 17:41	1
Bromomethane	ND		5.0	0.80	ug/L			01/04/16 17:41	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/04/16 17:41	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/04/16 17:41	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/04/16 17:41	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/04/16 17:41	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/04/16 17:41	1
Chloroethane	ND		1.0	0.51	ug/L			01/04/16 17:41	1
Chloroform	ND		1.0	0.37	ug/L			01/04/16 17:41	1
Chloromethane	ND		1.0	0.32	ug/L			01/04/16 17:41	1
cis-1,2-Dichloroethene	ND		1.0	0.41	ug/L			01/04/16 17:41	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/04/16 17:41	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/04/16 17:41	1
Dibromomethane	ND		1.0	0.27	ug/L			01/04/16 17:41	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/04/16 17:41	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/04/16 17:41	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/04/16 17:41	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/04/16 17:41	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/04/16 17:41	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: Trip Blank

Lab Sample ID: 500-105858-28

Date Collected: 12/28/15 00:00
Matrix: Water
Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/04/16 17:41	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/04/16 17:41	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/04/16 17:41	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/04/16 17:41	1
Naphthalene	ND		1.0	0.34	ug/L			01/04/16 17:41	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/04/16 17:41	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/04/16 17:41	1
o-Xylene	ND		0.50	0.22	ug/L			01/04/16 17:41	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/04/16 17:41	1
Styrene	ND		1.0	0.39	ug/L			01/04/16 17:41	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/04/16 17:41	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/04/16 17:41	1
Toluene	ND		0.50	0.15	ug/L			01/04/16 17:41	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/04/16 17:41	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/04/16 17:41	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/04/16 17:41	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/04/16 17:41	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/04/16 17:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*85*		*75 - 125*		*01/04/16 17:41*	*1*
4-Bromofluorobenzene (Surr)	*90*		*75 - 120*		*01/04/16 17:41*	*1*
Dibromofluoromethane	*83*		*75 - 120*		*01/04/16 17:41*	*1*
Toluene-d8 (Surr)	*95*		*75 - 120*		*01/04/16 17:41*	*1*

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: Trip Blank

Lab Sample ID: 500-105858-29

Date Collected: 12/28/15 00:00
Matrix: Water
Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/04/16 18:07	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/04/16 18:07	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/04/16 18:07	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/04/16 18:07	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/04/16 18:07	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/04/16 18:07	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/04/16 18:07	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/04/16 18:07	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/04/16 18:07	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/04/16 18:07	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/04/16 18:07	1
1,2-Dibromo-3-Chloropropane	ND	*	5.0	2.0	ug/L			01/04/16 18:07	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/04/16 18:07	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/04/16 18:07	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/04/16 18:07	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/04/16 18:07	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/04/16 18:07	1
1,1,2-Trichlorotrifluoroethane	ND		5.0	0.46	ug/L			01/04/16 18:07	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/04/16 18:07	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/04/16 18:07	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/04/16 18:07	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/04/16 18:07	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/04/16 18:07	1
2-Hexanone	ND		5.0	1.6	ug/L			01/04/16 18:07	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/04/16 18:07	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/04/16 18:07	1
Acetone	ND		5.0	1.7	ug/L			01/04/16 18:07	1
Benzene	ND		0.50	0.15	ug/L			01/04/16 18:07	1
Bromobenzene	ND		1.0	0.36	ug/L			01/04/16 18:07	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/04/16 18:07	1
Bromoform	ND	*	1.0	0.48	ug/L			01/04/16 18:07	1
Bromomethane	ND		5.0	0.80	ug/L			01/04/16 18:07	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/04/16 18:07	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/04/16 18:07	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/04/16 18:07	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/04/16 18:07	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/04/16 18:07	1
Chloroethane	ND		1.0	0.51	ug/L			01/04/16 18:07	1
Chloroform	ND		1.0	0.37	ug/L			01/04/16 18:07	1
Chloromethane	ND		1.0	0.32	ug/L			01/04/16 18:07	1
cis-1,2-Dichloroethene	ND		1.0	0.41	ug/L			01/04/16 18:07	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/04/16 18:07	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/04/16 18:07	1
Dibromomethane	ND		1.0	0.27	ug/L			01/04/16 18:07	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/04/16 18:07	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/04/16 18:07	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/04/16 18:07	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/04/16 18:07	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/04/16 18:07	1

Client Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: Trip Blank

Lab Sample ID: 500-105858-29

Date Collected: 12/28/15 00:00
Matrix: Water
Date Received: 12/31/15 10:20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/04/16 18:07	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/04/16 18:07	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/04/16 18:07	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/04/16 18:07	1
Naphthalene	ND		1.0	0.34	ug/L			01/04/16 18:07	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/04/16 18:07	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/04/16 18:07	1
o-Xylene	ND		0.50	0.22	ug/L			01/04/16 18:07	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/04/16 18:07	1
Styrene	ND		1.0	0.39	ug/L			01/04/16 18:07	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/04/16 18:07	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/04/16 18:07	1
Toluene	ND		0.50	0.15	ug/L			01/04/16 18:07	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/04/16 18:07	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/04/16 18:07	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/04/16 18:07	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/04/16 18:07	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/04/16 18:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*75 - 125*		*01/04/16 18:07*	*1*
4-Bromofluorobenzene (Surr)	*89*		*75 - 120*		*01/04/16 18:07*	*1*
Dibromofluoromethane	*82*		*75 - 120*		*01/04/16 18:07*	*1*
Toluene-d8 (Surr)	*95*		*75 - 120*		*01/04/16 18:07*	*1*

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F2	MS/MSD RPD exceeds control limits
F1	MS and/or MSD Recovery is outside acceptance limits.
E	Result exceeded calibration range.

GC/MS VOA TICs

Qualifier	Qualifier Description
J	Indicates an Estimated Value for TICs
N	Presumptive evidence of material.
T	Result is a tentatively identified compound (TIC) and an estimated value.
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

GC/MS VOA

Analysis Batch: 318328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-105858-1	MW-100A	Total/NA	Water	8260B	
500-105858-1 - DL	MW-100A	Total/NA	Water	8260B	
500-105858-2	MW-100B	Total/NA	Water	8260B	
500-105858-2 - DL	MW-100B	Total/NA	Water	8260B	
500-105858-28	Trip Blank	Total/NA	Water	8260B	
500-105858-29	Trip Blank	Total/NA	Water	8260B	
LCS 500-318328/4	Lab Control Sample	Total/NA	Water	8260B	
MB 500-318328/6	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 318389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-105858-5	MW-102A	Total/NA	Water	8260B	
500-105858-5 - DL	MW-102A	Total/NA	Water	8260B	
500-105858-8	MW-103A	Total/NA	Water	8260B	
500-105858-8 - DL	MW-103A	Total/NA	Water	8260B	
500-105858-9	MW-103B	Total/NA	Water	8260B	
500-105858-9 - DL	MW-103B	Total/NA	Water	8260B	
500-105858-10	MW-103C	Total/NA	Water	8260B	
500-105858-10 - DL	MW-103C	Total/NA	Water	8260B	
500-105858-11	MW-104A	Total/NA	Water	8260B	
500-105858-11 - DL	MW-104A	Total/NA	Water	8260B	
500-105858-12 - DL	MW-104B	Total/NA	Water	8260B	
500-105858-13	MW-104C	Total/NA	Water	8260B	
500-105858-18	MW-16B	Total/NA	Water	8260B	
500-105858-18 MS	MW-16B	Total/NA	Water	8260B	
500-105858-18 MSD	MW-16B	Total/NA	Water	8260B	
LCS 500-318389/4	Lab Control Sample	Total/NA	Water	8260B	
MB 500-318389/6	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 318390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-105858-19	MW-16D	Total/NA	Water	8260B	
500-105858-21	MW-18D	Total/NA	Water	8260B	
500-105858-22	MW-19B	Total/NA	Water	8260B	
500-105858-24	MW-20B	Total/NA	Water	8260B	
500-105858-25	MW-20D	Total/NA	Water	8260B	
500-105858-26	DUP-1	Total/NA	Water	8260B	
LCS 500-318390/4	Lab Control Sample	Total/NA	Water	8260B	
MB 500-318390/6	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 318489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-105858-1 - DL2	MW-100A	Total/NA	Water	8260B	
500-105858-3	MW-101A	Total/NA	Water	8260B	
500-105858-3 - DL	MW-101A	Total/NA	Water	8260B	
500-105858-4	MW-101B	Total/NA	Water	8260B	
500-105858-6	MW-102B	Total/NA	Water	8260B	
500-105858-7 - DL	MW-102C	Total/NA	Water	8260B	
500-105858-12	MW-104B	Total/NA	Water	8260B	
500-105858-13 - DL	MW-104C	Total/NA	Water	8260B	
500-105858-14	MW-105C	Total/NA	Water	8260B	

GC/MS VOA (Continued)

Analysis Batch: 318489 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-105858-15	MW-106C	Total/NA	Water	8260B	
500-105858-15 - DL	MW-106C	Total/NA	Water	8260B	
500-105858-16	MW-10B	Total/NA	Water	8260B	
500-105858-17	MW-10D	Total/NA	Water	8260B	
500-105858-17 - DL	MW-10D	Total/NA	Water	8260B	
500-105858-20	MW-18B	Total/NA	Water	8260B	
500-105858-27	DUP-2	Total/NA	Water	8260B	
500-105858-27 MS	DUP-2	Total/NA	Water	8260B	
500-105858-27 MSD	DUP-2	Total/NA	Water	8260B	
LCS 500-318489/5	Lab Control Sample	Total/NA	Water	8260B	
MB 500-318489/7	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 318638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-105858-7	MW-102C	Total/NA	Water	8260B	
500-105858-23	MW-19D	Total/NA	Water	8260B	
LCS 500-318638/4	Lab Control Sample	Total/NA	Water	8260B	
MB 500-318638/6	Method Blank	Total/NA	Water	8260B	

Surrogate Summary

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(75-125)	(75-120)	(75-120)	(75-120)
500-105858-1	MW-100A	86	89	86	97
500-105858-1 - DL	MW-100A	85	88	83	95
500-105858-1 - DL2	MW-100A	97	92	86	95
500-105858-2	MW-100B	87	91	86	96
500-105858-2 - DL	MW-100B	85	88	85	96
500-105858-3	MW-101A	97	95	85	96
500-105858-3 - DL	MW-101A	99	93	87	93
500-105858-4	MW-101B	100	92	87	94
500-105858-5	MW-102A	97	93	86	96
500-105858-5 - DL	MW-102A	97	96	85	94
500-105858-6	MW-102B	106	95	89	93
500-105858-7 - DL	MW-102C	104	90	88	93
500-105858-7	MW-102C	103	94	89	94
500-105858-8 - DL	MW-103A	101	91	85	94
500-105858-8	MW-103A	99	93	85	94
500-105858-9	MW-103B	103	91	86	94
500-105858-9 - DL	MW-103B	103	91	86	93
500-105858-10	MW-103C	101	93	87	93
500-105858-10 - DL	MW-103C	102	94	87	94
500-105858-11	MW-104A	104	94	90	96
500-105858-11 - DL	MW-104A	103	95	86	94
500-105858-12 - DL	MW-104B	105	94	87	93
500-105858-12	MW-104B	100	92	87	93
500-105858-13	MW-104C	102	92	88	94
500-105858-13 - DL	MW-104C	101	91	84	96
500-105858-14	MW-105C	103	94	88	94
500-105858-15	MW-106C	103	91	89	92
500-105858-15 - DL	MW-106C	104	94	86	94
500-105858-16	MW-10B	102	94	88	94
500-105858-17	MW-10D	102	92	90	92
500-105858-17 - DL	MW-10D	103	91	86	93
500-105858-18	MW-16B	105	92	86	92
500-105858-18 MS	MW-16B	102	96	92	93
500-105858-18 MSD	MW-16B	101	92	93	94
500-105858-19	MW-16D	117	80	101	97
500-105858-20	MW-18B	105	94	86	92
500-105858-21	MW-18D	116	80	100	94
500-105858-22	MW-19B	118	82	104	96
500-105858-23	MW-19D	102	92	88	95
500-105858-24	MW-20B	115	80	103	95
500-105858-25	MW-20D	117	79	104	96
500-105858-26	DUP-1	117	79	104	96
500-105858-27	DUP-2	103	95	89	94
500-105858-27 MS	DUP-2	104	93	92	92
500-105858-27 MSD	DUP-2	103	96	92	92
500-105858-28	Trip Blank	85	90	83	95
500-105858-29	Trip Blank	86	89	82	95
LCS 500-318328/4	Lab Control Sample	85	89	85	95
LCS 500-318389/4	Lab Control Sample	98	90	91	94

Surrogate Summary

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	DBFM	TOL
Lab Sample ID	**Client Sample ID**	**(75-125)**	**(75-120)**	**(75-120)**	**(75-120)**
LCS 500-318390/4	Lab Control Sample	110	88	96	93
LCS 500-318489/5	Lab Control Sample	96	95	90	96
LCS 500-318638/4	Lab Control Sample	102	91	92	93
MB 500-318328/6	Method Blank	85	90	83	96
MB 500-318389/6	Method Blank	105	91	86	94
MB 500-318390/6	Method Blank	115	79	101	97
MB 500-318489/7	Method Blank	99	93	85	94
MB 500-318638/6	Method Blank	103	92	86	93

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)

QC Sample Results

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 500-318328/6
Matrix: Water
Analysis Batch: 318328

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/04/16 17:14	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/04/16 17:14	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/04/16 17:14	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/04/16 17:14	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/04/16 17:14	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/04/16 17:14	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/04/16 17:14	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/04/16 17:14	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/04/16 17:14	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/04/16 17:14	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/04/16 17:14	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/04/16 17:14	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/04/16 17:14	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/04/16 17:14	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/04/16 17:14	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/04/16 17:14	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/04/16 17:14	1
1,1,2-Trichlorotrifluoroethane	ND		5.0	0.46	ug/L			01/04/16 17:14	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/04/16 17:14	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/04/16 17:14	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/04/16 17:14	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/04/16 17:14	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/04/16 17:14	1
2-Hexanone	ND		5.0	1.6	ug/L			01/04/16 17:14	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/04/16 17:14	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/04/16 17:14	1
Acetone	ND		5.0	1.7	ug/L			01/04/16 17:14	1
Benzene	ND		0.50	0.15	ug/L			01/04/16 17:14	1
Bromobenzene	ND		1.0	0.36	ug/L			01/04/16 17:14	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/04/16 17:14	1
Bromoform	ND		1.0	0.48	ug/L			01/04/16 17:14	1
Bromomethane	ND		5.0	0.80	ug/L			01/04/16 17:14	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/04/16 17:14	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/04/16 17:14	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/04/16 17:14	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/04/16 17:14	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/04/16 17:14	1
Chloroethane	ND		1.0	0.51	ug/L			01/04/16 17:14	1
Chloroform	1.01		1.0	0.37	ug/L			01/04/16 17:14	1
Chloromethane	ND		1.0	0.32	ug/L			01/04/16 17:14	1
cis-1,2-Dichloroethene	ND		1.0	0.41	ug/L			01/04/16 17:14	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/04/16 17:14	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/04/16 17:14	1
Dibromomethane	ND		1.0	0.27	ug/L			01/04/16 17:14	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/04/16 17:14	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/04/16 17:14	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/04/16 17:14	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/04/16 17:14	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-318328/6
Matrix: Water
Analysis Batch: 318328

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m&p-Xylene	ND		1.0	0.18	ug/L			01/04/16 17:14	1
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/04/16 17:14	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/04/16 17:14	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/04/16 17:14	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/04/16 17:14	1
Naphthalene	ND		1.0	0.34	ug/L			01/04/16 17:14	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/04/16 17:14	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/04/16 17:14	1
o-Xylene	ND		0.50	0.22	ug/L			01/04/16 17:14	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/04/16 17:14	1
Styrene	ND		1.0	0.39	ug/L			01/04/16 17:14	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/04/16 17:14	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/04/16 17:14	1
Toluene	ND		0.50	0.15	ug/L			01/04/16 17:14	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/04/16 17:14	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/04/16 17:14	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/04/16 17:14	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/04/16 17:14	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/04/16 17:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*85*		*75 - 125*		*01/04/16 17:14*	*1*
4-Bromofluorobenzene (Surr)	*90*		*75 - 120*		*01/04/16 17:14*	*1*
Dibromofluoromethane	*83*		*75 - 120*		*01/04/16 17:14*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*01/04/16 17:14*	*1*

Lab Sample ID: LCS 500-318328/4
Matrix: Water
Analysis Batch: 318328

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	50.0	37.2		ug/L		74	70 - 124
1,1,1-Trichloroethane	50.0	40.0		ug/L		80	70 - 125
1,1,2,2-Tetrachloroethane	50.0	39.0		ug/L		78	68 - 133
1,1,2-Trichloroethane	50.0	43.3		ug/L		87	70 - 125
1,1-Dichloroethane	50.0	40.8		ug/L		82	70 - 127
1,1-Dichloroethylene	50.0	45.1		ug/L		90	68 - 121
1,1-Dichloropropene	50.0	43.6		ug/L		87	70 - 126
1,2,3-Trichlorobenzene	50.0	39.9		ug/L		80	70 - 133
1,2,3-Trichloropropane	50.0	39.2		ug/L		78	53 - 139
1,2,4-Trichlorobenzene	50.0	41.1		ug/L		82	70 - 125
1,2,4-Trimethylbenzene	50.0	41.9		ug/L		84	70 - 127
1,2-Dibromo-3-Chloropropane	50.0	28.8	*	ug/L		58	59 - 139
1,2-Dibromoethane	50.0	39.5		ug/L		79	70 - 124
1,2-Dichlorobenzene	50.0	41.2		ug/L		82	70 - 123
1,2-Dichloroethane	50.0	38.6		ug/L		77	66 - 132
1,2-Dichloropropane	50.0	41.6		ug/L		83	70 - 127
1,3,5-Trimethylbenzene	50.0	41.7		ug/L		83	70 - 129

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-318328/4
Matrix: Water
Analysis Batch: 318328

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichlorotrifluoroethane	50.0	43.7		ug/L		87	64 - 120
1,3-Dichlorobenzene	50.0	40.6		ug/L		81	70 - 122
1,3-Dichloropropane	50.0	43.8		ug/L		88	70 - 127
1,4-Dichlorobenzene	50.0	39.7		ug/L		79	70 - 120
2,2-Dichloropropane	50.0	40.8		ug/L		82	68 - 120
2-Chlorotoluene	50.0	40.5		ug/L		81	70 - 128
2-Hexanone	50.0	37.3		ug/L		75	53 - 140
4-Chlorotoluene	50.0	40.9		ug/L		82	70 - 127
4-Isopropyltoluene	50.0	40.0		ug/L		80	70 - 133
Acetone	50.0	29.3		ug/L		59	47 - 131
Benzene	50.0	45.0		ug/L		90	70 - 120
Bromobenzene	50.0	40.4		ug/L		81	70 - 129
Bromodichloromethane	50.0	39.5		ug/L		79	70 - 127
Bromoform	50.0	33.3	*	ug/L		67	70 - 135
Bromomethane	50.0	45.4		ug/L		91	30 - 170
Carbon disulfide	50.0	45.7		ug/L		91	61 - 120
Carbon tetrachloride	50.0	35.4		ug/L		71	70 - 136
Chlorobenzene	50.0	43.0		ug/L		86	70 - 120
Chlorobromomethane	50.0	41.8		ug/L		84	70 - 121
Vinyl acetate	50.0	24.5		ug/L		49	30 - 150
Chloroethane	50.0	29.5		ug/L		59	40 - 150
Chloroform	50.0	44.5		ug/L		89	70 - 120
Chloromethane	50.0	39.8		ug/L		80	45 - 140
cis-1,2-Dichloroethene	50.0	44.0		ug/L		88	70 - 120
cis-1,3-Dichloropropene	50.0	41.6		ug/L		83	70 - 122
Dibromochloromethane	50.0	35.6		ug/L		71	70 - 120
Dibromomethane	50.0	40.6		ug/L		81	70 - 120
Dichlorodifluoromethane	50.0	46.9		ug/L		94	30 - 150
Ethylbenzene	50.0	41.2		ug/L		82	70 - 125
Hexachlorobutadiene	50.0	42.6		ug/L		85	70 - 138
Isopropylbenzene	50.0	40.8		ug/L		82	70 - 132
m&p-Xylene	50.0	43.3		ug/L		87	70 - 120
Methyl Ethyl Ketone	50.0	38.2		ug/L		76	51 - 134
methyl isobutyl ketone	50.0	35.0		ug/L		70	53 - 135
Methyl tert-butyl ether	50.0	43.7		ug/L		87	65 - 120
Methylene Chloride	50.0	41.7		ug/L		83	70 - 120
Naphthalene	50.0	38.3		ug/L		77	59 - 143
n-Butylbenzene	50.0	40.1		ug/L		80	70 - 129
N-Propylbenzene	50.0	40.7		ug/L		81	70 - 132
o-Xylene	50.0	42.9		ug/L		86	70 - 120
sec-Butylbenzene	50.0	41.1		ug/L		82	70 - 134
Styrene	50.0	43.6		ug/L		87	70 - 120
tert-Butylbenzene	50.0	39.6		ug/L		79	70 - 137
Perchloroethylene	50.0	44.8		ug/L		90	70 - 129
Toluene	50.0	43.6		ug/L		87	70 - 120
trans-1,2-Dichloroethene	50.0	45.1		ug/L		90	70 - 120
trans-1,3-Dichloropropene	50.0	39.4		ug/L		79	70 - 123
Trichloroethylene	50.0	42.2		ug/L		84	70 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-318328/4
Matrix: Water
Analysis Batch: 318328

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Trichlorofluoromethane	50.0	39.2		ug/L		78	65 - 134
Vinyl chloride	50.0	47.1		ug/L		94	63 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*85*		*75 - 125*
4-Bromofluorobenzene (Surr)	*89*		*75 - 120*
Dibromofluoromethane	*85*		*75 - 120*
Toluene-d8 (Surr)	*95*		*75 - 120*

Lab Sample ID: MB 500-318389/6
Matrix: Water
Analysis Batch: 318389

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/05/16 11:37	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/05/16 11:37	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/05/16 11:37	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/05/16 11:37	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/05/16 11:37	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/05/16 11:37	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/05/16 11:37	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/05/16 11:37	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/05/16 11:37	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/05/16 11:37	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/05/16 11:37	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/05/16 11:37	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/05/16 11:37	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/05/16 11:37	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/05/16 11:37	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/05/16 11:37	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/05/16 11:37	1
1,1,2-Trichlorotrifluoroethane	ND		5.0	0.46	ug/L			01/05/16 11:37	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/05/16 11:37	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/05/16 11:37	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/05/16 11:37	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/05/16 11:37	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/05/16 11:37	1
2-Hexanone	ND		5.0	1.6	ug/L			01/05/16 11:37	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/05/16 11:37	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/05/16 11:37	1
Acetone	ND		5.0	1.7	ug/L			01/05/16 11:37	1
Benzene	ND		0.50	0.15	ug/L			01/05/16 11:37	1
Bromobenzene	ND		1.0	0.36	ug/L			01/05/16 11:37	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/05/16 11:37	1
Bromoform	ND		1.0	0.48	ug/L			01/05/16 11:37	1
Bromomethane	ND		5.0	0.80	ug/L			01/05/16 11:37	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/05/16 11:37	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/05/16 11:37	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-318389/6
Matrix: Water
Analysis Batch: 318389

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		1.0	0.39	ug/L			01/05/16 11:37	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/05/16 11:37	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/05/16 11:37	1
Chloroethane	ND		1.0	0.51	ug/L			01/05/16 11:37	1
Chloroform	ND		1.0	0.37	ug/L			01/05/16 11:37	1
Chloromethane	ND		1.0	0.32	ug/L			01/05/16 11:37	1
cis-1,2-Dichloroethene	ND		1.0	0.41	ug/L			01/05/16 11:37	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/05/16 11:37	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/05/16 11:37	1
Dibromomethane	ND		1.0	0.27	ug/L			01/05/16 11:37	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/05/16 11:37	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/05/16 11:37	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/05/16 11:37	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/05/16 11:37	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/05/16 11:37	1
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/05/16 11:37	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/05/16 11:37	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/05/16 11:37	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/05/16 11:37	1
Naphthalene	ND		1.0	0.34	ug/L			01/05/16 11:37	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/05/16 11:37	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/05/16 11:37	1
o-Xylene	ND		0.50	0.22	ug/L			01/05/16 11:37	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 11:37	1
Styrene	ND		1.0	0.39	ug/L			01/05/16 11:37	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 11:37	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/05/16 11:37	1
Toluene	ND		0.50	0.15	ug/L			01/05/16 11:37	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/05/16 11:37	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/05/16 11:37	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/05/16 11:37	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/05/16 11:37	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/05/16 11:37	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/L*					*01/05/16 11:37*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 125*		*01/05/16 11:37*	*1*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*01/05/16 11:37*	*1*
Dibromofluoromethane	*86*		*75 - 120*		*01/05/16 11:37*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/05/16 11:37*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-318389/4
Matrix: Water
Analysis Batch: 318389

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	50.0	48.3		ug/L		97	70 - 124
1,1,1-Trichloroethane	50.0	49.4		ug/L		99	70 - 125
1,1,2,2-Tetrachloroethane	50.0	48.0		ug/L		96	68 - 133
1,1,2-Trichloroethane	50.0	48.8		ug/L		98	70 - 125
1,1-Dichloroethane	50.0	48.5		ug/L		97	70 - 127
1,1-Dichloroethylene	50.0	47.9		ug/L		96	68 - 121
1,1-Dichloropropene	50.0	48.6		ug/L		97	70 - 126
1,2,3-Trichlorobenzene	50.0	52.7		ug/L		105	70 - 133
1,2,3-Trichloropropane	50.0	50.9		ug/L		102	53 - 139
1,2,4-Trichlorobenzene	50.0	51.9		ug/L		104	70 - 125
1,2,4-Trimethylbenzene	50.0	48.5		ug/L		97	70 - 127
1,2-Dibromo-3-Chloropropane	50.0	44.3		ug/L		89	59 - 139
1,2-Dibromoethane	50.0	49.6		ug/L		99	70 - 124
1,2-Dichlorobenzene	50.0	49.4		ug/L		99	70 - 123
1,2-Dichloroethane	50.0	50.9		ug/L		102	66 - 132
1,2-Dichloropropane	50.0	45.8		ug/L		92	70 - 127
1,3,5-Trimethylbenzene	50.0	48.4		ug/L		97	70 - 129
1,1,2-Trichlorotrifluoroethane	50.0	51.7		ug/L		103	64 - 120
1,3-Dichlorobenzene	50.0	48.4		ug/L		97	70 - 122
1,3-Dichloropropane	50.0	50.8		ug/L		102	70 - 127
1,4-Dichlorobenzene	50.0	48.0		ug/L		96	70 - 120
2,2-Dichloropropane	50.0	49.2		ug/L		98	68 - 120
2-Chlorotoluene	50.0	48.2		ug/L		96	70 - 128
2-Hexanone	50.0	58.0		ug/L		116	53 - 140
4-Chlorotoluene	50.0	48.1		ug/L		96	70 - 127
4-Isopropyltoluene	50.0	49.0		ug/L		98	70 - 133
Acetone	50.0	50.4		ug/L		101	47 - 131
Benzene	50.0	45.4		ug/L		91	70 - 120
Bromobenzene	50.0	47.1		ug/L		94	70 - 129
Bromodichloromethane	50.0	45.4		ug/L		91	70 - 127
Bromoform	50.0	44.7		ug/L		89	70 - 135
Bromomethane	50.0	46.9		ug/L		94	30 - 170
Carbon disulfide	50.0	44.8		ug/L		90	61 - 120
Carbon tetrachloride	50.0	48.0		ug/L		96	70 - 136
Chlorobenzene	50.0	48.3		ug/L		97	70 - 120
Chlorobromomethane	50.0	47.1		ug/L		94	70 - 121
Vinyl acetate	50.0	36.4		ug/L		73	30 - 150
Chloroethane	50.0	48.9		ug/L		98	40 - 150
Chloroform	50.0	48.6		ug/L		97	70 - 120
Chloromethane	50.0	51.8		ug/L		104	45 - 140
cis-1,2-Dichloroethene	50.0	47.4		ug/L		95	70 - 120
cis-1,3-Dichloropropene	50.0	47.3		ug/L		95	70 - 122
Dibromochloromethane	50.0	48.0		ug/L		96	70 - 120
Dibromomethane	50.0	47.8		ug/L		96	70 - 120
Dichlorodifluoromethane	50.0	50.9		ug/L		102	30 - 150
Ethylbenzene	50.0	47.9		ug/L		96	70 - 125
Hexachlorobutadiene	50.0	51.4		ug/L		103	70 - 138
Isopropylbenzene	50.0	48.3		ug/L		97	70 - 132

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-318389/4
Matrix: Water
Analysis Batch: 318389

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
m&p-Xylene	50.0	48.9		ug/L		98	70 - 120
Methyl Ethyl Ketone	50.0	52.0		ug/L		104	51 - 134
methyl isobutyl ketone	50.0	58.5		ug/L		117	53 - 135
Methyl tert-butyl ether	50.0	50.1		ug/L		100	65 - 120
Methylene Chloride	50.0	46.0		ug/L		92	70 - 120
Naphthalene	50.0	50.4		ug/L		101	59 - 143
n-Butylbenzene	50.0	49.8		ug/L		100	70 - 129
N-Propylbenzene	50.0	48.5		ug/L		97	70 - 132
o-Xylene	50.0	49.3		ug/L		99	70 - 120
sec-Butylbenzene	50.0	48.8		ug/L		98	70 - 134
Styrene	50.0	48.8		ug/L		98	70 - 120
tert-Butylbenzene	50.0	48.2		ug/L		96	70 - 137
Perchloroethylene	50.0	48.6		ug/L		97	70 - 129
Toluene	50.0	47.1		ug/L		94	70 - 120
trans-1,2-Dichloroethene	50.0	47.8		ug/L		96	70 - 120
trans-1,3-Dichloropropene	50.0	49.4		ug/L		99	70 - 123
Trichloroethylene	50.0	46.1		ug/L		92	70 - 122
Trichlorofluoromethane	50.0	50.7		ug/L		101	65 - 134
Vinyl chloride	50.0	51.3		ug/L		103	63 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 125*
4-Bromofluorobenzene (Surr)	*90*		*75 - 120*
Dibromofluoromethane	*91*		*75 - 120*
Toluene-d8 (Surr)	*94*		*75 - 120*

Lab Sample ID: 500-105858-18 MS
Matrix: Water
Analysis Batch: 318389

Client Sample ID: MW-16B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	ND		50.0	43.6		ug/L		87	70 - 124
1,1,1-Trichloroethane	ND		50.0	43.2		ug/L		86	70 - 125
1,1,2,2-Tetrachloroethane	ND		50.0	46.3		ug/L		93	68 - 133
1,1,2-Trichloroethane	ND		50.0	45.0		ug/L		90	70 - 125
1,1-Dichloroethane	ND		50.0	43.2		ug/L		86	70 - 127
1,1-Dichloroethylene	ND		50.0	40.7		ug/L		81	68 - 121
1,1-Dichloropropene	ND		50.0	42.3		ug/L		85	70 - 126
1,2,3-Trichlorobenzene	ND		50.0	42.5		ug/L		85	70 - 133
1,2,3-Trichloropropane	ND		50.0	48.0		ug/L		96	53 - 139
1,2,4-Trichlorobenzene	ND		50.0	40.5		ug/L		81	70 - 125
1,2,4-Trimethylbenzene	ND		50.0	43.5		ug/L		87	70 - 127
1,2-Dibromo-3-Chloropropane	ND		50.0	39.1		ug/L		78	59 - 139
1,2-Dibromoethane	ND		50.0	45.6		ug/L		91	70 - 124
1,2-Dichlorobenzene	ND		50.0	44.2		ug/L		88	70 - 123
1,2-Dichloroethane	ND		50.0	47.0		ug/L		94	66 - 132
1,2-Dichloropropane	ND		50.0	43.0		ug/L		86	70 - 127
1,3,5-Trimethylbenzene	ND		50.0	43.9		ug/L		88	70 - 129

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-105858-18 MS
Matrix: Water
Analysis Batch: 318389

Client Sample ID: MW-16B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichlorotrifluoroethane	9.9		50.0	51.0		ug/L		82	64 - 120
1,3-Dichlorobenzene	ND		50.0	43.3		ug/L		87	70 - 122
1,3-Dichloropropane	ND		50.0	46.5		ug/L		93	70 - 127
1,4-Dichlorobenzene	ND		50.0	42.8		ug/L		86	70 - 120
2,2-Dichloropropane	ND		50.0	41.9		ug/L		84	68 - 120
2-Chlorotoluene	ND		50.0	44.4		ug/L		89	70 - 128
2-Hexanone	ND		50.0	53.8		ug/L		108	53 - 140
4-Chlorotoluene	ND		50.0	43.6		ug/L		87	70 - 127
4-Isopropyltoluene	ND		50.0	42.8		ug/L		86	70 - 133
Acetone	ND	F2	50.0	42.6		ug/L		85	47 - 131
Benzene	ND		50.0	41.3		ug/L		83	70 - 120
Bromobenzene	ND		50.0	44.3		ug/L		89	70 - 129
Bromodichloromethane	ND		50.0	41.8		ug/L		84	70 - 127
Bromoform	ND		50.0	38.5		ug/L		77	70 - 135
Bromomethane	ND		50.0	49.5		ug/L		99	30 - 170
Carbon disulfide	ND		50.0	38.3		ug/L		77	61 - 120
Carbon tetrachloride	ND		50.0	41.5		ug/L		83	70 - 136
Chlorobenzene	ND		50.0	43.4		ug/L		87	70 - 120
Chlorobromomethane	ND		50.0	42.5		ug/L		85	70 - 121
Vinyl acetate	ND		50.0	34.9		ug/L		70	30 - 150
Chloroethane	ND	F2	50.0	47.4		ug/L		95	40 - 150
Chloroform	ND		50.0	43.6		ug/L		87	70 - 120
Chloromethane	ND		50.0	37.4		ug/L		75	45 - 140
cis-1,2-Dichloroethene	1.7		50.0	44.1		ug/L		85	70 - 120
cis-1,3-Dichloropropene	ND		50.0	42.5		ug/L		85	70 - 122
Dibromochloromethane	ND		50.0	42.8		ug/L		86	70 - 120
Dibromomethane	ND		50.0	44.1		ug/L		88	70 - 120
Dichlorodifluoromethane	ND		50.0	46.7		ug/L		93	30 - 150
Ethylbenzene	ND		50.0	42.3		ug/L		85	70 - 125
Hexachlorobutadiene	ND	F2	50.0	38.1		ug/L		76	70 - 138
Isopropylbenzene	ND		50.0	45.0		ug/L		90	70 - 132
m&p-Xylene	ND		50.0	43.2		ug/L		86	70 - 120
Methyl Ethyl Ketone	ND		50.0	48.4		ug/L		97	51 - 134
methyl isobutyl ketone	ND		50.0	54.3		ug/L		109	53 - 135
Methyl tert-butyl ether	ND		50.0	45.1		ug/L		90	65 - 120
Methylene Chloride	ND		50.0	41.6		ug/L		83	70 - 120
Naphthalene	ND		50.0	44.0		ug/L		88	59 - 143
n-Butylbenzene	ND		50.0	41.5		ug/L		83	70 - 129
N-Propylbenzene	ND		50.0	43.7		ug/L		87	70 - 132
o-Xylene	ND		50.0	43.4		ug/L		87	70 - 120
sec-Butylbenzene	ND		50.0	43.1		ug/L		86	70 - 134
Styrene	ND		50.0	42.4		ug/L		85	70 - 120
tert-Butylbenzene	ND		50.0	43.5		ug/L		87	70 - 137
Perchloroethylene	ND		50.0	42.3		ug/L		85	70 - 129
Toluene	0.22	J	50.0	42.4		ug/L		84	70 - 120
trans-1,2-Dichloroethene	ND		50.0	41.6		ug/L		83	70 - 120
trans-1,3-Dichloropropene	ND		50.0	44.2		ug/L		88	70 - 123
Trichloroethylene	ND		50.0	41.4		ug/L		83	70 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-105858-18 MS
Matrix: Water
Analysis Batch: 318389

Client Sample ID: MW-16B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Trichlorofluoromethane	ND		50.0	45.3		ug/L		91	65 - 134
Vinyl chloride	ND		50.0	45.5		ug/L		91	63 - 127

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 125*
4-Bromofluorobenzene (Surr)	*96*		*75 - 120*
Dibromofluoromethane	*92*		*75 - 120*
Toluene-d8 (Surr)	*93*		*75 - 120*

Lab Sample ID: 500-105858-18 MSD
Matrix: Water
Analysis Batch: 318389

Client Sample ID: MW-16B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	ND		50.0	46.0		ug/L		92	70 - 124	5	20
1,1,1-Trichloroethane	ND		50.0	46.0		ug/L		92	70 - 125	6	20
1,1,2,2-Tetrachloroethane	ND		50.0	46.7		ug/L		93	68 - 133	1	20
1,1,2-Trichloroethane	ND		50.0	48.0		ug/L		96	70 - 125	6	20
1,1-Dichloroethane	ND		50.0	46.0		ug/L		92	70 - 127	6	20
1,1-Dichloroethylene	ND		50.0	43.3		ug/L		87	68 - 121	6	20
1,1-Dichloropropene	ND		50.0	44.4		ug/L		89	70 - 126	5	20
1,2,3-Trichlorobenzene	ND		50.0	51.9		ug/L		104	70 - 133	20	20
1,2,3-Trichloropropane	ND		50.0	48.8		ug/L		98	53 - 139	2	20
1,2,4-Trichlorobenzene	ND		50.0	48.1		ug/L		96	70 - 125	17	20
1,2,4-Trimethylbenzene	ND		50.0	45.0		ug/L		90	70 - 127	3	20
1,2-Dibromo-3-Chloropropane	ND		50.0	43.5		ug/L		87	59 - 139	11	20
1,2-Dibromoethane	ND		50.0	48.4		ug/L		97	70 - 124	6	20
1,2-Dichlorobenzene	ND		50.0	47.0		ug/L		94	70 - 123	6	20
1,2-Dichloroethane	ND		50.0	49.6		ug/L		99	66 - 132	5	20
1,2-Dichloropropane	ND		50.0	46.3		ug/L		93	70 - 127	7	20
1,3,5-Trimethylbenzene	ND		50.0	44.8		ug/L		90	70 - 129	2	20
1,1,2-Trichlorotrifluoroethane	9.9		50.0	57.1		ug/L		94	64 - 120	11	20
1,3-Dichlorobenzene	ND		50.0	44.6		ug/L		89	70 - 122	3	20
1,3-Dichloropropane	ND		50.0	48.8		ug/L		98	70 - 127	5	20
1,4-Dichlorobenzene	ND		50.0	44.7		ug/L		89	70 - 120	5	20
2,2-Dichloropropane	ND		50.0	43.8		ug/L		88	68 - 120	5	20
2-Chlorotoluene	ND		50.0	45.1		ug/L		90	70 - 128	2	20
2-Hexanone	ND		50.0	56.9		ug/L		114	53 - 140	5	20
4-Chlorotoluene	ND		50.0	44.2		ug/L		88	70 - 127	1	20
4-Isopropyltoluene	ND		50.0	44.9		ug/L		90	70 - 133	5	20
Acetone	ND	F2	50.0	54.5	F2	ug/L		109	47 - 131	24	20
Benzene	ND		50.0	43.5		ug/L		87	70 - 120	5	20
Bromobenzene	ND		50.0	45.0		ug/L		90	70 - 129	2	20
Bromodichloromethane	ND		50.0	44.4		ug/L		89	70 - 127	6	20
Bromoform	ND		50.0	41.3		ug/L		83	70 - 135	7	20
Bromomethane	ND		50.0	53.1		ug/L		106	30 - 170	7	20
Carbon disulfide	ND		50.0	41.3		ug/L		83	61 - 120	8	20
Carbon tetrachloride	ND		50.0	43.6		ug/L		87	70 - 136	5	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-105858-18 MSD
Matrix: Water
Analysis Batch: 318389

Client Sample ID: MW-16B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chlorobenzene	ND		50.0	45.9		ug/L		92	70 - 120	6	20
Chlorobromomethane	ND		50.0	45.6		ug/L		91	70 - 121	7	20
Vinyl acetate	ND		50.0	36.2		ug/L		72	30 - 150	4	20
Chloroethane	ND	F2	50.0	60.5	F2	ug/L		121	40 - 150	24	20
Chloroform	ND		50.0	46.0		ug/L		92	70 - 120	5	20
Chloromethane	ND		50.0	42.6		ug/L		85	45 - 140	13	20
cis-1,2-Dichloroethene	1.7		50.0	46.9		ug/L		90	70 - 120	6	20
cis-1,3-Dichloropropene	ND		50.0	45.5		ug/L		91	70 - 122	7	20
Dibromochloromethane	ND		50.0	45.6		ug/L		91	70 - 120	6	20
Dibromomethane	ND		50.0	47.4		ug/L		95	70 - 120	7	20
Dichlorodifluoromethane	ND		50.0	54.1		ug/L		108	30 - 150	15	20
Ethylbenzene	ND		50.0	44.4		ug/L		89	70 - 125	5	20
Hexachlorobutadiene	ND	F2	50.0	48.5	F2	ug/L		97	70 - 138	24	20
Isopropylbenzene	ND		50.0	44.2		ug/L		88	70 - 132	2	20
m&p-Xylene	ND		50.0	45.4		ug/L		91	70 - 120	5	20
Methyl Ethyl Ketone	ND		50.0	54.1		ug/L		108	51 - 134	11	20
methyl isobutyl ketone	ND		50.0	57.9		ug/L		116	53 - 135	6	20
Methyl tert-butyl ether	ND		50.0	49.3		ug/L		99	65 - 120	9	20
Methylene Chloride	ND		50.0	44.9		ug/L		90	70 - 120	8	20
Naphthalene	ND		50.0	51.7		ug/L		103	59 - 143	16	20
n-Butylbenzene	ND		50.0	44.6		ug/L		89	70 - 129	7	20
N-Propylbenzene	ND		50.0	43.8		ug/L		88	70 - 132	0	20
o-Xylene	ND		50.0	46.6		ug/L		93	70 - 120	7	20
sec-Butylbenzene	ND		50.0	44.7		ug/L		89	70 - 134	4	20
Styrene	ND		50.0	45.4		ug/L		91	70 - 120	7	20
tert-Butylbenzene	ND		50.0	45.1		ug/L		90	70 - 137	4	20
Perchloroethylene	ND		50.0	44.0		ug/L		88	70 - 129	4	20
Toluene	0.22	J	50.0	44.2		ug/L		88	70 - 120	4	20
trans-1,2-Dichloroethene	ND		50.0	44.0		ug/L		88	70 - 120	6	20
trans-1,3-Dichloropropene	ND		50.0	46.8		ug/L		94	70 - 123	6	20
Trichloroethylene	ND		50.0	43.6		ug/L		87	70 - 122	5	20
Trichlorofluoromethane	ND		50.0	50.7		ug/L		101	65 - 134	11	20
Vinyl chloride	ND		50.0	51.5		ug/L		103	63 - 127	12	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 125*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*
Dibromofluoromethane	*93*		*75 - 120*
Toluene-d8 (Surr)	*94*		*75 - 120*

Lab Sample ID: MB 500-318390/6
Matrix: Water
Analysis Batch: 318390

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/05/16 11:41	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/05/16 11:41	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/05/16 11:41	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-318390/6
Matrix: Water
Analysis Batch: 318390

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/05/16 11:41	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/05/16 11:41	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/05/16 11:41	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/05/16 11:41	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/05/16 11:41	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/05/16 11:41	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/05/16 11:41	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/05/16 11:41	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/05/16 11:41	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/05/16 11:41	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/05/16 11:41	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/05/16 11:41	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/05/16 11:41	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/05/16 11:41	1
1,1,2-Trichlorotrifluoroethane	ND		5.0	0.46	ug/L			01/05/16 11:41	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/05/16 11:41	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/05/16 11:41	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/05/16 11:41	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/05/16 11:41	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/05/16 11:41	1
2-Hexanone	ND		5.0	1.6	ug/L			01/05/16 11:41	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/05/16 11:41	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/05/16 11:41	1
Acetone	ND		5.0	1.7	ug/L			01/05/16 11:41	1
Benzene	ND		0.50	0.15	ug/L			01/05/16 11:41	1
Bromobenzene	ND		1.0	0.36	ug/L			01/05/16 11:41	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/05/16 11:41	1
Bromoform	ND		1.0	0.48	ug/L			01/05/16 11:41	1
Bromomethane	ND		5.0	0.80	ug/L			01/05/16 11:41	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/05/16 11:41	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/05/16 11:41	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/05/16 11:41	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/05/16 11:41	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/05/16 11:41	1
Chloroethane	ND		1.0	0.51	ug/L			01/05/16 11:41	1
Chloroform	ND		1.0	0.37	ug/L			01/05/16 11:41	1
Chloromethane	ND		1.0	0.32	ug/L			01/05/16 11:41	1
cis-1,2-Dichloroethene	ND		1.0	0.41	ug/L			01/05/16 11:41	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/05/16 11:41	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/05/16 11:41	1
Dibromomethane	ND		1.0	0.27	ug/L			01/05/16 11:41	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/05/16 11:41	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/05/16 11:41	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/05/16 11:41	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/05/16 11:41	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/05/16 11:41	1
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/05/16 11:41	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/05/16 11:41	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-318390/6
Matrix: Water
Analysis Batch: 318390

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/05/16 11:41	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/05/16 11:41	1
Naphthalene	ND		1.0	0.34	ug/L			01/05/16 11:41	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/05/16 11:41	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/05/16 11:41	1
o-Xylene	ND		0.50	0.22	ug/L			01/05/16 11:41	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 11:41	1
Styrene	ND		1.0	0.39	ug/L			01/05/16 11:41	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/05/16 11:41	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/05/16 11:41	1
Toluene	ND		0.50	0.15	ug/L			01/05/16 11:41	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/05/16 11:41	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/05/16 11:41	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/05/16 11:41	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/05/16 11:41	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/05/16 11:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*75 - 125*		*01/05/16 11:41*	*1*
4-Bromofluorobenzene (Surr)	*79*		*75 - 120*		*01/05/16 11:41*	*1*
Dibromofluoromethane	*101*		*75 - 120*		*01/05/16 11:41*	*1*
Toluene-d8 (Surr)	*97*		*75 - 120*		*01/05/16 11:41*	*1*

Lab Sample ID: LCS 500-318390/4
Matrix: Water
Analysis Batch: 318390

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	50.0	49.5		ug/L		99	70 - 124
1,1,1-Trichloroethane	50.0	49.1		ug/L		98	70 - 125
1,1,2,2-Tetrachloroethane	50.0	47.2		ug/L		94	68 - 133
1,1,2-Trichloroethane	50.0	51.7		ug/L		103	70 - 125
1,1-Dichloroethane	50.0	53.6		ug/L		107	70 - 127
1,1-Dichloroethylene	50.0	48.7		ug/L		97	68 - 121
1,1-Dichloropropene	50.0	48.8		ug/L		98	70 - 126
1,2,3-Trichlorobenzene	50.0	44.5		ug/L		89	70 - 133
1,2,3-Trichloropropane	50.0	46.0		ug/L		92	53 - 139
1,2,4-Trichlorobenzene	50.0	44.1		ug/L		88	70 - 125
1,2,4-Trimethylbenzene	50.0	43.9		ug/L		88	70 - 127
1,2-Dibromo-3-Chloropropane	50.0	46.8		ug/L		94	59 - 139
1,2-Dibromoethane	50.0	49.7		ug/L		99	70 - 124
1,2-Dichlorobenzene	50.0	45.8		ug/L		92	70 - 123
1,2-Dichloroethane	50.0	54.3		ug/L		109	66 - 132
1,2-Dichloropropane	50.0	53.4		ug/L		107	70 - 127
1,3,5-Trimethylbenzene	50.0	43.5		ug/L		87	70 - 129
1,1,2-Trichlorotrifluoroethane	50.0	50.3		ug/L		101	64 - 120
1,3-Dichlorobenzene	50.0	45.1		ug/L		90	70 - 122
1,3-Dichloropropane	50.0	52.9		ug/L		106	70 - 127

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-318390/4
Matrix: Water
Analysis Batch: 318390

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	50.0	45.4		ug/L		91	70 - 120
2,2-Dichloropropane	50.0	44.9		ug/L		90	68 - 120
2-Chlorotoluene	50.0	44.3		ug/L		89	70 - 128
2-Hexanone	50.0	58.8		ug/L		118	53 - 140
4-Chlorotoluene	50.0	45.3		ug/L		91	70 - 127
4-Isopropyltoluene	50.0	43.7		ug/L		87	70 - 133
Acetone	50.0	60.8		ug/L		122	47 - 131
Benzene	50.0	46.2		ug/L		92	70 - 120
Bromobenzene	50.0	45.2		ug/L		90	70 - 129
Bromodichloromethane	50.0	49.8		ug/L		100	70 - 127
Bromoform	50.0	52.5		ug/L		105	70 - 135
Bromomethane	50.0	61.3		ug/L		123	30 - 170
Carbon disulfide	50.0	49.1		ug/L		98	61 - 120
Carbon tetrachloride	50.0	49.0		ug/L		98	70 - 136
Chlorobenzene	50.0	49.3		ug/L		99	70 - 120
Chlorobromomethane	50.0	49.3		ug/L		99	70 - 121
Vinyl acetate	50.0	41.7		ug/L		83	30 - 150
Chloroethane	50.0	57.0		ug/L		114	40 - 150
Chloroform	50.0	48.7		ug/L		97	70 - 120
Chloromethane	50.0	55.1		ug/L		110	45 - 140
cis-1,2-Dichloroethene	50.0	46.6		ug/L		93	70 - 120
cis-1,3-Dichloropropene	50.0	45.3		ug/L		91	70 - 122
Dibromochloromethane	50.0	51.7		ug/L		103	70 - 120
Dibromomethane	50.0	48.5		ug/L		97	70 - 120
Dichlorodifluoromethane	50.0	53.9		ug/L		108	30 - 150
Ethylbenzene	50.0	47.5		ug/L		95	70 - 125
Hexachlorobutadiene	50.0	48.9		ug/L		98	70 - 138
Isopropylbenzene	50.0	44.1		ug/L		88	70 - 132
m&p-Xylene	50.0	46.0		ug/L		92	70 - 120
Methyl Ethyl Ketone	50.0	67.6	*	ug/L		135	51 - 134
methyl isobutyl ketone	50.0	57.0		ug/L		114	53 - 135
Methyl tert-butyl ether	50.0	45.4		ug/L		91	65 - 120
Methylene Chloride	50.0	47.7		ug/L		95	70 - 120
Naphthalene	50.0	39.3		ug/L		79	59 - 143
n-Butylbenzene	50.0	47.3		ug/L		95	70 - 129
N-Propylbenzene	50.0	45.4		ug/L		91	70 - 132
o-Xylene	50.0	45.8		ug/L		92	70 - 120
sec-Butylbenzene	50.0	45.2		ug/L		90	70 - 134
Styrene	50.0	48.2		ug/L		96	70 - 120
tert-Butylbenzene	50.0	46.0		ug/L		92	70 - 137
Perchloroethylene	50.0	49.6		ug/L		99	70 - 129
Toluene	50.0	46.3		ug/L		93	70 - 120
trans-1,2-Dichloroethene	50.0	48.6		ug/L		97	70 - 120
trans-1,3-Dichloropropene	50.0	49.1		ug/L		98	70 - 123
Trichloroethylene	50.0	45.1		ug/L		90	70 - 122
Trichlorofluoromethane	50.0	51.3		ug/L		103	65 - 134
Vinyl chloride	50.0	55.9		ug/L		112	63 - 127

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-318390/4
Matrix: Water
Analysis Batch: 318390

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*110*		*75 - 125*
4-Bromofluorobenzene (Surr)	*88*		*75 - 120*
Dibromofluoromethane	*96*		*75 - 120*
Toluene-d8 (Surr)	*93*		*75 - 120*

Lab Sample ID: MB 500-318489/7
Matrix: Water
Analysis Batch: 318489

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/06/16 10:59	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/06/16 10:59	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/06/16 10:59	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/06/16 10:59	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/06/16 10:59	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/06/16 10:59	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/06/16 10:59	1
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/06/16 10:59	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/06/16 10:59	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/06/16 10:59	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/06/16 10:59	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/06/16 10:59	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/06/16 10:59	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/06/16 10:59	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/06/16 10:59	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/06/16 10:59	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/06/16 10:59	1
1,1,2-Trichlorotrifluoroethane	ND		5.0	0.46	ug/L			01/06/16 10:59	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/06/16 10:59	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/06/16 10:59	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/06/16 10:59	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/06/16 10:59	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/06/16 10:59	1
2-Hexanone	ND		5.0	1.6	ug/L			01/06/16 10:59	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/06/16 10:59	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/06/16 10:59	1
Acetone	ND		5.0	1.7	ug/L			01/06/16 10:59	1
Benzene	ND		0.50	0.15	ug/L			01/06/16 10:59	1
Bromobenzene	ND		1.0	0.36	ug/L			01/06/16 10:59	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/06/16 10:59	1
Bromoform	ND		1.0	0.48	ug/L			01/06/16 10:59	1
Bromomethane	ND		5.0	0.80	ug/L			01/06/16 10:59	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/06/16 10:59	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/06/16 10:59	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/06/16 10:59	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/06/16 10:59	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/06/16 10:59	1
Chloroethane	ND		1.0	0.51	ug/L			01/06/16 10:59	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-318489/7
Matrix: Water
Analysis Batch: 318489

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	ND		1.0	0.37	ug/L			01/06/16 10:59	1
Chloromethane	ND		1.0	0.32	ug/L			01/06/16 10:59	1
cis-1,2-Dichloroethene	ND		1.0	0.41	ug/L			01/06/16 10:59	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/06/16 10:59	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/06/16 10:59	1
Dibromomethane	ND		1.0	0.27	ug/L			01/06/16 10:59	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/06/16 10:59	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/06/16 10:59	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/06/16 10:59	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/06/16 10:59	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/06/16 10:59	1
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/06/16 10:59	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/06/16 10:59	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/06/16 10:59	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/06/16 10:59	1
Naphthalene	ND		1.0	0.34	ug/L			01/06/16 10:59	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/06/16 10:59	1
N-Propylbenzene	ND		1.0	0.41	ug/L			01/06/16 10:59	1
o-Xylene	ND		0.50	0.22	ug/L			01/06/16 10:59	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 10:59	1
Styrene	ND		1.0	0.39	ug/L			01/06/16 10:59	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/06/16 10:59	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/06/16 10:59	1
Toluene	ND		0.50	0.15	ug/L			01/06/16 10:59	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/06/16 10:59	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/06/16 10:59	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/06/16 10:59	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/06/16 10:59	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/06/16 10:59	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/L*					*01/06/16 10:59*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 125*		*01/06/16 10:59*	*1*
4-Bromofluorobenzene (Surr)	*93*		*75 - 120*		*01/06/16 10:59*	*1*
Dibromofluoromethane	*85*		*75 - 120*		*01/06/16 10:59*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*01/06/16 10:59*	*1*

Lab Sample ID: LCS 500-318489/5
Matrix: Water
Analysis Batch: 318489

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	50.0	50.8		ug/L		102	70 - 124
1,1,1-Trichloroethane	50.0	53.9		ug/L		108	70 - 125
1,1,2,2-Tetrachloroethane	50.0	52.2		ug/L		104	68 - 133

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-318489/5
Matrix: Water
Analysis Batch: 318489

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloroethane	50.0	50.9		ug/L		102	70 - 125
1,1-Dichloroethane	50.0	52.0		ug/L		104	70 - 127
1,1-Dichloroethylene	50.0	50.5		ug/L		101	68 - 121
1,1-Dichloropropene	50.0	52.4		ug/L		105	70 - 126
1,2,3-Trichlorobenzene	50.0	58.3		ug/L		117	70 - 133
1,2,3-Trichloropropane	50.0	53.4		ug/L		107	53 - 139
1,2,4-Trichlorobenzene	50.0	54.7		ug/L		109	70 - 125
1,2,4-Trimethylbenzene	50.0	52.6		ug/L		105	70 - 127
1,2-Dibromo-3-Chloropropane	50.0	45.6		ug/L		91	59 - 139
1,2-Dibromoethane	50.0	51.6		ug/L		103	70 - 124
1,2-Dichlorobenzene	50.0	51.2		ug/L		102	70 - 123
1,2-Dichloroethane	50.0	53.5		ug/L		107	66 - 132
1,2-Dichloropropane	50.0	49.7		ug/L		99	70 - 127
1,3,5-Trimethylbenzene	50.0	53.3		ug/L		107	70 - 129
1,1,2-Trichlorotrifluoroethane	50.0	51.4		ug/L		103	64 - 120
1,3-Dichlorobenzene	50.0	50.9		ug/L		102	70 - 122
1,3-Dichloropropane	50.0	53.4		ug/L		107	70 - 127
1,4-Dichlorobenzene	50.0	50.7		ug/L		101	70 - 120
2,2-Dichloropropane	50.0	53.8		ug/L		108	68 - 120
2-Chlorotoluene	50.0	53.5		ug/L		107	70 - 128
2-Hexanone	50.0	52.7		ug/L		105	53 - 140
4-Chlorotoluene	50.0	52.6		ug/L		105	70 - 127
4-Isopropyltoluene	50.0	52.9		ug/L		106	70 - 133
Acetone	50.0	46.9		ug/L		94	47 - 131
Benzene	50.0	48.9		ug/L		98	70 - 120
Bromobenzene	50.0	51.9		ug/L		104	70 - 129
Bromodichloromethane	50.0	48.5		ug/L		97	70 - 127
Bromoform	50.0	45.6		ug/L		91	70 - 135
Bromomethane	50.0	58.3		ug/L		117	30 - 170
Carbon disulfide	50.0	47.2		ug/L		94	61 - 120
Carbon tetrachloride	50.0	52.7		ug/L		105	70 - 136
Chlorobenzene	50.0	51.3		ug/L		103	70 - 120
Chlorobromomethane	50.0	50.3		ug/L		101	70 - 121
Vinyl acetate	50.0	51.2		ug/L		102	30 - 150
Chloroethane	50.0	54.7		ug/L		109	40 - 150
Chloroform	50.0	51.4		ug/L		103	70 - 120
Chloromethane	50.0	52.5		ug/L		105	45 - 140
cis-1,2-Dichloroethene	50.0	49.7		ug/L		99	70 - 120
cis-1,3-Dichloropropene	50.0	50.2		ug/L		100	70 - 122
Dibromochloromethane	50.0	49.2		ug/L		98	70 - 120
Dibromomethane	50.0	50.4		ug/L		101	70 - 120
Dichlorodifluoromethane	50.0	53.9		ug/L		108	30 - 150
Ethylbenzene	50.0	51.4		ug/L		103	70 - 125
Hexachlorobutadiene	50.0	49.2		ug/L		98	70 - 138
Isopropylbenzene	50.0	54.4		ug/L		109	70 - 132
m&p-Xylene	50.0	52.4		ug/L		105	70 - 120
Methyl Ethyl Ketone	50.0	46.8		ug/L		94	51 - 134
methyl isobutyl ketone	50.0	54.9		ug/L		110	53 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-318489/5
Matrix: Water
Analysis Batch: 318489

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl tert-butyl ether	50.0	52.3		ug/L		105	65 - 120
Methylene Chloride	50.0	49.1		ug/L		98	70 - 120
Naphthalene	50.0	56.4		ug/L		113	59 - 143
n-Butylbenzene	50.0	52.2		ug/L		104	70 - 129
N-Propylbenzene	50.0	54.1		ug/L		108	70 - 132
o-Xylene	50.0	52.2		ug/L		104	70 - 120
sec-Butylbenzene	50.0	53.3		ug/L		107	70 - 134
Styrene	50.0	50.6		ug/L		101	70 - 120
tert-Butylbenzene	50.0	53.0		ug/L		106	70 - 137
Perchloroethylene	50.0	53.1		ug/L		106	70 - 129
Toluene	50.0	50.5		ug/L		101	70 - 120
trans-1,2-Dichloroethene	50.0	50.6		ug/L		101	70 - 120
trans-1,3-Dichloropropene	50.0	52.5		ug/L		105	70 - 123
Trichloroethylene	50.0	49.5		ug/L		99	70 - 122
Trichlorofluoromethane	50.0	56.2		ug/L		112	65 - 134
Vinyl chloride	50.0	54.5		ug/L		109	63 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 125*
4-Bromofluorobenzene (Surr)	*95*		*75 - 120*
Dibromofluoromethane	*90*		*75 - 120*
Toluene-d8 (Surr)	*96*		*75 - 120*

Lab Sample ID: 500-105858-27 MS
Matrix: Water
Analysis Batch: 318489

Client Sample ID: DUP-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	ND		50.0	50.6		ug/L		101	70 - 124
1,1,1-Trichloroethane	ND		50.0	50.7		ug/L		101	70 - 125
1,1,2,2-Tetrachloroethane	ND		50.0	51.4		ug/L		103	68 - 133
1,1,2-Trichloroethane	ND		50.0	50.7		ug/L		101	70 - 125
1,1-Dichloroethane	ND		50.0	50.4		ug/L		101	70 - 127
1,1-Dichloroethylene	14		50.0	57.7		ug/L		87	68 - 121
1,1-Dichloropropene	ND		50.0	48.7		ug/L		97	70 - 126
1,2,3-Trichlorobenzene	ND		50.0	54.6		ug/L		109	70 - 133
1,2,3-Trichloropropane	ND		50.0	53.5		ug/L		107	53 - 139
1,2,4-Trichlorobenzene	ND		50.0	51.9		ug/L		104	70 - 125
1,2,4-Trimethylbenzene	ND		50.0	51.0		ug/L		102	70 - 127
1,2-Dibromo-3-Chloropropane	ND		50.0	46.0		ug/L		92	59 - 139
1,2-Dibromoethane	ND		50.0	52.4		ug/L		105	70 - 124
1,2-Dichlorobenzene	ND		50.0	52.7		ug/L		105	70 - 123
1,2-Dichloroethane	ND		50.0	56.1		ug/L		112	66 - 132
1,2-Dichloropropane	ND		50.0	49.5		ug/L		99	70 - 127
1,3,5-Trimethylbenzene	ND		50.0	50.2		ug/L		100	70 - 129
1,1,2-Trichlorotrifluoroethane	88		50.0	133		ug/L		90	64 - 120
1,3-Dichlorobenzene	ND		50.0	50.5		ug/L		101	70 - 122
1,3-Dichloropropane	ND		50.0	53.1		ug/L		106	70 - 127

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-105858-27 MS
Matrix: Water
Analysis Batch: 318489

Client Sample ID: DUP-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	ND		50.0	49.9		ug/L		100	70 - 120
2,2-Dichloropropane	ND		50.0	47.3		ug/L		95	68 - 120
2-Chlorotoluene	ND		50.0	50.8		ug/L		102	70 - 128
2-Hexanone	ND		50.0	54.5		ug/L		109	53 - 140
4-Chlorotoluene	ND		50.0	49.8		ug/L		100	70 - 127
4-Isopropyltoluene	ND		50.0	49.9		ug/L		100	70 - 133
Acetone	ND		50.0	56.9		ug/L		114	47 - 131
Benzene	ND		50.0	47.6		ug/L		95	70 - 120
Bromobenzene	ND		50.0	50.2		ug/L		100	70 - 129
Bromodichloromethane	ND		50.0	49.0		ug/L		98	70 - 127
Bromoform	ND		50.0	46.1		ug/L		92	70 - 135
Bromomethane	ND		50.0	53.3		ug/L		107	30 - 170
Carbon disulfide	ND		50.0	42.8		ug/L		86	61 - 120
Carbon tetrachloride	ND		50.0	47.5		ug/L		95	70 - 136
Chlorobenzene	ND		50.0	49.8		ug/L		100	70 - 120
Chlorobromomethane	ND		50.0	50.2		ug/L		100	70 - 121
Vinyl acetate	ND		50.0	50.0		ug/L		100	30 - 150
Chloroethane	ND		50.0	62.9		ug/L		126	40 - 150
Chloroform	ND		50.0	50.3		ug/L		101	70 - 120
Chloromethane	ND		50.0	42.9		ug/L		86	45 - 140
cis-1,2-Dichloroethene	160		50.0	204	E	ug/L		86	70 - 120
cis-1,3-Dichloropropene	ND		50.0	48.6		ug/L		97	70 - 122
Dibromochloromethane	ND		50.0	49.3		ug/L		99	70 - 120
Dibromomethane	ND		50.0	50.8		ug/L		102	70 - 120
Dichlorodifluoromethane	ND	F1	50.0	318	E F1	ug/L		636	30 - 150
Ethylbenzene	ND		50.0	48.6		ug/L		97	70 - 125
Hexachlorobutadiene	ND		50.0	52.4		ug/L		105	70 - 138
Isopropylbenzene	ND		50.0	49.5		ug/L		99	70 - 132
m&p-Xylene	ND		50.0	50.5		ug/L		100	70 - 120
Methyl Ethyl Ketone	11		50.0	61.9		ug/L		101	51 - 134
methyl isobutyl ketone	ND		50.0	55.3		ug/L		111	53 - 135
Methyl tert-butyl ether	ND		50.0	52.6		ug/L		105	65 - 120
Methylene Chloride	ND		50.0	48.3		ug/L		97	70 - 120
Naphthalene	ND		50.0	54.9		ug/L		110	59 - 143
n-Butylbenzene	ND		50.0	49.0		ug/L		98	70 - 129
N-Propylbenzene	ND		50.0	49.2		ug/L		98	70 - 132
o-Xylene	ND		50.0	51.1		ug/L		102	70 - 120
sec-Butylbenzene	ND		50.0	50.2		ug/L		100	70 - 134
Styrene	ND		50.0	49.9		ug/L		100	70 - 120
tert-Butylbenzene	ND		50.0	49.9		ug/L		100	70 - 137
Perchloroethylene	1.2		50.0	48.5		ug/L		95	70 - 129
Toluene	6.9		50.0	54.3		ug/L		95	70 - 120
trans-1,2-Dichloroethene	ND		50.0	47.2		ug/L		94	70 - 120
trans-1,3-Dichloropropene	ND		50.0	50.3		ug/L		101	70 - 123
Trichloroethylene	ND		50.0	47.3		ug/L		94	70 - 122
Trichlorofluoromethane	ND		50.0	49.4		ug/L		99	65 - 134
Vinyl chloride	ND		50.0	52.9		ug/L		106	63 - 127

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-105858-27 MS
Matrix: Water
Analysis Batch: 318489

Client Sample ID: DUP-2
Prep Type: Total/NA

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 125*
4-Bromofluorobenzene (Surr)	*93*		*75 - 120*
Dibromofluoromethane	*92*		*75 - 120*
Toluene-d8 (Surr)	*92*		*75 - 120*

Lab Sample ID: 500-105858-27 MSD
Matrix: Water
Analysis Batch: 318489

Client Sample ID: DUP-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	ND		50.0	50.5		ug/L		101	70 - 124	0	20
1,1,1-Trichloroethane	ND		50.0	50.0		ug/L		100	70 - 125	1	20
1,1,2,2-Tetrachloroethane	ND		50.0	53.0		ug/L		106	68 - 133	3	20
1,1,2-Trichloroethane	ND		50.0	51.6		ug/L		103	70 - 125	2	20
1,1-Dichloroethane	ND		50.0	50.0		ug/L		100	70 - 127	1	20
1,1-Dichloroethylene	14		50.0	56.7		ug/L		85	68 - 121	2	20
1,1-Dichloropropene	ND		50.0	48.1		ug/L		96	70 - 126	1	20
1,2,3-Trichlorobenzene	ND		50.0	57.7		ug/L		115	70 - 133	5	20
1,2,3-Trichloropropane	ND		50.0	56.1		ug/L		112	53 - 139	5	20
1,2,4-Trichlorobenzene	ND		50.0	51.7		ug/L		103	70 - 125	0	20
1,2,4-Trimethylbenzene	ND		50.0	51.4		ug/L		103	70 - 127	1	20
1,2-Dibromo-3-Chloropropane	ND		50.0	49.8		ug/L		100	59 - 139	8	20
1,2-Dibromoethane	ND		50.0	52.0		ug/L		104	70 - 124	1	20
1,2-Dichlorobenzene	ND		50.0	52.5		ug/L		105	70 - 123	0	20
1,2-Dichloroethane	ND		50.0	55.4		ug/L		111	66 - 132	1	20
1,2-Dichloropropane	ND		50.0	50.3		ug/L		101	70 - 127	2	20
1,3,5-Trimethylbenzene	ND		50.0	51.7		ug/L		103	70 - 129	3	20
1,1,2-Trichlorotrifluoroethane	88		50.0	125		ug/L		75	64 - 120	6	20
1,3-Dichlorobenzene	ND		50.0	50.7		ug/L		101	70 - 122	0	20
1,3-Dichloropropane	ND		50.0	53.4		ug/L		107	70 - 127	1	20
1,4-Dichlorobenzene	ND		50.0	50.5		ug/L		101	70 - 120	1	20
2,2-Dichloropropane	ND		50.0	47.3		ug/L		95	68 - 120	0	20
2-Chlorotoluene	ND		50.0	52.4		ug/L		105	70 - 128	3	20
2-Hexanone	ND		50.0	53.8		ug/L		108	53 - 140	1	20
4-Chlorotoluene	ND		50.0	51.6		ug/L		103	70 - 127	3	20
4-Isopropyltoluene	ND		50.0	50.5		ug/L		101	70 - 133	1	20
Acetone	ND		50.0	51.0		ug/L		102	47 - 131	11	20
Benzene	ND		50.0	47.4		ug/L		95	70 - 120	0	20
Bromobenzene	ND		50.0	52.0		ug/L		104	70 - 129	3	20
Bromodichloromethane	ND		50.0	49.0		ug/L		98	70 - 127	0	20
Bromoform	ND		50.0	45.4		ug/L		91	70 - 135	2	20
Bromomethane	ND		50.0	53.0		ug/L		106	30 - 170	1	20
Carbon disulfide	ND		50.0	43.1		ug/L		86	61 - 120	1	20
Carbon tetrachloride	ND		50.0	47.1		ug/L		94	70 - 136	1	20
Chlorobenzene	ND		50.0	49.0		ug/L		98	70 - 120	2	20
Chlorobromomethane	ND		50.0	49.9		ug/L		100	70 - 121	1	20
Vinyl acetate	ND		50.0	51.3		ug/L		103	30 - 150	3	20
Chloroethane	ND		50.0	58.5		ug/L		117	40 - 150	7	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-105858-27 MSD
Matrix: Water
Analysis Batch: 318489

Client Sample ID: DUP-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloroform	ND		50.0	49.9		ug/L		100	70 - 120	1	20
Chloromethane	ND		50.0	43.0		ug/L		86	45 - 140	0	20
cis-1,2-Dichloroethene	160		50.0	201	E	ug/L		80	70 - 120	2	20
cis-1,3-Dichloropropene	ND		50.0	48.7		ug/L		97	70 - 122	0	20
Dibromochloromethane	ND		50.0	49.9		ug/L		100	70 - 120	1	20
Dibromomethane	ND		50.0	51.2		ug/L		102	70 - 120	1	20
Dichlorodifluoromethane	ND	F1	50.0	306	E F1	ug/L		613	30 - 150	4	20
Ethylbenzene	ND		50.0	48.2		ug/L		96	70 - 125	1	20
Hexachlorobutadiene	ND		50.0	49.3		ug/L		99	70 - 138	6	20
Isopropylbenzene	ND		50.0	52.1		ug/L		104	70 - 132	5	20
m&p-Xylene	ND		50.0	49.7		ug/L		98	70 - 120	2	20
Methyl Ethyl Ketone	11		50.0	57.9		ug/L		93	51 - 134	7	20
methyl isobutyl ketone	ND		50.0	53.9		ug/L		108	53 - 135	3	20
Methyl tert-butyl ether	ND		50.0	52.6		ug/L		105	65 - 120	0	20
Methylene Chloride	ND		50.0	48.3		ug/L		97	70 - 120	0	20
Naphthalene	ND		50.0	58.4		ug/L		117	59 - 143	6	20
n-Butylbenzene	ND		50.0	48.8		ug/L		98	70 - 129	1	20
N-Propylbenzene	ND		50.0	50.9		ug/L		102	70 - 132	3	20
o-Xylene	ND		50.0	50.6		ug/L		101	70 - 120	1	20
sec-Butylbenzene	ND		50.0	50.8		ug/L		102	70 - 134	1	20
Styrene	ND		50.0	49.2		ug/L		98	70 - 120	1	20
tert-Butylbenzene	ND		50.0	51.2		ug/L		102	70 - 137	3	20
Perchloroethylene	1.2		50.0	48.1		ug/L		94	70 - 129	1	20
Toluene	6.9		50.0	54.2		ug/L		95	70 - 120	0	20
trans-1,2-Dichloroethene	ND		50.0	46.6		ug/L		93	70 - 120	1	20
trans-1,3-Dichloropropene	ND		50.0	50.0		ug/L		100	70 - 123	1	20
Trichloroethylene	ND		50.0	47.5		ug/L		95	70 - 122	1	20
Trichlorofluoromethane	ND		50.0	50.8		ug/L		102	65 - 134	3	20
Vinyl chloride	ND		50.0	52.4		ug/L		105	63 - 127	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 125*
4-Bromofluorobenzene (Surr)	*96*		*75 - 120*
Dibromofluoromethane	*92*		*75 - 120*
Toluene-d8 (Surr)	*92*		*75 - 120*

Lab Sample ID: MB 500-318638/6
Matrix: Water
Analysis Batch: 318638

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.46	ug/L			01/07/16 10:07	1
1,1,1-Trichloroethane	ND		1.0	0.38	ug/L			01/07/16 10:07	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.40	ug/L			01/07/16 10:07	1
1,1,2-Trichloroethane	ND		1.0	0.35	ug/L			01/07/16 10:07	1
1,1-Dichloroethane	ND		1.0	0.41	ug/L			01/07/16 10:07	1
1,1-Dichloroethylene	ND		1.0	0.39	ug/L			01/07/16 10:07	1
1,1-Dichloropropene	ND		1.0	0.30	ug/L			01/07/16 10:07	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-318638/6
Matrix: Water
Analysis Batch: 318638

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichlorobenzene	ND		1.0	0.46	ug/L			01/07/16 10:07	1
1,2,3-Trichloropropane	ND		1.0	0.41	ug/L			01/07/16 10:07	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			01/07/16 10:07	1
1,2,4-Trimethylbenzene	ND		1.0	0.36	ug/L			01/07/16 10:07	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			01/07/16 10:07	1
1,2-Dibromoethane	ND		1.0	0.39	ug/L			01/07/16 10:07	1
1,2-Dichlorobenzene	ND		1.0	0.33	ug/L			01/07/16 10:07	1
1,2-Dichloroethane	ND		1.0	0.39	ug/L			01/07/16 10:07	1
1,2-Dichloropropane	ND		1.0	0.43	ug/L			01/07/16 10:07	1
1,3,5-Trimethylbenzene	ND		1.0	0.25	ug/L			01/07/16 10:07	1
1,1,2-Trichlorotrifluoroethane	ND		5.0	0.46	ug/L			01/07/16 10:07	1
1,3-Dichlorobenzene	ND		1.0	0.40	ug/L			01/07/16 10:07	1
1,3-Dichloropropane	ND		1.0	0.36	ug/L			01/07/16 10:07	1
1,4-Dichlorobenzene	ND		1.0	0.36	ug/L			01/07/16 10:07	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			01/07/16 10:07	1
2-Chlorotoluene	ND		1.0	0.31	ug/L			01/07/16 10:07	1
2-Hexanone	ND		5.0	1.6	ug/L			01/07/16 10:07	1
4-Chlorotoluene	ND		1.0	0.35	ug/L			01/07/16 10:07	1
4-Isopropyltoluene	ND		2.0	0.36	ug/L			01/07/16 10:07	1
Acetone	ND		5.0	1.7	ug/L			01/07/16 10:07	1
Benzene	ND		0.50	0.15	ug/L			01/07/16 10:07	1
Bromobenzene	ND		1.0	0.36	ug/L			01/07/16 10:07	1
Bromodichloromethane	ND		1.0	0.37	ug/L			01/07/16 10:07	1
Bromoform	ND		1.0	0.48	ug/L			01/07/16 10:07	1
Bromomethane	ND		5.0	0.80	ug/L			01/07/16 10:07	1
Carbon disulfide	ND		2.0	0.45	ug/L			01/07/16 10:07	1
Carbon tetrachloride	ND		1.0	0.38	ug/L			01/07/16 10:07	1
Chlorobenzene	ND		1.0	0.39	ug/L			01/07/16 10:07	1
Chlorobromomethane	ND		1.0	0.43	ug/L			01/07/16 10:07	1
Vinyl acetate	ND		2.0	0.91	ug/L			01/07/16 10:07	1
Chloroethane	ND		1.0	0.51	ug/L			01/07/16 10:07	1
Chloroform	ND		1.0	0.37	ug/L			01/07/16 10:07	1
Chloromethane	ND		1.0	0.32	ug/L			01/07/16 10:07	1
cis-1,2-Dichloroethene	ND		1.0	0.41	ug/L			01/07/16 10:07	1
cis-1,3-Dichloropropene	ND		1.0	0.42	ug/L			01/07/16 10:07	1
Dibromochloromethane	ND		1.0	0.49	ug/L			01/07/16 10:07	1
Dibromomethane	ND		1.0	0.27	ug/L			01/07/16 10:07	1
Dichlorodifluoromethane	ND		5.0	0.67	ug/L			01/07/16 10:07	1
Ethylbenzene	ND		0.50	0.18	ug/L			01/07/16 10:07	1
Hexachlorobutadiene	ND		1.0	0.45	ug/L			01/07/16 10:07	1
Isopropylbenzene	ND		1.0	0.39	ug/L			01/07/16 10:07	1
m&p-Xylene	ND		1.0	0.18	ug/L			01/07/16 10:07	1
Methyl Ethyl Ketone	ND		5.0	2.1	ug/L			01/07/16 10:07	1
methyl isobutyl ketone	ND		5.0	2.2	ug/L			01/07/16 10:07	1
Methyl tert-butyl ether	ND		1.0	0.39	ug/L			01/07/16 10:07	1
Methylene Chloride	ND		5.0	1.6	ug/L			01/07/16 10:07	1
Naphthalene	ND		1.0	0.34	ug/L			01/07/16 10:07	1
n-Butylbenzene	ND		1.0	0.39	ug/L			01/07/16 10:07	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-318638/6
Matrix: Water
Analysis Batch: 318638

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Propylbenzene	ND		1.0	0.41	ug/L			01/07/16 10:07	1
o-Xylene	ND		0.50	0.22	ug/L			01/07/16 10:07	1
sec-Butylbenzene	ND		1.0	0.40	ug/L			01/07/16 10:07	1
Styrene	ND		1.0	0.39	ug/L			01/07/16 10:07	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			01/07/16 10:07	1
Perchloroethylene	ND		1.0	0.37	ug/L			01/07/16 10:07	1
Toluene	ND		0.50	0.15	ug/L			01/07/16 10:07	1
trans-1,2-Dichloroethene	ND		1.0	0.35	ug/L			01/07/16 10:07	1
trans-1,3-Dichloropropene	ND		1.0	0.36	ug/L			01/07/16 10:07	1
Trichloroethylene	ND		0.50	0.16	ug/L			01/07/16 10:07	1
Trichlorofluoromethane	ND		1.0	0.43	ug/L			01/07/16 10:07	1
Vinyl chloride	ND		0.50	0.20	ug/L			01/07/16 10:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 125*		*01/07/16 10:07*	*1*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*		*01/07/16 10:07*	*1*
Dibromofluoromethane	*86*		*75 - 120*		*01/07/16 10:07*	*1*
Toluene-d8 (Surr)	*93*		*75 - 120*		*01/07/16 10:07*	*1*

Lab Sample ID: LCS 500-318638/4
Matrix: Water
Analysis Batch: 318638

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	50.0	49.2		ug/L		98	70 - 124
1,1,1-Trichloroethane	50.0	49.1		ug/L		98	70 - 125
1,1,2,2-Tetrachloroethane	50.0	47.7		ug/L		95	68 - 133
1,1,2-Trichloroethane	50.0	50.5		ug/L		101	70 - 125
1,1-Dichloroethane	50.0	48.0		ug/L		96	70 - 127
1,1-Dichloroethylene	50.0	44.6		ug/L		89	68 - 121
1,1-Dichloropropene	50.0	48.0		ug/L		96	70 - 126
1,2,3-Trichlorobenzene	50.0	58.6		ug/L		117	70 - 133
1,2,3-Trichloropropane	50.0	50.5		ug/L		101	53 - 139
1,2,4-Trichlorobenzene	50.0	56.5		ug/L		113	70 - 125
1,2,4-Trimethylbenzene	50.0	48.1		ug/L		96	70 - 127
1,2-Dibromo-3-Chloropropane	50.0	46.3		ug/L		93	59 - 139
1,2-Dibromoethane	50.0	51.3		ug/L		103	70 - 124
1,2-Dichlorobenzene	50.0	50.3		ug/L		101	70 - 123
1,2-Dichloroethane	50.0	52.4		ug/L		105	66 - 132
1,2-Dichloropropane	50.0	47.4		ug/L		95	70 - 127
1,3,5-Trimethylbenzene	50.0	47.6		ug/L		95	70 - 129
1,1,2-Trichlorotrifluoroethane	50.0	48.7		ug/L		97	64 - 120
1,3-Dichlorobenzene	50.0	48.4		ug/L		97	70 - 122
1,3-Dichloropropane	50.0	52.8		ug/L		106	70 - 127
1,4-Dichlorobenzene	50.0	48.2		ug/L		96	70 - 120
2,2-Dichloropropane	50.0	47.6		ug/L		95	68 - 120
2-Chlorotoluene	50.0	47.3		ug/L		95	70 - 128
2-Hexanone	50.0	52.5		ug/L		105	53 - 140

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-318638/4
Matrix: Water
Analysis Batch: 318638

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Chlorotoluene	50.0	47.4		ug/L		95	70 - 127
4-Isopropyltoluene	50.0	48.2		ug/L		96	70 - 133
Acetone	50.0	50.6		ug/L		101	47 - 131
Benzene	50.0	45.7		ug/L		91	70 - 120
Bromobenzene	50.0	46.9		ug/L		94	70 - 129
Bromodichloromethane	50.0	46.5		ug/L		93	70 - 127
Bromoform	50.0	46.5		ug/L		93	70 - 135
Bromomethane	50.0	60.3		ug/L		121	30 - 170
Carbon disulfide	50.0	42.4		ug/L		85	61 - 120
Carbon tetrachloride	50.0	47.5		ug/L		95	70 - 136
Chlorobenzene	50.0	48.8		ug/L		98	70 - 120
Chlorobromomethane	50.0	48.5		ug/L		97	70 - 121
Vinyl acetate	50.0	33.7		ug/L		67	30 - 150
Chloroethane	50.0	65.2		ug/L		130	40 - 150
Chloroform	50.0	47.6		ug/L		95	70 - 120
Chloromethane	50.0	53.1		ug/L		106	45 - 140
cis-1,2-Dichloroethene	50.0	46.7		ug/L		93	70 - 120
cis-1,3-Dichloropropene	50.0	48.3		ug/L		97	70 - 122
Dibromochloromethane	50.0	48.5		ug/L		97	70 - 120
Dibromomethane	50.0	49.3		ug/L		99	70 - 120
Dichlorodifluoromethane	50.0	53.1		ug/L		106	30 - 150
Ethylbenzene	50.0	48.0		ug/L		96	70 - 125
Hexachlorobutadiene	50.0	53.1		ug/L		106	70 - 138
Isopropylbenzene	50.0	47.1		ug/L		94	70 - 132
m&p-Xylene	50.0	49.3		ug/L		99	70 - 120
Methyl Ethyl Ketone	50.0	48.1		ug/L		96	51 - 134
methyl isobutyl ketone	50.0	53.2		ug/L		106	53 - 135
Methyl tert-butyl ether	50.0	51.0		ug/L		102	65 - 120
Methylene Chloride	50.0	46.1		ug/L		92	70 - 120
Naphthalene	50.0	56.9		ug/L		114	59 - 143
n-Butylbenzene	50.0	49.3		ug/L		99	70 - 129
N-Propylbenzene	50.0	47.4		ug/L		95	70 - 132
o-Xylene	50.0	49.4		ug/L		99	70 - 120
sec-Butylbenzene	50.0	47.9		ug/L		96	70 - 134
Styrene	50.0	49.3		ug/L		99	70 - 120
tert-Butylbenzene	50.0	47.3		ug/L		95	70 - 137
Perchloroethylene	50.0	49.0		ug/L		98	70 - 129
Toluene	50.0	47.4		ug/L		95	70 - 120
trans-1,2-Dichloroethene	50.0	46.3		ug/L		93	70 - 120
trans-1,3-Dichloropropene	50.0	51.0		ug/L		102	70 - 123
Trichloroethylene	50.0	47.4		ug/L		95	70 - 122
Trichlorofluoromethane	50.0	59.2		ug/L		118	65 - 134
Vinyl chloride	50.0	54.5		ug/L		109	63 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 125*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*
Dibromofluoromethane	*92*		*75 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-318638/4
Matrix: Water
Analysis Batch: 318638

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*93*		*75 - 120*

Lab Chronicle

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-100A — Lab Sample ID: 500-105858-1

Date Collected: 12/28/15 15:45
Date Received: 12/31/15 10:20
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	DL2	500	318489	01/06/16 11:26	PMF	TAL CHI
Total/NA	Analysis	8260B		10	318328	01/04/16 23:23	EMA	TAL CHI
Total/NA	Analysis	8260B	DL	100	318328	01/04/16 23:49	EMA	TAL CHI

Client Sample ID: MW-100B — Lab Sample ID: 500-105858-2

Date Collected: 12/28/15 14:50
Date Received: 12/31/15 10:20
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		50	318328	01/05/16 00:15	EMA	TAL CHI
Total/NA	Analysis	8260B	DL	500	318328	01/05/16 00:41	EMA	TAL CHI

Client Sample ID: MW-101A — Lab Sample ID: 500-105858-3

Date Collected: 12/28/15 15:45
Date Received: 12/31/15 10:20
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318489	01/06/16 12:46	PMF	TAL CHI
Total/NA	Analysis	8260B	DL	10	318489	01/06/16 13:13	PMF	TAL CHI

Client Sample ID: MW-101B — Lab Sample ID: 500-105858-4

Date Collected: 12/28/15 15:00
Date Received: 12/31/15 10:20
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318489	01/06/16 13:40	PMF	TAL CHI

Client Sample ID: MW-102A — Lab Sample ID: 500-105858-5

Date Collected: 12/29/15 14:25
Date Received: 12/31/15 10:20
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318389	01/05/16 12:04	PMF	TAL CHI
Total/NA	Analysis	8260B	DL	10	318389	01/05/16 12:31	PMF	TAL CHI

Client Sample ID: MW-102B — Lab Sample ID: 500-105858-6

Date Collected: 12/29/15 15:10
Date Received: 12/31/15 10:20
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318489	01/06/16 14:07	PMF	TAL CHI

Lab Chronicle

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-102C — Lab Sample ID: 500-105858-7

Date Collected: 12/29/15 16:40 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	DL	100	318489	01/06/16 15:27	PMF	TAL CHI
Total/NA	Analysis	8260B		10	318638	01/07/16 11:01	TCT	TAL CHI

Client Sample ID: MW-103A — Lab Sample ID: 500-105858-8

Date Collected: 12/30/15 08:25 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		50	318389	01/05/16 12:58	PMF	TAL CHI
Total/NA	Analysis	8260B	DL	500	318389	01/05/16 13:25	PMF	TAL CHI

Client Sample ID: MW-103B — Lab Sample ID: 500-105858-9

Date Collected: 12/30/15 09:25 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	318389	01/05/16 13:51	PMF	TAL CHI
Total/NA	Analysis	8260B	DL	50	318389	01/05/16 14:18	PMF	TAL CHI

Client Sample ID: MW-103C — Lab Sample ID: 500-105858-10

Date Collected: 12/30/15 10:20 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	318389	01/05/16 14:45	PMF	TAL CHI
Total/NA	Analysis	8260B	DL	200	318389	01/05/16 15:12	PMF	TAL CHI

Client Sample ID: MW-104A — Lab Sample ID: 500-105858-11

Date Collected: 12/30/15 11:10 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318389	01/05/16 15:39	PMF	TAL CHI
Total/NA	Analysis	8260B	DL	10	318389	01/05/16 16:06	PMF	TAL CHI

Client Sample ID: MW-104B — Lab Sample ID: 500-105858-12

Date Collected: 12/30/15 12:35 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	DL	5	318389	01/05/16 16:32	PMF	TAL CHI

Lab Chronicle

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-104B — Lab Sample ID: 500-105858-12

Date Collected: 12/30/15 12:35 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318489	01/06/16 11:52	PMF	TAL CHI

Client Sample ID: MW-104C — Lab Sample ID: 500-105858-13

Date Collected: 12/30/15 13:20 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	318389	01/05/16 17:26	PMF	TAL CHI
Total/NA	Analysis	8260B	DL	50	318489	01/06/16 12:19	PMF	TAL CHI

Client Sample ID: MW-105C — Lab Sample ID: 500-105858-14

Date Collected: 12/29/15 08:20 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318489	01/06/16 16:48	PMF	TAL CHI

Client Sample ID: MW-106C — Lab Sample ID: 500-105858-15

Date Collected: 12/29/15 12:00 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318489	01/06/16 17:15	PMF	TAL CHI
Total/NA	Analysis	8260B	DL	10	318489	01/06/16 17:42	PMF	TAL CHI

Client Sample ID: MW-10B — Lab Sample ID: 500-105858-16

Date Collected: 12/29/15 13:50 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318489	01/06/16 18:08	PMF	TAL CHI

Client Sample ID: MW-10D — Lab Sample ID: 500-105858-17

Date Collected: 12/29/15 15:50 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318489	01/06/16 18:35	PMF	TAL CHI
Total/NA	Analysis	8260B	DL	10	318489	01/06/16 19:02	PMF	TAL CHI

Lab Chronicle

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-16B — Lab Sample ID: 500-105858-18

Date Collected: 12/29/15 09:35 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318389	01/05/16 18:20	PMF	TAL CHI

Client Sample ID: MW-16D — Lab Sample ID: 500-105858-19

Date Collected: 12/29/15 11:00 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318390	01/05/16 12:09	PMF	TAL CHI

Client Sample ID: MW-18B — Lab Sample ID: 500-105858-20

Date Collected: 12/29/15 07:45 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318489	01/06/16 19:29	PMF	TAL CHI

Client Sample ID: MW-18D — Lab Sample ID: 500-105858-21

Date Collected: 12/29/15 08:00 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318390	01/05/16 12:37	PMF	TAL CHI

Client Sample ID: MW-19B — Lab Sample ID: 500-105858-22

Date Collected: 12/29/15 08:50 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318390	01/05/16 13:05	PMF	TAL CHI

Client Sample ID: MW-19D — Lab Sample ID: 500-105858-23

Date Collected: 12/29/15 09:15 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318638	01/07/16 10:34	TCT	TAL CHI

Lab Chronicle

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Client Sample ID: MW-20B — Lab Sample ID: 500-105858-24

Date Collected: 12/29/15 10:25 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318390	01/05/16 13:33	PMF	TAL CHI

Client Sample ID: MW-20D — Lab Sample ID: 500-105858-25

Date Collected: 12/29/15 11:00 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318390	01/05/16 14:00	PMF	TAL CHI

Client Sample ID: DUP-1 — Lab Sample ID: 500-105858-26

Date Collected: 12/29/15 00:00 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318390	01/05/16 14:28	PMF	TAL CHI

Client Sample ID: DUP-2 — Lab Sample ID: 500-105858-27

Date Collected: 12/29/15 00:00 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318489	01/06/16 19:56	PMF	TAL CHI

Client Sample ID: Trip Blank — Lab Sample ID: 500-105858-28

Date Collected: 12/28/15 00:00 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318328	01/04/16 17:41	EMA	TAL CHI

Client Sample ID: Trip Blank — Lab Sample ID: 500-105858-29

Date Collected: 12/28/15 00:00 — **Matrix: Water**
Date Received: 12/31/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	318328	01/04/16 18:07	EMA	TAL CHI

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: AbbVie US LLC
Project/Site: Laurinburg, NC VOC Testing (60135880)

TestAmerica Job ID: 500-105858-1

Laboratory: TestAmerica Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
North Carolina (WW/SW)	State Program	4	291	12-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
8260B		Water	1,1,2-Trichlorotrifluoroethane

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

(optional)
Report To
Contact: Ed Hollifield
Company: ERM
Address:
Address:
Phone:
Fax:
E-Mail: ed.hollifield@erm.com

(optional)
Bill To
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

Chain of Custody Record

Lab Job #: 500- 105858
Chain of Custody Number:
Page 1 of 3
Temperature °C of Cooler: 4.4

Client: ERM
Client Project #: 02 52 871
Project Name: ABBOTT - LAURINBURG
Project Location/State: LAURINBURG, NC
Lab Project #:
Sampler: A. NEAL
Lab PM:

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	VOCs (8260B)	VOCs + 10 TICs (8260B)								Comments
Preservative							1	1								
1		MW-100A	12-28-15	1545	3	W	X	X								
2		MW-100B		1450												
3		MW-101A		1545												
4		MW-101B		1500												
5		MW-102A	12-29-15	1425												500-105858 COC
6		MW-102B		1510												
7		MW-102C		1640												
8		MW-103A	12-30-15	825												
9		MW-103B		925												
10		MW-103C		1020												

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days ___ Other
Requested Due Date

Sample Disposal
☐ Return to Client ☑ Disposal by Lab ☐ Archive for ___ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	ERM	12-30-15	1800	FEDEX		12-30-15	1800
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
				[signature]	TAL	12/31/15	1020
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier
Shipped
Hand Delivered

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments

Lab Comments:

TAL-4124-500 (1209)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

(optional)
Report To Contact: Ed Hollifield
Company: ERM
Address:
Address:
Phone:
Fax:
E-Mail: ed.hollifield@erm.com

(optional)
Bill To
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

Chain of Custody Record

Lab Job #: 500-105858
Chain of Custody Number:
Page 2 of 3
Temperature °C of Cooler:

Client: ERM
Client Project #: 0282871
Project Name: ABBOTT - LAURINBURG
Project Location/State: LAURINBURG, NC
Lab Project #:
Sampler: A. NEAL
Lab PM:

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	VOCs (8260B)	VOCs + 10 TICs (8260B)								Comments
Preservative							1	1								
11		MW-104A	12-30-15	1110	3	W	X									
12		MW-104B		1235												
13		MW-104C		1320												
14		MW-105C	12-29-15	820												
15		MW-106C		1200				X								
16		MW-10B		1350												
17		MW-10D		1550												
18		MW-16B		935												
19		MW-16D		1100												
20		MW-18B		745												

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date _____

Sample Disposal
☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	ERM	12-30-15	1800	[signature]		12-30-15	1800
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
				[signature]	TAL	12/31/15	1020
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier
Shipped
Hand Delivered

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments

Lab Comments:

TAL-4124-500 (1209)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

Chain of Custody Record

Lab Job #: 500-105858

Chain of Custody Number:

Page 3 of 3

Temperature °C of Cooler:

Report To (optional)
Contact: Ed Hollifield
Company: ERM
Address:
Address:
Phone:
Fax:
E-Mail: ed.hollifield@erm.com

Bill To (optional)
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

Client: ERM
Client Project #: 0282571
Project Name: ABBOTT - LAURINBURG
Project Location/State: LAURINBURG, NC
Lab Project #:
Sampler: A. NEAL
Lab PM:

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	VOCs (8260B)	VOCs + 10 TICs (8260B)								Comments
Preservative							1	1								
21		MW-18D	12-29-15	800	3	W	X									
22		MW-19B		850												
23		MW-19D		915												
24		MW-20B		1025												
25		MW-20D		1100												
26		DUP-1		—												
27		DUP-2		—				X								

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date _____

Sample Disposal
☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	ERM	12-30-15	1800	FEDEX		12-30-15	1800
				[signature]	TAL	12/31/15	1020

Lab Courier
Shipped
Hand Delivered

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments

Lab Comments:

TAL-4124-500 (1209)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

(optional)
Report To Contact: Ed Hollifield
Company: ERM
Address:
Address:
Phone:
Fax:
E-Mail: ed.hollifield@erm.com

(optional)
Bill To Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

Chain of Custody Record

Lab Job #: 500-105858

Chain of Custody Number:

Page 1 of 3

Temperature °C of Cooler: 3.4

Client: ERM
Client Project #: 0252871
Project Name: ABBOTT - LAURINBURG
Project Location/State: LAURINBURG, NC
Lab Project #:
Sampler: A. NEAL
Lab PM:

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	VOCs (8260B)	VOCs + 10 TICs (8260B)	Comments
		MW-100A	12-28-15	1545	3	W	X	X	
		MW-100B		1450					
3		MW-101A ★		1545					
4		MW-101B ★		1500					
		MW-102A	12-29-15	1425					500-105858 COC
6		MW-102B ★		1510					
7		MW-102C ★		1640					
		MW-103A	12-30-15	825					
		MW-103B		925					
		MW-103C		1020					

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date

Sample Disposal
☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	ERM	12-30-15	1800	FEDEX		12-30-15	1800
				[signature]	TAL	01/04/16	1010

Lab Courier
Shipped ✓
Hand Delivered

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments

Lab Comments: ★ – Samples received on 01/04/16 [signature]

TAL-4124-500 (1209)

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

Chain of Custody Record

Lab Job #: 500-105858

Chain of Custody Number:

Page 2 of 3

Temperature °C of Cooler:

(optional)
Report To
Contact: Ed Hollifield
Company: ERM
Address:
Address:
Phone:
Fax:
E-Mail: ed.hollifield@erm.com

(optional)
Bill To
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

Client: ERM
Client Project #: 0282871
Project Name: ABBOTT - LAURINBURG
Project Location/State: LAURINBURG, NC
Lab Project #:
Sampler: A. NEAL
Lab PM:

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	VOCs (8260B)	VOCs + 10 TICs (8260B)							Comments
Preservative							1	1							
		MW-104A	12-30-15	1110	3	W	X								
		MW-104B		1235											
		MW-104C		1320											
14		MW-105C ☆	12-29-15	820											
15		MW-106C ☆		1200				X							
16		MW-10B ☆		1350											
17		MW-10D ☆		1550											
		MW-16B		935											
		MW-16D		1100											
20		MW-18B ☆		745											

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date _____

Sample Disposal
☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	ERM	12-30-15	1800	FEDEX		12-30-15	1800
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
				[signature]	TAL	01/04/16	1010
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier ☐
Shipped ☑
Hand Delivered ☐

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments

Lab Comments:

TAL-4124-500 (1209)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

(optional)
Report To
Contact: Ed Hollifield
Company: ERM
Address:
Address:
Phone:
Fax:
E-Mail: ed.hollifield@erm.com

(optional)
Bill To
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

Chain of Custody Record

Lab Job #: 500- 105858

Chain of Custody Number:

Page 3 of 3

Temperature °C of Cooler:

Client: ERM
Client Project #: 0282871
Project Name: ABBOTT - LAURINBURG
Project Location/State: LAURINBURG, NC
Lab Project #:
Sampler: J. NEAL
Lab PM:

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	VOCs (8260B)	VOCs + 10 TICs (8260B)	[illegible]							Comments
Preservative							1	1								
		MW-18D	12-29-15	800	3	W	X									
		MW-19B		850												
23		MW-19D ★		915												
		MW-20B		1025												
		MW-20D		1100												
		DUP-1		—												
27		DUP-2 ★		—				X								

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date _____

Sample Disposal
☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	ERM	12-30-15	1800	FEDEX		12-30-15	1800
				[signature]	TAL	01/04/16	1010

Lab Courier
Shipped ✓
Hand Delivered

Matrix Key
WW – Wastewater
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S – Soil
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MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments

Lab Comments:

TAL-4124-500 (1209)

ORIGIN ID:SOPA (478) 256-5615
ANDREW NEAR
ERM
15720 BRIXHAM AVE
STE 120
CHARLOTTE, NC 28277
UNITED STATES US

SHIP DATE: 30D
TWGT: 35.50
AD: 6992556/S
DIMS: 23x15x14

BILL CREDIT CAR

A 4390 12.31

5 15:00

RT 519 ST 16

TO

TEST AMERICA
2417 BOND ST

UNIVERSITY PARK IL 60484

(708) 534-5200 REF:
INV:
PO: DEPT:

FedEx Express

J1530150910011

TRK# 0201 7820 7612 4390

THU - 31 DEC 3:00P
STANDARD OVERNIGHT

NA JOTA

60484
IL-US ORD

500-105858 Waybill

Login Sample Receipt Checklist

Client: AbbVie US LLC

Job Number: 500-105858-1

Login Number: 105858
List Number: 1
Creator: Kelsey, Shawn M

List Source: TestAmerica Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	False	Refer to Job Narrative for details.
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Southeast ACCUTEST LABORATORIES

01/11/16

Effective January 1, 2016, SGS has acquired all of the assets of Accutest Laboratories and will continue to operate as SGS-Accutest. SGS-Accutest is part of SGS, the world's leading inspection, verification, testing and certification company.

Technical Report for

ERM

Former Abbott Labs; 16000 Joy St, Laurinburg, NC

0272871

Accutest Job Number: FA30348

Sampling Dates: 12/28/15 - 12/30/15

Report to:

ERM
1130 Situs Court Suite 250
Raleigh, NC 27606
gregory.kanellis@erm.com

ATTN: Greg Kanellis

Total number of pages in report: **32**

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer
Technical Director

Client Service contact: Jean Dent-Smith 407-425-6700

Certifications: FL (E83510), LA (03051), KS (E-10327), IA (366), IL (200063), NC (573), NJ (FL002), SC (96038001) DoD ELAP (L-A-B L2229), CA (2937), TX (T104704404), PA (68-03573), VA (460177), AK, AR, GA, KY, MA, NV, OK, UT, WA

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Test results relate only to samples analyzed.

Accutest Laboratories is the sole authority for authorizing edits or modifications to this document. Unauthorized modification of this report is strictly prohibited.

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Accutest Laboratories

Sample Summary

ERM

Job No: FA30348

Former Abbott Labs; 16000 Joy St, Laurinburg, NC
Project No: 0272871

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA30348-1	12/28/15	15:45	ANSG	12/31/15	AQ	Ground Water	MW-100A
FA30348-2	12/28/15	14:50	ANSG	12/31/15	AQ	Ground Water	MW-100B
FA30348-3	12/28/15	15:45	ANSG	12/31/15	AQ	Ground Water	MW-101A
FA30348-4	12/28/15	15:00	ANSG	12/31/15	AQ	Ground Water	MW-101B
FA30348-5	12/29/15	14:25	ANSG	12/31/15	AQ	Ground Water	MW-102A
FA30348-6	12/29/15	15:10	ANSG	12/31/15	AQ	Ground Water	MW-102B
FA30348-7	12/29/15	16:40	ANSG	12/31/15	AQ	Ground Water	MW-102C
FA30348-8	12/30/15	08:25	ANSG	12/31/15	AQ	Ground Water	MW-103A
FA30348-9	12/30/15	09:25	ANSG	12/31/15	AQ	Ground Water	MW-103B
FA30348-10	12/30/15	10:20	ANSG	12/31/15	AQ	Ground Water	MW-103C
FA30348-11	12/30/15	11:10	ANSG	12/31/15	AQ	Ground Water	MW-104A
FA30348-12	12/30/15	12:35	ANSG	12/31/15	AQ	Ground Water	MW-104B
FA30348-13	12/30/15	13:20	ANSG	12/31/15	AQ	Ground Water	MW-104C

Sample Summary
(continued)

ERM

Job No: FA30348

Former Abbott Labs; 16000 Joy St, Laurinburg, NC
Project No: 0272871

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA30348-14	12/29/15	13:50	ANSG	12/31/15	AQ	Ground Water	MW-10B
FA30348-15	12/29/15	15:50	ANSG	12/31/15	AQ	Ground Water	MW-10D
FA30348-16	12/29/15	00:00	ANSG	12/31/15	AQ	Ground Water	DUP-2

Summary of Hits

Job Number: FA30348
Account: ERM
Project: Former Abbott Labs; 16000 Joy St, Laurinburg, NC
Collected: 12/28/15 thru 12/30/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA30348-1	**MW-100A**					
Chloride		74.6	4.0	1.6	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		164	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA30348-2	**MW-100B**					
Chloride		137	10	4.0	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		398	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA30348-3	**MW-101A**					
Chloride		7.5	2.0	0.80	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		0.72 B	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA30348-4	**MW-101B**					
Chloride		1.2 B	2.0	0.80	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		2.0	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA30348-5	**MW-102A**					
Chloride		9.6	2.0	0.80	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		1.1	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA30348-6	**MW-102B**					
Chloride		9.9	2.0	0.80	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		4.9	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA30348-7	**MW-102C**					
Chloride		23.0	4.0	1.6	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		167	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA30348-8	**MW-103A**					
Chloride		20.6	2.0	0.80	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		1.1	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA30348-9	**MW-103B**					
Chloride		18.1	2.0	0.80	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		0.81 B	1.0	0.23	mg/l	SM5310 B-11/SW9060A

Summary of Hits

Job Number: FA30348
Account: ERM
Project: Former Abbott Labs; 16000 Joy St, Laurinburg, NC
Collected: 12/28/15 thru 12/30/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA30348-10	**MW-103C**					
Chloride		14.9	2.0	0.80	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		2.4	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA30348-11	**MW-104A**					
Total Organic Carbon		0.76 B	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA30348-12	**MW-104B**					
Chloride		14.1	2.0	0.80	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		0.50 B	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA30348-13	**MW-104C**					
Chloride		16.0	2.0	0.80	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		0.48 B	1.0	0.23	mg/l	SM5310 B-11/SW9060A
FA30348-14	**MW-10B**					
Chloride		9.4	2.0	0.80	mg/l	EPA 300/SW846 9056A
FA30348-15	**MW-10D**					
Chloride		12.1	2.0	0.80	mg/l	EPA 300/SW846 9056A
FA30348-16	**DUP-2**					
Chloride		10.8	2.0	0.80	mg/l	EPA 300/SW846 9056A
Total Organic Carbon		4.9	1.0	0.23	mg/l	SM5310 B-11/SW9060A

Southeast ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-100A		
Lab Sample ID:	FA30348-1	**Date Sampled:**	12/28/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	74.6	4.0	1.6	mg/l	2	01/07/16 12:03	LJ	EPA 300/SW846 9056A
Total Organic Carbon	164	1.0	0.23	mg/l	1	12/31/15 17:44	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-100B		
Lab Sample ID:	FA30348-2	**Date Sampled:**	12/28/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	137	10	4.0	mg/l	5	01/07/16 12:18	LJ	EPA 300/SW846 9056A
Total Organic Carbon	398	1.0	0.23	mg/l	1	12/31/15 18:13	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-101A		
Lab Sample ID:	FA30348-3	**Date Sampled:**	12/28/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	7.5	2.0	0.80	mg/l	1	01/04/16 14:57	DM	EPA 300/SW846 9056A
Total Organic Carbon	0.72 B	1.0	0.23	mg/l	1	12/31/15 18:42	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-101B		
Lab Sample ID:	FA30348-4	**Date Sampled:**	12/28/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	1.2 B	2.0	0.80	mg/l	1	01/04/16 15:12	DM	EPA 300/SW846 9056A
Total Organic Carbon	2.0	1.0	0.23	mg/l	1	12/31/15 18:56	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-102A		
Lab Sample ID:	FA30348-5	**Date Sampled:**	12/29/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.6	2.0	0.80	mg/l	1	01/04/16 15:27	DM	EPA 300/SW846 9056A
Total Organic Carbon	1.1	1.0	0.23	mg/l	1	12/31/15 19:12	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-102B		
Lab Sample ID:	FA30348-6	**Date Sampled:**	12/29/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.9	2.0	0.80	mg/l	1	01/04/16 15:42	DM	EPA 300/SW846 9056A
Total Organic Carbon	4.9	1.0	0.23	mg/l	1	12/31/15 19:27	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-102C		
Lab Sample ID:	FA30348-7	**Date Sampled:**	12/29/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	23.0	4.0	1.6	mg/l	2	01/07/16 12:33	LJ	EPA 300/SW846 9056A
Total Organic Carbon	167	1.0	0.23	mg/l	1	12/31/15 19:42	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-103A		
Lab Sample ID:	FA30348-8	**Date Sampled:**	12/30/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	20.6	2.0	0.80	mg/l	1	01/04/16 16:43	DM	EPA 300/SW846 9056A
Total Organic Carbon	1.1	1.0	0.23	mg/l	1	12/31/15 20:12	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-103B		
Lab Sample ID:	FA30348-9	**Date Sampled:**	12/30/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	18.1	2.0	0.80	mg/l	1	01/04/16 16:58	DM	EPA 300/SW846 9056A
Total Organic Carbon	0.81 B	1.0	0.23	mg/l	1	12/31/15 20:58	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-103C		
Lab Sample ID:	FA30348-10	**Date Sampled:**	12/30/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	14.9	2.0	0.80	mg/l	1	01/04/16 17:13	DM	EPA 300/SW846 9056A
Total Organic Carbon	2.4	1.0	0.23	mg/l	1	12/31/15 21:12	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-104A		
Lab Sample ID:	FA30348-11	**Date Sampled:**	12/30/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Total Organic Carbon	0.76 B	1.0	0.23	mg/l	1	12/31/15 21:56	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-104B		
Lab Sample ID:	FA30348-12	**Date Sampled:**	12/30/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	14.1	2.0	0.80	mg/l	1	01/04/16 17:28	DM	EPA 300/SW846 9056A
Total Organic Carbon	0.50 B	1.0	0.23	mg/l	1	12/31/15 22:10	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-104C		
Lab Sample ID:	FA30348-13	**Date Sampled:**	12/30/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	16.0	2.0	0.80	mg/l	1	01/04/16 17:44	DM	EPA 300/SW846 9056A
Total Organic Carbon	0.48 B	1.0	0.23	mg/l	1	12/31/15 22:25	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-10B		
Lab Sample ID:	FA30348-14	**Date Sampled:**	12/29/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.4	2.0	0.80	mg/l	1	01/04/16 17:59	DM	EPA 300/SW846 9056A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-10D		
Lab Sample ID:	FA30348-15	**Date Sampled:**	12/29/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	12.1	2.0	0.80	mg/l	1	01/04/16 18:14	DM	EPA 300/SW846 9056A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	DUP-2		
Lab Sample ID:	FA30348-16	**Date Sampled:**	12/29/15
Matrix:	AQ - Ground Water	**Date Received:**	12/31/15
		Percent Solids:	n/a
Project:	Former Abbott Labs; 16000 Joy St, Laurinburg, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	10.8	2.0	0.80	mg/l	1	01/04/16 18:29	DM	EPA 300/SW846 9056A
Total Organic Carbon	4.9	1.0	0.23	mg/l	1	12/31/15 22:39	FN	SM5310 B-11/SW9060A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Southeast ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

FA30348

ACCUTEST LABORATORIES

Accutest Laboratories Southeast
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL 407-425-6700 FAX: 407-425-0707
www.accutest.com

ACCUTEST JOB # : PAGE 1 OF 2

Accutest Quote # | SKIFF #

Client / Reporting Information

Company Name: ERM
Address: 15720 BRIXHAM HILL AVE, #120
City: CHARLOTTE State: NC Zip: 28277
Project Contact: ED HOLLIFIELD E-mail: ed.hollifield@erm.com
Phone #:
Sampler(s) Name(s) (Printed)
Sampler 1: Sampler 2:

Project Information

Project Name: Abbott - Laurinburg
Street:
City: Laurinburg State: NC
Project #: 0272871
Fax #:
Client Purchase Order #:

Analytical Information: TOC (SM-5310B); Total Cl (EPA 300/9056A)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air

Accutest Sample #	Field ID / Point of Collection	Collection DATE	Collection TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnA	DI WATER	MeOH	TOC (SM-5310B)	Total Cl (EPA 300/9056A)	LAB USE ONLY
1	MW-100A	12-28-15	1545	AN	GW	3		1	2							X	X	
2	MW-100B	↓	1450	AN	↑	↑		↑	↑							↓	↓	
3	MW-101A		1545	SG														
4	MW-101B	↓	1500	SG														
5	MW-102A	12-29-15	1425	AN														
6	MW-102B	↓	1510	↓														
7	MW-102C	↓	1640															
8	MW-103A	12-30-15	825															
9	MW-103B	↓	925															
10	MW-103C		1020			↓		↓									↓	
11	MW-104A		1110			2												
12	MW-104B	↓	1235	↓	↓	3		1	↓							↓	X	

Turnaround Time (Business days)

Std. 10 Business Days
7 Day *RUSH*
5 Day *RUSH*
3 Day *EMERGENCY*
2 Day *EMERGENCY*
1 Day *EMERGENCY*
Other
Emergency or Rush T/A Data Available VIA Email or Lablink

Approved By: / Date/Rush Code:

Data Deliverable Information

- ☐ COMMERCIAL "A" (RESULTS ONLY)
- ☑ COMMERCIAL "B" (RESULTS PLUS QC)
- ☐ REDT1 (EPA LEVEL 3)
- ☐ FULLT1 (EPA LEVEL 4)
- ☐ EDD'S

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 [signature]	12-30-15/1860	2 Fedex	3 Fx		4 [signature] 12/31/15 9:30
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
5		6	7		8

Lab Use Only : Custody Seal in Place: Y N Temp Blank Provided: Y N Preserved Where Applicable: Y N Total # of Coolers: 1 Cooler Temperature (s) Celsius: 3.0

4.1 4

FA30348: Chain of Custody
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FA30348

ACCUTEST LABORATORIES

Accutest Laboratories Southeast
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.accutest.com

ACCUTEST JOB # : PAGE 2 OF 2

Accutest Quote # | SKIFF #

Client / Reporting Information

Company Name: ERM
Address: 15720 Brixham Hill Ave, #120
City: Charlotte State: NC Zip: 28277
Project Contact: Ed Hollifield E-mail: ed.hollifield@ermnc.com
Phone #:
Sampler(s) Name(s) (Printed) Sampler 1: Sampler 2:

Project Information

Project Name: Abbott Lawrenburg
Street:
City: Lawrenburg State: NC
Project #: 0270871
Fax #:
Client Purchase Order #:

Analytical Information

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air

Accutest Sample #	Field ID / Point of Collection	Collection Date	Collection Time	Sampled By:	Matrix	Total # of Bottles	Other	None	HCl	NaOH	HNO3	H2SO4	NaOH+ZnA	DI Water	MeOH	Total Cl (EPA 300/9056A)	TOC (SM-5310B)	LAB USE ONLY
13	MW-104C	12-30-15	1320	AN	GW											X	X	
14	MW-10B	12-29-15	1350													X		
15	MW-10D		1550													X		
16	DUP-2		—													X	X	

Turnaround Time (Business days)

Std. 10 Business Days — Approved By: / Date/Rush Code:
7 Day *RUSH*
5 Day *RUSH*
3 Day *EMERGENCY*
2 Day *EMERGENCY*
1 Day *EMERGENCY*
Other
Emergency or Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [x] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [ ] FULLT1 (EPA LEVEL 4)
- [ ] EDD'S

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	12-30-15/1800	2 Fedex	3 FX		4 12/31/15 9:30
Relinquished by/Affiliation 5	Date Time:	Received By/Affiliation 6	Relinquished By/Affiliation 7	Date Time:	Received By/Affiliation 8

Lab Use Only : Custody Seal in Place: Y N Temp Blank Provided: Y N Preserved Where Applicable: Y N Total # of Coolers: 1 Cooler Temperature (s) Celsius: 3.0

4.1 4

FA30348: Chain of Custody
Page 2 of 4

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: FA30348 CLIENT: ERM PROJECT: 0272871

DATE/TIME RECEIVED: 12/31/15 9:30 {MM/DD/YY 24:00} NUMBER OF COOLERS RECEIVED: 1

METHOD OF DELIVERY: [FEDEX] UPS ACCUTEST COURIER DELIVERY OTHER:

AIRBILL NUMBERS: 7820 7609 5298

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [ ] TRIP BLANK PROVIDED
- [x] TRIP BLANK NOT PROVIDED
- [x] TRIP BLANK NOT ON COC
- [ ] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [ ] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

MISC. INFORMATION

NUMBER OF ENCORES ? 25-GRAM_____ 5-GRAM_____

NUMBER OF 5035 FIELD KITS ? _____

NUMBER OF LAB FILTERED METALS ? _____

TEMPERATURE INFORMATION

- [ ] IR THERM ID 1 CORR. FACTOR -0.4
- [ ] OBSERVED TEMPS: 3.4
- [ ] CORRECTED TEMPS: 3.0 (USED FOR LIMS)

SAMPLE INFORMATION

- [ ] INCORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- [ ] ID'S ON COC DO NOT MATCH LABEL
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] 5035 FIELD KITS NOT RECEIVED WITHIN 48 HOURS
- [ ] BULK VOA SOIL JARS NOT RECEIVED WITHIN 48 HOURS
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] RESIDUAL CHLORINE PRESENT LOT#_____

{APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS}

TEST STRIP LOT#s pH 0-3 204413A pH 10-12 219813A OTHER (specify) _____

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE 12/31/15 REVIEWER SIGNATURE/DATE 12/31/15

NF 11/15 receipt confirmation 111015.xls

4.1

4

FA30348: Chain of Custody

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FA30348: Chain of Custody
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Southeast ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA30348
Account: ERMNCR - ERM
Project: Former Abbott Labs; 16000 Joy St, Laurinburg, NC

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP27216/GN69317	2.0	0.0	mg/l	50	53.3	106.6	90-110%
Total Organic Carbon	GP27196/GN69275	1.0	0.0	mg/l	15	15.8	105.3	90-110%

Associated Samples:
Batch GP27196: FA30348-1, FA30348-2, FA30348-3, FA30348-4, FA30348-5, FA30348-6, FA30348-7, FA30348-8, FA30348-9, FA30348-10, FA30348-11, FA30348-12, FA30348-13, FA30348-16
Batch GP27216: FA30348-1, FA30348-2, FA30348-3, FA30348-4, FA30348-5, FA30348-6, FA30348-7, FA30348-8, FA30348-9, FA30348-10, FA30348-12, FA30348-13, FA30348-14, FA30348-15, FA30348-16
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA30348
Account: ERMNCR - ERM
Project: Former Abbott Labs; 16000 Joy St, Laurinburg, NC

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP27216/GN69317	FA30348-3	mg/l	7.5	50	62.5	110.0	90-110%
Chloride	GP27216/GN69317	FA30348-15	mg/l	12.1	50	67.1	110.0	90-110%
Total Organic Carbon	GP27196/GN69275	FA30348-10	mg/l	2.4	15	17.9	103.3	90-110%

Associated Samples:
Batch GP27196: FA30348-1, FA30348-2, FA30348-3, FA30348-4, FA30348-5, FA30348-6, FA30348-7, FA30348-8, FA30348-9, FA30348-10, FA30348-11, FA30348-12, FA30348-13, FA30348-16
Batch GP27216: FA30348-1, FA30348-2, FA30348-3, FA30348-4, FA30348-5, FA30348-6, FA30348-7, FA30348-8, FA30348-9, FA30348-10, FA30348-12, FA30348-13, FA30348-14, FA30348-15, FA30348-16
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

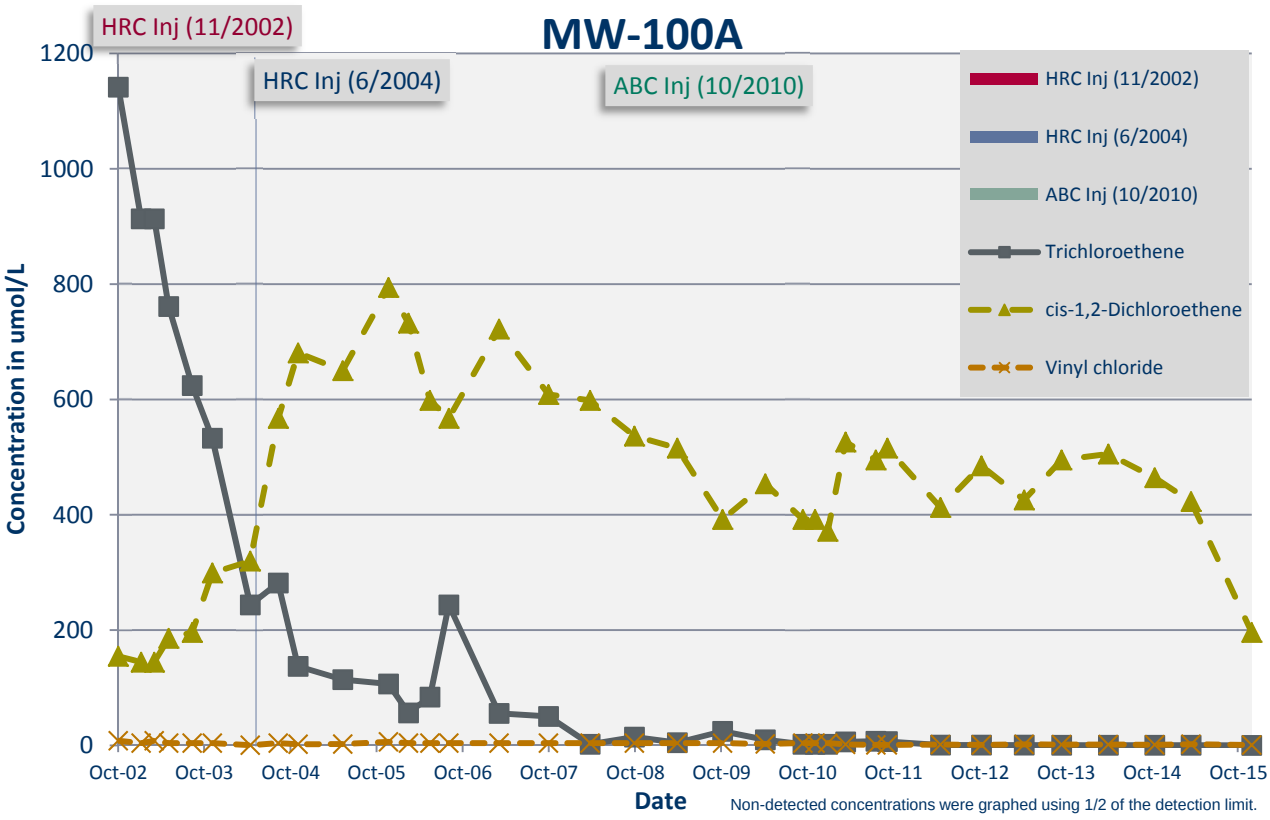
MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

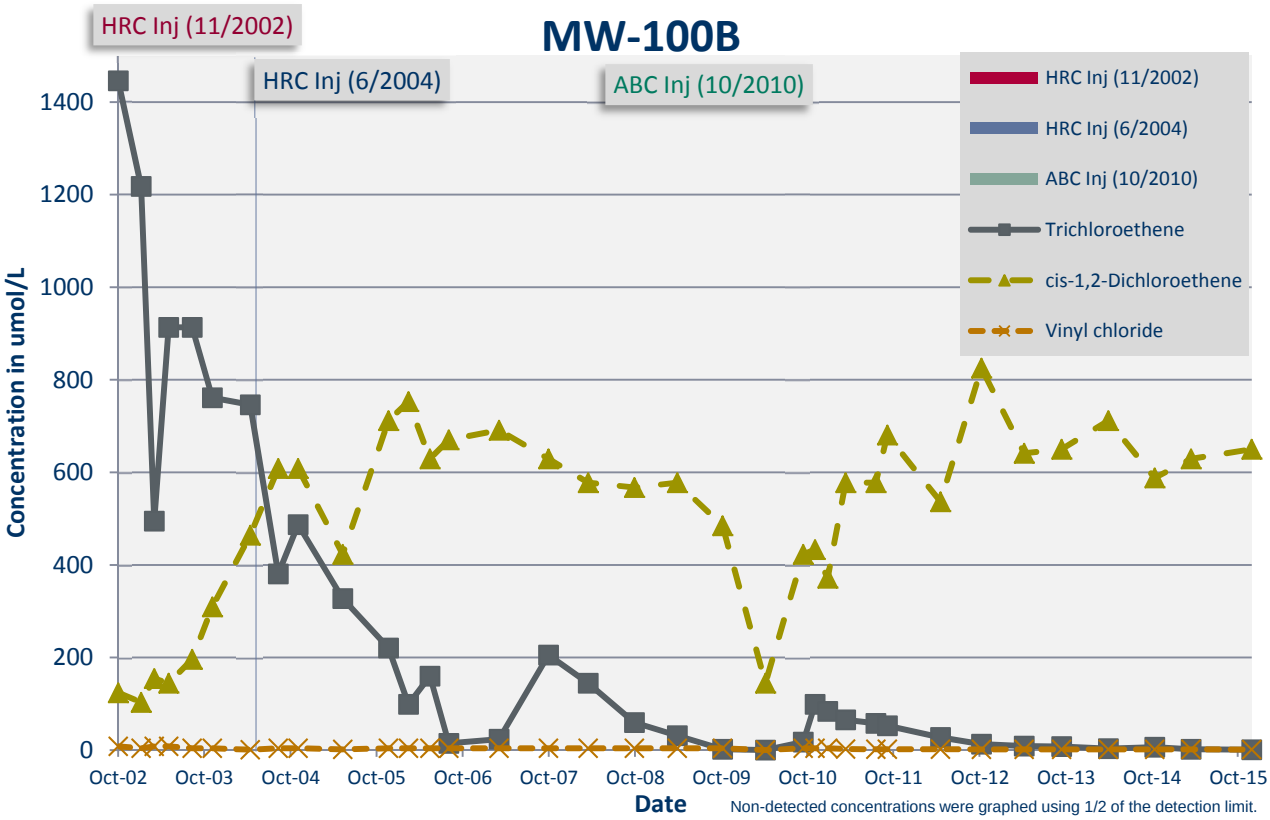
Login Number: FA30348
Account: ERMNCR - ERM
Project: Former Abbott Labs; 16000 Joy St, Laurinburg, NC

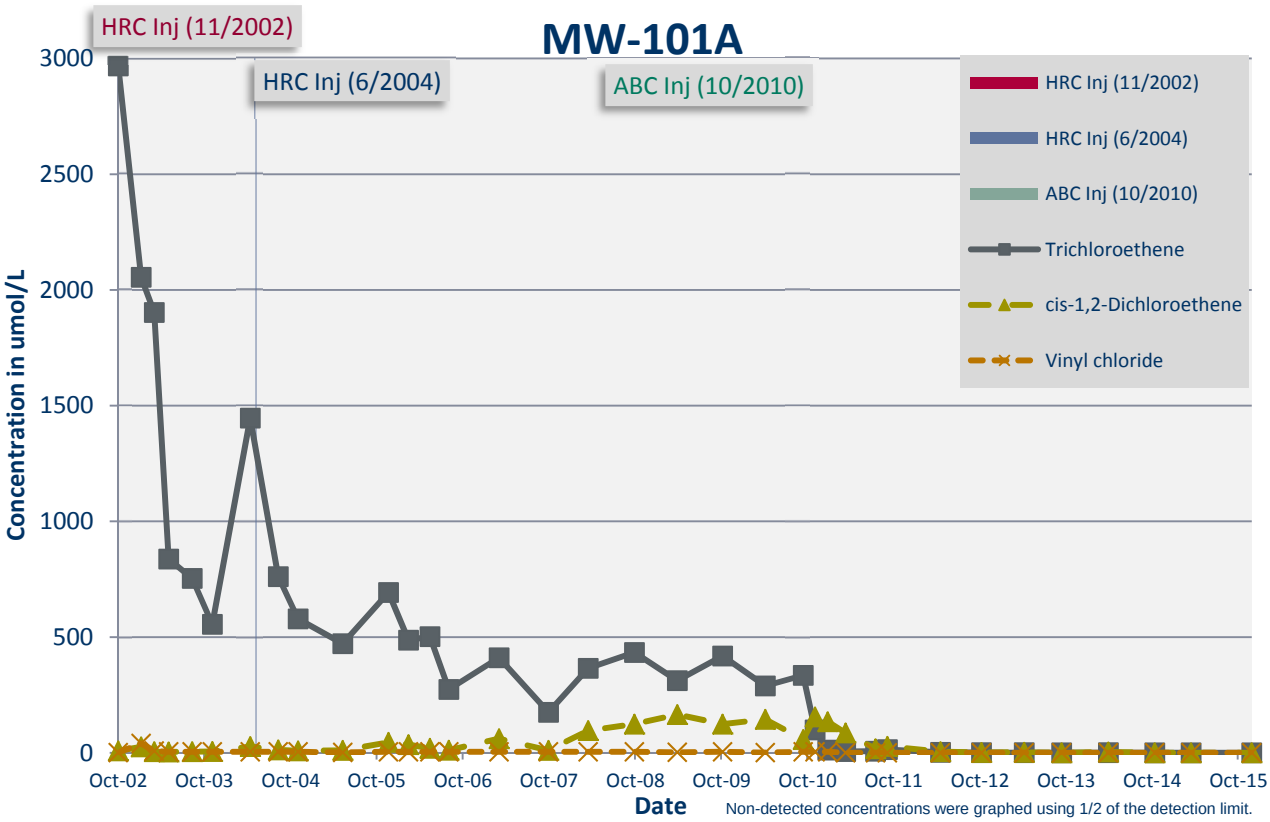
Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride	GP27216/GN69317	FA30348-3	mg/l	7.5	50	62.6	0.2	20%
Chloride	GP27216/GN69317	FA30348-15	mg/l	12.1	50	67.1	0.0	20%
Total Organic Carbon	GP27196/GN69275	FA30348-10	mg/l	2.4	15	18.0	0.6	20%

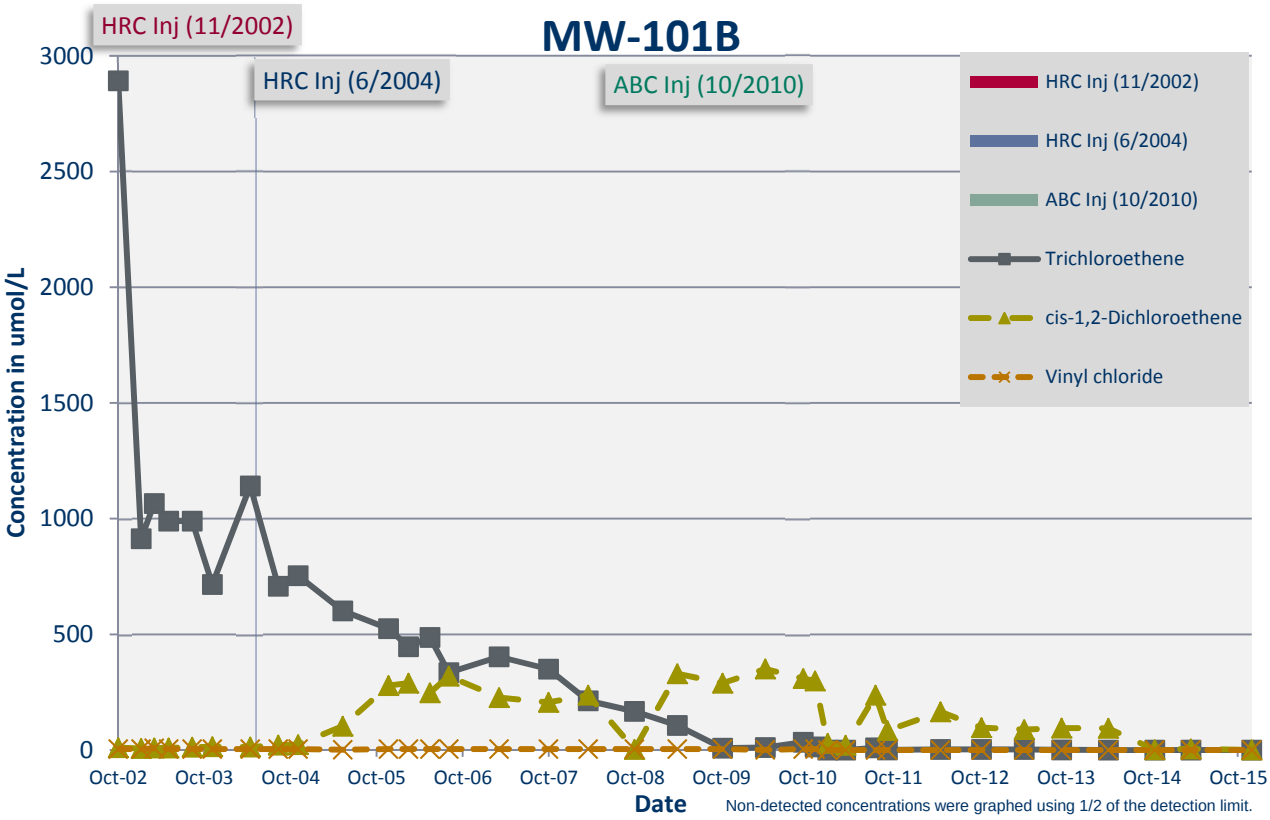
Associated Samples:
Batch GP27196: FA30348-1, FA30348-2, FA30348-3, FA30348-4, FA30348-5, FA30348-6, FA30348-7, FA30348-8, FA30348-9, FA30348-10, FA30348-11, FA30348-12, FA30348-13, FA30348-16
Batch GP27216: FA30348-1, FA30348-2, FA30348-3, FA30348-4, FA30348-5, FA30348-6, FA30348-7, FA30348-8, FA30348-9, FA30348-10, FA30348-12, FA30348-13, FA30348-14, FA30348-15, FA30348-16
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

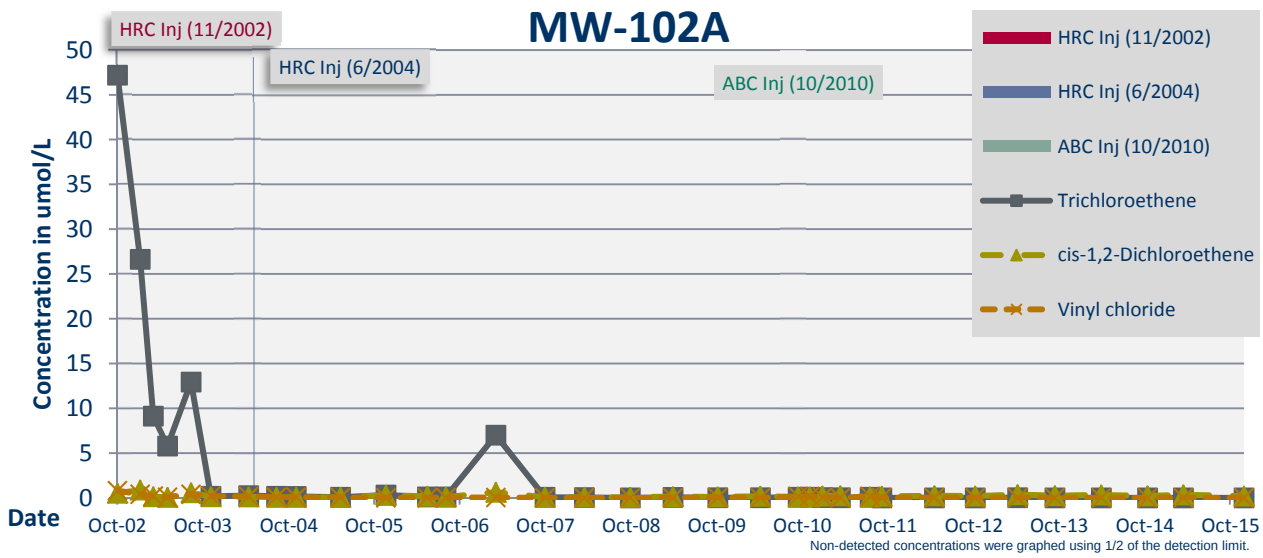
APPENDIX E
MOLAR CONCENTRATION TREND GRAPHS

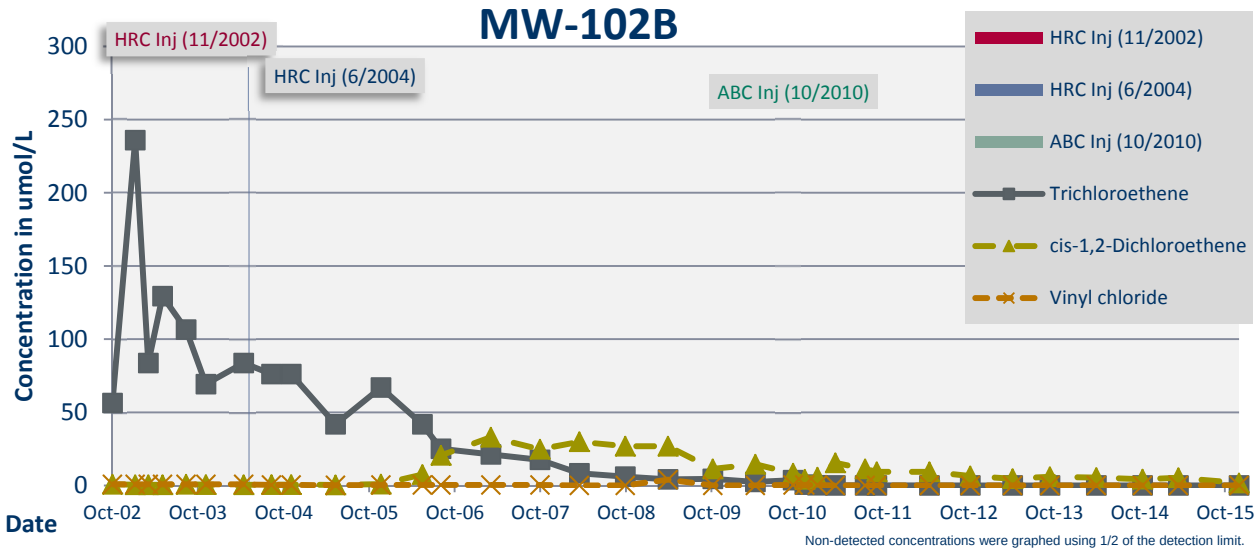

MW-100A
HRC Inj (11/2002)
HRC Inj (6/2004)
ABC Inj (10/2010)
Concentration in umol/L
1200
1000
800
600
400
200
0
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
Oct-13
Oct-14
Oct-15
Date
HRC Inj (11/2002)
HRC Inj (6/2004)
ABC Inj (10/2010)
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Non-detected concentrations were graphed using 1/2 of the detection limit.

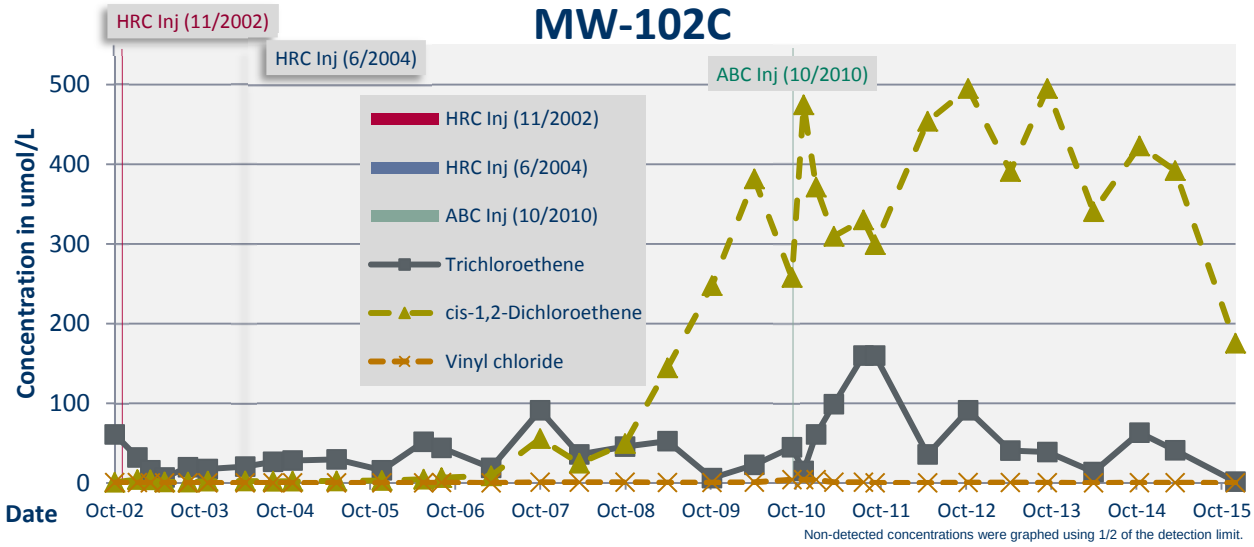

MW-100B
HRC Inj (11/2002)
HRC Inj (6/2004)
ABC Inj (10/2010)
Concentration in umol/L
1400
1200
1000
800
600
400
200
0
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
Oct-13
Oct-14
Oct-15
Date
HRC Inj (11/2002)
HRC Inj (6/2004)
ABC Inj (10/2010)
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Non-detected concentrations were graphed using 1/2 of the detection limit.

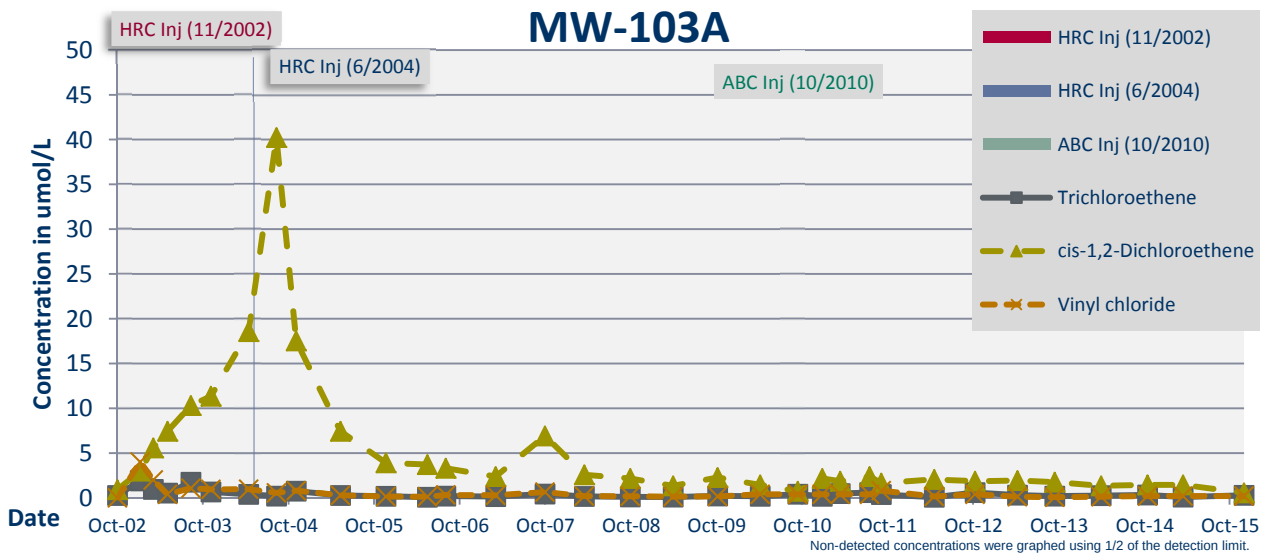

MW-101A
HRC Inj (11/2002)
HRC Inj (6/2004)
ABC Inj (10/2010)
Concentration in umol/L
3000
2500
2000
1500
1000
500
0
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
Oct-13
Oct-14
Oct-15
Date
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Non-detected concentrations were graphed using 1/2 of the detection limit.

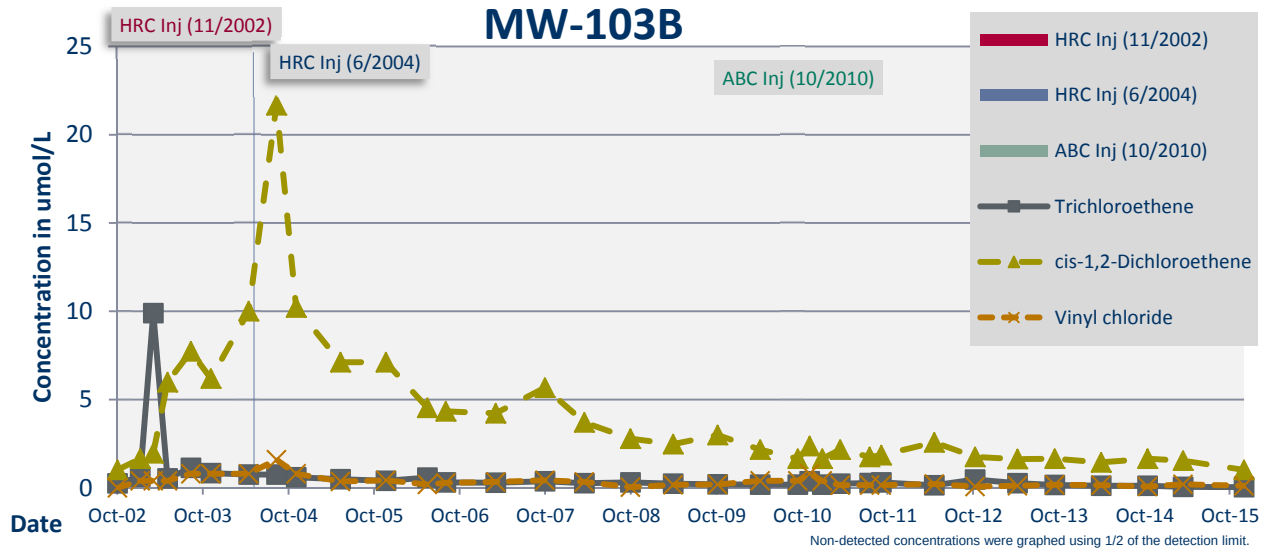

MW-101B
HRC Inj (11/2002)
HRC Inj (6/2004)
ABC Inj (10/2010)
Concentration in umol/L
3000
2500
2000
1500
1000
500
0
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
Oct-13
Oct-14
Oct-15
Date
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Non-detected concentrations were graphed using 1/2 of the detection limit.

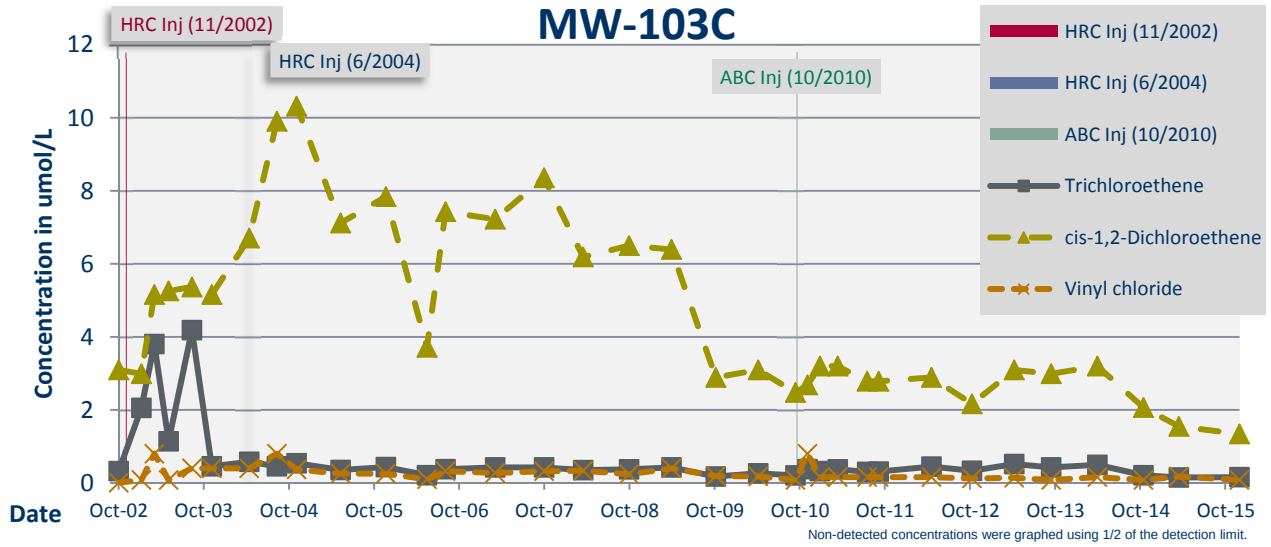

MW-102A
HRC Inj (11/2002)
HRC Inj (6/2004)
ABC Inj (10/2010)
Concentration in umol/L
Date
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Non-detected concentrations were graphed using 1/2 of the detection limit.

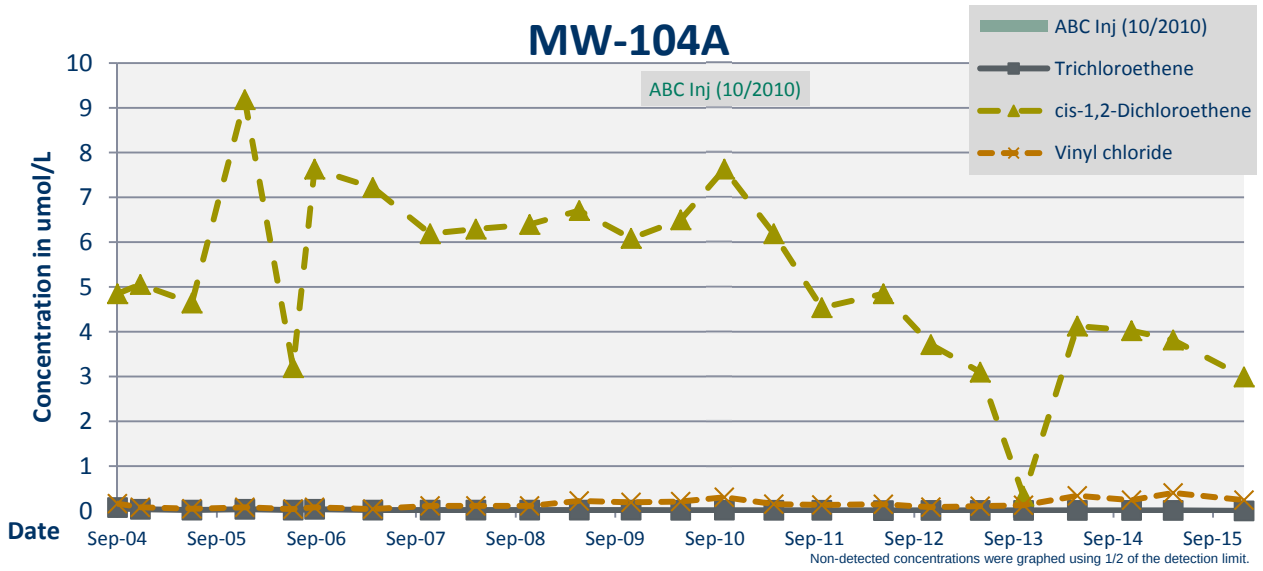

MW-102B
HRC Inj (11/2002)
HRC Inj (6/2004)
ABC Inj (10/2010)
Concentration in umol/L
Date
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Non-detected concentrations were graphed using 1/2 of the detection limit.

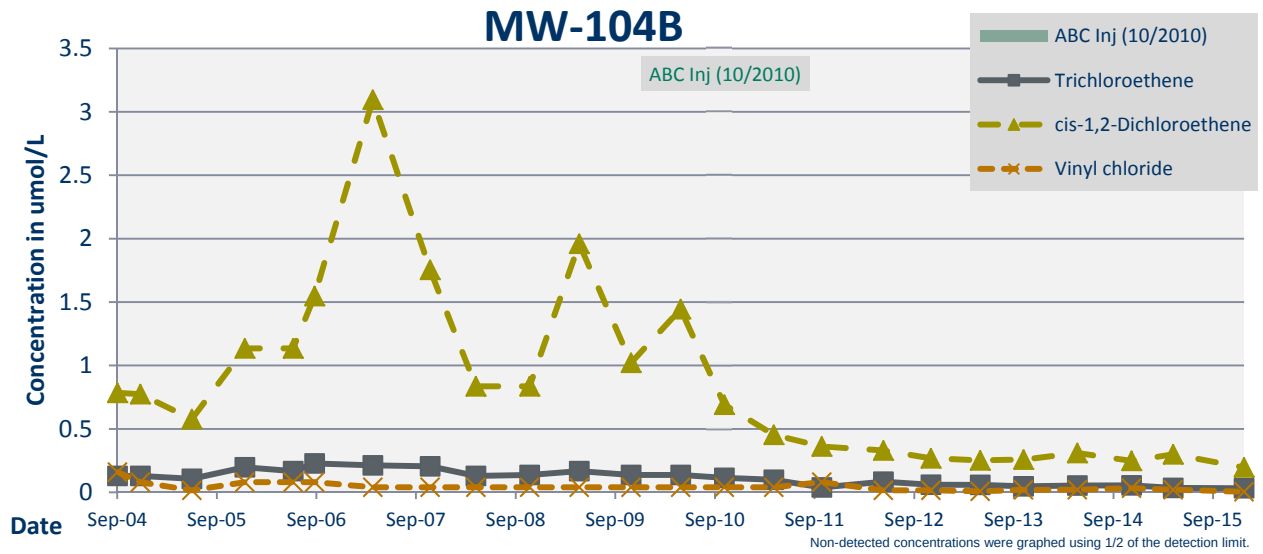

MW-102C
HRC Inj (11/2002)
HRC Inj (6/2004)
ABC Inj (10/2010)
Concentration in umol/L
Date
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Non-detected concentrations were graphed using 1/2 of the detection limit.

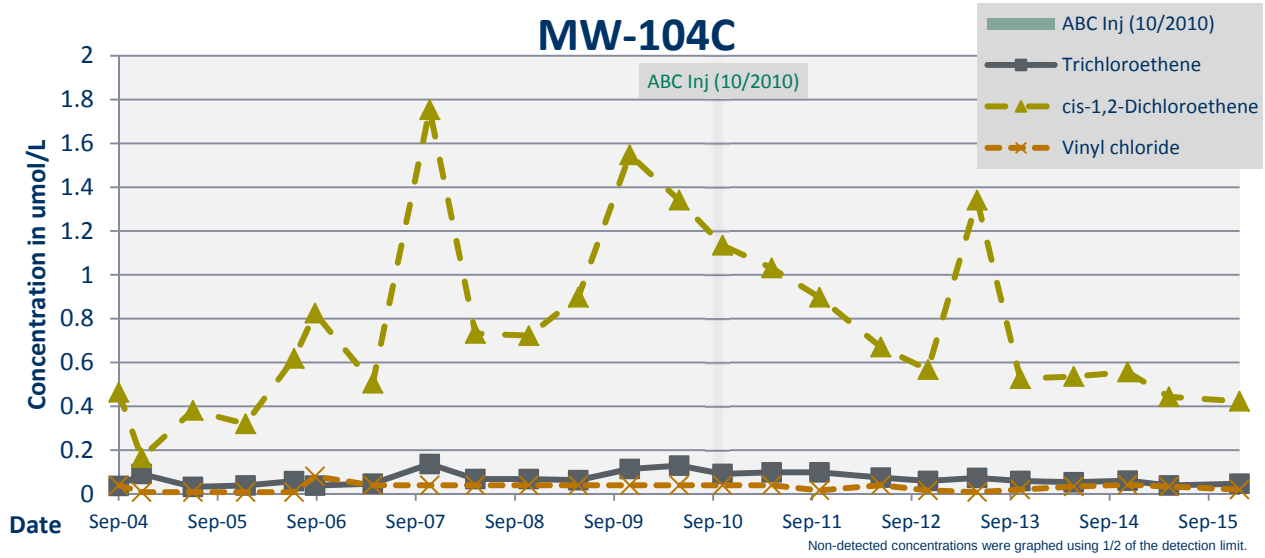

MW-103A
HRC Inj (11/2002)
HRC Inj (6/2004)
ABC Inj (10/2010)
Concentration in umol/L
Date
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
Oct-13
Oct-14
Oct-15
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Non-detected concentrations were graphed using 1/2 of the detection limit.


MW-103B
HRC Inj (11/2002)
HRC Inj (6/2004)
ABC Inj (10/2010)
Concentration in umol/L
Date
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
Oct-13
Oct-14
Oct-15
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Non-detected concentrations were graphed using 1/2 of the detection limit.

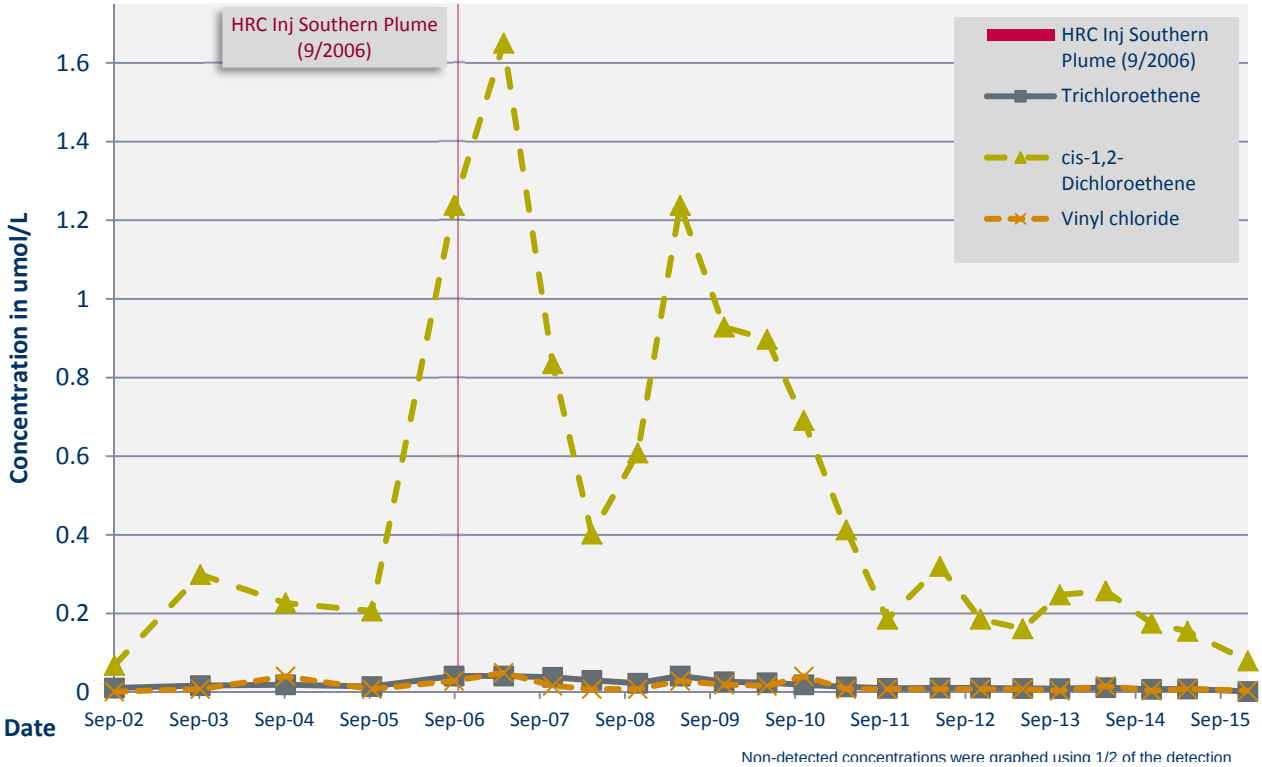

MW-103C
HRC Inj (11/2002)
HRC Inj (6/2004)
ABC Inj (10/2010)
Concentration in umol/L
Date
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
Oct-13
Oct-14
Oct-15
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Non-detected concentrations were graphed using 1/2 of the detection limit.


MW-104A
ABC Inj (10/2010)
ABC Inj (10/2010)
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Concentration in umol/L
10
9
8
7
6
5
4
3
2
1
0
Date
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12
Sep-13
Sep-14
Sep-15
Non-detected concentrations were graphed using 1/2 of the detection limit.

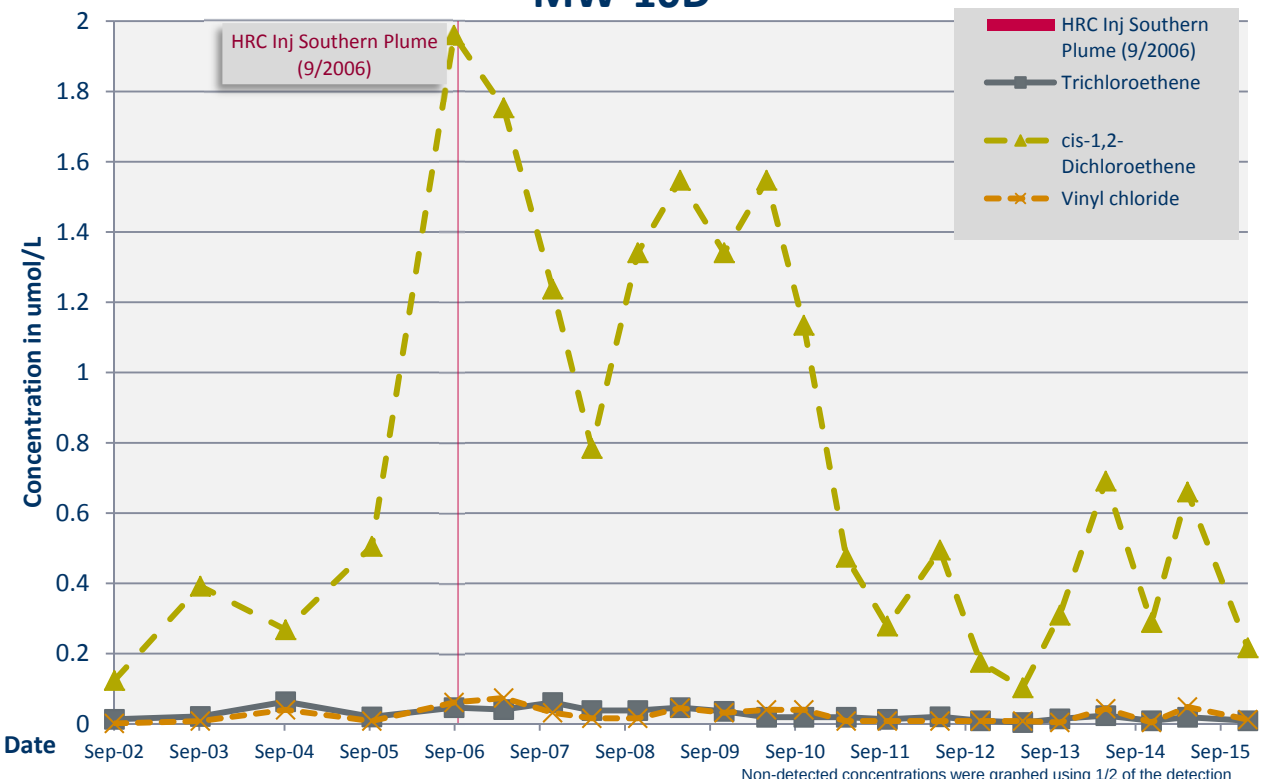

MW-104B
ABC Inj (10/2010)
ABC Inj (10/2010)
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Concentration in umol/L
3.5
3
2.5
2
1.5
1
0.5
0
Date
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12
Sep-13
Sep-14
Sep-15
Non-detected concentrations were graphed using 1/2 of the detection limit.

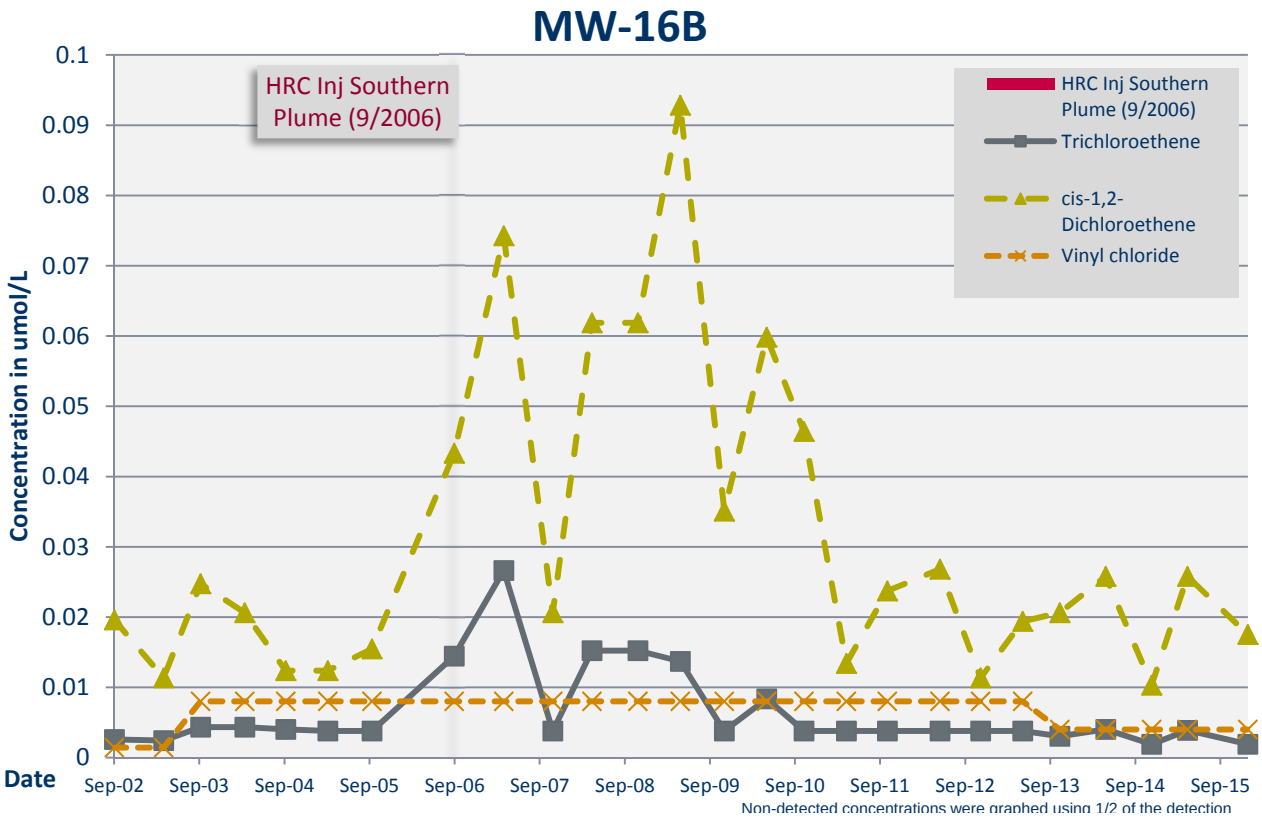

MW-104C
ABC Inj (10/2010)
ABC Inj (10/2010)
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Concentration in umol/L
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Date
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12
Sep-13
Sep-14
Sep-15
Non-detected concentrations were graphed using 1/2 of the detection limit.

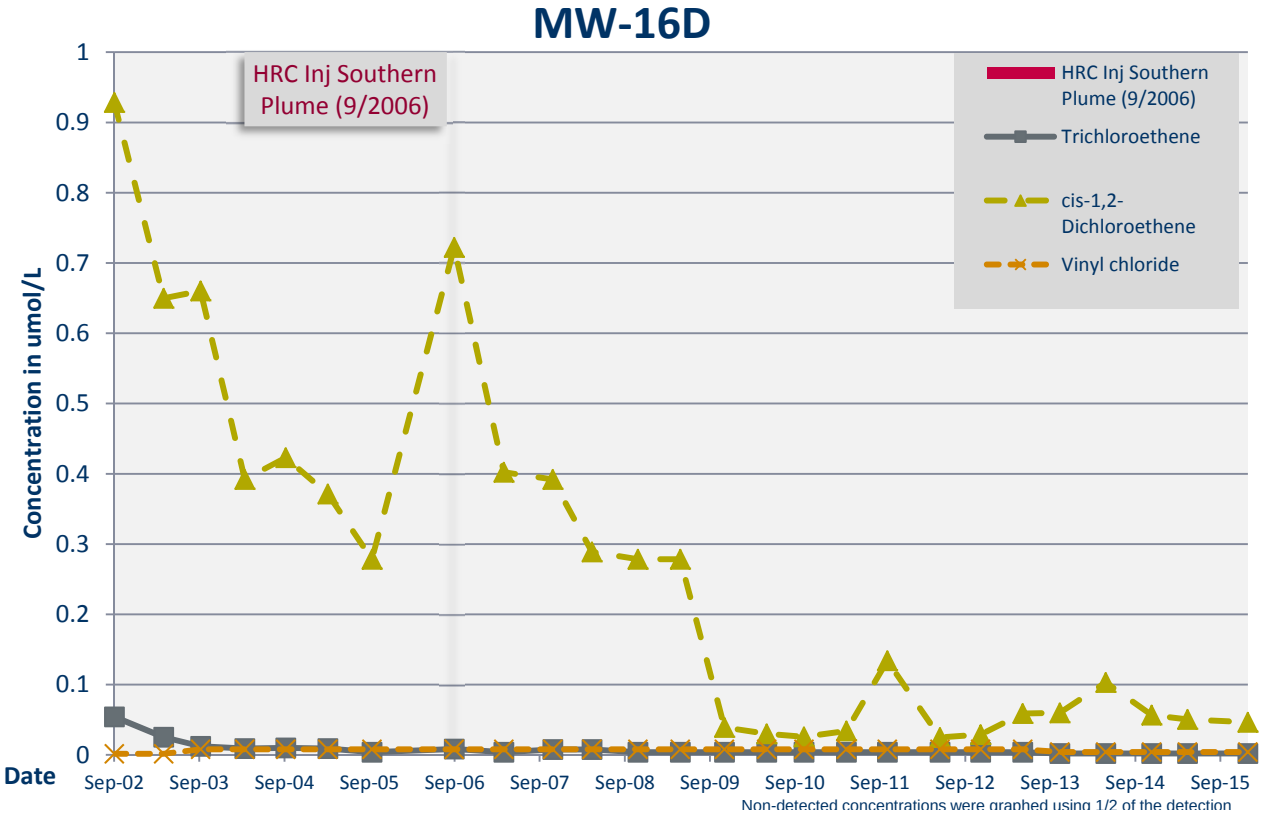
MW-10B


HRC Inj Southern Plume (9/2006)
HRC Inj Southern Plume (9/2006)
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Concentration in umol/L
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Date
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12
Sep-13
Sep-14
Sep-15
Non-detected concentrations were graphed using 1/2 of the detection

MW-10D


HRC Inj Southern Plume (9/2006)
HRC Inj Southern Plume (9/2006)
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Concentration in umol/L
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Date
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12
Sep-13
Sep-14
Sep-15
Non-detected concentrations were graphed using 1/2 of the detection


MW-16B
HRC Inj Southern Plume (9/2006)
HRC Inj Southern Plume (9/2006)
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Concentration in umol/L
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Date
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12
Sep-13
Sep-14
Sep-15
Non-detected concentrations were graphed using 1/2 of the detection


MW-16D
HRC Inj Southern Plume (9/2006)
HRC Inj Southern Plume (9/2006)
Trichloroethene
cis-1,2-Dichloroethene
Vinyl chloride
Concentration in umol/L
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Date
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12
Sep-13
Sep-14
Sep-15
Non-detected concentrations were graphed using 1/2 of the detection

APPENDIX F
HISTORICAL VOC CONCENTRATION TABLE

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																																
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-100A	10/30/02	6,500	<1,000	<1,000	1,400	<1,000	<1,000	<1,000	31,000	<5,000	10,000	<1,000	<5,000	<1,000	<1,000	<1,000	15,000	<1,000	<1,000	<2,000	200,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	5,300	<1,000	150,000	<1,000	27,000	NA	<1,000
MW-100A	02/04/03	5,000	<500	<500	1,000	<500	<500	350 J	19,000	<2,500	<2,500	<500	<2,500	<500	<500	<500	14,000	<500	<500	<1,000	42,000	<500	<500	<500	<500	<500	<500	4,700	<500	120,000	<500	32,000	<2,500	<500
MW-100A	04/01/03	5,900	<1,000	<1,000	1,200	<1,000	<1,000	<1,000	<5,000	<5,000	<5,000	<1,000	<5,000	<1,000	<1,000	<1,000	14,000	<1,000	<1,000	<2,000	42,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	5,400	<1,000	120,000	<1,000	37,000	<5,000J	<1,000
MW-100A	06/01/03	5,800 J	<500	<500	<500	<500	<500	250 J	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	18,000	<500	<500	<1,000	31,000	<500	<500J	<500	<500	<500	<500	4,600	<500	100,000	<500	30,000	<2,500J	<500
MW-100A	09/09/03	5,300	<500	<500	940	<500	<500	290 J	18,000	<2,500	<2,500	<500	<2,500	<500	<500	<500	19,000	<500	<500	<1,000	26,000	<500	<500	<500	<500	<500	<500	3,900	<500	82,000	<500	18,000	<2,500	<500
MW-100A	12/03/03	6,000	<500	<500	1,100	250 J	<500	380 J	<2,500	<2,500	16,000	<500	<2,500	<500	260 J	<500	29,000	<500	<500	<1,000	20,000	<500	<500	<500J	<500	<500	<500	4,600	<500	70,000	<500	33,000	<2,500J	<500
MW-100A	05/12/04	1,600	<50	53	350	<50	<50	180	8,200	110 J	740	<50	<250	<50	130	<50J	31,000	<50	<50	51 J	14,000	<50	190	<50	<50	<50	54	2,700	<50	32,000	<50	6,200	<250	<50
MW-100A	09/08/04	3,700	<500	<500	1,000	<500	<500	<500	5,800	<2,500	<2,500	<500	<2,500	<500	<500	<500	55,000	<500	<500	<1,000	13,000	<500	550	<500	<500	<500	<500	4,100	<500	37,000	<500	59,000	<2,500	<500
MW-100A	12/01/04	2,900	<100	89 J	810	<100	<100	210	<5,000	<500	<500	<100	<500	<100	170	<100	66,000	<100	<100	<200	6,800	<100	<100	<100	<100	<100	68 J	3,200	<100	18,000	<100	28,000	<500	120
MW-100A	06/08/05	3,600	<100	<100	960	<100	<100	200	3,800	<500	<500	<100	<500	<100	140	<100	63,000	350	<100	<200	6,300 J	<100	<100	<100	<100	<100	73 J	3,400	<100	15,000	<100	37,000	<500	150
MW-100A	12/19/05	4,300 J	<500	<500	<500	<500	<500	<500	6,000	<2,500	<2,500	<500	<2,500	<500	<500	<500	77,000	<500	<500	<1,000	4,700	<500	<500	<500	<500	<500	<500	5,400	1,800	14,000	<500	23,000 J	<2,500	380 J
MW-100A	03/14/06	3,500	<500	<500	960	<500	<500	<500	2,900	<2,500	<2,500	<500	<2,500	<500	<500	<500	71,000	<2,500	<500	<1,000	2,500	<500	<500	<500	<500	<500	<500	4,400	<500	7,400	<500	30,000	<2,500	<500
MW-100A	06/13/06	2,800	<500	<500	810	<500	<500	<500	5,700	<2,500	<2,500	<500	<2,500	<500	<500	<500	58,000	<2,500	<500	<1,000	3,100	<500	<500	<500	<500	<500	<500	3,700	<500	11,000	<500	25,000	<2,500	<500
MW-100A	09/01/06	1,800	<500	<500	1,200	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	55,000	<2,500	<500	<1,000	34,000	<500	<500	<500	<500	<500	<500	3,800	<500	32,000	<500	18,000	<2,500	<500
MW-100A	04/02/07	2,200	<500	<500	910	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	70,000	<2,500	<500	<1,000	3,100	<500	<500	<500	<500	<500	<500	3,900	<500	7,300	<500	17,000	<2,500	<500
MW-100A	10/29/07	2,100	<500	<500	1,100	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	59,000	<2,500	<500	<1,000	2,600	<500	<500	<500	<500	<500	<500	3,900	<500	6,600	<500	26,000	<2,500	<500
MW-100A	04/22/08	1,800	NA	<500	760	<500	NA	<500	4,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	58,000	<2,500	<500	<1,000	870	<500	<500	<500	<500	<500	<500	3,800	<500	<500	<500	23,000	<2,500	<500
MW-100A	10/27/08	1,300	NA	<500	510	<500	NA	<500	6,600	<2,500	<2,500	<500	<2,500	<500	<500	<500	52,000	<2,500	<500	<1,000	1,500	<500	<500	<500	<500	<500	<500	3,300	<500	1,900	<500	21,000	<2,500	<500
MW-100A	04/27/09	1,400	NA	<500	730	<500	NA	<500	4,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	50,000	<2,500	<500	<1,000	1,300	<500	<500	<500	<500	<500	<500	3,500	<500	620	<500	28,000	<2,500	<500
MW-100A	11/05/09	720	NA	<500	<500	<500	NA	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	38,000	<2,500	<500	<1,000	920	<500	<500	<500	<500	<500	<500	2,300	<500	3,200	<500	5,200	<2,500	<500
MW-100A	05/05/10	880	NA	<100	<100	<100	NA	130	5,500	<500	2,800	<100	<500	<100	<100	<100	44,000	<500	<100	<200	440	<100	<100	<100	<100	<100	<100	2,600	<100	1,300	<100	27,000	<500	160
MW-100A	10/12/10	630	<500	<500	600	<500	<500	<500	4,200	<2,500	<2,500	<500	<2,500	<500	<500	<500	38,000	<2,500	<500	<1,000	790	<500	<500	<500	<500	<500	<500	2,400	<500	<500	<500	22,000	<2,500	<500
MW-100A	12/02/10	<500	<500	<500	<500	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	38,000	<2,500	<500	<1,000	1,400	<500	<500	<500	<500	<500	<500	2,400	<500	<500	<500	14,000	<2,500	<500
MW-100A	01/25/11	640	<500	<500	540	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	36,000	<2,500	<500	<1,000	5,400	<500	<500	<500	<500	<500	<500	2,500	<500	<500	<500	18,000	<2,500	<500
MW-100A	04/11/11	1,600	<100	<100	770	<100	<100	200	<500	<500	<500	<100	<500	<100	180	<100	51,000	<500	<100	<200	21,000	<100	<100	<100	<100	<100	<100	2,900	<100	810	<100	25,000	<500	110
MW-100A	08/17/11	1,700	<100	<100	750	<100	<100	190	1,400	<500	<500	<100	<500	<100	200	<100	48,000	<500	<100	<200	20,000	<100	<100	<100	120	<100	<100	2,500	320	940	<100	18,000	<500	<100
MW-100A	10/05/11	2,000	<100	<100	740	<100	<100	170	<500	<500	<500	<100	<500	<100	240	<100	50,000	<500	<100	<200	27,000	<100	<100	<100	<100	<100	<100	2,600	<100	880	<100	20,000	<500	<100
MW-100A	05/17/12	1,200	<20	91	750	<20	<20	120	<100	<100	<100	<20	<100	<20	160	<20	40,000	<100	22	68	1,800	<20	<20	<20	22	<20	37	2,600	22	80	<20	22,000	<100	81
MW-100A	11/07/12	1,100	<50	81	660	<50	<50	100	<250	<250	<250	<50	<250	<50	160	<50	47,000	<250	<50	50	1,900	<50	<50	<50	<50	<50	<50	2,000	<50	69	<50	17,000	<250	62
MW-100A	05/07/13	791	4.19	87.47	597.5	<1	4.02	90.8	3,459	101.32	518	16.93	<5	<1	149.3	<1	41,265	148.33	21.35	70.29	813	<1	7.18	<1	22.06	4.58	36.45	2,058	21.73	63.12	<1	16,215	5.01	115.12
MW-100A	10/13/13	610	<50	99	600	<50	<50	100	3,400	<250	370	22	<250	<50	130	<50	48,000	<250	17	48	<250	<50	<50	<50	18	<50	27	2,100	<50	35	<50	17,000	<100	92
MW-100A	04/29/14	880	<50	110	<50	<50	<50	120	<250	<250	520	21 J	<250	<50	160	<50	49,000	<250	20 J	65	<250	<50	<50	<50	21 J	<50	26 J	2,300	<50	25	<50	18,000	<100	90
MW-100A	11/12/14	580	<50	87	570	<50	<50	87	<250	<250	420	17 J	<250	<50	110	<50	45,000	<250	15 J	44 J	260	<50	<50	<50	14 J	<50	<50	1,700	<50	25	<50	12,000	<100	69
MW-100A	04/15/15	720	<100	110	640	<100	<100	110	<500	<500	530	<50	<500	<100	140	<100	41,000	<500	<50	64 J	<500	<100	<100	<100	<50	<100	<100	1,800	<100	<50	<100	13,000	<200	120
MW-100A	12/28/15	240	<10	35	230	<10	<10	52	3,900	<50	600	9.2	<20	<10	60	<10	19,000	<50	6.6	18	<50	<10	<10	<10	7.2	<10	8.2 J	610	10	8	<10	5,700	<20	33
MW-100B	10/30/02	8,000	<1,000	<1,000	2,000	<1,000	<1,000	<1,000	27,000	<5,000	13,000	<1,000	<5,000	<1,000	<1,000	<1,000	12,000	<1,000	<1,000	<2,000	230,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	6,900	<1,000	190,000	<1,000	35,000	NA	<1,000
MW-100B	02/04/03	6,100	<500	<500	1,300	<500	<500	400 J	12,000	<2,500	<2,500	<500	<2,500	<500	290 J	<500	10,000	<500	<500	<1,000	54,000	<500	<500	<500	<500	<500	210 J	5,700	<500	160,000	<500	36,000	<2,500	<500
MW-100B	04/01/03	3,100	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<5,000	<5,000	<5,000	<1,000	<5,000	<1,000	<1,000	<1,000	15,000	<1,000	<1,000	<2,000	31,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	3,400	<1,000	65,000	<1,000	9,200	<5,000J	<1,000
MW-100B	06/01/03	6,100	<1,000	<1,000	1,200	<1,000	<1,000	<1,000	9,200	<5,000	2,400 J	<1,000	<5,000	<1,000	<1,000	<1,000	14,000	<1,000	<1,000	<2,000	37,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	4,900	<1,000	120,000	<1,000	34,000	<5,000	<1,000
MW-100B	09/09/03	6,900	<500	<500	1,500	<500	<500	420 J	9,600	<2,500	<2,500	<500	<2,500	<500	270 J	<500	19,000	<500	<500	<1,000	46,000	<500	<500	<500	<500	<500	<500	5,900	<500	120,000	<500	27,000	<2,500	<500
MW-100B	12/03/03	6,300	<500	<500	1,700	<500	<500	400 J	<2,500	<2,500	24,000 J	<500	<2,500	<500	350 J	<500	30,000	<500	<500	<1,000	48,000	<500	<500	<500J	<500	<500	<500	5,800	<500	100,000	<500	46,000	<2,500J	<500
MW-100B	05/12/04	4,100	<100	<100	1,800	<100	<100	250	4,800	<500	<500	<100	<500	<100	280	<100J	45,000	200	<100	100 J	60,000	<100	<100	<100	<100	<100	200	5,400	<100	98,000	<100	80,000	<500	<100
MW-100B	09/08/04	4,300	<500	<500	1,100	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	59,000	<500	<500	<1,000	20,000	<500	550	<500	<500	<500	<500	4,900	<500	50,000	<500	71,000	<2,500	<500
MW-100B	12/01/04	2,300	<500	<500	1,400	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	310 J	<500	59,000	<500	<500	<1,000	68,000	<500	<500	<500	<500	<500	<500	4,200	<500	64,000	<500	28,000	<2,500	<500
MW-100B	06/08/05	2,800	<200	<200	2,200	<200	<200	340	1,900	<1,000	<1,000	<200	<1,000	<200	340	<200	41,000	640	<200	<400	75,000 J	<200	<200	<200	<200	<200	<200	4,400	<200	43,000	<200	32,000	<1,000	<200
MW-100B	12/19/05	3,300 J	<500	<500	1,500	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	69,000	<500	<500	<1,000	27,000	<500	<500	<500	<500	<500	<500	5,300	1,200	29,000	<500	39,000	<2,500	<500
MW-100B	03/14/06	2,900	<500	<500	1,100	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	73,000	<2,500	<500	<1,000	12,000	<500	<500	<500	<500	<500	<500	4,300	<500	13,000	<500	33,000	<2,500	<500

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																																
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-100B	06/13/06	2,900	<500	<500	960	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	61,000	<2,500	<500	<1,000	10,000	<500	<500	<500	<500	<500	<500	4,200	<500	21,000	<500	28,000	<2,500	<500
MW-100B	09/01/06	2,400	<500	<500	840	<500	<500	<500	5,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	65,000	<2,500	<500	<1,000	1,700	<500	<500	<500	<500	<500	<500	3,600	<500	1,900	<500	26,000	<2,500	<500
MW-100B	04/02/07	2,100	<500	<500	1,000	<500	<500	<500	4,900	<2,500	<2,500	<500	<2,500	<500	<500	<500	67,000	<2,500	<500	<1,000	1,700	<500	<500	<500	<500	<500	<500	3,800	<500	3,100	<500	27,000	<2,500	<500
MW-100B	10/29/07	1,800	<500	<500	1,400	<500	<500	<500	2,800	<2,500	<2,500	<500	<2,500	<500	<500	<500	61,000	<2,500	<500	<1,000	28,000	<500	<500	<500	<500	<500	<500	4,600	<500	27,000	<500	26,000	<2,500	<500
MW-100B	04/14/08	970	NA	<500	790	<500	NA	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	56,000	<2,500	<500	<1,000	32,000	<500	<500	<500	<500	<500	<500	3,300	<500	19,000	<500	6,400	<2,500	<500
MW-100B	10/27/08	1,200	NA	<500	<500	<500	NA	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	55,000	<2,500	<500	<1,000	3,800	<500	<500	<500	<500	<500	<500	3,500	<500	7,800	<500	4,300	<2,500	<500
MW-100B	04/27/09	1,300	NA	<500	640	<500	NA	<500	1,000	<2,500	<2,500	<500	<2,500	<500	<500	<500	56,000	<2,500	<500	<1,000	2,000	<500	<500	<500	<500	<500	<500	3,800	<500	4,100	<500	12,000	<2,500	<500
MW-100B	11/05/09	870	NA	<500	680	<500	NA	<500	4,400	<2,500	<2,500	<500	<2,500	<500	<500	<500	47,000	<2,500	<500	<1,000	890	<500	<500	<500	<500	<500	<500	2,400	<500	<500	<500	25,000	<2,500	<500
MW-100B	05/06/10	81	NA	30	140	<20	NA	26	5,200	<100	1,300	<20	<100	<20	26	<20	14,000	<100	<20	<40	<40	<20	<20	<20	<20	<20	<20	370	<20	<20	<20	2,900	<100	<20
MW-100B	10/13/10	800	<500	<500	540	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	41,000	<2,500	<500	<1,000	660	<500	<500	<500	<500	<500	<500	2,700	<500	2,300	<500	25,000	<2,500	<500
MW-100B	12/02/10	810	<500	<500	700	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	42,000	<2,500	<500	<1,000	8,200	<500	<500	<500	<500	<500	<500	3,300	<500	13,000	<500	13,000	<2,500	<500
MW-100B	01/25/11	700	<500	<500	640	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	36,000	<2,500	<500	<1,000	9,700	<500	<500	<500	<500	<500	<500	2,900	<500	11,000	<500	14,000	<2,500	<500
MW-100B	04/11/11	1,500	<100	<100	930	<100	<100	250	<500	<500	<500	<100	<500	<100	190	<100	56,000	<500	<100	<200	35,000	<100	<100	<100	<100	<100	120	3,700	<100	8,600	<100	31,000	<500	130
MW-100B	08/17/11	1,700	<100	<100	970	<100	<100	270	510	<500	<500	<100	<500	<100	260	<100	56,000	<500	<100	<200	37,000	<100	<100	<100	<100	<100	<100	3,600	380	7,600	100	22,000	<500	110
MW-100B	10/05/11	2,400	<100	110	1,100	<100	<100	300	<500	<500	<500	<100	<500	<100	340	<100	66,000	<500	<100	<200	57,000	<100	<100	<100	<100	<100	<100	3,600	<100	6,900	<100	25,000	<500	110
MW-100B	05/17/12	1,500	<20	94	900	<20	<20	200	<100	<100	<100	<20	<100	<20	230	<20	52,000	<100	25	74	25,000	<20	<20	<20	25	<20	54	3,300	26	3,600	<20	18,000	<100	110
MW-100B	11/07/12	2,000	<200	<200	1,100	<200	<200	210	<1,000	<1,000	<1,000	<200	<1,000	<200	270	<200	80,000	<1,000	<200	<400	29,000	<200	<200	<200	29	<200	<200	3,700	<200	1,700	<200	26,000	<1,000	<200
MW-100B	05/07/13	1,579	6.7	90.05	941	<5	5.45	147.35	1,630	92.3	326.65	24.25	<25	<5	204.55	<5	62,160	135.45	28.3	89.15	10,925	<5	8.9	<5	29.2	6.45	56.6	3,397	24.95	1,139	<5	21,755	<25	94.95
MW-100B	10/13/13	1,300	<50	100	830	<50	<50	150	<250	<250	<250	29	<250	<50	180	<50	63,000	<250	27	77	5,300	<50	<50	<50	26	<50	44	3,300	<50	1,000	<50	21,000	100	91
MW-100B	04/29/14	1,500	<50	110	<50	<50	<50	180	<250	<250	360	28	<250	<50	210	<50	69,000	<250	29	82	2,500	<50	<50	<50	30	<50	34 J	3,300	<50	430	<50	23,000	<100	86
MW-100B	11/12/14	1,100	<50	98	740	<50	<50	130	<250	<250	<250	22 J	<250	<50	150	<50	57,000	<250	20 J	57	1,100	<50	<50	<50	21 J	<50	<50	2,700	<50	820	<50	16,000	<100	90
MW-100B	04/15/15	1,300	<200	120 J	850	<200	<200	<200	<1000	<1000	<1000	<100	<1000	<200	170 J	<200	61,000	<1000	<100	110 J	<1000	<200	<200	<200	<100	<200	<200	2,800	<200	220	<200	19,000	<400	98 J
MW-100B	12/28/15	1,200	<50	110	870	<50	<50	140	3,200	<250	700	30	<100	<50	180	<50	63,000	<250	27	78	<250	<50	<50	<50	27	<50	39 J	2,900	27 J	99	<50	19,000	<100	78
MW-101A	10/30/02	37,000	<100	<100	1,200	<100	<100	<100	2,700	<500	<500	120	<500	<100	590	<100	800	<100	89 J	270	20,000	<100	<100	<100	93 J	72 J	470	13,000	48 J	390,000	<100	56,000	NA	<100
MW-101A	02/04/03	20,000	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000	<25,000	<25,000	31,000	<5,000	<25,000	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000	<10,000	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000	9,400	<5,000	270,000	<5,000	62,000	<25,000	<5,000
MW-101A	04/01/03	22,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<5,000	<5,000	<5,000	<1,000	<5,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<2,000	3,800	<1,000	<1,000	<1,000	<1,000	<1,000	670 J	14,000	<1,000	250,000	<1,000	93,000	<5,000	<1,000
MW-101A	06/01/03	13,000	<500	<500	650	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	340 J	<500	<500	<1,000	4,300	<500	<500	<500	<500	<500	<500	6,500	<500	110,000	<500	42,000	<2,500	<500
MW-101A	09/09/03	11,000	<500	<500	770	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	500 J	<500	<500	<1,000	6,400	<500	<500	<500	<500	<500	<500	4,400	<500	99,000	<500	40,000	<2,500	<500
MW-101A	12/03/03	7,300	<500	<500	<500	<500	<500	<500	<2,500J	<2,500	6,300	<500	<2,500	<500	<500	<500	550	<500	<500	<1,000	5,000	<500	<500	<500	<500	<500	<500	3,100	<500	73,000	<500	14,000	<2,500J	<500
MW-101A	05/12/04	12,000	<500	<500	870	<500	<500	<500	<2,500	<2,500	1,700 J	<500	<2,500	<500	<500	<500J	2,600	<500	<500	<1,000	7,700	<500	<500	<500	<500	<500	<500	5,900	<500	190,000	<500	110,000	<2,500	<500
MW-101A	09/08/04	9,100	<500	<500	570	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	1,200	<500	<500	<1,000	2,000	<500	540	<500	<500	<500	<500	4,100	<500	100,000	<500	92,000	<2,500	<500
MW-101A	12/01/04	5,500	<500	<500	370 J	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	800	<500	<500	<1,000	1,800	<500	<500	<500	<500	<500	<500	2,700	<500	76,000	<500	24,000	<2,500	<500
MW-101A	06/08/05	9,000	<200	<200	630	<200	<200	<200	<1,000	<1,000	2,000	<200	<1,000	<200	<200	<200	1,000	<200	<200	<400	2,900 J	<200	<200	<200	<200	<200	160 J	3,100	<200	62,000	<200	34,000	<1,000	<200
MW-101A	12/19/05	8,200	<500	<500	500	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	4,400	<500	<500	<1,000	1,500	<500	<500	<500	<500	<500	<500	4,100	<500	91,000	<500	37,000	<2,500	<500
MW-101A	03/14/06	6,000	<500	<500	<500	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	3,400	<2,500	<500	<1,000	770	<500	<500	<500	<500	<500	<500	3,100	<500	64,000	<500	33,000	<2,500	<500
MW-101A	06/13/06	5,400	<500	<500	520	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	1,900	<2,500	<500	<1,000	800	<500	<500	<500	<500	<500	<500	2,800	<500	66,000	<500	31,000	<2,500	<500
MW-101A	09/01/06	3,600	<500	<500	<500	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	1,100	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	1,600	<500	36,000	<500	15,000	<2,500	<500
MW-101A	04/02/07	4,500	<500	<500	550	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	5,900	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	2,600	<500	54,000	<500	32,000	<2,500	<500
MW-101A	10/29/07	1,900	<500	<500	<500	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	1,000	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	1,000	<500	23,000	<500	16,000	<2,500	<500
MW-101A	04/14/08	4,300	NA	<500	<500	<500	NA	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	9,300	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	2,400	<500	48,000	<500	32,000	<2,500	<500
MW-101A	10/27/08	4,900	NA	<500	<500	<500	NA	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	12,000	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	2,600	<500	57,000	<500	31,000	<2,500	<500
MW-101A	04/27/09	4,300	NA	<250	420	<250	NA	<250	<1,250	<1,250	<1,250	<250	<1,250	<250	<250	<250	16,000	<1,250	<250	<500	<250	<250	<250	<250	<250	<250	<250	1,600	<250	41,000	<250	34,000	<1,250	<250
MW-101A	11/05/09	5,400	NA	<500	510	<500	NA	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	12,000	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	2,700	<500	55,000	<500	29,000	<2,500	<500
MW-101A	05/05/10	3,900	NA	<100	<100	<100	NA	<100	<500	<500	2,500	<100	<500	<100	<100	<100	14,000	<500	<100	<200	220	<100	<100	<100	<100	<100	120	2,500	<100	38,000	<100	32,000	<500	<100
MW-101A	10/13/10	3,700	<500	<500	<500	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	5,600	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	1,900	<500	44,000	<500	23,000	<2,500	<500
MW-101A	12/02/10	1,600	<500	<500	<500	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	15,000	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	1,100	<500	13,000	<500	21,000	<2,500	<500
MW-101A	01/25/11	1,000	<500	<500	<500	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	13,000	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	810	<500	1,600	<500	22,000	<2,500	<500

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																															
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-101A	04/11/11	1,100	<20	<20	140	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	<20	8,300	<100	<20	<40	<20	<20	<20	<20	<20	<20	97	630	<20	790	<20	42,000	<100	<20
MW-101A	08/16/11	720	<20	<20	120	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	<20	1,700	<100	<20	<40	<20	<20	<20	<20	25	<20	49	260	<20	940	<20	22,000	<100	<20
MW-101A	10/05/11	820	<50	<50	<50	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	2,700	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	310	<50	1,800	<50	24,000	<250	<50
MW-101A	05/17/12	160	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	<20	470	<100	<20	<40		<20	<20	<20		<20	40	94	<20	310	<20	9,800	<100	<20
MW-101A	11/07/12	60	<5	<5	<5	<5	<5	<5	<25	<25	<25	<5	<5	<5	<5	<5	140	<5	<5	<10		<5	<5	<5		<5	10	24	<5	86	<5	3,300	<5	<5
MW-101A	05/07/13	56.45	<5	<5	<5	<5	<5	<5	101.4	<25	<25	<5	<25	<5	5.15	<5	186.45	<25	<5	<10	<5	<5	<5	<5	<5	<5	17.7	29.05	<5	106.45	<5	4,728	<25	<5
MW-101A	10/13/13	31	<10	<10	<10	<10	<10	<10	<50	<50	<50	<5	<50	<10	<10	<10	34	<50	<5	<10	<50	<10	<10	<10	<5	<10	9.4	4.8	<10	32	<10	4,900	<20	<5
MW-101A	04/29/14	19	<10	<10	<10	<10	<10	<10	<50	<50	<50	<5	<50	<10	<10	<10	350	<50	3 J	9.3 J	<50	<10	<10	<10	<5	<10	19	32	<10	100	<10	6,600	<20	<5
MW-101A	11/12/14	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	<5.0	<50	<10	<10	<10	22	<50	<5.0	<10	<50	<10	<10	<10	<5.0	<10	<10	<5.0	<10	12	<10	2,200	<20	<5.0
MW-101A	04/15/15	3.9	<1.0	0.59 J	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	48	<5.0	0.34 J	1.2	<5.0	<1.0	<1.0	<1.0	0.32 J	<1.0	2.5	2.5	<1.0	5.9	<1.0	710	<2.0	<0.50
MW-101A	12/28/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	<1.0	<1.0	11	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	7.2	<1.0	320	<2.0	0.58
MW-101B	10/30/02	18,000	<500	<500	1,800	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	450 J	<500	1,000	<500	<500	<1,000	13,000	<500	<500	<500	<500	<500	330 J	9,000	<500	380,000	<500	39,000	NA	<500
MW-101B	02/04/03	8,700	<500	<500	1,300	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	260 J	380 J	<500	700	<500	<500	<1,000	10,000	<500	<500	<500	<500	<500	<500	4,400	<500J	120,000	<500	34,000	<2,500J	<500
MW-101B	04/01/03	9,100	<1,000	<1,000	1,200	<1,000	<1,000	<1,000	<5,000	<5,000	<5,000	<1,000	<5,000	<1,000	<1,000	<1,000	870 J	<1,000	<1,000	<2,000	11,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	5,000	<1,000	140,000	<1,000	33,000	<5,000J	<1,000
MW-101B	06/01/03	9,800	<500	<500	1,300	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	330 J	<500	900	<500	<500	<1,000	8,300	<500	<500	<500	<500	<500	<500	4,400	<500	130,000	<500	26,000	<2,500	<500
MW-101B	09/09/03	8,800	<500	<500	1,400	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	350 J	<500	1,200	<500	<500	<1,000	10,000	<500	<500	<500	<500	<500	<500	4,600	<500	130,000	<500	21,000	<2,500	<500
MW-101B	12/03/03	7,500	<500	<500	1,400	<500	<500	<500	<2,500	<2,500	19,000 J	<500	<2,500	<500	320 J	<500	1,400	<500	<500	<1,000	8,000	<500	<500	<500J	<500	<500	<500	3,700	<500	94,000	<500	43,000	<2,500J	<500
MW-101B	05/12/04	8,100	<500	<500	1,200	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500J	1,300	<500	<500	<1,000	8,100	<500	<500	<500	<500	<500	<500	4,100	<500	150,000	<500	83,000	<2,500	<500
MW-101B	09/08/04	7,400	<500	<500	620	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	2,100	<500	<500	<1,000	2,300	<500	590	<500	<500	<500	<500	3,500	<500	93,000	<500	73,000	<2,500	<500
MW-101B	12/01/04	8,200 J	<500	<500J	850	<500	<500	<500	<2,500J	<2,500	<2,500J	<500	<2,500	<500J	<500J	<500J	2,300	<500	<500	<1,000	3,600	<500	<500J	<500	<500J	<500	150 J	3,600	<500	99,000	<500	47,000	<2,500J	<500J
MW-101B	06/08/05	8,100	<200	<200	1,100	<200	<200	<200	<1,000	<1,000	<1,000	<200	<1,000	<200	<200	<200	10,000	<200	<200	<400	6,200 J	<200	<200	<200	<200	<200	<200	3,100	<200	79,000	<200	42,000	<1,000	<200
MW-101B	12/19/05	6,200	<500	<500	1,300	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	27,000	<500	<500	<1,000	4,500	<500	<500	<500	<500	<500	<500	3,900	<500	69,000	<500	35,000	<2,500	<500
MW-101B	03/14/06	4,900	<500	<500	1,100	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	28,000	<2,500	<500	<1,000	3,000	<500	<500	<500	<500	<500	<500	3,400	<500	58,700	<500	31,200	<2,500	<500
MW-101B	06/13/06	4,900	<500	<500	1,100	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	24,000	<2,500	<500	<1,000	2,600	<500	<500	<500	<500	<500	<500	3,400	<500	64,000	<500	29,000	<2,500	<500
MW-101B	09/01/06	4,300	<500	<500	1,100	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	31,000	<2,500	<500	<1,000	2,600	<500	<500	<500	<500	<500	<500	3,100	<500	44,000	<500	29,000	<2,500	<500
MW-101B	04/02/07	3,500	<500	<500	1,200	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	22,000	<2,500	<500	<1,000	2,400	<500	<500	<500	<500	<500	<500	2,800	<500	53,000	<500	29,000	<2,500	<500
MW-101B	10/29/07	3,000	<500	<500	1,200	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	20,000	<2,500	<500	<1,000	2,400	<500	<500	<500	<500	<500	<500	2,700	<500	46,000	<500	28,000	<2,500	<500
MW-101B	04/14/08	2,300	NA	<500	790	<500	NA	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	23,000	<2,500	<500	<1,000	1,700	<500	<500	<500	<500	<500	<500	1,800	<500	28,000	<500	19,000	<2,500	<500
MW-101B	10/27/08	27,000	NA	2,000	<500	550	NA	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	<2,500	<500	<1,000	1,200	<500	<500	<500	<500	<500	<500	1,800	<500	22,000	<500	20,000	<2,500	<500
MW-101B	04/27/09	640	NA	2,300	<500	<500	NA	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	32,000	<2,500	<500	<1,000	940	<500	<500	<500	<500	<500	<500	1,800	<500	14,000	<500	17,000	<2,500	<500
MW-101B	11/05/09	1,700	NA	<500	<500	<500	NA	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	28,000	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	1,200	<500	1,100	<500	14,000	<2,500	<500
MW-101B	05/05/10	1,700	NA	<100	400	<100	NA	<100	<500	<500	870	<100	<500	<100	<100	<100	34,000	<500	<100	<200	240	<100	<100	<100	<100	<100	<100	1,200	<100	1,500	<100	12,000	<500	<100
MW-101B	10/13/10	1,500	<500	<500	<500	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	30,000	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	1,400	<500	4,500	<500	14,000	<2,500	<500
MW-101B	12/02/10	1,500	<500	<500	<500	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	29,000	<500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	1,200	<500	1,800	<500	11,000	<2,500	<500
MW-101B	01/25/11	77	<20	<20	26	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	<20	2,800	<20	<20	<40	20	<20	<20	<20	<20	<20	<20	47	<20	<20	<20	300	<20	<20
MW-101B	04/11/11	83	<5	<5	23	<5	<5	<5	<25	<25	<25	<5	<5	<5	<5	<5	2,000	<5	<5	<10	10	<5	<5	<5	<5	<5	<5	71	<5	<5	<5	660	<5	<5
MW-101B	08/16/11	1,500	<20	42	230	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	<20	23,000	<20	<20	<40	52	<20	<20	<20	<20	<20	37	1,100	99	1,300	<20	10,000	<20	<20
MW-101B	10/05/11	770	<20	23	<20	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	<20	8,200	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	560	<20	110	<20	5,600	<20	<20
MW-101B	05/17/12	1,200	<20	31	190	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	<20	16,000	<20	<20	42	<20	<20	<20	<20	<20	<20	50	1,300	<20	360	<20	17,000	<20	<20
MW-101B	11/07/12	610	<10	17	120	<10	<10	<10	<50	<50	<50	<10	<10	<10	<10	<10	9,400	<10	12	38	<10	<10	<10	<10	12	<10	47	840	<10	410	<10	13,000	<50	<10
MW-101B	05/07/13	501.6	<5	13.75	100.25	<5	<5	<5	143.2	<25	<25	<5	<25	<5	10.95	<5	8,599	39.25	12.65	40.8	13.55	<5	<5	<5	11.7	<5	60.5	773.7	<5	399.45	<5	17,615	<25	<5
MW-101B	10/13/13	490	<20	13	85	<20	<20	<20	<100	<100	<100	<10	<100	<20	<20	<20	9,200	<100	13	38	<100	<20	<20	<20	11	<20	64	750	<20	110	<20	17,000	<40	<10
MW-101B	04/29/14	460	<20	14 J	<20	<20	<20	<20	<100	<100	<100	<10	<100	<20	<20	<20	9,100	<100	12	37	<100	<20	<20	<20	11	<20	49	680	<20	40	<20	15,000	<40	<10
MW-101B	11/12/14	0.54 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	120	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	0.64 J	0.31 J	0.54 J	40	<1.0	7.4	<2.0	<0.50
MW-101B	04/14/15	27	<1.0	0.93 J	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	510	<5.0	<0.50	0.58 J	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	2.1	4.2	<1.0	19	<1.0	680	<2.0	<0.50
MW-101B	12/28/15	0.6 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	<1.0	<1.0	110	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	0.87 J	<0.50	0.72 J	64	<1.0	9.2	<2.0	<0.50

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																															
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-102A	10/30/02	180	<100	<100	<100	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	51 J	<100	<100	<200	**130**	<100	<100	<100	<100	<100	<100	220	<100	**6,200**	<100	3,700	NA	<100
MW-102A	02/04/03	180	<50	<50	48 J	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	**86**	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	130	<50	**3,500**	<50	4,600	<250	<50
MW-102A	04/01/03	83	<25	<25	<25	<25	<25	<25	<120	<120	<120	<25	<120	<25	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	67	<25	**1,200**	<25	970	<120	<25
MW-102A	06/01/03	45	<10	<10	20	<10	<10	<10	<50	<50	<50	<10	<50	<10	<10	<10	5.2 J	14	<10	<20	<10	<10	<10J	<10	<10	<10	<10	28	<10	**760**	<10	4,100	<50J	<10
MW-102A	09/09/03	77	<50	<50	25 J	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	56	<50	<50	<100	**60**	<50	<50	<50	<50	<50	<50	73	<50	**1,700**	<50	2,500	<250	<50
MW-102A	12/03/03	<25	<25	<25	<25	<25	<25	<25	<120J	<120	1,500	<25	<120	<25	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25	**25 J**	<25	3,300	<120J	<25
MW-102A	05/12/04	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<100	<20	<20	<20J	<20	<20	<20	<40	**100**	<20	<20	<20	<20	<20	<20	<20	<20	**33**	<20	6,500	<100	<20
MW-102A	09/08/04	<10	<10	<10	<10	<10	<10	<10	<50J	<50J	<50	<10	12 J	<10	<10	<10	<10	<10	<10	<20	<10	<10	<10	<10J	<10	<10	<10	<10	<10	**25**	<10	4,100	<50J	<10
MW-102A	12/01/04	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	<10	<50	<10	<10	<10	<10	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	**22**	<10	2,600	<50	<10
MW-102A	06/08/05	<5	<5	<5	<5	<5	<5	<5	<25	<25	<25J	<5	<25	<5	<5	<5	6.5	<5	<5	5.2 J	<5	<5	**7.6**	6.2	<5	<5	<5	<5	<5	**11**	<5	1,500	<25	<5
MW-102A	12/19/05	2.8	<1	<1	2.2	<1	<1	<1	8.2	<5	<5	<1	<5	<1	<1	<1	29	1.6	<1	<2	1.6	<1	<1	<1	<1	<1	<1	4.4	<1	**44**	<1	580	<5	<1
MW-102A	06/14/06	<1	<1	<1	4.4	<1	<1	<1	10	<5	5.3	<1	<5	<1	<1	<1	17	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	1.9	<1	**14**	<1	1,500	<5	<1
MW-102A	09/01/06	<5	<5	<5	<5	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	8.6	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	**14**	<5	1,000	<25	<5
MW-102A	04/02/07	23	<5	<5	13	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	61	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	62	<5	**920**	<5	1,800	<25	<5
MW-102A	10/29/07	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	8	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**11**	<1	1,400	<5	<1
MW-102A	04/14/08	<1	NA	<1	6	<1	NA	<1	5	<5	11	<1	<5	<1	<1	<1	8	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**6**	<1	1,400	<5	<1
MW-102A	10/27/08	6	NA	<1	4	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	6	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1,600	<5	<1
MW-102A	04/27/09	<1	NA	<1	13	<1	NA	<1	5	<5	5.2	<1	<5	<1	<1	<1	15	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**7.4**	<1	2,000	<5	<1
MW-102A*	11/04/09	<5	NA	<5	5.8	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	11	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1,500	<25	<5
MW-102A	05/05/10	<1	NA	<1	8.2	<1	NA	<1	<5	<5	130	<1	<5	<1	<1	<1	17	<5	<1	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	**3.4**	<1	1,400	<5	<1
MW-102A	10/13/10	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<100	<20	<20	<20	<20	<100	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	890	<100	<20
MW-102A	12/02/10	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	<20	<20	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	760	<20	<20
MW-102A	01/25/11	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	<10	<10	<10	<10	<10	19	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	1,300	<50	<10
MW-102A	04/11/11	<1	<1	<1	9.2	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	23	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.5	<1	1,900	<5	<1
MW-102A	08/16/11	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	<20	<20	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	710	<20	<20
MW-102A	10/05/11	<2	<2	<2	<2	<2	<2	<2	<10	<10	<10	<2	<2	<2	<2	<2	18	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	1,200	<2	<2
MW-102A	05/17/12	<2	<2	<2	<2	<2	<2	<2	<10	<10	<10	<2	<2	<2	<2	<2	23	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	920	<2	<2
MW-102A	11/07/12	<1	<1	<1	9.1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	20	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.8	<1	830	<5	<1
MW-102A	05/07/13	<1	<1	<1	15.91	<1	<1	<1	5.93	<5	<5	<1	<5	<1	<1	<1	34.67	59	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.08	<1	710	<5	<1
MW-102A	10/13/13	<1	<1	<1	13	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	25	<5	<0.5	<1	<5	<1	<1	<1	<0.5	<1	<1	0.27	<1	0.65	<1	580	<2	<0.5
MW-102A	04/29/14	<2	<2	<2	<2	<2	<2	<2	<10	<10	<10	<1	<10	<2	<2	<2	32	<10	<1	<2	<10	<2	<2	<2	<1	<2	<2	<1	<2	<1	<2	580	<4	<1
MW-102A	11/12/14	<1.0	<1.0	<1.0	12	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	21	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	0.36 J	<1.0	0.41 J	<1.0	450	<2.0	<0.50
MW-102A	04/14/15	<1.0	<1.0	<1.0	17	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	2.9	<1.0	<1.0	33	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	0.9	<1.0	1.8	<1.0	300	<2.0	**0.59**
MW-102A	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	<1.0	<1.0	19	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	0.46 J	<1.0	300	<2.0	<0.50
MW-102B	10/30/02	59 J	<100	<100	70 J	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	**75 J**	<100	<100	<200	<100	<100	<100	<100	<100	<100	<100	<100	<100	**7,400**	<100	1,600	NA	<100
MW-102B	02/04/03	**1,700**	<100	<100	270	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	48 J	<100	<100	<200	**58 J**	<100	<100	<100	<100	<100	46 J	**820**	<100	**31,000**	<100	24,000	<500	<100
MW-102B	04/01/03	**670**	<100	<100	100	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	<100	<100	<100	<200	<100	<100	<100	<100	<100	<100	<100	380	<100	**11,000**	<100	6,900	<500J	<100
MW-102B	06/01/03	**900**	<100	<100	200	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	<100	<100	<100	<200	**100**	<100	<100	<100	<100	<100	<100	450	<100	**17,000**	<100	15,000	<500	<100
MW-102B	09/09/03	**740**	<100	<100	210	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	**75 J**	<100	<100	<200	**57 J**	<100	<100	<100	<100	<100	<100	390	<100	**14,000**	<100	12,000	<500	<100
MW-102B	12/03/03	**480**	<100	<100	190	<100	<100	<100	<500	<500	<5,000	<100	<500	<100	<100	<100	57 J	<100	<100	<200	<100	<100	<100	<100J	<100	<100	<100	220	<100	**9,100**	<100	14,000	<500J	<100
MW-102B	05/12/04	**290**	<100	<100	160	<100	<100	<100	<500	<500	320 J	<100	<500	<100	<100	<100	<100	<100	<100	<200	<100	<100	<100	<100	<100	<100	<100	200	<100	**11,000**	<100	17,000	<500	<100
MW-102B	09/08/04	**290**	<50	<50	<50	<50	<50	<50	<250J	<250J	<250	<50	<250	<50	<50	<50	53	<50	<50	<100	<50	<50	<50	<50J	<50	<50	<50	190	<50	**10,000**	<50	20,000	<250J	<50
MW-102B	12/01/04	**310**	<50	<50	170	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	60	<50	<50	<100	**72**	<50	<50	<50	<50	<50	<50	160	<50	**10,000**	<50	11,000	<250	<50
MW-102B	06/08/05	140	<20	<20	110 J	<20	<20	<20	<100	<100	<100J	<20	<100	<20	<20	<20	33	<20	<20	<40	**23**	<20	<20	<20	<20	<20	<20	110	<20	**5,500**	<20	7,900	<100	<20
MW-102B	12/19/05	200	<50	<50	170	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	**94**	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	150 J	<50	**8,800**	<50	9,500	<250	<50
MW-102B	06/14/06	110	<50	<50	98	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	**730**	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	100	<50	**5,500**	<50	5,800	<250	<50
MW-102B	09/01/06	110	<50	<50	110	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	**2,000**	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	87	<50	**3,300**	<50	6,700	<250	<50

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																																
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-102B	04/02/07	97	<50	<50	130	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	3,200	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	110	<50	2,800	<50	7,000	<250	<50
MW-102B	10/29/07	71	<50	<50	120	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	2,400	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	83	<50	2,300	<50	6,700	<250	<50
MW-102B	04/14/08	57	NA	<5	130	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	2,900	<25	<5	<10	<5	<5	<5	<5	<5	<5	7	76	<5	1,100	<5	6,500	<25	<5
MW-102B	10/27/08	41	NA	<5	96	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	2,600	<25	<5	<10	7	<5	<5	<5	<5	<5	8	63	<5	800	<5	3,900	<25	<5
MW-102B	04/27/09	<500	NA	<500	<500	<500	NA	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	2,600	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	<500	<500	550	<500	6,000	<2,500	<500
MW-102B	11/04/09	17	NA	<5	71	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	1,100	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	13	<5	590	<5	3,900	<25	<5
MW-102B	05/05/10	21	NA	<5	100	<5	NA	<5	35	<25	<25	<5	<25	<5	<5	<5	1,400	<25	<5	<10	<10	<5	<5	<5	<5	<5	<5	22	<5	330	<5	4,700	<25	<5
MW-102B	10/13/10	<50	<50	<50	89	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	810	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	480	<50	3,400	<250	<50
MW-102B	12/02/10	<50	<50	<50	<50	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	410	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	78	<50	1,600	<250	<50
MW-102B	01/25/11	<50	<50	<50	<50	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	550	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	3,300	<250	<50
MW-102B	04/11/11	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	<10	<10	<10	<10	<10	1,500	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	810	<10	<10	<10	4,700	<50	<10
MW-102B	08/16/11	21	<10	<10	67	<10	<10	<10	100	<50	71	<10	<10	<10	<10	<10	1,100	<10	<10	<20	<10	<10	<10	<10	11	<10	<10	51	<10	<10	<10	3,700	<50	<10
MW-102B	10/05/11	19	<10	<10	63	<10	<10	<10	<50	<50	<50	<10	<10	<10	<10	<10	910	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	54	<10	<10	<10	4,100	<50	<10
MW-102B	05/17/12	<2	<2	<2	<2	<2	<2	<2	<10	<10	<10	<2	<2	<2	<2	<2	910	<10	<2	<4	<2	<2	<2	<2	<2	<2	4.3	<2	47	5	<2	3,600	<10	2.5
MW-102B	11/07/12	9.7	<2	<2	79	<2	<2	<2	<10	<10	<10	<2	<2	<2	<2	<2	630	<10	<2	<4	<2	<2	<2	<2	2.4	<2	3.5	<2	35	1.2	<2	2,900	<10	<2
MW-102B	05/07/13	6.83	<1	1.28	68.08	<1	<1	<1	23.2	<5	7.57	<1	<5	<1	1.07	<1	451.5	121.34	<1	2.31	<1	<1	<1	<1	<1	<1	3.59	28.33	<1	1.15	<1	2,670	<5	1.76
MW-102B	10/13/13	5.8	<5	<5	69	<5	<5	<5	<25	<25	<25	<2.5	<25	<5	<5	<5	580	<25	<2.5	2.3	<25	<5	<5	<5	<2.5	<5	3.8	36	<5	<2.5	<5	2,500	<10	<2.5
MW-102B	04/29/14	6	<5	<5	<5	<5	<5	<5	<25	<25	<25	<2.5	<25	<5	<5	<5	520	<25	<2.5	2.5 J	<25	<5	<5	<5	<2.5	<5	3.6 J	32	<5	1.8 J	<5	2,300	<10	2.8
MW-102B	11/12/14	3.6	<2.0	1.1 J	31	<2.0	<2.0	<2.0	<10	<10	<10	<1.0	<10	<2.0	<2.0	<2.0	420	<10	<1.0	1.4 J	<10	<2.0	<2.0	<2.0	<1.0	<2.0	2.3	21	<2.0	<1.0	<2.0	860	<4.0	3.5
MW-102B	04/14/15	5	<1.0	1.3	33	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	510	<5.0	0.71	2	<5.0	<1.0	<1.0	<1.0	0.64	<1.0	1.5	27	<1.0	0.85	<1.0	1,200	<2.0	3
MW-102B	12/29/15	0.6 J	<1.0	0.55 J	14	<1.0	<1.0	<1.0	12	<5.0	8.1	<0.50	<2.0	<1.0	<1.0	<1.0	160	<5.0	<0.50	0.71 J	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	1	6.5	<1.0	<0.50	<1.0	87	<2.0	2
MW-102C	10/30/02	74	<50	<50	94	<50	<50	31 J	<250	<250	<250	<50	<250	<50	25 J	<50	91	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	43 J	<50	8,000	<50	2,500	NA	<50
MW-102C	02/04/03	<50	<50	<50	51	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	410	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	110	<50	4,200	<50	1,800	<250	<50
MW-102C	04/01/03	91	<10	<10	26	<10	<10	<10	<50	<50	<50	<10	<50	<10	5.2 J	<10	380	<10	<10	<20	<10	<10	<10	<10	<10	<10	5.9 J	66	<10	2,100	<10	1,600	<50	<10
MW-102C	06/01/03	17	<5	<5	12	<5	<5	3.2 J	26	<25	140	<5	<25	<5	3.1 J	<5	130	<5	<5	<10	<5	<5	<5J	<5	<5	<5	<5	6.7	<5	920	<5	530	<25J	<5
MW-102C	09/09/03	49	<10	<10	42	<10	<10	7.9 J	<50	<50	<50	<10	<50	<10	7.7 J	<10	100	<10	<10	<20	8.1 J	<10	<10	<10	<10	<10	<10	16	<10	2,600	<10	990	<50	<10
MW-102C	12/03/03	55	<10	<10	<10	<10	<10	11	<50J	<50	570	<10	<50	<10	11	<10	230	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	17	<10	2,300	<10	1,200	<50J	<10
MW-102C	05/12/04	34	<10	<10	67	<10	<10	<10	24 J	<50	190	<10	<50	<10	<10	<10	240	24	<10	<20	<10	<10	<10	<10	<10	<10	<10	25	<10	2,700	<10	2,300	<50	<10
MW-102C	09/08/04	50	<20	<20	82	<20	<20	<20	<100J	<100J	<100	<20	<100	<20	<20	<20	210	<20	<20	<40	<20	<20	<20	<20J	<20	<20	<20	17 J	<20	3,500	<20	3,200	<100J	<20
MW-102C	12/01/04	39	<20	<20	82	<20	<20	<20	<100	<100	<100	<20	<100	<20	<20	<20	220	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	13 J	<20	3,700	<20	1,800	<100	<20
MW-102C	06/08/05	26	<20	<20	<20	<20	<20	<20	<100	<100	<100J	<20	<100	<20	<20	<20	240	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	3,900	<20	1,800	<100	<20
MW-102C	12/19/05	<5	<5	<5	46	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	300	5.8	<5	<10	<5	<5	<5	<5	<5	<5	<5	8.3 J	<5	2,100	<5	1,000	<25	<5
MW-102C	06/16/06	32	<5	<5	110	<5	<5	<5	32	<25	27	<5	<25	<5	7.2	<5	460	<25	<5	<10	<5	<5	<5	<5	<5	<5	5.9	21	<5	6,800	<5	3,300	<25	<5
MW-102C	09/01/06	<50	<50	<50	130	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	640	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	5,800	<50	2,400	<250	<50
MW-102C	04/02/07	12	<10	<10	61	<10	<10	<10	<50	<50	<50	<10	<50	<10	<10	<10	870	<50	<10	<20	<10	<10	<10	<10	<10	<10	<10	11	<10	2,500	<10	1,500	<50	<10
MW-102C	10/29/07	<100	<100	<100	380	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	5,400	<500	<100	<200	<100	<100	<100	<100	<100	<100	<100	<100	<100	12,000	<100	5,800	<500	<100
MW-102C	04/14/08	<100	NA	<100	170	<100	NA	<100	<500	<500	<500	<100	<500	<100	<100	<100	2,400	<500	<100	<200	<100	<100	<100	<100	<100	<100	<100	<100	<100	4,700	<100	2,500	<500	<100
MW-102C	10/27/08	<100	NA	<100	200	<100	NA	<100	<500	<500	<500	<100	<500	<100	<100	<100	4,800	<500	<100	<200	<100	<100	<100	<100	<100	<100	<100	<100	<100	6,000	<100	3,600	<500	<100
MW-102C	04/27/09	61	NA	<50	420	<50	NA	<50	<250	<250	<250	<50	<250	<50	<50	<50	14,000	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	110	<50	6,900	<50	4,400	<250	<50
MW-102C*	11/04/09	84	NA	<50	550	<50	NA	<50	<250	<250	<250	<50	<250	<50	<50	<50	24,000	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	150	<50	790	<50	8,900	<250	<50
MW-102C	05/05/10	110	NA	<100	900	<100	NA	<100	<500	<500	<500	<100	<500	<100	<100	<100	37,000	<500	<100	<200	<200	<100	<100	<100	<100	<100	<100	250	<100	3,000	<100	9,700	<500	<100
MW-102C	10/13/10	<500	<500	<500	720	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	25,000	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	<500	<500	5,900	<500	9,600	<2,500	<500
MW-102C	12/02/10	<500	<500	<500	1,200	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	46,000	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	<500	<500	2,000	<500	13,000	<2,500	<500
MW-102C	01/25/11	<500	<500	<500	950	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	<500	<500	<500	36,000	<2,500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	570	<500	8,000	<500	9,700	<2,500	<500
MW-102C	04/11/11	<100	<100	<100	<100	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	30,000	<500	<100	<200	<100	<100	<100	<100	<100	<100	<100	690	<100	13,000	<100	11,000	<500	<100
MW-102C	08/16/11	140	<100	<100	1,200	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	32,000	<500	<100	<200	110	<100	<100	<100	<100	<100	<100	740	160	21,000	<100	9,800	<500	<100
MW-102C	10/05/11	<20	<20	<20	1,100	<20	<20	<20	<100	<100	<100	<20	<100	<20	59	<20	29,000	<100	<20	<40	130	<20	<20	<20	<20	<20	27	1,000	<20	21,000	<20	10,000	<100	<20

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																																
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-102C	05/17/12	<20	<20	<20	1,200	<20	<20	<20	<100	<100	<100	<20	<100	<20	56	<20	44,000	<100	<20	<40	170	<20	<20	<20	20	<20	<20	700	<20	4,700	<20	9,500	<100	<20
MW-102C	11/07/12	160	<50	<50	1,500	<50	<50	<50	<250	<250	<250	<50	<250	<50	59	<50	48,000	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	1,500	<50	12,000	<50	14,000	<250	<50
MW-102C	05/07/13	104.5	<50	<50	1,023	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	37,880	<250	<50	<100	112	<50	<50	<50	<50	<50	<50	1,126	<50	5,345	<50	9,050	<250	<50
MW-102C	10/13/13	100	<50	<50	1,200	<50	<50	<50	<250	<250	<250	13	<250	<50	57	<50	48,000	<250	10	32	<250	<50	<50	<50	9.1	<50	32	1,700	<50	5,100	<50	13,000	<100	<25
MW-102C	04/29/14	74	<20	<20	790	<20	<20	<20	<100	<100	<100	8.6 J	<100	<20	32	<20	33,000	<100	9.3 J	26	110	<20	<20	<20	<10	<20	21	1,200	<20	1,800	<20	10,000	<40	<10
MW-102C	11/12/14	100	<50	<50	1,100	<50	<50	<50	<250	<250	<250	<25	<250	<50	35 J	<50	41,000	<250	<25	31 J	310	<50	<50	<50	9.6 J	<50	37 J	1,800	<50	8,300	<50	10,000	<100	<25
MW-102C (	04/14/15	79	<50	<50	980	<50	<50	<50	<250	<250	<250	<25	<250	<50	30 J	<50	38,000	<250	<25	<50	360	<50	<50	<50	<25	<50	<50	1,300	<50	5,400	<50	8,100	<100	<25
MW-102C	12/29/15	27	<10	<10	<10	<10	<10	<10	62	<50	130	<5.0	<20	<10	16	<10	17,000	<50	5.1	17	56	<10	<10	<10	5.7	<10	13	620	<10	210	<10	7,900	<20	<5.0
MW-103A	10/30/02	<1	<1	0.44 J	<1	<1	<1	0.91 J	<5	<5	<5	0.59 J	<5	<1	2.8	1.6	88	19	<1	<2	0.92 J	7.8	<1	<1	<1	<1	0.63 J	0.61 J	<1	36	1.3	5,700	NA	<1
MW-103A	02/04/03	<500	<500	<500	<500	<500	<500	<500	<2,500	<2,500	<2,500	<500	<2,500	280 J	<500	<500	290 J	<500	<500	<1,000	<500	<500	<500	<500	<500	<500	<500	<500	<500J	<500	<500	25,000	<2,500J	<500
MW-103A	04/01/03	<250	<250	<250	<250	<250	<250	<250	<1,200	<1,200	<1,200	<250	<1,200	<250	<250	<250	540	<250	<250	<500	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	16,000	<1,200	<250
MW-103A	06/01/03	<50	<50	<50	47 J	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	720	60	<50	<100	<50	<50	<50J	<50	<50	<50	<50	<50	<50	72	<50	12,000	<250J	<50
MW-103A	09/09/03	<100	<100	<100	82 J	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	1,000	<100	<100	<200	67 J	<100	<100	<100	<100	<100	<100	<100	<100	230	<100	25,000	<500	67 J
MW-103A	12/03/03	<100	<100	<100	<100	<100	<100	<100	<500J	<500	5,400	<100	<500	<100	<100	<100	1,100	<100	<100	<200	<100	<100	<100	<100	<100	<100	<100	<100	<100	88 J	<100	12,000	<500J	60 J
MW-103A	05/12/04	<50	<50	<50	61	<50	<50	<50	<250	<250	810	<50	<250	<50	<50	<50	1,800	130	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	52	<50	21,000	<250	61
MW-103A	09/08/04	<20	<20	14 J	<20	<20	<20	30	<100J	<100J	<100	<20	<100	<20	10 J	<20	3,900	<20	<20	<40	<20	<20	<20	<20J	<20	<20	<20	12 J	<20	27	<20	9,800	<100J	35
MW-103A	12/01/04	<100	<100	<100	<100	<100	<100	<100	<500	<500	460 J	<100	<500	<100	<100	<100	1,700	<100	<100	<200	<100	<100	<100	<100	<100	<100	<100	<100	<100	100	<100	17,000	<500	<100
MW-103A	06/08/05	<10	<10	<10	15 J	<10	<10	<10	<50	<50	<50J	<10	<50	<10	<10	<10	720	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	35	<10	2,800	<50	18
MW-103A	12/19/05	<5	<5	<5	6.4	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	380	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	5.7	23	<5	1,900	<25	8.7
MW-103A	06/14/06	<5	<5	<5	9.9	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	360	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	8.4	<5	9.2	<5	4,800	<25	8.3
MW-103A	09/01/06	<5	<5	<5	47	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	320	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	27	<5	13,000	<25	20
MW-103A	04/02/07	<5	<5	<5	25	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	230	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	20	<5	9,600	<25	18
MW-103A	10/29/07	<5	<5	<5	27	<5	<5	11	<25	<25	<25	<5	<25	<5	<5	<5	670	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	15	<5	56	<5	6,600	<25	41
MW-103A	04/14/08	<5	NA	<5	40	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	250	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	22	<5	13,000	<25	13
MW-103A	10/27/08	<5	NA	<5	15	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	210	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	14	<5	4,900	<25	11
MW-103A	04/28/09	<5	NA	<5	19	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	130	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	12	<5	4,500	<25	8
MW-103A	11/04/09	<20	NA	<20	<20	<20	NA	<20	<100	<100	<100	<20	<100	<20	<20	<20	220	<100	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	29	<20	21,000	<100	<20
MW-103A	05/05/10	<50	NA	<50	<50	<50	NA	<50	<250	<250	<250	<50	<250	<50	<50	<50	140	<250	<50	<100	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	14,000	<250	<50
MW-103A	10/12/10	<50	<50	<50	100	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	71	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	54	<50	31,000	<250	<50
MW-103A	01/25/11	<50	<50	<50	<50	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	210	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	5,700	<250	<50
MW-103A	04/11/11	<50	<50	<50	<50	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	180	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	64	<50	24,000	<250	<50
MW-103A	08/15/11	<50	<50	<50	<50	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	230	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	78	<50	35,000	<250	<50
MW-103A	10/04/11	<100	<100	<100	100	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	160	<500	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	31,000	<500	<100
MW-103A	05/17/12	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<100	<20	<20	<20	200	<100	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	17,000	<100	<20
MW-103A	11/07/12	<50	<50	<50	<50	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	180	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	79	<50	36,000	<250	<50
MW-103A	05/07/13	<1	<1	1.9	<1	<1	<1	1.56	<5	<5	<5	<1	<5	<1	4.87	<1	187.68	102.33	<1	<2	<1	<1	<1	<1	<1	<1	1.5	4.04	<1	40.04	<1	23,020	<5	8.04
MW-103A	10/13/13	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<10	<100	<20	<20	<20	170	<100	<10	<20	<100	<20	<20	<20	<10	<20	<20	12	<20	26	<20	15,000	<40	<10
MW-103A	04/29/14	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<10	<100	<20	<20	<20	130	<100	<10	<20	<100	<20	<20	<20	<10	<20	<20	<10	<20	33	<20	18,000	<40	7.6 J
MW-103A	11/13/14	<50	<50	<50	<50	<50	<50	<50	<250	<250	<250	<25	<250	<50	<50	<50	140	<250	<25	<50	<250	<50	<50	<50	<25	<50	<50	<25	<50	43	<50	21,000	<100	<25
MW-103A	04/14/15	<50	<50	<50	<50	<50	<50	<50	<250	<250	<250	<25	<250	<50	<50	<50	140	<250	<25	<50	<250	<50	<50	<50	<25	<50	<50	18 J	<50	<25	<50	12,000	<100	<25
MW-103A	12/30/15	<50	<50	<50	<50	<50	<50	<50	<250	<250	<250	<25	<100	<50	<50	<50	55	<250	<25	<50	<250	<50	<50	<50	<25	<50	<50	<25	<50	38	<50	26,000	<100	<25
MW-103B	10/30/02	<1	<1	0.47 J	<1	<1	<1	1.1	<5	<5	<5	<1	<5	<1	3.3	1.8	99	14	<1	<2	1.1	7.8	<1	<1	<1	<1	0.57 J	1.2	<1	34	0.83 J	8,100	NA	<1
MW-103B	02/04/03	<50	<50	<50	<50	<50	<50	<50	<250	<250	<250	<50	<250	26 J	<50	<50	160	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	83	<50	15,000	<250	<50
MW-103B	04/01/03	110	<50	<50	<50	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	190	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	82	<50	1,300	<50	1,800	<250	<50
MW-103B	06/01/03	<50	<50	<50	59	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	580	49 J	<50	<100	<50	<50	<50J	<50	<50	<50	<50	<50	<50	71	<50	15,000	<250J	<50
MW-103B	09/09/03	<100	<100	<100	100	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	750	<100	<100	<200	<100	<100	<100	<100	<100	<100	<100	<100	<100	150	<100	17,000	<500	<100

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																															
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-103B	12/03/03	<100	<100	<100	<100	<100	<100	<100	<500J	<500	9,700	<100	<500	<100	<100	<100	600	<100	<100	<200	<100	<100	<100	<100	<100	<100	<100	<100	<100	110	<100	21,000	<500J	<100
MW-103B	05/12/04	<100	<100	<100	110	<100	<100	<100	<500	<500	1,900	<100	<500	<100	<100	<100	970	<100	<100	<200	110	<100	<100	<100	<100	<100	<100	130	<100	100	<100	50,000	<500	<100
MW-103B	09/08/04	<200	<200	<200	<200	<200	<200	<200	<1,000J	<1,000J	<1,000	<200	<1,000	<200	<200	<200	2,100	<200	<200	<400	<200	<200	<200	<200J	<200	<200	<200	<200	<200	<200	<200	34,000	<1,000J	<200
MW-103B	12/01/04	<100	<100	<100	<100	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	990	<100	<100	<200	<100	<100	<100	<100	<100	<100	<100	<100	<100	79 J	<100	26,000	<500	<100
MW-103B	06/08/05	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100J	<20	<100	<20	<20	<20	690	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	65	<20	18,000	<100	23
MW-103B	12/19/05	<5	<5	<5	41	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	690	38	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	6.7	53	<5	12,000	<25	27
MW-103B	06/14/06	<5	<5	<5	37	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	440	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	5.2	<5	77	<1	16,000	<25	12
MW-103B	09/01/06	<5	<5	<5	50	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	420	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	41	<5	9,900	<25	18
MW-103B	04/02/07	<5	<5	<5	90	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	410	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	39	<5	16,000	<25	21
MW-103B	10/29/07	<5	<5	<5	40	<5	<5	8	<25	<25	<25	<5	<25	<5	<5	<5	550	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	9	<5	49	<5	16,000	<25	27
MW-103B	04/14/08	<5	NA	<5	65	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	360	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	35	<5	17,000	<25	21
MW-103B	10/28/08	<5	NA	<5	42	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	270	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	41	<5	16,000	<25	<5
MW-103B	04/28/09	<5	NA	<5	51	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	240	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	31	<5	12,000	<25	11
MW-103B	11/04/09	<5	NA	<5	31	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	290	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	6.6	<5	27	<5	8,800	<25	12
MW-103B	05/05/10	<50	NA	<50	<50	<50	NA	<50	<250	<250	<250	<50	<250	<50	<50	<50	210	<250	<50	<100	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	7,200	<250	<50
MW-103B	10/12/10	<50	<50	<50	<50	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	160	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	7,600	<250	<50
MW-103B	12/02/10	<100	<100	<100	<100	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	230	<100	<100	<200	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	7,200	<100	<100
MW-103B	01/25/11	<50	<50	<50	<50	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	160	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	4,600	<50	<50
MW-103B	04/11/11	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	<20	210	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	32	<20	9,400	<20	<20
MW-103B	08/15/11	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	<20	170	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	36	<20	14,000	<20	<20
MW-103B	10/04/11	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	<20	180	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	41	<20	15,000	<20	<20
MW-103B	05/17/12	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	<20	250	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	8,600	<20	14
MW-103B	11/07/12	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	<10	<10	<10	<10	<10	170	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	7.5	<10	63	<10	16,000	<10	<10
MW-103B	05/07/13	<1	<1	1.63	<1	<1	<1	1.89	<5	<5	<5	<1	<5	<1	2.71	<1	158.43	80.18	<1	<2	<1	<1	<1	<1	<1	<1	<1	2.52	<1	35.36	<1	14,615	<5	7.54
MW-103B	10/13/13	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	<5	<50	<10	<10	<10	160	<50	<5	<10	<50	<10	<10	<10	<5	<10	<10	3.5	<10	22	<10	10,000	<20	11
MW-103B	04/29/14	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	<5	<50	<10	<10	<10	140	<50	<5	<10	<50	<10	<10	<10	<5	<10	<10	<5	<10	16	<10	7,300	<20	10
MW-103B	11/13/14	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<10	<100	<20	<20	<20	160	<100	<10	<20	<100	<20	<20	<20	<10	<20	<20	8.2 J	<20	16	<20	6,900	<40	<10
MW-103B	04/14/15	<1.0	<1.0	2.2	<1.0	<1.0	<1.0	1.9	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	0.64 J	<1.0	150	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	1.1	0.72 J	8.1	<1.0	3,000	<2.0	13
MW-103B	12/30/15	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<25	<25	<2.5	<10	<5.0	<5.0	<5.0	99	<25	<2.5	<5.0	<25	<5.0	<5.0	<5.0	<2.5	<5.0	<5.0	1.3 J	<5.0	5.4	<5.0	1,100	<10	7.6
MW-103C	10/30/02	<1	<1	1.2	<1	<1	<1	3.5	<5	<5	<5	<1	<5	<1	4.6	<1	300	8.4	<1	<2	1.2	<1	<1	<1	<1	<1	0.55 J	0.59 J	0.55 J	43	14	2,900	NA	<1
MW-103C	02/04/03	<10	<10	<10	19	<10	<10	<10	<50	<50	<50	<10	<50	<10	5.1 J	<10	290	13	<10	<20	<10	<10	<10	<10	<10	<10	<10	13	<10	270	9.3 J	3,500	<50	<10
MW-103C	04/01/03	<100	<100	<100	<100	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	500	<100	<100	<200	<100	<100	<100	<100	<100	<100	<100	<100	<100	500	<100	4,300	<500	<100
MW-103C	06/01/03	4.3 J	<10	<10	18	<10	<10	6.6 J	<50	<50	<50	<10	<50	<10	6.4 J	<10	510	23	<10	<20	<10	<10	<10J	<10	<10	<10	<10	<10	<10	150	8 J	3,400	<50J	<10
MW-103C	09/09/03	49 J	<50	<50	<50	<50	<50	<50	<250	<250	<250	<50	<250	<50	<50	<50	520	<50	<50	<100	28 J	<50	<50	<50	<50	<50	<50	<50	<50	550	<50	6,400	<250	<50
MW-103C	12/03/03	<50	<50	<50	<50	<50	<50	<50	<250J	<250	2,700	<50	<250	<50	<50	<50	500	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	60	<50	6,500	<250J	<50
MW-103C	05/12/04	<50	<50	<50	<50	<50	<50	<50	<250	<250	660	<50	<250	<50	<50	<50	650	110	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	76	<50	17,000	<250	<50
MW-103C	09/08/04	<100	<100	<100	<100	<100	<100	<100	<500J	<500J	<500	<100	<500	<100	<100	<100	960	<100	<100	<200	<100	<100	<100	<100J	<100	<100	<100	<100	<100	60 J	<100	15,000	<500J	<100
MW-103C	12/01/04	<25	<25	<25	<25	<25	<25	<25	<120	<120	<120	<25	<120	<25	<25	<25	1,000	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25	71	<25	11,000	<120	23 J
MW-103C	06/08/05	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50J	<10	<50	<10	<10	<10	690	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	47	<10	5,900	<50	16
MW-103C	12/19/05	<10	<10	<10	25	<10	<10	<10	<50	<50	<50	<10	<50	<10	<10	<10	760	37	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	57	<10	7,600	<50	16
MW-103C	06/14/06	<5	<5	<5	13	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	360	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	28	<5	7,100	<25	6.1
MW-103C	09/01/06	<5	<5	<5	30	<5	<5	7	<25	<25	<25	<5	<25	<5	<5	<5	720	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	50	<5	6,200	<25	20
MW-103C	04/02/07	<5	<5	<5	37	<5	<5	6.9	<25	<25	<25	<5	<25	<5	5.2	<5	700	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	56	<5	7,400	<25	17
MW-103C	10/29/07	<5	<5	<5	39	<5	<5	8	<25	<25	<25	<5	<25	<5	5	<5	810	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	56	<5	9,800	<25	20
MW-103C	04/14/08	<5	NA	<5	35	<5	NA	7	<25	<25	<25	<5	<25	<5	<5	<5	600	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	46	<5	8,600	<25	21
MW-103C	10/28/08	<5	NA	<5	18	<5	NA	6	<25	<25	<25	<5	<25	<5	<5	<5	630	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	49	<5	8,000	<25	15
MW-103C	04/28/09	<50	NA	<50	<50	<50	NA	<50	<250	<250	<250	<50	<250	<50	<50	<50	620	<250	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	56	<50	9,600	<250	<50

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																																
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-103C	11/04/09	<10	NA	<10	22	<10	NA	<10	<50	<50	<50	<10	<50	<10	<10	<10	280	<50	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	23	<10	7,300	<50	12
MW-103C	05/05/10	<10	NA	<10	24	<10	NA	<10	<50	<50	<50	<10	<50	<10	<10	<10	300	<50	<10	<20	<20	<10	<10	<10	<10	<10	<10	<10	<10	35	<10	6,800	<50	11
MW-103C	10/12/10	<10	<10	<10	19	<10	<10	<10	<50	<50	<50	<10	<50	<10	<10	<10	240	<50	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	27	<10	4,400	<50	<10
MW-103C	12/02/10	<100	<100	<100	<100	<100	<100	<100	<500	<500	<500	<100	<500	<100	<100	<100	260	<100	<100	<200	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	7,600	<100	<100
MW-103C	01/25/11	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	<10	<10	<10	<10	<10	310	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	43	<10	6,900	<10	10
MW-103C	04/11/11	<20	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	310	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	49	<20	8,200	<20	<20
MW-103C	08/15/11	<20	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	270	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	40	<20	11,000	<20	<20
MW-103C	10/04/11	<20	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	270	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	41	<20	10,000	<20	<20
MW-103C	05/17/12	<20	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<20	<20	<20	<20	280	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	59	<20	14,000	<20	<20
MW-103C	11/07/12	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	<10	<10	<10	<10	<10	210	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	44	<10	9,400	<10	7.9
MW-103C	05/07/13	<1	<1	2.15	<1	<1	<1	3.11	8.01	<5	17.99	<1	<5	<1	3.85	<1	300	108.85	<1	<2	<1	<1	<1	<1	<1	<1	<1	1.37	<1	68.26	<1	13,420	<5	8.9
MW-103C	10/13/13	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<10	<100	<20	<20	<20	290	<100	<10	<20	<100	<20	<20	<20	<10	<20	<20	<10	<20	56	<20	11,000	<40	<10
MW-103C	04/29/14	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<10	<100	<20	<20	<20	310	<100	<10	<20	<100	<20	<20	<20	<10	<20	<20	<10	<20	65	<20	13,000	<40	10
MW-103C	11/13/14	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<10	<100	<20	<20	<20	200	<100	<10	<20	<100	<20	<20	<20	<10	<20	<20	<10	<20	28	<20	8,000	<40	<10
MW-103C	04/14/15	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<10	<100	<20	<20	<20	150	<100	<10	<20	<100	<20	<20	<20	<10	<20	<20	7.1 J	<20	20	<20	7,900	<40	11
MW-103C	12/30/15	<20	<20	<20	<20	<20	<20	<20	<100	<100	<100	<10	<40	<20	<20	<20	130	<100	<10	<20	<100	<20	<20	<20	<10	<20	<20	<10	<20	21	<20	6,600	<40	<10
MW-104A	09/08/04	<20	<20	<20	<20	<20	<20	<20	<100J	<100J	<100	<20	<100	<20	<20	<20	470	<20	<20	<40	<20	<20	<20	<20J	<20	<20	<20	<20	<20	<20	<20	3,300	<100J	<20
MW-104A	12/01/04	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	<10	<50	<10	<10	<10	490	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	2,500	<50	<10
MW-104A	06/08/05	<2	<2	2 J	<2	<2	<2	3.1	<10	<10	<10J	<2	<10	<2	1.7 J	<2	450	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	2.3	2.5	<2	2,200	<10	2.9
MW-104A	12/19/05	<10	<10	<10	15	<10	<10	<10	<50	<50	<50	<10	<50	<10	<10	<10	890	99	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	3,400	<50	<10
MW-104A	06/14/06	<5	<5	<5	<5	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	310	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	980	<25	<5
MW-104A	09/01/06	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	<10	<50	<10	<10	<10	740	<50	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	1,900	<50	<10
MW-104A	04/02/07	<5	<5	<5	<5	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	700	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1,700	<25	<5
MW-104A	10/29/07	<5	<5	<5	7	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	600	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1,400	<25	7
MW-104A	04/14/08	<5	NA	<5	7	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	610	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1,000	<25	7
MW-104A	10/28/08	<5	NA	<5	<5	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	620	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	900	<25	7
MW-104A	04/28/09	<1	NA	3.4	8	<1	NA	4.4	<5	<5	<5	<1	<5	<1	1.9	<1	650	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	3.8	2.5	<1	810	<5	14
MW-104A	11/04/09	<10	NA	3.1	2.8	<10	NA	3.8	<50	<50	<50	<10	<50	<10	2.1	<10	590	<50	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	3.3	2.4	<10	940	<50	12
MW-104A	05/05/10	<1	NA	2.8	3.8	<1	NA	3.5	<5	<5	64	<1	<5	1.3	1.4	<1	630	<5	<1	<2	<2	<1	<1	<1	<1	<1	<1	<1	3	2.2	<1	880	<5	13
MW-104A	10/12/10	<5	<5	<5	5.3	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	740	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	780	<25	19
MW-104A	04/11/11	<2	<2	2.5	<2	<2	<2	<2	<10	<10	<10	<2	<2	<2	<2	<2	600	<10	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	2.4	2.2	<2	910	<10	9.4
MW-104A	10/04/11	<1	<1	3.1	<1	<1	<1	3.1	<5	<5	<5	<1	<5	<1	1.1	<1	440	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	1.9	1.9	<1	650	<5	8.4
MW-104A	05/17/12	<2	<2	<2	<2	<2	<2	3.2	<10	<10	<10	<2	<2	<2	<2	<2	470	<10	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	2.2	<2	<2	950	<10	9.3
MW-104A	11/07/12	<1	<1	1.6	1.1	<1	<1	2.1	<5	<5	<5	<1	<5	<1	1.1	<1	360	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	1.4	1.6	<1	740	<5	5.1
MW-104A	05/07/13	<1	<1	1.54	1.82	<1	<1	1.99	<5	<5	<5	<1	<5	<1	<1	<1	300.5	90.98	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	1.53	1.75	<1	661	<5	6.6
MW-104A	10/13/13	<1	<1	1.6	<1	<1	<1	1.9	<5	<5	<5	<0.5	<5	3	1	<1	32	<5	<0.5	<1	<5	<1	<1	<1	<0.5	<1	<1	<0.5	1.7	1.4	<1	47	<2	7.9
MW-104A	04/28/14	<1	<1	1.9	<1	<1	<1	2.1	<5	<5	<5	<0.5	<5	<1	0.77 J	<1	400	<5	<0.5	<1	<5	<1	<1	<1	<0.5	<1	<1	<0.5	1.9	1.7	<1	500	<2	21
MW-104A	11/13/14	<2.0	<2.0	1.8 J	<2.0	<2.0	<2.0	1.9 J	<10	<10	<10	<1.0	<10	<2.0	<2.0	<2.0	390	<10	<1.0	<2.0	<10	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<1.0	1.7 J	1.7	<2.0	610	<4.0	15
MW-104A	04/14/15	<1.0	<1.0	2	<1.0	<1.0	<1.0	2.1	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	0.81 J	<1.0	370	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	0.49 J	1.8	1.5	<1.0	390	<2.0	25
MW-104A	12/30/15	<1.0	<1.0	1.6	<1.0	<1.0	<1.0	1.9	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	1.2	<1.0	290	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	1.3	<0.50	<1.0	240	<2.0	15
MW-104B	09/08/04	<20	<20	<20	<20	<20	<20	<20	<100J	<100J	<100	<20	<100	<20	<20	<20	76	<20	<20	<40	<20	47	<20	<20J	<20	<20	<20	<20	<20	17 J	<20	3,900	<100J	<20
MW-104B	12/01/04	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	6.1 J	<50	<10	<10	<10	75	<10	<10	<20	<10	49	<10	<10	<10	<10	<10	<10	<10	17	<10	1,900	<50	<10
MW-104B	06/08/05	<2	<2	<2	<2	<2	<2	<2	<10	<10	<10J	4	<10	<2	<2	<2	56	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	14	<2	1,300	<10	<2
MW-104B	12/19/05	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	<10	<50	<10	<10	<10	110	16	<10	<20	<10	14	<10	<10	<10	<10	<10	<10	<10	26	<10	1,900	<50	<10
MW-104B	06/14/06	<10	<10	<10	23	<10	<10	<10	<50	<50	<50	<10	<50	<10	<10	<10	110	<50	<10	<20	<10	12	<10	<10	<10	<10	<10	<10	<10	22	<10	1,600	<50	<10
MW-104B	09/01/06	<10	<10	<10	30	<10	<10	<10	<50	<50	<50	<10	<50	<10	<10	<10	150	<50	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	30	<10	2,000	<50	<10

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																																
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-104B	04/02/07	<5	<5	<5	37	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	**300**	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	**28**	<5	3,500	<25	<5
MW-104B	10/29/07	<5	<5	<5	30	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	**170**	<25	<5	<10	<5	10	<5	<5	<5	<5	<5	<5	<5	**27**	<5	2,800	<25	<5
MW-104B	04/14/08	<5	NA	<5	26	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	**81**	<25	<5	<10	<5	11	<5	<5	<5	<5	<5	<5	<5	**17**	<5	2,000	<25	<5
MW-104B	10/28/08	<5	NA	<5	<5	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	**81**	<25	<5	<10	<5	10	<5	<5	<5	<5	<5	<5	<5	**18**	<5	2,100	<25	<5
MW-104B	04/28/09	<5	NA	<5	24	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	**190**	<25	<5	<10	<5	7.9	<5	<5	<5	<5	<5	<5	<5	**22**	<5	2,100	<25	<5
MW-104B	11/04/09	<5	NA	<5	12	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	**99**	<25	<5	<10	<5	9.2	<5	<5	<5	<5	<5	<5	<5	**18**	<5	2,100	<25	<5
MW-104B	05/05/10	<5	NA	<5	<5	<5	NA	<5	<25	<25	170	<5	<25	<5	<5	<5	**140**	<25	<5	<10	<10	5.6	<5	<5	<5	<5	<5	<5	<5	**18**	<5	1,900	<25	<5
MW-104B	10/12/10	<5	<5	<5	18	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	67	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	**15**	<5	1,100	<25	<5
MW-104B	04/11/11	<5	<5	<5	9.2	<5	<5	<5	<25	<25	<25	<5	<5	<5	<5	<5	44	<25	<5	<10	<5	9.2	<5	<5	<5	<5	<5	<5	<5	**13**	<5	2,800	<25	<5
MW-104B	10/04/11	<10	<10	<10	<10	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	35	<50	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	2,500	<50	<10
MW-104B	05/17/12	<2	<2	<2	<2	<2	<2	<2	<10	<10	<10	<2	<2	<2	<2	<2	32	<10	<2	<4	<2	5.1	<2	<2	<2	<2	<2	<2	<2	**11**	<2	1,100	<10	<2
MW-104B	11/07/12	<2	<2	<2	<2	<2	<2	<2	<10	<10	<10	<2	<2	<2	<2	<2	26	<10	<2	<4	<2	5.1	<2	<2	<2	<2	<2	<2	<2	**7.8**	2.1	2,000	<10	<2
MW-104B	05/07/13	<1	<1	<1	14.5	<1	<1	<1	<5	<5	<5	<1	<5	<1	1.42	<1	24.36	11.27	<1	<2	<1	3.68	<1	<1	<1	<1	<1	<1	<1	**7.77**	<1	2,891	<5	<1
MW-104B	10/13/13	<5	<5	<5	<5	<5	<5	<5	<25	<25	<25	<2.5	<25	<5	<5	<5	25	<25	<2.5	<5	<25	2.9	<5	<5	<2.5	<5	<5	<2.5	<5	**6.2**	<50	1,700	<10	<2.5
MW-104B	04/28/14	<1	<1	<1	<1	<1	<1	<1	<5	<5	10	<0.5	<5	<1	0.87 J	<1	30	<5	<0.5	<1	<5	2.3	<1	<1	<0.5	<1	<1	<0.5	<1	**7.1**	1.1	880	<2	**1.3**
MW-104B	11/13/14	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<25	<25	<2.5	<25	<5.0	<5.0	<5.0	24	<25	<2.5	<5.0	<25	<5.0	<5.0	<5.0	<2.5	<5.0	<5.0	<2.5	<5.0	**7.3**	<5.0	1,600	<10	**2 J**
MW-104B	04/14/15	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<10	<10	<1.0	<10	<2.0	<2.0	<2.0	29	<10	<1.0	<2.0	<10	2	<2.0	<2.0	<1.0	<2.0	<2.0	0.91 J	<2.0	**4.6**	<2.0	610	<4.0	**1.3**
MW-104B	12/30/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	0.26 J	<2.0	<1.0	1.3	<1.0	19	<5.0	<0.50	<1.0	<5.0	2.5	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	**4.3**	<1.0	890	<2.0	<0.50
MW-104C	09/08/04	<5	<5	<5	<5	<5	<5	<5	<25J	<25J	<25	<5	<25	<5	<5	<5	45	<5	<5	<10	<5	<5	<5	<5J	<5	<5	<5	<5	<5	4.8 J	4.2 J	1,300	<25J	<5
MW-104C	12/01/04	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	16	<1	<1	<2	<1	1.2	<1	<1	<1	<1	<1	<1	<1	**12**	1.4	360	<5	<1
MW-104C	06/08/05	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5J	<1	<5	<1	<1	<1	37	<1	<1	<2	1	<1	<1	<1	<1	<1	<1	<1	<1	**4.3**	<1	480	<5	<1
MW-104C	12/19/05	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	31	2	<1	<2	<1	1.3	<1	<1	<1	<1	<1	<1	<1	**5.1**	<1	220	<5	<1
MW-104C	06/16/06	<1	<1	<1	9	<1	<1	<1	5.6	<5	<5	<1	<5	<1	<1	<1	60	<5	<1	<2	<1	4.4	<1	<1	<1	<1	<1	<1	<1	**7.7**	<1	660	<5	<1
MW-104C	09/01/06	<10	<10	<10	17	<10	<10	<10	<50	<50	<50	<10	<50	<10	<10	<10	**80**	<50	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	1,200	<50	<10
MW-104C	04/02/07	<5	<5	<5	6.8	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	49	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	**6.2**	<5	390	<25	<5
MW-104C	10/29/07	<5	<5	<5	26	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	**170**	<25	<5	<10	<5	7	<5	<5	<5	<5	<5	<5	<5	**18**	<5	2,200	<25	<5
MW-104C	04/14/08	<5	NA	<5	10	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	**71**	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	**9**	<5	760	<25	<5
MW-104C	10/28/08	<5	NA	<5	<5	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	70	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	**9**	<5	790	<25	<5
MW-104C	04/28/09	<5	NA	<5	8.9	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	**87**	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	**8.3**	<5	700	<25	<5
MW-104C	11/04/09	<5	NA	<5	20	<5	NA	<5	<25	<25	<25	<5	<25	<5	<5	<5	**150**	<25	<5	<10	<5	8	<5	<5	<5	<5	<5	<5	<5	**15**	<5	2,700	<25	<5
MW-104C	05/05/10	<5	NA	<5	17	<5	NA	<5	<25	<25	220	<5	<25	<5	<5	<5	**130**	<25	<5	<10	<10	7.7	<5	<5	<5	<5	<5	<5	<5	**17**	<5	2,500	<25	<5
MW-104C	10/12/10	<5	<5	<5	19	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	**110**	<25	<5	<10	<5	6	<5	<5	<5	<5	<5	<5	<5	**12**	<5	1,600	<25	<5
MW-104C	04/11/11	<5	<5	<5	7.7	<5	<5	<5	<25	<25	<25	<5	<5	<5	<5	<5	**100**	<25	<5	<10	<5	7.4	<5	<5	<5	<5	<5	<5	<5	**13**	<5	2,200	<25	<5
MW-104C	10/04/11	<2	<2	<2	<2	<2	<2	<2	<10	<10	<10	<2	<2	<2	3.8	<2	**87**	<10	<2	<4	<2	9.6	<2	<2	<2	<2	<2	<2	<2	**13**	<2	2,400	<10	<2
MW-104C	05/17/12	<5	<5	<5	<5	<5	<5	<5	<25	<25	<25	<5	<5	<5	<5	<5	65	<25	<5	<10	<5	7.6	<5	<5	<5	<5	<5	<5	<5	**9.8**	2.6	2,800	<25	<5
MW-104C	11/07/12	<2	<2	<2	<2	<2	<2	<2	<10	<10	<10	<2	<2	<2	2.1	<2	55	<10	<2	<4	<2	5.8	<2	<2	<2	<2	<2	<2	<2	**7.8**	<2	1,500	<10	<2
MW-104C	05/07/13	<1	<1	<1	12	<1	<1	**1.1**	<5	<5	<5	<1	<5	<1	1.9	<1	**130**	16	<1	<2	<1	3.3	<1	<1	<1	<1	<1	<1	<1	**9.6**	<1	1,800	<5	<1
MW-104C	10/13/13	<5	<5	<5	<5	<5	<5	<5	<25	<25	<25	<2.5	<25	<5	<5	<5	51	<25	<2.5	<5	<25	3.9	<5	<5	<2.5	<5	<5	<2.5	<5	**7.8**	<50	2,700	<10	<2.5
MW-104C	04/28/14	<5	<5	<5	<5	<5	<5	<5	<25	<25	<25	<2.5	<25	<5	<5	<5	52	<25	<2.5	<5	<25	4.1 J	<5	<5	<2.5	<5	<5	<2.5	<5	**7**	<5	2,000	<10	**2.1 J**
MW-104C	11/13/14	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<25	<25	<2.5	<25	<5.0	<5.0	<5.0	54	<25	<2.5	<5.0	<25	3.9 J	<5.0	<5.0	<2.5	<5.0	<5.0	<2.5	<5.0	**8**	<5.0	20,000	<10	**2.6**
MW-104C (	04/14/15	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<25	<25	<2.5	<25	<5.0	<5.0	<5.0	43	<25	<2.5	<5.0	<25	3.6 J	<5.0	<5.0	<2.5	<5.0	<5.0	1.9 J	<5.0	**5.1**	<5.0	1,300	<10	**2.1 J**
MW-104C	12/30/15	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<25	<25	<2.5	<10	<5.0	<5.0	<5.0	41	<25	<2.5	<5.0	<25	3.6 J	<5.0	<5.0	<2.5	<5.0	<5.0	<2.5	<5.0	**6.2**	<5.0	1,800	<10	<2.5
MW-105C	02/17/10	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	1.8	<5	<1	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	1.8	<1	8.8	<5	<1
MW-105C	05/06/10	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-105C	10/12/10	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-105C	04/11/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																																
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-105C	10/04/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-105C	05/17/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-105C	11/07/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-105C	05/07/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	12.98	<5	<1	<2	2.05	<1	<1	<1	<1	<1	<1	1.01	<1	<1	<1	9.82	<5	<1
MW-105C	10/13/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	<1	<5	<0.5	<1	<5	0.54	<1	<1	<0.5	<1	<1	<0.5	<1	<0.5	<1	<5	<2	<0.5
MW-105C	04/28/14	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	<1	<5	<0.5	<1	<5	0.69 J	<1	<1	<0.5	<1	<1	<0.5	<1	<0.5	<1	<5	<2	<0.5
MW-105C	11/12/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<1.0	<5.0	0.74 J	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	<0.50	<1.0	<5.0	<2.0	<0.50
MW-105C	04/13/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	5.6	<0.50	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<1.0	<5.0	0.89 J	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	<0.50	<1.0	<5.0	<2.0	<0.50
MW-105C	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	<0.50	<1.0	<5.0	<2.0	<0.50
MW-106C	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	<1.0	<1.0	34	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	1.2	<1.0	390	<2.0	**0.74**
MW-10B	09/04/02	<0.22	<0.33	<0.2	<0.19	<0.24	<0.2	<0.25	<1.7	<0.92	<1.5	<0.2	<0.4	<0.21	<0.23	<0.16	6.6	<0.14	<0.2	<0.39	<0.19	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	<0.21	<0.21	1.4	<0.22	72	NA	<0.18
MW-10B	09/08/03	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	0.99 J	<1	29	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.2	<1	670	<5	<1
MW-10B	09/08/04	<5	<5	<5	<5	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	22	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	890	<25	<5
MW-10B	09/13/05	<1	<1	<1	<1	<1	<1	<1	<5J	<5	<5	<1	<5	<1	<1	<1J	20	<1	<1	<2	<1	2.6 J	<1	<1	<1	<1	<1	<1	<1	1.9	<1	470	<5	<1
MW-10B	09/01/06	<1	<1	<1	17	<1	<1	<1	<5	<5	<5	<1	<5	<1	1.2	<1	**120**	<5	<1	<2	<1	5.2	<1	<1	<1	<1	<1	<1	<1	**5.4**	<1	1,300	<5	**1.8**
MW-10B	04/02/07	<1	<1	<1	27	<1	<1	**1.1**	6.2	<5	24	<1	<5	<1	1.4	<1	**160**	<5	<1	<2	<1	3.6	<1	<1	<1	<1	<1	<1	<1	**5.4**	<1	1,600	<5	**3.1**
MW-10B	10/29/07	<1	<1	<1	11	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	**81**	<5	<1	<2	<1	8	<1	<1	<1	<1	<1	<1	<1	**5**	<1	820	<5	**1**
MW-10B	04/14/08	<1	NA	<1	6	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	39	<5	<1	<2	<1	7	<1	<1	<1	<1	<1	<1	<1	**4**	<1	340	<5	<1
MW-10B	10/28/08	<1	NA	<1	1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	59	<5	<1	<2	<1	3	<1	<1	<1	<1	<1	<1	<1	3	<1	640	<5	<1
MW-10B	04/28/09	<1	NA	<1	22	<1	NA	<1	<5	<5	<5	<1	<5	<1	1.2	<1	**120**	<5	<1	<2	<1	2.6	<1	<1	<1	<1	<1	<1	<1	**5.4**	<1	990	<5	**1.8**
MW-10B	11/03/09	<1	NA	<1	9	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	**90**	<5	<1	<2	<1	2	<1	<1	<1	<1	<1	<1	<1	**3.5**	<1	640	<5	**1.2**
MW-10B	05/06/10	<1	NA	<1	4.5	<1	NA	<1	<5	<5	53	<1	<5	<1	<1	<1	**87**	<5	<1	<2	<2	2.8	<1	<1	<1	<1	<1	<1	<1	**3.2**	<1	720	<5	**1**
MW-10B	10/11/10	<5	<1	<5	9.7	<5	<1	<5	<25	<25	<25	<5	<25	<5	<5	<5	67	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	580	<25	<5
MW-10B	04/11/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	40	<5	<1	<2	<1	1.8	<1	<1	<1	<1	<1	<1	<1	1.8	<1	490	<5	<1
MW-10B	10/04/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	18	<5	<1	<2	<1	1.5	<1	<1	<1	<1	<1	<1	<1	1.3	<1	140	<5	<1
MW-10B	05/17/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	31	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.4	<1	420	<5	<1
MW-10B	11/07/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	18	<5	<1	<2	<1	2.4	<1	<1	<1	<1	<1	<1	<1	1.4	<1	190	<5	<1
MW-10B	05/07/13	<1	<1	<1	3.2	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	15.64	<5	<1	<2	<1	1.4	<1	<1	<1	<1	<1	<1	<1	1.24	<1	228	<5	<1
MW-10B	10/13/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	24	<5	<0.5	<1	<5	0.82	<1	<1	<0.5	<1	<1	<0.5	<1	1.2	<10	340	<2	<0.5
MW-10B	04/28/14	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	25	<5	<0.5	<1	<5	1.6	<1	<1	<0.5	<1	<1	<0.5	<1	1.5	<1	380	<2	**0.97**
MW-10B	11/11/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	17	<5.0	<0.50	<1.0	<5.0	1.2	<1.0	<1.0	<0.50	<1.0	<1.0	0.36 J	<1.0	1	<1.0	230	<2.0	<0.50
MW-10B	04/14/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	0.74 J	<1.0	15	<5.0	<0.50	<1.0	<5.0	2.3	<1.0	<1.0	<0.50	<1.0	<1.0	0.31 J	<1.0	1.1	<1.0	180	<2.0	**0.52**
MW-10B	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	1.5	<1.0	7.7	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	<0.50	<1.0	81	<2.0	<0.50
MW-10D	09/04/02	<0.22	<0.33	<0.2	<0.19	<0.24	<0.2	<0.25	<1.7	<0.92	<1.5	<0.2	<0.4	<0.21	<0.23	<0.16	12	<0.14	<0.2	<0.39	<0.19	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	<0.21	<0.21	1.7	<0.22	100	NA	<0.18
MW-10D	09/08/03	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	1.2	<1	38	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.8	0.6 J	750	<5	<1
MW-10D	09/08/04	<5	<5	<5	<5	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	26	<5	<5	<10	<5	4.6 J	<5	<5	<5	<5	<5	<5	<5	**8.3**	<5	1,200	<25	<5
MW-10D	09/13/05	<1	<1	<1	<1	<1	<1	<1	<5J	<5	<5	<1	<5	<1	<1	<1J	49	<1	<1	<2	<1	2.5 J	<1	<1	<1	<1	<1	<1	<1	2.6	<1	1,200	<5	<1
MW-10D	09/01/06	<1	<1	<1	23	<1	<1	**1.4**	<5	<5	<5	<1	<5	<1	1.8	<1	**190**	<5	<1	<2	<1	3.4	<1	<1	<1	<1	<1	<1	<1	**6.1**	<1	1,900	<5	**3.8**
MW-10D	04/02/07	<1	<1	<1	24	<1	<1	**1.2**	<5	<5	<5	<1	<5	<1	1.4	<1	**170**	<5	<1	<2	<1	3	<1	<1	<1	<1	<1	<1	<1	**5.4**	<1	1,400	<5	**4.6**
MW-10D	10/29/07	<1	<1	<1	15	<1	<1	<1	<5	<5	<5	<1	<5	<1	1	<1	**120**	<5	<1	<2	<1	9	<1	<1	<1	<1	<1	<1	<1	**8**	<1	1,200	<5	**2**
MW-10D	04/14/08	<1	NA	<1	13	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	**76**	<5	<1	<2	<1	5	<1	<1	<1	<1	<1	<1	<1	**5**	<1	650	<5	**1**
MW-10D	10/28/08	<1	NA	<1	4	<1	NA	<1	<5	<5	<5	<1	<5	<1	1	<1	**130**	<5	<1	<2	<1	2	<1	<1	<1	<1	<1	<1	<1	**5**	<1	1,300	<5	**1**
MW-10D	04/28/09	<1	NA	<1	24	<1	NA	**1**	<5	<5	<5	<1	<5	<1	1.4	<1	**150**	<5	<1	<2	<1	2.5	<1	<1	<1	<1	<1	<1	<1	**6.1**	<1	1,300	<5	**2.8**
MW-10D	11/03/09	<1	NA	<1	10	<1	NA	<1	<5	<5	<5	<1	<5	<1	1.3	<1	**130**	<5	<1	<2	<1	2.4	<1	<1	<1	<1	<1	<1	<1	**4.7**	<1	820	<5	**2**
MW-10D	05/04/10	<5	NA	<5	<5	<5	NA	<5	<25	<25	110	<5	<25	<5	<5	<5	**150**	<25	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1,200	<25	<5
MW-10D	10/11/10	<5	<5	<5	13	<5	<5	<5	<25	<25	<25	<5	<25	<5	<5	<5	**110**	<25	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	830	<25	<5

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																															
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-10D	04/11/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	46	<5	<1	<2	<1	2.7	<1	<1	<1	<1	<1	<1	<1	2.5	<1	470	<5	<1
MW-10D	10/04/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	27	<5	<1	<2	<1	1.7	<1	<1	<1	<1	<1	<1	<1	1.7	<1	180	<5	<1
MW-10D	05/17/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	48	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.7	<1	750	<5	<1
MW-10D	11/07/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	17	<5	<1	<2	<1	1.9	<1	<1	<1	<1	<1	<1	<1	1.2	<1	150	<5	<1
MW-10D	05/07/13	<1	<1	<1	1.17	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	9.99	<5	<1	<2	<1	1.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	96.4	<5	<1
MW-10D	10/13/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	30	<5	<0.5	<1	<5	1.2	<1	<1	<0.5	<1	<1	<0.5	<1	1.9	<1	460	<2	<0.5
MW-10D	04/28/14	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	0.89 J	<1	67	<5	<0.5	<1	<5	1.2	<1	<1	<0.5	<1	<1	<0.5	<1	**3.1**	<1	970	<2	**2.7**
MW-10D	11/11/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	28	<5.0	<0.50	<1.0	<5.0	2.1	<1.0	<1.0	<0.50	<1.0	<1.0	1.3	<1.0	1.2	<1.0	290	<2.0	<0.50
MW-10D	04/14/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	0.83 J	<1.0	64	<5.0	<0.50	<1.0	<5.0	1.2	<1.0	<1.0	<0.50	<1.0	<1.0	0.3 J	<1.0	2.5	<1.0	700	<2.0	**3**
MW-10D	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	<1.0	<1.0	21	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	1.2	<1.0	240	<2.0	**0.76**
MW-16B	09/03/02	<0.22	<0.33	<0.2	<0.19	<0.24	<0.2	<0.25	<1.7	<0.92	6.7	<0.2	<0.4	<0.21	<0.23	<0.16	1.9	<0.14	<0.2	<0.39	<0.19	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	<0.21	<0.21	0.34 J	<0.22	21	NA	<0.18
MW-16B	04/03/03	<0.22	<0.33	<0.2	<0.19	<0.24	<0.2	<0.25	<1.7	<0.92	<1.5	<0.2	<0.4	<0.21	<0.23	<0.16	1.1	<0.14	<0.2	<0.39	<0.19	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	<0.21	<0.21	0.32 J	<0.22	22	<0.47J	<0.18
MW-16B	09/08/03	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	2.4	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.57 J	<1	47	<5	<1
MW-16B	03/16/04	<1	<1	<1	<1	<1	<1	<1	<5	<5	8.5	<1	<5	<1	<1	<1	2	<1	<1	<2	<1	1.8	<1	<1	<1	<1	<1	<1	<1	0.57 J	<1	40	<5	<1
MW-16B	09/08/04	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	1.2	<1	<1	<2	<1	1.5	<1	<1	<1	<1	<1	<1	<1	0.53 J	<1	31	<5	<1
MW-16B	03/07/05	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	1.2	<1	<1	<2	<1	1.1	<1	<1	<1	<1	<1	<1	<1	<1	<1	16	<5	<1
MW-16B	09/13/05	<1	<1	<1	<1	<1	<1	<1	<5J	<5	<5	<1	<5	<1	<1	<1J	1.5	<1	<1	<2	<1	1.3 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	20	<5	<1
MW-16B	09/01/06	<1	<1	<1	1.3	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	4.2	<5	<1	<2	<1	4.6	<1	<1	<1	<1	<1	<1	<1	1.9	<1	71	<5	<1
MW-16B	04/02/07	<1	<1	<1	2.2	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	7.2	<5	<1	<2	<1	9.7	<1	<1	<1	<1	<1	<1	<1	**3.5**	<1	91	<5	<1
MW-16B	10/29/07	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	2	<5	<1	<2	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	19	<5	<1
MW-16B	04/14/08	<1	NA	<1	1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	6	<5	<1	<2	<1	3	<1	<1	<1	<1	<1	<1	<1	2	<1	86	<5	<1
MW-16B	10/28/08	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	6	<5	<1	<2	<1	2	<1	<1	<1	<1	<1	<1	<1	2	<1	84	<5	<1
MW-16B	04/28/09	<1	NA	<1	1.5	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	9	<5	<1	<2	<1	2.4	<1	<1	<1	<1	<1	<1	<1	1.8	<1	110	<5	<1
MW-16B	11/03/09	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	3.4	<5	<1	<2	<1	1.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	36	<5	<1
MW-16B	05/04/10	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	5.8	<5	<1	<2	<2	2	<1	<1	<1	<1	<1	<1	<1	1.1	<1	63	<5	<1
MW-16B	10/11/10	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	4.5	<5	<1	<2	<1	1.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	44	<5	<1
MW-16B	04/11/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	1.3	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	18	<5	<1
MW-16B	10/04/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	2.3	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	22	<5	<1
MW-16B	05/17/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	2.6	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	33	<5	<1
MW-16B	11/07/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	1.1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	6.9	<5	<1
MW-16B	05/07/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	1.88	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	26.99	<5	<1
MW-16B	10/13/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	2	<5	<0.5	<1	<5	0.76	<1	<1	<0.5	<1	<1	<0.5	<1	0.4	<1	24	<2	<0.5
MW-16B	04/28/14	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	0.58 J	<1	2.5	<5	<0.5	<1	<5	1.2	<1	<1	<0.5	<1	<1	<0.5	<1	0.53	<1	30	<2	<0.5
MW-16B	11/11/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	1	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	0.46 J	<1.0	<0.50	<1.0	12	<2.0	<0.50
MW-16B	04/14/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	0.96 J	<1.0	2.5	<5.0	<0.50	<1.0	<5.0	1.4	<1.0	<1.0	<0.50	<1.0	<1.0	0.34 J	<1.0	0.51	<1.0	22	<2.0	<0.50
MW-16B	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	<1.0	<1.0	1.7	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	0.22 J	<1.0	<0.50	<1.0	9.9	<2.0	<0.50
MW-16D	09/03/02	<0.22	<0.33	0.45 J	<0.19	<0.24	<0.2	**1.2**	<1.7	<0.92	<1.5	<0.2	<0.4	<0.21	1.3	<0.16	**90**	6.9	<0.2	<0.39	1.2	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	<0.21	<0.21	**7.1**	2.6	890	NA	<0.18
MW-16D	04/03/03	<0.22	<0.33	0.34 J	1.1	<0.24	<0.2	**0.81 J**	<1.7	<0.92	<1.5	<0.2	<0.4	<0.21	0.55 J	<0.16	63	2.5	<0.2	<0.39	<0.19	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	<0.21	<0.21	**3.3**	0.73 J	180	<0.47J	<0.18
MW-16D	09/08/03	<1	<1	<1	<1	<1	<1	**0.9 J**	<5	<5	<5	<1	<5	<1	<1	<1	64	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.6	<1	78	<5	<1
MW-16D	03/16/04	<1	<1	<1	<1	<1	<1	<1	<5	<5	11	<1	<5	<1	<1	<1	38	<1	<1	<2	0.69 J	<1	<1	<1	<1	<1	<1	<1	<1	1.2	<1	49	<5	<1
MW-16D	09/08/04	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	41	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.3	<1	29	<5	<1
MW-16D	03/07/05	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	36	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.2	<1	13	<5	<1
MW-16D	09/13/05	<1	<1	<1	<1	<1	<1	<1	<5J	<5	<5	<1	<5	<1	<1	<1J	27	<1	<1	<2	<1	<1J	<1	<1	<1	<1	<1	<1	<1	<1	<1	12	<5	<1
MW-16D	09/01/06	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	70	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.1	<1	28	<5	<1
MW-16D	04/02/07	<1	<1	<1	<1	<1	<1	<1	<5	<5	7	<1	<5	<1	<1	<1	39	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	18	<5	<1
MW-16D	10/29/07	<1	<1	<1	<1	<1	<1	<1	<5	<5	8	<1	<5	<1	<1	<1	38	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	12	<5	<1

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																																
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-16D	04/14/08	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	28	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	9	<5	<1
MW-16D	10/28/08	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	27	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	7	<5	<1
MW-16D	04/28/09	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	27	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	7.6	<5	<1
MW-16D	11/04/09	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	3.8	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5.8	<5	<1
MW-16D	05/04/10	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	2.9	<5	<1	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3.3	<5	<1
MW-16D	10/11/10	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	2.5	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-16D	04/11/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	3.3	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-16D	10/04/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	13	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-16D	05/17/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	2.4	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-16D	11/07/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	2.8	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5.2	<5	<1
MW-16D	05/07/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	5.72	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-16D	10/13/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	5.8	<5	<0.5	<1	<5	<1	<1	<1	<0.5	<1	<1	<0.5	<1	<0.5	<1	6.5	<2	<0.5
MW-16D	04/28/14	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	10	<5	<0.5	<1	<5	<1	<1	<1	<0.5	<1	<1	<0.5	<1	<0.5	<1	9	<2	<0.5
MW-16D	11/11/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	5.5	0.39 J	<0.50	<1.0	0.69 J	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	0.37 J	<1.0	<0.50	<1.0	35	<2.0	<0.50
MW-16D	04/14/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	21	<0.50	<5.0	<1.0	<1.0	<1.0	4.9	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	0.33 J	<1.0	<0.50	<1.0	27	<2.0	<0.50
MW-16D	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	<1.0	<1.0	4.5	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	<0.50	<1.0	18	<2.0	<0.50
MW-18B	09/05/02	<0.22	<0.33	<0.2	<0.19	<0.24	<0.2	<0.25	<1.7	<0.92	<1.5	<0.2	<0.4	<0.21	<0.23	<0.16	<0.21	<0.14	<0.2	<0.39	<0.19	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	<0.21	<0.21	<0.21	<0.22	<0.22	NA	<0.18
MW-18B	04/03/03	<0.22	<0.33	<0.2	<0.19	<0.24	<0.2	<0.25	<1.7	<0.92	<1.5	<0.2	<0.4	<0.21	<0.23	<0.16	<0.21	<0.14	<0.2	<0.39	<0.19	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	<0.21	<0.21	<0.21	<0.22	<0.22	<0.47J	<0.18
MW-18B	09/08/03	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-18B	03/16/04	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-18B	09/08/04	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-18B	03/07/05	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-18B	09/14/05	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-18B	09/01/06	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-18B	04/02/07	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-18B	10/29/07	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-18B	04/14/08	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-18B	10/28/08	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-18B	04/28/09	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-18B	11/04/09	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-18B	05/04/10	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-18B	10/12/10	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-18B	10/03/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	68	<5	<1
MW-18B	11/07/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-18B	10/13/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	<1	<5	<0.5	<1	<5	<1	<1	<1	<0.5	<1	<1	<0.5	<1	<0.5	<1	<5	<2	<0.5
MW-18B	11/12/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	0.32 J	<1.0	<0.50	<1.0	<5.0	<2.0	<0.50
MW-18B	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	<0.50	<1.0	<5.0	<2.0	<0.50
MW-18D	09/05/02	<0.22	<0.33	<0.2	<0.19	<0.24	<0.2	<0.25	<1.7	<0.92	<1.5	<0.2	<0.4	<0.21	<0.23	<0.16	21	<0.14	<0.2	<0.39	<0.19	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	<0.21	<0.21	2.7	<0.22	250	NA	<0.18
MW-18D	04/03/03	<0.22	<0.33	<0.2	<0.19	<0.24	<0.2	<0.25	<1.7	<0.92	<1.5	<0.2	<0.4	<0.21	<0.23	<0.16	26	2.5	<0.2	<0.39	<0.19	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	<0.21	<0.21	3	<0.22	330	<0.47J	<0.18
MW-18D	09/08/03	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	30	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**3.1**	<1	310	<5	<1
MW-18D	03/16/04	<5	<5	<5	<5	<5	<5	<5	<25	<25	64	<5	<25	<5	<5	<5	24	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	2.6 J	<5	330	<25	<5
MW-18D	09/08/04	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	18	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.3	<1	270	<5	<1
MW-18D	03/07/05	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	16	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.2	<1	120	<5	<1
MW-18D	09/14/05	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	13	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.7	<1	78	<5	<1
MW-18D	09/01/06	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	14	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.7	<1	120	<5	<1
MW-18D	04/02/07	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	16	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	170	<5	<1

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																															
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-18D	10/29/07	<1	<1	<1	2	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	21	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	260	<5	<1
MW-18D	04/14/08	<1	NA	<1	2	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	23	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	260	<5	<1
MW-18D	10/28/08	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	26	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	320	<5	<1
MW-18D	04/28/09	<1	NA	<1	2.7	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	25	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.8	<1	260	<5	<1
MW-18D	11/04/09	<1	NA	<1	1.3	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	18	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.4	<1	220	<5	<1
MW-18D	05/05/10	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	13	<5	<1	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	1.3	<1	140	<5	<1
MW-18D	10/12/10	<1	<1	<1	1.9	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	15	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.2	<1	190	<5	<1
MW-18D	04/11/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	10	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	150	<5	<1
MW-18D	10/03/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	120	<5	<1
MW-18D	05/17/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	7.9	<5	<1	<2	<1	1.3	<1	<1	<1	<1	<1	<1	<1	0.9	<1	100	<5	<1
MW-18D	11/07/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	8.5	<5	<1	<2	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	110	<5	<1
MW-18D	05/07/13	<1	<1	<1	1.12	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	8.72	<5	<1	<2	<1	1.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	142.7	<5	<1
MW-18D	10/13/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	9.4	<5	<0.5	<1	<5	1	<1	<1	<0.5	<1	<1	<0.5	<1	0.74	<1	110	<2	<0.5
MW-18D	04/28/14	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	9.5	<5	<0.5	<1	<5	1.2	<1	<1	<0.5	<1	<1	<0.5	<1	0.87	<1	110	<2	<0.5
MW-18D	11/12/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	12	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	0.43 J	<1.0	0.87	<1.0	130	<2.0	<0.50
MW-18D	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	<1.0	<1.0	9.6	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	0.54	<1.0	98	<2.0	**0.27 J**
MW-19B	09/05/02	<0.22	<0.33	<0.2	0.89 J	<0.24	<0.2	<0.25	<1.7	<0.92	<1.5	<0.2	<0.4	<0.21	0.3 J	<0.16	11	<0.14	<0.2	<0.39	<0.19	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	<0.21	0.33 J	**3.1**	1.5	160	NA	<0.18
MW-19B	09/08/03	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-19B	09/14/05	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-19B	09/01/06	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-19B	04/02/07	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-19B	10/29/07	<1	<1	<1	<1	<1	<1	<1	34	<5	7	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-19B	04/14/08	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-19B	10/27/08	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-19B	04/27/09	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	4.6	<5	<1
MW-19B	11/03/09	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-19B	05/04/10	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-19B	10/12/10	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-19B	10/04/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-19B	11/07/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-19B	10/13/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	<1	<5	<0.5	<1	<5	<1	<1	<1	<0.5	<1	<1	<0.5	<1	<0.5	<1	<5	<2	<0.5
MW-19B	11/11/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	0.33 J	<1.0	<0.50	<1.0	<5.0	<2.0	<0.50
MW-19B	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	<0.50	<1.0	<5.0	<2.0	<0.50
MW-19D	09/05/02	<0.22	<0.33	<0.2	1.1	<0.24	<0.2	<0.25	2 J	<0.92	<1.5	<0.2	<0.4	<0.21	0.33 J	<0.16	18	<0.14	<0.2	<0.39	<0.19	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	0.44 J	0.34 J	**3.2**	1.5	200	NA	**1**
MW-19D	09/08/03	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	13	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**3.6**	1.7	190	<5	<1
MW-19D	09/08/04	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	21	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**5.3**	2.4	560	<5	<1
MW-19D	09/14/05	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	23	1.8	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**6.3**	2.9	370	<5	<1
MW-19D	09/01/06	<1	<1	<1	2.1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	31	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**8.1**	3.5	430	<5	<1
MW-19D	04/02/07	<1	<1	<1	3	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	37	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**9.4**	3.7	620	<5	<1
MW-19D	10/29/07	<1	<1	<1	3	<1	<1	<1	<5	<5	<5	<1	<5	<1	1	<1	55	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**11**	3	760	<5	<1
MW-19D	04/14/08	<1	NA	<1	4	<1	NA	<1	<5	<5	<5	<1	<5	<1	1	<1	55	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**11**	5	770	<5	<1
MW-19D	10/27/08	<1	NA	<1	2	<1	NA	<1	<5	<5	<5	<1	<5	<1	1	<1	69	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**13**	4	920	<5	<1
MW-19D	04/27/09	<1	NA	<1	5.4	<1	NA	<1	<5	<5	<5	<1	<5	<1	1.4	<1	**78**	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**12**	1.2	710	<5	<1
MW-19D	11/03/09	<1	NA	<1	3.3	<1	NA	<1	<5	<5	<5	<1	<5	<1	1	<1	**340**	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**7.7**	<1	7,600	<5	<1
MW-19D	05/04/10	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	50	<5	<1	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	**7.3**	2	450	<5	<1

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																																
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-19D	10/12/10	<1	<1	<1	2.1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	51	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**6.6**	2	310	<5	<1
MW-19D	04/11/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	66	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**6.3**	2	650	<5	<1
MW-19D	10/04/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	58	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**4.6**	<1	340	<5	<1
MW-19D	05/17/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	63	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**4.7**	<1	290	<5	<1
MW-19D	11/07/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	60	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**3.4**	<1	190	<5	<1
MW-19D	05/07/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	**76.11**	13.17	<1	<2	2.01	<1	<1	<1	<1	<1	<1	<1	<1	**3.65**	<1	177.75	<5	<1
MW-19D	10/13/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	0.5	<5	<1	<1	<1	68	<5	<0.5	<1	<5	<1	<1	<1	<0.5	<1	<1	<0.5	<1	2.7	<1	150	<2	**0.8**
MW-19D	04/28/14	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	0.36 J	<5	<1	<1	<1	62	<5	<0.5	<1	<5	<1	<1	<1	<0.5	<1	<1	<0.5	<1	2.3	<1	130	<2	**0.8**
MW-19D	11/11/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**0.48 J**	<5.0	<5.0	<5.0	0.49 J	<5.0	<1.0	<1.0	<1.0	64	15	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	0.34 J	<1.0	2.3	<1.0	170	<2.0	**1**
MW-19D	04/13/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	0.54	<5.0	<1.0	<1.0	<1.0	**78**	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	2.6	<1.0	200	<2.0	**1.1**
MW-19D	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	14	0.66	<2.0	<1.0	<1.0	<1.0	61	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	2.1	<1.0	160	<2.0	**1.2**
MW-20B	09/03/02	<0.22	<0.33	<0.2	<0.19	<0.24	<0.2	<0.25	<1.7	<0.92	<1.5	<0.2	<0.4	<0.21	<0.23	<0.16	<0.21	<0.14	<0.2	<0.39	<0.19	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	<0.21	<0.21	<0.21	<0.22	<0.22	NA	<0.18
MW-20B	09/08/03	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-20B	09/08/04	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-20B	09/13/05	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-20B	09/01/06	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20B	04/02/07	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20B	10/29/07	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20B	04/14/08	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20B	10/27/08	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20B	04/27/09	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20B	11/04/09	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20B	05/04/10	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20B	10/11/10	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20B	10/03/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	13	<5	<1
MW-20B	11/07/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20B	10/13/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	<1	<5	<0.5	0.36	<5	<1	<1	<1	<0.5	<1	<1	<0.5	<1	<0.5	<1	<5	<2	<0.5
MW-20B	11/12/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	<0.50	<1.0	<5.0	<2.0	<0.50
MW-20B	04/13/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	<0.50	<1.0	<5.0	<2.0	<0.50
MW-20B	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	<0.50	<1.0	<5.0	<2.0	<0.50
MW-20D	09/04/02	<0.22	<0.33	<0.2	<0.19	<0.24	<0.2	<0.25	<1.7	<0.92	<1.5	<0.2	<0.4	<0.21	<0.23	<0.16	<0.21	<0.14	<0.2	<0.39	<0.19	<0.21	<0.34	<0.22	<0.21	<0.23	<0.2	<0.21	<0.21	<0.21	<0.22	0.87 J	NA	<0.18
MW-20D	09/08/03	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-20D	09/08/04	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-20D	09/13/05	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
MW-20D	09/01/06	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20D	04/02/07	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20D	10/29/07	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20D	04/14/08	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20D	10/28/08	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20D	04/28/09	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20D	11/04/09	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20D	05/04/10	<1	NA	<1	<1	<1	NA	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20D	10/11/10	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20D	10/01/11	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	<1	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<1
MW-20D	11/07/12	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<5	<1	<1	<1	1.7	<5	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.6	<1	<5	<5	<1
MW-20D	10/13/13	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<0.5	<5	<1	<1	<1	0.74	<5	<0.5	<1	<5	<1	<1	<1	<0.5	<1	<1	<0.5	<1	0.45	<1	0.63	<2	<0.5

Appendix F: Historical Volatile Organic Compound Analytical Results at Solvent Plume Wells

Sample ID	Date	Parameter (in ug/L)																																
		1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dichloroethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Carbon disulfide	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon-12 (Dichlorodifluoromethane)	Ethylbenzene	m&p-Xylenes	Methylene chloride	Methyl-tert-butyl-ether (MTBE)	Naphthalene	n-Butylbenzene	o-Xylene	Styrene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Freon-11 (Trichlorofluoromethane)	Freon- 113 (1,1,2-Trichlorotrifluoroethane)	Vinyl acetate	Vinyl chloride
2L Standards		200	0.6	6	350	NE	400	0.4	4000	NE	6000	1	700	3000	70	3	70	1000	600	500	5	20	6	70	500	70	0.7	600	100	3	2000	200000	88	0.03
MW-20D	11/12/14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	0.68 J	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	0.35 J	<1.0	0.49 J	<1.0	<5.0	<2.0	<0.50
MW-20D	04/13/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	0.47 J	<1.0	<0.50	<1.0	<5.0	<2.0	<0.50
MW-20D	12/29/15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<0.50	<2.0	<1.0	<1.0	<1.0	0.81 J	<5.0	<0.50	<1.0	<5.0	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	0.55	<1.0	<5.0	<2.0	<0.50

* During the 11/4/2009 sampling event, the samples for MW-102A and MW-102C were mislabled in the field. They have been corrected in this table.
µg/L: micrograms per liter
2L Standard: North Carolina Administrative Code (15A NCAC) Subchapter 2L Groundwater Standards (updates effective April 1, 2013)
The NCDENR approved a change to the 2L Standard for 1,1-DCE , to increase from 7 ug/L to 350 ug/L, in January 10, 2013. The final 2L standard 2013 updates are dated April 1, 2013.
"<" gray value indicates not detected
Bold and Shaded: Constituent concentration reported above the NCAC 2L Groundwater Standard (current 2L updates dated April 1, 2013)

APPENDIX G
MANN KENDALL STATISTICAL ANALYSIS

Appendix G: Mann Kendall Statistical Analysis

Well ID	Compound	Mann-Kendall Statistic	Number of Rounds	Average	Standard Deviation	Coefficient of Variation	Trend ≥ 80% Confidence Level	Trend ≥ 90% Confidence Level	Stability Test, if no trend exists
Trichloroethene									
MW-16D	TCE	0	0	#DIV/0!	#DIV/0!	#DIV/0!	n<4	n<4	n<4
MW-18D	TCE	-10	6	0.88	0.18	0.21	DECREASING	DECREASING	NA
MW-19D	TCE	-36	10	3.92	1.59	0.41	DECREASING	DECREASING	NA
MW-100A	TCE	-35	9	236.11	383.07	1.62	DECREASING	DECREASING	NA
MW-100B	TCE	-43	10	2336.90	2776.98	1.19	DECREASING	DECREASING	NA
MW-101A	TCE	-35	10	340.31	586.17	1.72	DECREASING	DECREASING	NA
MW-101B	TCE	-27	10	285.30	389.53	1.37	DECREASING	DECREASING	NA
MW-102C	TCE	-22	10	8481.00	7335.23	0.86	DECREASING	DECREASING	NA
MW-103A	TCE	-7	7	48.14	21.44	0.45	DECREASING	No Trend	NA
MW-103B	TCE	-29	9	26.94	18.47	0.69	DECREASING	DECREASING	NA
MW-103C	TCE	-9	10	44.20	17.55	0.40	No Trend	No Trend	STABLE
MW-104A	TCE	-14	8	1.71	0.26	0.15	DECREASING	DECREASING	NA
MW-104B	TCE	-29	9	7.68	2.80	0.37	DECREASING	DECREASING	NA
MW-104C	TCE	-33	10	8.73	2.65	0.30	DECREASING	DECREASING	NA
cis-1,2-Dichloroethene									
MW-16D	cis-1,2-DCE	11	10	5.59	3.46	0.62	INCREASING	No Trend	NA
MW-19D	cis-1,2-DCE	21	10	64.61	8.06	0.12	INCREASING	INCREASING	NA
MW-100A	cis-1,2-DCE	-15	10	42800.00	9114.09	0.21	DECREASING	No Trend	NA
MW-100B	cis-1,2-DCE	4	10	62800.00	7539.53	0.12	No Trend	No Trend	STABLE
MW-101A	cis-1,2-DCE	-31	10	566.50	905.17	1.60	DECREASING	DECREASING	NA
MW-101B	cis-1,2-DCE	-29	10	8424.00	7246.91	0.86	DECREASING	DECREASING	NA
MW-102C	cis-1,2-DCE	-3	10	36800.00	9507.89	0.26	No Trend	No Trend	STABLE
MW-103A	cis-1,2-DCE	-30	10	159.50	47.87	0.30	DECREASING	DECREASING	NA
MW-103B	cis-1,2-DCE	-31	10	163.90	37.67	0.23	DECREASING	DECREASING	NA
MW-103C	cis-1,2-DCE	-12	10	241.00	64.20	0.27	DECREASING	No Trend	NA
MW-104A	cis-1,2-DCE	-23	10	363.20	147.23	0.41	DECREASING	DECREASING	NA
MW-104B	cis-1,2-DCE	-28	10	28.80	7.04	0.24	DECREASING	DECREASING	NA
MW-104C	cis-1,2-DCE	-31	10	67.80	28.87	0.43	DECREASING	DECREASING	NA
Tetrachloroethane									
MW-100A	PCE	-10	5	26.84	11.57	0.43	DECREASING	DECREASING	NA
MW-100B	PCE	-6	5	45.60	9.76	0.21	DECREASING	No Trend	NA
MW-101A	PCE	-13	7	21.13	17.11	0.81	DECREASING	DECREASING	NA
MW-101B	PCE	-10	9	34.62	26.25	0.76	DECREASING	No Trend	NA
MW-102C	PCE	-2	5	26.00	9.38	0.36	No Trend	No Trend	STABLE
1,1,1-Trichloroethane									
MW-100A	1,1,1-TCA	-35	10	982.00	535.39	0.55	DECREASING	DECREASING	NA
MW-100B	1,1,1-TCA	-30	10	1530.00	368.33	0.24	DECREASING	DECREASING	NA
MW-101A	1,1,1-TCA	-26	8	233.74	335.39	1.43	DECREASING	DECREASING	NA
MW-101B	1,1,1-TCA	-39	10	555.81	502.01	0.90	DECREASING	DECREASING	NA
1,1-Dichloroethene									
MW-100A	1,1-DCE	-26	9	615.56	160.24	0.26	DECREASING	DECREASING	NA
MW-100B	1,1-DCE	-18	9	912.22	105.57	0.12	DECREASING	DECREASING	NA
MW-101A	1,1-DCE	0	1	120.00	#DIV/0!	#DIV/0!	n<4	n<4	n<4
MW-101B	1,1-DCE	-10	5	145.00	62.25	0.43	DECREASING	DECREASING	NA
MW-102C	1,1-DCE	-14	9	1118.89	195.99	0.18	DECREASING	DECREASING	NA
Vinyl Chloride									
MW-19D	Vinyl Chloride	5	4	0.93	0.15	0.16	INCREASING	No Trend	NA
MW-100A	Vinyl Chloride	-3	8	83.38	29.30	0.35	No Trend	No Trend	STABLE
MW-100B	Vinyl Chloride	-23	9	96.44	11.60	0.12	DECREASING	DECREASING	NA
MW-103B	Vinyl Chloride	-3	6	10.52	2.70	0.26	No Trend	No Trend	STABLE
MW-103C	Vinyl Chloride	6	4	9.45	1.34	0.14	INCREASING	INCREASING	NA
MW-104A	Vinyl Chloride	16	10	12.25	6.59	0.54	INCREASING	INCREASING	NA
MW-104B	Vinyl Chloride	0	3	1.53	0.40	0.26	n<4	n<4	n<4
MW-104C	Vinyl Chloride	0	3	2.27	0.29	0.13	n<4	n<4	n<4
Toluene									
MW-100A	Toluene	-27	10	2031.00	589.96	0.29	DECREASING	DECREASING	NA
MW-100B	Toluene	-29	10	3250.00	337.47	0.10	DECREASING	DECREASING	NA
MW-101A	Toluene	-18	8	94.54	121.60	1.29	DECREASING	DECREASING	NA
MW-101B	Toluene	-22	9	667.17	437.46	0.66	DECREASING	DECREASING	NA
MW-102C	Toluene	11	10	1166.00	414.52	0.36	INCREASING	No Trend	NA
Methylene Chloride									
MW-100A	Methylene Chloride	-11	6	8628.33	11746.36	1.36	DECREASING	DECREASING	NA
MW-100B	Methylene Chloride	-24	8	20737.50	19596.64	0.94	DECREASING	DECREASING	NA
MW-101B	Methylene Chloride	-1	2	33.00	26.87	0.81	n<4	n<4	n<4
Chloroform									
MW-100A	Chloroform	-32	10	151.00	48.41	0.32	DECREASING	DECREASING	NA
MW-100B	Chloroform	-29	10	218.00	56.53	0.26	DECREASING	DECREASING	NA
1,2-Dichloroethane									
MW-100A	1,2-DCA	-27	10	114.00	40.13	0.35	DECREASING	DECREASING	NA
MW-100B	1,2-DCA	-27	9	192.22	59.54	0.31	DECREASING	DECREASING	NA
1,1-Dichloroethane									
MW-101B	1,1-DCA	-23	8	19.37	12.56	0.65	DECREASING	DECREASING	NA

Notes: n<4 indicates less than 4 non-zero data points at that well

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Site Name : Abbott Labs, Laurinburg, North Carolina | BRRTS No. = | Well Number = MW-16D

	Compound ->	TCE	cis-1,2-DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	11-Oct-10		2.50				
2	11-Apr-11		3.30				
3	4-Oct-11		13.00				
4	17-May-12		2.40				
5	7-Nov-12		2.80				
6	7-May-13		5.72				
7	13-Oct-13		5.80				
8	28-Apr-14		10.00				
9	11-Nov-14		5.50				
10	14-Apr-15		4.90				
	Mann Kendall Statistic (S) =	0.0	11.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	0	10	0	0	0	0
	Average =	#DIV/0!	5.59	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	#DIV/0!	3.459	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	#DIV/0!	0.618	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected		n<4		n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		n<4	**INCREASING**	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		n<4	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at		n<4		n<4	n<4	n<4	n<4
80% Confidence Level		n<4	NA	n<4	n<4	n<4	n<4

Data Entry By = AF | Date = 23-Feb-16 | Checked By = EH

State of Wisconsin
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Remediation and Redevelopment Program

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Site Name :	Abbott Labs, Laurinburg, North Carolina	BRRTS No. =		Well Number =	MW-18D

	Compound ->	TCE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	12-Oct-10	1.20					
2	11-Apr-11						
3	3-Oct-11						
4	17-May-12	0.90					
5	7-Nov-12						
6	7-May-13						
7	13-Oct-13	0.74					
8	29-Apr-14	0.87					
9	12-Nov-14	0.87					
10	16-Apr-15	0.68					
	Mann Kendall Statistic (S) =	-10.0	0.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	6	0	0	0	0	0
	Average =	0.88	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	0.180	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.206	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		**DECREASING**	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		**DECREASING**	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at			n<4	n<4	n<4	n<4	n<4
80% Confidence Level		NA	n<4	n<4	n<4	n<4	n<4

Data Entry By =	AF	Date =	23-Feb-16	Checked By =	EH

State of Wisconsin
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Site Name :	Abbott Labs, Laurinburg, North Carolina	BRRTS No. =		Well Number =	MW-19D

	Compound ->	TCE	cis-1,2-DCE	Vinyl Chloride			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	12-Oct-10	6.60	51.00				
2	11-Apr-11	6.30	66.00				
3	4-Oct-11	4.60	58.00				
4	17-May-12	4.70	63.00				
5	7-Nov-12	3.40	60.00				
6	7-May-13	3.65	76.11				
7	13-Oct-13	2.70	68.00	0.80			
8	28-Apr-14	2.30	62.00	0.80			
9	11-Nov-14	2.30	64.00	1.00			
10	13-Apr-15	2.60	78.00	1.10			
	Mann Kendall Statistic (S) =	-36.0	21.0	5.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	4	0	0	0
	Average =	3.92	64.61	0.93	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	1.590	8.062	0.150	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.406	0.125	0.162	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	INCREASING	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	INCREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By =	AF	Date =	23-Feb-16	Checked By =	EH

State of Wisconsin
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Site Name =	Abbott Labs, Laurinburg, North Carolina	BRRTS No. =		Well Number =	MW-100A

	Compound ->	1,1,1-TCA	1,2-DCA	PCE	TCE	cis-1,2-DCE	1,1-DCE
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	17-Aug-11	1,700.00	190.00		940.00	48,000.00	750.00
2	5-Oct-11	2,000.00	170.00		880.00	50,000.00	740.00
3	17-May-12	1,200.00	120.00	37.00	80.00	40,000.00	750.00
4	7-Nov-12	1,100.00	100.00		69.00	47,000.00	660.00
5	7-May-13	790.00	91.00	36.00	63.00	41,000.00	600.00
6	23-Oct-13	610.00	100.00	27.00	35.00	48,000.00	600.00
7	29-Apr-14	880.00	120.00	26.00	25.00	49,000.00	
8	12-Nov-14	580.00	87.00		25.00	45,000.00	570.00
9	15-Apr-15	720.00	110.00			41,000.00	640.00
10	28-Dec-15	240.00	52.00	8.20	8.00	19,000.00	230.00
	Mann Kendall Statistic (S) =	-35.0	-27.0	-10.0	-35.0	-15.0	-26.0
	Number of Rounds (n) =	10	10	5	9	10	9
	Average =	982.00	114.00	26.84	236.11	42800.00	615.56
	Standard Deviation =	535.388	40.130	11.568	383.069	9114.092	160.243
	Coefficient of Variation(CV)=	0.545	0.352	0.431	1.622	0.213	0.260

Error Check, Blank if No Errors Detected						
Trend ≥ 80% Confidence Level	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**
Trend ≥ 90% Confidence Level	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	No Trend	**DECREASING**
Stability Test, If No Trend Exists at 80% Confidence Level	NA	NA	NA	NA	NA	NA

Data Entry By =	AF	Date =	23-Feb-16	Checked By =	EH

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Site Name =	Abbott Labs, Laurinburg, North Carolina	BRRTS No. =		Well Number =	MW-100A

	Compound ->	Vinyl Chloride	Chloroform	thylene Chloride	Toluene		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	17-Aug-11		200.00	20,000.00	2,500.00		
2	5-Oct-11		240.00	27,000.00	2,600.00		
3	17-May-12	81.00	160.00	1,800.00	2,600.00		
4	7-Nov-12	62.00	160.00	1,900.00	2,000.00		
5	7-May-13	120.00	150.00	810.00	2,100.00		
6	23-Oct-13	92.00	130.00		2,100.00		
7	29-Apr-14	90.00	160.00		2,300.00		
8	12-Nov-14	69.00	110.00	260.00	1,700.00		
9	15-Apr-15	120.00	140.00		1,800.00		
10	28-Dec-15	33.00	60.00		610.00		
	Mann Kendall Statistic (S) =	-3.0	-32.0	-11.0	-27.0	0.0	0.0
	Number of Rounds (n) =	8	10	6	10	0	0
	Average =	83.38	151.00	8628.33	2031.00	#DIV/0!	#DIV/0!
	Standard Deviation =	29.296	48.408	11746.360	589.961	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.351	0.321	1.361	0.290	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected						n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	**DECREASING**	**DECREASING**	**DECREASING**	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	**DECREASING**	**DECREASING**	**DECREASING**	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		**CV <= 1 STABLE**	NA	NA	NA	n<4 n<4	n<4 n<4

Data Entry By =	AF	Date =	23-Feb-16	Checked By =	EH

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Site Name :	Abbott Labs, Laurinburg, North Carolina	BRRTS No. =		Well Number =	MW-100B

Event Number	Sampling Date (most recent last)	1,1,1-TCA Concentration (leave blank if no data)	1,2-DCA Concentration (leave blank if no data)	PCE Concentration (leave blank if no data)	TCE Concentration (leave blank if no data)	cis-1,2-DCE Concentration (leave blank if no data)	1,1-DCE Concentration (leave blank if no data)
	Compound ->	1,1,1-TCA	1,2-DCA	PCE	TCE	cis-1,2-DCE	1,1-DCE
1	17-Aug-11	1,700.00	270.00		7,600.00	56,000.00	970.00
2	5-Oct-11	2,400.00	300.00		6,900.00	66,000.00	1,100.00
3	17-May-12	1,500.00	210.00	54.00	3,600.00	52,000.00	910.00
4	7-Nov-12	1,700.00	200.00		1,600.00	79,000.00	1,000.00
5	7-May-13	1,600.00	150.00	57.00	1,100.00	62,000.00	940.00
6	23-Oct-13	1,300.00	150.00	44.00	1,000.00	63,000.00	830.00
7	29-Apr-14	1,500.00	180.00	34.00	430.00	69,000.00	
8	12-Nov-14	1,100.00	130.00		820.00	57,000.00	740.00
9	15-Apr-15	1,300.00			220.00	61,000.00	850.00
10	28-Dec-15	1,200.00	140.00	39.00	99.00	63,000.00	870.00
	Mann Kendall Statistic (S) =	-30.0	-27.0	-6.0	-43.0	4.0	-18.0
	Number of Rounds (n) =	10	9	5	10	10	9
	Average =	1530.00	192.22	45.60	2336.90	62800.00	912.22
	Standard Deviation =	368.330	59.535	9.762	2776.978	7539.525	105.567
	Coefficient of Variation(CV)=	0.241	0.310	0.214	1.188	0.120	0.116

Error Check, Blank if No Errors Detected						
Trend ≥ 80% Confidence Level	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	No Trend	**DECREASING**
Trend ≥ 90% Confidence Level	**DECREASING**	**DECREASING**	No Trend	**DECREASING**	No Trend	**DECREASING**
Stability Test, If No Trend Exists at 80% Confidence Level	NA	NA	NA	NA	**CV <= 1 STABLE**	NA

Data Entry By =	AF	Date =	23-Feb-16	Checked By =	EH

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : Abbott Labs, Laurinburg, North Carolina | BRRTS No. = | Well Number = MW-100B

	Compound ->	Vinyl Chloride	Chloroform	thylene Chloride	Toluene		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	17-Aug-11	110.00	260.00	37,000.00	3,600.00		
2	5-Oct-11	110.00	340.00	57,000.00	3,600.00		
3	17-May-12	110.00	230.00	25,000.00	3,300.00		
4	7-Nov-12		260.00	27,000.00	3,600.00		
5	7-May-13	95.00	200.00	11,000.00	3,400.00		
6	23-Oct-13	91.00	180.00	5,300.00	3,300.00		
7	29-Apr-14	86.00	210.00	2,500.00	3,300.00		
8	12-Nov-14	90.00	150.00	1,100.00	2,700.00		
9	15-Apr-15	98.00	170.00		2,800.00		
10	28-Dec-15	78.00	180.00		2,900.00		
	Mann Kendall Statistic (S) =	-23.0	-29.0	-24.0	-29.0	0.0	0.0
	Number of Rounds (n) =	9	10	8	10	0	0
	Average =	96.44	218.00	20737.50	3250.00	#DIV/0!	#DIV/0!
	Standard Deviation =	11.599	56.529	19596.642	337.474	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.120	0.259	0.945	0.104	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected						n<4	n<4
Trend ≥ 80% Confidence Level		**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	n<4	n<4
Trend ≥ 90% Confidence Level		**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	NA	n<4 n<4	n<4 n<4

Data Entry By = AF | Date = 23-Feb-16 | Checked By = EH

State of Wisconsin
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Remediation and Redevelopment Program

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Site Name : Abbott Labs, Laurinburg, North Carolina | BRRTS No. = | Well Number = MW-101A

Event Number	Sampling Date (most recent last)	1,1,1-TCA Concentration (leave blank if no data)	PCE Concentration (leave blank if no data)	TCE Concentration (leave blank if no data)	cis-1,2-DCE Concentration (leave blank if no data)	1,1-DCE Concentration (leave blank if no data)	Toluene Concentration (leave blank if no data)
1	16-Aug-11	720.00	49.00	940.00	1,700.00	120.00	260.00
2	5-Oct-11	820.00		1,800.00	2,700.00		310.00
3	17-May-12	160.00	40.00	310.00	470.00		94.00
4	7-Nov-12	60.00	10.00	86.00	140.00		24.00
5	8-May-13	56.00	18.00	110.00	190.00		29.00
6	23-Oct-13	31.00	9.40	32.00	34.00		4.80
7	29-Apr-14	19.00	19.00	100.00	350.00		32.00
8	12-Nov-14			12.00	22.00		
9	15-Apr-15	3.90	2.50	5.90	48.00		2.50
10	28-Dec-15			7.20	11.00		
	Mann Kendall Statistic (S) =	-26.0	-13.0	-35.0	-31.0	0.0	-18.0
	Number of Rounds (n) =	8	7	10	10	1	8
	Average =	233.74	21.13	340.31	566.50	120.00	94.54
	Standard Deviation =	335.390	17.106	586.169	905.167	#DIV/0!	121.601
	Coefficient of Variation(CV)=	1.435	0.810	1.722	1.598	#DIV/0!	1.286
Error Check, Blank if No Errors Detected						n<4	
Trend ≥ 80% Confidence Level		**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	n<4	**DECREASING**
Trend ≥ 90% Confidence Level		**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	n<4	**DECREASING**
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	NA	n<4 n<4	NA

Data Entry By = AF | Date = 23-Feb-16 | Checked By = EH

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Department of Natural Resources
Remediation and Redevelopment Program

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Site Name =	Abbott Labs, Laurinburg, North Carolina	BRRTS No. =		Well Number =	MW-101B

	Compound ->	1,1,1-TCA	1,1-DCA	PCE	TCE	cis-1,2-DCE	1,1-DCE
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	16-Aug-11	1,500.00	42.00	37.00	1,300.00	23,000.00	230.00
2	5-Oct-11	770.00	23.00		110.00	8,200.00	
3	17-May-12	1,200.00	31.00	50.00	360.00	16,000.00	190.00
4	7-Nov-12	610.00	17.00	47.00	410.00	9,400.00	120.00
5	8-May-13	500.00	14.00	61.00	400.00	8,600.00	100.00
6	23-Oct-13	490.00	13.00	64.00	110.00	9,200.00	85.00
7	29-Apr-14	460.00	14.00	49.00	40.00	9,100.00	
8	12-Nov-14	0.54		0.64	40.00	120.00	
9	14-Apr-15	27.00	0.93	2.10	19.00	510.00	
10	28-Dec-15	0.60		0.87	64.00	110.00	
	Mann Kendall Statistic (S) =	-39.0	-23.0	-10.0	-27.0	-29.0	-10.0
	Number of Rounds (n) =	10	8	9	10	10	5
	Average =	555.81	19.37	34.62	285.30	8424.00	145.00
	Standard Deviation =	502.011	12.561	26.250	389.529	7246.906	62.249
	Coefficient of Variation(CV)=	0.903	0.649	0.758	1.365	0.860	0.429

Error Check, Blank if No Errors Detected						
Trend ≥ 80% Confidence Level	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING
Trend ≥ 90% Confidence Level	DECREASING	DECREASING	No Trend	DECREASING	DECREASING	DECREASING
Stability Test, If No Trend Exists at 80% Confidence Level	NA	NA	NA	NA	NA	NA

Data Entry By =	AF	Date =	23-Feb-16	Checked By =	EH

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Site Name :	Abbott Labs, Laurinburg, North Carolina	BRRTS No. =		Well Number =	MW-101B

	Compound ->	thylene Chloride	Toluene				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	16-Aug-11	52.00	1,100.00				
2	5-Oct-11		560.00				
3	17-May-12		1,300.00				
4	7-Nov-12		840.00				
5	8-May-13	14.00	770.00				
6	23-Oct-13		750.00				
7	29-Apr-14		680.00				
8	12-Nov-14		0.31				
9	14-Apr-15		4.20				
10	28-Dec-15						
	Mann Kendall Statistic (S) =	-1.0	-22.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	2	9	0	0	0	0
	Average =	33.00	667.17	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	26.870	437.465	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.814	0.656	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected		n<4		n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		n<4	**DECREASING**	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		n<4	**DECREASING**	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at		n<4		n<4	n<4	n<4	n<4
80% Confidence Level		n<4	NA	n<4	n<4	n<4	n<4

Data Entry By =	AF	Date =	13-Oct-14	Checked By =	GW

State of Wisconsin
Department of Natural Resources
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Site Name =	Abbott Labs, Laurinburg, North Carolina	BRRTS No. =		Well Number =	MW-102C

Event Number	Sampling Date (most recent last)	PCE Concentration (leave blank if no data)	TCE Concentration (leave blank if no data)	cis-1,2-DCE Concentration (leave blank if no data)	1,1-DCE Concentration (leave blank if no data)	Toluene Concentration (leave blank if no data)	Concentration (leave blank if no data)
	Compound ->	PCE	TCE	cis-1,2-DCE	1,1-DCE	Toluene	
1	16-Aug-11		21,000.00	32,000.00	1,200.00	740.00	
2	5-Oct-11	27.00	21,000.00	29,000.00	1,100.00	1,000.00	
3	17-May-12		4,700.00	44,000.00	1,200.00	700.00	
4	7-Nov-12		12,000.00	48,000.00	1,500.00	1,500.00	
5	8-May-13		5,300.00	38,000.00	1,000.00	1,100.00	
6	23-Oct-13	32.00	5,100.00	48,000.00	1,200.00	1,700.00	
7	29-Apr-14	21.00	1,800.00	33,000.00	790.00	1,200.00	
8	12-Nov-14	37.00	8,300.00	41,000.00	1,100.00	1,800.00	
9	14-Apr-15		5,400.00	38,000.00	980.00	1,300.00	
10	29-Dec-15	13.00	210.00	17,000.00		620.00	
	Mann Kendall Statistic (S) =	-2.0	-22.0	-3.0	-14.0	11.0	0.0
	Number of Rounds (n) =	5	10	10	9	10	0
	Average =	26.00	8481.00	36800.00	1118.89	1166.00	#DIV/0!
	Standard Deviation =	9.381	7335.231	9507.891	195.988	414.520	#DIV/0!
	Coefficient of Variation(CV)=	0.361	0.865	0.258	0.175	0.356	#DIV/0!
Error Check, Blank if No Errors Detected							n<4
Trend ≥ 80% Confidence Level		No Trend	DECREASING	No Trend	DECREASING	INCREASING	n<4
Trend ≥ 90% Confidence Level		No Trend	DECREASING	No Trend	DECREASING	No Trend	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	NA	CV <= 1 STABLE	NA	NA	n<4 n<4

Data Entry By =	AF	Date =	23-Feb-16	Checked By =	EH

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Site Name :	Abbott Labs, Laurinburg, North Carolina	BRRTS No. =		Well Number =	MW-103A

	Compound ->	TCE	cis-1,2-DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	15-Aug-11	78.00	230.00				
2	4-Oct-11		160.00				
3	16-May-12		200.00				
4	7-Nov-12	79.00	180.00				
5	8-May-13	40.00	190.00				
6	22-Oct-13	26.00	170.00				
7	29-Apr-14	33.00	130.00				
8	13-Nov-14	43.00	140.00				
9	14-Apr-15		140.00				
10	30-Dec-15	38.00	55.00				
	Mann Kendall Statistic (S) =	-7.0	-30.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	7	10	0	0	0	0
	Average =	48.14	159.50	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	21.443	47.868	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.445	0.300	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		**DECREASING**	**DECREASING**	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	**DECREASING**	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at				n<4	n<4	n<4	n<4
80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4

Data Entry By =	AF	Date =	23-Feb-16	Checked By =	EH

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Site Name : Abbott Labs, Laurinburg, North Carolina | BRRTS No. = | Well Number = MW-103B

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	cis-1,2-DCE Concentration (leave blank if no data)	Vinyl Chloride Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	15-Aug-11	36.00	170.00				
2	4-Oct-11	41.00	180.00				
3	17-May-12		250.00	14.00			
4	7-Nov-12	63.00	170.00				
5	8-May-13	35.00	160.00	7.50			
6	22-Oct-13	22.00	160.00	11.00			
7	29-Apr-14	16.00	140.00	10.00			
8	13-Nov-14	16.00	160.00				
9	14-Apr-15	8.10	150.00	13.00			
10	30-Dec-15	5.40	99.00	7.60			
	Mann Kendall Statistic (S) =	-29.0	-31.0	-3.0	0.0	0.0	0.0
	Number of Rounds (n) =	9	10	6	0	0	0
	Average =	26.94	163.90	10.52	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	18.465	37.667	2.698	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.685	0.230	0.257	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		**DECREASING**	**DECREASING**	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		**DECREASING**	**DECREASING**	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	**CV <= 1 STABLE**	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = AF | Date = 23-Feb-16 | Checked By = EH

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name :	Abbott Labs, Laurinburg, North Carolina	BRRTS No. =		Well Number =	MW-103C

	Compound ->	TCE	cis-1,2-DCE	Vinyl Chloride			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	15-Aug-11	40.00	270.00				
2	4-Oct-11	41.00	270.00				
3	16-May-12	59.00	280.00				
4	7-Nov-12	44.00	210.00	7.90			
5	8-May-13	68.00	300.00	8.90			
6	22-Oct-13	56.00	290.00				
7	29-Apr-14	65.00	310.00	10.00			
8	13-Nov-14	28.00	200.00				
9	14-Apr-15	20.00	150.00	11.00			
10	30-Dec-15	21.00	130.00				
	Mann Kendall Statistic (S) =	-9.0	-12.0	6.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	4	0	0	0
	Average =	44.20	241.00	9.45	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	17.549	64.196	1.343	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.397	0.266	0.142	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	**DECREASING**	**INCREASING**	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	**INCREASING**	n<4	n<4	n<4
Stability Test, If No Trend Exists at		**CV <= 1**			n<4	n<4	n<4
80% Confidence Level		**STABLE**	NA	NA	n<4	n<4	n<4

Data Entry By =	AF	Date =	23-Feb-16	Checked By =	EH

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

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Site Name :	Abbott Labs, Laurinburg, North Carolina	BRRTS No. =		Well Number =	MW-104A

	Compound ->	TCE	cis-1,2-DCE	Vinyl Chloride			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	20-Apr-11	2.20	600.00	9.40			
2	4-Oct-11	1.90	440.00	8.40			
3	16-May-12		470.00	9.30			
4	7-Nov-12	1.50	340.00	4.90			
5	8-May-13	1.80	300.00	6.60			
6	22-Oct-13	1.40	32.00	7.90			
7	28-Apr-14	1.70	400.00	21.00			
8	13-Nov-14	1.70	390.00	15.00			
9	14-Apr-15	1.50	370.00	25.00			
10	30-Dec-15		290.00	15.00			
	Mann Kendall Statistic (S) =	-14.0	-23.0	16.0	0.0	0.0	0.0
	Number of Rounds (n) =	8	10	10	0	0	0
	Average =	1.71	363.20	12.25	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	0.259	147.227	6.589	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.151	0.405	0.538	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	INCREASING	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	INCREASING	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By =	AF	Date =	23-Feb-16	Checked By =	EH

State of Wisconsin
Department of Natural Resources
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Site Name =	Abbott Labs, Laurinburg, North Carolina	BRRTS No. =		Well Number =	MW-104B

	Compound ->	TCE	cis-1,2-DCE	Vinyl Chloride			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	20-Apr-11	13.00	44.00				
2	4-Oct-11		35.00				
3	16-May-12	11.00	32.00				
4	7-Nov-12	7.80	26.00				
5	8-May-13	7.80	24.00				
6	22-Oct-13	6.20	25.00				
7	28-Apr-14	7.10	30.00	1.30			
8	13-Nov-14	7.30	24.00	2.00			
9	14-Apr-15	4.60	29.00	1.30			
10	30-Dec-15	4.30	19.00				
	Mann Kendall Statistic (S) =	-29.0	-28.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	9	10	3	0	0	0
	Average =	7.68	28.80	1.53	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	2.805	7.036	0.404	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.365	0.244	0.264	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		**DECREASING**	**DECREASING**	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		**DECREASING**	**DECREASING**	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at				n<4	n<4	n<4	n<4
80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4

Data Entry By =	AF	Date =	23-Feb-16	Checked By =	EH

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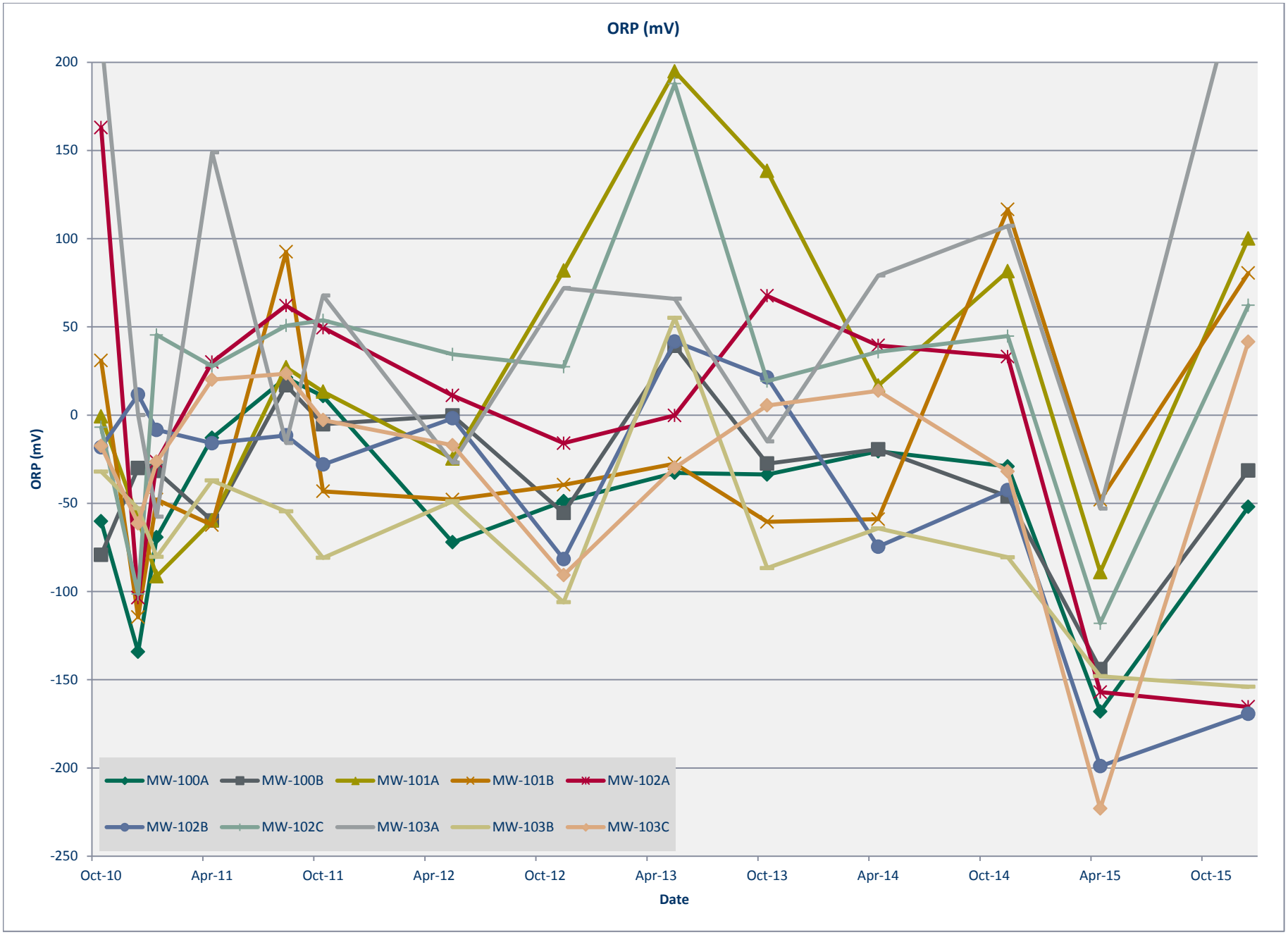
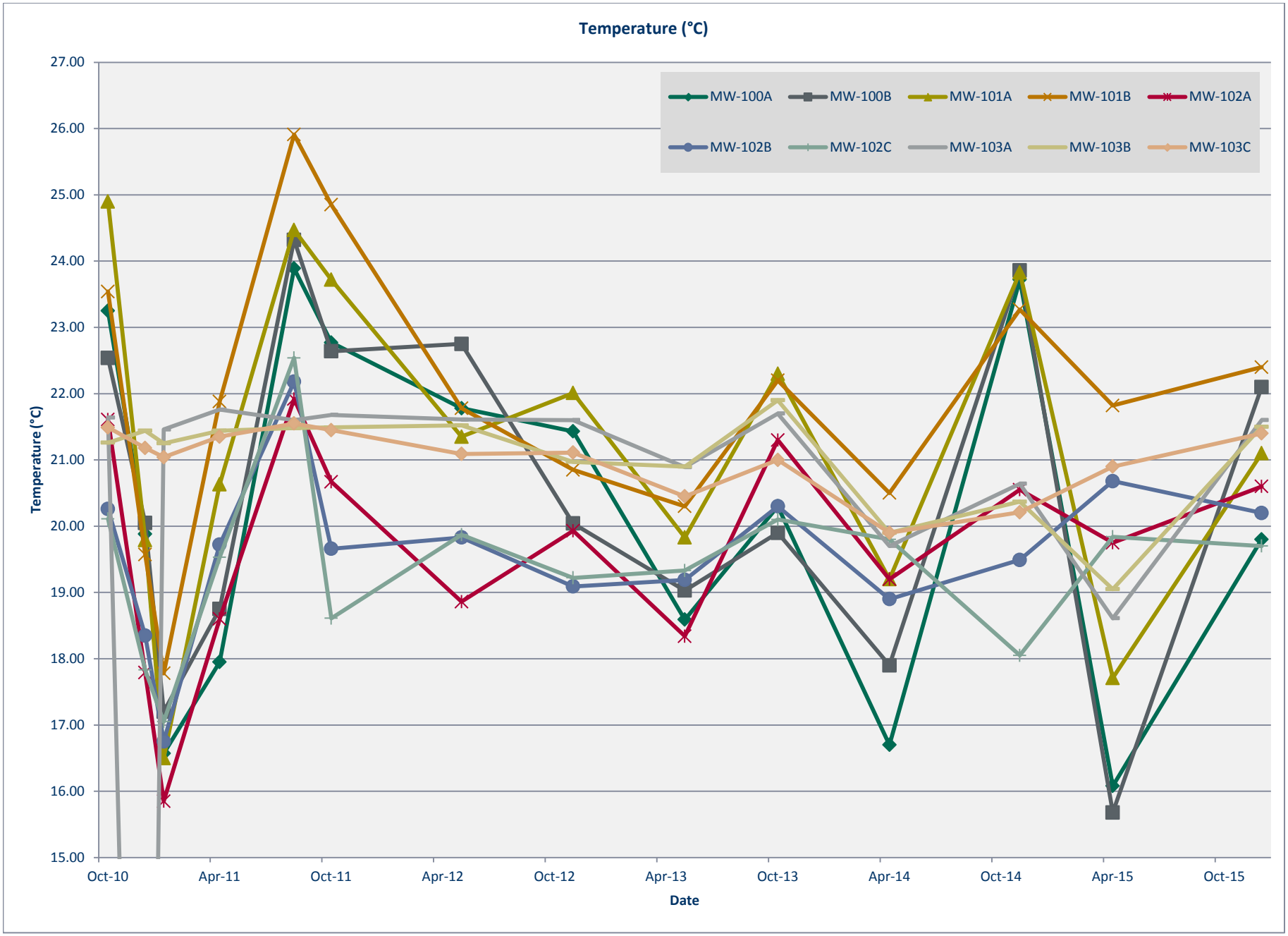
Site Name =	Abbott Labs, Laurinburg, North Carolina	BRRTS No. =		Well Number =	MW-104C

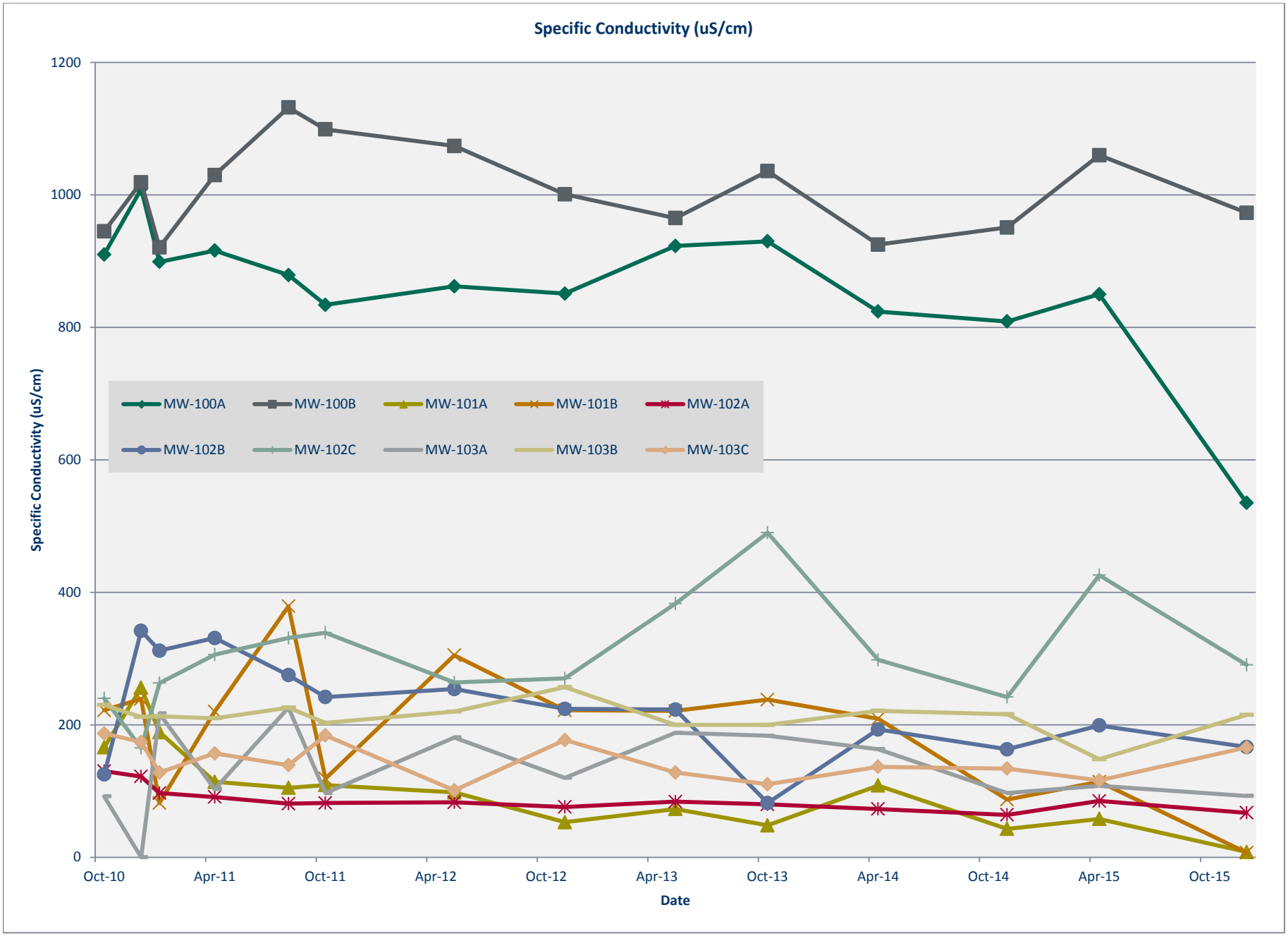
	Compound ->	TCE	cis-1,2-DCE	Vinyl Chloride			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	20-Apr-11	13.00	100.00				
2	4-Oct-11	13.00	87.00				
3	16-May-12	9.80	65.00				
4	7-Nov-12	7.80	55.00				
5	8-May-13	9.60	130.00				
6	22-Oct-13	7.80	51.00				
7	29-Apr-14	7.00	52.00	2.10			
8	13-Nov-14	8.00	54.00	2.60			
9	14-Apr-15	5.10	43.00	2.10			
10	30-Dec-15	6.20	41.00				
	Mann Kendall Statistic (S) =	-33.0	-31.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	3	0	0	0
	Average =	8.73	67.80	2.27	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	2.650	28.871	0.289	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.304	0.426	0.127	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		**DECREASING**	**DECREASING**	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		**DECREASING**	**DECREASING**	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at				n<4	n<4	n<4	n<4
80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4

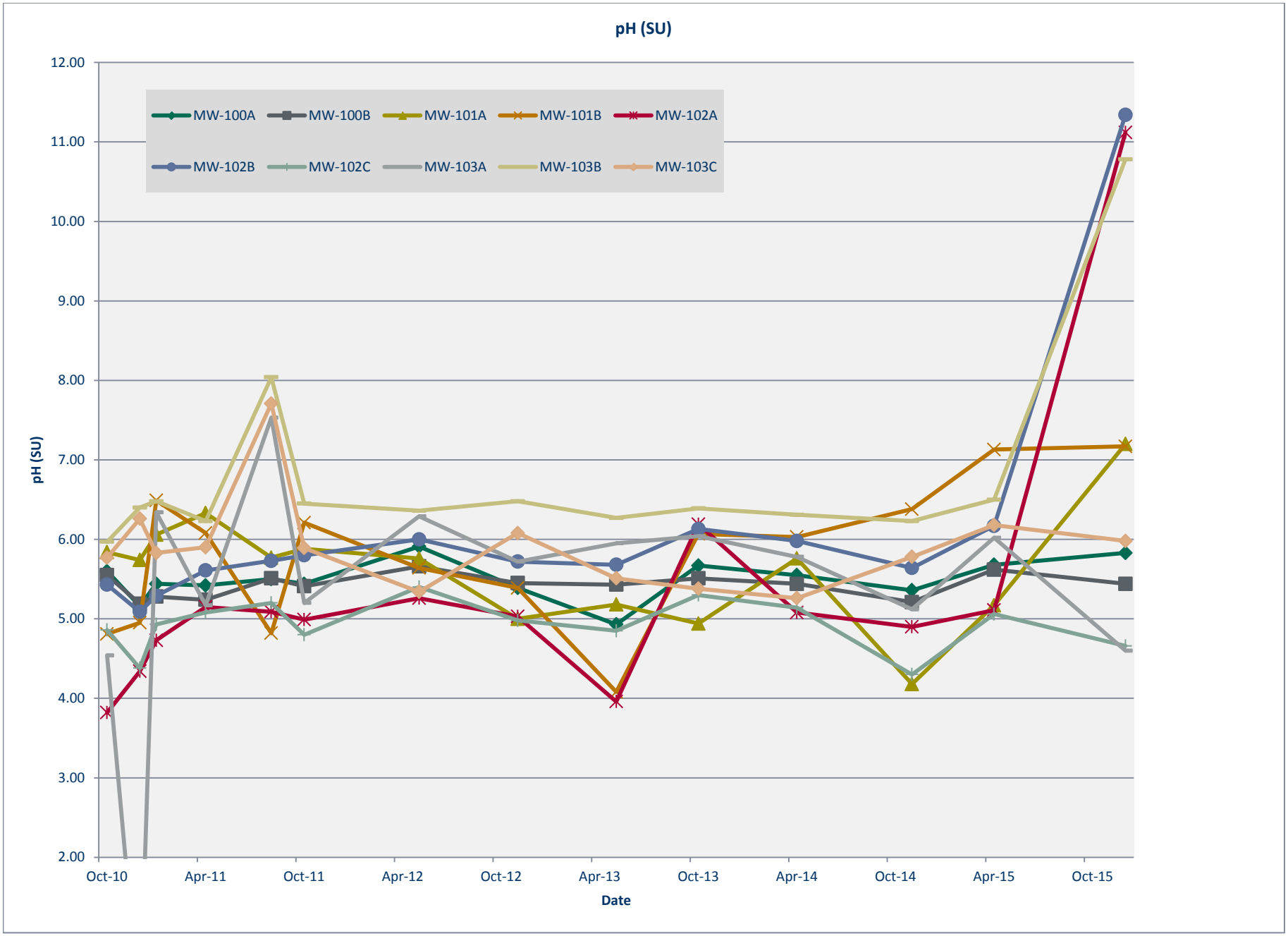
Data Entry By =	AF	Date =	23-Feb-16	Checked By =	EH

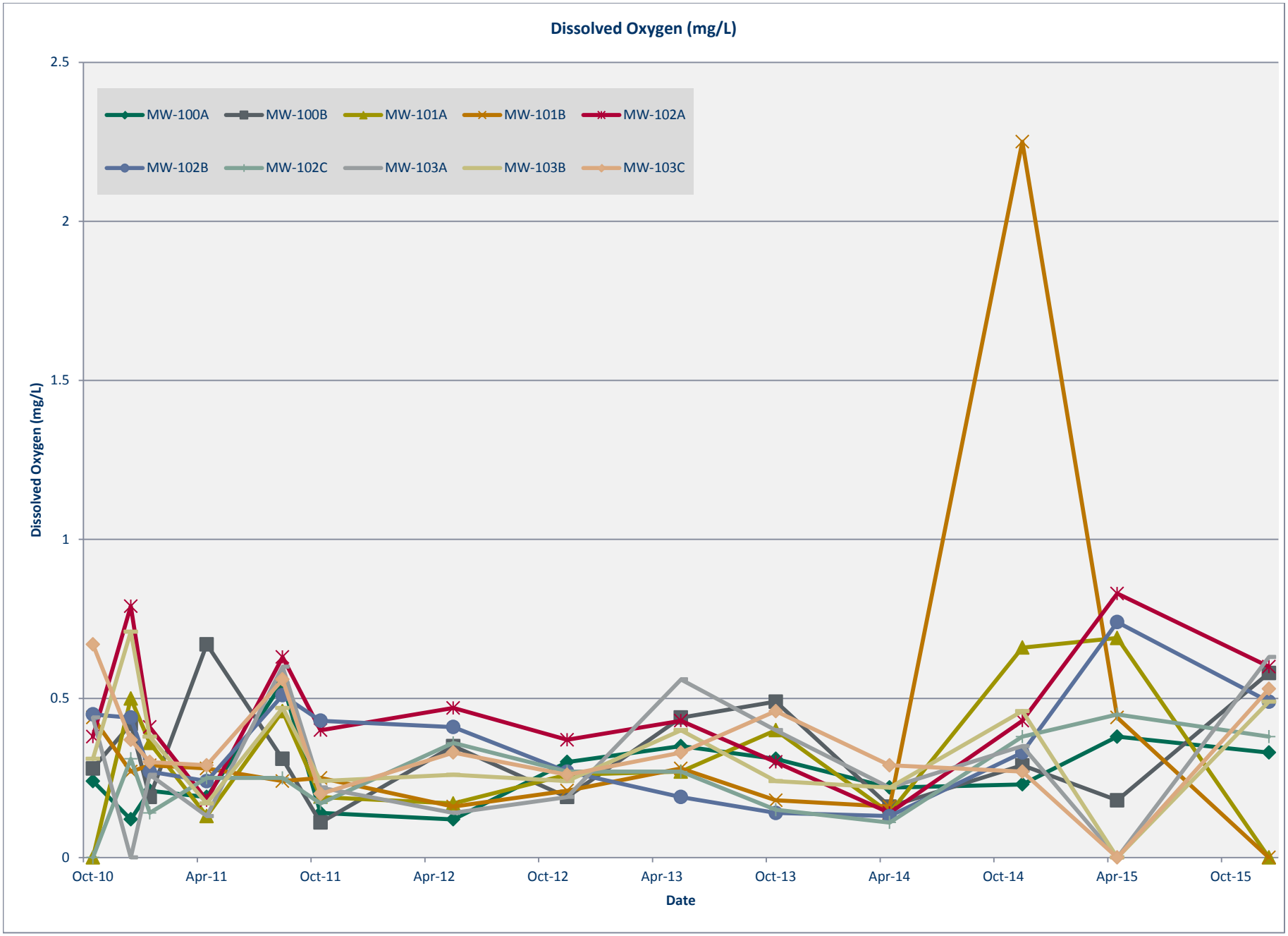
APPENDIX H
FIELD PARAMETER TREND GRAPHS


ORP (mV)
200
150
100
50
0
-50
-100
-150
-200
-250
ORP (mV)
Oct-10
Apr-11
Oct-11
Apr-12
Oct-12
Apr-13
Oct-13
Apr-14
Oct-14
Apr-15
Oct-15
Date
MW-100A
MW-100B
MW-101A
MW-101B
MW-102A
MW-102B
MW-102C
MW-103A
MW-103B
MW-103C


Temperature (°C)
MW-100A
MW-100B
MW-101A
MW-101B
MW-102A
MW-102B
MW-102C
MW-103A
MW-103B
MW-103C
27.00
26.00
25.00
24.00
23.00
22.00
21.00
20.00
19.00
18.00
17.00
16.00
15.00
Temperature (°C)
Oct-10
Apr-11
Oct-11
Apr-12
Oct-12
Apr-13
Oct-13
Apr-14
Oct-14
Apr-15
Oct-15
Date


Specific Conductivity (uS/cm)
1200
1000
800
600
400
200
0
Specific Conductivity (uS/cm)
MW-100A
MW-100B
MW-101A
MW-101B
MW-102A
MW-102B
MW-102C
MW-103A
MW-103B
MW-103C
Oct-10
Apr-11
Oct-11
Apr-12
Oct-12
Apr-13
Oct-13
Apr-14
Oct-14
Apr-15
Oct-15
Date


pH (SU)
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
pH (SU)
MW-100A
MW-100B
MW-101A
MW-101B
MW-102A
MW-102B
MW-102C
MW-103A
MW-103B
MW-103C
Oct-10
Apr-11
Oct-11
Apr-12
Oct-12
Apr-13
Oct-13
Apr-14
Oct-14
Apr-15
Oct-15
Date


Dissolved Oxygen (mg/L)
MW-100A
MW-100B
MW-101A
MW-101B
MW-102A
MW-102B
MW-102C
MW-103A
MW-103B
MW-103C
2.5
2
1.5
1
0.5
0
Dissolved Oxygen (mg/L)
Oct-10
Apr-11
Oct-11
Apr-12
Oct-12
Apr-13
Oct-13
Apr-14
Oct-14
Apr-15
Oct-15
Date