Georgia Environmental Protection Division
Land Protection Branch
Response and Remediation Program
Response Development Units 1 – 3

2 Martin Luther King Jr. Dr. SE
Suite 1054 East Tower
Atlanta, Georgia 30334
Phone: 404-657-8600

Document Submittal Form

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Name of Document:	**June 2018 Semi-Annual Progress Report No. 11**
Date of Document:	12-31-2017
Site Name:	**Former Professional Cleaners and Linen Service-QuikTrip Store No. 703R**
Site ID Number:	VRP 1314972618

Document Submittal Checklist. Please certify that the submittal includes the following by checking each box as appropriate. Items 1 – 3 should be checked / included / certified for each submittal:

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☐ 4. (Optional) To reduce the size of the paper copy, certain voluminous information has been omitted from the paper copy and is included only with the electronic copies:

    ☐ laboratory data sheets   ☐ manifests

    X other: NA

I certify that the information I am submitting is, to the best of my knowledge and belief, true, accurate, and complete. Signature: *[signature]* Name (printed): Joseph B. McKinney Date: 7/30/2018 Organization: Genesis Project, Inc. Phone: 770-713-0666 Email: jmckinney@genproject.com	Receipt Date (for EPD use only)

July 30, 2018

Ms. Susan Kibler
Project Manager
Response and Remediation Program
Land Protection Branch
State of Georgia EPD
Martin Luther King Dr.
Suite 1054 East
Atlanta, GA 30334

SUBJECT: Voluntary Remediation Program
June 2018 Semi-Annual Progress Report No. 11
Former Professional Cleaners-Proposed QuikTrip Site No. 703R
2040 Beaver Ruin Road, Norcross-Gwinnett County, Georgia

Dear Ms. Kibler:

Genesis Project, the consultant for QuikTrip Corporation, has prepared the enclosed Semi-Annual Progress Report No. 11 in fulfillment of the criteria set forth by the Voluntary Investigation and Remediation Program (VIRP) application approved in March 2012. This progress report presents the activities performed since the submittal of the previous Semi-Annual Progress Report No. 10 for December 2017 prepared by Genesis Project, Inc. and submitted to EPD in January 2018.

If you have any questions regarding this progress report, please do not hesitate to contact our office at (770) 319-7217.

Sincerely,
Genesis Project, Inc.

Joseph B. McKinney, PG
Senior Geologist

Cc: Justin Coons, QuikTrip Corporation

June 2018 Semi-Annual Progress Report No. 11
Former Professional Cleaners and Linen Service / QuikTrip Store No. 703R
2040 Beaver Ruin Road
The Crossings Shopping Center
Norcross, Gwinnett County, Georgia
Tax Parcel ID 6212 036

Submitted to:

Georgia Environmental Protection Division
Hazardous Sites Response Program
2 Martin Luther King Jr. Drive
Floyd Towers East, Suite 1054
Atlanta, Georgia 30334

Prepared for:

QuikTrip Corporation
4705 South 129th East Avenue
Tulsa, OK 74134

July 30, 2018

Prepared by

Genesis Project, Inc.
1258 Concord Road
Smyrna, Georgia 30080
(770) 319-7217

Genesis Project, Inc.

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APPENDICES

Genesis Project, Inc.

Genesis Project, Inc.

SIGNED AND SEALED PE/PG CERTIFICATION:

"I certify under penalty of law that this report and all attachments were prepared by me or under my direct supervision in accordance with the Voluntary Remediation Program Act (O.C.G.A. Section 12-8-101, et seq.). I am a professional geologist who is registered with the Georgia State Board of Registration for Professional Geologists and I have the necessary experience and am in charge of the investigation and remediation of this release of regulated substances.

Furthermore, to document my direct oversight of the Voluntary Remediation Plan development, implementation of corrective action, and long-term monitoring, I have attached a monthly summary of hours invoiced and description of services provided by me to the Voluntary Remediation Program participant since the previous submittal to the Georgia Environmental Protection Division.

The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Joseph B. McKinney PG# 872_____   _____7-30-2018_____
Printed Name and GA PE/PG Number   Date

_____
Signature and Stamp

Genesis Project, Inc.

1.0 INTRODUCTION

QuikTrip Corporation acquired the Property in October 2016 and retained Genesis Project, Inc. to provide environmental services for this project. Genesis Project, Inc. has prepared this Semi-Annual Progress Report in fulfillment of the criteria set forth by the Voluntary Remediation Program (VRP) application approved on March 6, 2012. This progress report presents the activities performed since the previous progress report was submitted to the Georgia Environmental Protection Division (GAEPD) by Genesis Project, Inc. in December 2017.

1.1. Background

The Professional Cleaners and Linen Services facility operated in Suite 15 of The Crossings Shopping Center - 2040 Beaver Ruin Road, Norcross-Gwinnett County, Georgia from approximately 1984 until September 2016 (Figure 1). A release of tetrachloroethene (PCE) was detected in soil and groundwater at this site during a Limited Phase II Environmental Site Assessment (ESA) performed by GLE Associates, Inc. in March 2011. Based on review of the Phase II study, the soils above notification concentrations were reportedly removed from the site and a release notification to groundwater was submitted to GAEPD in April 2011. A Voluntary Investigation and Remediation Plan (VIRP) was prepared by EMA and submitted to GAEPD in September 2011. GAEPD approved the VIRP and accepted the site into the VRP in March 2012.

EMA conducted multiple injection events from April 2012 to December 2015 of in-situ chemical oxidation (ISCO) reagents (PeroxyChem Klozur ®-activated sodium persulfate) in an effort to reduce PCE concentrations in groundwater at the site. In addition, EMA submitted a total of seven (7) Semi Annual Progress Reports to GAEPD detailing groundwater sampling and remediation efforts from May 2013 to July 2016.

GCLRP, LLC foreclosed on the Property in May 2016. A Prospective Purchaser Corrective Action Plan (PPCAP) and Brownfield Application was prepared by Logic Environmental and submitted to GAEPD for GCLRP, LLC in May 2016. GAEPD approved the PPCAP in June 2016. In January 2017, Genesis Project Inc. submitted to GAEPD a PPCAP Addendum, which indicates that QuikTrip Corporation is now the Property owner and eligible for a limitation of liability for this Property under the Georgia Brownfield Act.

The Crossings Shopping Center was demolished, and the Property was redeveloped in 2017 for a QuikTrip gas station and convenience store. Former on-site monitor wells (MW-1 through MW-9 and MW-11) were abandoned in December 2016 and January 2017. On February 3, 2017 soil was excavated and removed from the suspected area of

Genesis Project, Inc.

the former dry-cleaning equipment. An area approximately 12-feet long by 12-feet wide extending to a depth of approximately 8-feet deep was excavated, and a total of approximately 77 tons of soil were removed. The soils were transported to Waste Management's Pinebluff Landfill for disposal.   Seven on-site monitor wells (NMW-1, NMW-2, NMW-3, NMW-4, NMW-5, NMW-8, and NMW-9) were installed on June 20 and 21, 2017. Two off-site monitor wells (NWW-6 and NMW-7) were installed on October 19 and 20, 2017

This Semi-Annual Progress Report No. 11 was prepared in accordance with the VRP and covers activities conducted since the Semi-Annual Progress Report No. 10 submittal in December 2017. The activities include collection of hydrogeologic data via slug tests in three (3) monitor wells, preliminary fate and transport modeling, and collection and analysis of groundwater samples from the existing monitor well network.

2.0 WORK PERFORMED DURING THIS MONITORING PERIOD

Activities completed during this period included:

1) Completion of slug tests in three (3) monitor wells on June 7, 2018;
2) Analysis of hydrogeologic data obtained from the slug tests;
3) Analysis of groundwater samples collected from the monitor well network on June 21 and 22, 2018;
4) Preliminary fate and transport modeling using updated site-specific hydrogeologic and analytical data; and
5) Preparation of Uniform Environmental Covenant.

2.1. Hydrogeological Testing

Genesis Project conducted aquifer testing to determine the hydraulic conductivity in the shallow water table aquifer. This analysis was necessary because the June 18, 2003 VRP-CSR did not include an adequate number of data points nor any supporting data for the previous analysis. In addition, the reported hydraulic conductivity values were several orders of magnitude higher than anticipated for the soil classifications presented in the boring logs.

In-situ slug tests were conducted on June 7, 2018 in the following monitor wells: NMW-1, NMW-6, and NMW-7. These wells were selected because they contained an adequate water column height to accommodate the slug and transducer and they are located within the dissolved PCE plume or in the downgradient flow path of the plume.

U.S. Geological Survey (USGS) Method GWPD-17 version 2010.1 was followed for the hydrogeological testing. An In-Situ Level Troll 700™ data logger was used to collect water level data for the slug test. A solid slug (4 feet long, 1.5-inch diameter) was used for the testing. Data were collected directly to a personal computer using WinSitu 5™ controller software. Water level data were collected using a logarithmic measurement frequency (i.e., greater measurement frequency during the first portion of the test, larger measurement intervals later in the test). The slug, data logger, and water level indicator were decontaminated before they were introduced into each well. Disposable line was used to support the slug, and new line was used for each well.

The water level was measured with a water level indicator prior to the start of each test. Data were collected as depths below top of well casing. Two falling-head and rising-head tests were performed for each well. Water levels were allowed to recover to within 90% of the original level before the test was stopped.

Raw data from the slug tests were imported into the USGS AQtest "Bouwer_Rice" workbook (Halford and Kuniansky, 2002 version 1.2, July 2, 2004) for analysis using the Bouwer and Rice method. Because the water levels were located within the screened

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interval in each of the wells tested, only the rising-head tests were used to calculate the hydraulic conductivities. Slug test data are presented in Appendix III.

2.2. Groundwater Sampling

Groundwater samples were collected from the new on-site monitor wells (MW-1, MW-2, MW-3, MW-4, MW-5, MW-8 and MW-9), existing off-site well (MW-10), and new off-site wells (MW-6 and MW-7) on June 21 and 22, 2018. For the sampling event, depth-to-water measurements were recorded from monitor wells prior to sampling. A summary of groundwater elevations is presented in Table 1. The groundwater flow direction is generally to the south and is depicted on Figure 3 in Appendix I. Following these activities, groundwater samples were collected utilizing low-flow sampling techniques. Low-flow sampling techniques are utilized in order to minimize the loss of volatile components during the groundwater sample collection. In accordance with the USEPA, Region IV, Science and Ecosystem Support Division standard operating procedure dated April 26, 2017, water quality parameters such as pH, conductivity, temperature, dissolved oxygen and groundwater drawdown rate were evaluated during purging to ensure groundwater samples are representative of formational groundwater. Stabilization criterion was based on dissolved oxygen (DO) concentrations as well as three successive readings ranging within +/- 0.10 for pH, +/- 0.30 (S/cm) conductivity, and within 10 % NTU for turbidity. Once the parameters stabilized, the groundwater samples were collected into the laboratory provided containers, placed in an ice-filled cooler, and submitted to ESC Lab Sciences for VOCs analysis via EPA method 8260B. ESC Lab Sciences is certified under NELAP (non-potable water, solid and chemical materials, drinking water) and State of Georgia, Department of Natural Resources (ID #923) for chemical analysis of drinking water, effective through June 16, 2019. The groundwater sampling logs for these sampling events are presented in Appendix IV. The laboratory analytical report is presented in Appendix V.

2.3. Preliminary Fate and Transport Modeling

Revised hydrogeological and chemical data were used to begin updating the fate and transport model for the site to assess potential off-site exposure and support development of ACLs for groundwater. The model preparation was not completed during this reporting period, and it is anticipated that results of the fate and transport analysis will be submitted by December 2018.

2.4. Preparation of Uniform Environmental Covenant

Preparation of a Uniform Environmental Covenant (UEC) was commenced for the site to restrict the use or extraction of groundwater beneath the property for drinking water or for any other non-remedial purposes. The UEC was not completed during this reporting period.

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3.0   REPORTING PERIOD RESULTS

3.1   Hydrogeological Testing Results

Hydraulic conductivity values were calculated as follows:

Slug Test Description	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (cm/sec)
NMW-1 Test 1	5.1	1.8×10^{-3}
NMW-1 Test 2	6.0	2.1×10^{-3}
NMW-6 Test 1	4.6	1.6×10^{-3}
NMW-6 Test 2	4.5	1.6×10^{-3}
NMW-7 Test 1	Invalid	Invalid
NMW-7 Test 2	5.3	1.9×10^{-3}

Hydraulic conductivity values in feet per day were converted to centimeters per second by multiplying by the conversion factor 0.0003527 day-cm/sec-ft. The results from the first rising-head test for well NMW-7 were invalid because the line to the slug became entangled with the data logger communication line, and the data logger was raised in the well when the slug was removed. Consequently, the data logger was not at a static depth during the test.

The average hydraulic conductivity based on all of the tests is 5.1 ft/day or 1.8×10^{-3} cm/sec.

3.2   Groundwater Sampling Results

The groundwater sampling event for June 2018 was the third sampling event for the new on-site monitor wells and the second sampling event for the new off-site monitor wells (NMW-6 and NMW-7). A summary of current and historical groundwater analytical results is presented in Table 2, Appendix II. Current groundwater analytical results for PCE are depicted on Figure 4 in Appendix I.

PCE concentrations in groundwater increased in wells NMW-1, NMW-3, NMW-7, NMW-9 and decreased in monitor wells NMW-2, NMW-4, NMW-5, NMW-6, and MW-10 from the December 2017 to June 2018 sampling events. No chlorinated hydrocarbons have been detected in the groundwater samples collected from monitor well NMW-8 since it was installed.

TCE was detected in the samples collected from wells NMW-2, NMW-5, NMW-7, and NMW-9. Cis-1,2-dichloroethene was detected in the samples collected from NMW-7, NMW-9, and MW-10. No other VOCs were detected in the groundwater samples collected in June 2018.

Genesis Project, Inc.

PCE was delineated to below the Type 1 RRS (5 µg/L) in wells NMW-3, NMW-6, and NMW-8. The groundwater PCE concentrations in on-site and off-site wells were below the Type 4 RRS (98 µg/L) with the exception of the PCE concentrations in wells NMW-5 and NMW-9.

3.3   Proposed Uniform Environmental Covenant

A Uniform Environmental Covenant (UEC) was in preparation during this reporting period but was not completed. It is anticipated that the UEC will be submitted with the subsequent Semi-Annual Progress Report.

4.0   UPDATED CONCEPTUAL SITE MODEL

Hydrogeological and chemical testing results from this reporting period will be used to update the conceptual site model (CSM). The following summarizes results that will be incorporated into the revised CSM.

Results of hydrogeologic testing will be used to revise the estimated hydraulic conductivity in the water table aquifer. The results from the June 2018 testing are more consistent with the observed geologic materials than the hydraulic conductivity value presented in the June 18, 2003 VRP-CSR.

The source for chlorinated hydrocarbons in soil and groundwater at the property was identified as releases from a former on-site dry-cleaner located on the eastern side of the property. Groundwater analysis from the current monitor well network has identified chlorinated hydrocarbons, including PCE, on the western and central portion of the property that do not appear to be related to the on-site source area, based on the groundwater flow direction. Former dry-cleaning operations were located west of the property (Quality Cleaners at 2066 Beaver Ruin Road and Bonds Martinizing at 2070 Beaver Ruin Road). However, the source for the PCE detected at the up-gradient boundary of the site has not been identified. Based on the presence of PCE in wells up-gradient (NMW-9) of the former source area, there appears to be two PCE plumes at the property that may co-mingle downgradient.

5.0   FUTURE SITE ACTIVITIES

The following activities are proposed to be completed at the site, prior to the next Semi-Annual Progress Report that is due to EPD in December 2018.

5.1   Groundwater Modeling

The results of the hydrogeological testing will be used in conjunction with the updated three-dimensional CSM to develop a groundwater fate and transport model to recalculate the alternate concentration limit for the site. The results of the hydraulic conductivity analysis will be presented in the subsequent Semi-Annual Progress Report or the revised VRP-CSR.

5.2   Proposed Uniform Environmental Covenant

It is anticipated that a UEC to restrict the use or extraction of groundwater beneath the property for drinking water or for any other non-remedial purposes will be finalized during the next reporting period. The UEC will be submitted with the subsequent Semi-Annual Progress Report or revised VRP-CSR.

5.3   Semi-Annual Progress Report

It is anticipated that the next monitor well sampling event will occur in December 2018. If necessary, the next Semi-Annual Progress Report that includes the results of the groundwater sampling and analysis will be submitted to EPD no later than December 31, 2018.

5.4   Compliance Status Report

We anticipate that a revised VRP-CSR will be submitted to EPD no later than December 31, 2018.

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6.0   MILESTONE SCHEDULE

A milestone schedule is included in Appendix VI.

7.0   SERVICE HOURS FOR THIS PERIOD

Genesis Project, Inc. dedicated 124 professional service hours from December 31, 2017 to June 30, 2018 to the tasks described in this progress report. Details of the professional services hours are presented in Appendix VI.

8.0 LIFE-CYCLE COST ESTIMATE

The life cycle cost estimate is based on the anticipated activities necessary to finalize corrective action at this site and submit a final VRP-CSR. These activities will include:

1. Groundwater sampling;
2. Groundwater fate and transport modeling;
3. Development of UEC; and
4. Preparation and submittal of a revised VRP-CSR.

Based on these activities the remaining estimated life cycle cost for this site is **$21,621**.

Genesis Project, Inc.

9.0   REFERENCES

Bouwer, H., 1989, *The Bouwer and Rice Slug Test – An Update*, Ground Water, v. 27, no. 3, p. 304 – 309.

Halford, K. J. and E. L. Kuniansky, 2002, *Documentation of Spreadsheets for the Analysis of Aquifer-Test and Slug-Test Data,* U.S. Geological Survey, Open-File Report 02-197.

APPENDIX I

Figures
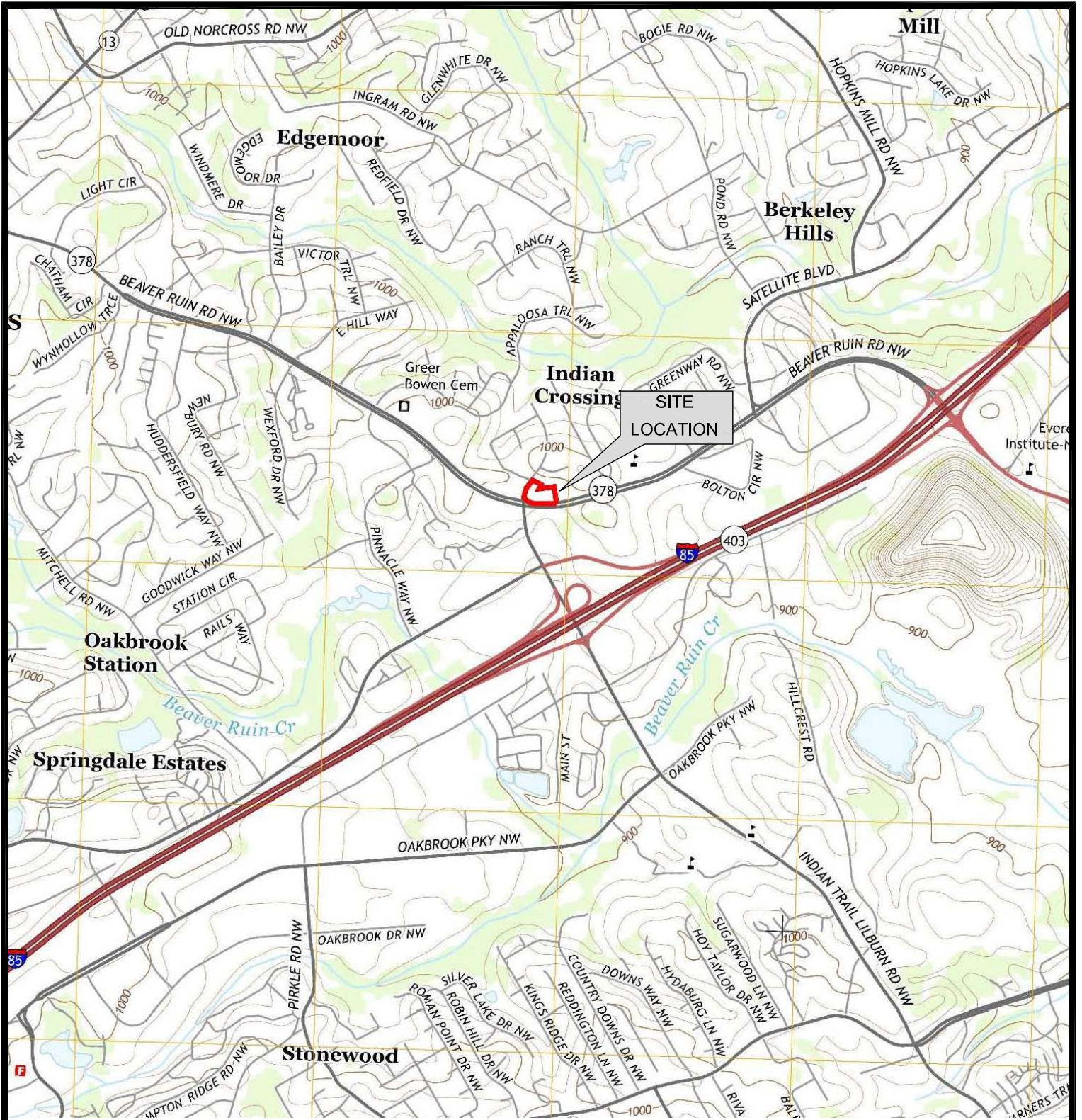
USGS 7.5 Minute Topo Map– Norcross, GA 2014

APPOX. SCALE

0   1000

Genesis
Project, Inc.
Environmental Services
ATLANTA,GA

Former Professional Cleaners & Linen Service
Proposed QuikTrip Store No. 703R
2040 Beaver Ruin Road
Norcross-Gwinnett County, Georgia

Figure 1-Site Location Plan

MW–9
MW–5
MW–1
2-Story Bldg
2034 Beaver Ruin Road
MW–1
MW–7
1-Story Bldg
2040 Beaver Ruin Road
FFE=993.7'
MW–3
MW–8
MW–2
MW–11
MW–2D
MW–9
MW–6
MW–4
MW–3
MW–8
MW–5
MW–4
MW–7
MW–6
MW–10

BEAVER RUIN ROAD

FLAMINGO AUTO SALES

LOWES

Legend
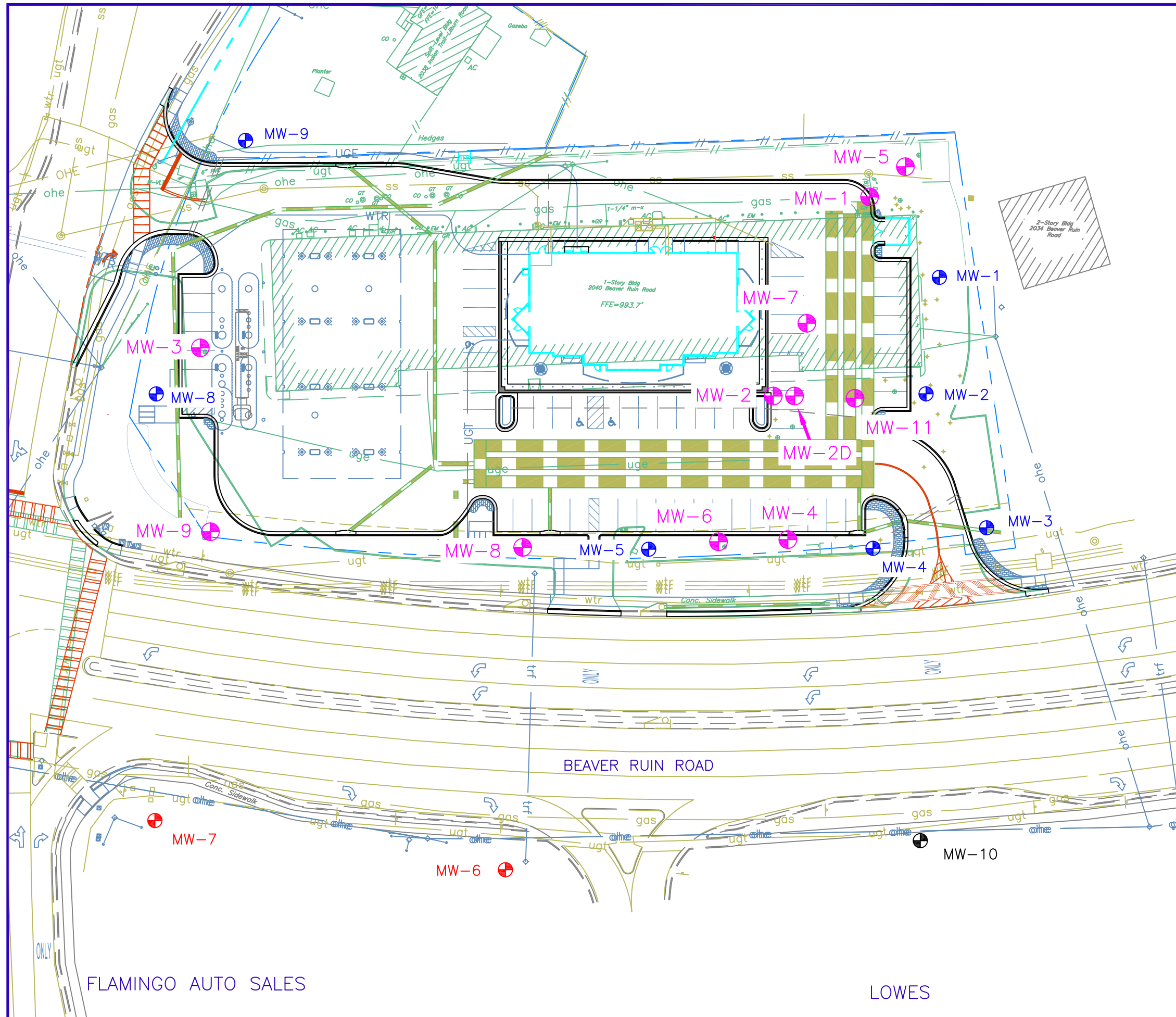
Symbol	Label	Description
MW–6 (pink)		PREVIOUS ON–SITE MONITOR WELL LOCATION
MW–1 (blue)		NEW ON–SITE MONITOR WELL LOCATION
MW–10 (black)		EXISTING OFF–SITE MONITOR WELL LOCATION
MW–6 (red)		NEW OFF–SITE MONITOR WELL LOCATION

GEORGIA WEST ZONE

SCALE
0   50'   100'
APPROXIMATE SCALE IN FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
⚠	7/20/18	WFM	--	WFM	MDM	MDM

PROJECT No.		FILE No.	--
DESIGN	WFM	7/20/18	SCALE AS SHOWN	REV. 0
CADD	WFM	7/20/18	
CHECK	MDM	7/20/18	Figure
REVIEW	MDM	7/20/18	2

Genesis Project, Inc
ENVIRONMENTAL SERVICES
Atlanta, Ga

MW-9
(979.64)

MW-1
(978.02)

MW-8
(977.63)

MW-2
(977.04)

MW-3
(974.80)

MW-5
(974.14)

MW-4
(974.74)

MW-7
(971.82)

MW-10
(973.25)

MW-6
(972.20)

BEAVER RUIN ROAD

979
978
977
976
975
974
973

1-Story Bldg
2040 Beaver Ruin Road
FFE=993.7'

2-Story Bldg
2034 Beaver Ruin
Road
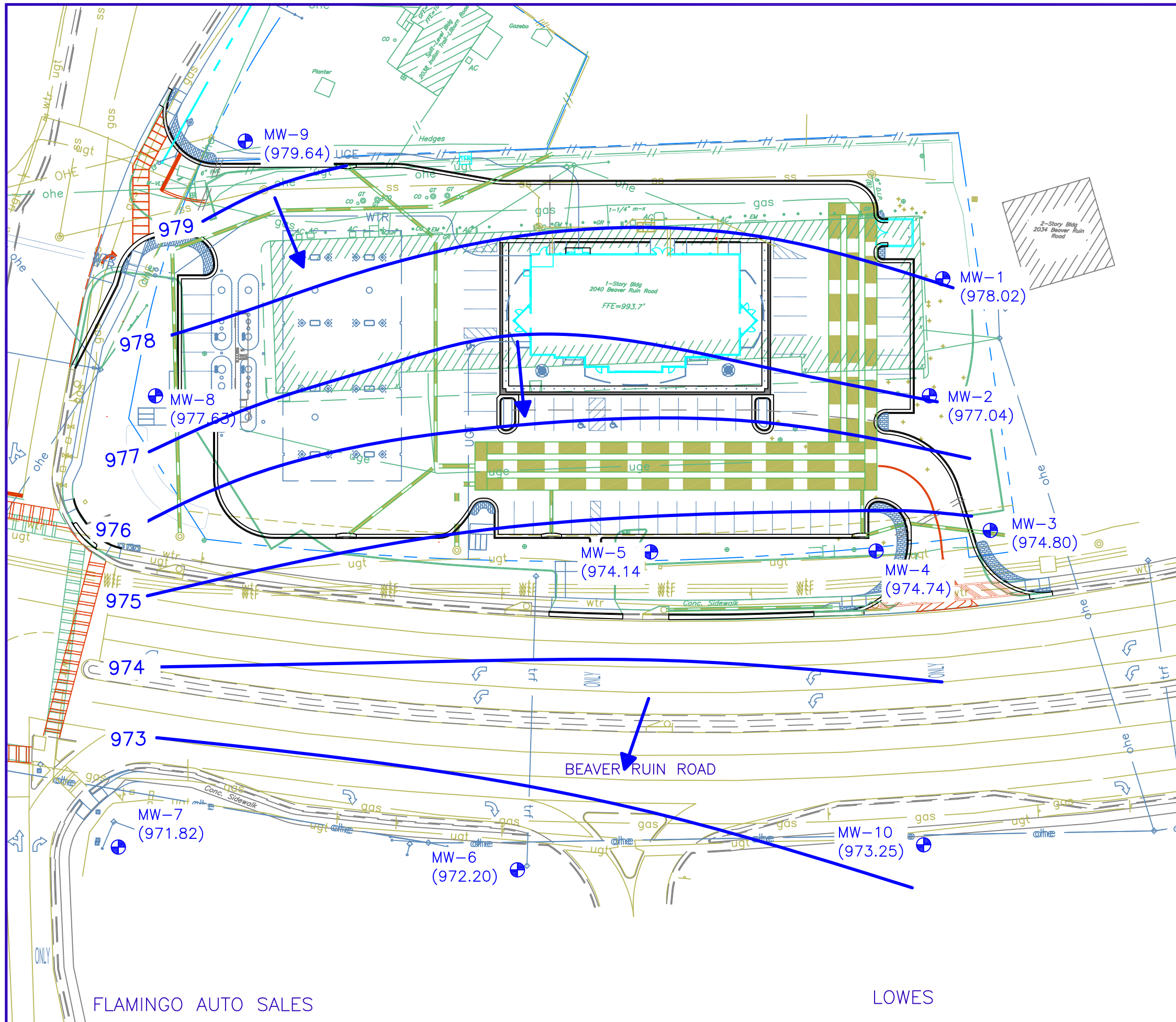
MW-1 ⊕   MONITOR WELL LOCATION

(970.21)   GW ELEVATION FEET, MSL

976 ———   GW CONTOUR

——▶   GW FLOW DIRECTION

FLAMINGO AUTO SALES

LOWES

GEORGIA WEST ZONE

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
⚠	6/26/18	WFM	--	WFM	MDM	MDM

SCALE   0   50'   100'

Genesis Project, Inc
ENVIRONMENTAL SERVICES
Atlanta, Ga

PROJECT No.			FILE No.	--
DESIGN	WFM	6/26/18	SCALE	AS SHOWN	REV.	0
CADD	WFM	6/26/18	Figure
CHECK	MDM	6/26/18	3
REVIEW	MDM	6/26/18	

MW-9
588

98

MW-8
ND

MW-1
71.8

1-Story Bldg
2040 Beaver Ruin Road
FFE=993.7'

2-Story Bldg
2034 Beaver Ruin
Road

MW-2
24.6

5

98

MW-5
390

MW-4
5.16

MW-3
2.28

BEAVER RUIN ROAD

MW-10
7.14

MW-7
33.3

MW-6
ND

FLAMINGO AUTO SALES

LOWES
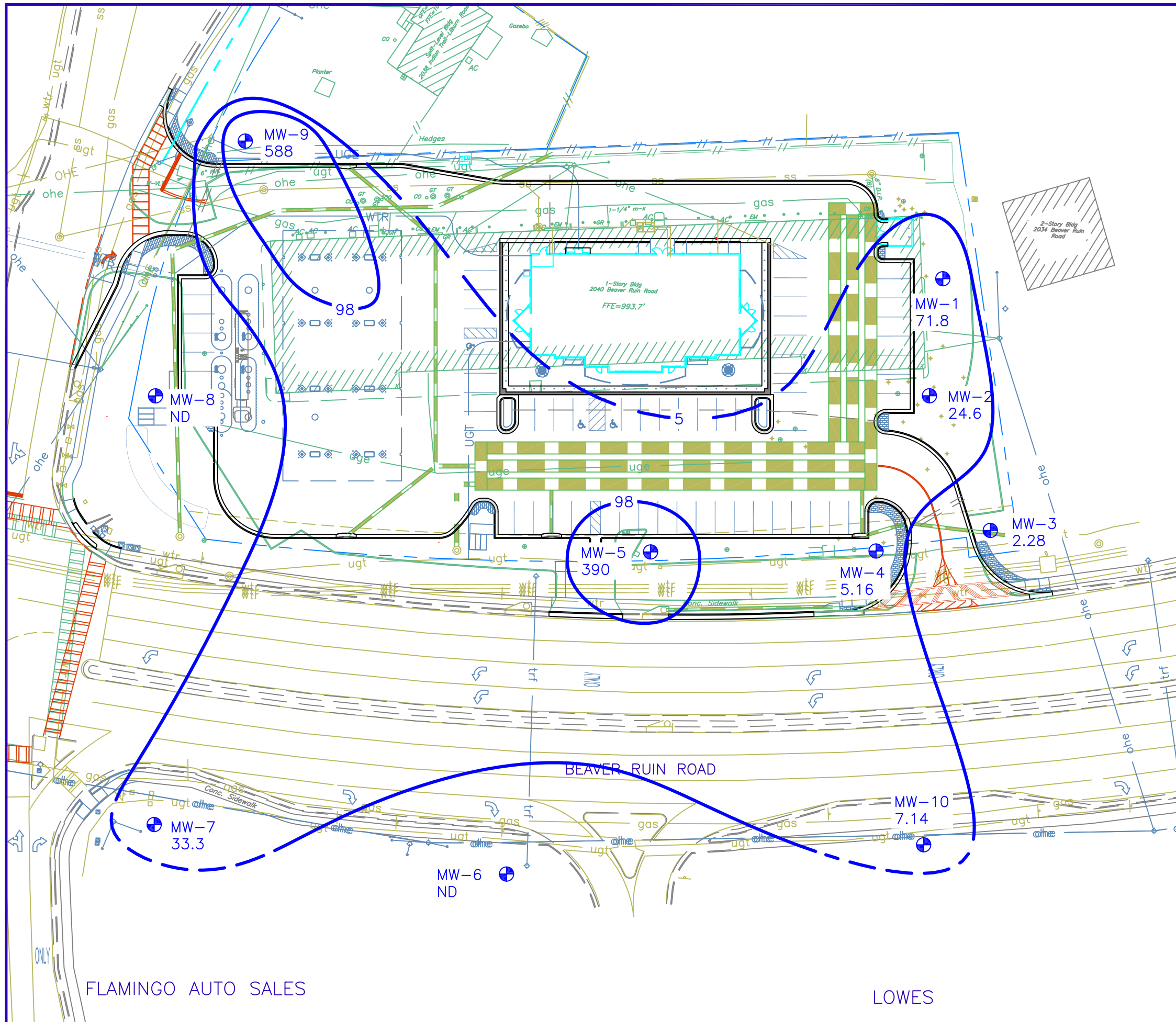
MW-1   ⊕   MONITOR WELL LOCATION
71.8   PCE (ug/L)

            ___ 5 ug/L
                 (Type 1 RRS PCE)

            ___ 98 ug/L
                 (Type 4 RRS PCE)

GEORGIA WEST ZONE

SCALE   0   50'   100'

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
⚠	7/3/18	WFM	--	WFM	MDM	7/3/18

PROJECT No.			FILE No.		--
DESIGN	WFM	7/3/18	SCALE	AS SHOWN	REV. 0
CADD	WFM	7/3/18			
CHECK	MDM	7/3/18	Figure		
REVIEW	MDM	7/3/18	4		

Genesis Project, Inc
ENVIRONMENTAL SERVICES
Atlanta, Ga

APPENDIX II

Tables

Table 1
Summary of Groundwater Elevations
Professional Cleaners-QuikTrip Store No. 703R
Norcross, Georgia

Well ID	Ground Surface Elevation (ft msl)	Top of Casing Elevation (ft msl)	Sample Date	Depth to Water (feet btoc)	Groundwater Elevation (ft msl)
NMW-1	994.38	993.90	6/28/2017	19.82	974.08
			12/19/2017	17.84	976.06
			6/21/2018	15.88	978.02
NMW-2	993.38	992.98	6/28/2017	19.63	973.35
			12/19/2017	17.99	974.99
			6/21/2018	15.94	977.04
NMW-3	989.67	989.16	6/28/2017	17.63	971.53
			12/19/2017	16.42	972.74
			6/21/2018	14.36	974.80
NMW-4	990.64	990.16	6/28/2017	18.04	972.12
			12/19/2017	17.53	972.63
			6/21/2018	15.42	974.74
NMW-5	992.04	991.64	6/28/2017	19.87	971.77
			12/19/2017	19.65	971.99
			6/21/2018	17.50	974.14
NMW-6	995.47	995.12	12/19/2017	24.81	970.31
			6/21/2018	22.92	972.20
NMW-7	992.27	991.62	12/19/2017	21.62	970.00
			6/21/2018	19.80	971.82
NMW-8	994.84	994.42	6/28/2017	20.17	974.25
			12/19/2017	19.06	975.36
			6/21/2018	16.79	977.63
NMW-9	994.64	994.35	6/28/2017	18.43	975.92
			12/19/2017	17.09	977.26
			6/21/2018	14.71	979.64
MW-10	993.68	993.56	2/12/2013	24.29	969.27
			10/30/2013	22.00	971.56
			8/25/2014	NM	N/A
			11/28/2014	22.73	970.83
			6/20/2016	22.42	971.14
			12/29/2016	23.68	969.88
			6/28/2017	22.68	970.88
			12/19/2017	23.23	970.33
			6/21/2018	20.31	973.25

Table 1
Summary of Groundwater Elevations
Professional Cleaners-QuikTrip Store No. 703R
Norcross, Georgia

Well ID	Ground Surface Elevation (ft msl)	Top of Casing Elevation (ft msl)	Sample Date	Depth to Water (feet btoc)	Groundwater Elevation (ft msl)
ABANDONED WELLS					
MW-1	993.21	992.91	7/1/2011	15.10	977.81
			4/23/2012	18.00	974.91
			7/24/2012	18.65	974.26
			10/14/2012	19.02	973.89
			2/13/2013	18.81	974.10
			10/29/2013	15.51	977.40
			11/11/2014	16.28	976.63
			1/19/2015	NM	N/A
			6/8/2015	15.18	977.73
			11/10/2015	16.15	976.76
			6/20/2016	14.15	978.76
			12/29/2016	17.28	975.63
Well Abandoned January 2017					
MW-2	993.51	993.07	7/1/2011	16.50	976.57
			3/19/2012	18.43	974.64
			7/24/2012	18.70	974.37
			10/14/2013	16.67	976.40
			2/8/2013	NM	N/A
			10/29/2013	16.67	976.40
			8/25/2014	NM	N/A
			11/28/2014	17.77	975.30
			6/20/2016	15.90	977.17
			12/29/2016	18.35	974.72
Well Abandoned January 2017					
MW-2D	993.71	993.49	4/4/2013	18.05	975.44
			10/29/2013	17.21	976.28
			12/29/2016	18.99	974.50
Well Abandoned January 2017					
MW-3	992.09	991.66	7/1/2011	14.39	977.27
			4/23/2012	17.04	974.62
			7/24/2012	17.06	974.60
			10/14/2012	NM	N/A
			2/8/2013	17.82	973.84
			11/28/2014	15.06	976.60
			12/29/2016	17.03	974.63
Well Abandoned January 2017					

Table 1
Summary of Groundwater Elevations
Professional Cleaners-QuikTrip Store No. 703R
Norcross, Georgia

Well ID	Ground Surface Elevation (ft msl)	Top of Casing Elevation (ft msl)	Sample Date	Depth to Water (feet btoc)	Groundwater Elevation (ft msl)
MW-4	991.98	991.57	7/22/2011	16.70	974.87
			4/23/2012	17.87	973.70
			7/24/2012	17.94	973.63
			8/23/2012	NM	N/A
			10/14/2012	18.55	973.02
			2/8/2013	18.43	973.14
			10/29/2013	16.20	975.37
			8/14/2014	NM	N/A
			11/14/2014	16.62	974.95
			6/8/2015	15.88	975.69
			11/10/2015	15.17	976.40
			6/20/2016	15.35	976.22
			12/29/2016	17.67	973.90
Well Abandoned January 2017					
MW-5	993.49	993.11	3/19/2012	17.85	975.26
			7/24/2012	18.61	974.50
			10/14/2012	18.99	974.12
			2/8/2013	18.84	974.27
			2/18/2013	NM	N/A
			10/29/2013	15.47	977.64
			11/28/2013	16.20	976.91
			12/29/2016	17.20	975.91
Well Abandoned January 2017					
MW-6	991.37	990.98	3/19/2012	17.18	973.80
			7/24/2012	17.34	973.64
			8/23/2012	NM	N/A
			10/14/2012	17.95	973.03
			2/8/2013	17.85	973.13
			2/18/2013	NM	N/A
			10/30/2013	15.62	975.36
			8/25/2014	NM	N/A
			11/28/2014	16.32	974.66
			6/8/2015	15.13	975.85
			12/29/2016	17.11	973.87
Well Abandoned January 2017					

Table 1
Summary of Groundwater Elevations
Professional Cleaners-QuikTrip Store No. 703R
Norcross, Georgia

Well ID	Ground Surface Elevation (ft msl)	Top of Casing Elevation (ft msl)	Sample Date	Depth to Water (feet btoc)	Groundwater Elevation (ft msl)
MW-7	995.06	994.95	3/19/2012	19.39	975.56
			7/24/2012	19.27	975.68
			10/14/2012	20.51	974.44
			2/8/2013	20.46	974.49
			10/29/2013	17.29	977.66
			8/25/2014	NM	N/A
			11/28/2014	17.92	977.03
			1/19/2015	NM	N/A
			6/8/2015	17.16	977.79
			11/10/2015	17.91	977.04
			12/29/2016	19.44	975.51
			Well Abandoned January 2017		
MW-8	991.63	991.46	12/11/2012	NM	N/A
			12/13/2012	19.97	971.49
			2/8/2013	19.44	972.02
			10/30/2013	17.07	974.39
			11/28/2014	17.66	973.80
			6/20/2016	16.18	975.28
			12/29/2016	NM	N/A
			Well Abandoned January 2017		
MW-9	991.61	991.43	12/11/2012	19.89	971.54
			2/8/2013	19.15	972.28
			10/30/2013	16.54	974.89
			11/28/2014	17.34	974.09
			12/29/2016	18.51	972.92
			Well Abandoned January 2017		
MW-11	994.32	993.86	4/22/2014	22.00	971.86
			11/28/2014	16.18	977.68
			5/29/2015	16.78	977.08
			11/10/2015	17.33	976.53
			6/20/2016	16.06	977.80
			12/29/2016	18.65	975.21
			Well Abandoned January 2017		

Notes:
ft msl: Feet Above Mean Sea Level
ft btoc: Feet Below Top of Casing
NM: Not Measured
N/A: Not Applicable

Table 2
Summary of Groundwater Analytical Results
Professional Cleaners-QuikTrip Store No. 703R
Norcross, GA

Sample ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (DCE)	Bromoform	Chloroform	Total Other VOCs
NMW-1	6/28/2017	32.0	< 1	< 1	< 1	< 5	BRL
	12/19/2017	18.8	< 1	< 1	< 1	< 5	BRL
	6/21/2018	71.8	< 1	< 1	< 1	< 5	BRL
NMW-2	6/28/2017	123.0	1.85	< 1	3.43	< 5	BRL
	12/19/2017	66.5	2.04	< 1	< 1	< 5	BRL
	6/22/2018	24.6	1.40	<1	< 1	< 5	BRL
NMW-3	6/28/2017	< 1	< 1	< 1	< 1	< 5	BRL
	12/19/2017	1.61	< 1	< 1	< 1	< 5	BRL
	6/22/2018	2.28	< 1	< 1	< 1	< 5	BRL
NMW-4	6/28/2017	13.4	< 1	< 1	< 1	< 5	BRL
	12/19/2017	11.3	< 1	< 1	< 1	< 5	BRL
	6/21/2018	5.16	< 1	<1	< 1	< 5	BRL
NMW-5	6/28/2017	24.1	< 1	< 1	< 1	5.91	BRL
	12/19/2017	585	2.18	< 1	< 1	< 5	BRL
	6/22/2018	390	1.88	<1	< 1	< 5	BRL
NMW-6	12/19/2017	28.7	2.28	3.24	< 1	< 5	BRL
	6/21/2018	<1	<1	<1	< 1	< 5	BRL
NMW-7	12/19/2017	< 1	< 1	< 1	< 1	< 5	BRL
	6/21/2018	33.3	5.41	2.97	< 1	< 5	BRL
NMW-8	6/28/2017	< 1	< 1	< 1	< 1	< 5	139.07
	12/19/2017	< 1	< 1	< 1	< 1	< 5	BRL
	6/21/2018	<1	< 1	< 1	< 1	< 5	BRL
NMW-9	6/28/2017	52.1	< 1	< 1	< 1	< 5	BRL
	12/29/2016	268	< 1	< 1	< 1	< 5	BRL
	6/21/2018	588	1.28	1.46	< 1	< 5	BRL
MW-10	2/12/2013	6.6	NA	NA	NA	NA	NA
	10/30/2013	10	<5	<5	<5	<5	BRL
	8/25/2014	< 5	NA	NA	NA	NA	NA
	11/28/2014	< 5	NA	NA	NA	NA	NA
	6/20/2016	5.0	<5	<5	NA	NA	BRL
	12/29/2016	3.87	< 1	< 1	< 1	< 5	BRL
	6/28/2017	6.49	< 1	< 1	< 1	< 5	BRL
	12/19/2017	8.43	< 1	1.60	< 1	< 5	BRL
	6/21/2018	7.14	<1	1.39	< 1	< 5	BRL

Table 2
Summary of Groundwater Analytical Results
Professional Cleaners-QuikTrip Store No. 703R
Norcross, GA

Sample ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (DCE)	Bromoform	Chloroform	Total Other VOCs
ABANDONED WELLS							
MW-1	7/1/2011	50	NA	NA	NA	NA	NA
	4/23/2012	100	NA	NA	NA	NA	NA
	7/24/2012	46	NA	NA	NA	NA	NA
	10/14/2012	<5	NA	NA	NA	NA	NA
	2/13/2013	5	NA	NA	NA	NA	NA
	10/29/2013	100	<5	<5	<5	<5	BRL
	11/11/2014	19	NA	NA	NA	NA	NA
	1/19/2015	<5	NA	NA	NA	NA	NA
	6/8/2015	15	NA	NA	NA	NA	NA
	11/10/2015	14	NA	NA	NA	NA	NA
	6/20/2016	22	<5	<5	NA	NA	BRL
	12/29/2016	13.2	< 1	< 1	< 1	< 5	BRL
	Well Abandoned January 2017						
MW-2	7/1/2011	62	NA	NA	NA	NA	NA
	3/19/2012	47	NA	NA	NA	NA	NA
	7/24/2012	41	NA	NA	NA	NA	NA
	10/14/2012	29	NA	NA	NA	NA	NA
	2/8/2013	35	NA	NA	NA	NA	NA
	10/29/2013	24	<5	<5	<5	<5	BRL
	8/25/2014	61	NA	NA	NA	NA	NA
	11/28/2014	<5	NA	NA	NA	NA	NA
	6/20/2016	100	<5	<5	NA	NA	BRL
	12/29/2016	12.3	< 1	< 1	< 1	< 5	BRL
	Well Abandoned January 2017						
MW-2D	4/4/2013	< 5	NA	NA	NA	NA	NA
	10/29/2013	< 5	<5	<5	<5	<5	BRL
	12/29/2016	< 1	< 1	< 1	< 1	< 5	BRL
	Well Abandoned January 2017						
MW-3	7/1/2011	< 5	NA	NA	NA	NA	NA
	4/23/2012	< 5	NA	NA	NA	NA	NA
	7/24/2012	< 5	NA	NA	NA	NA	NA
	10/14/2012	NS	NS	NS	NS	NS	NS
	2/8/2013	< 5	NA	NA	NA	NA	NA
	11/28/2014	< 5	NA	NA	NA	NA	NA
	12/29/2016	47	< 1	< 1	< 1	< 5	BRL
	Well Abandoned January 2017						

Table 2
Summary of Groundwater Analytical Results
Professional Cleaners-QuikTrip Store No. 703R
Norcross, GA

Sample ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (DCE)	Bromoform	Chloroform	Total Other VOCs
MW-4	7/22/2011	< 5	NA	NA	NA	NA	NA
	4/23/2012	< 5	NA	NA	NA	NA	NA
	7/24/2012	8.9	NA	NA	NA	NA	NA
	8/23/2012	8.3	NA	NA	NA	NA	NA
	10/14/2012	11	NA	NA	NA	NA	NA
	2/8/2013	11	NA	NA	NA	NA	NA
	10/29/2013	140	<5	<5	<5	<5	BRL
	11/9/2013	120	NA	NA	NA	NA	NA
	8/14/2014	200	NA	NA	NA	NA	NA
	11/14/2014	< 5	NA	NA	NA	NA	NA
	6/8/2015	31	NA	NA	NA	NA	NA
	11/10/2015	< 5	NA	NA	NA	NA	NA
	6/20/2016	240	<5	<5	NA	NA	BRL
	7/9/2016	310	NA	NA	NA	NA	NA
	12/29/2016	198	< 1	< 1	< 1	< 5	BRL
	Well Abandoned January 2017						
MW-5	3/19/2012	< 5	NA	NA	NA	NA	NA
	7/24/2012	< 5	NA	NA	NA	NA	NA
	10/14/2012	< 5	NA	NA	NA	NA	NA
	2/8/2013	11	NA	NA	NA	NA	NA
	2/18/2013	5.2	NA	NA	NA	NA	NA
	10/29/2013	11	<5	<5	<5	<5	BRL
	11/28/2013	< 5	NA	NA	NA	NA	NA
	12/29/2016	< 1	< 1	< 1	< 1	< 5	BRL
	Well Abandoned January 2017						
MW-6	3/19/2012	< 5	NA	NA	NA	NA	NA
	7/24/2012	5.2	NA	NA	NA	NA	NA
	8/23/2012	< 5	NA	NA	NA	NA	NA
	10/14/2012	< 5	NA	NA	NA	NA	NA
	2/8/2013	11	NA	NA	NA	NA	NA
	2/18/2013	< 5	NA	NA	NA	NA	NA
	10/30/2013	33	<5	<5	<5	10	BRL
	11/9/2013	25	NA	NA	NA	NA	NA
	8/25/2014	< 5	NA	NA	NA	NA	NA
	11/28/2014	< 5	NA	NA	NA	NA	NA
	6/8/2015	< 5	NA	NA	NA	NA	NA
	6/20/2016	<5	<5	<5	NA	NA	BRL
	12/29/2016	< 1	< 1	< 1	< 1	15.3	BRL
	Well Abandoned January 2017						

Table 2
Summary of Groundwater Analytical Results
Professional Cleaners-QuikTrip Store No. 703R
Norcross, GA

Sample ID	Sample Date	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (DCE)	Bromoform	Chloroform	Total Other VOCs
MW-7	3/19/2012	82	NA	NA	NA	NA	NA
	7/24/2012	31	NA	NA	NA	NA	NA
	10/14/2012	19	NA	NA	NA	NA	NA
	2/8/2013	< 5	NA	NA	NA	NA	NA
	10/29/2013	37	<5	<5	<5	<5	BRL
	8/25/2014	62	NA	NA	NA	NA	NA
	11/28/2014	58	NA	NA	NA	NA	NA
	1/19/2015	< 5	NA	NA	NA	NA	NA
	6/8/2015	< 5	NA	NA	NA	NA	NA
	11/10/2015	61	NA	NA	NA	NA	NA
	12/29/2016	36.9	< 1	< 1	< 1	< 5	BRL
	Well Abandoned January 2017						
MW-8	12/11/2012	7.9	NA	NA	NA	NA	NA
	12/13/2012	< 5	NA	NA	NA	NA	NA
	2/8/2013	< 5	NA	NA	NA	NA	NA
	10/30/2013	< 5	<5	<5	<5	45	BRL
	11/28/2014	< 5	NA	NA	NA	NA	NA
	6/20/2016	< 5	<5	<5	NA	NA	BRL
	12/29/2016	NS	NS	NS	NS	NS	NS
	Well Abandoned January 2017						
MW-9	12/11/2012	< 5	NA	NA	NA	NA	NA
	2/8/2013	< 5	NA	NA	NA	NA	NA
	10/30/2013	< 5	<5	<5	<5	<5	BRL
	11/28/2014	< 5	NA	NA	NA	NA	NA
	12/29/2016	< 1	< 1	< 1	< 1	< 5	BRL
	Well Abandoned January 2017						
MW-11	4/22/2014	170	NA	NA	NA	NA	NA
	11/28/2014	< 5	NA	NA	NA	NA	NA
	5/29/2015	51	NA	NA	NA	NA	NA
	11/10/2015	110	NA	NA	NA	NA	NA
	6/20/2016	41	<5	<5	NA	NA	BRL
	12/29/2016	11	< 1	< 1	4.48	< 5	BRL
	Well Abandoned January 2017						

Notes: All analytical results are in µg/L

NA: Not Analyzed

BRL : Below Reporting Limit

NS: Not Sampled

Non-halogenated hydrocarbons detected in sample from NMW-8 on 6/28/2017: ethylbenzene (2.76 µg/L), isopropylbenzene (1.01 µg/L), naphthalene (15.9 µg/L), n-propylbenzene (3.11 µg/L), toluene (3.09 µg/L), 1,2,4-trimethylbenzene (66.8 µg/L), 1,2,3-trimethylbenzene (23.7 µg/L), 1,3,5-trimethylbenzene (22.7 µg/L)

APPENDIX III

Slug Test Data

WELL ID: NMW-1 Rising Head 1

Local ID: QuikTrip 703R

Date:	6/6/2018	
Time:	14:59	

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	6	Inch
Screen Length (L)	10	Feet

Depths to:

water level (DTW)	15.76	Feet
top of screen (TOS)	14.5	Feet
Base of Aquifer (DTB)	60	Feet

Annular Fill:

across screen -- Coarse Sand
above screen -- Bentonite

Aquifer Material -- Surficial Aquifer, central Flo
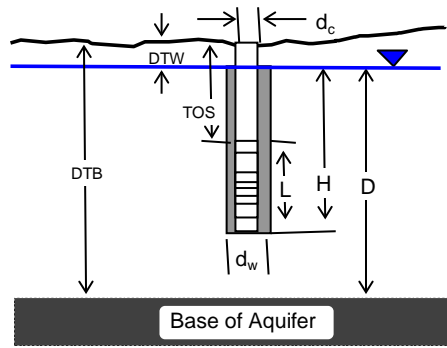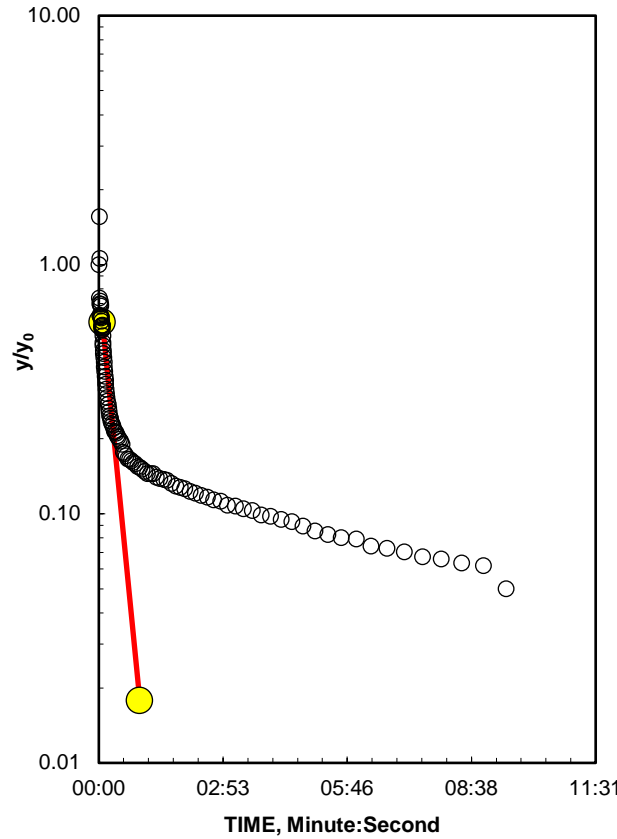
COMPUTED

L_{wetted}	8.74	Feet
D =	44.24	Feet
H =	8.74	Feet
L/r_w =	34.96	
$y_{0\text{-DISPLACEMENT}}$ =	2.02	Feet
$y_{0\text{-SLUG}}$ =	2.25	Feet

From look-up table using L/r_w

Partial penetrate A =	2.687	
B =	0.438	
ln(Re/rw) =	2.230	
Re =	2.32	Feet
Slope =	0.029212	$\log_{10}$/sec
$t_{90\%}$ recovery =	34	sec

Input is consistent.

K =	5.1	Feet/Day

Adjust slope of line to estimate K

TIME, Minute:Second

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Entry	Time, Hr:Min:Sec	Water Level
1	14:59:00.0	17.78
2	14:59:00.7	17.25
3	14:59:01.2	17.17
4	14:59:01.9	17.21
5	14:59:02.3	17.16
6	14:59:02.8	17.01
7	14:59:03.2	17.01
8	14:59:03.6	16.91
9	14:59:04.1	16.89
10	14:59:04.5	16.86
11	14:59:05.0	16.92
12	14:59:05.5	16.74
13	14:59:06.0	16.68
14	14:59:06.7	16.62
15	14:59:07.6	16.54
16	14:59:08.5	16.48
17	14:59:09.5	16.43
18	14:59:10.7	16.37
19	14:59:11.9	16.33
20	14:59:13.4	16.30
21	14:59:15.1	16.26
22	14:59:16.9	16.24
23	14:59:19.0	16.22
24	14:59:21.3	16.19
25	14:59:23.9	16.19
26	14:59:26.8	16.17
27	14:59:30.1	16.16
28	14:59:33.7	16.12
29	14:59:37.9	16.11
30	14:59:42.5	16.09
31	14:59:47.6	16.08
32	14:59:53.5	16.07
33	15:00:00.0	16.07
34	15:00:07.2	16.05
35	15:00:15.6	16.05
36	15:00:24.6	16.04
37	15:00:34.8	16.04
38	15:00:46.8	16.02
39	15:00:59.4	16.02
40	15:01:14.4	16.00
41	15:01:30.6	16.00
42	15:01:49.2	15.99
43	15:02:09.6	15.98
44	15:02:33.0	15.97
45	15:02:58.8	15.96

Number of points =   104   y0 =   2.02 Feet

INPUT

Final pressure (water level) =   15.86 < NOTE: value is final pressure reading.

Slug Description: 15.76 < Overwrite with best guess of the initial
                                                                                         water level if the well did not fully recover

Type:	Bailer	
LENGTH	4	Feet
Rod Diameter	1.5	Inch

Overwrite with your data here.

dt-off =   0.5 seconds

Day	HourMinute	Second	Feet	Hr:Min:Sec	Δt seconds	y/ y0		
157	1459	0	17.783	14:59:00	0:00:00.5	1.000	1	
157	1459	0.251	18.912	14:59:00	0:00:00.8	1.558	1.558082	
157	1459	0.733	17.247	14:59:01	0:00:01.2	0.735	0.735047	
157	1459	0.954	17.9	14:59:01	0:00:01.5	1.058	1.057835	
157	1459	1.174	17.165	14:59:01	0:00:01.7	0.695	0.694513	$+y_0$
157	1459	1.394	17.024	14:59:01	0:00:01.9	0.625	0.624815	
157	1459	1.869	17.205	14:59:02	0:00:02.4	0.714	0.714286	
157	1459	2.091	17.01	14:59:02	0:00:02.6	0.618	0.617894	
157	1459	2.312	17.161	14:59:02	0:00:02.8	0.693	0.692536	
157	1459	2.532	17.14	14:59:03	0:00:03.0	0.682	0.682155	$-y_0$
157	1459	2.751	17.007	14:59:03	0:00:03.3	0.616	0.616411	
157	1459	2.972	16.996	14:59:03	0:00:03.5	0.611	0.610974	
157	1459	3.191	17.014	14:59:03	0:00:03.7	0.620	0.619871	
157	1459	3.411	16.958	14:59:03	0:00:03.9	0.592	0.59219	
157	1459	3.632	16.909	14:59:04	0:00:04.1	0.568	0.567968	
157	1459	3.852	16.899	14:59:04	0:00:04.4	0.563	0.563025	
157	1459	4.071	16.887	14:59:04	0:00:04.6	0.557	0.557093	
157	1459	4.291	16.873	14:59:04	0:00:04.8	0.550	0.550173	
157	1459	4.512	16.863	14:59:05	0:00:05.0	0.545	0.54523	
157	1459	4.751	16.909	14:59:05	0:00:05.3	0.568	0.567968	
157	1459	5.001	16.917	14:59:05	0:00:05.5	0.572	0.571923	
157	1459	5.251	16.808	14:59:05	0:00:05.8	0.518	0.518043	
157	1459	5.501	16.743	14:59:06	0:00:06.0	0.486	0.485912	
157	1459	5.751	16.715	14:59:06	0:00:06.3	0.472	0.472071	
157	1459	6.001	16.675	14:59:06	0:00:06.5	0.452	0.452299	
157	1459	6.36	16.649	14:59:06	0:00:06.9	0.439	0.439446	
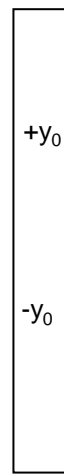
157	1459	6.721	16.617	14:59:07	0:00:07.2	0.424	0.423628
157	1459	7.14	16.581	14:59:07	0:00:07.6	0.406	0.405833
157	1459	7.56	16.544	14:59:08	0:00:08.1	0.388	0.387543
157	1459	7.98	16.514	14:59:08	0:00:08.5	0.373	0.372714
157	1459	8.461	16.481	14:59:08	0:00:09.0	0.356	0.356401
157	1459	9	16.453	14:59:09	0:00:09.5	0.343	0.342561
157	1459	9.48	16.428	14:59:09	0:00:10.0	0.330	0.330203
157	1459	10.08	16.398	14:59:10	0:00:10.6	0.315	0.315373
157	1459	10.68	16.373	14:59:11	0:00:11.2	0.303	0.303015
157	1459	11.28	16.351	14:59:11	0:00:11.8	0.292	0.29214
157	1459	11.94	16.331	14:59:12	0:00:12.4	0.282	0.282254
157	1459	12.66	16.315	14:59:13	0:00:13.2	0.274	0.274345
157	1459	13.441	16.296	14:59:13	0:00:13.9	0.265	0.264953
157	1459	14.221	16.278	14:59:14	0:00:14.7	0.256	0.256055
157	1459	15.061	16.26	14:59:15	0:00:15.6	0.247	0.247158
157	1459	15.961	16.249	14:59:16	0:00:16.5	0.242	0.24172
157	1459	16.92	16.236	14:59:17	0:00:17.4	0.235	0.235294
157	1459	17.88	16.224	14:59:18	0:00:18.4	0.229	0.229362
157	1459	18.96	16.219	14:59:19	0:00:19.5	0.227	0.226891
157	1459	20.1	16.206	14:59:20	0:00:20.6	0.220	0.220465
157	1459	21.3	16.193	14:59:21	0:00:21.8	0.214	0.214039
157	1459	22.56	16.19	14:59:23	0:00:23.1	0.213	0.212556
157	1459	23.88	16.185	14:59:24	0:00:24.4	0.210	0.210084
157	1459	25.321	16.176	14:59:25	0:00:25.8	0.206	0.205635
157	1459	26.821	16.17	14:59:27	0:00:27.3	0.203	0.202669
157	1459	28.38	16.161	14:59:28	0:00:28.9	0.198	0.19822
157	1459	30.061	16.155	14:59:30	0:00:30.6	0.195	0.195255
157	1459	31.86	16.144	14:59:32	0:00:32.4	0.190	0.189817
157	1459	33.721	16.117	14:59:34	0:00:34.2	0.176	0.176471
157	1459	35.761	16.112	14:59:36	0:00:36.3	0.174	0.173999
157	1459	37.86	16.105	14:59:38	0:00:38.4	0.171	0.170539
157	1459	40.08	16.095	14:59:40	0:00:40.6	0.166	0.165596
157	1459	42.48	16.094	14:59:42	0:00:43.0	0.165	0.165101
157	1459	45	16.09	14:59:45	0:00:45.5	0.163	0.163124
157	1459	47.64	16.084	14:59:48	0:00:48.1	0.160	0.160158
157	1459	50.46	16.08	14:59:50	0:00:51.0	0.158	0.158181
157	1459	53.46	16.073	14:59:53	0:00:54.0	0.155	0.154721

157	1459	56.64	16.07	14:59:57	0:00:57.1	0.153	0.153238
157	1459	60	16.065	15:00:00	0:01:00.5	0.151	0.150766
157	1459	63.6	16.059	15:00:04	0:01:04.1	0.148	0.1478
157	1459	67.2	16.053	15:00:07	0:01:07.7	0.145	0.144834
157	1459	71.4	16.053	15:00:11	0:01:11.9	0.145	0.144834
157	1459	75.6	16.053	15:00:16	0:01:16.1	0.145	0.144834
157	1459	79.8	16.043	15:00:20	0:01:20.3	0.140	0.139891
157	1459	84.6	16.04	15:00:25	0:01:25.1	0.138	0.138408
157	1459	90	16.037	15:00:30	0:01:30.5	0.137	0.136925
157	1459	94.8	16.035	15:00:35	0:01:35.3	0.136	0.135937
157	1459	100.8	16.027	15:00:41	0:01:41.3	0.132	0.131982
157	1459	106.8	16.021	15:00:47	0:01:47.3	0.129	0.129016
157	1459	112.8	16.018	15:00:53	0:01:53.3	0.128	0.127533
157	1459	119.4	16.015	15:00:59	0:01:59.9	0.126	0.12605
157	1459	126.6	16.008	15:01:07	0:02:07.1	0.123	0.12259
157	1459	134.4	16.004	15:01:14	0:02:14.9	0.121	0.120613
157	1459	142.2	15.999	15:01:22	0:02:22.7	0.118	0.118141
157	1459	150.6	15.995	15:01:31	0:02:31.1	0.116	0.116164
157	1459	159.6	15.99	15:01:40	0:02:40.1	0.114	0.113693
157	1459	169.2	15.987	15:01:49	0:02:49.7	0.112	0.11221
157	1459	178.8	15.979	15:01:59	0:02:59.3	0.108	0.108255
157	1459	189.6	15.977	15:02:10	0:03:10.1	0.107	0.107266
157	1459	201	15.972	15:02:21	0:03:21.5	0.105	0.104795
157	1459	213	15.968	15:02:33	0:03:33.5	0.103	0.102818
157	1459	225.6	15.96	15:02:46	0:03:46.1	0.099	0.098863
157	1459	238.8	15.957	15:02:59	0:03:59.3	0.097	0.09738
157	1459	253.2	15.952	15:03:13	0:04:13.7	0.095	0.094909
157	1459	268.2	15.948	15:03:28	0:04:28.7	0.093	0.092931
157	1459	283.8	15.94	15:03:44	0:04:44.3	0.089	0.088977
157	1459	300.6	15.932	15:04:01	0:05:01.1	0.085	0.085022
157	1459	318.6	15.927	15:04:19	0:05:19.1	0.083	0.082551
157	1459	337.2	15.922	15:04:37	0:05:37.7	0.080	0.080079
157	1459	358.147	15.92	15:04:58	0:05:58.6	0.079	0.07909
157	1459	378.6	15.91	15:05:19	0:06:19.1	0.074	0.074147
157	1459	400.8	15.907	15:05:41	0:06:41.3	0.073	0.072664
157	1459	424.8	15.902	15:06:05	0:07:05.3	0.070	0.070193
157	1459	450	15.896	15:06:30	0:07:30.5	0.067	0.067227

157	1459	476.4	15.893	15:06:56	0:07:56.9	0.066	0.065744
157	1459	504.6	15.888	15:07:25	0:08:25.1	0.063	0.063272
157	1459	534.6	15.885	15:07:55	0:08:55.1	0.062	0.061789
157	1459	566.4	15.861	15:08:26	0:09:26.9	0.050	0.049926

WELL ID: NMW-1 Rising Head 2

Local ID: QuikTrip 703R

Date:	6/6/2018
Time:	15:23

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	6	Inch
Screen Length (L)	10	Feet

Depths to:

water level (DTW)	15.74	Feet
top of screen (TOS)	14.5	Feet
Base of Aquifer (DTB)	60	Feet

Annular Fill:

across screen -- Coarse Sand
above screen -- Bentonite

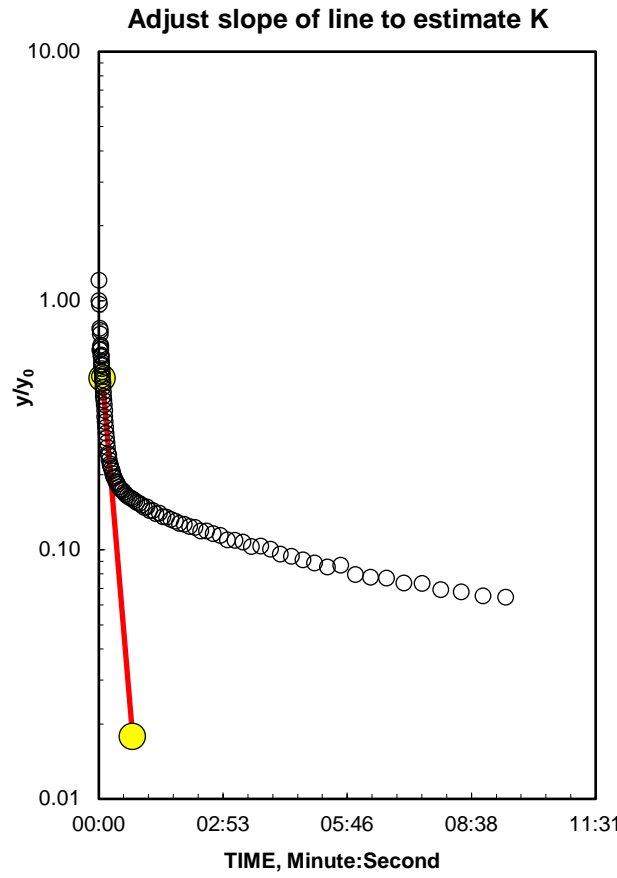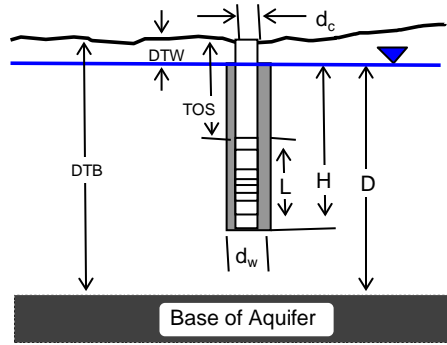Aquifer Material -- Surficial Aquifer, central Flo

COMPUTED

L_{wetted}	8.76	Feet
D =	44.26	Feet
H =	8.76	Feet
L/r_w =	35.04	
$y_{0-DISPLACEMENT}$ =	2.05	Feet
y_{0-SLUG} =	2.25	Feet

From look-up table using L/r_w

Partial penetrate A =	2.690	
B =	0.439	
ln(Re/rw) =	2.232	
Re =	2.33	Feet
Slope =	0.034242	log_{10}/sec
$t_{90\%}$ recovery =	29	sec

Input is consistent.

K =	6	Feet/Day

Adjust slope of line to estimate K

y/y₀ vs TIME, Minute:Second

REMARKS: Bouwer and Rice analysis of slug test, WRR 1976

Entry	Time, Hr:Min:Sec	Water Level
1	15:23:00.7	17.79
2	15:23:01.2	17.72
3	15:23:01.9	17.33
4	15:23:02.3	17.30
5	15:23:02.9	17.05
6	15:23:03.3	17.08
7	15:23:03.8	16.98
8	15:23:04.2	16.91
9	15:23:04.6	16.86
10	15:23:05.1	16.80
11	15:23:05.5	16.75
12	15:23:06.0	16.70
13	15:23:06.7	16.62
14	15:23:07.6	16.56
15	15:23:08.5	16.48
16	15:23:09.5	16.41
17	15:23:10.7	16.34
18	15:23:11.9	16.29
19	15:23:13.4	16.24
20	15:23:15.1	16.21
21	15:23:16.9	16.18
22	15:23:19.0	16.17
23	15:23:21.3	16.14
24	15:23:23.9	16.13
25	15:23:26.8	16.12
26	15:23:30.1	16.10
27	15:23:33.7	16.09
28	15:23:37.9	16.08
29	15:23:42.5	16.07
30	15:23:47.6	16.07
31	15:23:53.5	16.06
32	15:24:00.0	16.05
33	15:24:07.2	16.04
34	15:24:15.6	16.04
35	15:24:24.6	16.03
36	15:24:34.8	16.02
37	15:24:46.8	16.01
38	15:24:59.4	16.00
39	15:25:14.4	15.99
40	15:25:30.6	15.98
41	15:25:49.2	15.97
42	15:26:09.6	15.96
43	15:26:33.0	15.95
44	15:26:59.3	15.95
45	15:27:28.2	15.93

Number of points =   102   y0 =   2.05 Feet

INPUT

Final pressure (water level) =   15.87 < NOTE: value is final pressure reading.

Slug Description: 15.74 < Overwrite with best guess of the initial
                                                 water level if the well did not fully recover

Type:	Bailer	
LENGTH	**4**	**Feet**
Rod Diameter	**1.5**	**Inch**

Overwrite with your data here.

dt-off =   0.5 seconds

Day	HourMinute	Second	Feet	Hr:Min:Sec	Δt seconds	y/ y0		
157	1523	0.732	17.792	15:23:01	0:00:00.5	1.000	1	
157	1523	0.954	18.216	15:23:01	0:00:00.7	1.207	1.206628	
157	1523	1.175	17.72	15:23:01	0:00:00.9	0.965	0.964912	
157	1523	1.395	16.761	15:23:01	0:00:01.2	0.498	0.497563	
157	1523	1.887	17.325	15:23:02	0:00:01.7	0.772	0.772417	$+y_0$
157	1523	2.109	17.036	15:23:02	0:00:01.9	0.632	0.631579	
157	1523	2.33	17.296	15:23:02	0:00:02.1	0.758	0.758285	
157	1523	2.551	17.247	15:23:03	0:00:02.3	0.734	0.734405	
157	1523	2.88	17.049	15:23:03	0:00:02.6	0.638	0.637914	
157	1523	3.102	17.097	15:23:03	0:00:02.9	0.661	0.661306	$-y_0$
157	1523	3.322	17.076	15:23:03	0:00:03.1	0.651	0.651072	
157	1523	3.542	16.972	15:23:04	0:00:03.3	0.600	0.60039	
157	1523	3.763	16.98	15:23:04	0:00:03.5	0.604	0.604288	
157	1523	3.983	16.963	15:23:04	0:00:03.8	0.596	0.596004	
157	1523	4.204	16.909	15:23:04	0:00:04.0	0.570	0.569688	
157	1523	4.424	16.878	15:23:04	0:00:04.2	0.555	0.554581	
157	1523	4.645	16.864	15:23:05	0:00:04.4	0.548	0.547758	
157	1523	4.865	16.834	15:23:05	0:00:04.6	0.533	0.533138	
157	1523	5.085	16.8	15:23:05	0:00:04.9	0.517	0.516569	
157	1523	5.304	16.777	15:23:05	0:00:05.1	0.505	0.505361	
157	1523	5.524	16.753	15:23:06	0:00:05.3	0.494	0.493665	
157	1523	5.751	16.724	15:23:06	0:00:05.5	0.480	0.479532	
157	1523	6.001	16.701	15:23:06	0:00:05.8	0.468	0.468324	
157	1523	6.36	16.659	15:23:06	0:00:06.1	0.448	0.447856	
157	1523	6.72	16.623	15:23:07	0:00:06.5	0.430	0.430312	
157	1523	7.14	16.586	15:23:07	0:00:06.9	0.412	0.412281	
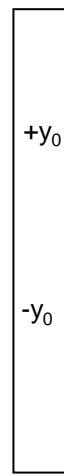
157	1523	7.56	16.556	15:23:08	0:00:07.3	0.398	0.397661
157	1523	7.98	16.523	15:23:08	0:00:07.7	0.382	0.381579
157	1523	8.461	16.482	15:23:08	0:00:08.2	0.362	0.361598
157	1523	9.001	16.441	15:23:09	0:00:08.8	0.342	0.341618
157	1523	9.481	16.41	15:23:09	0:00:09.2	0.327	0.326511
157	1523	10.081	16.375	15:23:10	0:00:09.8	0.309	0.309454
157	1523	10.681	16.343	15:23:11	0:00:10.4	0.294	0.29386
157	1523	11.281	16.316	15:23:11	0:00:11.0	0.281	0.280702
157	1523	11.94	16.293	15:23:12	0:00:11.7	0.269	0.269493
157	1523	12.66	16.269	15:23:13	0:00:12.4	0.258	0.257797
157	1523	13.44	16.238	15:23:13	0:00:13.2	0.243	0.24269
157	1523	14.22	16.231	15:23:14	0:00:14.0	0.239	0.239279
157	1523	15.06	16.211	15:23:15	0:00:14.8	0.230	0.229532
157	1523	15.96	16.194	15:23:16	0:00:15.7	0.221	0.221248
157	1523	16.92	16.184	15:23:17	0:00:16.7	0.216	0.216374
157	1523	17.88	16.174	15:23:18	0:00:17.6	0.212	0.211501
157	1523	18.96	16.165	15:23:19	0:00:18.7	0.207	0.207115
157	1523	20.101	16.155	15:23:20	0:00:19.9	0.202	0.202242
157	1523	21.301	16.143	15:23:21	0:00:21.1	0.196	0.196394
157	1523	22.561	16.137	15:23:23	0:00:22.3	0.193	0.19347
157	1523	23.88	16.125	15:23:24	0:00:23.6	0.188	0.187622
157	1523	25.32	16.122	15:23:25	0:00:25.1	0.186	0.18616
157	1523	26.82	16.115	15:23:27	0:00:26.6	0.183	0.182749
157	1523	28.38	16.106	15:23:28	0:00:28.1	0.178	0.178363
157	1523	30.061	16.099	15:23:30	0:00:29.8	0.175	0.174951
157	1523	31.86	16.097	15:23:32	0:00:31.6	0.174	0.173977
157	1523	33.72	16.094	15:23:34	0:00:33.5	0.173	0.172515
157	1523	35.76	16.088	15:23:36	0:00:35.5	0.170	0.169591
157	1523	37.86	16.082	15:23:38	0:00:37.6	0.167	0.166667
157	1523	40.08	16.077	15:23:40	0:00:39.8	0.164	0.16423
157	1523	42.481	16.073	15:23:42	0:00:42.2	0.162	0.162281
157	1523	45	16.07	15:23:45	0:00:44.8	0.161	0.160819
157	1523	47.64	16.066	15:23:48	0:00:47.4	0.159	0.158869
157	1523	50.46	16.062	15:23:50	0:00:50.2	0.157	0.15692
157	1523	53.46	16.057	15:23:53	0:00:53.2	0.154	0.154483
157	1523	56.64	16.054	15:23:57	0:00:56.4	0.153	0.153021
157	1523	60	16.049	15:24:00	0:00:59.8	0.151	0.150585

157	1523	63.6	16.043	15:24:04	0:01:03.4	0.148	0.147661
157	1523	67.2	16.044	15:24:07	0:01:07.0	0.148	0.148148
157	1523	71.4	16.035	15:24:11	0:01:11.2	0.144	0.143762
157	1523	75.6	16.035	15:24:16	0:01:15.4	0.144	0.143762
157	1523	79.8	16.026	15:24:20	0:01:19.6	0.139	0.139376
157	1523	84.6	16.027	15:24:25	0:01:24.4	0.140	0.139864
157	1523	90	16.018	15:24:30	0:01:29.8	0.135	0.135478
157	1523	94.8	16.017	15:24:35	0:01:34.6	0.135	0.13499
157	1523	100.8	16.011	15:24:41	0:01:40.6	0.132	0.132066
157	1523	106.8	16.007	15:24:47	0:01:46.6	0.130	0.130117
157	1523	112.8	16.001	15:24:53	0:01:52.6	0.127	0.127193
157	1523	119.4	15.999	15:24:59	0:01:59.2	0.126	0.126218
157	1523	126.6	15.994	15:25:07	0:02:06.4	0.124	0.123782
157	1523	134.4	15.992	15:25:14	0:02:14.2	0.123	0.122807
157	1523	142.2	15.984	15:25:22	0:02:22.0	0.119	0.118908
157	1523	150.6	15.984	15:25:31	0:02:30.4	0.119	0.118908
157	1523	159.6	15.978	15:25:40	0:02:39.4	0.116	0.115984
157	1523	169.229	15.974	15:25:49	0:02:49.0	0.114	0.114035
157	1523	179.228	15.965	15:25:59	0:02:59.0	0.110	0.109649
157	1523	189.6	15.964	15:26:10	0:03:09.4	0.109	0.109162
157	1523	201	15.96	15:26:21	0:03:20.8	0.107	0.107212
157	1523	213	15.951	15:26:33	0:03:32.8	0.103	0.102827
157	1523	225.6	15.952	15:26:46	0:03:45.4	0.103	0.103314
157	1523	239.279	15.946	15:26:59	0:03:59.0	0.100	0.10039
157	1523	253.2	15.937	15:27:13	0:04:13.0	0.096	0.096004
157	1523	268.2	15.933	15:27:28	0:04:28.0	0.094	0.094055
157	1523	284.358	15.927	15:27:44	0:04:44.1	0.091	0.091131
157	1523	300.6	15.921	15:28:01	0:05:00.4	0.088	0.088207
157	1523	318.6	15.915	15:28:19	0:05:18.4	0.085	0.085283
157	1523	337.2	15.918	15:28:37	0:05:37.0	0.087	0.086745
157	1523	357.6	15.903	15:28:58	0:05:57.4	0.079	0.079435
157	1523	378.6	15.899	15:29:19	0:06:18.4	0.077	0.077485
157	1523	400.8	15.898	15:29:41	0:06:40.6	0.077	0.076998
157	1523	424.8	15.891	15:30:05	0:07:04.6	0.074	0.073587
157	1523	450	15.89	15:30:30	0:07:29.8	0.073	0.073099
157	1523	476.4	15.882	15:30:56	0:07:56.2	0.069	0.069201
157	1523	504.649	15.879	15:31:25	0:08:24.4	0.068	0.067739

| 157 | 1523 | 534.709 | 15.874 | 15:31:55 | 0:08:54.5 | 0.065 | 0.065302 |
| 157 | 1523 | 566.4 | 15.872 | 15:32:26 | 0:09:26.2 | 0.064 | 0.064327 |

WELL ID: NMW-6 Rising Head 1

Local ID: QuikTrip 703R

Date: 6/6/2018
Time: 13:41

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	6	Inch
Screen Length (L)	20	Feet

Depths to:

water level (DTW)	22.55	Feet
top of screen (TOS)	13	Feet
Base of Aquifer (DTB)	60	Feet

Annular Fill:

across screen -- Coarse Sand
above screen -- Bentonite

Aquifer Material -- Surficial Aquifer, central Flo
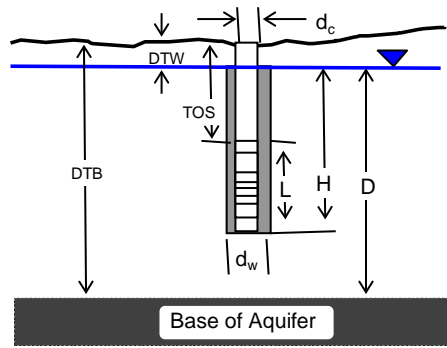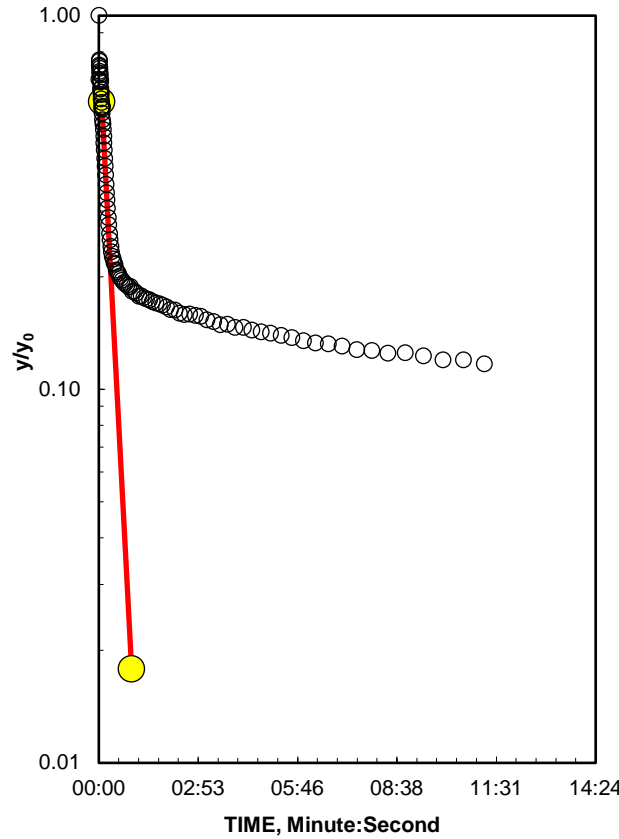
COMPUTED

L_{wetted}	10.45	Feet
D =	37.45	Feet
H =	10.45	Feet
L/r_w =	41.80	
$y_{0-DISPLACEMENT}$ =	2.45	Feet
y_{0-SLUG} =	2.25	Feet

From look-up table using L/r_w

Partial penetrate A =	2.889	
B =	0.467	
ln(Re/rw) =	2.403	
Re =	2.77	Feet
Slope =	0.029212	$\log_{10}$/sec
$t_{90\%}$ recovery =	34	sec

Input is consistent.

K =	**4.6**	**Feet/Day**

Adjust slope of line to estimate K

y/y₀ vs TIME, Minute:Second

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Entry	Time, Hr:Min:Sec	Water Level
1	13:41:01.9	25.00
2	13:41:02.3	24.40
3	13:41:02.8	24.35
4	13:41:03.3	24.32
5	13:41:03.8	24.26
6	13:41:04.3	24.18
7	13:41:04.8	24.19
8	13:41:05.3	24.10
9	13:41:05.8	24.05
10	13:41:06.4	23.98
11	13:41:07.1	23.92
12	13:41:08.0	23.94
13	13:41:09.0	23.80
14	13:41:10.1	23.71
15	13:41:11.3	23.62
16	13:41:12.7	23.52
17	13:41:14.2	23.41
18	13:41:16.0	23.34
19	13:41:17.9	23.25
20	13:41:20.1	23.19
21	13:41:22.6	23.14
22	13:41:25.3	23.11
23	13:41:28.4	23.08
24	13:41:31.9	23.06
25	13:41:35.8	23.05
26	13:41:40.1	23.03
27	13:41:45.0	23.02
28	13:41:50.5	23.01
29	13:41:56.6	23.01
30	13:42:03.6	23.00
31	13:42:11.4	22.98
32	13:42:19.8	22.98
33	13:42:30.0	22.97
34	13:42:40.8	22.97
35	13:42:52.8	22.96
36	13:43:06.6	22.95
37	13:43:22.2	22.94
38	13:43:39.6	22.94
39	13:43:58.8	22.93
40	13:44:21.0	22.92
41	13:44:45.6	22.92
42	13:45:13.2	22.91
43	13:45:43.8	22.90
44	13:46:18.6	22.89
45	13:46:57.6	22.88

Number of points =   100   y0 =   2.45 Feet
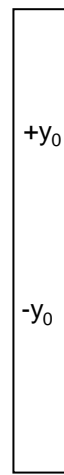
INPUT

Final pressure (water level) =   22.84 < NOTE: value is final pressure reading.

Slug Description: 22.55 < Overwrite with best guess of the initial

Type:	Bailer	
LENGTH	4	Feet
Rod Diameter	1.5	Inch

water level if the well did not fully recover

Overwrite with your data here.

dt-off =   0.5 seconds

Day	HourMinute	Second	Feet	Hr:Min:Sec	Δt seconds	y/ y0		
157	1341	1.887	24.995	13:41:02	0:00:00.5	1.000	1	
157	1341	2.107	24.199	13:41:02	0:00:00.7	0.674	0.674438	
157	1341	2.326	24.397	13:41:02	0:00:00.9	0.755	0.755419	
157	1341	2.546	24.411	13:41:03	0:00:01.2	0.761	0.761145	
157	1341	2.765	24.35	13:41:03	0:00:01.4	0.736	0.736196	$+y_0$
157	1341	3.001	24.334	13:41:03	0:00:01.6	0.730	0.729652	
157	1341	3.251	24.317	13:41:03	0:00:01.9	0.723	0.722699	
157	1341	3.501	24.281	13:41:04	0:00:02.1	0.708	0.707975	
157	1341	3.751	24.262	13:41:04	0:00:02.4	0.700	0.700204	
157	1341	4.001	24.246	13:41:04	0:00:02.6	0.694	0.693661	$-y_0$
157	1341	4.251	24.179	13:41:04	0:00:02.9	0.666	0.666258	
157	1341	4.501	24.173	13:41:05	0:00:03.1	0.664	0.663804	
157	1341	4.751	24.19	13:41:05	0:00:03.4	0.671	0.670757	
157	1341	5.001	24.11	13:41:05	0:00:03.6	0.638	0.638037	
157	1341	5.251	24.101	13:41:05	0:00:03.9	0.634	0.634356	
157	1341	5.501	24.075	13:41:06	0:00:04.1	0.624	0.623722	
157	1341	5.751	24.052	13:41:06	0:00:04.4	0.614	0.614315	
157	1341	6.001	24.014	13:41:06	0:00:04.6	0.599	0.598773	
157	1341	6.36	23.981	13:41:06	0:00:05.0	0.585	0.585276	
157	1341	6.721	23.939	13:41:07	0:00:05.3	0.568	0.568098	
157	1341	7.141	23.924	13:41:07	0:00:05.8	0.562	0.561963	
157	1341	7.561	23.888	13:41:08	0:00:06.2	0.547	0.547239	
157	1341	7.981	23.944	13:41:08	0:00:06.6	0.570	0.570143	
157	1341	8.461	23.836	13:41:08	0:00:07.1	0.526	0.525971	
157	1341	9	23.803	13:41:09	0:00:07.6	0.512	0.512474	
157	1341	9.481	23.759	13:41:09	0:00:08.1	0.494	0.494479	

157	1341	10.08	23.711	13:41:10	0:00:08.7	0.475	0.474847
157	1341	10.681	23.665	13:41:11	0:00:09.3	0.456	0.456033
157	1341	11.28	23.618	13:41:11	0:00:09.9	0.437	0.43681
157	1341	11.94	23.562	13:41:12	0:00:10.6	0.414	0.413906
157	1341	12.66	23.516	13:41:13	0:00:11.3	0.395	0.395092
157	1341	13.441	23.466	13:41:13	0:00:12.1	0.375	0.374642
157	1341	14.221	23.414	13:41:14	0:00:12.8	0.353	0.353374
157	1341	15.061	23.37	13:41:15	0:00:13.7	0.335	0.335378
157	1341	15.961	23.335	13:41:16	0:00:14.6	0.321	0.321063
157	1341	16.92	23.295	13:41:17	0:00:15.5	0.305	0.304703
157	1341	17.88	23.253	13:41:18	0:00:16.5	0.288	0.287526
157	1341	18.96	23.224	13:41:19	0:00:17.6	0.276	0.275665
157	1341	20.1	23.188	13:41:20	0:00:18.7	0.261	0.260941
157	1341	21.3	23.163	13:41:21	0:00:19.9	0.251	0.250716
157	1341	22.56	23.138	13:41:23	0:00:21.2	0.240	0.240491
157	1341	23.88	23.12	13:41:24	0:00:22.5	0.233	0.233129
157	1341	25.321	23.105	13:41:25	0:00:23.9	0.227	0.226994
157	1341	26.821	23.096	13:41:27	0:00:25.4	0.223	0.223313
157	1341	28.38	23.082	13:41:28	0:00:27.0	0.218	0.217587
157	1341	30.06	23.077	13:41:30	0:00:28.7	0.216	0.215542
157	1341	31.86	23.059	13:41:32	0:00:30.5	0.208	0.20818
157	1341	33.72	23.053	13:41:34	0:00:32.3	0.206	0.205726
157	1341	35.761	23.048	13:41:36	0:00:34.4	0.204	0.203681
157	1341	37.86	23.04	13:41:38	0:00:36.5	0.200	0.200409
157	1341	40.08	23.033	13:41:40	0:00:38.7	0.198	0.197546
157	1341	42.48	23.028	13:41:42	0:00:41.1	0.196	0.195501
157	1341	45	23.022	13:41:45	0:00:43.6	0.193	0.193047
157	1341	47.64	23.018	13:41:48	0:00:46.3	0.191	0.191411
157	1341	50.46	23.014	13:41:50	0:00:49.1	0.190	0.189775
157	1341	53.46	23.009	13:41:53	0:00:52.1	0.188	0.18773
157	1341	56.64	23.01	13:41:57	0:00:55.3	0.188	0.188139
157	1341	60	22.997	13:42:00	0:00:58.6	0.183	0.182822
157	1341	63.6	22.997	13:42:04	0:01:02.2	0.183	0.182822
157	1341	67.2	22.992	13:42:07	0:01:05.8	0.181	0.180777
157	1341	71.4	22.983	13:42:11	0:01:10.0	0.177	0.177096
157	1341	75.6	22.985	13:42:16	0:01:14.2	0.178	0.177914
157	1341	79.8	22.98	13:42:20	0:01:18.4	0.176	0.175869

157	1341	84.6	22.976	13:42:25	0:01:23.2	0.174	0.174233
157	1341	90	22.974	13:42:30	0:01:28.6	0.173	0.173415
157	1341	94.8	22.969	13:42:35	0:01:33.4	0.171	0.17137
157	1341	100.8	22.966	13:42:41	0:01:39.4	0.170	0.170143
157	1341	106.8	22.963	13:42:47	0:01:45.4	0.169	0.168916
157	1341	112.8	22.96	13:42:53	0:01:51.4	0.168	0.167689
157	1341	119.4	22.956	13:42:59	0:01:58.0	0.166	0.166053
157	1341	126.6	22.949	13:43:07	0:02:05.2	0.163	0.16319
157	1341	134.447	22.948	13:43:14	0:02:13.1	0.163	0.162781
157	1341	142.2	22.94	13:43:22	0:02:20.8	0.160	0.159509
157	1341	150.6	22.937	13:43:31	0:02:29.2	0.158	0.158282
157	1341	159.6	22.938	13:43:40	0:02:38.2	0.159	0.158691
157	1341	169.489	22.935	13:43:49	0:02:48.1	0.157	0.157464
157	1341	178.8	22.933	13:43:59	0:02:57.4	0.157	0.156646
157	1341	189.6	22.925	13:44:10	0:03:08.2	0.153	0.153374
157	1341	201	22.921	13:44:21	0:03:19.6	0.152	0.151738
157	1341	213	22.914	13:44:33	0:03:31.6	0.149	0.148875
157	1341	225.6	22.915	13:44:46	0:03:44.2	0.149	0.149284
157	1341	238.8	22.908	13:44:59	0:03:57.4	0.146	0.146421
157	1341	253.2	22.908	13:45:13	0:04:11.8	0.146	0.146421
157	1341	268.2	22.902	13:45:28	0:04:26.8	0.144	0.143967
157	1341	283.8	22.898	13:45:44	0:04:42.4	0.142	0.142331
157	1341	300.6	22.895	13:46:01	0:04:59.2	0.141	0.141104
157	1341	318.6	22.89	13:46:19	0:05:17.2	0.139	0.139059
157	1341	337.2	22.886	13:46:37	0:05:35.8	0.137	0.137423
157	1341	357.6	22.879	13:46:58	0:05:56.2	0.135	0.13456
157	1341	378.6	22.875	13:47:19	0:06:17.2	0.133	0.132924
157	1341	400.8	22.873	13:47:41	0:06:39.4	0.132	0.132106
157	1341	424.866	22.869	13:48:05	0:07:03.5	0.130	0.13047
157	1341	450	22.862	13:48:30	0:07:28.6	0.128	0.127607
157	1341	476.4	22.86	13:48:56	0:07:55.0	0.127	0.126789
157	1341	504.6	22.855	13:49:25	0:08:23.2	0.125	0.124744
157	1341	534.6	22.856	13:49:55	0:08:53.2	0.125	0.125153
157	1341	566.4	22.85	13:50:26	0:09:25.0	0.123	0.122699
157	1341	600	22.843	13:51:00	0:09:58.6	0.120	0.119836
157	1341	636.06	22.843	13:51:36	0:10:34.7	0.120	0.119836
157	1341	672	22.836	13:52:12	0:11:10.6	0.117	0.116973

WELL ID: NMW-6 Rising Head 2

Local ID: QuikTrip 703R

Date: 6/6/2018

Time: 14:11

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	6	Inch
Screen Length (L)	20	Feet

Depths to:

water level (DTW)	22.54	Feet
top of screen (TOS)	13	Feet
Base of Aquifer (DTB)	60	Feet

Annular Fill:

across screen -- Coarse Sand

above screen -- Bentonite

Aquifer Material -- Surficial Aquifer, central Flo

COMPUTED

L_{wetted}	10.46	Feet
D =	37.46	Feet
H =	10.46	Feet
L/r_w =	41.84	
$y_{0-DISPLACEMENT}$ =	1.90	Feet
y_{0-SLUG} =	2.25	Feet

From look-up table using L/r_w

Partial penetrate A =	2.891	
B =	0.467	
ln(Re/rw) =	2.404	
Re =	2.77	Feet
Slope =	0.02866	$\log_{10}$/sec
$t_{90\%}$ recovery =	35	sec

Input is consistent.

K =	4.5 Feet/Day

Adjust slope of line to estimate K

y/y₀ vs TIME, Minute:Second

REMARKS: Bouwer and Rice analysis of slug test, WRR 1976
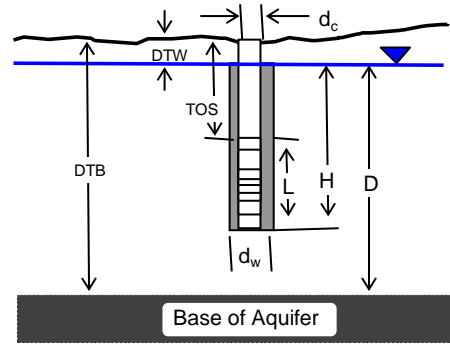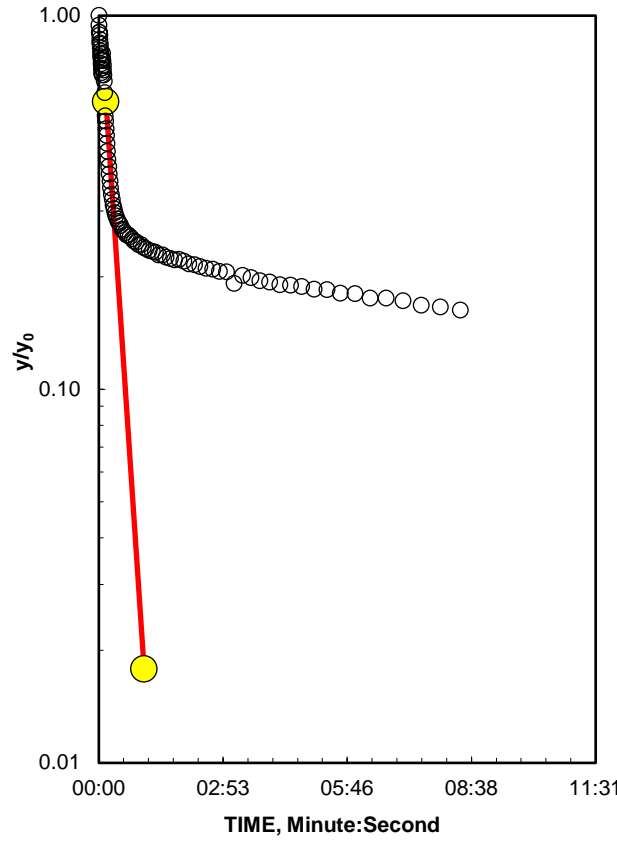
Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	14:11:01.6	24.44
2	14:11:02.1	24.25
3	14:11:02.5	24.23
4	14:11:03.1	24.15
5	14:11:03.5	24.10
6	14:11:04.0	24.04
7	14:11:04.5	23.99
8	14:11:05.0	23.91
9	14:11:05.5	23.88
10	14:11:06.0	23.98
11	14:11:06.7	24.00
12	14:11:07.6	23.94
13	14:11:08.5	23.86
14	14:11:09.5	23.72
15	14:11:10.7	23.53
16	14:11:11.9	23.45
17	14:11:13.4	23.36
18	14:11:15.1	23.29
19	14:11:16.9	23.22
20	14:11:19.0	23.17
21	14:11:21.3	23.13
22	14:11:23.9	23.10
23	14:11:26.8	23.08
24	14:11:30.1	23.07
25	14:11:33.7	23.05
26	14:11:37.9	23.04
27	14:11:42.5	23.03
28	14:11:47.6	23.02
29	14:11:53.5	23.01
30	14:12:00.0	23.00
31	14:12:07.2	22.99
32	14:12:15.6	22.98
33	14:12:24.6	22.97
34	14:12:34.8	22.97
35	14:12:46.8	22.96
36	14:12:59.4	22.96
37	14:13:14.4	22.95
38	14:13:30.6	22.94
39	14:13:49.2	22.93
40	14:14:09.6	22.90
41	14:14:33.0	22.92
42	14:14:58.8	22.91
43	14:15:28.2	22.90
44	14:16:00.6	22.89
45	14:16:37.2	22.88

Number of points =   96   y0 =   1.90 Feet

INPUT

Final pressure (water level) =   22.85 < NOTE: value is final pressure reading.

Slug Description: 22.54 < Overwrite with best guess of the initial

Type:	**Bailer**		
LENGTH	**4**	**Feet**	
Rod Diameter	**1.5**	**Inch**	

water level if the well did not fully recover

Overwrite with your data here.

dt-off =   0.5 seconds

Day	HourMinute	Second	Feet	Hr:Min:Sec	Δt seconds	y/ y0	
157	1411	1.614	24.44	14:11:02	0:00:00.5	1.000	1
157	1411	1.838	24.332	14:11:02	0:00:00.7	0.943	0.943158
157	1411	2.06	24.252	14:11:02	0:00:00.9	0.901	0.901053
157	1411	2.282	24.254	14:11:02	0:00:01.2	0.902	0.902105
157	1411	2.504	24.226	14:11:03	0:00:01.4	0.887	0.887368
157	1411	2.864	24.178	14:11:03	0:00:01.8	0.862	0.862105
157	1411	3.085	24.145	14:11:03	0:00:02.0	0.845	0.844737
157	1411	3.31	24.133	14:11:03	0:00:02.2	0.838	0.838421
157	1411	3.531	24.095	14:11:04	0:00:02.4	0.818	0.818421
157	1411	3.751	24.066	14:11:04	0:00:02.6	0.803	0.803158
157	1411	4	24.038	14:11:04	0:00:02.9	0.788	0.788421
157	1411	4.25	24.013	14:11:04	0:00:03.1	0.775	0.775263
157	1411	4.5	23.986	14:11:05	0:00:03.4	0.761	0.761053
157	1411	4.75	23.949	14:11:05	0:00:03.6	0.742	0.741579
157	1411	5	23.913	14:11:05	0:00:03.9	0.723	0.722632
157	1411	5.25	23.914	14:11:05	0:00:04.1	0.723	0.723158
157	1411	5.5	23.875	14:11:05	0:00:04.4	0.703	0.702632
157	1411	5.75	23.859	14:11:06	0:00:04.6	0.694	0.694211
157	1411	6	23.982	14:11:06	0:00:04.9	0.759	0.758947
157	1411	6.36	24.046	14:11:06	0:00:05.2	0.793	0.792632
157	1411	6.72	24	14:11:07	0:00:05.6	0.768	0.768421
157	1411	7.14	23.978	14:11:07	0:00:06.0	0.757	0.756842
157	1411	7.56	23.938	14:11:08	0:00:06.4	0.736	0.735789
157	1411	7.98	23.898	14:11:08	0:00:06.9	0.715	0.714737
157	1411	8.461	23.857	14:11:08	0:00:07.3	0.693	0.693158
157	1411	9	23.809	14:11:09	0:00:07.9	0.668	0.667895

$+y_0$

$-y_0$
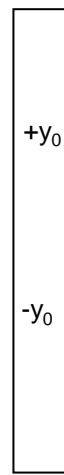
157	1411	9.48	23.72	14:11:09	0:00:08.4	0.621	0.621053
157	1411	10.08	23.565	14:11:10	0:00:09.0	0.539	0.539474
157	1411	10.68	23.532	14:11:11	0:00:09.6	0.522	0.522105
157	1411	11.28	23.485	14:11:11	0:00:10.2	0.497	0.497368
157	1411	11.94	23.447	14:11:12	0:00:10.8	0.477	0.477368
157	1411	12.66	23.404	14:11:13	0:00:11.5	0.455	0.454737
157	1411	13.44	23.363	14:11:13	0:00:12.3	0.433	0.433158
157	1411	14.22	23.323	14:11:14	0:00:13.1	0.412	0.412105
157	1411	15.06	23.29	14:11:15	0:00:13.9	0.395	0.394737
157	1411	15.96	23.256	14:11:16	0:00:14.8	0.377	0.376842
157	1411	16.92	23.224	14:11:17	0:00:15.8	0.360	0.36
157	1411	17.88	23.196	14:11:18	0:00:16.8	0.345	0.345263
157	1411	18.96	23.17	14:11:19	0:00:17.8	0.332	0.331579
157	1411	20.1	23.151	14:11:20	0:00:19.0	0.322	0.321579
157	1411	21.3	23.13	14:11:21	0:00:20.2	0.311	0.310526
157	1411	22.56	23.117	14:11:23	0:00:21.4	0.304	0.303684
157	1411	23.88	23.103	14:11:24	0:00:22.8	0.296	0.296316
157	1411	25.32	23.092	14:11:25	0:00:24.2	0.291	0.290526
157	1411	26.82	23.082	14:11:27	0:00:25.7	0.285	0.285263
157	1411	28.38	23.073	14:11:28	0:00:27.3	0.281	0.280526
157	1411	30.06	23.068	14:11:30	0:00:28.9	0.278	0.277895
157	1411	31.86	23.06	14:11:32	0:00:30.7	0.274	0.273684
157	1411	33.72	23.049	14:11:34	0:00:32.6	0.268	0.267895
157	1411	35.76	23.045	14:11:36	0:00:34.6	0.266	0.265789
157	1411	37.86	23.038	14:11:38	0:00:36.7	0.262	0.262105
157	1411	40.08	23.032	14:11:40	0:00:39.0	0.259	0.258947
157	1411	42.48	23.032	14:11:42	0:00:41.4	0.259	0.258947
157	1411	45	23.026	14:11:45	0:00:43.9	0.256	0.255789
157	1411	47.64	23.02	14:11:48	0:00:46.5	0.253	0.252632
157	1411	50.46	23.013	14:11:50	0:00:49.3	0.249	0.248947
157	1411	53.46	23.01	14:11:53	0:00:52.3	0.247	0.247368
157	1411	56.64	23.003	14:11:57	0:00:55.5	0.244	0.243684
157	1411	60	23.003	14:12:00	0:00:58.9	0.244	0.243684
157	1411	63.6	22.995	14:12:04	0:01:02.5	0.239	0.239474
157	1411	67.2	22.991	14:12:07	0:01:06.1	0.237	0.237368
157	1411	71.4	22.987	14:12:11	0:01:10.3	0.235	0.235263
157	1411	75.6	22.984	14:12:16	0:01:14.5	0.234	0.233684

157	1411	79.8	22.981	14:12:20	0:01:18.7	0.232	0.232105
157	1411	84.6	22.974	14:12:25	0:01:23.5	0.228	0.228421
157	1411	90	22.974	14:12:30	0:01:28.9	0.228	0.228421
157	1411	94.8	22.968	14:12:35	0:01:33.7	0.225	0.225263
157	1411	100.8	22.965	14:12:41	0:01:39.7	0.224	0.223684
157	1411	106.8	22.961	14:12:47	0:01:45.7	0.222	0.221579
157	1411	112.8	22.963	14:12:53	0:01:51.7	0.223	0.222632
157	1411	119.4	22.958	14:12:59	0:01:58.3	0.220	0.22
157	1411	126.6	22.951	14:13:07	0:02:05.5	0.216	0.216316
157	1411	134.4	22.949	14:13:14	0:02:13.3	0.215	0.215263
157	1411	142.2	22.944	14:13:22	0:02:21.1	0.213	0.212632
157	1411	150.6	22.94	14:13:31	0:02:29.5	0.211	0.210526
157	1411	159.6	22.938	14:13:40	0:02:38.5	0.209	0.209474
157	1411	169.2	22.933	14:13:49	0:02:48.1	0.207	0.206842
157	1411	178.8	22.931	14:13:59	0:02:57.7	0.206	0.205789
157	1411	189.6	22.904	14:14:10	0:03:08.5	0.192	0.191579
157	1411	201	22.923	14:14:21	0:03:19.9	0.202	0.201579
157	1411	213	22.918	14:14:33	0:03:31.9	0.199	0.198947
157	1411	225.6	22.911	14:14:46	0:03:44.5	0.195	0.195263
157	1411	238.8	22.908	14:14:59	0:03:57.7	0.194	0.193684
157	1411	253.2	22.902	14:15:13	0:04:12.1	0.191	0.190526
157	1411	268.2	22.901	14:15:28	0:04:27.1	0.190	0.19
157	1411	283.8	22.898	14:15:44	0:04:42.7	0.188	0.188421
157	1411	300.6	22.892	14:16:01	0:04:59.5	0.185	0.185263
157	1411	318.608	22.891	14:16:19	0:05:17.5	0.185	0.184737
157	1411	337.2	22.883	14:16:37	0:05:36.1	0.181	0.180526
157	1411	357.6	22.882	14:16:58	0:05:56.5	0.180	0.18
157	1411	378.6	22.873	14:17:19	0:06:17.5	0.175	0.175263
157	1411	400.8	22.873	14:17:41	0:06:39.7	0.175	0.175263
157	1411	424.8	22.868	14:18:05	0:07:03.7	0.173	0.172632
157	1411	450	22.859	14:18:30	0:07:28.9	0.168	0.167895
157	1411	476.4	22.855	14:18:56	0:07:55.3	0.166	0.165789
157	1411	504.6	22.849	14:19:25	0:08:23.5	0.163	0.162632

WELL ID: NMW-7 Rising Head 1

Local ID: QuikTrip 703R

Date:	6/6/2018	
Time:	12:31	

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	6	Inch
Screen Length (L)	20	Feet

Depths to:

water level (DTW)	19.78	Feet
top of screen (TOS)	14.5	Feet
Base of Aquifer (DTB)	60	Feet

Annular Fill:

across screen --	Coarse Sand
above screen --	Bentonite

Aquifer Material -- Surficial Aquifer, central Flo

COMPUTED

L_{wetted}	14.72	Feet
D =	40.22	Feet
H =	14.72	Feet
L/r_w =	58.88	
$y_{0\text{-DISPLACEMENT}}$ =	0.66	Feet
$y_{0\text{-SLUG}}$ =	2.25	Feet

From look-up table using L/r_w

Partial penetrate A =	3.383	
B =	0.547	
ln(Re/rw) =	2.701	
Re =	3.72	Feet
Slope =	0.006147	$\log_{10}$/sec
$t_{90\%}$ recovery =	163	sec

Slug discrepancy of 109% is greater than maximum of 20%

K =	Error	Feet/Day

Adjust slope of line to estimate K

y/y₀ vs TIME, Minute:Second

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976
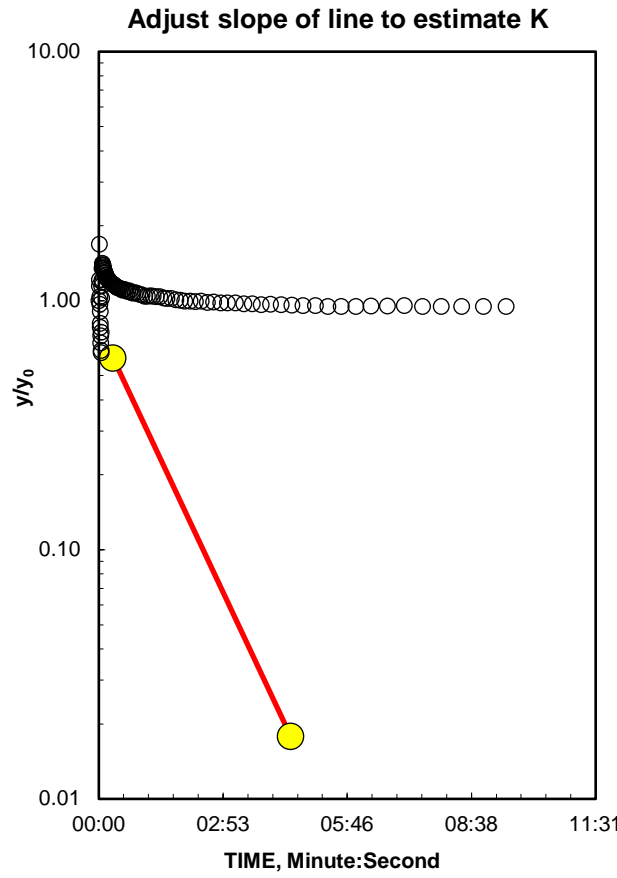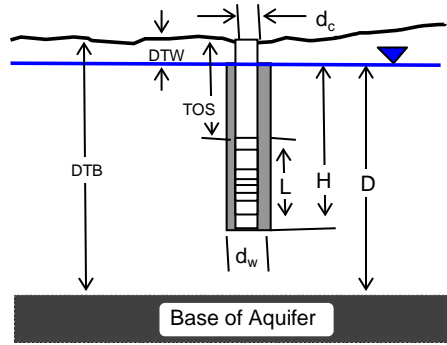
Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	12:31:00.0	20.44
2	12:31:00.6	20.58
3	12:31:01.0	20.46
4	12:31:01.5	20.38
5	12:31:02.0	20.30
6	12:31:02.5	20.23
7	12:31:03.0	20.19
8	12:31:03.5	20.46
9	12:31:04.0	20.56
10	12:31:04.5	20.67
11	12:31:05.0	20.70
12	12:31:05.5	20.69
13	12:31:06.0	20.67
14	12:31:06.7	20.65
15	12:31:07.6	20.64
16	12:31:08.5	20.63
17	12:31:09.5	20.62
18	12:31:10.7	20.60
19	12:31:11.9	20.59
20	12:31:13.4	20.58
21	12:31:15.1	20.57
22	12:31:16.9	20.56
23	12:31:19.0	20.55
24	12:31:21.3	20.54
25	12:31:23.9	20.53
26	12:31:26.8	20.52
27	12:31:30.1	20.52
28	12:31:33.7	20.51
29	12:31:37.9	20.50
30	12:31:42.5	20.50
31	12:31:47.6	20.49
32	12:31:53.5	20.48
33	12:32:00.0	20.48
34	12:32:07.2	20.47
35	12:32:15.6	20.47
36	12:32:24.6	20.46
37	12:32:34.8	20.45
38	12:32:46.8	20.45
39	12:32:59.4	20.44
40	12:33:14.4	20.43
41	12:33:30.6	20.43
42	12:33:49.2	20.43
43	12:34:09.6	20.43
44	12:34:33.0	20.42
45	12:34:58.8	20.42

Number of points =   104   y0 =   0.66 Feet

INPUT

Final pressure (water level) =   20.19 < NOTE: value is final pressure reading.

Slug Description: 19.78 < Overwrite with best guess of the initial

Type:	Bailer		
LENGTH	4	Feet	
Rod Diameter	1.5	Inch	

water level if the well did not fully recover

Overwrite with your data here.

dt-off =   0.5 seconds

Day	HourMinute	Second	Feet	Hr:Min:Sec	Δt seconds	y/ y0	
157	1231	0	20.44	12:31:00	0:00:00.5	1.000	1
157	1231	0.251	20.89	12:31:00	0:00:00.8	1.682	1.681818
157	1231	0.562	20.58	12:31:01	0:00:01.1	1.212	1.212121
157	1231	0.783	20.536	12:31:01	0:00:01.3	1.145	1.145455
157	1231	1.004	20.464	12:31:01	0:00:01.5	1.036	1.036364
157	1231	1.251	20.417	12:31:01	0:00:01.8	0.965	0.965152
157	1231	1.501	20.376	12:31:02	0:00:02.0	0.903	0.90303
157	1231	1.751	20.315	12:31:02	0:00:02.3	0.811	0.810606
157	1231	2.001	20.296	12:31:02	0:00:02.5	0.782	0.781818
157	1231	2.251	20.257	12:31:02	0:00:02.8	0.723	0.722727
157	1231	2.501	20.226	12:31:03	0:00:03.0	0.676	0.675758
157	1231	2.751	20.196	12:31:03	0:00:03.3	0.630	0.630303
157	1231	3.001	20.188	12:31:03	0:00:03.5	0.618	0.618182
157	1231	3.251	20.273	12:31:03	0:00:03.8	0.747	0.74697
157	1231	3.501	20.455	12:31:04	0:00:04.0	1.023	1.022727
157	1231	3.751	20.535	12:31:04	0:00:04.3	1.144	1.143939
157	1231	4.001	20.564	12:31:04	0:00:04.5	1.188	1.187879
157	1231	4.251	20.581	12:31:04	0:00:04.8	1.214	1.213636
157	1231	4.501	20.669	12:31:05	0:00:05.0	1.347	1.34697
157	1231	4.751	20.711	12:31:05	0:00:05.3	1.411	1.410606
157	1231	5.001	20.701	12:31:05	0:00:05.5	1.395	1.395455
157	1231	5.251	20.695	12:31:05	0:00:05.8	1.386	1.386364
157	1231	5.501	20.69	12:31:06	0:00:06.0	1.379	1.378788
157	1231	5.751	20.68	12:31:06	0:00:06.3	1.364	1.363636
157	1231	6.001	20.67	12:31:06	0:00:06.5	1.348	1.348485
157	1231	6.36	20.666	12:31:06	0:00:06.9	1.342	1.342424

$+y_0$

$-y_0$

157	1231	6.72	20.654	12:31:07	0:00:07.2	1.324	1.324242
157	1231	7.14	20.648	12:31:07	0:00:07.6	1.315	1.315152
157	1231	7.561	20.639	12:31:08	0:00:08.1	1.302	1.301515
157	1231	7.98	20.632	12:31:08	0:00:08.5	1.291	1.290909
157	1231	8.46	20.629	12:31:08	0:00:09.0	1.286	1.286364
157	1231	9.001	20.615	12:31:09	0:00:09.5	1.265	1.265152
157	1231	9.481	20.615	12:31:09	0:00:10.0	1.265	1.265152
157	1231	10.081	20.611	12:31:10	0:00:10.6	1.259	1.259091
157	1231	10.681	20.599	12:31:11	0:00:11.2	1.241	1.240909
157	1231	11.281	20.594	12:31:11	0:00:11.8	1.233	1.233333
157	1231	11.94	20.586	12:31:12	0:00:12.4	1.221	1.221212
157	1231	12.66	20.581	12:31:13	0:00:13.2	1.214	1.213636
157	1231	13.44	20.578	12:31:13	0:00:13.9	1.209	1.209091
157	1231	14.22	20.571	12:31:14	0:00:14.7	1.198	1.198485
157	1231	15.06	20.565	12:31:15	0:00:15.6	1.189	1.189394
157	1231	15.96	20.559	12:31:16	0:00:16.5	1.180	1.180303
157	1231	16.92	20.56	12:31:17	0:00:17.4	1.182	1.181818
157	1231	17.88	20.552	12:31:18	0:00:18.4	1.170	1.169697
157	1231	18.96	20.547	12:31:19	0:00:19.5	1.162	1.162121
157	1231	20.101	20.545	12:31:20	0:00:20.6	1.159	1.159091
157	1231	21.301	20.54	12:31:21	0:00:21.8	1.152	1.151515
157	1231	22.561	20.534	12:31:23	0:00:23.1	1.142	1.142424
157	1231	23.88	20.53	12:31:24	0:00:24.4	1.136	1.136364
157	1231	25.32	20.526	12:31:25	0:00:25.8	1.130	1.130303
157	1231	26.82	20.523	12:31:27	0:00:27.3	1.126	1.125758
157	1231	28.38	20.519	12:31:28	0:00:28.9	1.120	1.119697
157	1231	30.061	20.517	12:31:30	0:00:30.6	1.117	1.116667
157	1231	31.86	20.507	12:31:32	0:00:32.4	1.102	1.101515
157	1231	33.72	20.51	12:31:34	0:00:34.2	1.106	1.106061
157	1231	35.76	20.51	12:31:36	0:00:36.3	1.106	1.106061
157	1231	37.86	20.5	12:31:38	0:00:38.4	1.091	1.090909
157	1231	40.08	20.497	12:31:40	0:00:40.6	1.086	1.086364
157	1231	42.481	20.5	12:31:42	0:00:43.0	1.091	1.090909
157	1231	45.004	20.491	12:31:45	0:00:45.5	1.077	1.077273
157	1231	47.64	20.488	12:31:48	0:00:48.1	1.073	1.072727
157	1231	50.46	20.49	12:31:50	0:00:51.0	1.076	1.075758
157	1231	53.46	20.484	12:31:53	0:00:54.0	1.067	1.066667

157	1231	56.64	20.479	12:31:57	0:00:57.1	1.059	1.059091
157	1231	60	20.476	12:32:00	0:01:00.5	1.055	1.054545
157	1231	63.6	20.468	12:32:04	0:01:04.1	1.042	1.042424
157	1231	67.2	20.468	12:32:07	0:01:07.7	1.042	1.042424
157	1231	71.4	20.47	12:32:11	0:01:11.9	1.045	1.045455
157	1231	75.6	20.466	12:32:16	0:01:16.1	1.039	1.039394
157	1231	79.8	20.463	12:32:20	0:01:20.3	1.035	1.034848
157	1231	84.6	20.463	12:32:25	0:01:25.1	1.035	1.034848
157	1231	90	20.456	12:32:30	0:01:30.5	1.024	1.024242
157	1231	94.8	20.453	12:32:35	0:01:35.3	1.020	1.019697
157	1231	100.8	20.453	12:32:41	0:01:41.3	1.020	1.019697
157	1231	106.8	20.445	12:32:47	0:01:47.3	1.008	1.007576
157	1231	112.8	20.443	12:32:53	0:01:53.3	1.005	1.004545
157	1231	119.4	20.436	12:32:59	0:01:59.9	0.994	0.993939
157	1231	126.6	20.437	12:33:07	0:02:07.1	0.995	0.995455
157	1231	134.4	20.434	12:33:14	0:02:14.9	0.991	0.990909
157	1231	142.2	20.435	12:33:22	0:02:22.7	0.992	0.992424
157	1231	150.6	20.427	12:33:31	0:02:31.1	0.980	0.980303
157	1231	159.6	20.43	12:33:40	0:02:40.1	0.985	0.984848
157	1231	169.2	20.425	12:33:49	0:02:49.7	0.977	0.977273
157	1231	178.8	20.426	12:33:59	0:02:59.3	0.979	0.978788
157	1231	189.6	20.425	12:34:10	0:03:10.1	0.977	0.977273
157	1231	201.304	20.421	12:34:21	0:03:21.8	0.971	0.971212
157	1231	213	20.421	12:34:33	0:03:33.5	0.971	0.971212
157	1231	225.946	20.416	12:34:46	0:03:46.4	0.964	0.963636
157	1231	238.8	20.418	12:34:59	0:03:59.3	0.967	0.966667
157	1231	253.2	20.414	12:35:13	0:04:13.7	0.961	0.960606
157	1231	268.2	20.413	12:35:28	0:04:28.7	0.959	0.959091
157	1231	283.8	20.41	12:35:44	0:04:44.3	0.955	0.954545
157	1231	301.032	20.409	12:36:01	0:05:01.5	0.953	0.95303
157	1231	318.6	20.404	12:36:19	0:05:19.1	0.945	0.945455
157	1231	337.2	20.406	12:36:37	0:05:37.7	0.948	0.948485
157	1231	357.6	20.406	12:36:58	0:05:58.1	0.948	0.948485
157	1231	378.6	20.407	12:37:19	0:06:19.1	0.950	0.95
157	1231	401.186	20.407	12:37:41	0:06:41.7	0.950	0.95
157	1231	424.8	20.409	12:38:05	0:07:05.3	0.953	0.95303
157	1231	450	20.404	12:38:30	0:07:30.5	0.945	0.945455

157	1231	476.4	20.406	12:38:56	0:07:56.9	0.948	0.948485
157	1231	504.6	20.404	12:39:25	0:08:25.1	0.945	0.945455
157	1231	534.6	20.404	12:39:55	0:08:55.1	0.945	0.945455
157	1231	566.4	20.404	12:40:26	0:09:26.9	0.945	0.945455

WELL ID: NMW-7 Rising Head 2

Local ID: QuikTrip 703R

Date:	6/6/2018		
Time:	12:53		

INPUT

Construction:

Casing dia. (d_c)	2 Inch
Annulus dia. (d_w)	6 Inch
Screen Length (L)	20 Feet

Depths to:

water level (DTW)	19.7 Feet
top of screen (TOS)	14.5 Feet
Base of Aquifer (DTB)	60 Feet

Annular Fill:

across screen --	Coarse Sand
above screen --	Bentonite

Aquifer Material -- Surficial Aquifer, central Flo

COMPUTED

L_{wetted}	14.8 Feet
D =	40.3 Feet
H =	14.8 Feet
L/r_w =	59.20
$y_{0-DISPLACEMENT}$ =	1.85 Feet
y_{0-SLUG} =	2.25 Feet

From look-up table using L/r_w

Partial penetrate A =	3.392
B =	0.548
$\ln(Re/rw)$ =	2.705
Re =	3.74 Feet
Slope =	0.041837 $\log_{10}$/sec
$t_{90\%}$ recovery =	24 sec

Input is consistent.

K =	5.3 Feet/Day

Adjust slope of line to estimate K

TIME, Minute:Second

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976
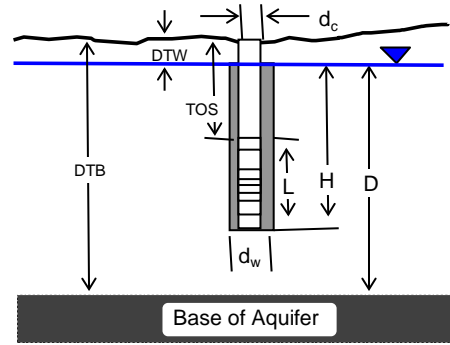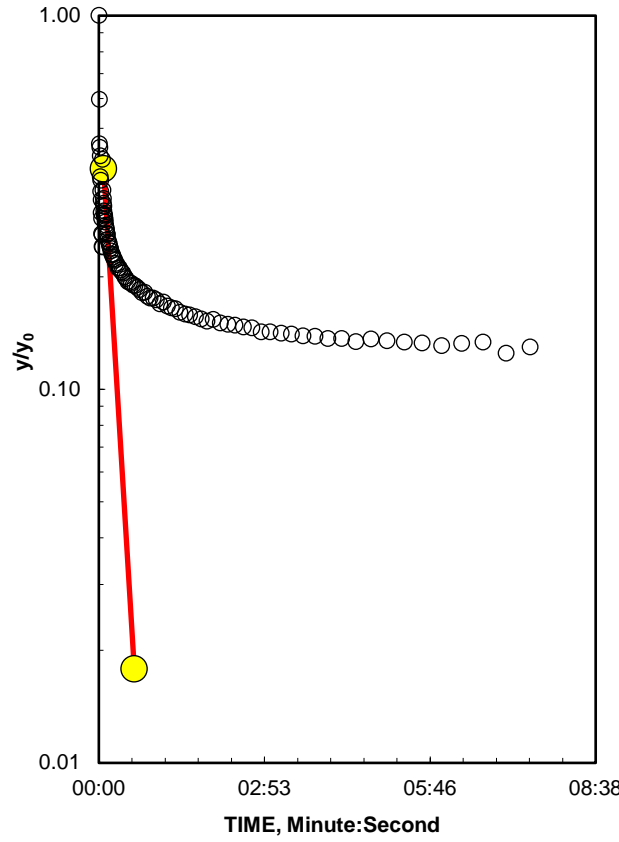
Entry	Time, Hr:Min:Sec	Water Level
1	12:53:00.2	21.55
2	12:53:00.8	20.54
3	12:53:01.2	20.48
4	12:53:01.7	20.37
5	12:53:02.2	20.29
6	12:53:02.7	20.23
7	12:53:03.3	20.18
8	12:53:03.7	20.14
9	12:53:04.2	20.33
10	12:53:04.7	20.28
11	12:53:05.3	20.26
12	12:53:05.8	20.24
13	12:53:06.4	20.23
14	12:53:07.1	20.21
15	12:53:08.0	20.19
16	12:53:09.0	20.18
17	12:53:10.1	20.16
18	12:53:11.3	20.15
19	12:53:12.7	20.13
20	12:53:14.2	20.12
21	12:53:16.0	20.11
22	12:53:17.9	20.10
23	12:53:20.1	20.09
24	12:53:22.6	20.09
25	12:53:25.3	20.08
26	12:53:28.4	20.07
27	12:53:31.9	20.06
28	12:53:35.8	20.05
29	12:53:40.1	20.05
30	12:53:45.0	20.04
31	12:53:50.5	20.03
32	12:53:56.6	20.02
33	12:54:03.6	20.01
34	12:54:11.4	20.01
35	12:54:19.8	20.00
36	12:54:30.0	19.99
37	12:54:40.8	19.99
38	12:54:52.8	19.98
39	12:55:06.6	19.98
40	12:55:22.2	19.97
41	12:55:39.6	19.97
42	12:55:58.8	19.96
43	12:56:21.0	19.96
44	12:56:45.6	19.96
45	12:57:13.2	19.95

Number of points =   99   y0 =   1.85 Feet

INPUT

Final pressure (water level) =   19.93 < NOTE: value is final pressure reading.

Slug Description: 19.70 < Overwrite with best guess of the initial

Type:	Bailer	
LENGTH	4	Feet
Rod Diameter	1.5	Inch

water level if the well did not fully recover

Overwrite with your data here.

dt-off =   0.5 seconds

Day	HourMinute	Second	Feet	Hr:Min:Sec	Δt seconds	y/ y0		
157	1253	0.25	21.55	12:53:00	0:00:00.5	1.000	1	
157	1253	0.5	20.802	12:53:00	0:00:00.7	0.596	0.595676	
157	1253	0.75	20.54	12:53:01	0:00:01.0	0.454	0.454054	
157	1253	1	20.521	12:53:01	0:00:01.3	0.444	0.443784	
157	1253	1.25	20.48	12:53:01	0:00:01.5	0.422	0.421622	$+y_0$
157	1253	1.5	20.385	12:53:01	0:00:01.7	0.370	0.37027	
157	1253	1.75	20.371	12:53:02	0:00:02.0	0.363	0.362703	
157	1253	2	20.325	12:53:02	0:00:02.3	0.338	0.337838	
157	1253	2.25	20.294	12:53:02	0:00:02.5	0.321	0.321081	
157	1253	2.5	20.249	12:53:02	0:00:02.8	0.297	0.296757	$-y_0$
157	1253	2.75	20.229	12:53:03	0:00:03.0	0.286	0.285946	
157	1253	3	20.183	12:53:03	0:00:03.2	0.261	0.261081	
157	1253	3.25	20.18	12:53:03	0:00:03.5	0.259	0.259459	
157	1253	3.5	20.145	12:53:03	0:00:03.8	0.241	0.240541	
157	1253	3.75	20.144	12:53:04	0:00:04.0	0.240	0.24	
157	1253	4	20.462	12:53:04	0:00:04.2	0.412	0.411892	
157	1253	4.25	20.331	12:53:04	0:00:04.5	0.341	0.341081	
157	1253	4.5	20.299	12:53:05	0:00:04.8	0.324	0.323784	
157	1253	4.75	20.281	12:53:05	0:00:05.0	0.314	0.314054	
157	1253	5	20.271	12:53:05	0:00:05.3	0.309	0.308649	
157	1253	5.251	20.255	12:53:05	0:00:05.5	0.300	0.3	
157	1253	5.501	20.244	12:53:06	0:00:05.8	0.294	0.294054	
157	1253	5.751	20.241	12:53:06	0:00:06.0	0.292	0.292432	
157	1253	6.001	20.237	12:53:06	0:00:06.3	0.290	0.29027	
157	1253	6.361	20.226	12:53:06	0:00:06.6	0.284	0.284324	
157	1253	6.721	20.218	12:53:07	0:00:07.0	0.280	0.28	
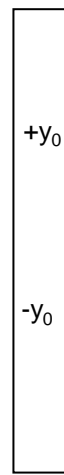
157	1253	7.141	20.208	12:53:07	0:00:07.4	0.275	0.274595
157	1253	7.561	20.201	12:53:08	0:00:07.8	0.271	0.270811
157	1253	7.98	20.194	12:53:08	0:00:08.2	0.267	0.267027
157	1253	8.461	20.182	12:53:08	0:00:08.7	0.261	0.260541
157	1253	9	20.18	12:53:09	0:00:09.2	0.259	0.259459
157	1253	9.48	20.165	12:53:09	0:00:09.7	0.251	0.251351
157	1253	10.08	20.158	12:53:10	0:00:10.3	0.248	0.247568
157	1253	10.68	20.154	12:53:11	0:00:10.9	0.245	0.245405
157	1253	11.28	20.147	12:53:11	0:00:11.5	0.242	0.241622
157	1253	11.94	20.141	12:53:12	0:00:12.2	0.238	0.238378
157	1253	12.66	20.134	12:53:13	0:00:12.9	0.235	0.234595
157	1253	13.44	20.125	12:53:13	0:00:13.7	0.230	0.22973
157	1253	14.22	20.123	12:53:14	0:00:14.5	0.229	0.228649
157	1253	15.061	20.117	12:53:15	0:00:15.3	0.225	0.225405
157	1253	15.96	20.113	12:53:16	0:00:16.2	0.223	0.223243
157	1253	16.92	20.109	12:53:17	0:00:17.2	0.221	0.221081
157	1253	17.88	20.101	12:53:18	0:00:18.1	0.217	0.216757
157	1253	18.96	20.098	12:53:19	0:00:19.2	0.215	0.215135
157	1253	20.1	20.09	12:53:20	0:00:20.4	0.211	0.210811
157	1253	21.301	20.091	12:53:21	0:00:21.6	0.211	0.211351
157	1253	22.56	20.085	12:53:23	0:00:22.8	0.208	0.208108
157	1253	23.88	20.081	12:53:24	0:00:24.1	0.206	0.205946
157	1253	25.321	20.078	12:53:25	0:00:25.6	0.204	0.204324
157	1253	26.821	20.07	12:53:27	0:00:27.1	0.200	0.2
157	1253	28.38	20.066	12:53:28	0:00:28.6	0.198	0.197838
157	1253	30.061	20.059	12:53:30	0:00:30.3	0.194	0.194054
157	1253	31.86	20.057	12:53:32	0:00:32.1	0.193	0.192973
157	1253	33.72	20.055	12:53:34	0:00:34.0	0.192	0.191892
157	1253	35.76	20.051	12:53:36	0:00:36.0	0.190	0.18973
157	1253	37.86	20.05	12:53:38	0:00:38.1	0.189	0.189189
157	1253	40.08	20.046	12:53:40	0:00:40.3	0.187	0.187027
157	1253	42.48	20.042	12:53:42	0:00:42.7	0.185	0.184865
157	1253	45	20.035	12:53:45	0:00:45.2	0.181	0.181081
157	1253	47.64	20.036	12:53:48	0:00:47.9	0.182	0.181622
157	1253	50.46	20.028	12:53:50	0:00:50.7	0.177	0.177297
157	1253	53.46	20.024	12:53:53	0:00:53.7	0.175	0.175135
157	1253	56.64	20.024	12:53:57	0:00:56.9	0.175	0.175135

157	1253	60	20.021	12:54:00	0:01:00.2	0.174	0.173514
157	1253	63.6	20.013	12:54:04	0:01:03.9	0.169	0.169189
157	1253	67.2	20.016	12:54:07	0:01:07.5	0.171	0.170811
157	1253	71.4	20.009	12:54:11	0:01:11.7	0.167	0.167027
157	1253	75.6	20.005	12:54:16	0:01:15.9	0.165	0.164865
157	1253	79.8	20.004	12:54:20	0:01:20.1	0.164	0.164324
157	1253	84.6	19.997	12:54:25	0:01:24.9	0.161	0.160541
157	1253	90	19.994	12:54:30	0:01:30.3	0.159	0.158919
157	1253	94.8	19.992	12:54:35	0:01:35.1	0.158	0.157838
157	1253	100.8	19.989	12:54:41	0:01:41.1	0.156	0.156216
157	1253	106.8	19.985	12:54:47	0:01:47.0	0.154	0.154054
157	1253	112.8	19.981	12:54:53	0:01:53.0	0.152	0.151892
157	1253	119.4	19.984	12:54:59	0:01:59.6	0.154	0.153514
157	1253	126.6	19.978	12:55:07	0:02:06.9	0.150	0.15027
157	1253	134.4	19.976	12:55:14	0:02:14.7	0.149	0.149189
157	1253	142.2	19.974	12:55:22	0:02:22.4	0.148	0.148108
157	1253	150.6	19.971	12:55:31	0:02:30.9	0.146	0.146486
157	1253	159.6	19.97	12:55:40	0:02:39.8	0.146	0.145946
157	1253	169.2	19.963	12:55:49	0:02:49.5	0.142	0.142162
157	1253	178.8	19.963	12:55:59	0:02:59.0	0.142	0.142162
157	1253	190.208	19.961	12:56:10	0:03:10.5	0.141	0.141081
157	1253	201	19.96	12:56:21	0:03:21.3	0.141	0.140541
157	1253	213	19.957	12:56:33	0:03:33.3	0.139	0.138919
157	1253	225.6	19.956	12:56:46	0:03:45.9	0.138	0.138378
157	1253	238.8	19.953	12:56:59	0:03:59.1	0.137	0.136757
157	1253	253.2	19.953	12:57:13	0:04:13.5	0.137	0.136757
157	1253	268.2	19.948	12:57:28	0:04:28.5	0.134	0.134054
157	1253	283.8	19.952	12:57:44	0:04:44.1	0.136	0.136216
157	1253	300.6	19.949	12:58:01	0:05:00.9	0.135	0.134595
157	1253	318.6	19.947	12:58:19	0:05:18.9	0.134	0.133514
157	1253	337.2	19.946	12:58:37	0:05:37.4	0.133	0.132973
157	1253	357.6	19.942	12:58:58	0:05:57.9	0.131	0.130811
157	1253	378.6	19.945	12:59:19	0:06:18.9	0.132	0.132432
157	1253	400.8	19.947	12:59:41	0:06:41.0	0.134	0.133514
157	1253	424.901	19.931	13:00:05	0:07:05.2	0.125	0.124865
157	1253	450	19.94	13:00:30	0:07:30.3	0.130	0.12973

APPENDIX IV

Groundwater Sampling Logs

Low-Flow Purging and Sampling Log

Project: QT 703R   Date: 6/21/18   Well ID: NMW-1   Page: 1

Sampling Instrument: T.D.

Pump Rate: _____ (mL/min)

Intial Readings

Well Depth: 24.32   Screened Interval: 10'   Water Level: 15.78'

After Sample Collection

Well Depth: 24.32   Water Level: 16.03

Time (24hr)	Water Level (ft) (TOC)	Purge Volume (gal)	pH	Temp ©	Specific Conductance (mS/cm)	Dissolved Oxygen	Turbidity (NTU)	ORP Redox (Eh)	Comments
1710	15.96	.1	4.30	23.1	518	12.73	2.13	390.5	
1715	15.99	.1	4.15	23.2	570	12.96	3.07	413.3	
1720	16.00	.1	4.10	23.0	625	13.15	5.22	425.2	
1725	16.01	.1	4.08	22.9	672	13.37	9.15	434.6	
1730	16.01	.1	4.06	22.7	671	13.64	12.33	441.4	
1735	16.02	.1	4.03	23.0	711	13.86	17.81	448.7	
1740	16.02	.1	4.09	23.1	726	13.54	20.73	446.4	
1745	16.02	.1	4.21	23.1	534	13.04	22.35	442.2	
1750	16.02	.1	4.12	23.1	536	13.20	26.59	450.1	
1755	16.03	.2	4.05	23.0	704	13.78	36.18	457.8	
1800	16.04	.1	4.04	23.1	713	13.87	44.27	461.19	
1805	16.04	.1	4.04	23.1	716	14.28	54.67	464.2	
1810	16.05	.1	4.04	23.0	714	14.32	64.35	466.9	
1815	16.05	.1	4.02	23.8	709	16.03	17.81	468.8	
1820	16.04	.1	4.03	23.5	713	13.62	58.07	464.8	
1825	16.03	.1	4.02	23.7	717	14.04	31.80	466.2	
1830	16.03	.1	4.02	23.6	715	14.11	35.01	467.3	
1835	16.03	.1	4.02	23.8	718	14.08	33.62	468.1	

Parameter Standards:

pH +/- 0.1, +/-3% conductivity, +/-10mv for Redox potential, and +/-%10 for turbidity or DO.
Turbidity range (5-10) NTU, if turbidity exceeds 10 NTUs: both filter and unfilter sample must be collected for metals
water level drawdown in the well not to exceed 0.2 ft.

Low-Flow Purging and Sampling Log

0820

Project: QT 703R_____ Date: _6/22/18_____ Well ID: NMW-2 Page: 1_____

Sampling Instrument: _____ Pump Rate: _____ (mL/min)

Intial Readings

TD Well Depth: _24.27'_____ Screened Interval: _____ Water Level: 15.65"

After Sample Collection

Well Depth: TD 24.27____ Water Level: _____15.87____

Time (24hr)	Water Level (ft) (TOC)	Purge Volume (gal)	pH	Temp ©	Specific Conductance (mS/cm)	Dissolved Oxygen	Turbidity (NTU)	ORP Redox (Eh)	Comments
0800	15.73	.1	4.25	22.38	0.050	20.1180 212.1	0.0	317	
0805	15.79	.1	4.10	21.80	0.050	16.84	2.8	341	
0810	15.83	.1	4.01	21.64	0.050	16.44	5.6	353	
0815	15.86	.2	3.93	21.52	0.051	16.62	6.6	365	
0820	15.87	.1	3.92	21.50	0.052	16.84	7.7	371	

Parameter Standards:

pH +/- 0.1, +/-3% conductivity, +/-10mv for Redox potential, and +/-%10 for turbidity or DO.

Turbidity range (5-10) NTU, if turbidity exceeds 10 NTUs: both filter and unfilter sample must be collected for metals

water level drawdown in the well not to exceed 0.2 ft.

Low-Flow Purging and Sampling Log

Project: QT 703R   Date: 6/22/2018   Well ID: NMW-3 Page: 1   0945

Sampling Instrument: _____ Pump Rate: _____ (mL/min)

Intial Readings
Well Depth: 24.25'   Screened Interval: _____   Water Level: 13.99

After Sample Collection
Well Depth: TD 24.05   Water Level: 14.21

Time (24hr)	Water Level (ft) (TOC)	Purge Volume (gal)	pH	Temp ©	Specific Conductance (mS/cm)	Dissolved Oxygen	Turbidity (NTU)	ORP Redox (Eh)	Comments
0930	14.08	1	4.54	24.32	0.042	3.97 ~~3.00~~	0.0	253	
0935	14.13	.1	4.44	24.38	0.041	3.13	2.6	295	
0940	14.18	.2	4.45	24.56	0.042	3.18	4.1	303	
0945	14.20	.2	4.48	24.77	0.042	3.10	4.8	305	

Parameter Standards:
pH +/- 0.1, +/-3% conductivity, +/-10mv for Redox potential, and +/-%10 for turbidity or DO.
Turbidity range (5-10) NTU, if turbidity exceeds 10 NTUs: both filter and unfilter sample must be collected for metals
water level drawdown in the well not to exceed 0.2 ft.

Low-Flow Purging and Sampling Log

Project: QT 703R   Date: 6/21/18   Well ID: NMW-4 Page: 1

Sampling Instrument: Geopumps   Pump Rate: _____ (mL/min)

Intial Readings
Well Depth: 24.66   Screened Interval: 14.5 - 24.5   Water Level: 15.39

After Sample Collection
Well Depth: _____   Water Level: _____   tubing intake @ 20'

Time (24hr)	Water Level (ft) (TOC)	Purge Volume (gal)	pH	Temp ©	Specific Conductance (mS/cm)	Dissolved Oxygen %/ ~g/L	Turbidity (NTU)	ORP Redox (Eh) (mV)	Comments
1710	Start	0.0							
1720	15.75	0.2	4.58	22.72	0.120	13.9/1.17	4.6	349	Start purge
1725	15.95	0.3	4.53	21.95	0.120	12.3/1.05	18.5	372	
1730	16.09	0.4	4.52	21.96	0.120	11.5/0.98	14.8	377	
1735	16.18	0.5	4.49	22.30	0.122	8.8/0.74	10.8	395	
1740	16.25	0.6	4.47	22.38	0.124	9.8/0.33	10.5	402	
1745	16.32	0.7	4.46	22.43	0.126	8.7/0.73	10.7	405	
1750	Sample								

Parameter Standards:
pH +/- 0.1, +/-3% conductivity, +/-10mv for Redox potential, and +/-%10 for turbidity or DO.
Turbidity range (5-10) NTU, if turbidity exceeds 10 NTUs: both filter and unfilter sample must be collected for metals
water level drawdown in the well not to exceed 0.2 ft.

Low-Flow Purging and Sampling Log

Project: QT 703R   Date: 6/22/18   Well ID: NMW-5   Page: 1

Sampling Instrument: _____   Pump Rate: _____ (mL/min)

Intial Readings
Well Depth: T.D. 24.34   Screened Interval: _____   Water Level: 16.84

1100

After Sample Collection
Well Depth: T.D. 24.34   Water Level: 16.87

Time (24hr)	Water Level (ft) (TOC)	Purge Volume (gal)	pH	Temp ©	Specific Conductance (mS/cm)	Dissolved Oxygen	Turbidity (NTU)	ORP Redox-(Eh)	Comments
1040	16.86	.1	4.86	28.62	0.036	3.41	6.5	204	
1046	16.86	.1	4.79	27.95	0.036	3.97	33.6	228	
1050	16.87	.1	4.76	27.76	0.035	4.26	39.0	242	
1055	16.86	.1	4.75	27.56	0.035	4.27	38.3	246	
1100	16.87	.1	4.74	27.46	0.035	4.23	36.1	253	

Parameter Standards:
pH +/- 0.1, +/-3% conductivity, +/-10mv for Redox potential, and +/-%10 for turbidity or DO.
Turbidity range (5-10) NTU, if turbidity exceeds 10 NTUs: both filter and unfilter sample must be collected for metals
water level drawdown in the well not to exceed 0.2 ft.

Low-Flow Purging and Sampling Log

Project: QT 703R   Date: 6/21/18   Well ID: NMW-6   Page: 1

Sampling Instrument: Geopump   Pump Rate: 0.02 GPM   (mL/min)

Intial Readings
Well Depth: 31.68   Screened Interval: 11.5 - 31.5   Water Level: 22.88

After Sample Collection
Well Depth: _____   Water Level: _____   tubing intake = 26'

Time (24hr)	Water Level (ft) (TOC)	Purge Volume (gal)	pH	Temp ©	Specific Conductance (mS/cm)	Dissolved Oxygen %/mg/L	Turbidity (NTU)	Redox (Eh) mV	Comments
1420	22.88	0.0							
1425	23.10	0.1	4.60	26.04	0.047	54.2/4.33	27.9	169	start
1435	23.30	0.3	4.61	25.03	0.046	27.4/2.23	40.3	186	
1440	23.30	0.4	4.64	24.08	0.047	8.4/0.70	54.4	210	
1445	23.32	0.5	4.66	24.21	0.047	7.6/0.63	55.5	230	
1450	23.34	0.6	4.66	24.18	0.046	7.4/0.61	55.3	234	
1455	Sample								

Parameter Standards:
pH +/- 0.1, +/-3% conductivity, +/-10mv for Redox potential, and +/-%10 for turbidity or DO.
Turbidity range (5-10) NTU, if turbidity exceeds 10 NTUs: both filter and unfilter sample must be collected for metals
water level drawdown in the well not to exceed 0.2 ft.

Low-Flow Purging and Sampling Log

Project: QT 703R _____ Date: 6/21/18 _____ Well ID: NMW-7 Page: 1

Sampling Instrument: Geopump ____ Pump Rate: _____ (mL/min)

Intial Readings
Well Depth: 34.60 ____ Screened Interval: 14.6 - 34.6 _____ Water Level: 19.80 _____

After Sample Collection
Well Depth: _____ Water Level: _____ tubing intake = 26'

Time (24hr)	Water Level (ft) (TOC)	Purge Volume (gal)	pH	Temp ©	Specific Conductance (mS/cm)	Dissolved Oxygen	Turbidity (NTU)	Redox (Eh)	Comments
1320	19.80								Start purge
1330	19.91	0.2	4.91	23.50	0.056	11.6	0.0	194	
1335	19.91	0.4	4.93	23.32	0.054	8.7	0.0	196	
1340	19.91	0.6	4.94	23.17	0.052	7.6/0.64	0.0	198	
1345	19.91	0.8	4.95	23.08	0.051	7.2/0.60	0.0	200	
1350	sample								
1356	19.80	1.0	5.02	24.92	0.050	11.9/0.96	120	193	

Parameter Standards:
pH +/- 0.1, +/-3% conductivity, +/-10mv for Redox potential, and +/-%10 for turbidity or DO.
Turbidity range (5-10) NTU, if turbidity exceeds 10 NTUs: both filter and unfilter sample must be collected for metals
water level drawdown in the well not to exceed 0.2 ft.

Low-Flow Purging and Sampling Log

Project: QT 703R   Date: 6/21/18   Well ID: NMW-8   Page:

Sampling Instrument: Pump Rate: (mL/min)
TD. ~~0800~~ 24.00

Intial Readings   16.76'
Well Depth: ~~8700~~'   Screened Interval: Water Level: 16.76

After Sample Collection
Well Depth: _____   Water Level: _____

Time (24hr)	Water Level (ft) (TOC)	Purge Volume (gal)	pH	Temp ©	Specific Conductance (mS/cm)	Dissolved Oxygen	Turbidity (NTU)	Redox (Eh)	ORP Comments
1250	16.91	——	5.27	24.9	96.6	1.68	50.64		327.3
1255	16.96	0.2	4.88	24.5	94.5	1.21	43.80		335.2
1300	16.99	0.1	4.86	24.5	93.6	1.42	39.07		335.1
1305	17.01	0.2	4.86	24.5	93.0	1.07	41.32		332.5
1310	17.02	0.1	4.97	24.2	93.3	0.98	47.84		326.4
1315	17.03	0.1	4.89	23.8	92.3	0.96	53.40		322.9
1320	17.04	0.1	4.88	23.9	92.6	0.88	78.79		318.2
1325	17.03	0.1	4.90	26.0	90.9	0.88	106.80		315.5
		STOPPED							
			Restarted						

Parameter Standards:
pH +/- 0.1, +/-3% conductivity, +/-10mv for Redox potential, and +/-%10 for turbidity or DO.
Turbidity range (5-10) NTU, if turbidity exceeds 10 NTUs: both filter and unfilter sample must be collected for metals
water level drawdown in the well not to exceed 0.2 ft.

1600

Project: QT 703R   Date: 6/21/18   Well ID: NMW-9 Page: 2 of 2

Sampling Instrument: ~~Amb~~ T.O. 24.00   Pump Rate: _____ (mL/min)

Intial Readings
Well Depth: 16.76   Screened Interval: _____   Water Level: 16.76

After Sample Collection
Well Depth: 24.00   Water Level: 17.08

Time (24hr)	Water Level (ft) (TOC)	Purge Volume (gal)	pH	Temp ©	Specific Conductance (mS/cm)	Dissolved Oxygen	Turbidity (NTU)	ORP Redox (Eh)	Comments
1410	16.99	.5	4.87	26.2	94.3	0.91	59.30	291.6	3°
1415	16.99	0.1	4.88	27.0	95.2	0.96	10.04	290.2	
1420	16.99	0.1	4.89	27.9	95.1	0.98	19.74	288.1	
1425	16.99	0.1	4.92	27.7	95.2	0.95	33.79	288.4	
1445	17.25	2.5	4.77	24.8	91.1	0.77	28.74	278.5	
1450	17.19	0.1	4.67	25.2	92.8	0.47	36.50	271.5	
1455	17.11	0.1	4.97	24.3	95.9	0.33	114.0	249.3	
1530	16.97	1.0	5.08	23.9	95.2	0.70	6.71	239.3	
1596	17.01	0.2	5.01	22.8	95.2	0.50	41.46	233.6	
1550	17.08	0.2	4.97	22.9	94.1	0.44	85.71	223.0	
1555	17.08	0.1	4.96	21.9	92.9	0.42	54.38	226.8	
1600	17.08	0.1	4.96	22.1	92.8	0.39	77.89	220.5	

Parameter Standards:
pH +/- 0.1, +/-3% conductivity, +/-10mv for Redox potential, and +/-%10 for turbidity or DO.
Turbidity range (5-10) NTU, if turbidity exceeds 10 NTUs: both filter and unfilter sample must be collected for metals
water level drawdown in the well not to exceed 0.2 ft.

Low-Flow Purging and Sampling Log

Project: QT 703R Date: 6/21/2018 Well ID: NMW-9 Page: 1 of 1

Sampling Instrument: _____ Pump Rate: _____ (mL/min)

Total Sich Dow, 24.56'

Intial Readings

12.05

Well Depth: 14.71 Screened Interval: 15' 10-25' Water Level: 14.71

@ 20' Sampling

After Sample Collection

Well Depth: 14.90' Water Level: 14.90'

Time (24hr)	Water Level (ft) (TOC)	Purge Volume (gal)	pH	Temp ©	Specific Conductance (mS/cm)	Dissolved Oxygen	Turbidity (NTU)	Redox (Eh)	ORP Comments
1105	14.83	0.1	4.62	21.9	43.2	2.28	4.60		331.7
1110	14.84	0.1	4.37	29.78	41.8	2.25	5.09		347.6
1115	14.87	0.1	4.24	29.78	41.0	2.23	5.46		359.6
1120	14.89	0.1	4.21	29.78	40.9	2.35	6.62		365.5
1125	14.90	0.1	4.20	29.78	41.5	2.56	9.65		369.5
1130	14.91	0.1	4.19	29.78	41.7	2.72	11.10		371.9
1135	14.91	0.1	4.18	29.78	42.1	2.83	20.32		379.3
1140	14.92	0.0	4.17	29.78	42.1	2.85	26.73		381.8
1145	14.93	0.2	4.17	29.78	41.8	2.73	32.15		382.2
1150	14.93	0.2	4.14	29.78	41.9	2.69	39.61		383.9
1155	14.93	0.1	4.14	29.78	41.8	2.70	44.72		384.8
1200	14.93	0.1	4.15	29.78	41.9	2.78	48.97		387.4
1205	14.92	0.1	4.15	29.78	42.3	2.81	50.61		386.9

Parameter Standards:

pH +/- 0.1, +/-3% conductivity, +/-10mv for Redox potential, and +/-%10 for turbidity or DO.

Turbidity range (5-10) NTU, if turbidity exceeds 10 NTUs: both filter and unfilter sample must be collected for metals

water level drawdown in the well not to exceed 0.2 ft.

Low-Flow Purging and Sampling Log

Project: QT 703R   Date: 6/21/18   Well ID: MW-10   Page: 1

Sampling Instrument: Geopump   Pump Rate: _____ (mL/min)

Intial Readings
Well Depth: 30.09   Screened Interval: _____   Water Level: 20.28

After Sample Collection
Well Depth: _____   Water Level: _____   tubing intake = 26'

Time (24hr)	Water Level (ft) (TOC)	Purge Volume (gal)	pH	Temp ©	Specific Conductance (mS/cm)	Dissolved Oxygen	Turbidity (NTU)	Redox (Eh) mV	Comments
1530	start								
1540	1" well	0.2	4.90	25.77	0.050	15.8/1.25	62.9	221	
1545	w/L	0.3	5.12	27.20	0.083	22.8/1.78	58.4	209	
1550	indicator	0.4	5.10	25.86	0.052	23.4/1.88	50.3	216	
1600	disturbing		5.12	24.23	0.052	33.8	39.8	217	
1605	won't		5.09	23.71	0.053	24.1	33.7	219	
1610	fit at		5.11	23.70	0.052	24.9	30.2	219	
1615	same time		5.13	23.85	0.052	25.1/2.08	29.9	224	
1620	sample								

Parameter Standards:
pH +/- 0.1, +/-3% conductivity, +/-10mv for Redox potential, and +/-%10 for turbidity or DO.
Turbidity range (5-10) NTU, if turbidity exceeds 10 NTUs: both filter and unfilter sample must be collected for metals
water level drawdown in the well not to exceed 0.2 ft.

APPENDIX V

Laboratory Analytical Reports

ANALYTICAL REPORT

June 30, 2018

Genesis Project, Inc. - QT GA

Sample Delivery Group:	L1004285
Samples Received:	06/23/2018
Project Number:	
Description:	QT 703R
Site:	2185 BEAVER RUIN ROAD
Report To:	Mitch Guthrie, PG
	1258 Concord Road
	Suite 200
	Smyrna, GA 30080

Entire Report Reviewed By:

Chris McCord

Technical Service Representative

NMW-1 L1004285-01 GW

			Collected by John Love	Collected date/time 06/21/18 18:30	Received date/time 06/23/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1129425	1	06/25/18 15:46	06/25/18 15:46	JSD

NMW-2 L1004285-02 GW

			Collected by John Love	Collected date/time 06/22/18 08:20	Received date/time 06/23/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1129425	1	06/25/18 16:06	06/25/18 16:06	JSD

NMW-3 L1004285-03 GW

			Collected by John Love	Collected date/time 06/22/18 09:45	Received date/time 06/23/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1129425	1	06/25/18 16:25	06/25/18 16:25	JSD

NMW-4 L1004285-04 GW

			Collected by John Love	Collected date/time 06/21/18 17:50	Received date/time 06/23/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1129425	1	06/25/18 16:45	06/25/18 16:45	JSD

NMW-5 L1004285-05 GW

			Collected by John Love	Collected date/time 06/22/18 11:00	Received date/time 06/23/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1129425	1	06/25/18 17:04	06/25/18 17:04	GLN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1130160	10	06/27/18 03:05	06/27/18 03:05	BMB

NMW-6 L1004285-06 GW

			Collected by John Love	Collected date/time 06/21/18 14:55	Received date/time 06/23/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1129425	1	06/25/18 17:24	06/25/18 17:24	GLN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1130160	1	06/27/18 03:24	06/27/18 03:24	BMB

NMW-7 L1004285-07 GW

			Collected by John Love	Collected date/time 06/21/18 13:50	Received date/time 06/23/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1129425	1	06/25/18 17:43	06/25/18 17:43	JSD

NMW-8 L1004285-08 GW

			Collected by John Love	Collected date/time 06/21/18 16:00	Received date/time 06/23/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1129425	1	06/25/18 18:03	06/25/18 18:03	JSD

[1] Cp
[2] Tc
[3] Ss
[4] Cn
[5] Sr
[6] Qc
[7] Gl
[8] Al
[9] Sc

NMW-9 L1004285-09 GW

	Collected by	Collected date/time	Received date/time
	John Love	06/21/18 12:05	06/23/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1129425	1	06/25/18 18:22	06/25/18 18:22	GLN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1130160	20	06/27/18 03:43	06/27/18 03:43	BMB

NMW-10 L1004285-10 GW

	Collected by	Collected date/time	Received date/time
	John Love	06/21/18 16:20	06/23/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1129425	1	06/25/18 18:42	06/25/18 18:42	GLN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1130160	1	06/27/18 04:02	06/27/18 04:02	BMB

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Chris McCord
Technical Service Representative

| [1] Cp |
| [2] Tc |
| [3] Ss |
| [4] Cn |
| [5] Sr |
| [6] Qc |
| [7] Gl |
| [8] Al |
| [9] Sc |

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/25/2018 15:46	WG1129425
Acrolein	ND		50.0	1	06/25/2018 15:46	WG1129425
Acrylonitrile	ND		10.0	1	06/25/2018 15:46	WG1129425
Benzene	ND		1.00	1	06/25/2018 15:46	WG1129425
Bromobenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
Bromodichloromethane	ND		1.00	1	06/25/2018 15:46	WG1129425
Bromoform	ND		1.00	1	06/25/2018 15:46	WG1129425
Bromomethane	ND		5.00	1	06/25/2018 15:46	WG1129425
n-Butylbenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
sec-Butylbenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
tert-Butylbenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
Carbon tetrachloride	ND		1.00	1	06/25/2018 15:46	WG1129425
Chlorobenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
Chlorodibromomethane	ND		1.00	1	06/25/2018 15:46	WG1129425
Chloroethane	ND		5.00	1	06/25/2018 15:46	WG1129425
Chloroform	ND		5.00	1	06/25/2018 15:46	WG1129425
Chloromethane	ND		2.50	1	06/25/2018 15:46	WG1129425
2-Chlorotoluene	ND		1.00	1	06/25/2018 15:46	WG1129425
4-Chlorotoluene	ND		1.00	1	06/25/2018 15:46	WG1129425
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/25/2018 15:46	WG1129425
1,2-Dibromoethane	ND		1.00	1	06/25/2018 15:46	WG1129425
Dibromomethane	ND		1.00	1	06/25/2018 15:46	WG1129425
1,2-Dichlorobenzene	ND	J4	1.00	1	06/25/2018 15:46	WG1129425
1,3-Dichlorobenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
1,4-Dichlorobenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
Dichlorodifluoromethane	ND		5.00	1	06/25/2018 15:46	WG1129425
1,1-Dichloroethane	ND		1.00	1	06/25/2018 15:46	WG1129425
1,2-Dichloroethane	ND		1.00	1	06/25/2018 15:46	WG1129425
1,1-Dichloroethene	ND		1.00	1	06/25/2018 15:46	WG1129425
cis-1,2-Dichloroethene	ND		1.00	1	06/25/2018 15:46	WG1129425
trans-1,2-Dichloroethene	ND		1.00	1	06/25/2018 15:46	WG1129425
1,2-Dichloropropane	ND		1.00	1	06/25/2018 15:46	WG1129425
1,1-Dichloropropene	ND		1.00	1	06/25/2018 15:46	WG1129425
1,3-Dichloropropane	ND		1.00	1	06/25/2018 15:46	WG1129425
cis-1,3-Dichloropropene	ND		1.00	1	06/25/2018 15:46	WG1129425
trans-1,3-Dichloropropene	ND		1.00	1	06/25/2018 15:46	WG1129425
2,2-Dichloropropane	ND		1.00	1	06/25/2018 15:46	WG1129425
Di-isopropyl ether	ND		1.00	1	06/25/2018 15:46	WG1129425
Ethylbenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
Hexachloro-1,3-butadiene	ND		1.00	1	06/25/2018 15:46	WG1129425
Isopropylbenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
p-Isopropyltoluene	ND		1.00	1	06/25/2018 15:46	WG1129425
2-Butanone (MEK)	ND		10.0	1	06/25/2018 15:46	WG1129425
Methylene Chloride	ND		5.00	1	06/25/2018 15:46	WG1129425
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/25/2018 15:46	WG1129425
Methyl tert-butyl ether	ND		1.00	1	06/25/2018 15:46	WG1129425
Naphthalene	ND		5.00	1	06/25/2018 15:46	WG1129425
n-Propylbenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
Styrene	ND		1.00	1	06/25/2018 15:46	WG1129425
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/25/2018 15:46	WG1129425
1,1,2,2-Tetrachloroethane	ND	J4	1.00	1	06/25/2018 15:46	WG1129425
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/25/2018 15:46	WG1129425
Tetrachloroethene	71.8		1.00	1	06/25/2018 15:46	WG1129425
Toluene	ND		1.00	1	06/25/2018 15:46	WG1129425
1,2,3-Trichlorobenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
1,2,4-Trichlorobenzene	ND		1.00	1	06/25/2018 15:46	WG1129425

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	06/25/2018 15:46	WG1129425
1,1,2-Trichloroethane	ND		1.00	1	06/25/2018 15:46	WG1129425
Trichloroethene	ND		1.00	1	06/25/2018 15:46	WG1129425
Trichlorofluoromethane	ND		5.00	1	06/25/2018 15:46	WG1129425
1,2,3-Trichloropropane	ND	J4	2.50	1	06/25/2018 15:46	WG1129425
1,2,4-Trimethylbenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
1,2,3-Trimethylbenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
1,3,5-Trimethylbenzene	ND		1.00	1	06/25/2018 15:46	WG1129425
Vinyl chloride	ND		1.00	1	06/25/2018 15:46	WG1129425
Xylenes, Total	ND		3.00	1	06/25/2018 15:46	WG1129425
(S) Toluene-d8	93.5		80.0-120		06/25/2018 15:46	WG1129425
(S) Dibromofluoromethane	104		76.0-123		06/25/2018 15:46	WG1129425
(S) 4-Bromofluorobenzene	105		80.0-120		06/25/2018 15:46	WG1129425

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/25/2018 16:06	WG1129425
Acrolein	ND		50.0	1	06/25/2018 16:06	WG1129425
Acrylonitrile	ND		10.0	1	06/25/2018 16:06	WG1129425
Benzene	ND		1.00	1	06/25/2018 16:06	WG1129425
Bromobenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
Bromodichloromethane	ND		1.00	1	06/25/2018 16:06	WG1129425
Bromoform	ND		1.00	1	06/25/2018 16:06	WG1129425
Bromomethane	ND		5.00	1	06/25/2018 16:06	WG1129425
n-Butylbenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
sec-Butylbenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
tert-Butylbenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
Carbon tetrachloride	ND		1.00	1	06/25/2018 16:06	WG1129425
Chlorobenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
Chlorodibromomethane	ND		1.00	1	06/25/2018 16:06	WG1129425
Chloroethane	ND		5.00	1	06/25/2018 16:06	WG1129425
Chloroform	ND		5.00	1	06/25/2018 16:06	WG1129425
Chloromethane	ND		2.50	1	06/25/2018 16:06	WG1129425
2-Chlorotoluene	ND		1.00	1	06/25/2018 16:06	WG1129425
4-Chlorotoluene	ND		1.00	1	06/25/2018 16:06	WG1129425
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/25/2018 16:06	WG1129425
1,2-Dibromoethane	ND		1.00	1	06/25/2018 16:06	WG1129425
Dibromomethane	ND		1.00	1	06/25/2018 16:06	WG1129425
1,2-Dichlorobenzene	ND	J4	1.00	1	06/25/2018 16:06	WG1129425
1,3-Dichlorobenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
1,4-Dichlorobenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
Dichlorodifluoromethane	ND		5.00	1	06/25/2018 16:06	WG1129425
1,1-Dichloroethane	ND		1.00	1	06/25/2018 16:06	WG1129425
1,2-Dichloroethane	ND		1.00	1	06/25/2018 16:06	WG1129425
1,1-Dichloroethene	ND		1.00	1	06/25/2018 16:06	WG1129425
cis-1,2-Dichloroethene	ND		1.00	1	06/25/2018 16:06	WG1129425
trans-1,2-Dichloroethene	ND		1.00	1	06/25/2018 16:06	WG1129425
1,2-Dichloropropane	ND		1.00	1	06/25/2018 16:06	WG1129425
1,1-Dichloropropene	ND		1.00	1	06/25/2018 16:06	WG1129425
1,3-Dichloropropane	ND		1.00	1	06/25/2018 16:06	WG1129425
cis-1,3-Dichloropropene	ND		1.00	1	06/25/2018 16:06	WG1129425
trans-1,3-Dichloropropene	ND		1.00	1	06/25/2018 16:06	WG1129425
2,2-Dichloropropane	ND		1.00	1	06/25/2018 16:06	WG1129425
Di-isopropyl ether	ND		1.00	1	06/25/2018 16:06	WG1129425
Ethylbenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
Hexachloro-1,3-butadiene	ND		1.00	1	06/25/2018 16:06	WG1129425
Isopropylbenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
p-Isopropyltoluene	ND		1.00	1	06/25/2018 16:06	WG1129425
2-Butanone (MEK)	ND		10.0	1	06/25/2018 16:06	WG1129425
Methylene Chloride	ND		5.00	1	06/25/2018 16:06	WG1129425
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/25/2018 16:06	WG1129425
Methyl tert-butyl ether	ND		1.00	1	06/25/2018 16:06	WG1129425
Naphthalene	ND		5.00	1	06/25/2018 16:06	WG1129425
n-Propylbenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
Styrene	ND		1.00	1	06/25/2018 16:06	WG1129425
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/25/2018 16:06	WG1129425
1,1,2,2-Tetrachloroethane	ND	J4	1.00	1	06/25/2018 16:06	WG1129425
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/25/2018 16:06	WG1129425
Tetrachloroethene	24.6		1.00	1	06/25/2018 16:06	WG1129425
Toluene	ND		1.00	1	06/25/2018 16:06	WG1129425
1,2,3-Trichlorobenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
1,2,4-Trichlorobenzene	ND		1.00	1	06/25/2018 16:06	WG1129425

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	06/25/2018 16:06	WG1129425
1,1,2-Trichloroethane	ND		1.00	1	06/25/2018 16:06	WG1129425
Trichloroethene	1.40		1.00	1	06/25/2018 16:06	WG1129425
Trichlorofluoromethane	ND		5.00	1	06/25/2018 16:06	WG1129425
1,2,3-Trichloropropane	ND	J4	2.50	1	06/25/2018 16:06	WG1129425
1,2,4-Trimethylbenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
1,2,3-Trimethylbenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
1,3,5-Trimethylbenzene	ND		1.00	1	06/25/2018 16:06	WG1129425
Vinyl chloride	ND		1.00	1	06/25/2018 16:06	WG1129425
Xylenes, Total	ND		3.00	1	06/25/2018 16:06	WG1129425
(S) Toluene-d8	95.8		80.0-120		06/25/2018 16:06	WG1129425
(S) Dibromofluoromethane	104		76.0-123		06/25/2018 16:06	WG1129425
(S) 4-Bromofluorobenzene	106		80.0-120		06/25/2018 16:06	WG1129425

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/25/2018 16:25	WG1129425
Acrolein	ND		50.0	1	06/25/2018 16:25	WG1129425
Acrylonitrile	ND		10.0	1	06/25/2018 16:25	WG1129425
Benzene	ND		1.00	1	06/25/2018 16:25	WG1129425
Bromobenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
Bromodichloromethane	ND		1.00	1	06/25/2018 16:25	WG1129425
Bromoform	ND		1.00	1	06/25/2018 16:25	WG1129425
Bromomethane	ND		5.00	1	06/25/2018 16:25	WG1129425
n-Butylbenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
sec-Butylbenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
tert-Butylbenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
Carbon tetrachloride	ND		1.00	1	06/25/2018 16:25	WG1129425
Chlorobenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
Chlorodibromomethane	ND		1.00	1	06/25/2018 16:25	WG1129425
Chloroethane	ND		5.00	1	06/25/2018 16:25	WG1129425
Chloroform	ND		5.00	1	06/25/2018 16:25	WG1129425
Chloromethane	ND		2.50	1	06/25/2018 16:25	WG1129425
2-Chlorotoluene	ND		1.00	1	06/25/2018 16:25	WG1129425
4-Chlorotoluene	ND		1.00	1	06/25/2018 16:25	WG1129425
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/25/2018 16:25	WG1129425
1,2-Dibromoethane	ND		1.00	1	06/25/2018 16:25	WG1129425
Dibromomethane	ND		1.00	1	06/25/2018 16:25	WG1129425
1,2-Dichlorobenzene	ND	J4	1.00	1	06/25/2018 16:25	WG1129425
1,3-Dichlorobenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
1,4-Dichlorobenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
Dichlorodifluoromethane	ND		5.00	1	06/25/2018 16:25	WG1129425
1,1-Dichloroethane	ND		1.00	1	06/25/2018 16:25	WG1129425
1,2-Dichloroethane	ND		1.00	1	06/25/2018 16:25	WG1129425
1,1-Dichloroethene	ND		1.00	1	06/25/2018 16:25	WG1129425
cis-1,2-Dichloroethene	ND		1.00	1	06/25/2018 16:25	WG1129425
trans-1,2-Dichloroethene	ND		1.00	1	06/25/2018 16:25	WG1129425
1,2-Dichloropropane	ND		1.00	1	06/25/2018 16:25	WG1129425
1,1-Dichloropropene	ND		1.00	1	06/25/2018 16:25	WG1129425
1,3-Dichloropropane	ND		1.00	1	06/25/2018 16:25	WG1129425
cis-1,3-Dichloropropene	ND		1.00	1	06/25/2018 16:25	WG1129425
trans-1,3-Dichloropropene	ND		1.00	1	06/25/2018 16:25	WG1129425
2,2-Dichloropropane	ND		1.00	1	06/25/2018 16:25	WG1129425
Di-isopropyl ether	ND		1.00	1	06/25/2018 16:25	WG1129425
Ethylbenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
Hexachloro-1,3-butadiene	ND		1.00	1	06/25/2018 16:25	WG1129425
Isopropylbenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
p-Isopropyltoluene	ND		1.00	1	06/25/2018 16:25	WG1129425
2-Butanone (MEK)	ND		10.0	1	06/25/2018 16:25	WG1129425
Methylene Chloride	ND		5.00	1	06/25/2018 16:25	WG1129425
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/25/2018 16:25	WG1129425
Methyl tert-butyl ether	ND		1.00	1	06/25/2018 16:25	WG1129425
Naphthalene	ND		5.00	1	06/25/2018 16:25	WG1129425
n-Propylbenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
Styrene	ND		1.00	1	06/25/2018 16:25	WG1129425
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/25/2018 16:25	WG1129425
1,1,2,2-Tetrachloroethane	ND	J4	1.00	1	06/25/2018 16:25	WG1129425
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/25/2018 16:25	WG1129425
Tetrachloroethene	2.28		1.00	1	06/25/2018 16:25	WG1129425
Toluene	ND		1.00	1	06/25/2018 16:25	WG1129425
1,2,3-Trichlorobenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
1,2,4-Trichlorobenzene	ND		1.00	1	06/25/2018 16:25	WG1129425

Cp | Tc | Ss | Cn | Sr | Qc | Gl | Al | Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	06/25/2018 16:25	WG1129425
1,1,2-Trichloroethane	ND		1.00	1	06/25/2018 16:25	WG1129425
Trichloroethene	ND		1.00	1	06/25/2018 16:25	WG1129425
Trichlorofluoromethane	ND		5.00	1	06/25/2018 16:25	WG1129425
1,2,3-Trichloropropane	ND	J4	2.50	1	06/25/2018 16:25	WG1129425
1,2,4-Trimethylbenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
1,2,3-Trimethylbenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
1,3,5-Trimethylbenzene	ND		1.00	1	06/25/2018 16:25	WG1129425
Vinyl chloride	ND		1.00	1	06/25/2018 16:25	WG1129425
Xylenes, Total	ND		3.00	1	06/25/2018 16:25	WG1129425
(S) Toluene-d8	94.8		80.0-120		06/25/2018 16:25	WG1129425
(S) Dibromofluoromethane	104		76.0-123		06/25/2018 16:25	WG1129425
(S) 4-Bromofluorobenzene	106		80.0-120		06/25/2018 16:25	WG1129425

	1	Cp
	2	Tc
	3	Ss
	4	Cn
	5	Sr
	6	Qc
	7	Gl
	8	Al
	9	Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/25/2018 16:45	WG1129425
Acrolein	ND		50.0	1	06/25/2018 16:45	WG1129425
Acrylonitrile	ND		10.0	1	06/25/2018 16:45	WG1129425
Benzene	ND		1.00	1	06/25/2018 16:45	WG1129425
Bromobenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
Bromodichloromethane	ND		1.00	1	06/25/2018 16:45	WG1129425
Bromoform	ND		1.00	1	06/25/2018 16:45	WG1129425
Bromomethane	ND		5.00	1	06/25/2018 16:45	WG1129425
n-Butylbenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
sec-Butylbenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
tert-Butylbenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
Carbon tetrachloride	ND		1.00	1	06/25/2018 16:45	WG1129425
Chlorobenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
Chlorodibromomethane	ND		1.00	1	06/25/2018 16:45	WG1129425
Chloroethane	ND		5.00	1	06/25/2018 16:45	WG1129425
Chloroform	ND		5.00	1	06/25/2018 16:45	WG1129425
Chloromethane	ND		2.50	1	06/25/2018 16:45	WG1129425
2-Chlorotoluene	ND		1.00	1	06/25/2018 16:45	WG1129425
4-Chlorotoluene	ND		1.00	1	06/25/2018 16:45	WG1129425
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/25/2018 16:45	WG1129425
1,2-Dibromoethane	ND		1.00	1	06/25/2018 16:45	WG1129425
Dibromomethane	ND		1.00	1	06/25/2018 16:45	WG1129425
1,2-Dichlorobenzene	ND	J4	1.00	1	06/25/2018 16:45	WG1129425
1,3-Dichlorobenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
1,4-Dichlorobenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
Dichlorodifluoromethane	ND		5.00	1	06/25/2018 16:45	WG1129425
1,1-Dichloroethane	ND		1.00	1	06/25/2018 16:45	WG1129425
1,2-Dichloroethane	ND		1.00	1	06/25/2018 16:45	WG1129425
1,1-Dichloroethene	ND		1.00	1	06/25/2018 16:45	WG1129425
cis-1,2-Dichloroethene	ND		1.00	1	06/25/2018 16:45	WG1129425
trans-1,2-Dichloroethene	ND		1.00	1	06/25/2018 16:45	WG1129425
1,2-Dichloropropane	ND		1.00	1	06/25/2018 16:45	WG1129425
1,1-Dichloropropene	ND		1.00	1	06/25/2018 16:45	WG1129425
1,3-Dichloropropane	ND		1.00	1	06/25/2018 16:45	WG1129425
cis-1,3-Dichloropropene	ND		1.00	1	06/25/2018 16:45	WG1129425
trans-1,3-Dichloropropene	ND		1.00	1	06/25/2018 16:45	WG1129425
2,2-Dichloropropane	ND		1.00	1	06/25/2018 16:45	WG1129425
Di-isopropyl ether	ND		1.00	1	06/25/2018 16:45	WG1129425
Ethylbenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
Hexachloro-1,3-butadiene	ND		1.00	1	06/25/2018 16:45	WG1129425
Isopropylbenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
p-Isopropyltoluene	ND		1.00	1	06/25/2018 16:45	WG1129425
2-Butanone (MEK)	ND		10.0	1	06/25/2018 16:45	WG1129425
Methylene Chloride	ND		5.00	1	06/25/2018 16:45	WG1129425
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/25/2018 16:45	WG1129425
Methyl tert-butyl ether	ND		1.00	1	06/25/2018 16:45	WG1129425
Naphthalene	ND		5.00	1	06/25/2018 16:45	WG1129425
n-Propylbenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
Styrene	ND		1.00	1	06/25/2018 16:45	WG1129425
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/25/2018 16:45	WG1129425
1,1,2,2-Tetrachloroethane	ND	J4	1.00	1	06/25/2018 16:45	WG1129425
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/25/2018 16:45	WG1129425
Tetrachloroethene	5.16		1.00	1	06/25/2018 16:45	WG1129425
Toluene	ND		1.00	1	06/25/2018 16:45	WG1129425
1,2,3-Trichlorobenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
1,2,4-Trichlorobenzene	ND		1.00	1	06/25/2018 16:45	WG1129425

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	06/25/2018 16:45	WG1129425
1,1,2-Trichloroethane	ND		1.00	1	06/25/2018 16:45	WG1129425
Trichloroethene	ND		1.00	1	06/25/2018 16:45	WG1129425
Trichlorofluoromethane	ND		5.00	1	06/25/2018 16:45	WG1129425
1,2,3-Trichloropropane	ND	J4	2.50	1	06/25/2018 16:45	WG1129425
1,2,4-Trimethylbenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
1,2,3-Trimethylbenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
1,3,5-Trimethylbenzene	ND		1.00	1	06/25/2018 16:45	WG1129425
Vinyl chloride	ND		1.00	1	06/25/2018 16:45	WG1129425
Xylenes, Total	ND		3.00	1	06/25/2018 16:45	WG1129425
(S) Toluene-d8	95.5		80.0-120		06/25/2018 16:45	WG1129425
(S) Dibromofluoromethane	105		76.0-123		06/25/2018 16:45	WG1129425
(S) 4-Bromofluorobenzene	108		80.0-120		06/25/2018 16:45	WG1129425

1	Cp
2	Tc
3	Ss
4	Cn
5	Sr
6	Qc
7	Gl
8	Al
9	Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/25/2018 17:04	WG1129425
Acrolein	ND		50.0	1	06/25/2018 17:04	WG1129425
Acrylonitrile	ND		10.0	1	06/25/2018 17:04	WG1129425
Benzene	ND		1.00	1	06/25/2018 17:04	WG1129425
Bromobenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
Bromodichloromethane	ND		1.00	1	06/25/2018 17:04	WG1129425
Bromoform	ND		1.00	1	06/25/2018 17:04	WG1129425
Bromomethane	ND		5.00	1	06/25/2018 17:04	WG1129425
n-Butylbenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
sec-Butylbenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
tert-Butylbenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
Carbon tetrachloride	ND		1.00	1	06/25/2018 17:04	WG1129425
Chlorobenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
Chlorodibromomethane	ND		1.00	1	06/25/2018 17:04	WG1129425
Chloroethane	ND		5.00	1	06/25/2018 17:04	WG1129425
Chloroform	ND		5.00	1	06/25/2018 17:04	WG1129425
Chloromethane	ND		2.50	1	06/25/2018 17:04	WG1129425
2-Chlorotoluene	ND		1.00	1	06/25/2018 17:04	WG1129425
4-Chlorotoluene	ND		1.00	1	06/25/2018 17:04	WG1129425
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/25/2018 17:04	WG1129425
1,2-Dibromoethane	ND		1.00	1	06/25/2018 17:04	WG1129425
Dibromomethane	ND		1.00	1	06/25/2018 17:04	WG1129425
1,2-Dichlorobenzene	ND	J4	1.00	1	06/25/2018 17:04	WG1129425
1,3-Dichlorobenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
1,4-Dichlorobenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
Dichlorodifluoromethane	ND		5.00	1	06/25/2018 17:04	WG1129425
1,1-Dichloroethane	ND		1.00	1	06/25/2018 17:04	WG1129425
1,2-Dichloroethane	ND		1.00	1	06/25/2018 17:04	WG1129425
1,1-Dichloroethene	ND		1.00	1	06/25/2018 17:04	WG1129425
cis-1,2-Dichloroethene	ND		1.00	1	06/25/2018 17:04	WG1129425
trans-1,2-Dichloroethene	ND		1.00	1	06/25/2018 17:04	WG1129425
1,2-Dichloropropane	ND		1.00	1	06/25/2018 17:04	WG1129425
1,1-Dichloropropene	ND		1.00	1	06/25/2018 17:04	WG1129425
1,3-Dichloropropane	ND		1.00	1	06/25/2018 17:04	WG1129425
cis-1,3-Dichloropropene	ND		1.00	1	06/25/2018 17:04	WG1129425
trans-1,3-Dichloropropene	ND		1.00	1	06/25/2018 17:04	WG1129425
2,2-Dichloropropane	ND		1.00	1	06/25/2018 17:04	WG1129425
Di-isopropyl ether	ND		1.00	1	06/25/2018 17:04	WG1129425
Ethylbenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
Hexachloro-1,3-butadiene	ND		1.00	1	06/25/2018 17:04	WG1129425
Isopropylbenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
p-Isopropyltoluene	ND		1.00	1	06/25/2018 17:04	WG1129425
2-Butanone (MEK)	ND		10.0	1	06/25/2018 17:04	WG1129425
Methylene Chloride	ND		5.00	1	06/25/2018 17:04	WG1129425
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/25/2018 17:04	WG1129425
Methyl tert-butyl ether	ND		1.00	1	06/25/2018 17:04	WG1129425
Naphthalene	ND		5.00	1	06/25/2018 17:04	WG1129425
n-Propylbenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
Styrene	ND		1.00	1	06/25/2018 17:04	WG1129425
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/25/2018 17:04	WG1129425
1,1,2,2-Tetrachloroethane	ND	J4	1.00	1	06/25/2018 17:04	WG1129425
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/25/2018 17:04	WG1129425
Tetrachloroethene	390		10.0	10	06/27/2018 03:05	WG1130160
Toluene	ND		1.00	1	06/25/2018 17:04	WG1129425
1,2,3-Trichlorobenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
1,2,4-Trichlorobenzene	ND		1.00	1	06/25/2018 17:04	WG1129425

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	06/25/2018 17:04	WG1129425
1,1,2-Trichloroethane	ND		1.00	1	06/25/2018 17:04	WG1129425
Trichloroethene	1.88		1.00	1	06/25/2018 17:04	WG1129425
Trichlorofluoromethane	ND		5.00	1	06/25/2018 17:04	WG1129425
1,2,3-Trichloropropane	ND	J4	2.50	1	06/25/2018 17:04	WG1129425
1,2,4-Trimethylbenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
1,2,3-Trimethylbenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
1,3,5-Trimethylbenzene	ND		1.00	1	06/25/2018 17:04	WG1129425
Vinyl chloride	ND		1.00	1	06/25/2018 17:04	WG1129425
Xylenes, Total	ND		3.00	1	06/25/2018 17:04	WG1129425
(S) Toluene-d8	93.4		80.0-120		06/25/2018 17:04	WG1129425
(S) Toluene-d8	101		80.0-120		06/27/2018 03:05	WG1130160
(S) Dibromofluoromethane	103		76.0-123		06/25/2018 17:04	WG1129425
(S) Dibromofluoromethane	103		76.0-123		06/27/2018 03:05	WG1130160
(S) 4-Bromofluorobenzene	108		80.0-120		06/25/2018 17:04	WG1129425
(S) 4-Bromofluorobenzene	99.9		80.0-120		06/27/2018 03:05	WG1130160

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/25/2018 17:24	WG1129425
Acrolein	ND		50.0	1	06/25/2018 17:24	WG1129425
Acrylonitrile	ND		10.0	1	06/25/2018 17:24	WG1129425
Benzene	ND		1.00	1	06/25/2018 17:24	WG1129425
Bromobenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
Bromodichloromethane	ND		1.00	1	06/25/2018 17:24	WG1129425
Bromoform	ND		1.00	1	06/25/2018 17:24	WG1129425
Bromomethane	ND		5.00	1	06/25/2018 17:24	WG1129425
n-Butylbenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
sec-Butylbenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
tert-Butylbenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
Carbon tetrachloride	ND		1.00	1	06/25/2018 17:24	WG1129425
Chlorobenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
Chlorodibromomethane	ND		1.00	1	06/25/2018 17:24	WG1129425
Chloroethane	ND		5.00	1	06/25/2018 17:24	WG1129425
Chloroform	ND		5.00	1	06/25/2018 17:24	WG1129425
Chloromethane	ND		2.50	1	06/25/2018 17:24	WG1129425
2-Chlorotoluene	ND		1.00	1	06/25/2018 17:24	WG1129425
4-Chlorotoluene	ND		1.00	1	06/25/2018 17:24	WG1129425
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/25/2018 17:24	WG1129425
1,2-Dibromoethane	ND		1.00	1	06/25/2018 17:24	WG1129425
Dibromomethane	ND		1.00	1	06/25/2018 17:24	WG1129425
1,2-Dichlorobenzene	ND	J4	1.00	1	06/25/2018 17:24	WG1129425
1,3-Dichlorobenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
1,4-Dichlorobenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
Dichlorodifluoromethane	ND		5.00	1	06/25/2018 17:24	WG1129425
1,1-Dichloroethane	ND		1.00	1	06/25/2018 17:24	WG1129425
1,2-Dichloroethane	ND		1.00	1	06/25/2018 17:24	WG1129425
1,1-Dichloroethene	ND		1.00	1	06/25/2018 17:24	WG1129425
cis-1,2-Dichloroethene	ND		1.00	1	06/25/2018 17:24	WG1129425
trans-1,2-Dichloroethene	ND		1.00	1	06/25/2018 17:24	WG1129425
1,2-Dichloropropane	ND		1.00	1	06/25/2018 17:24	WG1129425
1,1-Dichloropropene	ND		1.00	1	06/25/2018 17:24	WG1129425
1,3-Dichloropropane	ND		1.00	1	06/25/2018 17:24	WG1129425
cis-1,3-Dichloropropene	ND		1.00	1	06/25/2018 17:24	WG1129425
trans-1,3-Dichloropropene	ND		1.00	1	06/25/2018 17:24	WG1129425
2,2-Dichloropropane	ND		1.00	1	06/25/2018 17:24	WG1129425
Di-isopropyl ether	ND		1.00	1	06/25/2018 17:24	WG1129425
Ethylbenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
Hexachloro-1,3-butadiene	ND		1.00	1	06/25/2018 17:24	WG1129425
Isopropylbenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
p-Isopropyltoluene	ND		1.00	1	06/25/2018 17:24	WG1129425
2-Butanone (MEK)	ND		10.0	1	06/25/2018 17:24	WG1129425
Methylene Chloride	ND		5.00	1	06/25/2018 17:24	WG1129425
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/25/2018 17:24	WG1129425
Methyl tert-butyl ether	ND		1.00	1	06/25/2018 17:24	WG1129425
Naphthalene	ND		5.00	1	06/25/2018 17:24	WG1129425
n-Propylbenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
Styrene	ND		1.00	1	06/25/2018 17:24	WG1129425
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/25/2018 17:24	WG1129425
1,1,2,2-Tetrachloroethane	ND	J4	1.00	1	06/25/2018 17:24	WG1129425
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/25/2018 17:24	WG1129425
Tetrachloroethene	ND		1.00	1	06/27/2018 03:24	WG1130160
Toluene	ND		1.00	1	06/25/2018 17:24	WG1129425
1,2,3-Trichlorobenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
1,2,4-Trichlorobenzene	ND		1.00	1	06/25/2018 17:24	WG1129425

1 Cp	2 Tc	3 Ss	4 Cn	5 Sr	6 Qc	7 Gl	8 Al	9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	06/25/2018 17:24	WG1129425
1,1,2-Trichloroethane	ND		1.00	1	06/25/2018 17:24	WG1129425
Trichloroethene	ND		1.00	1	06/25/2018 17:24	WG1129425
Trichlorofluoromethane	ND		5.00	1	06/25/2018 17:24	WG1129425
1,2,3-Trichloropropane	ND	J4	2.50	1	06/25/2018 17:24	WG1129425
1,2,4-Trimethylbenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
1,2,3-Trimethylbenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
1,3,5-Trimethylbenzene	ND		1.00	1	06/25/2018 17:24	WG1129425
Vinyl chloride	ND		1.00	1	06/25/2018 17:24	WG1129425
Xylenes, Total	ND		3.00	1	06/25/2018 17:24	WG1129425
(S) Toluene-d8	95.8		80.0-120		06/25/2018 17:24	WG1129425
(S) Toluene-d8	98.6		80.0-120		06/27/2018 03:24	WG1130160
(S) Dibromofluoromethane	105		76.0-123		06/25/2018 17:24	WG1129425
(S) Dibromofluoromethane	103		76.0-123		06/27/2018 03:24	WG1130160
(S) 4-Bromofluorobenzene	108		80.0-120		06/25/2018 17:24	WG1129425
(S) 4-Bromofluorobenzene	95.2		80.0-120		06/27/2018 03:24	WG1130160

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/25/2018 17:43	WG1129425
Acrolein	ND		50.0	1	06/25/2018 17:43	WG1129425
Acrylonitrile	ND		10.0	1	06/25/2018 17:43	WG1129425
Benzene	ND		1.00	1	06/25/2018 17:43	WG1129425
Bromobenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
Bromodichloromethane	ND		1.00	1	06/25/2018 17:43	WG1129425
Bromoform	ND		1.00	1	06/25/2018 17:43	WG1129425
Bromomethane	ND		5.00	1	06/25/2018 17:43	WG1129425
n-Butylbenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
sec-Butylbenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
tert-Butylbenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
Carbon tetrachloride	ND		1.00	1	06/25/2018 17:43	WG1129425
Chlorobenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
Chlorodibromomethane	ND		1.00	1	06/25/2018 17:43	WG1129425
Chloroethane	ND		5.00	1	06/25/2018 17:43	WG1129425
Chloroform	ND		5.00	1	06/25/2018 17:43	WG1129425
Chloromethane	ND		2.50	1	06/25/2018 17:43	WG1129425
2-Chlorotoluene	ND		1.00	1	06/25/2018 17:43	WG1129425
4-Chlorotoluene	ND		1.00	1	06/25/2018 17:43	WG1129425
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/25/2018 17:43	WG1129425
1,2-Dibromoethane	ND		1.00	1	06/25/2018 17:43	WG1129425
Dibromomethane	ND		1.00	1	06/25/2018 17:43	WG1129425
1,2-Dichlorobenzene	ND	J4	1.00	1	06/25/2018 17:43	WG1129425
1,3-Dichlorobenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
1,4-Dichlorobenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
Dichlorodifluoromethane	ND		5.00	1	06/25/2018 17:43	WG1129425
1,1-Dichloroethane	ND		1.00	1	06/25/2018 17:43	WG1129425
1,2-Dichloroethane	ND		1.00	1	06/25/2018 17:43	WG1129425
1,1-Dichloroethene	ND		1.00	1	06/25/2018 17:43	WG1129425
cis-1,2-Dichloroethene	2.97		1.00	1	06/25/2018 17:43	WG1129425
trans-1,2-Dichloroethene	ND		1.00	1	06/25/2018 17:43	WG1129425
1,2-Dichloropropane	ND		1.00	1	06/25/2018 17:43	WG1129425
1,1-Dichloropropene	ND		1.00	1	06/25/2018 17:43	WG1129425
1,3-Dichloropropane	ND		1.00	1	06/25/2018 17:43	WG1129425
cis-1,3-Dichloropropene	ND		1.00	1	06/25/2018 17:43	WG1129425
trans-1,3-Dichloropropene	ND		1.00	1	06/25/2018 17:43	WG1129425
2,2-Dichloropropane	ND		1.00	1	06/25/2018 17:43	WG1129425
Di-isopropyl ether	ND		1.00	1	06/25/2018 17:43	WG1129425
Ethylbenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
Hexachloro-1,3-butadiene	ND		1.00	1	06/25/2018 17:43	WG1129425
Isopropylbenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
p-Isopropyltoluene	ND		1.00	1	06/25/2018 17:43	WG1129425
2-Butanone (MEK)	ND		10.0	1	06/25/2018 17:43	WG1129425
Methylene Chloride	ND		5.00	1	06/25/2018 17:43	WG1129425
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/25/2018 17:43	WG1129425
Methyl tert-butyl ether	ND		1.00	1	06/25/2018 17:43	WG1129425
Naphthalene	ND		5.00	1	06/25/2018 17:43	WG1129425
n-Propylbenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
Styrene	ND		1.00	1	06/25/2018 17:43	WG1129425
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/25/2018 17:43	WG1129425
1,1,2,2-Tetrachloroethane	ND	J4	1.00	1	06/25/2018 17:43	WG1129425
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/25/2018 17:43	WG1129425
Tetrachloroethene	33.3		1.00	1	06/25/2018 17:43	WG1129425
Toluene	ND		1.00	1	06/25/2018 17:43	WG1129425
1,2,3-Trichlorobenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
1,2,4-Trichlorobenzene	ND		1.00	1	06/25/2018 17:43	WG1129425

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	06/25/2018 17:43	WG1129425
1,1,2-Trichloroethane	ND		1.00	1	06/25/2018 17:43	WG1129425
Trichloroethene	5.41		1.00	1	06/25/2018 17:43	WG1129425
Trichlorofluoromethane	ND		5.00	1	06/25/2018 17:43	WG1129425
1,2,3-Trichloropropane	ND	J4	2.50	1	06/25/2018 17:43	WG1129425
1,2,4-Trimethylbenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
1,2,3-Trimethylbenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
1,3,5-Trimethylbenzene	ND		1.00	1	06/25/2018 17:43	WG1129425
Vinyl chloride	ND		1.00	1	06/25/2018 17:43	WG1129425
Xylenes, Total	ND		3.00	1	06/25/2018 17:43	WG1129425
(S) Toluene-d8	96.2		80.0-120		06/25/2018 17:43	WG1129425
(S) Dibromofluoromethane	105		76.0-123		06/25/2018 17:43	WG1129425
(S) 4-Bromofluorobenzene	105		80.0-120		06/25/2018 17:43	WG1129425

| 1 Cp | 2 Tc | 3 Ss | 4 Cn | 5 Sr | 6 Qc | 7 Gl | 8 Al | 9 Sc |

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/25/2018 18:03	WG1129425
Acrolein	ND		50.0	1	06/25/2018 18:03	WG1129425
Acrylonitrile	ND		10.0	1	06/25/2018 18:03	WG1129425
Benzene	ND		1.00	1	06/25/2018 18:03	WG1129425
Bromobenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
Bromodichloromethane	ND		1.00	1	06/25/2018 18:03	WG1129425
Bromoform	ND		1.00	1	06/25/2018 18:03	WG1129425
Bromomethane	ND		5.00	1	06/25/2018 18:03	WG1129425
n-Butylbenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
sec-Butylbenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
tert-Butylbenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
Carbon tetrachloride	ND		1.00	1	06/25/2018 18:03	WG1129425
Chlorobenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
Chlorodibromomethane	ND		1.00	1	06/25/2018 18:03	WG1129425
Chloroethane	ND		5.00	1	06/25/2018 18:03	WG1129425
Chloroform	ND		5.00	1	06/25/2018 18:03	WG1129425
Chloromethane	ND		2.50	1	06/25/2018 18:03	WG1129425
2-Chlorotoluene	ND		1.00	1	06/25/2018 18:03	WG1129425
4-Chlorotoluene	ND		1.00	1	06/25/2018 18:03	WG1129425
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/25/2018 18:03	WG1129425
1,2-Dibromoethane	ND		1.00	1	06/25/2018 18:03	WG1129425
Dibromomethane	ND		1.00	1	06/25/2018 18:03	WG1129425
1,2-Dichlorobenzene	ND	J4	1.00	1	06/25/2018 18:03	WG1129425
1,3-Dichlorobenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
1,4-Dichlorobenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
Dichlorodifluoromethane	ND		5.00	1	06/25/2018 18:03	WG1129425
1,1-Dichloroethane	ND		1.00	1	06/25/2018 18:03	WG1129425
1,2-Dichloroethane	ND		1.00	1	06/25/2018 18:03	WG1129425
1,1-Dichloroethene	ND		1.00	1	06/25/2018 18:03	WG1129425
cis-1,2-Dichloroethene	ND		1.00	1	06/25/2018 18:03	WG1129425
trans-1,2-Dichloroethene	ND		1.00	1	06/25/2018 18:03	WG1129425
1,2-Dichloropropane	ND		1.00	1	06/25/2018 18:03	WG1129425
1,1-Dichloropropene	ND		1.00	1	06/25/2018 18:03	WG1129425
1,3-Dichloropropane	ND		1.00	1	06/25/2018 18:03	WG1129425
cis-1,3-Dichloropropene	ND		1.00	1	06/25/2018 18:03	WG1129425
trans-1,3-Dichloropropene	ND		1.00	1	06/25/2018 18:03	WG1129425
2,2-Dichloropropane	ND		1.00	1	06/25/2018 18:03	WG1129425
Di-isopropyl ether	ND		1.00	1	06/25/2018 18:03	WG1129425
Ethylbenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
Hexachloro-1,3-butadiene	ND		1.00	1	06/25/2018 18:03	WG1129425
Isopropylbenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
p-Isopropyltoluene	ND		1.00	1	06/25/2018 18:03	WG1129425
2-Butanone (MEK)	ND		10.0	1	06/25/2018 18:03	WG1129425
Methylene Chloride	ND		5.00	1	06/25/2018 18:03	WG1129425
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/25/2018 18:03	WG1129425
Methyl tert-butyl ether	ND		1.00	1	06/25/2018 18:03	WG1129425
Naphthalene	ND		5.00	1	06/25/2018 18:03	WG1129425
n-Propylbenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
Styrene	ND		1.00	1	06/25/2018 18:03	WG1129425
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/25/2018 18:03	WG1129425
1,1,2,2-Tetrachloroethane	ND	J4	1.00	1	06/25/2018 18:03	WG1129425
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/25/2018 18:03	WG1129425
Tetrachloroethene	ND		1.00	1	06/25/2018 18:03	WG1129425
Toluene	ND		1.00	1	06/25/2018 18:03	WG1129425
1,2,3-Trichlorobenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
1,2,4-Trichlorobenzene	ND		1.00	1	06/25/2018 18:03	WG1129425

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	06/25/2018 18:03	WG1129425
1,1,2-Trichloroethane	ND		1.00	1	06/25/2018 18:03	WG1129425
Trichloroethene	ND		1.00	1	06/25/2018 18:03	WG1129425
Trichlorofluoromethane	ND		5.00	1	06/25/2018 18:03	WG1129425
1,2,3-Trichloropropane	ND	J4	2.50	1	06/25/2018 18:03	WG1129425
1,2,4-Trimethylbenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
1,2,3-Trimethylbenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
1,3,5-Trimethylbenzene	ND		1.00	1	06/25/2018 18:03	WG1129425
Vinyl chloride	ND		1.00	1	06/25/2018 18:03	WG1129425
Xylenes, Total	ND		3.00	1	06/25/2018 18:03	WG1129425
(S) Toluene-d8	94.2		80.0-120		06/25/2018 18:03	WG1129425
(S) Dibromofluoromethane	105		76.0-123		06/25/2018 18:03	WG1129425
(S) 4-Bromofluorobenzene	104		80.0-120		06/25/2018 18:03	WG1129425

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/25/2018 18:22	WG1129425
Acrolein	ND		50.0	1	06/25/2018 18:22	WG1129425
Acrylonitrile	ND		10.0	1	06/25/2018 18:22	WG1129425
Benzene	ND		1.00	1	06/25/2018 18:22	WG1129425
Bromobenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
Bromodichloromethane	ND		1.00	1	06/25/2018 18:22	WG1129425
Bromoform	ND		1.00	1	06/25/2018 18:22	WG1129425
Bromomethane	ND		5.00	1	06/25/2018 18:22	WG1129425
n-Butylbenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
sec-Butylbenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
tert-Butylbenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
Carbon tetrachloride	ND		1.00	1	06/25/2018 18:22	WG1129425
Chlorobenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
Chlorodibromomethane	ND		1.00	1	06/25/2018 18:22	WG1129425
Chloroethane	ND		5.00	1	06/25/2018 18:22	WG1129425
Chloroform	ND		5.00	1	06/25/2018 18:22	WG1129425
Chloromethane	ND		2.50	1	06/25/2018 18:22	WG1129425
2-Chlorotoluene	ND		1.00	1	06/25/2018 18:22	WG1129425
4-Chlorotoluene	ND		1.00	1	06/25/2018 18:22	WG1129425
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/25/2018 18:22	WG1129425
1,2-Dibromoethane	ND		1.00	1	06/25/2018 18:22	WG1129425
Dibromomethane	ND		1.00	1	06/25/2018 18:22	WG1129425
1,2-Dichlorobenzene	ND	J4	1.00	1	06/25/2018 18:22	WG1129425
1,3-Dichlorobenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
1,4-Dichlorobenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
Dichlorodifluoromethane	ND		5.00	1	06/25/2018 18:22	WG1129425
1,1-Dichloroethane	ND		1.00	1	06/25/2018 18:22	WG1129425
1,2-Dichloroethane	ND		1.00	1	06/25/2018 18:22	WG1129425
1,1-Dichloroethene	ND		1.00	1	06/25/2018 18:22	WG1129425
cis-1,2-Dichloroethene	1.46		1.00	1	06/25/2018 18:22	WG1129425
trans-1,2-Dichloroethene	ND		1.00	1	06/25/2018 18:22	WG1129425
1,2-Dichloropropane	ND		1.00	1	06/25/2018 18:22	WG1129425
1,1-Dichloropropene	ND		1.00	1	06/25/2018 18:22	WG1129425
1,3-Dichloropropane	ND		1.00	1	06/25/2018 18:22	WG1129425
cis-1,3-Dichloropropene	ND		1.00	1	06/25/2018 18:22	WG1129425
trans-1,3-Dichloropropene	ND		1.00	1	06/25/2018 18:22	WG1129425
2,2-Dichloropropane	ND		1.00	1	06/25/2018 18:22	WG1129425
Di-isopropyl ether	ND		1.00	1	06/25/2018 18:22	WG1129425
Ethylbenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
Hexachloro-1,3-butadiene	ND		1.00	1	06/25/2018 18:22	WG1129425
Isopropylbenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
p-Isopropyltoluene	ND		1.00	1	06/25/2018 18:22	WG1129425
2-Butanone (MEK)	ND		10.0	1	06/25/2018 18:22	WG1129425
Methylene Chloride	ND		5.00	1	06/25/2018 18:22	WG1129425
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/25/2018 18:22	WG1129425
Methyl tert-butyl ether	ND		1.00	1	06/25/2018 18:22	WG1129425
Naphthalene	ND		5.00	1	06/25/2018 18:22	WG1129425
n-Propylbenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
Styrene	ND		1.00	1	06/25/2018 18:22	WG1129425
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/25/2018 18:22	WG1129425
1,1,2,2-Tetrachloroethane	ND	J4	1.00	1	06/25/2018 18:22	WG1129425
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/25/2018 18:22	WG1129425
Tetrachloroethene	588		20.0	20	06/27/2018 03:43	WG1130160
Toluene	ND		1.00	1	06/25/2018 18:22	WG1129425
1,2,3-Trichlorobenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
1,2,4-Trichlorobenzene	ND		1.00	1	06/25/2018 18:22	WG1129425

Sidebar navigation:
1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	06/25/2018 18:22	WG1129425
1,1,2-Trichloroethane	ND		1.00	1	06/25/2018 18:22	WG1129425
Trichloroethene	1.28		1.00	1	06/25/2018 18:22	WG1129425
Trichlorofluoromethane	ND		5.00	1	06/25/2018 18:22	WG1129425
1,2,3-Trichloropropane	ND	J4	2.50	1	06/25/2018 18:22	WG1129425
1,2,4-Trimethylbenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
1,2,3-Trimethylbenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
1,3,5-Trimethylbenzene	ND		1.00	1	06/25/2018 18:22	WG1129425
Vinyl chloride	ND		1.00	1	06/25/2018 18:22	WG1129425
Xylenes, Total	ND		3.00	1	06/25/2018 18:22	WG1129425
(S) Toluene-d8	97.2		80.0-120		06/25/2018 18:22	WG1129425
(S) Toluene-d8	97.5		80.0-120		06/27/2018 03:43	WG1130160
(S) Dibromofluoromethane	105		76.0-123		06/25/2018 18:22	WG1129425
(S) Dibromofluoromethane	104		76.0-123		06/27/2018 03:43	WG1130160
(S) 4-Bromofluorobenzene	104		80.0-120		06/25/2018 18:22	WG1129425
(S) 4-Bromofluorobenzene	95.9		80.0-120		06/27/2018 03:43	WG1130160

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/25/2018 18:42	WG1129425
Acrolein	ND		50.0	1	06/25/2018 18:42	WG1129425
Acrylonitrile	ND		10.0	1	06/25/2018 18:42	WG1129425
Benzene	ND		1.00	1	06/25/2018 18:42	WG1129425
Bromobenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
Bromodichloromethane	ND		1.00	1	06/25/2018 18:42	WG1129425
Bromoform	ND		1.00	1	06/25/2018 18:42	WG1129425
Bromomethane	ND		5.00	1	06/25/2018 18:42	WG1129425
n-Butylbenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
sec-Butylbenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
tert-Butylbenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
Carbon tetrachloride	ND		1.00	1	06/25/2018 18:42	WG1129425
Chlorobenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
Chlorodibromomethane	ND		1.00	1	06/25/2018 18:42	WG1129425
Chloroethane	ND		5.00	1	06/25/2018 18:42	WG1129425
Chloroform	ND		5.00	1	06/25/2018 18:42	WG1129425
Chloromethane	ND		2.50	1	06/25/2018 18:42	WG1129425
2-Chlorotoluene	ND		1.00	1	06/25/2018 18:42	WG1129425
4-Chlorotoluene	ND		1.00	1	06/25/2018 18:42	WG1129425
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/25/2018 18:42	WG1129425
1,2-Dibromoethane	ND		1.00	1	06/25/2018 18:42	WG1129425
Dibromomethane	ND		1.00	1	06/25/2018 18:42	WG1129425
1,2-Dichlorobenzene	ND	J4	1.00	1	06/25/2018 18:42	WG1129425
1,3-Dichlorobenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
1,4-Dichlorobenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
Dichlorodifluoromethane	ND		5.00	1	06/25/2018 18:42	WG1129425
1,1-Dichloroethane	ND		1.00	1	06/25/2018 18:42	WG1129425
1,2-Dichloroethane	ND		1.00	1	06/25/2018 18:42	WG1129425
1,1-Dichloroethene	ND		1.00	1	06/25/2018 18:42	WG1129425
cis-1,2-Dichloroethene	1.39		1.00	1	06/25/2018 18:42	WG1129425
trans-1,2-Dichloroethene	ND		1.00	1	06/25/2018 18:42	WG1129425
1,2-Dichloropropane	ND		1.00	1	06/25/2018 18:42	WG1129425
1,1-Dichloropropene	ND		1.00	1	06/25/2018 18:42	WG1129425
1,3-Dichloropropane	ND		1.00	1	06/25/2018 18:42	WG1129425
cis-1,3-Dichloropropene	ND		1.00	1	06/25/2018 18:42	WG1129425
trans-1,3-Dichloropropene	ND		1.00	1	06/25/2018 18:42	WG1129425
2,2-Dichloropropane	ND		1.00	1	06/25/2018 18:42	WG1129425
Di-isopropyl ether	ND		1.00	1	06/25/2018 18:42	WG1129425
Ethylbenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
Hexachloro-1,3-butadiene	ND		1.00	1	06/25/2018 18:42	WG1129425
Isopropylbenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
p-Isopropyltoluene	ND		1.00	1	06/25/2018 18:42	WG1129425
2-Butanone (MEK)	ND		10.0	1	06/25/2018 18:42	WG1129425
Methylene Chloride	ND		5.00	1	06/25/2018 18:42	WG1129425
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/25/2018 18:42	WG1129425
Methyl tert-butyl ether	ND		1.00	1	06/25/2018 18:42	WG1129425
Naphthalene	ND		5.00	1	06/25/2018 18:42	WG1129425
n-Propylbenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
Styrene	ND		1.00	1	06/25/2018 18:42	WG1129425
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/25/2018 18:42	WG1129425
1,1,2,2-Tetrachloroethane	ND	J4	1.00	1	06/25/2018 18:42	WG1129425
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/25/2018 18:42	WG1129425
Tetrachloroethene	7.14		1.00	1	06/27/2018 04:02	WG1130160
Toluene	ND		1.00	1	06/25/2018 18:42	WG1129425
1,2,3-Trichlorobenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
1,2,4-Trichlorobenzene	ND		1.00	1	06/25/2018 18:42	WG1129425

1	Cp
2	Tc
3	Ss
4	Cn
5	Sr
6	Qc
7	Gl
8	Al
9	Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		1.00	1	06/25/2018 18:42	WG1129425
1,1,2-Trichloroethane	ND		1.00	1	06/25/2018 18:42	WG1129425
Trichloroethene	ND		1.00	1	06/25/2018 18:42	WG1129425
Trichlorofluoromethane	ND		5.00	1	06/25/2018 18:42	WG1129425
1,2,3-Trichloropropane	ND	J4	2.50	1	06/25/2018 18:42	WG1129425
1,2,4-Trimethylbenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
1,2,3-Trimethylbenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
1,3,5-Trimethylbenzene	ND		1.00	1	06/25/2018 18:42	WG1129425
Vinyl chloride	ND		1.00	1	06/25/2018 18:42	WG1129425
Xylenes, Total	ND		3.00	1	06/25/2018 18:42	WG1129425
(S) Toluene-d8	96.7		80.0-120		06/25/2018 18:42	WG1129425
(S) Toluene-d8	97.1		80.0-120		06/27/2018 04:02	WG1130160
(S) Dibromofluoromethane	104		76.0-123		06/25/2018 18:42	WG1129425
(S) Dibromofluoromethane	103		76.0-123		06/27/2018 04:02	WG1130160
(S) 4-Bromofluorobenzene	108		80.0-120		06/25/2018 18:42	WG1129425
(S) 4-Bromofluorobenzene	94.7		80.0-120		06/27/2018 04:02	WG1130160

₁ Cp
₂ Tc
₃ Ss
₄ Cn
₅ Sr
₆ Qc
₇ Gl
₈ Al
₉ Sc

Method Blank (MB)

(MB) R3321023-3 06/25/18 11:12

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		10.0	50.0
Acrolein	U		8.87	50.0
Acrylonitrile	U		1.87	10.0
Benzene	U		0.331	1.00
Bromobenzene	U		0.352	1.00
Bromodichloromethane	U		0.380	1.00
Bromoform	U		0.469	1.00
Bromomethane	U		0.866	5.00
n-Butylbenzene	U		0.361	1.00
sec-Butylbenzene	U		0.365	1.00
tert-Butylbenzene	U		0.399	1.00
Carbon tetrachloride	U		0.379	1.00
Chlorobenzene	U		0.348	1.00
Chlorodibromomethane	U		0.327	1.00
Chloroethane	U		0.453	5.00
Chloroform	U		0.324	5.00
Chloromethane	U		0.276	2.50
2-Chlorotoluene	U		0.375	1.00
4-Chlorotoluene	U		0.351	1.00
1,2-Dibromo-3-Chloropropane	U		1.33	5.00
1,2-Dibromoethane	U		0.381	1.00
Dibromomethane	U		0.346	1.00
1,2-Dichlorobenzene	U		0.349	1.00
1,3-Dichlorobenzene	U		0.220	1.00
1,4-Dichlorobenzene	U		0.274	1.00
Dichlorodifluoromethane	U		0.551	5.00
1,1-Dichloroethane	U		0.259	1.00
1,2-Dichloroethane	U		0.361	1.00
1,1-Dichloroethene	U		0.398	1.00
cis-1,2-Dichloroethene	U		0.260	1.00
trans-1,2-Dichloroethene	U		0.396	1.00
1,2-Dichloropropane	U		0.306	1.00
1,1-Dichloropropene	U		0.352	1.00
1,3-Dichloropropane	U		0.366	1.00
cis-1,3-Dichloropropene	U		0.418	1.00
trans-1,3-Dichloropropene	U		0.419	1.00
2,2-Dichloropropane	U		0.321	1.00
Di-isopropyl ether	U		0.320	1.00
Ethylbenzene	U		0.384	1.00
Hexachloro-1,3-butadiene	U		0.256	1.00

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3321023-3 06/25/18 11:12

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Isopropylbenzene	U		0.326	1.00
p-Isopropyltoluene	U		0.350	1.00
2-Butanone (MEK)	U		3.93	10.0
Methylene Chloride	U		1.00	5.00
4-Methyl-2-pentanone (MIBK)	U		2.14	10.0
Methyl tert-butyl ether	U		0.367	1.00
Naphthalene	U		1.00	5.00
n-Propylbenzene	U		0.349	1.00
Styrene	U		0.307	1.00
1,1,1,2-Tetrachloroethane	U		0.385	1.00
1,1,2,2-Tetrachloroethane	U		0.130	1.00
Tetrachloroethene	U		0.372	1.00
Toluene	U		0.412	1.00
1,1,2-Trichlorotrifluoroethane	U		0.303	1.00
1,2,3-Trichlorobenzene	U		0.230	1.00
1,2,4-Trichlorobenzene	U		0.355	1.00
1,1,1-Trichloroethane	U		0.319	1.00
1,1,2-Trichloroethane	U		0.383	1.00
Trichloroethene	U		0.398	1.00
Trichlorofluoromethane	U		1.20	5.00
1,2,3-Trichloropropane	U		0.807	2.50
1,2,3-Trimethylbenzene	U		0.321	1.00
1,2,4-Trimethylbenzene	U		0.373	1.00
1,3,5-Trimethylbenzene	U		0.387	1.00
Vinyl chloride	U		0.259	1.00
Xylenes, Total	U		1.06	3.00
(S) Toluene-d8	95.8			80.0-120
(S) Dibromofluoromethane	103			76.0-123
(S) 4-Bromofluorobenzene	107			80.0-120

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3321023-1 06/25/18 09:55 • (LCSD) R3321023-2 06/25/18 10:14

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	125	113	120	90.6	95.8	10.0-160			5.54	23
Acrolein	125	176	182	141	145	10.0-160			2.97	20
Acrylonitrile	125	137	143	110	114	60.0-142			4.06	20
Benzene	25.0	27.7	28.3	111	113	69.0-123			2.01	20

Sidebar tabs: 1 Cp | 2 Tc | 3 Ss | 4 Cn | 5 Sr | 6 Qc | 7 Gl | 8 Al | 9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3321023-1 06/25/18 09:55 • (LCSD) R3321023-2 06/25/18 10:14

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromobenzene	25.0	28.4	29.0	114	116	79.0-120			1.99	20
Bromodichloromethane	25.0	24.4	24.3	97.7	97.1	76.0-120			0.606	20
Bromoform	25.0	30.8	31.3	123	125	67.0-132			1.69	20
Bromomethane	25.0	14.0	13.9	55.9	55.7	18.0-160			0.499	20
n-Butylbenzene	25.0	23.8	25.0	95.2	100	72.0-126			5.01	20
sec-Butylbenzene	25.0	25.5	26.8	102	107	74.0-121			4.81	20
tert-Butylbenzene	25.0	24.1	24.8	96.4	99.1	75.0-122			2.79	20
Carbon tetrachloride	25.0	25.4	25.7	102	103	63.0-122			1.04	20
Chlorobenzene	25.0	23.6	23.7	94.4	94.9	79.0-121			0.518	20
Chlorodibromomethane	25.0	23.7	23.8	95.0	95.1	75.0-125			0.126	20
Chloroethane	25.0	25.7	25.2	103	101	47.0-152			1.70	20
Chloroform	25.0	25.8	26.1	103	104	72.0-121			1.18	20
Chloromethane	25.0	18.0	18.2	72.0	72.7	48.0-139			0.948	20
2-Chlorotoluene	25.0	28.1	29.2	112	117	74.0-122			4.10	20
4-Chlorotoluene	25.0	27.8	29.2	111	117	79.0-120			4.86	20
1,2-Dibromo-3-Chloropropane	25.0	26.2	28.3	105	113	64.0-127			7.69	20
1,2-Dibromoethane	25.0	25.5	25.7	102	103	77.0-123			0.715	20
Dibromomethane	25.0	26.1	25.9	104	104	78.0-120			0.711	20
1,2-Dichlorobenzene	25.0	29.4	30.7	118	123	80.0-120		J4	4.29	20
1,3-Dichlorobenzene	25.0	27.8	28.5	111	114	72.0-123			2.35	20
1,4-Dichlorobenzene	25.0	27.7	28.0	111	112	77.0-120			1.08	20
Dichlorodifluoromethane	25.0	19.5	20.2	78.1	80.6	49.0-155			3.11	20
1,1-Dichloroethane	25.0	28.1	28.3	112	113	70.0-126			0.918	20
1,2-Dichloroethane	25.0	27.5	27.9	110	111	67.0-126			1.16	20
1,1-Dichloroethene	25.0	23.9	24.4	95.7	97.6	64.0-129			1.99	20
cis-1,2-Dichloroethene	25.0	25.4	25.7	102	103	73.0-120			0.874	20
trans-1,2-Dichloroethene	25.0	24.5	25.2	98.0	101	71.0-121			2.69	20
1,2-Dichloropropane	25.0	28.1	28.3	112	113	75.0-125			0.720	20
1,1-Dichloropropene	25.0	27.1	28.3	108	113	71.0-129			4.35	20
1,3-Dichloropropane	25.0	28.7	28.5	115	114	80.0-121			0.827	20
cis-1,3-Dichloropropene	25.0	27.6	27.9	110	112	79.0-123			0.920	20
trans-1,3-Dichloropropene	25.0	28.3	28.4	113	114	74.0-127			0.553	20
2,2-Dichloropropane	25.0	25.1	25.3	100	101	60.0-125			0.839	20
Di-isopropyl ether	25.0	27.8	27.8	111	111	59.0-133			0.207	20
Ethylbenzene	25.0	23.2	23.6	92.8	94.6	77.0-120			1.86	20
Hexachloro-1,3-butadiene	25.0	25.7	27.6	103	110	64.0-131			6.76	20
Isopropylbenzene	25.0	26.3	27.2	105	109	75.0-120			3.29	20
p-Isopropyltoluene	25.0	24.4	25.5	97.7	102	74.0-126			4.46	20
2-Butanone (MEK)	125	136	146	109	117	37.0-158			7.02	20
Methylene Chloride	25.0	26.1	26.5	104	106	66.0-121			1.58	20

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:	PAGE:
Genesis Project, Inc. - QT GA		L1004285	06/30/18 15:53	28 of 33

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3321023-1 06/25/18 09:55 • (LCSD) R3321023-2 06/25/18 10:14

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Methyl-2-pentanone (MIBK)	125	137	141	110	112	59.0-143			2.60	20
Methyl tert-butyl ether	25.0	27.2	27.2	109	109	64.0-123			0.0569	20
Naphthalene	25.0	23.6	25.4	94.5	102	62.0-128			7.31	20
n-Propylbenzene	25.0	25.6	26.5	102	106	79.0-120			3.41	20
Styrene	25.0	28.6	29.7	115	119	78.0-124			3.69	20
1,1,1,2-Tetrachloroethane	25.0	23.4	23.7	93.5	94.8	75.0-122			1.41	20
1,1,2,2-Tetrachloroethane	25.0	30.1	31.2	121	125	71.0-122		J4	3.43	20
Tetrachloroethene	25.0	23.1	23.5	92.5	94.0	70.0-127			1.59	20
Toluene	25.0	23.5	24.1	94.1	96.5	77.0-120			2.49	20
1,1,2-Trichlorotrifluoroethane	25.0	26.5	27.1	106	108	61.0-136			2.12	20
1,2,3-Trichlorobenzene	25.0	25.4	27.3	102	109	61.0-133			7.16	20
1,2,4-Trichlorobenzene	25.0	27.1	29.5	109	118	69.0-129			8.40	20
1,1,1-Trichloroethane	25.0	23.4	23.8	93.5	95.1	68.0-122			1.71	20
1,1,2-Trichloroethane	25.0	25.2	25.2	101	101	78.0-120			0.138	20
Trichloroethene	25.0	24.4	24.9	97.4	99.5	78.0-120			2.09	20
Trichlorofluoromethane	25.0	22.9	23.4	91.8	93.6	56.0-137			1.91	20
1,2,3-Trichloropropane	25.0	29.9	31.6	120	126	72.0-124		J4	5.48	20
1,2,3-Trimethylbenzene	25.0	26.9	27.6	107	111	75.0-120			2.77	20
1,2,4-Trimethylbenzene	25.0	25.8	27.0	103	108	75.0-120			4.37	20
1,3,5-Trimethylbenzene	25.0	25.2	26.0	101	104	75.0-120			3.24	20
Vinyl chloride	25.0	24.4	25.1	97.7	100	64.0-133			2.80	20
Xylenes, Total	75.0	70.6	70.7	94.1	94.3	77.0-120			0.142	20
(S) Toluene-d8				93.0	93.3	80.0-120				
(S) Dibromofluoromethane				101	101	76.0-123				
(S) 4-Bromofluorobenzene				104	106	80.0-120				

Method Blank (MB)

(MB) R3321436-3 06/26/18 20:06

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Tetrachloroethene	U		0.372	1.00
(S) Toluene-d8	101			80.0-120
(S) Dibromofluoromethane	99.1			76.0-123
(S) 4-Bromofluorobenzene	96.3			80.0-120

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3321436-1 06/26/18 18:48 • (LCSD) R3321436-2 06/26/18 19:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Tetrachloroethene	25.0	25.1	24.6	100	98.5	70.0-127			1.81	20
(S) Toluene-d8				96.3	99.4	80.0-120				
(S) Dibromofluoromethane				102	100	76.0-123				
(S) 4-Bromofluorobenzene				95.9	95.4	80.0-120				

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

1	Cp
2	Tc
3	Ss
4	Cn
5	Sr
6	Qc
7	Gl
8	Al
9	Sc

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J4	The associated batch QC was outside the established quality control range for accuracy.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

[1] Cp
[2] Tc
[3] Ss
[4] Cn
[5] Sr
[6] Qc
[7] Gl
[8] Al
[9] Sc

State Accreditations

State	Number	State	Number
Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1][6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1][4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water   [2] Underground Storage Tanks   [3] Aquatic Toxicity   [4] Chemical/Microbiological   [5] Mold   [6] Wastewater   n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.
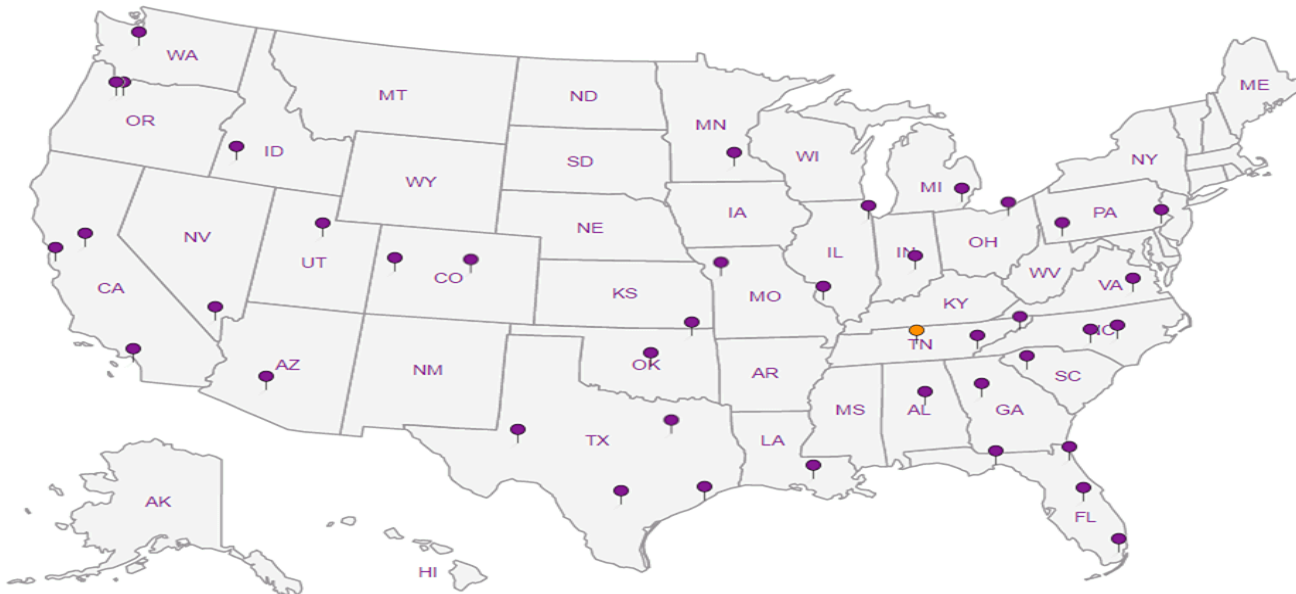
Genesis Project, Inc. - QT GA

1258 Concord Road
Suite 200
Smyrna, GA 30080

Report to:
Mitch Guthrie, PG / Joe McKinney

Project
Description: **QT 703R**

Phone: 770-713-0666

Fax:

Collected by (print): John Love

Collected by (signature):

Immediately
Packed on Ice N ___ Y ✓

Billing Information:

Attn: Accounts Payable
4705 S. 129th E. Ave.
Tulsa, OK 74134

Email To: mguthrie@genproject.com
jmckinney@genproject.com

City/State
Collected: Norcross, GA

Client Project #

Site/Facility ID #
2185 BEAVER RUIN ROAD

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Lab Project #
QTGENSIS-QT 703R

P.O. #

Quote #

Date Results Needed
Standard

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No of Cntrs	V8250 40mlAmb-HCl	Remarks	Sample # (lab only)
									-01
NMW-1	Grab	GW		6/21/18	1830	3	X		-02
NMW-2		GW		6/22/18	0820	3	X		03
NMW-3		GW		6/22/18	0945	3	X		-04
NMW-4		GW		6/21/18	1750	3	X		05
NMW-5		GW		6/22/18	1100	3	X		06
NMW-6		GW		6/21/18	1455	3	X		07
NMW-7		GW		6/21/18	1350	3	X		08
NMW-8		GW		6/21/18	1600	3	X		09
NMW-9		GW		6/21/18	1205	3	X		-10
MW-10	Grab	GW		6/21/18	1620	3	X		

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other ___

Remarks:

Samples returned via:
___ UPS ✗ FedEx ___ Courier ___

pH ___ Temp ___

Flow ___ Other ___

Tracking # 4380 0895 3304

Relinquished by : (Signature) Date: 6/20/2018 Time: 13:30

Received by: (Signature)

Trip Blank Received: Yes / No HCl / MeoH TBR

Relinquished by : (Signature) Date: Time:

Received by: (Signature) Temp: 52 °C Bottles Received: 30

Relinquished by : (Signature) Date: Time:

Received for lab by: (Signature) Kathron Crown Date: 6/23/18 Time: 0845

APPENDIX VI

**Milestone Schedule
Monthly Service Hours**

Genesis Project, Inc.

Milestone Schedule
Voluntary Remediation Program
Former Professional Cleaners Proposed QuikTrip Store No. 703R
Norcross, Georgia

Item	Months From Project Start												Months From Project Start												Months From Project Start											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Task 4.1: Re-installation of monitor wells		██	██	██	██	██	██	██	██	██																										
Task 4.2: Well sampling, hydrogeologic testing, groundwater modeling						██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██												
Task 4.3: Development and Approval of Unified Environmental Covenant																			██	██	██	██	██	██												
Task 4.4: Preparation and submittal of VRP-CSR Report																									██	██	██	██	██	██	██	██				

Monthly Service Hours Detail

Month	Task	Hours
January 2018	Admin	1.0
	PM & Consulting	2.0
	Report Prep. and Review	17.0
	Total	**20.0**
June 2018	PM & Consulting	8.0
	Hydrogeological Testing	26.0
	Report Prep and Review	33.5
	Modeling and Data Analysis	35.5
	Admin	1.0
	Total	**104.0**
	GRAND TOTAL	**124.0**