



Antea USA of North Carolina, Inc.
3530 Toringdon Way, Suite 106
Charlotte, North Carolina 28277 USA
www.anteagroup.com

May 9, 2016

Ms. Debbie Mayo
North Carolina Department of Environmental Quality
Division of Waste Management
Underground Storage Tank Section
127 N. Cardinal Drive
Wilmington, North Carolina 28405

Subject: **Active Remediation Monitoring Report**
GPM 3035 (Scotchman #35)
Wilmington, New Hanover County, North Carolina
Incident No. 32152

Dear Ms. Mayo:

Attached please find the *Active Remediation Monitoring Report* for the above referenced facility. If you have any questions please feel free to contact me at (704) 324-7045.

Sincerely,

Antea USA of North Carolina, Inc.,

A handwritten signature in black ink, appearing to read "Kyle Sorensen".

Kyle Sorensen
Project Manager

cc: Mr. Rolfe Lann – Director of Environmental; GPM Southeast, LLC



Active Remediation Monitoring Report

*GPM 3035 (Scotchman 35)
Wilmington, New Hanover County, North
Carolina
Incident No. 32152*

*Antea USA of NC Project No. NC30351601
May 9, 2016*

Prepared for:
GPM Southeast, LLC
8565 Magellan
Parkway, Suite 400
Richmond, VA 23227
+1 804 730 1568

Prepared by:
Antea USA of North Carolina, Inc.
3530 Toringdon Way, Suite 106
Charlotte, NC 28277
+1 704 324-7045



Active Remediation Monitoring Report

Site Name: GPM 3035 (Scotchman #35)
7162 Market Street
Wilmington, New Hanover County, North Carolina
Facility I.D.: 0-020168 **UST Incident Numbers:** 32152
Risk Rank: High (H287A)
Latitude: 34.271944N **Longitude:** -77.818889W **Source:** Google

UST Owner and Operator: GPM Southeast, LLC
8565 Magellan Parkway, Suite 400
Richmond, VA 23227
+1 804 730 1568

Property Owner:	<u>RI CS5, LLC</u> <u>600 LA Terraza Blvd</u> <u>Escondido, California</u>	Property Occupant:	<u>Scotchman #3035</u> <u>7162 Market Street</u> <u>Wilmington, North Carolina</u>
------------------------	--	---------------------------	--

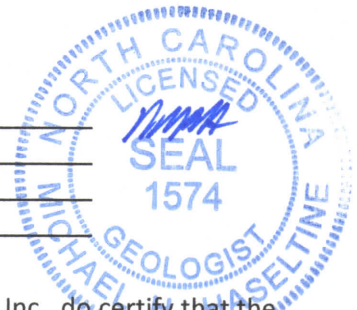
Consultant: Antea USA of North Carolina, Inc.
3530 Toringdon Way, Suite 106
Charlotte, North Carolina 28277
+1 704 543 3911

Analytical Laboratory:	<u>Pace Analytical Services</u>	State	<u>Certification No. 37706</u>
Address:	<u>9800 Kinsey Avenue, Suite 100, Huntersville, North Carolina 28076</u> <u>+1 704 875-9092</u>		

	<u>FTS Analytical Services</u>	State	<u>Certification No. 483</u>
	<u>6107 Financial Drive, Norcross, Georgia 30071</u> <u>+1 770 449-8800</u>		

Release Information

Date Discovered: March 24, 2004
Estimated Quantity of Release: Undetermined
Cause of Release: UST systems
Source of Release: Former diesel (UST #4) and gasoline UST systems
UST Information: Current gasoline UST systems (UST #1, #2, and #3)



I, Michael H. Haseltine, a Professional Geologist for Antea USA of North Carolina, Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge. Antea USA of North Carolina, Inc. is licensed to practice geology, certification number C-110 in North Carolina.



Table of Contents

1.0	BACKGROUND INFORMATION	1
1.1	Site Location	1
1.2	Site History.....	1
2.0	POTENTIAL RECEPTOR INFORMATION.....	3
2.1	Water Supply Wells.....	3
2.2	Public Water Supply.....	4
2.3	Surface Water	4
2.4	Wellhead Protection Area.....	4
2.5	Surrounding Land Use.....	4
2.6	Subsurface Structures	4
2.7	Deep Aquifers in the Atlantic Coastal Plain Province	4
3.0	RECENT FIELD ACTIVITIES	6
3.1	Groundwater Sampling Activities	7
3.2	Groundwater Occurrence and Flow.....	7
3.3	Groundwater Analytical Results	7
4.0	REMEDIAL SYSTEM INFORMATION	8
4.1	SVE System.....	8
4.2	AS System.....	8
4.3	Systems Operation and Maintenance.....	8
5.0	CONCLUSIONS	9
6.0	RECOMMENDATIONS.....	9
7.0	REMARKS.....	10

Tables

Table 1	UST/AST SYSTEM AND OTHER RELEASE INFORMATION
Table 2	SUMMARY OF WELL CONSTRUCTION DATA
Table 3	SUMMARY OF GROUNDWATER ELEVATION DATA
Table 4	SUMMARY OF LABORATORY RESULTS FOR GROUNDWATER SAMPLES

Figures

Figure 1	SITE LOCATION MAP
Figure 2	SITE MAP
Figure 3	GROUNDWATER ELEVATION CONTOUR MAP – OCTOBER 23, 2015
Figure 4	GROUNDWATER ELEVATION CONTOUR MAP – MARCH 17, 2016
Figure 5	ESTIMATED HORIZONTAL EXTENT OF BENZENE ABOVE 2L STANDARD – OCTOBER 23, 2015

Table of Contents (continued)

Figure 6	ESTIMATED HORIZONTAL EXTENT OF BENZENE ABOVE 2L STANDARD – MARCH 17, 2016
Figure 7	ESTIMATED HORIZONTAL EXTENT OF NAPHTHALENE ABOVE 2L STANDARD – MARCH 17, 2016

Appendices

Appendix A	RELEVANT CORRESPONDENCE
Appendix B	HISTORICAL GROUNDWATER ELEVATION DATA
Appendix C	RECENT LABORATORY REPORTS
Appendix D	HISTORICAL GROUNDWATER ANALYTICAL DATA
Appendix E	GROUNDWATER SAMPLING RECORDS

Active Remediation Monitoring Report

*GPM 3035 (Scotchman 35)
Wilmington, New Hanover County, North Carolina
Incident No. 32152*

1.0 BACKGROUND INFORMATION

1.1 Site Location

The GPM Southeast, LLC (GPM) 3035 facility, and herein referred to as the site (formerly referred to as Scotchman 35), is located at 7162 Market Street, Wilmington, New Hanover County, North Carolina. **Figure 1** is a topographic vicinity map of the surrounding area and **Figure 2** is a site map depicting pertinent structures. The New Hanover County GIS records indicate the property is owned by RI CS5, LLC although New Hanover County Register of Deeds database has revealed the NCDOT has taken or will take ownership of the property. The site is no longer used as a convenience store. The history of former underground storage tank systems (USTs) is summarized in **Table 1**.

1.2 Site History

On and around May 24, 2004, impacted soil was documented through laboratory analysis during activities related to the in-place closure of the diesel UST system. The consultant at the time, SEI Engineering & Geological Services, P.C. (SEI), completed and submitted the UST form *24-Hour Release and UST Leak Reporting Form* to the North Carolina Department of Environment and Natural Resources (now the North Carolina Department of Environmental Quality [NCDEQ]). UST closure activities conducted in 2004 included the advancement of eight soil borings and the concurrent collection of eight soil samples, SB-1 through SB-8. Documentation of the in-place closure was provided in an *Underground Storage Tank Closure Report*, dated June 15, 2004, which was submitted to the NCDEQ Wilmington Regional Office (WiRO) by SEI.

In 2004 SEI provided oversight of the installation of four shallow groundwater monitoring wells (i.e. MW-1, MW-3, MW-4, MW-5) and one telescoping monitoring well (MW-2). The results of these assessment activities were provided in a *Limited Site Assessment (LSA) Report*, dated December 29, 2004.

In a *Notice of Regulatory Requirements (NORR)*, dated January 3, 2007, the NCDEQ classified the site as High Risk - H287A and requested the completion of a Comprehensive Site Assessment (CSA). The *high-risk* classification was assigned due to the presence of water supply wells located within 1,000 feet of the confirmed release area.

As part of CSA activities in September 2007, Environmental Services and Solutions, PLLC (ESS) supervised and/or advanced soil borings (SB-1, SB-1B, SB-2, SB-3, SB-3B, SB-4 through SB-14, and SB-14B) and subsequently collected samples from 14 discrete locations. Laboratory analyses of soil samples collected from the borings SS-1, SB-1B, SB-

2, SB-4, SB-5, SB-6, SB-9, and SB-13 identified the presence of petroleum-related compounds in excess of Soil-to-Water Maximum Soil Contamination Concentrations (STW-MSCC's). In addition, ESS personnel directed the installation of six Type II monitoring wells (i.e. MW-6 through MW-11). Laboratory analyses of groundwater sampled from monitoring wells MW-1, MW-3, MW-4, and MW-5 identified dissolved petroleum-related compounds above their respective standards, as specified within Title 15A of the North Carolina Administrative Code, Chapter 2, Subchapter 2L, Section .0202 (2L Standards). On May 16, 2008 ESS submitted the results of these activities within a *CSA Report*.

In a *NORR*, dated September 2, 2008, the NCDEQ requested submittal of a *Corrective Action Plan Report (CAP)*. On May 11, 2009 ESS submitted a *CAP* recommending the installation and operation of soil vapor extraction (SVE) and air sparging (AS) remedial systems to achieve site remediation. The *CAP* was approved by the NCDEQ in correspondence dated June 17, 2009.

ESS provided oversight of the remedial system well installations from August 24 to August 26, 2009. The remedial systems were installed in the fall of 2009 and the system was activated on December 1, 2009. The AS system was shut-down on November 15, 2011, following malfunction of the AS compressor. The SVE system was shut-down on November 29, 2011 pending groundwater sampling. Laboratory results of groundwater samples collected on December 6, 2011 and June 26, 2012 did not indicate petroleum compounds in excess of 2L Standards.

In preparation of site closure confirmatory soil samples were collected by ESS on December 19, 2012. ESS supervised the advancement of seven soil borings. Four samples were collected from each soil boring at depths of one-foot, three-feet, six to eight feet, and eight to ten feet bgs. The twenty eight samples were field-screened using an RKI Instruments Eagle vapor analyzer. Based upon field observations and field screening results, four samples (i.e. SS-1, SS-2, SS-3, and SS-4) were selected from discrete soil borings for risk-based laboratory analyses. The laboratory reports indicated the presence of specific compounds as well as Massachusetts Department of Environmental Protection (MADEP) methods for volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) above the STW-MSCC's. MADEP Methods for VPH and EPH exceeded the STW-MSCC's in sample SS-1. MADEP Methods for VPH exceeded STW-MSCC's and EPH exceeded Residential MSCC's in sample SS-2.

On December 20, 2012 a comprehensive groundwater sampling event was conducted and samples submitted for risk-based analyses. Benzene as well as MADEP Method VPH C₅-C₈ Aliphatics exceeded 2L Standards in samples from well MW-5. Naphthalene was present slightly above 2L Standards in samples from well MW-7. The laboratory results also indicated the presence of bis (2-ethylhexyl) phthalate slightly above 2L Standards in samples from well MW-2. Results of the soil sampling and groundwater sampling conducted in December 2012 have been provided in an *Active Remediation Monitoring Report (ARMR)* dated January 8, 2013.

In correspondence dated January 31, 2013 the NCDEQ requested restart of the remediation systems and semi-annual groundwater sampling. The air compressor was rebuilt and reinstalled in 2013 but failed shortly thereafter.

The air compressor was reshipped to the repair shop for assessment and reinstalled for the second time. During routine maintenance on November 26, 2013 the air compressor was found inoperable again. Between December 4 and 18, 2013, ESS, with the assistance of an electrician, removed the air compressor and replaced it with the compressor from the former Scotchman #14 remediation system. On December 18, 2013 ESS personnel restarted the AS and SVE systems and conducted operation and maintenance through January 16, 2014.

Based upon anticipated future site reconstruction due to a North Carolina Department of Transportation (NCDOT) road widening project, the NCDEQ requested postponement of reactivation of the remedial systems and completion of a comprehensive groundwater sampling event in an e-mail dated May 11, 2015.

Free product was encountered by Antea USA of NC personnel in monitoring well MW-5 during the comprehensive groundwater sampling on October 23, 2015. On November 6, 2015, the premium gasoline UST failed tank tightness testing and the system was taken out of service. The NCDEQ has assigned Incident number 43012 to this new release. The NCDEQ requested completion of initial abatement actions in a NORR dated November 30, 2015. Details of the new release were provided in an *Initial Abatement Action Report (IAAR)*, dated February 3, 2016. In a NORR dated February 18, 2016, the NCDEQ requested assessment and cleanup in compliance with Title 15A NCAC and submittal of a Groundwater Monitoring Report.

2.0 POTENTIAL RECEPTOR INFORMATION

2.1 Water Supply Wells

In 2004, SEI conducted a survey to determine the location of water supplies located within a 1,500-foot radius of the subject facility. ESS conducted a survey update in 2007. Information was gathered through mail questionnaires, site reconnaissance and conversations with City of Wilmington and New Hanover County personnel.

Information collected during the mail-survey process is detailed below;

- A total of 9 water supply wells were identified within a 1,500-foot radius of the subject site, eight of which occur within a 1000-foot radius of the site.
- All properties can be connected to the Cape Fear Public Utility Authority water supply.
- Five of the nine wells are reportedly used for potable purposes. The well owners were individually contacted to assess the feasibility of well abandonment and connection to the municipal water supply. Some owners did not respond or rejected abandonment of their water supply wells.
- The subject facility is also connected to the municipal water system.

Properties located west of Market Street have been redeveloped since the survey update in 2007. Recent site visits revealed that two water supply wells located west of Market Street and one water supply located contiguous to the site may no longer be actively used.

2.2 Public Water Supply

Public water is available through the Cape Fear Public Utility Authority.

2.3 Surface Water

At least four storm water retention ponds are located to the northwest and occur within a 1,500-foot radius of the site. In addition, an unnamed tributary of the Howe Creek lies approximately 1,000 feet south of the site. Howe Creek is tidally influenced and drains into the Intercoastal Waterway.

2.4 Wellhead Protection Area

The source area is not reported within an approved wellhead protection area as defined in 42 USC 300h-7(e).

2.5 Surrounding Land Use

The Market Street business corridor is primarily zoned by New Hanover County as category B-2. The B-2 Highway Business District is defined as a heavy commercial district. It's purpose is to provide for the proper grouping and development of business uses which best accommodate the needs of the motoring public with a regional orientation. Residential developments to the west of Market Street business corridor are zoned residential R-10 and R-15 and to the east are zoned residential R-15 and R-20.

2.6 Subsurface Structures

An 8-inch PVC water supply line services the vicinity of the site and is present on the east side of the Market Street right-of-way extending north through the 1,500-foot radius. A branch of that line extends from Market Street to the southern side of the right-of-way of Middle Sound Loop Road. The depth of this line is reportedly at least two feet bgs.

Two eight-inch diameter sanitary sewer lines are present in the vicinity of the site with one line on each side of Market Street. Both lines are reportedly present in the North Carolina Department of Transportation right-of-way for Market Street but both reportedly terminate south of the site. The sanitary sewer lines are reportedly constructed to a depth ranging from approximately seven to ten feet bgs.

A reinforced concrete storm water pipe is located approximately 500 hundred feet south of the site and provides storm water control southward. The pipe ranges in diameter from 15 to 24-inches and is constructed with an invert depth of approximately six feet below ground surface.

2.7 Deep Aquifers in the Atlantic Coastal Plain Province

The site is located within the Atlantic Coastal Plain province. Overall, the Atlantic Coastal Plain slopes eastward at an average rate of less than three feet per mile. The coastal plain is basically flat in interstream areas, but is broken by low escarpments adjacent to stream valleys. New Hanover County is a relatively flat sandy plain with a relief ranging

from sea level to approximately 50 feet above MSL. The subject facility lies approximately 45 feet above mean sea level.

As part of the Atlantic Coastal Plain province, New Hanover County has four predominant aquifer systems in the vicinity of the site. In descending order these include:

- Surficial aquifer comprised of Pleistocene and Pliocene age sediments;
- Castle Hayne aquifer with sediments generally of Eocene age;
- Peedee aquifer which is comprised of Late Cretaceous age sediments; and,
- Black Creek aquifer of Cretaceous age.

Generally, the surficial aquifer is of major importance due to its extended coverage throughout the Coastal Plain. Precipitation infiltrating this aquifer is responsible for the bulk of water recharging the Coastal Plain aquifer system. The surficial aquifer transmits water laterally to streams and serves as a source bed holding the water that moves down gradient to the deeper aquifers. The surficial aquifer occurs within approximately 5 to 20 feet below ground surface (bgs) in most areas of the county and yields sufficient water for domestic use.

Surficial aquifer sediments in the Tidewater Region were deposited under shallow marine or estuarine conditions. These consist of fine sand, silt, clay, shell, and peat beds, plus scattered deposits of coarser-grained material in the form of relic beach ridges and floodplain alluvium. The estimated thickness of the surficial aquifer at the site is approximately 33 feet. The aquifer is composed of 79 percent permeable material and has an estimated hydraulic conductivity of 35 feet per day.

The underlying Castle Hayne confining unit is composed of beds of clay, sandy clay, and clay with sandy streaks. Throughout much of the area, the Castle Hayne confining unit is thin, with a thickness of about 13 feet, and contains enough sand to allow significant vertical movement between the surficial aquifer and the underlying Castle Hayne aquifer. The Castle Hayne confining unit contact was not defined in the borings.

The Castle Hayne aquifer is predominantly composed of limestone (including shell, dolomitic, and sandy limestone ranging from loosely consolidated to hard/crystallized) and sand with minor amounts of clay and was deposited under marine conditions. Sand bed intervals have varying carbonate content and range from fine to coarse grains, but are typically composed of fine to medium-grained sand. Clay occurs as marl beds less than 10 feet thick or as a matrix in both sand and limestone beds. Typically, the upper portion of the Castle Hayne aquifer consists of limestone, while the lower portion is mainly sand. The Castle Hayne aquifer is the most productive in North Carolina. Along its western margin, it occurs near land surface in New Hanover County and is exposed in many streams in the area. The aquifer is approximately 69 feet thick and contains approximately 64 percent permeable material. The estimated hydraulic conductivity is 65 feet per day.

The Peedee confining unit is overlain by the Castle Hayne aquifer in the area. The Peedee confining unit is an estimated 44 feet in thickness and contains sediments with less than 15 percent permeability. The Peedee confining unit is composed of clay, silty clay and sandy clay and represents the Cenozoic-Mesozoic geological boundary.

The Peedee aquifer primarily occurs within the Peedee Formation. The Peedee Formation consists of fine to medium-grained sand interbedded with gray to black marine clay and silt. Glauconitic sand beds and thin beds of consolidated calcareous sandstone and impure limestone are interlayered in the sands in places. The Peedee aquifer is approximately 300 feet thick in the vicinity of the site and has an estimated hydraulic conductivity of 34 feet per day.

The Black Creek confining unit is overlain by the Peedee aquifer. The Black Creek confining unit is approximately 42 feet thick in the Wilmington area and contains sediments having less than 12 percent permeability. The Black Creek aquifer, overlain by the Black Creek confining unit, has a thickness of approximately 334 feet, and the estimated hydraulic conductivity is 25 feet per day.

Potable water is typically not captured from the aquifers located at depths beyond the Black Creek aquifer. These include the Upper Cape Fear and Lower Cape Fear Aquifers.

Based upon the soil boring data reported SEI and observations by ESS during the monitoring well and soil boring advancements, the surficial geology generally of a fine to medium-grained silty sand ranging in color from light gray to dark brown. Based upon the site specific data collected by SEI during the monitoring well installations, including well MW-2, the Type III well did not penetrate the surficial aquifer.

References: *Hydrogeologic Framework of the North Carolina Atlantic Coastal Plain*. U.S. Geological Survey Professional Paper 1404-I. M.D. Winner, Jr. and R.W. Coble. 1996; *Hydrogeologic Framework and Ground Water Conditions in the North Carolina Southern Coastal Plain*. North Carolina Department of Environment and Natural Resources, Division of Water Resources. Jeff Lautier. 2006; NCDEQ, Division of Water Resources Hydrogeologic Framework.

3.0 RECENT FIELD ACTIVITIES

In correspondence dated May 19, 2015, the NCDEQ requested continued semi-annual groundwater sampling. The associated costs were requested by Antea USA of North Carolina (Antea USA of NC) and approved in correspondence dated June 24, 2015 (Task Authorization #23). Costs for an additional groundwater sampling event were also approved in Task Authorization #24. Copies of recent correspondence are provided in **Appendix A**.

Antea USA of NC conducted comprehensive groundwater sampling events on October 23, 2015 and March 17, 2016. The results of those activities are provided in this report.

3.1 Groundwater Sampling Activities

Groundwater samples were obtained from wells MW-1 through MW-4 and MW-6 through MW-11 on October 23, 2015 and March 17, 2016. Free product was measured in monitoring well MW-5 at a thickness of 0.12 feet and 0.10 feet on October 23, 2016 and March 17, 2016, respectively, and was not sampled.

At the time of sample collection, the water level was recorded for each monitoring well, the respective well volume was calculated, and a minimum of three well volumes were purged from each well column (or until dry) to ensure replacement of stagnant water with representative formation water.

The samples from the monitoring wells were collected using disposable, polyvinyl chloride (PVC) bailers and nylon cord while donning dedicated disposable nitrile gloves. The samples were slowly poured from the bailers into laboratory supplied containers, and the containers were sealed, labeled, and immediately placed on ice. All samples were inventoried on the chain-of-custody document. The samples were analyzed by SM 6200B for EPA Method 602 compounds benzene, toluene, ethylbenzene and total xylenes (collectively referred to as BTEX), methyl tertiary butyl ether (MTBE), isopropyl ether (IPE) and naphthalene. The groundwater samples were delivered to FedEx for overnight shipment to Pace Analytical Services located in Huntersville, North Carolina for the October 2015 event and to FTS Analytical Services in Norcross, Georgia for the March 2016 event.

3.2 Groundwater Occurrence and Flow

Measurements collected during the October 2015 and March 2016 sampling events indicated depth to water at levels in the shallow wells ranging from 5.58 feet below the top of casing (TOC) in well MW-7 to 10.81 feet below the TOC in well MW-9. Depth to groundwater was observed at 9.59 feet and 11.72 feet below the TOC in the deeper screened well MW-2 during the October 2015 and March 2016 sampling events.

Utilizing the October 2015 and March 2016 data, groundwater elevation contours were constructed and illustrate an east-west trending trough. A summary of well construction information is provided in **Table 2**. **Table 3** provides a summary of groundwater elevation data and **Figure 3** and **Figure 4** depicts groundwater elevation contours for measurements obtained on October 23, 2015 and March 17, 2016, respectively. Historical groundwater elevation data is provided in **Appendix B**.

3.3 Groundwater Analytical Results

Laboratory results of groundwater samples obtained on October 23, 2015 and March 17, 2016 from monitoring wells MW-1 and MW-11 indicated the presence of benzene in excess of 2L Standards. The estimated horizontal extent of benzene is shown in **Figures 5** and **6** during October 23, 2015 and March 17, 2016 sampling events, respectively. The horizontal extent of naphthalene detected above 2L Standard during the March 17, 2016 sampling event is provided in **Figure 7**.

Table 4 provides a summary of laboratory results for groundwater samples. The laboratory report and chain of custody form for the October 23, 2015 and March 17, 2016 sampling events are provided in **Appendix C**. Historical analytical data are provided in **Appendix D**. The groundwater sampling records are provided in **Appendix E**.

4.0 REMEDIAL SYSTEM INFORMATION

Remedial systems at the site include one soil vapor extraction unit and one air sparging unit. All systems are mounted within an enclosed trailer which is located at the south side of the site store. The trailer is compartmentalized into two separate areas. One area encloses the AS equipment and controllers and the other compartment encloses the explosion proof SVE system.

4.1 SVE System

The SVE system utilizes a separate, seven and one-half horsepower Ametek regenerative blower, model number EN808. The SVE system is equipped with a moisture condensate tank, air filters, vacuum gauges, pressure relief valves, temperature gauges and other appurtenances. The SVE system was designed to operate 24 hours per day.

The SVE system is designed to recover vapor from one main line. The line is designed to provide a vacuum to six vertical SVE wells (SVE-1 through SVE-6) and is equipped with pressure gauges, flow meters and flow regulating valves.

4.2 AS System

The AS system utilizes a Becker, rotary vane compressor, model DT 4.40K. Pressurized air from the compressor moves through a flow meter, pressure and temperature gauges, and then into the main header. The main header provides air to four separate one-inch diameter supply lines which provide air to each of the four air sparge wells (AS-1 through AS-4). Each supply line is equipped with pressure gauges, flow meters, and flow regulating valves.

4.3 Systems Operation and Maintenance

The systems deactivated sometime after January 16, 2014 and have not been reactivated based upon recommendations provided by the NCDEQ.

5.0 CONCLUSIONS

The following conclusions are presented based upon the data and site specific information collected by Antea USA of NC and presented in this report;

- On November 6, 2015, the premium gasoline UST failed tank tightness testing and the system was taken out of service. The NCDEQ has assigned Incident number 43012 to this new release.
- Comprehensive groundwater sampling events were conducted on October 23, 2015 and March 17, 2016. As a result of the new release, benzene concentrations were detected above 2L Standards in monitoring wells MW-1 and MW-11 and naphthalene in monitoring well MW-1.
- Free product was measured at thicknesses of 0.12 feet and 0.10 feet in monitoring well MW-5 during the October 23, 2015 and March 17, 2016, sampling events, respectively.

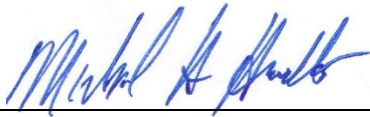
6.0 RECOMMENDATIONS

The following recommendations are presented based upon the data and site specific information collected Antea USA of NC and presented in this report;

- Assessment and remediation activities regarding both incidents should be postponed until NCDOT site activities are completed.

7.0 REMARKS

The recommendations contained in this report represent Antea USA of North Carolina, Inc.'s professional opinions based upon the currently available information and are arrived at in accordance with currently accepted professional standards. This report is based upon a specific scope of work requested by the client. The contract between Antea USA of North Carolina, Inc. and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Antea USA of North Carolina, Inc.'s client and anyone else specifically identified in writing by Antea USA of North Carolina, Inc. as a user of this report. Antea USA of North Carolina, Inc. will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Antea USA of North Carolina, Inc. makes no express or implied warranty as to the contents of this report.



Michael H. Haseltine, Project Professional

Date: May 9, 2016

Reviewed by:



Kyle Sorensen, Project Manager

Date: May 9, 2016

Tables

Table 1	UST/AST SYSTEM AND OTHER RELEASE INFORMATION
Table 2	SUMMARY OF WELL CONSTRUCTION DATA
Table 3	SUMMARY OF GROUNDWATER ELEVATION DATA
Table 4	SUMMARY OF LABORATORY RESULTS FOR GROUNDWATER SAMPLES

TABLE 1
UST/AST SYSTEM AND OTHER RELEASE INFORMATION
GPM 3035 (Scotchman 35)
Wilmington, New Hanover County, North Carolina
Antea USA of NC Project No. NC30351601

UST ID Number	Current/Last Contents	Capacity (in gallons)	Construction Details	Description of Associated Piping and Pumps	Date Tank Installed	Status of UST	Was release associated with the UST System?
1	Gasoline	6,000	Single-Walled Steel	DW Flexible Piping, Pressurized	4/16/1961	Current	Undetermined
2	Gasoline	6,000	Single-Walled Steel	DW Flexible Piping, Pressurized	4/16/1961	Current	Undetermined
3	Gasoline	4,000	Single-Walled Steel	DW Flexible Piping, Pressurized	4/16/1961	Current	Yes
4	Diesel	1,000	Single-Walled Steel	Other	4/16/1961	Closed-in-Place 4/25/2004	Yes
Incident Number	Date Discovered	Product Released	Discovery of Release				
32152	March 24, 2004	Diesel	Documented during closure of UST #4				
43012	November 6, 2015	Gasoline	Failed tank tightness test of premium gasoline UST #3				

Notes: - UST information provided by NCDEQ Registered Tanks Database

TABLE 2
SUMMARY OF WELL CONSTRUCTION DATA
GPM 3035 (Scotchman 35)
Wilmington, New Hanover County, North Carolina
Antea USA of NC Project No. NC30351601

Well No.	Boring Depth (ft, bgs)	Well Diameter (inches)	Well Screen Interval (ft, bgs)	Top of Casing Elevation (ft)	Installation Date	Status
MW-1	20.0	2	5 - 20	94.95	9/20/2004	Current
MW-2	30.0	2	25 - 30	94.88	9/20/2004	Current
MW-3	20.0	2	5 - 20	94.77	9/20/2004	Current
MW-4	20.0	2	5 - 20	94.79	9/20/2004	Current
MW-5	20.0	2	5 - 20	94.66	9/20/2004	Current
MW-6	15.0	2	4.25-14.25	94.68	9/20/2007	Current
MW-7	15.0	2	5 - 15	94.32	9/20/2007	Current
MW-8	18.0	2	3 - 18	95.06	9/21/2007	Current
MW-9	20.0	2	5 - 20	94.34	9/21/2007	Current
MW-10	18.0	2	3 - 18	94.52	9/21/2007	Current
MW-11	18.0	2	3 - 18	94.74	9/21/2007	Current
OB-1	20.0	2	2 - 20	NA	11/25/2008	Current
SVE-1	8.0	2	2 - 8	NA	11/25/2008	Current
SVE-2	9.0	2	4 - 9	NA	8/24/2009	Current
SVE-3	9.0	2	4 - 9	NA	8/24/2009	Current
SVE-4	9.0	2	4 - 9	NA	8/24/2009	Current
SVE-5	9.0	2	4 - 9	NA	8/24/2009	Current
SVE-6	9.0	2	4 - 9	NA	8/24/2009	Current
AS-1	30.0	2	27 - 30	NA	8/25/2009	Current
AS-2	30.0	2	27 - 30	NA	8/25/2009	Current
AS-3	30.0	2	27 - 30	NA	8/25/2009	Current
AS-4	29.0	2	26 - 29	NA	8/25/2009	Current

Notes:

- ft,bgs denotes feet, below ground surface
- NA denotes data not available

TABLE 3
SUMMARY OF GROUNDWATER ELEVATION DATA
GPM 3035 (Scotchman 35)
Wilmington, New Hanover County, North Carolina
Antea USA of NC Project No. NC30351601

Well No.	Well Screen Interval (ft,bgs)	Top of Casing Elevation (ft)	Measurement Date	Depth to Free Product (ft, TOC)	Depth to Groundwater (ft, TOC)	Adjusted Groundwater Elevation (ft)
MW-1	5 - 20	94.95	1/16/2014	--	14.80	80.15
			10/23/2015	--	7.78	87.17
			3/17/2016	--	9.73	85.22
MW-2	25 - 30	94.88	1/16/2014	--	14.72	80.16
			10/23/2015	--	9.59	85.29
			3/17/2016	--	11.73	83.15
MW-3	5 - 20	94.77	1/16/2014	--	14.48	80.29
			10/23/2015	--	8.11	86.66
			3/17/2016	--	9.58	85.19
MW-4	5 - 20	94.79	1/16/2014	--	12.69	82.10
			10/23/2015	--	6.88	87.91
			3/17/2016	--	8.95	85.84
MW-5	5 - 20	94.66	1/16/2014	--	14.54	80.12
			10/23/2015	7.28	7.40	87.35
			3/17/2016	9.04	9.14	85.60
MW-6	4.25-14.25	94.68	1/16/2014	--	10.05	84.63
			10/23/2015	--	5.97	88.71
			3/17/2016	--	7.30	87.38
MW-7	5 - 15	94.32	1/16/2014	--	11.44	82.88
			10/23/2015	--	5.58	88.74
			3/17/2016	--	7.46	86.86
MW-8	3 - 18	95.06	1/16/2014	--	12.36	82.70
			10/23/2015	--	6.49	88.57
			3/17/2016	--	7.57	87.49
MW-9	5 - 20	94.34	1/16/2014	--	13.87	80.47
			10/23/2015	--	8.66	85.68
			3/17/2016	--	10.81	83.53
MW-10	3 - 18	94.52	1/16/2014	--	12.31	82.21
			10/23/2015	--	6.58	87.94
			3/17/2016	--	8.32	86.20

TABLE 3
SUMMARY OF GROUNDWATER ELEVATION DATA
GPM 3035 (Scotchman 35)
Wilmington, New Hanover County, North Carolina
Antea USA of NC Project No. NC30351601

Well No.	Well Screen Interval (ft,bgs)	Top of Casing Elevation (ft)	Measurement Date	Depth to Free Product (ft, TOC)	Depth to Groundwater (ft, TOC)	Adjusted Groundwater Elevation (ft)
MW-11	3 - 18	94.74	1/16/2014	--	14.43	80.31
			10/23/2015	--	7.13	87.61
			3/17/2016	--	9.02	85.72

Notes:

- The depth to water and depth to free product were measured from the top-of-casing.
- Adjusted groundwater elevations are based on top-of-casing elevations minus the depth to water
- Depth to water has been adjusted due to presence of free product using the following formula's:
 $DTW - DTP = X_0 ; (78\%)(X_0) = X_1 ; DTW - X_1 = DTW_{ADJ}$
- '--' denotes free product was not detected in monitoring well at this time.
- ft, bgs denotes feet, below ground surface
- ft, TOC denotes feet from well top of casing
- water levels collected by others prior to 10/23/2015

TABLE 4
SUMMARY OF LABORATORY RESULTS FOR GROUNDWATER SAMPLES
GPM 3035 (Scotchman 35)
Wilmington, New Hanover County, North Carolina
Antea USA of NC Project No. NC30351601

Sample	Sample	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	IPE	Naphthalene
Location	Date	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
<i>2L Standards</i>		1	600	600	500	20	70	6
<i>GCLs</i>		5,000	260,000	84,500	85,500	20,000	70,000	6,000
MW-1	1/16/2014	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	10/23/2015	18.9	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	3/17/2016	745	11.2	293	158	15.7	2.95	7.35
MW-2	1/16/2014	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	10/23/2015	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	3/17/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
MW-3	1/16/2014	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	10/23/2015	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	3/17/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
MW-4	1/16/2014	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	10/23/2015	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	3/17/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
MW-5	1/16/2014	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	10/23/2015	Free Product						
	3/17/2016	Free Product						
MW-6	1/16/2014	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	10/23/2015	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	3/17/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
MW-7	1/16/2014	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	10/23/2015	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	3/17/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
MW-8	1/16/2014	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	10/23/2015	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	3/17/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	10.7
MW-9	1/16/2014	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	10/23/2015	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	3/17/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
MW-10	1/16/2014	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	10/23/2015	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	3/17/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0

TABLE 4
SUMMARY OF LABORATORY RESULTS FOR GROUNDWATER SAMPLES
GPM 3035 (Scotchman 35)
Wilmington, New Hanover County, North Carolina
Antea USA of NC Project No. NC30351601

Sample	Sample	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	IPE	Naphthalene
Location	Date	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
<i>2L Standards</i>		1	600	600	500	20	70	6
<i>GCLs</i>		5,000	260,000	84,500	85,500	20,000	70,000	6,000
MW-11	1/16/2014	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	10/23/2015	43.2	126	77.5	484	<1.0	<1.0	<2.0
	3/17/2016	10.1	34.7	29.5	130	<0.50	<0.50	5.76

Notes:

- MTBE - Methyl tertiary butyl ether
- IPE - Isopropyl ether
- µg/L - micrograms per liter
- Samples collected by others prior to 10/23/2015

Figures

- Figure 1 SITE LOCATION MAP
- Figure 2 SITE MAP
- Figure 3 GROUNDWATER ELEVATION CONTOUR MAP – OCTOBER 23, 2015
- Figure 4 GROUNDWATER ELEVATION CONTOUR MAP – MARCH 17, 2016
- Figure 5 ESTIMATED HORIZONTAL EXTENT OF BENZENE ABOVE 2L STANDARD – OCTOBER 23, 2015
- Figure 6 ESTIMATED HORIZONTAL EXTENT OF BENZENE ABOVE 2L STANDARD – MARCH 17, 2016
- Figure 7 ESTIMATED HORIZONTAL EXTENT OF NAPHTHALENE ABOVE 2L STANDARD – MARCH 17, 2016

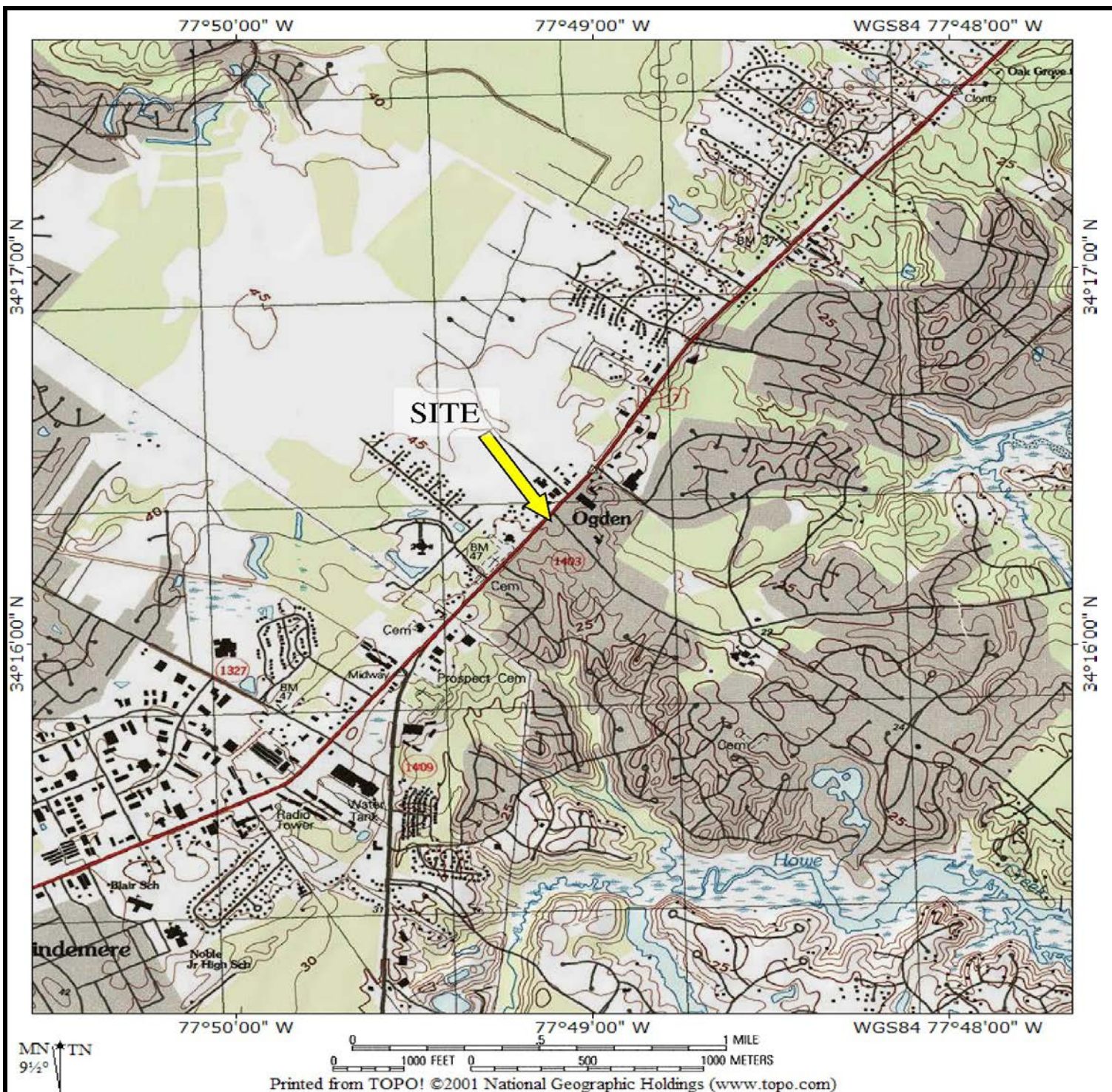


FIGURE 1
SITE LOCATION MAP

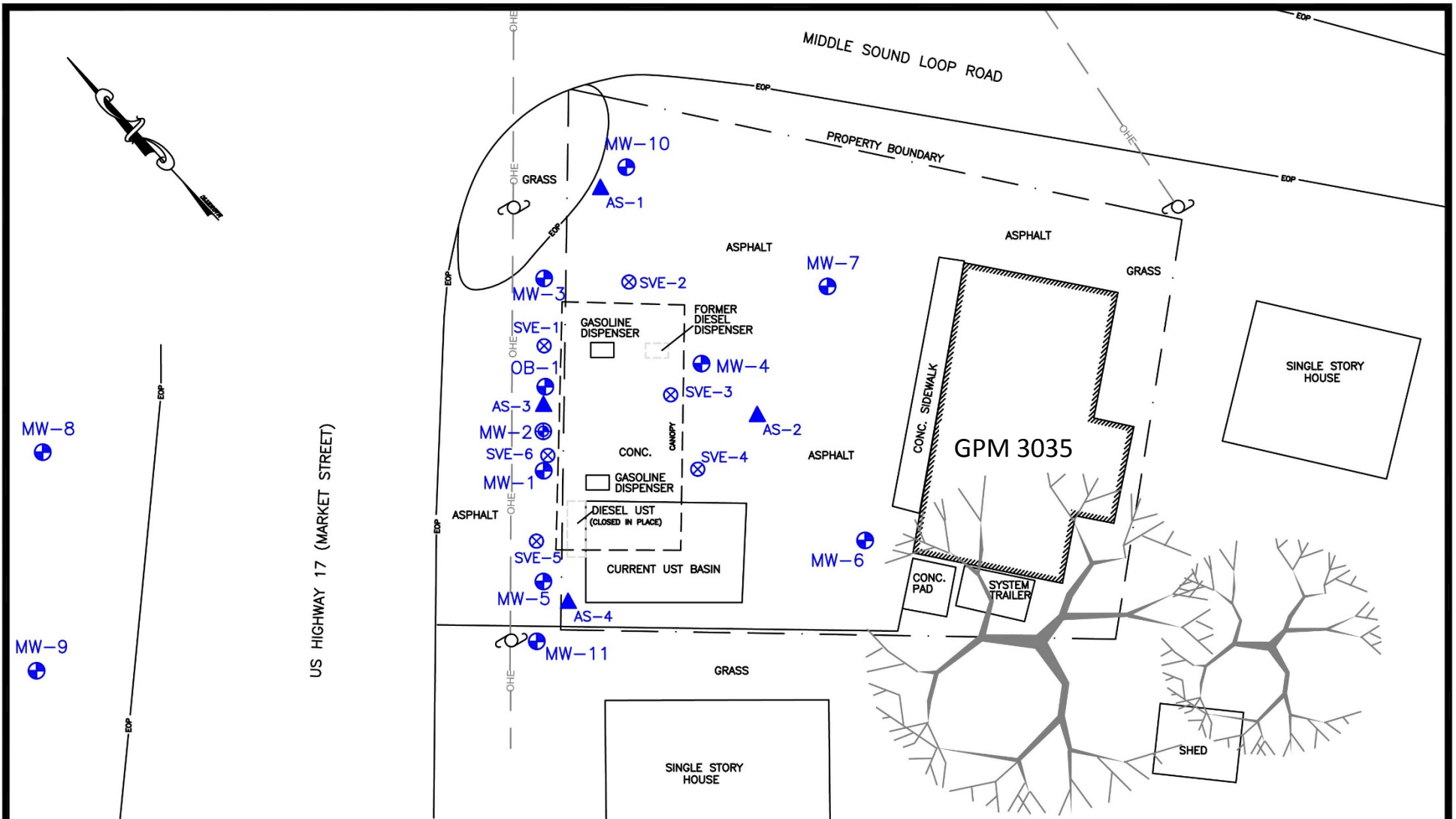
GPM 3035
 7162 MARKET STREET
 WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA

PROJECT NO: NC30351601
 DATE: 6/10/2015
 SCALE: As shown
 DRAWN BY: Others -
 Modified by MHH



anteagroup

3530 Toringdon Way, Suite 106
 Charlotte, NC 28277



- LEGEND**
- MW-1 ⊕ Monitoring Well (Shallow)
 - MW-2 ⊗ Monitoring Well (Deep)
 - AS-1 ▲ Air Sparge Well
 - SVE-1 ⊗ Soil Vapor Extraction Well
 - ⊕ Utility/Power Pole
 - OHE— Overhead Electric Line
 - EOP End of Pavement

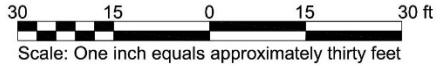



FIGURE 2

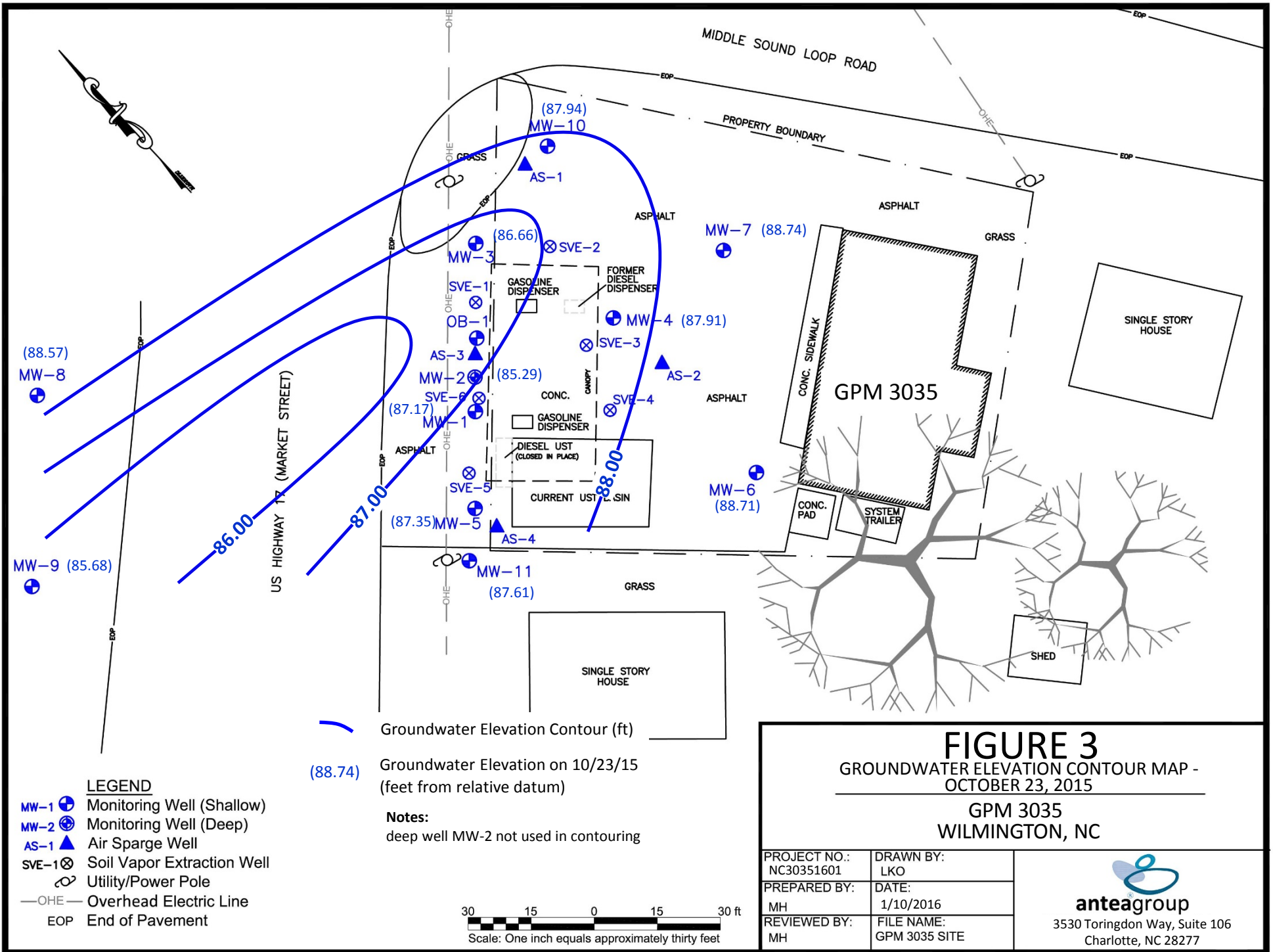
SITE MAP

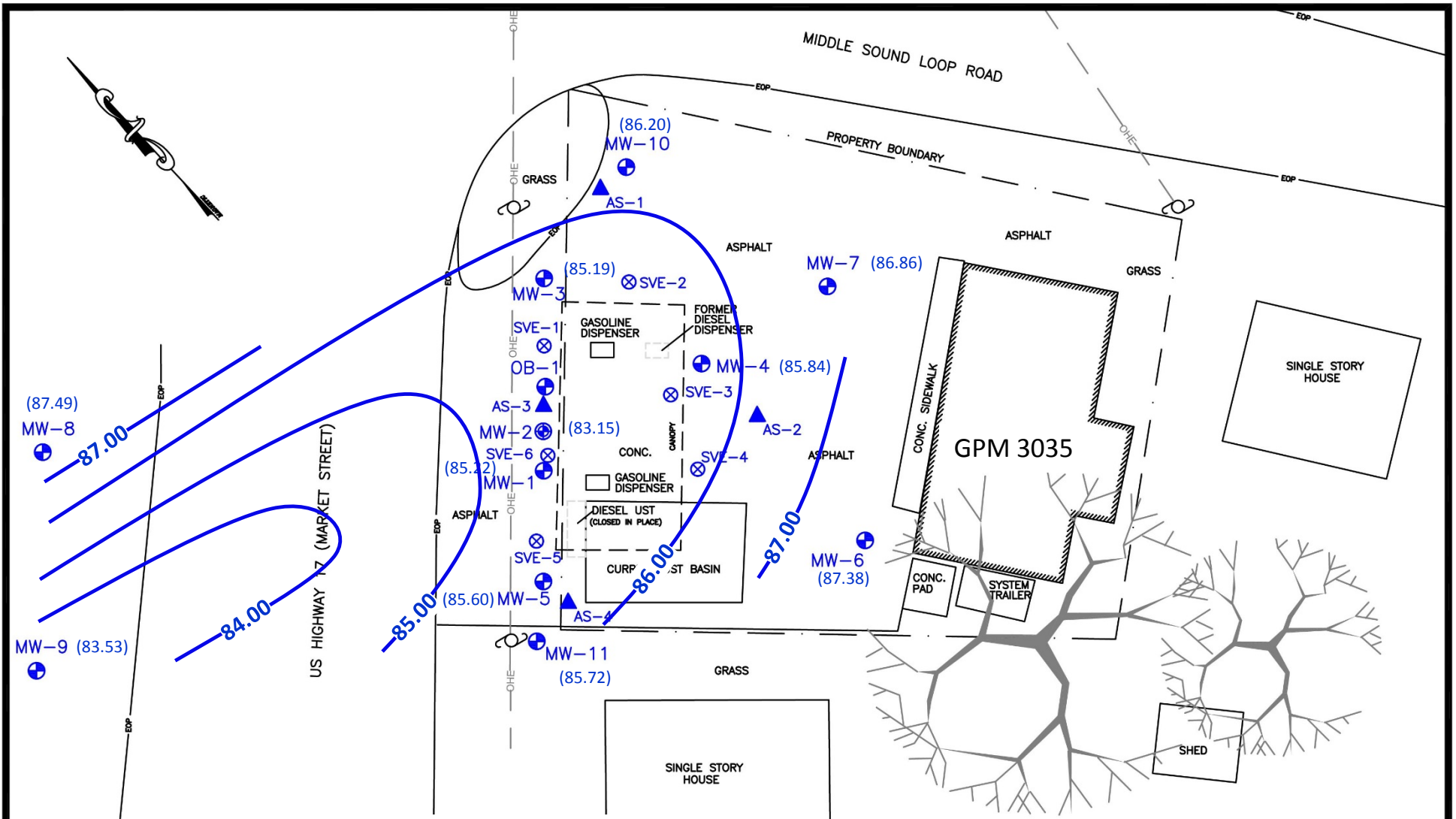
GPM 3035
WILMINGTON, NC

PROJECT NO.: NC30351601	DRAWN BY: LKO
PREPARED BY: MH	DATE: 1/10/2016
REVIEWED BY: MH	FILE NAME: GPM 3035 SITE



anteagroup
3530 Toringdon Way, Suite 106
Charlotte, NC 28277





(87.49) Groundwater Elevation Contour (ft)
 (87.49) Groundwater Elevation on 03/17/16
 (feet from relative datum)

Notes:
 deep well MW-2 not used in contouring

- LEGEND**
- MW-1 ⊕ Monitoring Well (Shallow)
 - MW-2 ⊕ Monitoring Well (Deep)
 - AS-1 ▲ Air Sparge Well
 - SVE-1 ⊗ Soil Vapor Extraction Well
 - ⊕ Utility/Power Pole
 - OHE— Overhead Electric Line
 - EOP End of Pavement

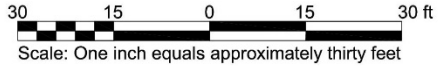


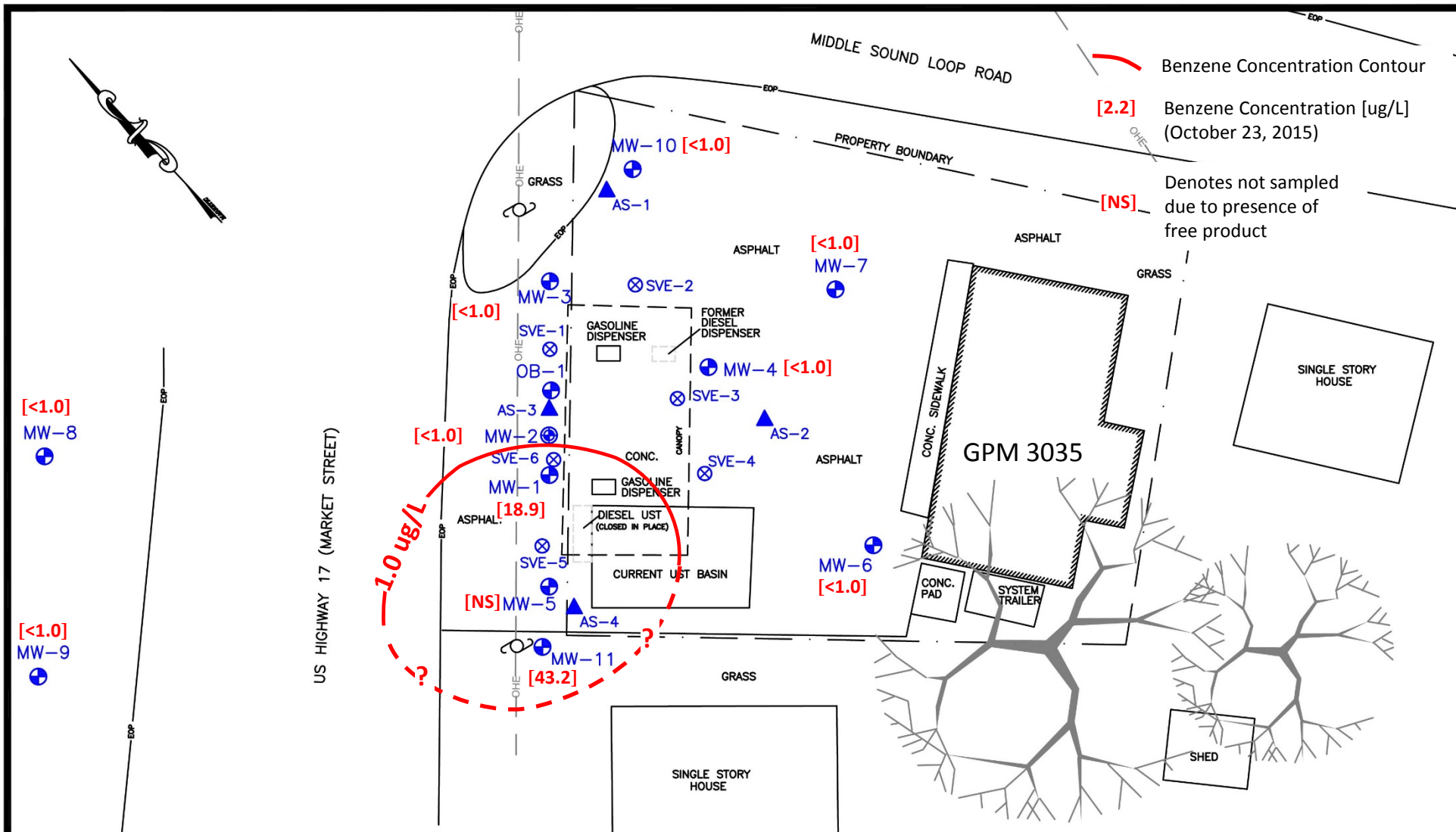
FIGURE 4

GROUNDWATER ELEVATION CONTOUR MAP -
 MARCH 17, 2016

**GPM 3035
 WILMINGTON, NC**

PROJECT NO.: NC30351601	DRAWN BY: LKO
PREPARED BY: MH	DATE: 1/10/2016
REVIEWED BY: MH	FILE NAME: GPM 3035 SITE

anteagroup
 3530 Toringdon Way, Suite 106
 Charlotte, NC 28277



— Benzene Concentration Contour
[2.2] Benzene Concentration [ug/L] (October 23, 2015)
[NS] Denotes not sampled due to presence of free product

LEGEND

- MW-1 Monitoring Well (Shallow)
- MW-2 Monitoring Well (Deep)
- AS-1 Air Sparge Well
- SVE-1 Soil Vapor Extraction Well
- Utility/Power Pole
- OHE— Overhead Electric Line
- EOP End of Pavement

30 15 0 15 30 ft
 Scale: One inch equals approximately thirty feet

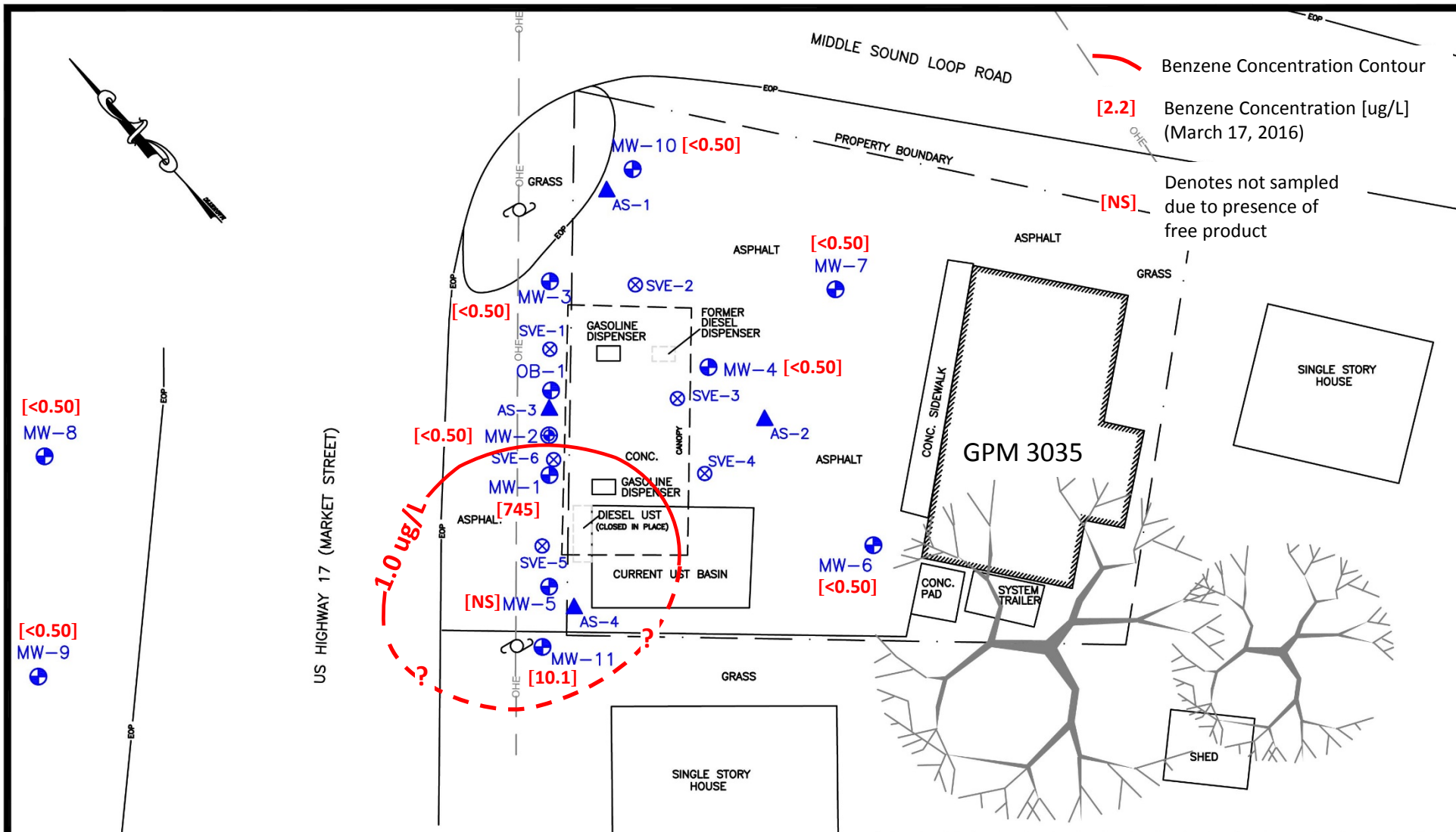
FIGURE 5
 ESTIMATED HORIZONTAL EXTENT OF BENZENE ABOVE 2L STANDARD - OCTOBER 23, 2015

**GPM 3035
 WILMINGTON, NC**

PROJECT NO.: NC30351601	DRAWN BY: LKO
PREPARED BY: MH	DATE: 04/06/2016
REVIEWED BY: MH	FILE NAME: GPM 3035 SITE



anteagroup
 3530 Toringdon Way, Suite 106
 Charlotte, NC 28277



— Benzene Concentration Contour
[2.2] Benzene Concentration [ug/L] (March 17, 2016)
[NS] Denotes not sampled due to presence of free product

LEGEND

- MW-1 Monitoring Well (Shallow)
- MW-2 Monitoring Well (Deep)
- AS-1 Air Sparge Well
- SVE-1 Soil Vapor Extraction Well
- Utility/Power Pole
- OHE— Overhead Electric Line
- EOP End of Pavement

30 15 0 15 30 ft
 Scale: One inch equals approximately thirty feet

FIGURE 6

ESTIMATED HORIZONTAL EXTENT OF BENZENE ABOVE 2L STANDARD - MARCH 17, 2016

GPM 3035
WILMINGTON, NC

PROJECT NO.: NC30351601	DRAWN BY: LKO
PREPARED BY: MH	DATE: 04/06/2016
REVIEWED BY: MH	FILE NAME: GPM 3035 SITE

anteagroup
3530 Toringdon Way, Suite 106
Charlotte, NC 28277

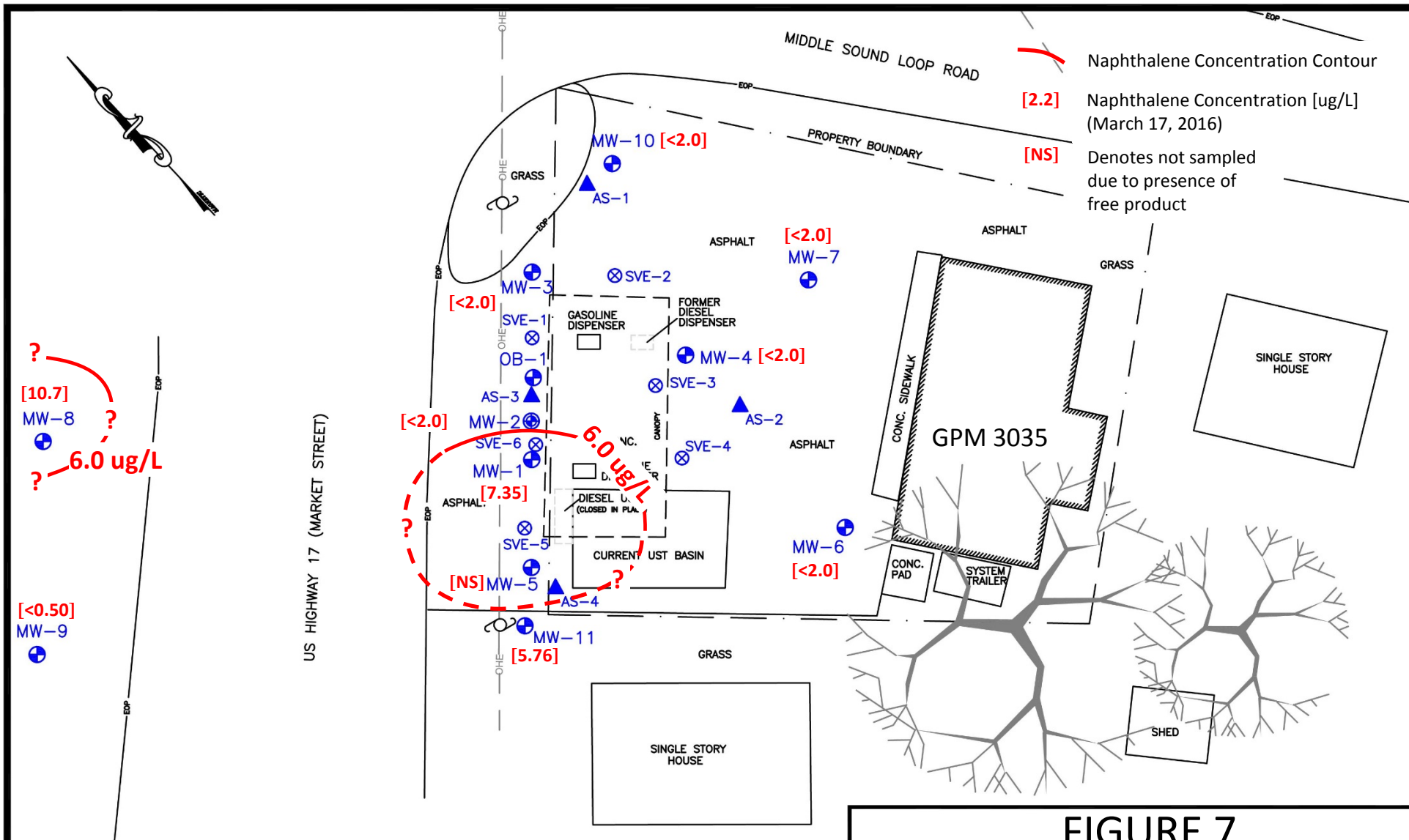


FIGURE 7
 ESTIMATED HORIZONTAL EXTENT OF NAPHTHALENE ABOVE 2L STANDARD - MARCH 17, 2016

**GPM 3035
 WILMINGTON, NC**

PROJECT NO.: NC30351601	DRAWN BY: LKO
PREPARED BY: MH	DATE: 04/06/2016
REVIEWED BY: MH	FILE NAME: GPM 3035 SITE

anteagroup
 3530 Toringdon Way, Suite 106
 Charlotte, NC 28277

*Active Remediation Monitoring Report
GPM 3035 (Scotchman 35)
Wilmington, New Hanover County, North Carolina
Antea USA of NC Project No. NC30351601*



Appendix A

RELEVANT CORRESPONDENCE

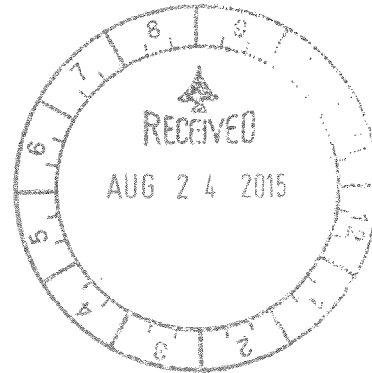


North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

May 19, 2015



Mr. Rolfe Lann
GPM Southeast, LLC
8565 Magellan, Parkway, Suite 400
Richmond, VA 23227

Subject: Review of Monitoring Report
Scotchman 3035
7160 Market Street
Incident # 32152
Wilmington
New Hanover County

Dear Mr. Lann:

The Wilmington Regional Office UST Section has reviewed the monitoring report received August 4, 2015. Please continue with semi-annual groundwater monitoring as recommended in the report. The next monitoring event should occur in November 2015. Please submit a pre-approval task authorization form immediately for this activity. In addition, please have the remediation system removed.

If you have any questions, please do not hesitate to contact me at (910) 796-7263.

Sincerely,

Deborah Mayo
Hydrogeologist

cc: Antea Group – Kyle Sorenson
WiRO

127 Cardinal Drive, Ext., Wilmington, North Carolina 28405
Phone: 910-796-7215 \ FAX: 910-350-2004 \ Internet: www.ncdenr.gov



Waste Management
ENVIRONMENTAL QUALITY

PAT MCCRORY

Governor

DONALD R. VAN DER VAART

Secretary

LINDA CULPEPPER

Director

November 30, 2015

Mr. Rolfe Lann
GPM Southeast, LLC
8565 Magellan, Parkway, Suite 400
Richmond, VA 23227

Re: Notice of Regulatory Requirements
15A NCAC 2L .0404 and 2L .0405
Risk-based Assessment and Corrective Action
for Petroleum Underground Storage Tanks

Scotchman 3035
7160 Market Street
Incident # 43012
Wilmington
New Hanover County

Dear Mr. Lann:

Information received by this office of the UST Section, Division of Waste Management, on November 6, 2015 confirms a release or discharge from a petroleum underground storage tank (UST) system at the above-referenced location. Records indicate that you are the owner or operator of this UST system. Therefore, as a responsible party, you must comply with the initial response and abatement action requirements of Title 15A NCAC 2L .0404 and, if applicable, the assessment and reporting requirements of Title 15A NCAC 2L .0405, within the timeframes specified in the attached rules. (Be aware that if the latter rule is applicable, you must comply with its requirements even if you do not receive formal notification from the UST Section.)

Initial abatement action requirements include the preparation and submittal of an Initial Abatement Action (IAA) Report, in accordance with Title 15A NCAC 2L .0404 and the most recent version of the *Guidelines for Site Checks, Tank Closure, and Initial Response and Abatement for UST Releases*, within 90 days of discovery of the release.

Because a release or discharge has been confirmed, a Licensed Geologist or a Professional Engineer, certified by the State of North Carolina, is required to prepare and certify all reports submitted to the Department in accordance with Title 15A NCAC 2L .0103(e) and 2L .0111(b).

Please note that before you sell, transfer, or request a "No Further Action" determination for a property that has not been remediated to below "unrestricted use" standards, you must file a Notice of

 Nothing Compares™

Residual Petroleum ("Notice") with the Register of Deeds in the county where the property is located (NCGS 143B-279.9 and 143B-279.11).

Failure to comply with the State's rules in the manner and time specified may result in the assessment of civil penalties and/or the use of other enforcement mechanisms.

If you have any questions regarding trust fund eligibility or reimbursement from the Commercial or Noncommercial Leaking Petroleum Underground Storage Tank Cleanup Funds, please contact the UST Section Trust Fund Branch at (919) 707-8171. If you have any questions regarding the actions that must be taken or the rules mentioned in this letter, please contact me at the address or telephone number listed below.

Sincerely,



Deborah Mayo
Hydrogeologist
Wilmington Regional Office
UST Section, Division of Waste Management, NCDENR

Enclosures: Title 15A NCAC 2L .0404 and 2L .0405
A Brief History of North Carolina Session Laws, Rules, and General Statutes...

cc: New Hanover County Health Department
Antea Group
WiRO

IAA request NOR1114.dot



Waste Management
ENVIRONMENTAL QUALITY

PAT MCCRORY

Governor

DONALD R. VAN DER VAART

Secretary

LINDA CULPEPPER

Director

February 18, 2016

Mr. Rolfe Lann
8565 Magellan Parkway, Suite 400
Richmond, VA 23227

Re: Notice of Regulatory Requirements
15A NCAC 2L .0407(b)
Risk-based Assessment and Corrective Action
for Petroleum Underground Storage Tanks

Scotchman #35 (GPM 3035)
7162 Market Street, Wilmington
New Hanover County
Incident Number: 43012
Risk Classification: High
Ranking: pending

Dear Mr. Lann:

Based on review of the file, the Initial Abatement Action Report (IAA) received in February 5, 2016 and the previous Monitoring Report received by the UST Section, the Division of Waste Management, Wilmington Regional office has classified the risk posed by the discharge or release at the subject site as high, as stipulated under Title 15A NCAC 2L .0406. The land use at the site is currently classified as residential. Title 15A NCAC 2L .0407(a) requires you to notify the Department of any changes that might affect the risk or land use classifications that have been assigned.

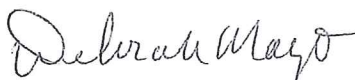
Title 15A NCAC 2L .0407(b) requires you to comply with assessment and cleanup requirements of Title 15A NCAC 2N .0706 and Title 15A NCAC 2L .0106(c) and 2L .0106(g). A Groundwater Monitoring Report prepared in accordance with these requirements and the most recent version of the *Guidelines for Assessment and Corrective Action for UST Releases* must be received by this office within 60 days of the date of this notice

Effective October 1, 2004, the Department requires that all work following the submittal of the Limited Site Assessment Report (Title 15A NCAC 2L .0405) be preapproved if State Trust Fund reimbursement is anticipated. To comply with this requirement, a completed Preapproval/Claim Authorization Form, encompassing the required remedial activities, must be received in this office within 14 days of the date of this letter. Upon completion of the preapproved activities, you should submit your claim promptly. Reimbursement funds are budgeted based on completed preapprovals, but lengthy delays in reimbursement can occur if claims are not submitted immediately following work completion.

Because a release or discharge has been confirmed, a Licensed Geologist or a Professional Engineer, certified by the State of North Carolina, is required to prepare and certify all reports submitted to the Department in accordance with Title 15A NCAC 2L .0103(e) and 2L .0111(b).

If you have any questions regarding trust fund eligibility or reimbursement from the Commercial or Noncommercial Leaking Petroleum Underground Storage Tank Cleanup Funds, please contact the UST Section Trust Fund Branch at (919) 707-8171. If you have any questions regarding the actions that must be taken or the rules mentioned in this letter, please contact me at the address or telephone number listed below.

Sincerely,



Deborah Mayo
Hydrogeologist
Wilmington Regional Office
UST Section, Division of Waste Management, NCDENR

cc: New Hanover County Health Department – Dr. David E. Rice
Antea Group
WiRO

*Active Remediation Monitoring Report
GPM 3035 (Scotchman 35)
Wilmington, New Hanover County, North Carolina
Antea USA of NC Project No. NC30351601*



Appendix B

HISTORICAL GROUNDWATER ELEVATION DATA

ENVIRONMENTAL SERVICES & SOLUTIONS, PLLC

TABLE 3
SUMMARY OF WELL CONSTRUCTION AND GROUNDWATER ELEVATION DATA
 SCOTCHMAN #35
 7162 MARKET STREET (US HIGHWAY 17), WILMINGTON, NORTH CAROLINA

Well No.	Well Depth (ft, bgs)	Well Screen Interval (ft, bgs)	Top of Casing Elevation (ft)	Date	Depth to Water (ft, TOC)	Depth to Free Product (ft, TOC)	Adjusted Groundwater Elevation (ft)
MW-1	20	5 - 20	94.45	10/4/2004	10.32	--	84.13
			94.95	9/24/2007	15.63	--	79.32
				12/5/2008	12.50	--	82.45
				5/13/2010	13.65	--	81.30
				11/10/2010	11.49	--	83.46
				5/11/2011	14.27	--	80.68
				12/6/2011	14.63	--	80.32
				6/26/2012	15.01	--	79.94
12/19/2012	14.07	--	80.88				
MW-2	30	25 - 30	94.88	10/4/2004	10.47	--	84.41
				9/24/2007	15.57	--	79.31
				12/5/2008	12.71	--	82.17
				5/13/2010	13.33	--	81.55
				11/10/2010	12.51	--	82.37
				5/11/2011	14.23	--	80.65
				12/6/2011	14.54	--	80.34
				6/26/2012	14.94	--	79.94
12/19/2012	14.00	--	80.88				
MW-3	20	5 - 20	94.77	10/4/2004	9.65	--	85.12
				9/24/2007	15.23	--	79.54
				12/5/2008	10.56	--	84.21
				5/13/2010	10.91	--	83.86
				11/10/2010	9.80	--	84.97
				5/11/2011	13.15	--	81.62
				12/6/2011	14.28	--	80.49
				6/26/2012	14.69	--	80.08
12/19/2012	13.72	--	81.05				
MW-4	20	5 - 20	94.79	10/4/2004	9.39	--	85.40
				9/24/2007	11.68	--	83.11
				12/5/2008	9.84	--	84.95
				5/13/2010	10.57	--	84.22
				11/10/2010	9.35	--	85.44
				5/11/2011	13.01	--	81.78
				12/6/2011	13.51	--	81.28
				6/26/2012	13.08	--	81.71
12/19/2012	12.22	--	82.57				

ENVIRONMENTAL SERVICES & SOLUTIONS, PLLC

TABLE 3
SUMMARY OF WELL CONSTRUCTION AND GROUNDWATER ELEVATION DATA
 SCOTCHMAN #35
 7162 MARKET STREET (US HIGHWAY 17), WILMINGTON, NORTH CAROLINA

Well No.	Well Depth (ft, bgs)	Well Screen Interval (ft, bgs)	Top of Casing Elevation (ft)	Date	Depth to Water (ft, TOC)	Depth to Free Product (ft, TOC)	Adjusted Groundwater Elevation (ft)
MW-5	20	5 - 20	94.66	10/4/2004	7.28	--	87.38
				9/24/2007	15.25	--	79.41
				12/5/2008	12.12	--	82.54
				5/13/2010	13.19	--	81.47
				11/10/2010	10.18	--	84.48
				5/11/2011	14.03	--	80.63
				12/6/2011	14.34	--	80.32
				6/26/2012	14.75	--	79.91
				12/19/2012	13.63	--	81.03
MW-6	15	4.25-14.25	94.68	9/24/2007	8.21	--	86.47
				12/5/2008	7.73	--	86.95
				5/13/2010	7.97	--	86.71
				11/10/2010	7.44	--	87.24
				5/11/2011	9.58	--	85.10
				12/6/2011	11.20	--	83.48
				6/26/2012	12.32	--	82.36
MW-7	15	5 - 15	94.32	9/24/2007	10.02	--	84.30
				12/5/2008	8.67	--	85.65
				5/13/2010	9.12	--	85.20
				11/10/2010	8.03	--	86.29
				5/11/2011	10.57	--	83.75
				12/6/2011	11.62	--	82.70
				6/26/2012	12.24	--	82.08
MW-8	18	3 - 18	95.06	9/24/2007	15.38	--	79.68
				12/5/2008	10.55	--	84.51
				5/13/2010	11.90	--	83.16
				11/10/2010	12.06	--	83.00
				5/11/2011	13.94	--	81.12
				12/6/2011	14.19	--	80.87
				6/26/2012	12.78	--	82.28
MW-9	20	5 - 20	94.34	9/24/2007	14.79	--	79.55
				12/5/2008	11.89	--	82.45
				5/13/2010	12.77	--	81.57
				11/10/2010	11.43	--	82.91
				5/11/2011	13.38	--	80.96
				12/6/2011	13.72	--	80.62
				6/26/2012	14.08	--	80.26

TABLE 3
SUMMARY OF WELL CONSTRUCTION AND GROUNDWATER ELEVATION DATA
 SCOTCHMAN #35
 7162 MARKET STREET (US HIGHWAY 17), WILMINGTON, NORTH CAROLINA

Well No.	Well Depth (ft, bgs)	Well Screen Interval (ft, bgs)	Top of Casing Elevation (ft)	Date	Depth to Water (ft, TOC)	Depth to Free Product (ft, TOC)	Adjusted Groundwater Elevation (ft)
MW-10	18	3 - 18	94.52	9/24/2007	14.55	--	79.97
				12/5/2008	10.32	--	84.20
				5/13/2010	9.98	--	84.54
				11/10/2010	9.09	--	85.43
				5/11/2011	11.11	--	83.41
				12/6/2011	12.25	--	82.27
				6/26/2012	13.18	--	81.34
				12/19/2012	12.11	--	82.41
MW-11	18	3 - 18	94.74	9/24/2007	15.45	--	79.29
				12/5/2008	12.07	--	82.67
				5/13/2010	11.61	--	83.13
				11/10/2010	9.88	--	84.86
				5/11/2011	14.11	--	80.63
				12/6/2011	14.50	--	80.24
				6/26/2012	14.88	--	79.86
				12/19/2012	13.91	--	80.83

NOTES:

1. Well depths represent number of feet from the top-of-casing to bottom of well.
2. Top-of-casing elevations are based on an arbitrary benchmark elevation of 100 feet above mean sea level.
3. The depth to water and depth to free product were measured from the top-of-casing.
4. Adjusted groundwater elevations are based on top-of-casing elevations minus the depth to water, whereas
5. (--) denotes free product was not detected in monitoring well at this time.
6. Measurements collected prior to 9/24/07 obtained by others

*Active Remediation Monitoring Report
GPM 3035 (Scotchman 35)
Wilmington, New Hanover County, North Carolina
Antea USA of NC Project No. NC30351601*



Appendix C

RECENT LABORATORY REPORTS

January 11, 2016

Mr. Kyle Sorensen
Antea Group
8008 Corporate Center Drive
Suite 100
Charlotte, NC 28226

RE: Project: GPM 3035
Pace Project No.: 92273266

Dear Mr. Sorensen:

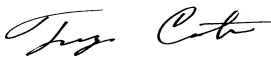
Enclosed are the analytical results for sample(s) received by the laboratory on October 24, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

Report revised on 1.9.16 to correct Sample ID per client request.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Trey Carter
treycarter@pacelabs.com
Project Manager

Enclosures

cc: Michelle Dukes, Antea Group



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

CERTIFICATIONS

Project: GPM 3035

Pace Project No.: 92273266

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001

Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

SAMPLE SUMMARY

Project: GPM 3035
Pace Project No.: 92273266

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92273266001	MW-6	Water	10/23/15 09:15	10/24/15 09:00
92273266002	MW-7	Water	10/23/15 09:30	10/24/15 09:00
92273266003	MW-10	Water	10/23/15 09:45	10/24/15 09:00
92273266004	MW-4	Water	10/23/15 10:10	10/24/15 09:00
92273266005	MW-3	Water	10/23/15 10:30	10/24/15 09:00
92273266006	MW-2	Water	10/23/15 11:00	10/24/15 09:00
92273266007	MW-1	Water	10/23/15 11:20	10/24/15 09:00
92273266008	MW-11	Water	10/23/15 11:35	10/24/15 09:00
92273266009	MW-9	Water	10/23/15 12:30	10/24/15 09:00
92273266010	MW-8	Water	10/23/15 12:35	10/24/15 09:00

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

SAMPLE ANALYTE COUNT

Project: GPM 3035

Pace Project No.: 92273266

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92273266001	MW-6	SM 6200B	CAH	11	PASI-C
92273266002	MW-7	SM 6200B	CAH	11	PASI-C
92273266003	MW-10	SM 6200B	CAH	11	PASI-C
92273266004	MW-4	SM 6200B	CAH	11	PASI-C
92273266005	MW-3	SM 6200B	CAH	11	PASI-C
92273266006	MW-2	SM 6200B	CAH	11	PASI-C
92273266007	MW-1	SM 6200B	CAH	11	PASI-C
92273266008	MW-11	SM 6200B	CAH	11	PASI-C
92273266009	MW-9	SM 6200B	CAH	11	PASI-C
92273266010	MW-8	SM 6200B	CAH	11	PASI-C

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: GPM 3035

Pace Project No.: 92273266

Sample: MW-6		Lab ID: 92273266001		Collected: 10/23/15 09:15	Received: 10/24/15 09:00	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
602 Volatiles by Method 6200		Analytical Method: SM 6200B						
Benzene	ND	ug/L	1.0	1		10/29/15 11:03	71-43-2	
Diisopropyl ether	ND	ug/L	1.0	1		10/29/15 11:03	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		10/29/15 11:03	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/29/15 11:03	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		10/29/15 11:03	91-20-3	
Toluene	ND	ug/L	1.0	1		10/29/15 11:03	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		10/29/15 11:03	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		10/29/15 11:03	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	91	%	70-130	1		10/29/15 11:03	460-00-4	
1,2-Dichloroethane-d4 (S)	118	%	70-130	1		10/29/15 11:03	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		10/29/15 11:03	2037-26-5	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: GPM 3035

Pace Project No.: 92273266

Sample: MW-7		Lab ID: 92273266002		Collected: 10/23/15 09:30	Received: 10/24/15 09:00	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
602 Volatiles by Method 6200		Analytical Method: SM 6200B						
Benzene	ND	ug/L	1.0	1		10/29/15 11:20	71-43-2	
Diisopropyl ether	ND	ug/L	1.0	1		10/29/15 11:20	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		10/29/15 11:20	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/29/15 11:20	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		10/29/15 11:20	91-20-3	
Toluene	ND	ug/L	1.0	1		10/29/15 11:20	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		10/29/15 11:20	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		10/29/15 11:20	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	90	%	70-130	1		10/29/15 11:20	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	70-130	1		10/29/15 11:20	17060-07-0	
Toluene-d8 (S)	98	%	70-130	1		10/29/15 11:20	2037-26-5	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: GPM 3035

Pace Project No.: 92273266

Sample: MW-10		Lab ID: 92273266003		Collected: 10/23/15 09:45	Received: 10/24/15 09:00	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
602 Volatiles by Method 6200		Analytical Method: SM 6200B						
Benzene	ND	ug/L	1.0	1		10/29/15 13:00	71-43-2	
Diisopropyl ether	ND	ug/L	1.0	1		10/29/15 13:00	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		10/29/15 13:00	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/29/15 13:00	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		10/29/15 13:00	91-20-3	
Toluene	ND	ug/L	1.0	1		10/29/15 13:00	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		10/29/15 13:00	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		10/29/15 13:00	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	92	%	70-130	1		10/29/15 13:00	460-00-4	
1,2-Dichloroethane-d4 (S)	117	%	70-130	1		10/29/15 13:00	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		10/29/15 13:00	2037-26-5	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: GPM 3035

Pace Project No.: 92273266

Sample: MW-4	Lab ID: 92273266004	Collected: 10/23/15 10:10		Received: 10/24/15 09:00		Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
602 Volatiles by Method 6200		Analytical Method: SM 6200B						
Benzene	ND	ug/L	1.0	1		10/29/15 11:36	71-43-2	
Diisopropyl ether	ND	ug/L	1.0	1		10/29/15 11:36	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		10/29/15 11:36	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/29/15 11:36	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		10/29/15 11:36	91-20-3	
Toluene	ND	ug/L	1.0	1		10/29/15 11:36	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		10/29/15 11:36	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		10/29/15 11:36	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	91	%	70-130	1		10/29/15 11:36	460-00-4	
1,2-Dichloroethane-d4 (S)	116	%	70-130	1		10/29/15 11:36	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		10/29/15 11:36	2037-26-5	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: GPM 3035

Pace Project No.: 92273266

Sample: MW-3		Lab ID: 92273266005		Collected: 10/23/15 10:30	Received: 10/24/15 09:00	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
602 Volatiles by Method 6200		Analytical Method: SM 6200B						
Benzene	ND	ug/L	1.0	1		10/29/15 11:53	71-43-2	
Diisopropyl ether	ND	ug/L	1.0	1		10/29/15 11:53	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		10/29/15 11:53	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/29/15 11:53	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		10/29/15 11:53	91-20-3	
Toluene	ND	ug/L	1.0	1		10/29/15 11:53	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		10/29/15 11:53	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		10/29/15 11:53	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	91	%	70-130	1		10/29/15 11:53	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	70-130	1		10/29/15 11:53	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		10/29/15 11:53	2037-26-5	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: GPM 3035

Pace Project No.: 92273266

Sample: MW-2	Lab ID: 92273266006		Collected: 10/23/15 11:00	Received: 10/24/15 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
602 Volatiles by Method 6200		Analytical Method: SM 6200B						
Benzene	ND	ug/L	1.0	1		10/29/15 13:17	71-43-2	
Diisopropyl ether	ND	ug/L	1.0	1		10/29/15 13:17	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		10/29/15 13:17	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/29/15 13:17	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		10/29/15 13:17	91-20-3	
Toluene	ND	ug/L	1.0	1		10/29/15 13:17	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		10/29/15 13:17	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		10/29/15 13:17	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	91	%	70-130	1		10/29/15 13:17	460-00-4	
1,2-Dichloroethane-d4 (S)	116	%	70-130	1		10/29/15 13:17	17060-07-0	
Toluene-d8 (S)	102	%	70-130	1		10/29/15 13:17	2037-26-5	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: GPM 3035

Pace Project No.: 92273266

Sample: MW-1		Lab ID: 92273266007		Collected: 10/23/15 11:20		Received: 10/24/15 09:00		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
602 Volatiles by Method 6200		Analytical Method: SM 6200B							
Benzene	18.9	ug/L	1.0	1		10/29/15 12:10	71-43-2		
Diisopropyl ether	ND	ug/L	1.0	1		10/29/15 12:10	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		10/29/15 12:10	100-41-4		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/29/15 12:10	1634-04-4		
Naphthalene	ND	ug/L	2.0	1		10/29/15 12:10	91-20-3		
Toluene	ND	ug/L	1.0	1		10/29/15 12:10	108-88-3		
m&p-Xylene	ND	ug/L	2.0	1		10/29/15 12:10	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		10/29/15 12:10	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	93	%	70-130	1		10/29/15 12:10	460-00-4		
1,2-Dichloroethane-d4 (S)	117	%	70-130	1		10/29/15 12:10	17060-07-0		
Toluene-d8 (S)	101	%	70-130	1		10/29/15 12:10	2037-26-5		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: GPM 3035

Pace Project No.: 92273266

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-11		Lab ID: 92273266008		Collected: 10/23/15 11:35	Received: 10/24/15 09:00	Matrix: Water		
602 Volatiles by Method 6200		Analytical Method: SM 6200B						
Benzene	43.2	ug/L	1.0	1		10/30/15 09:31	71-43-2	
Diisopropyl ether	ND	ug/L	1.0	1		10/30/15 09:31	108-20-3	
Ethylbenzene	77.5	ug/L	1.0	1		10/30/15 09:31	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/30/15 09:31	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		10/30/15 09:31	91-20-3	
Toluene	126	ug/L	1.0	1		10/30/15 09:31	108-88-3	
m&p-Xylene	316	ug/L	2.0	1		10/30/15 09:31	179601-23-1	
o-Xylene	168	ug/L	1.0	1		10/30/15 09:31	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	101	%	70-130	1		10/30/15 09:31	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130	1		10/30/15 09:31	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		10/30/15 09:31	2037-26-5	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: GPM 3035

Pace Project No.: 92273266

Sample: MW-9		Lab ID: 92273266009		Collected: 10/23/15 12:30	Received: 10/24/15 09:00	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
602 Volatiles by Method 6200		Analytical Method: SM 6200B						
Benzene	ND	ug/L	1.0	1		10/29/15 12:27	71-43-2	
Diisopropyl ether	ND	ug/L	1.0	1		10/29/15 12:27	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		10/29/15 12:27	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/29/15 12:27	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		10/29/15 12:27	91-20-3	
Toluene	ND	ug/L	1.0	1		10/29/15 12:27	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		10/29/15 12:27	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		10/29/15 12:27	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	92	%	70-130	1		10/29/15 12:27	460-00-4	
1,2-Dichloroethane-d4 (S)	119	%	70-130	1		10/29/15 12:27	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		10/29/15 12:27	2037-26-5	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: GPM 3035

Pace Project No.: 92273266

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-8		Lab ID: 92273266010		Collected: 10/23/15 12:35	Received: 10/24/15 09:00	Matrix: Water		
602 Volatiles by Method 6200		Analytical Method: SM 6200B						
Benzene	ND	ug/L	1.0	1		10/29/15 13:34	71-43-2	
Diisopropyl ether	ND	ug/L	1.0	1		10/29/15 13:34	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		10/29/15 13:34	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/29/15 13:34	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		10/29/15 13:34	91-20-3	
Toluene	ND	ug/L	1.0	1		10/29/15 13:34	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		10/29/15 13:34	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		10/29/15 13:34	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	92	%	70-130	1		10/29/15 13:34	460-00-4	
1,2-Dichloroethane-d4 (S)	118	%	70-130	1		10/29/15 13:34	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		10/29/15 13:34	2037-26-5	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: GPM 3035
Pace Project No.: 92273266

QC Batch: MSV/34038 Analysis Method: SM 6200B
QC Batch Method: SM 6200B Analysis Description: 602 by 6200B
Associated Lab Samples: 92273266001, 92273266002, 92273266003, 92273266004, 92273266005, 92273266006, 92273266007, 92273266009, 92273266010

METHOD BLANK: 1593755 Matrix: Water
Associated Lab Samples: 92273266001, 92273266002, 92273266003, 92273266004, 92273266005, 92273266006, 92273266007, 92273266009, 92273266010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	10/29/15 08:32	
Diisopropyl ether	ug/L	ND	1.0	10/29/15 08:32	
Ethylbenzene	ug/L	ND	1.0	10/29/15 08:32	
m&p-Xylene	ug/L	ND	2.0	10/29/15 08:32	
Methyl-tert-butyl ether	ug/L	ND	1.0	10/29/15 08:32	
Naphthalene	ug/L	ND	2.0	10/29/15 08:32	
o-Xylene	ug/L	ND	1.0	10/29/15 08:32	
Toluene	ug/L	ND	1.0	10/29/15 08:32	
1,2-Dichloroethane-d4 (S)	%	116	70-130	10/29/15 08:32	
4-Bromofluorobenzene (S)	%	92	70-130	10/29/15 08:32	
Toluene-d8 (S)	%	100	70-130	10/29/15 08:32	

LABORATORY CONTROL SAMPLE: 1593756

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	55.0	110	60-140	
Diisopropyl ether	ug/L	50	67.3	135	60-140	
Ethylbenzene	ug/L	50	54.8	110	60-140	
m&p-Xylene	ug/L	100	111	111	60-140	
Methyl-tert-butyl ether	ug/L	50	58.7	117	60-140	
Naphthalene	ug/L	50	49.7	99	60-140	
o-Xylene	ug/L	50	55.7	111	60-140	
Toluene	ug/L	50	54.4	109	60-140	
1,2-Dichloroethane-d4 (S)	%			115	70-130	
4-Bromofluorobenzene (S)	%			94	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1593757 1593758

Parameter	Units	MS 92272847006		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Conc.								
Benzene	ug/L	ND	20	20	22.7	23.1	114	116	60-140	2	30		
Diisopropyl ether	ug/L	ND	20	20	28.7	29.5	143	147	60-140	3	30	M1	
Ethylbenzene	ug/L	ND	20	20	18.9	19.7	94	99	60-140	4	30		
m&p-Xylene	ug/L	ND	40	40	37.1	38.8	93	97	60-140	5	30		
Methyl-tert-butyl ether	ug/L	ND	20	20	23.7	24.8	119	124	60-140	4	30		
Naphthalene	ug/L	ND	20	20	16.4	18.1	81	89	60-140	10	30		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: GPM 3035

Pace Project No.: 92273266

Parameter	Units	92272847006		1593757		1593758		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
o-Xylene	ug/L	ND	20	20	19.0	19.8	95	99	60-140	4	30			
Toluene	ug/L	ND	20	20	21.2	21.9	106	110	60-140	4	30			
1,2-Dichloroethane-d4 (S)	%						114	114	70-130					
4-Bromofluorobenzene (S)	%						92	90	70-130					
Toluene-d8 (S)	%						100	100	70-130					

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: GPM 3035

Pace Project No.: 92273266

QC Batch: MSV/34053

Analysis Method: SM 6200B

QC Batch Method: SM 6200B

Analysis Description: 602 by 6200B

Associated Lab Samples: 92273266008

METHOD BLANK: 1595075

Matrix: Water

Associated Lab Samples: 92273266008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	10/30/15 05:20	
Diisopropyl ether	ug/L	ND	1.0	10/30/15 05:20	
Ethylbenzene	ug/L	ND	1.0	10/30/15 05:20	
m&p-Xylene	ug/L	ND	2.0	10/30/15 05:20	
Methyl-tert-butyl ether	ug/L	ND	1.0	10/30/15 05:20	
Naphthalene	ug/L	ND	2.0	10/30/15 05:20	
o-Xylene	ug/L	ND	1.0	10/30/15 05:20	
Toluene	ug/L	ND	1.0	10/30/15 05:20	
1,2-Dichloroethane-d4 (S)	%	102	70-130	10/30/15 05:20	
4-Bromofluorobenzene (S)	%	101	70-130	10/30/15 05:20	
Toluene-d8 (S)	%	99	70-130	10/30/15 05:20	

LABORATORY CONTROL SAMPLE: 1595077

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	47.0	94	60-140	
Diisopropyl ether	ug/L	50	48.8	98	60-140	
Ethylbenzene	ug/L	50	46.3	93	60-140	
m&p-Xylene	ug/L	100	92.1	92	60-140	
Methyl-tert-butyl ether	ug/L	50	49.4	99	60-140	
Naphthalene	ug/L	50	50.5	101	60-140	
o-Xylene	ug/L	50	46.8	94	60-140	
Toluene	ug/L	50	46.1	92	60-140	
1,2-Dichloroethane-d4 (S)	%			100	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Toluene-d8 (S)	%			101	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALIFIERS

Project: GPM 3035

Pace Project No.: 92273266

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: GPM 3035

Pace Project No.: 92273266

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92273266001	MW-6	SM 6200B	MSV/34038		
92273266002	MW-7	SM 6200B	MSV/34038		
92273266003	MW-10	SM 6200B	MSV/34038		
92273266004	MW-4	SM 6200B	MSV/34038		
92273266005	MW-3	SM 6200B	MSV/34038		
92273266006	MW-2	SM 6200B	MSV/34038		
92273266007	MW-1	SM 6200B	MSV/34038		
92273266008	MW-11	SM 6200B	MSV/34053		
92273266009	MW-9	SM 6200B	MSV/34038		
92273266010	MW-8	SM 6200B	MSV/34038		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



Client Name: Antec Group

* Page 2 of 2 is for Internal Use Only

Carrier: Fed Ex UPS USPS Client Commercial Pace Other _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Optional
 Proj. Due Date:
 Proj. Name:

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used: IR Gun T1402 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Temp Correction Factor T1402 No Correction

Corrected Cooler Temp.: 3.0 °C Biological Tissue is Frozen: Yes No N/A
 Temp should be above freezing to 6°C

Date and Initials of person examining contents: AP 10-26-15

	Comments:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 1.
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A 2.
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A 4.
Samples Arrived within Hold Time:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A 6.
Push Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A 7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 8.
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 12.
-Includes date/time/ID/Analysis Matrix:	<u>Wt</u>
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Pace Trip Blank Lot # (if purchased):	

Client Notification/ Resolution: _____ Field Data Required? Y / N
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____

SCURF Review: TC Date: 10/26/15
 SRF Review: TC Date: 10/26/15

WO#: 92273266

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Analytical Report 527124

for

Antea Group - Charlotte

Project Manager: Kyle Sorensen

GPM 3035

30-MAR-16

Collected By: Client



6017 Financial Dr., Norcross, GA 30071

Ph:(770) 449-8800 Fax:(770) 449-5477

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-15-19), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)

Xenco-San Antonio: Texas (T104704534-15-1)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)

Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)



30-MAR-16

Project Manager: **Kyle Sorensen**
Antea Group - Charlotte
3530 Toringdon Way
Suite 106
Charlotte, NC 28277

Reference: XENCO Report No(s): **527124**
GPM 3035
Project Address: NC

Kyle Sorensen:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 527124. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 527124 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

J. Derek Rounsley
Project Manager

*Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY*

Houston - Dallas - Odessa - San Antonio - Tampa - Lakeland - Atlanta - Phoenix - Oklahoma - Latin America



Sample Cross Reference 527124



Antea Group - Charlotte, Charlotte, NC

GPM 3035

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-10	W	03-17-16 13:57		527124-001
MW-7	W	03-17-16 14:03		527124-002
MW-6	W	03-17-16 14:09		527124-003
MW-3	W	03-17-16 14:13		527124-004
MW-4	W	03-17-16 14:18		527124-005
MW-2	W	03-17-16 14:22		527124-006
MW-1	W	03-17-16 14:25		527124-007
MW-11	W	03-17-16 14:31		527124-008
MW-9	W	03-17-16 15:03		527124-009
MW-8	W	03-17-16 15:07		527124-010



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - San Antonio - Atlanta - Midland/Odessa - Tampa/Lakeland - Phoenix - Latin America

4147 Greenbriar Dr, Stafford, TX 77477
 9701 Harry Hines Blvd , Dallas, TX 75220
 5332 Blackberry Drive, San Antonio TX 78238
 1211 W Florida Ave, Midland, TX 79701
 2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282

Phone	Fax
(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(432) 563-1800	(432) 563-1713
(602) 437-0330	



Certificate of Analytical Results 527124



Antea Group - Charlotte, Charlotte, NC GPM 3035

Sample Id: **MW-10** Matrix: Ground Water Date Received: 03.19.16 09.11
 Lab Sample Id: 527124-001 Date Collected: 03.17.16 13.57

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B Prep Method: SM6200B_PREP
 Tech: ZHO % Moisture:
 Analyst: ZHO Date Prep: 03.26.16 14.33
 Seq Number: 991190

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	U	0.500	0.119	ug/L	03.26.16 19.32	U	1
Diisopropyl ether	108-20-3	U	0.500	0.0920	ug/L	03.26.16 19.32	U	1
Ethylbenzene	100-41-4	U	0.500	0.0920	ug/L	03.26.16 19.32	U	1
m,p-Xylenes	179601-23-1	U	1.00	0.176	ug/L	03.26.16 19.32	U	1
Methyl tert-butyl ether (MTBE)	1634-04-4	U	0.500	0.169	ug/L	03.26.16 19.32	U	1
Naphthalene	91-20-3	U	2.00	0.0940	ug/L	03.26.16 19.32	UH	1
o-Xylene	95-47-6	U	0.500	0.122	ug/L	03.26.16 19.32	U	1
Toluene	108-88-3	U	0.500	0.0570	ug/L	03.26.16 19.32	U	1
Total Xylenes	1330-20-7	U	0.500	0.122	ug/L	03.26.16 19.32	U	1
Surrogate	Cas Number		% Recovery	Units	Limits	Analysis Date	Flag	
1,2-Dichloroethane-D4	17060-07-0		103	%	65-126	03.26.16 19.32		
4-Bromofluorobenzene	460-00-4		100	%	86-111	03.26.16 19.32		
Toluene-D8	2037-26-5		112	%	83-116	03.26.16 19.32		



Certificate of Analytical Results 527124



Antea Group - Charlotte, Charlotte, NC GPM 3035

Sample Id: **MW-7** Matrix: Ground Water Date Received: 03.19.16 09.11
 Lab Sample Id: 527124-002 Date Collected: 03.17.16 14.03
 Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B Prep Method: SM6200B_PREP
 Tech: ZHO % Moisture:
 Analyst: ZHO Date Prep: 03.26.16 14.33
 Seq Number: 991190

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	U	0.500	0.119	ug/L	03.26.16 19.59	U	1
Diisopropyl ether	108-20-3	U	0.500	0.0920	ug/L	03.26.16 19.59	U	1
Ethylbenzene	100-41-4	U	0.500	0.0920	ug/L	03.26.16 19.59	U	1
m,p-Xylenes	179601-23-1	U	1.00	0.176	ug/L	03.26.16 19.59	U	1
Methyl tert-butyl ether (MTBE)	1634-04-4	U	0.500	0.169	ug/L	03.26.16 19.59	U	1
Naphthalene	91-20-3	U	2.00	0.0940	ug/L	03.26.16 19.59	UH	1
o-Xylene	95-47-6	U	0.500	0.122	ug/L	03.26.16 19.59	U	1
Toluene	108-88-3	U	0.500	0.0570	ug/L	03.26.16 19.59	U	1
Total Xylenes	1330-20-7	U	0.500	0.122	ug/L	03.26.16 19.59	U	1
Surrogate	Cas Number		% Recovery	Units	Limits	Analysis Date	Flag	
1,2-Dichloroethane-D4	17060-07-0		101	%	65-126	03.26.16 19.59		
4-Bromofluorobenzene	460-00-4		100	%	86-111	03.26.16 19.59		
Toluene-D8	2037-26-5		113	%	83-116	03.26.16 19.59		



Certificate of Analytical Results 527124



Antea Group - Charlotte, Charlotte, NC GPM 3035

Sample Id: **MW-6**
Lab Sample Id: 527124-003

Matrix: Ground Water
Date Collected: 03.17.16 14.09

Date Received: 03.19.16 09.11

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B

Prep Method: SM6200B_PREP

Tech: ZHO

% Moisture:

Analyst: ZHO

Date Prep: 03.26.16 14.33

Seq Number: 991190

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	U	0.500	0.119	ug/L	03.26.16 20.25	U	1
Diisopropyl ether	108-20-3	U	0.500	0.0920	ug/L	03.26.16 20.25	U	1
Ethylbenzene	100-41-4	U	0.500	0.0920	ug/L	03.26.16 20.25	U	1
m,p-Xylenes	179601-23-1	U	1.00	0.176	ug/L	03.26.16 20.25	U	1
Methyl tert-butyl ether (MTBE)	1634-04-4	U	0.500	0.169	ug/L	03.26.16 20.25	U	1
Naphthalene	91-20-3	U	2.00	0.0940	ug/L	03.26.16 20.25	UH	1
o-Xylene	95-47-6	U	0.500	0.122	ug/L	03.26.16 20.25	U	1
Toluene	108-88-3	U	0.500	0.0570	ug/L	03.26.16 20.25	U	1
Total Xylenes	1330-20-7	U	0.500	0.122	ug/L	03.26.16 20.25	U	1
Surrogate	Cas Number		% Recovery	Units	Limits	Analysis Date	Flag	
1,2-Dichloroethane-D4	17060-07-0		102	%	65-126	03.26.16 20.25		
4-Bromofluorobenzene	460-00-4		98	%	86-111	03.26.16 20.25		
Toluene-D8	2037-26-5		114	%	83-116	03.26.16 20.25		



Certificate of Analytical Results 527124



Antea Group - Charlotte, Charlotte, NC GPM 3035

Sample Id: **MW-3**
Lab Sample Id: 527124-004

Matrix: Ground Water
Date Collected: 03.17.16 14.13

Date Received: 03.19.16 09.11

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B

Prep Method: SM6200B_PREP

Tech: ZHO

% Moisture:

Analyst: ZHO

Date Prep: 03.26.16 14.33

Seq Number: 991190

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	U	0.500	0.119	ug/L	03.26.16 20.52	U	1
Diisopropyl ether	108-20-3	U	0.500	0.0920	ug/L	03.26.16 20.52	U	1
Ethylbenzene	100-41-4	U	0.500	0.0920	ug/L	03.26.16 20.52	U	1
m,p-Xylenes	179601-23-1	U	1.00	0.176	ug/L	03.26.16 20.52	U	1
Methyl tert-butyl ether (MTBE)	1634-04-4	U	0.500	0.169	ug/L	03.26.16 20.52	U	1
Naphthalene	91-20-3	U	2.00	0.0940	ug/L	03.26.16 20.52	UH	1
o-Xylene	95-47-6	U	0.500	0.122	ug/L	03.26.16 20.52	U	1
Toluene	108-88-3	U	0.500	0.0570	ug/L	03.26.16 20.52	U	1
Total Xylenes	1330-20-7	U	0.500	0.122	ug/L	03.26.16 20.52	U	1
Surrogate	Cas Number		% Recovery	Units	Limits	Analysis Date	Flag	
1,2-Dichloroethane-D4	17060-07-0		102	%	65-126	03.26.16 20.52		
4-Bromofluorobenzene	460-00-4		98	%	86-111	03.26.16 20.52		
Toluene-D8	2037-26-5		113	%	83-116	03.26.16 20.52		



Certificate of Analytical Results 527124



Antea Group - Charlotte, Charlotte, NC GPM 3035

Sample Id: **MW-4**
Lab Sample Id: 527124-005

Matrix: Ground Water
Date Collected: 03.17.16 14.18

Date Received: 03.19.16 09.11

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B

Prep Method: SM6200B_PREP

Tech: ZHO

% Moisture:

Analyst: ZHO

Date Prep: 03.26.16 14.33

Seq Number: 991190

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	U	0.500	0.119	ug/L	03.26.16 21.19	U	1
Diisopropyl ether	108-20-3	U	0.500	0.0920	ug/L	03.26.16 21.19	U	1
Ethylbenzene	100-41-4	U	0.500	0.0920	ug/L	03.26.16 21.19	U	1
m,p-Xylenes	179601-23-1	U	1.00	0.176	ug/L	03.26.16 21.19	U	1
Methyl tert-butyl ether (MTBE)	1634-04-4	U	0.500	0.169	ug/L	03.26.16 21.19	U	1
Naphthalene	91-20-3	U	2.00	0.0940	ug/L	03.26.16 21.19	UH	1
o-Xylene	95-47-6	U	0.500	0.122	ug/L	03.26.16 21.19	U	1
Toluene	108-88-3	U	0.500	0.0570	ug/L	03.26.16 21.19	U	1
Total Xylenes	1330-20-7	U	0.500	0.122	ug/L	03.26.16 21.19	U	1
Surrogate	Cas Number		% Recovery	Units	Limits	Analysis Date	Flag	
1,2-Dichloroethane-D4	17060-07-0		99	%	65-126	03.26.16 21.19		
4-Bromofluorobenzene	460-00-4		100	%	86-111	03.26.16 21.19		
Toluene-D8	2037-26-5		114	%	83-116	03.26.16 21.19		



Certificate of Analytical Results 527124



Antea Group - Charlotte, Charlotte, NC GPM 3035

Sample Id: **MW-2** Matrix: Ground Water Date Received: 03.19.16 09.11
 Lab Sample Id: 527124-006 Date Collected: 03.17.16 14.22
 Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B Prep Method: SM6200B_PREP
 Tech: ZHO % Moisture:
 Analyst: ZHO Date Prep: 03.26.16 14.33
 Seq Number: 991190

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	U	0.500	0.119	ug/L	03.26.16 21.45	U	1
Diisopropyl ether	108-20-3	U	0.500	0.0920	ug/L	03.26.16 21.45	U	1
Ethylbenzene	100-41-4	U	0.500	0.0920	ug/L	03.26.16 21.45	U	1
m,p-Xylenes	179601-23-1	U	1.00	0.176	ug/L	03.26.16 21.45	U	1
Methyl tert-butyl ether (MTBE)	1634-04-4	U	0.500	0.169	ug/L	03.26.16 21.45	U	1
Naphthalene	91-20-3	U	2.00	0.0940	ug/L	03.26.16 21.45	UH	1
o-Xylene	95-47-6	U	0.500	0.122	ug/L	03.26.16 21.45	U	1
Toluene	108-88-3	U	0.500	0.0570	ug/L	03.26.16 21.45	U	1
Total Xylenes	1330-20-7	U	0.500	0.122	ug/L	03.26.16 21.45	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag		
1,2-Dichloroethane-D4	17060-07-0	101	%	65-126	03.26.16 21.45			
4-Bromofluorobenzene	460-00-4	99	%	86-111	03.26.16 21.45			
Toluene-D8	2037-26-5	112	%	83-116	03.26.16 21.45			



Certificate of Analytical Results 527124



Antea Group - Charlotte, Charlotte, NC GPM 3035

Sample Id: **MW-1** Matrix: Ground Water Date Received: 03.19.16 09.11
 Lab Sample Id: 527124-007 Date Collected: 03.17.16 14.25

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B Prep Method: SM6200B_PREP
 Tech: ZHO % Moisture:
 Analyst: MWE Date Prep: 03.25.16 07.35
 Seq Number: 991188

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	745	5.00	1.19	ug/L	03.26.16 23.10	D	10
Diisopropyl ether	108-20-3	2.95	0.500	0.0920	ug/L	03.25.16 17.58		1
Ethylbenzene	100-41-4	293	5.00	0.920	ug/L	03.26.16 23.10	D	10
m,p-Xylenes	179601-23-1	155	1.00	0.176	ug/L	03.25.16 17.58		1
Methyl tert-butyl ether (MTBE)	1634-04-4	15.7	0.500	0.169	ug/L	03.25.16 17.58		1
Naphthalene	91-20-3	7.35	2.00	0.0940	ug/L	03.25.16 17.58		1
o-Xylene	95-47-6	2.55	0.500	0.122	ug/L	03.25.16 17.58		1
Toluene	108-88-3	11.2	0.500	0.0570	ug/L	03.25.16 17.58		1
Total Xylenes	1330-20-7	158	0.500	0.122	ug/L	03.25.16 17.58		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag		
1,2-Dichloroethane-D4	17060-07-0	92	%	65-126	03.25.16 17.58			
4-Bromofluorobenzene	460-00-4	100	%	86-111	03.25.16 17.58			
Toluene-D8	2037-26-5	115	%	83-116	03.25.16 17.58			



Certificate of Analytical Results 527124



Antea Group - Charlotte, Charlotte, NC GPM 3035

Sample Id: **MW-11** Matrix: Ground Water Date Received: 03.19.16 09.11
 Lab Sample Id: 527124-008 Date Collected: 03.17.16 14.31

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B Prep Method: SM6200B_PREP
 Tech: ZHO % Moisture:
 Analyst: ZHO Date Prep: 03.26.16 14.33
 Seq Number: 991190

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	10.1	0.500	0.119	ug/L	03.26.16 22.41		1
Diisopropyl ether	108-20-3	U	0.500	0.0920	ug/L	03.26.16 22.41	U	1
Ethylbenzene	100-41-4	29.5	0.500	0.0920	ug/L	03.26.16 22.41		1
m,p-Xylenes	179601-23-1	77.9	1.00	0.176	ug/L	03.26.16 22.41		1
Methyl tert-butyl ether (MTBE)	1634-04-4	U	0.500	0.169	ug/L	03.26.16 22.41	U	1
Naphthalene	91-20-3	5.76	2.00	0.0940	ug/L	03.26.16 22.41	H	1
o-Xylene	95-47-6	52.1	0.500	0.122	ug/L	03.26.16 22.41		1
Toluene	108-88-3	34.7	0.500	0.0570	ug/L	03.26.16 22.41		1
Total Xylenes	1330-20-7	130	0.500	0.122	ug/L	03.26.16 22.41		1
			%					
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag		
1,2-Dichloroethane-D4	17060-07-0	96	%	65-126	03.26.16 22.41			
4-Bromofluorobenzene	460-00-4	102	%	86-111	03.26.16 22.41			
Toluene-D8	2037-26-5	113	%	83-116	03.26.16 22.41			



Certificate of Analytical Results 527124



Antea Group - Charlotte, Charlotte, NC GPM 3035

Sample Id: MW-9	Matrix: Ground Water	Date Received: 03.19.16 09.11
Lab Sample Id: 527124-009	Date Collected: 03.17.16 15.03	
Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B		Prep Method: SM6200B_PREP
Tech: ZHO		% Moisture:
Analyst: ZHO	Date Prep: 03.27.16 17.34	
Seq Number: 991192		

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	U	0.500	0.119	ug/L	03.27.16 20.44	U	1
Diisopropyl ether	108-20-3	U	0.500	0.0920	ug/L	03.27.16 20.44	U	1
Ethylbenzene	100-41-4	U	0.500	0.0920	ug/L	03.27.16 20.44	U	1
m,p-Xylenes	179601-23-1	U	1.00	0.176	ug/L	03.27.16 20.44	U	1
Methyl tert-butyl ether (MTBE)	1634-04-4	U	0.500	0.169	ug/L	03.27.16 20.44	U	1
Naphthalene	91-20-3	U	2.00	0.0940	ug/L	03.27.16 20.44	U	1
o-Xylene	95-47-6	U	0.500	0.122	ug/L	03.27.16 20.44	U	1
Toluene	108-88-3	U	0.500	0.0570	ug/L	03.27.16 20.44	U	1
Total Xylenes	1330-20-7	U	0.500	0.122	ug/L	03.27.16 20.44	U	1
			%					
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag		
1,2-Dichloroethane-D4	17060-07-0	101	%	65-126	03.27.16 20.44			
4-Bromofluorobenzene	460-00-4	100	%	86-111	03.27.16 20.44			
Toluene-D8	2037-26-5	115	%	83-116	03.27.16 20.44			



Certificate of Analytical Results 527124



Antea Group - Charlotte, Charlotte, NC GPM 3035

Sample Id: **MW-8** Matrix: Ground Water Date Received: 03.19.16 09.11
 Lab Sample Id: 527124-010 Date Collected: 03.17.16 15.07

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B Prep Method: SM6200B_PREP
 Tech: ZHO % Moisture:
 Analyst: ZHO Date Prep: 03.27.16 17.34
 Seq Number: 991192

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	U	0.500	0.119	ug/L	03.27.16 21.11	U	1
Diisopropyl ether	108-20-3	U	0.500	0.0920	ug/L	03.27.16 21.11	U	1
Ethylbenzene	100-41-4	U	0.500	0.0920	ug/L	03.27.16 21.11	U	1
m,p-Xylenes	179601-23-1	U	1.00	0.176	ug/L	03.27.16 21.11	U	1
Methyl tert-butyl ether (MTBE)	1634-04-4	U	0.500	0.169	ug/L	03.27.16 21.11	U	1
Naphthalene	91-20-3	10.7	2.00	0.0940	ug/L	03.27.16 21.11		1
o-Xylene	95-47-6	U	0.500	0.122	ug/L	03.27.16 21.11	U	1
Toluene	108-88-3	U	0.500	0.0570	ug/L	03.27.16 21.11	U	1
Total Xylenes	1330-20-7	U	0.500	0.122	ug/L	03.27.16 21.11	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag		
1,2-Dichloroethane-D4	17060-07-0	102	%	65-126	03.27.16 21.11			
4-Bromofluorobenzene	460-00-4	98	%	86-111	03.27.16 21.11			
Toluene-D8	2037-26-5	110	%	83-116	03.27.16 21.11			

Antea Group - Charlotte
GPM 3035

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B

Prep Method: SM6200B_PREP

Seq Number: 991188

Matrix: Water

Date Prep: 03.25.16

MB Sample Id: 706947-1-BLK

LCS Sample Id: 706947-1-BKS

LCSD Sample Id: 706947-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Diisopropyl ether	<0.0920	25.0	28.4	114	27.8	111	77-125	2	20	ug/L	03.25.16 08:55	
m,p-Xylenes	<0.176	50.0	46.3	93	45.7	91	90-125	1	20	ug/L	03.25.16 08:55	
Methyl tert-butyl ether (MTBE)	<0.169	50.0	58.8	118	56.7	113	53-149	4	20	ug/L	03.25.16 08:55	
Naphthalene	<0.0940	25.0	24.1	96	23.4	94	52-116	3	20	ug/L	03.25.16 08:55	
o-Xylene	<0.122	25.0	23.1	92	23.0	92	86-119	0	20	ug/L	03.25.16 08:55	
Toluene	<0.0570	25.0	22.6	90	22.2	89	89-116	2	20	ug/L	03.25.16 08:55	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,2-Dichloroethane-D4	108		96		93		65-126	%	03.25.16 08:55
4-Bromofluorobenzene	104		98		97		86-111	%	03.25.16 08:55
Toluene-D8	116		86		87		83-116	%	03.25.16 08:55

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B

Prep Method: SM6200B_PREP

Seq Number: 991190

Matrix: Water

Date Prep: 03.26.16

MB Sample Id: 706948-1-BLK

LCS Sample Id: 706948-1-BKS

LCSD Sample Id: 706948-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.119	25.0	21.0	84	21.2	85	81-123	1	20	ug/L	03.26.16 15:58	
Diisopropyl ether	<0.0920	25.0	20.6	82	21.5	86	77-125	4	20	ug/L	03.26.16 15:58	
Ethylbenzene	<0.0920	25.0	25.9	104	26.2	105	87-123	1	20	ug/L	03.26.16 15:58	
m,p-Xylenes	<0.176	50.0	51.9	104	52.6	105	90-125	1	20	ug/L	03.26.16 15:58	
Methyl tert-butyl ether (MTBE)	<0.169	50.0	41.7	83	43.7	87	53-149	5	20	ug/L	03.26.16 15:58	
Naphthalene	<0.0940	25.0	31.2	125	32.7	131	52-116	5	20	ug/L	03.26.16 15:58	H
o-Xylene	<0.122	25.0	25.6	102	26.4	106	86-119	3	20	ug/L	03.26.16 15:58	
Toluene	<0.0570	25.0	25.5	102	26.0	104	89-116	2	20	ug/L	03.26.16 15:58	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,2-Dichloroethane-D4	103		100		101		65-126	%	03.26.16 15:58
4-Bromofluorobenzene	102		98		100		86-111	%	03.26.16 15:58
Toluene-D8	113		116		115		83-116	%	03.26.16 15:58

Antea Group - Charlotte
GPM 3035

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B

Prep Method: SM6200B_PREP

Seq Number: 991192

Matrix: Water

Date Prep: 03.27.16

MB Sample Id: 706949-1-BLK

LCS Sample Id: 706949-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Benzene	<0.119	25.0	22.2	89	81-123	ug/L	03.27.16 19:24	
Diisopropyl ether	<0.0920	25.0	22.7	91	77-125	ug/L	03.27.16 19:24	
Ethylbenzene	<0.0920	25.0	26.6	106	87-123	ug/L	03.27.16 19:24	
m,p-Xylenes	<0.176	50.0	53.7	107	90-125	ug/L	03.27.16 19:24	
Methyl tert-butyl ether (MTBE)	<0.169	50.0	44.9	90	53-149	ug/L	03.27.16 19:24	
Naphthalene	<0.0940	25.0	28.7	115	52-116	ug/L	03.27.16 19:24	
o-Xylene	<0.122	25.0	26.8	107	86-119	ug/L	03.27.16 19:24	
Toluene	<0.0570	25.0	26.2	105	89-116	ug/L	03.27.16 19:24	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	Limits	Units	Analysis Date
1,2-Dichloroethane-D4	100		101		65-126	%	03.27.16 19:24
4-Bromofluorobenzene	102		100		86-111	%	03.27.16 19:24
Toluene-D8	111		114		83-116	%	03.27.16 19:24

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B

Prep Method: SM6200B_PREP

Seq Number: 991188

Matrix: Ground Water

Date Prep: 03.25.16

Parent Sample Id: 527123-007

MS Sample Id: 527123-007 S

MSD Sample Id: 527123-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Diisopropyl ether	<0.0920	25.0	18.8	75	18.4	74	77-125	2	20	ug/L	03.25.16 18:25	X
m,p-Xylenes	<0.176	50.0	49.0	98	46.8	94	65-151	5	20	ug/L	03.25.16 18:25	
Methyl tert-butyl ether (MTBE)	<0.169	50.0	38.8	78	39.0	78	51-155	1	20	ug/L	03.25.16 18:25	
Naphthalene	<0.0940	25.0	26.9	108	29.1	116	34-135	8	20	ug/L	03.25.16 18:25	
o-Xylene	<0.122	25.0	24.3	97	23.8	95	58-148	2	20	ug/L	03.25.16 18:25	
Toluene	<0.0570	25.0	24.4	98	23.5	94	81-125	4	20	ug/L	03.25.16 18:25	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,2-Dichloroethane-D4	96		98		65-126	%	03.25.16 18:25
4-Bromofluorobenzene	98		98		86-111	%	03.25.16 18:25
Toluene-D8	116		114		83-116	%	03.25.16 18:25

Antea Group - Charlotte
GPM 3035

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B Prep Method: SM6200B_PREP
Seq Number: 991190 Matrix: Ground Water Date Prep: 03.26.16
Parent Sample Id: 527123-011 MS Sample Id: 527123-011 S MSD Sample Id: 527123-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	262	2500	2290	81	2200	78	70-135	4	20	ug/L	03.27.16 02:12	
Diisopropyl ether	<9.20	2500	1910	76	1880	75	77-125	2	20	ug/L	03.27.16 02:12	X
Ethylbenzene	4270	2500	6710	98	6500	89	70-140	3	20	ug/L	03.27.16 02:12	
m,p-Xylenes	14800	5000	19200	88	18800	80	65-151	2	20	ug/L	03.27.16 02:12	
Methyl tert-butyl ether (MTBE)	<16.9	5000	3800	76	3780	76	51-155	1	20	ug/L	03.27.16 02:12	
Naphthalene	552	2500	2960	96	3320	111	34-135	11	20	ug/L	03.27.16 02:12	
o-Xylene	6360	2500	8850	100	8500	86	58-148	4	20	ug/L	03.27.16 02:12	
Toluene	42100	2500	43000	36	41700	0	81-125	3	20	ug/L	03.27.16 02:12	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,2-Dichloroethane-D4	96		97		65-126	%	03.27.16 02:12
4-Bromofluorobenzene	96		99		86-111	%	03.27.16 02:12
Toluene-D8	115		113		83-116	%	03.27.16 02:12

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B Prep Method: SM6200B_PREP
Seq Number: 991192 Matrix: Ground Water Date Prep: 03.27.16
Parent Sample Id: 527258-010 MS Sample Id: 527258-010 S

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Benzene	<0.119	25.0	21.0	84	70-135	ug/L	03.28.16 04:23	
Diisopropyl ether	0.100	25.0	21.0	84	77-125	ug/L	03.28.16 04:23	
Ethylbenzene	<0.0920	25.0	24.5	98	70-140	ug/L	03.28.16 04:23	
m,p-Xylenes	<0.176	50.0	50.0	100	65-151	ug/L	03.28.16 04:23	
Methyl tert-butyl ether (MTBE)	2.97	50.0	44.4	83	51-155	ug/L	03.28.16 04:23	
Naphthalene	<0.0940	25.0	27.7	111	34-135	ug/L	03.28.16 04:23	
o-Xylene	<0.122	25.0	24.9	100	58-148	ug/L	03.28.16 04:23	
Toluene	<0.0570	25.0	24.4	98	81-125	ug/L	03.28.16 04:23	

Surrogate	MS %Rec	MS Flag	Limits	Units	Analysis Date
1,2-Dichloroethane-D4	95		65-126	%	03.28.16 04:23
4-Bromofluorobenzene	98		86-111	%	03.28.16 04:23
Toluene-D8	112		83-116	%	03.28.16 04:23



Blank Summary 527124



Antea Group - Charlotte, Charlotte, NC GPM 3035

Sample Id: 706947-1-BLK
Lab Sample Id: 706947-1-BLK

Matrix: WATER

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B

Prep Method: SM6200B_PREP

Tech: ZHO

Analyst: MWE

Date Prep: 03.25.16 07:35

Seq Number: 991188

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Diisopropyl ether	108-20-3	U	0.500	0.0920	ug/L	03.25.16 10:49	U	1
m,p-Xylenes	179601-23-1	U	1.00	0.176	ug/L	03.25.16 10:49	U	1
Methyl tert-butyl ether (MTBE)	1634-04-4	U	0.500	0.169	ug/L	03.25.16 10:49	U	1
Naphthalene	91-20-3	U	2.00	0.0940	ug/L	03.25.16 10:49	U	1
o-Xylene	95-47-6	U	0.500	0.122	ug/L	03.25.16 10:49	U	1
Toluene	108-88-3	U	0.500	0.0570	ug/L	03.25.16 10:49	U	1



Blank Summary 527124



Antea Group - Charlotte, Charlotte, NC GPM 3035

Sample Id: 706948-1-BLK

Matrix: WATER

Lab Sample Id: 706948-1-BLK

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B

Prep Method: SM6200B_PREP

Tech: ZHO

Analyst: ZHO

Date Prep: 03.26.16 14:33

Seq Number: 991190

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	U	0.500	0.119	ug/L	03.26.16 17:45	U	1
Diisopropyl ether	108-20-3	U	0.500	0.0920	ug/L	03.26.16 17:45	U	1
Ethylbenzene	100-41-4	U	0.500	0.0920	ug/L	03.26.16 17:45	U	1
m,p-Xylenes	179601-23-1	U	1.00	0.176	ug/L	03.26.16 17:45	U	1
Methyl tert-butyl ether (MTBE)	1634-04-4	U	0.500	0.169	ug/L	03.26.16 17:45	U	1
Naphthalene	91-20-3	U	2.00	0.0940	ug/L	03.26.16 17:45	U	1
o-Xylene	95-47-6	U	0.500	0.122	ug/L	03.26.16 17:45	U	1
Toluene	108-88-3	U	0.500	0.0570	ug/L	03.26.16 17:45	U	1



Blank Summary 527124



Antea Group - Charlotte, Charlotte, NC GPM 3035

Sample Id: 706949-1-BLK

Matrix: WATER

Lab Sample Id: 706949-1-BLK

Analytical Method: 6200 (BTEX, MTBE, IPE, NAPH) by GC/MS by SM6200B

Prep Method: SM6200B_PREP

Tech: ZHO

Analyst: ZHO

Date Prep: 03.27.16 17:34

Seq Number: 991192

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	U	0.500	0.119	ug/L	03.27.16 20:18	U	1
Diisopropyl ether	108-20-3	U	0.500	0.0920	ug/L	03.27.16 20:18	U	1
Ethylbenzene	100-41-4	U	0.500	0.0920	ug/L	03.27.16 20:18	U	1
m,p-Xylenes	179601-23-1	U	1.00	0.176	ug/L	03.27.16 20:18	U	1
Methyl tert-butyl ether (MTBE)	1634-04-4	U	0.500	0.169	ug/L	03.27.16 20:18	U	1
Naphthalene	91-20-3	U	2.00	0.0940	ug/L	03.27.16 20:18	U	1
o-Xylene	95-47-6	U	0.500	0.122	ug/L	03.27.16 20:18	U	1
Toluene	108-88-3	U	0.500	0.0570	ug/L	03.27.16 20:18	U	1



FTS LABORATORIES
CHAIN OF CUSTODY

COC# ATL302600

Page 1 of 1

6017 Financial Drive, Norcross, GA 30071

Phone # (770) 449-8800 Fax # (770) 449-5477

Company Name: Antea Group	Receiver's Initials/Temp: <u>M / 1.2°C</u>
Address: 3530 Toringdon Way, Suite 106, Charlotte, NC 28277	Custody Seal(s): <u>Y</u> N Lab Work Order # <u>527124</u>
Results Sent to: Kyle Sorensen	P.O.# (if required):
Email address: dale.voytkin@urs.com <u>kyle.sorensen@anteagroup.com</u>	Field Comments / Lab Precautions:
Contact Phone #: 1-704-324-7045 Cell#:	

Project Name (Site): GPM 3035	Analysis Requested
Project Number (ID): <u>GPM 3035</u>	Container Type: VC
Regulatory Program: <u>NC UST</u>	Chemical Preservation Code: 1

Sampler(s): (signature) 	Sampler(s): (printed) <u>Mike Hazette</u>	
-----------------------------	--	--

Line No.	Sample ID #	Sample Depth (Ft)	Collection Date / Time	Matrix (See below)	Composite	Grab	No. of Containers	6200 B, M, I, N only												
1	MW-10		3/17/16 1357	GW		✓	2	✓	(SEE MATRIX IFC & Dept only)											
2	MW-7		1403																	
3	MW-6		1409																	
4	MW-3		1413																	
5	MW-4		1418																	
6	MW-2		1422																	
7	MW-1		1425																	
8	MW-11		1431																	
9	MW-9		1503																	
10	MW-8		1507	✓		✓	✓	✓												

1) Relinquished By:	Date / Time: <u>3/18/16 1530</u>	2) Received By: <u>[Signature]</u>	Date / Time: <u>3/19/16 9:11</u>	Delivered by: (Circle One)
3) Relinquished By:	Date / Time:	4) Received By:	Date / Time:	Turnaround Time (business days) TAT Starts when samples are rec'd by 2PM <u>10</u> Days ; <u>5-7</u> Days; <u>3</u> Days <u>2</u> Days ; <u>1</u> Day; <u>Same</u> Day
5) Relinquished By:	Date / Time:	6) Received By:	Date / Time:	

Matrix Guide: (W=Water) (DW = Drinking Water) (GW = Groundwater) (SW = Surface Water) (L = Liquid) (O = Oil) (S = Soil) (SD = Solid) (SL = Sludge) (A = Air) (C = Air Cartridge)

Chemical Preservation Codes: 1 = HCL / 2 = HNO₃ / 3 = H₂SO₄ / 4 = NaOH + NaAsO₂ / 5 = NaOH + ZnAc / 6 = Na₂S₂O₃ / 7 = NaHSO₄ & MeOH / 8 = DI Water & MeOH

Container Type: VC=Vial (Clear); VA =Vial (Amber); GC=Glass (Clear); GA=Glass (Amber); P=Plastic (HDPE); TB=Tedlar Bag; ES=EnCore Sampler; ZB=Ziploc Bag; O=Other

Page 21 of 22

Final 1000



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: Antea Group - Charlotte

Date/ Time Received: 03/19/2016 09:11:00 AM

Work Order #: 527124

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : #61

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	No
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	Yes
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: 
Dario Lagunas

Date: 03/19/2016

Checklist reviewed by: 
J. Derek Rounsley

Date: 03/19/2016



Appendix D

HISTORICAL GROUNDWATER ANALYTICAL DATA

ENVIRONMENTAL SERVICES & SOLUTIONS, PLLC

TABLE 4
SUMMARY OF LABORATORY RESULTS FOR GROUNDWATER SAMPLES
 SCOTCHMAN #35
 7162 MARKET STREET (US HIGHWAY 17), WILMINGTON, NORTH CAROLINA

Well No.	Date	Benzene (ug/L)	Toluene (ug/L)	Ethyl- benzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	IPE (ug/L)	Naphthalene (ug/L)
2L Standards		1	600	600	500	20	70	6
MW-1	10/4/2004	30	<100	760	830	<20	<20	270
	9/24/2007	2.1	<5.0	18	<3.0	<1.0	<1.0	<5.0
	12/5/2008	42	12	94	110	5.8	<1.0	70
	5/13/2010	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	11/10/2010	83	81	5.3	110	3.0	<1.0	<5.0
	5/11/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/6/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	6/26/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
12/20/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	0.86J	
MW-2	10/4/2004	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<10
	9/24/2007	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/5/2008	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	8.3
	5/13/2010	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	11/10/2010	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	5/11/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/6/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	6/26/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
12/20/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0	
MW-3	10/4/2004	260	1,900	490	2,600	<100	<70	120
	9/24/2007	18	<50	190	220	<10	<10	<50
	12/5/2008	41	550	590	2,500	<1.0	<1.0	170
	5/13/2010	13.2	382	515	1,921	<1.0	<1.0	285
	11/10/2010	<5.0	25	390	1,300	<5.0	<5.0	160
	5/11/2011	<1.0	<5.0	69	27	<1.0	<1.0	23
	12/6/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	6/26/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
12/20/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0	
MW-4	10/4/2004	23	220	65	750	<10	<10	12
	9/24/2007	3.7	5.9	56	67	<1.0	<1.0	5.2
	12/5/2008	<1.0	<5.0	1.3	<3.0	<1.0	<1.0	<5.0
	5/13/2010	<1.0	2.7	29.8	15.0	<1.0	<1.0	15.0
	11/10/2010	<1.0	<5.0	1.8	6.8	<1.0	<1.0	<5.0
	5/11/2011	<1.0	<5.0	4.0	<3.0	<1.0	<1.0	<5.0
	12/6/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	6/26/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
12/20/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0	

ENVIRONMENTAL SERVICES & SOLUTIONS, PLLC

TABLE 4
SUMMARY OF LABORATORY RESULTS FOR GROUNDWATER SAMPLES
 SCOTCHMAN #35
 7162 MARKET STREET (US HIGHWAY 17), WILMINGTON, NORTH CAROLINA

Well No.	Date	Benzene (ug/L)	Toluene (ug/L)	Ethyl- benzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	IPE (ug/L)	Naphthalene (ug/L)
2L Standards		1	600	600	500	20	70	6
MW-5	10/4/2004	12	<50	<10	<30	270	<10	<10
	9/24/2007	<1.0	<5.0	18	<3.0	<1.0	<1.0	<5.0
	12/5/2008	87	47	380	640	15	<1.0	170
	5/13/2010	28.0	28.7	1.2	48.3	10.7	<1.0	<2.0
	11/10/2010	7.3	14	11	20	<1.0	<1.0	<5.0
	5/11/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/6/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	6/26/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
12/20/2012	140	220	53	440	1.6	<1.0	<25	
MW-6	9/24/2007	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/5/2008	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	5/13/2010	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	11/10/2010	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	5/11/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/6/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	6/26/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
12/20/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0	
MW-7	9/24/2007	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/5/2008	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	5/13/2010	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	11/10/2010	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	5/11/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/6/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	6/26/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
12/20/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	7.4	
MW-8	9/24/2007	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/5/2008	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	12
	5/13/2010	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	11/10/2010	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	5/11/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/6/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	6/26/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
12/20/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0	
MW-9	9/24/2007	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/5/2008	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	5/13/2010	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	11/10/2010	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	5/11/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/6/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	6/26/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/20/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0

ENVIRONMENTAL SERVICES & SOLUTIONS, PLLC

TABLE 4
SUMMARY OF LABORATORY RESULTS FOR GROUNDWATER SAMPLES
 SCOTCHMAN #35
 7162 MARKET STREET (US HIGHWAY 17), WILMINGTON, NORTH CAROLINA

Well No.	Date	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	IPE (ug/L)	Naphthalene (ug/L)
2L Standards		1	600	600	500	20	70	6
MW-10	9/24/2007	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/5/2008	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	5/13/2010	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<2.0
	11/10/2010	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	5/11/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/6/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	6/26/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/20/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
MW-11	9/24/2007	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/5/2008	1.7	<5.0	18	<3.0	<1.0	<1.0	6.5
	5/13/2010	1.5	<1.0	2.8	<3.0	<1.0	<1.0	<2.0
	11/10/2010	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	5/11/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/6/2011	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	6/26/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0
	12/20/2012	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	<5.0

NOTES:

1. Analytical results expressed in micrograms per liter (ug/L)
2. MTBE is an abbreviation for methyl tertiary butyl ether
3. IPE is an abbreviation for isopropyl ether
4. Analytical result exceeding 2L Standard is in bold type.
5. NA is an abbreviation for not available
6. Measurements obtained prior to 9/24/07 obtained by others

TABLE 5
SUMMARY OF LABORATORY RESULTS FOR GROUNDWATER SAMPLES BY RISK-BASED METHODS
 SCOTCHMAN #35
 7160 MARKET STREET (US HIGHWAY 17), WILMINGTON, NORTH CAROLINA

Sample ID →	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6		NCAC 2L Groundwater Quality Standards	Gross Contaminant Levels (GCLs)	
Sample Date →	10/4/2004	12/20/2012	10/4/2004	12/20/2012	10/4/2004	12/20/2012	10/4/2004	12/20/2012	10/4/2004	12/20/2012	9/24/2007	12/20/2012			
Analyses →	EPA 601, 602, 625, 504.1 (EDB), MADEP VPH & EPH & SM3030C (Pb)	EPA 602, 625, 504.1 (EDB), 6010B (Pb), MADEP VPH & EPH	EPA 601, 602, 625,504.1 (EDB), MADEP VPH & EPH & SM3030C (Pb)	EPA 602, 625, 504.1 (EDB), 6010B (Pb), MADEP VPH & EPH	EPA 601, 602, 625,504.1 (EDB), MADEP VPH & EPH & SM3030C (Pb)	EPA 602, 625, 504.1 (EDB), 6010B (Pb), MADEP VPH & EPH	EPA 601, 602, 625,504.1 (EDB), MADEP VPH & EPH & SM3030C (Pb)	EPA 602, 625, 504.1 (EDB), 6010B (Pb), MADEP VPH & EPH	EPA 601, 602, 625,504.1 (EDB), MADEP VPH & EPH & SM3030C (Pb)	EPA 602, 625, 504.1 (EDB), 6010B (Pb), MADEP VPH & EPH	EPA 601, 602, 625,504.1 (EDB), MADEP VPH & EPH & SM3030C (Pb)	EPA 602, 625, 504.1 (EDB), 6010B (Pb), MADEP VPH & EPH	EPA 602, 625, 504.1 (EDB), 6010B (Pb), MADEP VPH & EPH		
Detected Compounds ↓	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	
EPA METHOD 601 and/or 602															
Benzene	30	<1.0	<1.0	<1.0	260	<1.0	23	<1.0	12	140	<1.0	<1.0	1	5,000	
Toluene	<100	<5.0	<5.0	<5.0	1,900	<5.0	220	<5.0	<50	220	<5.0	<5.0	600	260,000	
Ethylbenzene	760	<1.0	<1.0	<1.0	490	<1.0	65	<1.0	<10	53	<1.0	<1.0	600	84,500	
Total Xylenes	830	<3.0	<3.0	<3.0	2,600	<3.0	750	<3.0	<30	440	<3.0	<3.0	500	85,500	
MTBE	<20	<1.0	<1.0	<1.0	<100	<1.0	<10	<1.0	270	1.6	<1.0	<1.0	20	20,000	
IPE	<20	<1.0	<1.0	<1.0	<70	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	70	70,000	
Naphthalene	NA	0.86J	NA	<5.0	NA	<5.0	NA	<5.0	NA	<25	<5.0	<5.0	6	6,000	
SM 3030C or 6010B															
Lead	34	<5.0	<5.0	<5.0	6.3	<5.0	7.6	<5.0	7.0	<5.0	NA	<5.0	15	15,000	
EPA METHOD 504.1															
EDB	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NA	<0.010	0.02	50	
EPA METHOD 625															
Chrysene	<50	<1.0	<10	0.30J	<50	<1.0	<10	<20	<10	<1.0	<10	<20	5	5	
Fluoranthene	<50	<1.0	<10	0.54J	<50	<1.0	<10	<20	<10	<1.0	<10	<20	300	300	
1-Methylnaphthalene	88	NA	<10	NA	<50	NA	<10	NA	<10	NA	NA	NA	1	1,000	
2-Methylnaphthalene	140	NA	<10	NA	<50	NA	<10	NA	<10	NA	NA	NA	30	12,500	
Naphthalene	270	<1.0	<10	<1.0	120	<1.0	12	<20	<10	1.7	<10	<20	6	6,000	
Bis (2-ethylhexyl) phthalate	<50	0.53J	<10	4.4	<50	0.67J	<10	<20	<10	0.56J	<10	<20	3	170	
Dimethyl phthalate	<50	<1.0	<10	3.4	<50	<1.0	<10	<20	<10	<1.0	<10	<20	NE	NE	
Pyrene	<50	<1.0	<10	0.39J	<50	<1.0	<10	<20	<10	<1.0	<10	<20	200	200	
4-Chloro-3-methylphenol	<50	<10	<10	0.51J	<50	<10	<10	<200	<10	<10	<10	<200	NE	NE	
2,4-Dimethylphenol	<50	<10	<10	<10	<50	<10	<10	<200	<10	5.4J	<10	<200	100	100,000	
Phenol	<50	<10	<10	<10	<50	<10	<10	<200	<10	3.4J	<10	<200	30	30,000	
MADEP METHODS FOR VPH & EPH															
C ₅ -C ₈ Aliphatics (VPH)	1,300	<100	<100	<100	6,100	<100	570	<100	370	630	<100	<100	400	NE	
C ₉ -C ₁₂ Aliphatics (VPH)	6,100	<100	280	<100	12,000	10J	670	11J	210	580	<100	13J	700	NE	
C ₉ -C ₁₈ Aliphatics (EPH)	<100	34J	260	42J	130	28J	<100	28J	<100	30J	<100	36J			
C ₁₉ -C ₃₆ Aliphatics (EPH)	<100	25J	<100	120	<100	27J	<100	25J	<100	33J	<100	29J	10,000	NE	
C ₉ -C ₁₀ Aromatics (VPH)	4,700	<100	150	<100	5,800	<100	280	<100	<100	120	<100	<100	200	NE	
C ₁₁ -C ₂₂ Aromatics (EPH)	330	48J	<100	34J	120	40J	<100	39J	<100	33J	<100	34J			

TABLE 5
SUMMARY OF LABORATORY RESULTS FOR GROUNDWATER SAMPLES BY RISK-BASED METHODS
 SCOTCHMAN #35
 7160 MARKET STREET (US HIGHWAY 17), WILMINGTON, NORTH CAROLINA

Sample ID →	MW-7		MW-8		MW-9		MW-10		MW-11		NCAC 2L Groundwater Quality Standards	Gross Contaminant Levels (GCLs)
Sample Date →	9/24/2007	12/20/2012	9/24/2007	12/20/2012	9/24/2007	12/20/2012	9/24/2007	12/20/2012	9/24/2007	12/20/2012		
Analyses →	EPA 602 & 625, MADEP VPH & EPH	EPA 602, 625, 504.1 (EDB), 6010B (Pb), MADEP VPH & EPH	EPA 602 & 625, MADEP VPH & EPH	EPA 602, 625, 504.1 (EDB), 6010B (Pb), MADEP VPH & EPH	EPA 602 & 625, MADEP VPH & EPH	EPA 602, 625, 504.1 (EDB), 6010B (Pb), MADEP VPH & EPH	EPA 602 & 625, MADEP VPH & EPH	EPA 602, 625, 504.1 (EDB), 6010B (Pb), MADEP VPH & EPH	EPA 602 & 625, MADEP VPH & EPH	EPA 602, 625, 504.1 (EDB), 6010B (Pb), MADEP VPH & EPH		
Detected Compounds ↓	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)
EPA Method 601 and/or 602												
Benzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1	5,000
Toluene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	600	260,000
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	600	84,500
Total Xylenes	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	500	85,500
MTBE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	20	20,000
IPE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	70	70,000
Naphthalene	<5.0	7.4	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6	6,000
SM 3030C or 6010B												
Lead	NA	<5.0	NA	<5.0	NA	<5.0	NA	<5.0	NA	<5.0	15	15,000
EPA METHOD 504.1												
EDB	NA	<0.010	NA	<0.010	NA	<0.010	NA	<0.010	NA	<0.010	0.02	50
EPA METHOD 625												
Chrysene	<10	<20	<10	<20	<10	<1.0	<10	<20	<10	<20	5	5
Fluoranthene	<10	<20	<10	<20	<10	<1.0	<10	<20	<10	<20	300	300
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	1,000
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30	12,500
Naphthalene	<10	<20	<10	<20	<10	<1.0	<10	<20	<10	<20	6	6,000
Bis (2-ethylhexyl) phthalate	<10	<20	<10	<20	<10	0.75J	<10	<20	<10	<20	3	170
Dimethyl phthalate	<10	<20	<10	<20	<10	<1.0	<10	<20	<10	<20	NE	NE
Pyrene	<10	<20	<10	<20	<10	<1.0	<10	<20	<10	<20	200	200
4-Chloro-3-methylphenol	<10	<200	<10	<200	<10	<10	<10	<200	<10	<200	NE	NE
2,4-Dimethylphenol	<10	<200	<10	<200	<10	<10	<10	<200	<10	<200	100	100,000
Phenol	<10	<200	<10	<200	<10	<10	<10	<200	<10	<200	30	30,000
MADEP METHODS FOR VPH & EPH												
C ₅ -C ₈ Aliphatics (VPH)	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	400	NE
C ₉ -C ₁₂ Aliphatics (VPH)	<100	8.4J	<100	<100	<100	<100	<100	8.7J	<100	<100	700	NE
C ₉ -C ₁₈ Aliphatics (EPH)	<100	35J	<100	31J	<100	38J	<100	33J	<100	34J	10,000	NE
C ₁₉ -C ₃₆ Aliphatics (EPH)	<100	46J	<100	20J	<100	42J	<100	47J	<100	140	10,000	NE
C ₉ -C ₁₀ Aromatics (VPH)	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	200	NE
C ₁₁ -C ₂₂ Aromatics (EPH)	<100	110	<100	38J	<100	26J	<100	40J	<100	28J		

NOTES:

- MW-1 to MW-5 sampled and analyzed by others during Phase II LSA activities
- Analytical results presented in micrograms per liter (ug/L).
- < denotes analytical result below laboratory method detection limit. Number to right of symbol is the method detection limit.
- NE denotes narrative standard has not been established for compound.
- NA denotes that this sample was not analyzed for this compound
- Analytical results exceeding NCAC 2L Groundwater Quality Standards are in **Bold** type.
- All other compounds were below quantitation limits.

*Active Remediation Monitoring Report
GPM 3035 (Scotchman 35)
Wilmington, New Hanover County, North Carolina
Antea USA of NC Project No. NC30351601*



Appendix E

GROUNDWATER SAMPLING RECORDS

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035	Site ID MW-1
	Project No.	Date (m/d/y) 10/23/15

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: °C °F Weather: Clear, warm

Well Locked? yes no Damaged/Repairs Needed:

TOC MP Description: Flush

TOC/MP Stickup: ft m above/below ground Well Inside Diameter (ID): 2-inch 4-inch Other:

Site Remarks (nearby wells pumping, tide, stream stage, etc.)

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: 20

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	7.78						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery <input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: 2.22 Grab Bailor Pump Description:

Casing Volume: [(TD) - (WL)] * [(Well ID)]² * [(Conversion Factor)] = 6.1 gal liters Well Goes Dry While Purging

Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches

<input checked="" type="checkbox"/> Cum. Vol. Purged					(Final)	Meter Type	Remarks
<input type="checkbox"/> Pumping Rate							
Time (hh:mm; 24-hr clock)							
pH (Temperature Corrected? <input type="checkbox"/>)							
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F							
Dissolved Oxygen mg/L							
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm							
Turbidity <input type="checkbox"/> NTU							
Color/Tint	Clear to brown tint						
Odor	None						

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 imperial gallon

Sample Data Sample Depth: Grab Bailor Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-1	P0	10/23/15	1120	4					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine Signature *MH*

Date Entered into Database _____ By _____ Page ____ of ____

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035	Site ID <i>NW-2</i>
Project No.	Date (m/d/y) <i>10/23/15</i>	

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: °C °F Weather: **Clear, warm**

Well Locked? yes no Damaged/Repairs Needed:

TOC MP Description: **Flush**

TOC/MP Stickup: ft m above/below ground Well Inside Diameter (ID): 2-inch 4-inch Other:

Site Remarks (nearby wells pumping, tide, stream stage, etc.)

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **30**

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)	<i>9:59</i>						
Depth to Water							
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery <input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters. List product type in "Remarks" column.

Field WQ Data Purge Depth: **20.4** Grab Bailor Pump Description:

Casing Volume: [_____(TD) - _____(WL)] * [_____(Well ID)]² * [_____(Conversion Factor)] = **10.2** gal liters
 Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches

<input type="checkbox"/> Cum. Vol. Purged <input type="checkbox"/> Pumping Rate	(Final)	Meter Type	Remarks
Time (hh:mm; 24-hr clock)			
pH (Temperature Corrected? <input type="checkbox"/>)			
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F			
Dissolved Oxygen mg/L			
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> µS/cm			
Turbidity <input type="checkbox"/> NTU			
Color/Tint	<i>Clear</i>		
Odor	<i>None</i>		

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (µS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (µS/cm). µS/cm = 1µmho/cm. 1 gallon (US) = 3.785 L = 0.833 imperial gallon

Sample Data Sample Depth: Grab Bailor Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Lab ID	Case ID	SDG ID	Remarks
<i>NW-2</i>	<i>P0</i>	<i>10/23/15</i>	<i>1100</i>	<i>4</i>					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); B#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or rmmddy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature <i>[Signature]</i>
Date Entered into Database _____ By _____ Page ____ of ____	

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035 Project No.	Site ID <i>nw-3</i> Date (m/d/y) 10/23/15
--	--	--

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: °C °F Weather: **Clear, warm**

Well Locked? yes no Damaged/Repairs Needed:

TOC MP Description: **Flush**

TOC/MP Stickup: ft m above/below ground Well Inside Diameter (ID): 2-inch 4-inch Other:

Site Remarks (nearby wells pumping, tide, stream stage, etc.)

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **20**

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	8.11						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery <input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice, record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement, use "S" for free product thickness if seen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: **11.89** Grab Bailer Pump Description:

Casing Volume: [(TD) - (WL)] * [(Well ID)]² * [(Conversion Factor)] = **6** gal liters Well Goes Dry While Purging
 Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches

<input checked="" type="checkbox"/> Cum. Vol. Purged <input type="checkbox"/> Pumping Rate	(Final)	Meter Type	Remarks
Time (hh:mm; 24-hr clock)			
pH (Temperature Corrected? <input type="checkbox"/>)			
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F			
Dissolved Oxygen mg/L			
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm			
Turbidity <input type="checkbox"/> NTU			
Color/Tint			Clear to brown tint
Odor			None

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 Imperial gallon

Sample Data Sample Depth: Grab Bailer Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
<i>nw-3</i>	PO	10/23/15	<i>1030</i>	<i>4</i>					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: PO, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdyyy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print)	Michael Haseltine	Signature	<i>[Signature]</i>
------------------------	--------------------------	-----------	--------------------

Date Entered into Database _____ By _____ Page ___ of ___

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035	Site ID MW-4
	Project No.	Date (m/d/y) 10/23/15

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: °C °F Weather: **Clear, warm**

Well Locked? yes no Damaged/Repairs Needed:

TOC MP Description: **Flush**

TOC/MP Stickup: ft m above/below ground Well Inside Diameter (ID): 2-inch 4-inch Other:

Site Remarks (nearby wells pumping, tide, stream stage, etc.)

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **20**

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	6.88						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery <input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: **13.12** Grab Bailor Pump Description:

Casing Volume: [(TD) - (WL)] * [(Well ID)] ² * [(Conversion Factor)] = 6.6 gal <input type="checkbox"/> liters Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches							Well Goes Dry While Purging <input type="checkbox"/>	
<input type="checkbox"/> Cum. Vol. Purged						(Final)	Meter Type	Remarks
<input type="checkbox"/> Pumping Rate								
Time (hh:mm; 24-hr clock)								
pH (Temperature Corrected? <input type="checkbox"/>)								
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F								
Dissolved Oxygen mg/L								
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm								
Turbidity <input type="checkbox"/> NTU								
Color/Tint								Clear to brown tint
Odor								None

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm); μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 imperial gallon.

Sample Data Sample Depth: Grab Bailor Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-4	P0	10/23/15	1010	4					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature <i>MH</i>
---	---------------------

Date Entered into Database _____ By _____ Page ____ of ____

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035	Site ID MW-6
	Project No.	Date (m/d/y) 10/23/15

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: °C °F Weather: **Clear, warm**

Well Locked? yes no Damaged/Repairs Needed:

TOC MP Description: **Flush**

TOC/MP Stickup: ft m above/below ground Well Inside Diameter (ID): 2-inch 4-inch Other:

Site Remarks (nearby wells pumping, tide, stream stage, etc.)

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **15**

<input type="checkbox"/> E-Tape, # <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	5.97						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery <input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice: record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement, use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: **9.03** Grab Bailer Pump Description:


Casing Volume: [(TD) - (WL)] * [(Well ID)] ² * [(Conversion Factor)] 4.5 gal <input type="checkbox"/> liters Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches						Well Goes Dry While Purging <input type="checkbox"/>	
<input checked="" type="checkbox"/> Cum. Vol. Purged					(Final)	Meter Type	Remarks
<input type="checkbox"/> Pumping Rate							
Time (hh:mm; 24-hr clock)							
pH (Temperature Corrected? <input type="checkbox"/>)							
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F							
Dissolved Oxygen mg/L							
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm							
Turbidity <input type="checkbox"/> NTU							
Color/Tint	clear to turbid						
Odor	None						

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 Imperial gallon

Sample Data Sample Depth: Grab Bailer Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-6	P0	10/23/15	0915	4					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinse; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinseate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature 
Date Entered into Database _____ By _____ Page ____ of ____	

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035	Site ID MW-7
	Project No.	Date (m/d/y) 10/23/15

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: <input type="checkbox"/> °C <input type="checkbox"/> °F	Weather: Clear, warm
Well Locked? <input type="checkbox"/> yes <input type="checkbox"/> no	Damaged/Repairs Needed:
<input type="checkbox"/> TOC <input type="checkbox"/> MP Description: Flush	
TOC/MP Stickup: <input type="checkbox"/> ft <input type="checkbox"/> m above/below ground	Well Inside Diameter (ID): <input checked="" type="checkbox"/> 2-inch <input type="checkbox"/> 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **15**

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	5.58						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery							
<input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice: record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: **9.42** Grab Bailer Pump Description:


Casing Volume: [____(TD) - ____ (WL)] * [____ (Well ID)] ² * [____ (Conversion Factor)] = 4.7 <input type="checkbox"/> gal <input type="checkbox"/> liters Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches	Well Goes Dry While Purging <input type="checkbox"/>		
<input type="checkbox"/> Cum. Vol. Purged <input type="checkbox"/> Pumping Rate	(Final)	Meter Type	Remarks
Time (hh:mm; 24-hr clock)			
pH (Temperature Corrected? <input type="checkbox"/>)			
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F			
Dissolved Oxygen mg/L			
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm			
Turbidity <input type="checkbox"/> NTU			
Color/Tint			Clear to brown tint
Odor			None

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 Imperial gallon

Sample Data Sample Depth: Grab Bailer Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-7	P0	10/23/15	09:30	4					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature 
---	--

Date Entered into Database _____ By _____ Page ____ of ____

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035 Project No.	Site ID MW-8 Date (m/d/y) 10/23/15
---	---	---

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: <input type="checkbox"/> °C <input type="checkbox"/> °F	Weather: Clear, warm
Well Locked? <input type="checkbox"/> yes <input type="checkbox"/> no	Damaged/Repairs Needed:
<input type="checkbox"/> TOC <input type="checkbox"/> MP Description: Flush	
TOC/MP Stickup: <input type="checkbox"/> ft <input type="checkbox"/> m above/below ground	Well Inside Diameter (ID): <input checked="" type="checkbox"/> 2-inch <input type="checkbox"/> 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **18**

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	6.49						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery							
<input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters. List product type in "Remarks" column.

Field WQ Data Purge Depth: **11.51** Grab Bailer Pump Description:


Casing Volume: [_____ (TD) - _____ (WL)] * [_____ (Well ID)] ² * [_____ (Conversion Factor)] = 58 gal <input type="checkbox"/> liters Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches	Well Goes Dry While Purging <input type="checkbox"/>
<input type="checkbox"/> Cum. Vol. Purged <input type="checkbox"/> Pumping Rate	(Final) Meter Type Remarks
Time (hh:mm; 24-hr clock)	
pH (Temperature Corrected? <input type="checkbox"/>)	
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F	
Dissolved Oxygen mg/L	
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm	
Turbidity <input type="checkbox"/> NTU	
Color/Tint	Clear to brown tint
Odor	None

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 imperial gallon

Sample Data Sample Depth: Grab Bailer Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-8	P0	10/23/15	12:35	4					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinse; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinse, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature 
Date Entered into Database _____	By _____ Page ____ of ____

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035	Site ID MW-9
	Project No.	Date (m/d/y) 10/23/15

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: °C °F Weather: **Clear, warm**

Well Locked? yes no Damaged/Repairs Needed:

TOC MP Description: **Flush**

TOC/MP Stickup: ft m above/below ground Well Inside Diameter (ID): 2-inch 4-inch Other:

Site Remarks (nearby wells pumping, tide, stream stage, etc.)

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **20**

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	8.66						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery <input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement, use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: **11.34** Grab Bailer Pump Description:

Casing Volume: $[(TD) - (WL)] \cdot [(Well\ ID)]^2 \cdot [(Conversion\ Factor)] = 57 \text{ gal}$ liters Well Goes Dry While Purging
 Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches

<input type="checkbox"/> Cum. Vol. Purged	<input type="checkbox"/> Pumping Rate					(Final)	Meter Type	Remarks
Time (hh:mm; 24-hr clock)								
pH (Temperature Corrected? <input type="checkbox"/>)								
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F								
Dissolved Oxygen mg/L								
<input type="checkbox"/> SC or <input type="checkbox"/> EC $\mu\text{S/cm}$								
Turbidity <input type="checkbox"/> NTU								
Color/Tint								Clear to brown tint
Odor								None

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature ($\mu\text{S/cm}$ at 25°C); EC: Electrical Conductivity not corrected for temperature ($\mu\text{S/cm}$). $\mu\text{S/cm} = \mu\text{mho/cm}$. 1 gallon (US) = 3.785 L = 0.833 Imperial gallon

Sample Data Sample Depth: Grab Bailer Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW9	P0	10/23/15	12:30	4					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature _____
---	-----------------

Date Entered into Database _____ By _____ Page ____ of ____

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035 Project No.	Site ID MW-30 Date (m/d/y) 10/23/15
---	---	--

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: <input type="checkbox"/> °C <input type="checkbox"/> °F	Weather: Clear, warm
Well Locked? <input type="checkbox"/> yes <input type="checkbox"/> no	Damaged/Repairs Needed:
<input type="checkbox"/> TOC <input type="checkbox"/> MP Description: Flush	
TOC/MP Stickup: <input type="checkbox"/> ft <input type="checkbox"/> m above/below ground	Well Inside Diameter (ID): <input checked="" type="checkbox"/> 2-inch <input type="checkbox"/> 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **18**

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	6.58						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery							
<input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters. List product type in "Remarks" column.

Field WQ Data Purge Depth: **11.42** Grab Bailer Pump Description:

Casing Volume: [____(TD) - ____ (WL)] * [____(Well ID)] ² * [____(Conversion Factor)] = 5.7 <input type="checkbox"/> gal <input type="checkbox"/> liters Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches						Well Goes Dry While Purging <input type="checkbox"/>						
<input checked="" type="checkbox"/> Cum. Vol. Purged	<input type="checkbox"/> Pumping Rate	Time (hh:mm; 24-hr clock)	pH (Temperature Corrected? <input type="checkbox"/>)	Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F	Dissolved Oxygen mg/L	<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm	Turbidity <input type="checkbox"/> NTU	Color/Tint	Odor	(Final)	Meter Type	Remarks
									clear to brown tint			
									None			

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 imperial gallon

Sample Data Sample Depth: Grab Bailer Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-30	P0	10/23/15	0945	4					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdoyy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature
Date Entered into Database _____	By _____
Page ____ of ____	

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035 Project No.	Site ID MW-11 Date (m/d/y) 10/23/15
---	---	--

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: °C °F Weather: **Clear, warm**

Well Locked? yes no Damaged/Repairs Needed:

TOC MP Description: **Flush**

TOC/MP Stickup: ft m above/below ground Well Inside Diameter (ID): 2-inch 4-inch Other:

Site Remarks (nearby wells pumping, tide, stream stage, etc.)

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **18**

<input type="checkbox"/> E-Tape, # <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	7.13						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery <input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: **10.87** Grab Bailor Pump Description:


Casing Volume: [(TD) - (WL)] * [(Well ID)] ² * [(Conversion Factor)] = 5.5 gal <input type="checkbox"/> liters Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches							Well Goes Dry While Purging <input type="checkbox"/>	
<input checked="" type="checkbox"/> Cum. Vol. Purged						(Final)	Meter Type	Remarks
<input type="checkbox"/> Pumping Rate								
Time (hh:mm; 24-hr clock)								
pH (Temperature Corrected? <input type="checkbox"/>)								
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F								
Dissolved Oxygen mg/L								
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm								
Turbidity <input type="checkbox"/> NTU								
Color/Tint	Clear to brown tint							
Odor	Faint weathered petal odor							

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C). EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 imperial gallon.

Sample Data Sample Depth: Grab Bailor Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-11	P0	10/23/15	1135	4					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdydy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample's collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature 
---	---

Date Entered into Database _____ By _____ Page ___ of ___

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035	Site ID MW-10
Project No.	Date (m/d/y) 03/17/16	

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: <input type="checkbox"/> °C <input type="checkbox"/> °F	Weather: Clear, warm
Well Locked? <input type="checkbox"/> yes <input type="checkbox"/> no	Damaged/Repairs Needed:
<input type="checkbox"/> TOC <input type="checkbox"/> MP Description: Flush	
TOC/MP Stickup: <input type="checkbox"/> ft <input type="checkbox"/> m above/below ground	Well Inside Diameter (ID): <input checked="" type="checkbox"/> 2-inch <input type="checkbox"/> 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **18**

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	8.32						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery <input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if seen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: **9.68** Grab Bailor Pump Description:


Casing Volume: [____(TD) - ____ (WL)] • [____ (Well ID)] ² • [____ (Conversion Factor)] = 4.7 <input type="checkbox"/> gal <input type="checkbox"/> liters Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches	Well Goes Dry While Purging <input type="checkbox"/>
<input type="checkbox"/> Cum. Vol. Purged <input type="checkbox"/> Pumping Rate	(Final) Meter Type Remarks
Time (hh:mm; 24-hr clock)	
pH (Temperature Corrected? <input type="checkbox"/>)	
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F	
Dissolved Oxygen mg/L	
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm	
Turbidity <input type="checkbox"/> NTU	
Color/Tint	Clear to brown tint
Odor	None

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 imperial gallon

Sample Data Sample Depth: Grab Bailor Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-10	P0	03/17/16	1357	2					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinse; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinse, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature 
Date Entered into Database _____ By _____	Page ____ of ____

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035	Site ID MW-7
Project No.	Date (m/d/y) 03/17/16	

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: <input type="checkbox"/> °C <input type="checkbox"/> °F	Weather: Clear, warm
Well Locked? <input type="checkbox"/> yes <input type="checkbox"/> no	Damaged/Repairs Needed:
<input type="checkbox"/> TOC <input type="checkbox"/> MP Description: Flush	
TOC/MP Stickup: <input type="checkbox"/> ft <input type="checkbox"/> m above/below ground	Well Inside Diameter (ID): <input checked="" type="checkbox"/> 2-inch <input type="checkbox"/> 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **15**

<input type="checkbox"/> E-Tape, # <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	7.46						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery <input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if seen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: **7.54** Grab Bailor Pump Description:


Casing Volume: [____(TD) - ____ (WL)] • [____ (Well ID)] ² • [____ (Conversion Factor)] = 3.7 <input type="checkbox"/> gal <input type="checkbox"/> liters Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches							Well Goes Dry While Purging <input checked="" type="checkbox"/>					
<input type="checkbox"/> Cum. Vol. Purged	<input type="checkbox"/> Pumping Rate	Time (hh:mm; 24-hr clock)	pH (Temperature Corrected? <input type="checkbox"/>)	Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F	Dissolved Oxygen mg/L	<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm	Turbidity <input type="checkbox"/> NTU	Color/Tint	Odor	(Final)	Meter Type	Remarks
	dry @ 1 gallon							Clear to brown tint	None			

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 Imperial gallon

Sample Data Sample Depth: Grab Bailor Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-7	P0	03/17/16	1403	2					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinse; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdydy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinse, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature 
Date Entered into Database _____ By _____	
Page ___ of ___	

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035	Site ID MW-6
Project No.	Date (m/d/y) 03/17/16	

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: <input type="checkbox"/> °C <input type="checkbox"/> °F	Weather: Clear, warm
Well Locked? <input type="checkbox"/> yes <input type="checkbox"/> no	Damaged/Repairs Needed:
<input type="checkbox"/> TOC <input type="checkbox"/> MP Description: Flush	
TOC/MP Stickup: <input type="checkbox"/> ft <input type="checkbox"/> m above/below ground	Well Inside Diameter (ID): <input checked="" type="checkbox"/> 2-inch <input type="checkbox"/> 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **15**

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	7.30						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery							
<input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: **7.70** Grab Bailor Pump Description:


Casing Volume: [____(TD) - ____ (WL)] • [____(Well ID)] ² • [____(Conversion Factor)] = 3.8 <input type="checkbox"/> gal <input type="checkbox"/> liters Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches	Well Goes Dry While Purging <input type="checkbox"/>
<input type="checkbox"/> Cum. Vol. Purged <input type="checkbox"/> Pumping Rate	(Final) Meter Type Remarks
Time (hh:mm; 24-hr clock)	
pH (Temperature Corrected? <input type="checkbox"/>)	
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F	
Dissolved Oxygen mg/L	
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm	
Turbidity <input type="checkbox"/> NTU	
Color/Tint	Clear to brown tint
Odor	None

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 Imperial gallon

Sample Data Sample Depth: Grab Bailor Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-6	P0	03/17/16	14:09	2					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature 
Date Entered into Database _____	By _____
Page ____ of ____	

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035	Site ID MW-3
Project No.	Date (m/d/y) 03/17/16	

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: <input type="checkbox"/> °C <input type="checkbox"/> °F	Weather: Clear, warm
Well Locked? <input type="checkbox"/> yes <input type="checkbox"/> no	Damaged/Repairs Needed:
<input type="checkbox"/> TOC <input type="checkbox"/> MP Description: Flush	
TOC/MP Stickup: <input type="checkbox"/> ft <input type="checkbox"/> m above/below ground	Well Inside Diameter (ID): <input checked="" type="checkbox"/> 2-inch <input type="checkbox"/> 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **20**

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	9.59						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery <input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: **10.42** Grab Bailor Pump Description:


Casing Volume: [_____(TD) - _____(WL)] * [_____(Well ID)] ² * [_____(Conversion Factor)] = 5.1 <input type="checkbox"/> gal <input type="checkbox"/> liters Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches						Well Goes Dry While Purging <input type="checkbox"/>	
<input type="checkbox"/> Cum. Vol. Purged <input type="checkbox"/> Pumping Rate	(Final)	Meter Type	Remarks				
Time (hh:mm; 24-hr clock)							
pH (Temperature Corrected? <input type="checkbox"/>)							
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F							
Dissolved Oxygen mg/L							
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm							
Turbidity <input type="checkbox"/> NTU							
Color/Tint							
Odor				Clear to brown tint Very faint petrol odor			

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 Imperial gallon

Sample Data Sample Depth: Grab Bailor Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-3	P0	03/17/16	1913	2					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BFA, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdyy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature 
---	---

Date Entered into Database _____ By _____ Page ___ of ___

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035 Project No.	Site ID MW4 Date (m/d/y) 03/17/16
--	----------------------------------	--------------------------------------

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: <input type="checkbox"/> °C <input type="checkbox"/> °F	Weather: Clear, warm
Well Locked? <input type="checkbox"/> yes <input type="checkbox"/> no	Damaged/Repairs Needed:
<input type="checkbox"/> TOC <input type="checkbox"/> MP Description: Flush	
TOC/MP Stickup: <input type="checkbox"/> ft <input type="checkbox"/> m above/below ground	Well Inside Diameter (ID): <input checked="" type="checkbox"/> 2-inch <input type="checkbox"/> 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: 20

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	8.95						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery <input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: 11.05 Grab Bailor Pump Description:

Casing Volume: [_____(TD) - _____(WL)] * [_____(Well ID)] ² * [_____(Conversion Factor)] = 5.4 <input type="checkbox"/> gal <input type="checkbox"/> liters Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches	Well Goes Dry While Purging <input type="checkbox"/>		
<input type="checkbox"/> Cum. Vol. Purged	(Final)	Meter Type	Remarks
<input type="checkbox"/> Pumping Rate			
Time (hh:mm; 24-hr clock)			
pH (Temperature Corrected? <input type="checkbox"/>)			
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F			
Dissolved Oxygen mg/L			
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm			
Turbidity <input type="checkbox"/> NTU			
Color/Tint	1.4		to draw out
Odor	None		

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 imperial gallon

Sample Data Sample Depth: Grab Bailor Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-4	P0	03/17/16	14:18	2					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or rmdydy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature <i>MH</i>
Date Entered into Database _____	By _____
Page ____ of ____	

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035	Site ID MW-2
Project No.	Date (m/d/y) 03/17/16	

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: <input type="checkbox"/> °C <input type="checkbox"/> °F	Weather: Clear, warm
Well Locked? <input type="checkbox"/> yes <input type="checkbox"/> no	Damaged/Repairs Needed:
<input type="checkbox"/> TOC <input type="checkbox"/> MP Description: Flush	
TOC/MP Stickup: <input type="checkbox"/> ft <input type="checkbox"/> m above/below ground	Well Inside Diameter (ID): <input checked="" type="checkbox"/> 2-inch <input type="checkbox"/> 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **30**

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	11.73						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery							
<input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: **18.27** Grab Bailor Pump Description:


Casing Volume: [_____(TD) - _____(WL)] • [_____(Well ID)] ² • [_____(Conversion Factor)] = 89 <input type="checkbox"/> gal <input type="checkbox"/> liters Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches	Well Goes Dry While Purging <input type="checkbox"/>
<input type="checkbox"/> Cum. Vol. Purged <input type="checkbox"/> Pumping Rate	(Final) Meter Type Remarks
Time (hh:mm; 24-hr clock)	
pH (Temperature Corrected? <input type="checkbox"/>)	
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F	
Dissolved Oxygen mg/L	
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> µS/cm	
Turbidity <input type="checkbox"/> NTU	
Color/Tint	
Odor	Clear Possible odor

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (µS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (µS/cm). µS/cm = µmho/cm. 1 gallon (US) = 3.785 L = 0.833 imperial gallon

Sample Data Sample Depth: Grab Bailor Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Lab ID	Case ID	SDG ID	Remarks
MW-2	P0	03/17/16	15:22						

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdydy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature 
Date Entered into Database _____	By _____
Page _____	of _____

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035	Site ID MW-1
Project No.	Date (m/d/y) 03/17/16	

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: <input type="checkbox"/> °C <input type="checkbox"/> °F	Weather: Clear, warm
Well Locked? <input type="checkbox"/> yes <input type="checkbox"/> no	Damaged/Repairs Needed:
<input type="checkbox"/> TOC <input type="checkbox"/> MP Description: Flush	
TOC/MP Stickup: <input type="checkbox"/> ft <input type="checkbox"/> m above/below ground	Well Inside Diameter (ID): <input checked="" type="checkbox"/> 2-inch <input type="checkbox"/> 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **20**

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	9.73						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery							
<input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: **10.27** Grab Bailer Pump Description:

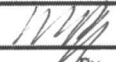
Casing Volume: [_____(TD) - _____(WL)] * [_____(Well ID)] ² * [_____(Conversion Factor)] = 5.0 <input type="checkbox"/> gal <input type="checkbox"/> liters Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches	Well Goes Dry While Purging <input type="checkbox"/>
<input type="checkbox"/> Cum. Vol. Purged <input type="checkbox"/> Pumping Rate	(Final) Meter Type Remarks
Time (hh:mm; 24-hr clock)	
pH (Temperature Corrected? <input type="checkbox"/>)	
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F	
Dissolved Oxygen mg/L	
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm	
Turbidity <input type="checkbox"/> NTU	
Color/Tint	
Odor	slight petrol odor

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 Imperial gallon

Sample Data Sample Depth: Grab Bailer Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-1	P0	03/17/16	11:05	2					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature 
Date Entered into Database _____	By _____
Page ___ of ___	

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T Other: Antea Group	Facility GPM 3035	Site ID MW-11
Project No.	Date (m/d/y) 03/17/16	

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: °C °F Weather: **Clear, warm**

Well Locked? yes no Damaged/Repairs Needed:

TOC MP Description: **Flush**

TOC/MP Stickup: ft m above/below ground Well Inside Diameter (ID): 2-inch 4-inch Other:

Site Remarks (nearby wells pumping, tide, stream stage, etc.)

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: **18**

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	9.02						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery <input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: **8.98** Grab Bailor Pump Description:

Casing Volume: [(TD) - (WL)] • [(Well ID)]² • [(Conversion Factor)] = **4.4** gal liters
 Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches

Cum. Vol. Purged Pumping Rate Meter Type Remarks

Time (hh:mm; 24-hr clock)

pH (Temperature Corrected?)

Temperature °C °F

Dissolved Oxygen mg/L

SC or EC μS/cm

Turbidity NTU

Color/Tint

Odor

dry @ 2 gallons

clear to vacuum test

Slight pink odor

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (U²) = 3.785 L = 0.833 imperial gallon

Sample Data Sample Depth: Grab Bailor Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-11	P0	03/17/16	143	2					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) **Michael Haseltine** Signature *[Signature]*

Date Entered into Database _____ By _____ Page ____ of ____

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T	Facility GPM 3035	Site ID MW-9
Other: Antea Group	Project No.	Date (m/d/y) 03/17/16

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: <input type="checkbox"/> °C <input type="checkbox"/> °F	Weather: Clear, warm
Well Locked? <input type="checkbox"/> yes <input type="checkbox"/> no	Damaged/Repairs Needed:
<input type="checkbox"/> TOC <input type="checkbox"/> MP Description: Flush	
TOC/MP Stickup: <input type="checkbox"/> ft <input type="checkbox"/> m above/below ground	Well Inside Diameter (ID): <input checked="" type="checkbox"/> 2-inch <input type="checkbox"/> 4-inch <input type="checkbox"/> Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: 20

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	10.91						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery							
<input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: 9.19 Grab Bailor Pump **Description:**

Casing Volume: [_____(TD) - _____(WL)] * [_____(Well ID)] ² * [_____(Conversion Factor)] = 4.5 <input type="checkbox"/> gal <input type="checkbox"/> liters						Well Goes Dry While Purging <input type="checkbox"/>		
Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches						(Final)	Meter Type	Remarks
<input type="checkbox"/> Cum. Vol. Purged								
<input type="checkbox"/> Pumping Rate								
Time (hh:mm; 24-hr clock)								
pH (Temperature Corrected? <input type="checkbox"/>)								
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F								
Dissolved Oxygen mg/L								
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm								
Turbidity <input type="checkbox"/> NTU								
Color/Tint	Clear to brown tint							
Odor	None							

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 imperial gallon

Sample Data Sample Depth: Grab Bailor Pump **Description:**

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-9	P0	03/17/16	1503	2					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature
Date Entered into Database _____ By _____ Page ___ of ___	

ANTEA GROUP

GROUNDWATER SAMPLING RECORD

Sampled By <input type="checkbox"/> Facility Personnel <input type="checkbox"/> ES&T	Facility GPM 3035	Site ID MW-8
Other: Antea Group	Project No.	Date (m/d/y) 03/17/16

Site Description Monitoring Well Extraction Well Irrigation Well Spring Borehole Probe Other:

Air Temp: <input type="checkbox"/> °C <input type="checkbox"/> °F	Weather: Clear, warm
Well Locked? <input type="checkbox"/> yes <input type="checkbox"/> no	Damaged/Repairs Needed:
<input type="checkbox"/> TOC <input type="checkbox"/> MP Description: Flush	
TOC/MP Stickup: <input type="checkbox"/> ft <input type="checkbox"/> m above/below ground	Well Inside Diameter (ID): <input checked="" type="checkbox"/> 2-inch <input type="checkbox"/> 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ft m Well or Borehole Total Depth (TD) from MP or TOC: 18

<input type="checkbox"/> E-Tape, # _____ <input type="checkbox"/> Steel Tape <input type="checkbox"/> Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)							
Depth to Water	7.57						
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery							
<input type="checkbox"/> gallons <input type="checkbox"/> liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: 10.43 Grab Bailor Pump Description:

Casing Volume: [_____(TD) - _____(WL)] * [_____(Well ID)] ² * [_____(Conversion Factor)] = 5.1 <input type="checkbox"/> gal <input type="checkbox"/> liters						Well Goes Dry While Purging <input type="checkbox"/>		
Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches						(Final)	Meter Type	Remarks
<input type="checkbox"/> Cum. Vol. Purged								
<input type="checkbox"/> Pumping Rate								
Time (hh:mm; 24-hr clock)								
pH (Temperature Corrected? <input type="checkbox"/>)								
Temperature <input type="checkbox"/> °C <input type="checkbox"/> °F								
Dissolved Oxygen mg/L								
<input type="checkbox"/> SC or <input type="checkbox"/> EC <input type="checkbox"/> μS/cm								
Turbidity <input type="checkbox"/> NTU								
Color/Tint	Clear to brown tint							
Odor	None							

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged before sampling or average pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (μS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (μS/cm). μS/cm = μmho/cm. 1 gallon (US) = 3.785 L = 0.833 imperial gallon

Sample Data Sample Depth: Grab Bailor Pump Description:

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 μm)	Lab ID	Case ID	SDG ID	Remarks
MW-8	P0	03/17/16	1507	2					

Sample ID may be up to 15 characters. Sample Result Code, Date, and Time must be entered. Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmdy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampler's Name (print) Michael Haseltine	Signature <i>MH</i>
Date Entered into Database _____	By _____
Page ____ of ____	