



P. O. Box 7192 (zip 71137-7192)  
1000 Grimmett Dr.  
Shreveport, LA 71107  
Phone: (318) 222-2424  
Fax: (318) 222-2425

January 18, 2019

Mr. Todd Emmert  
Elm Springs, Inc.  
P.O. Box 58  
Shongaloo, LA 71072-0058

Re: LDNR-Irrigation Well Sampling Project  
Blake Gamble Water Well- Serial Number: 6729Z  
Section 34, Township 13 N, Range 15 W  
GPS via hand held (Water Well): 32.07026, -93.89213

Dear Mr. Emmert:

Approach Environmental, LLC (Approach Environmental) was retained by Elm Springs, Inc. (Elm Springs) to conduct an Irrigation Water Well Sampling Project at the referenced location. On November 13, 2018, Approach Environmental met with OC inspector David Barnhill to collect groundwater samples from the referenced water well to evaluate specific groundwater quality parameters requested by the Louisiana Department of Natural Resources (LDNR).

The irrigation water well sampling activities included photo documentation of the water well (photos attached), water well purging (if well was not used on a regular basis), obtaining GPS coordinates (via hand-held GPS), groundwater sampling, and preparation of a brief letter report presenting the analytical data, sampling procedures, and well conditions. According to LDNR SONRIS, the Blake Gamble (LDNR serial number 6729Z) water well is registered as an irrigation well with a recorded total depth of 226' below ground surface (bgs), a depth to water of 112' bgs and is completed in the Wilcox aquifer. The depth to water could not be measured during the sampling event due to an existing pump in the well. The well is constructed of 4-inch diameter PVC piping and is located on the property of a chicken farm. The equipment to operate the pump is located inside of a small pump shed and the well was approximately 10' South of the pump shed. The well was equipped with a valve, and the sample was taken directly from the well. The well was purged of approximately 50- 100 gallons. Once purged, the water sample was collected in laboratory supplied sample containers by an experienced Environmental Scientist wearing nitrile gloves and immediately placed on ice in an ice chest. Proper chain-of-custody procedures were followed and are documented with the attached laboratory report.

The sample was, then, delivered, via FedEx overnight, to Element Materials Technology, a LELAP Certification No.: 01997, a LDHH Certification No.: LA180028, and a ISDH Certification No.: C-LA-01 located in Lafayette, Louisiana. As requested by the LDNR, the sample was analyzed for Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO), TPH Diesel Range Organics (DRO), TPH Oil Range Organics (ORO) by method SW8015, RCRA Metals by method SW6010/7470A, Inorganic Anions in water by IC method SW9056 (Chlorides), Polynuclear Aromatic Hydrocarbons (PAH) by EPA 8270C, Semi-Volatile Organic Compounds by method SW8270C, Volatile Organic Compounds (VOC) by method SW8260B, Total Dissolved Solids (TDS) by method SM2540C, and Dissolved Methane by EPA RSK-175.

A Google Earth map illustrating the location of the referenced irrigation water well, photographic documentation, and the analytical laboratory report are attached for review. Based on our review of the analytical data, the following parameters were detected within the respective method detection limits: TPG-DRO was detected at 0.389 mg/l TPH-GRO was detected at 0.0732 mg/l (0.0515 mg/l TPH-GRO was also detected in the trip blank); Chlorides was detected at 50.7 mg/l; Barium was detected at 0.0182 mg/l; Cadmium was detected at 0.00110 mg/l; Selenium was detected at 0.0101 mg/l; Sodium was detected at 51.2 mg/l; 2-Methylnaphthalene was detected at 0.00321 mg/l; Fluorene was detected at 0.000311 mg/l; Naphthalene was detected at 0.00568 mg/l; Phenanthrene was detected at 0.000766 mg/l; Biphenyl was detected at 0.00625 mg/l; Bis(2-ethylhexyl)phthalate was detected at 0.00790 mg/l; Dibenzofuran was detected at 0.000299mg/l; TDS was detected at 265 mg/l and Methane was detected at 16.7 ug/l. No other parameters were detected above the respective method detection limits.

Due to the unexpected detection of TPH-DRO as well as certain Semi-Volatile Organic compounds in the water well sample and the TPH-GRO detection in the trip blank, Approach Environmental recommends re-sampling and analysis of the water well.

Should you have any questions and/or comments, please do not hesitate to contact me at (318) 222-2424.

Sincerely,



Mark S. Moore  
Louisiana Professional Geoscientist (P.G. #490)  
Approach Environmental, L.L.C.

Encl./

## **Attachments Table of Contents**

Site Photographs with Maps

Analytical Data Report



Blake Gamble-6729Z water well



Blake Gamble-6729Z Water well Pump Shed



Zoomed in Google Earth Aerial Map of the Blake Gamble-6729Z water well



Zoomed out Google Earth Aerial Map of the Blake Gamble-6729Z water well



Element Materials Technology Lafayette

2417 W. Pinhook Road

Lafayette, LA 70508-3344

TEL: (337) 235-0483 FAX: (337) 233-6540

Website: [www.element.com](http://www.element.com)

November 29, 2018

Mark Moore  
Approach Environmental, LLC  
151 Freestate Blvd.  
Suite B  
Shreveport, LA 71107  
TEL: 318 222 2424  
FAX

RE: LDNR Residential Water Wells

Order No.: 18110484

Dear Mark Moore:

Element Materials Technology Lafayette received 2 sample(s) on 11/14/2018 for the analyses presented in the following report.

In accordance with your instructions Element Lafayette conducted the analysis shown on the following pages on samples submitted by your company. The results related only to the items tested. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet all requirements of TNI. All relevant sampling information is on the attached Chain-of-Custody form.

All soil data, except for 29-B, are on a wet-weight basis unless otherwise indicated in the units field as -dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA180028. ISDH Certification No.: C-LA-01. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

Estimated uncertainty is available upon request. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads "Cristina Thibeaux".

Cristina Thibeaux  
Customer Service Supervisor  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344



*Element Materials Technology Lafayette*  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
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## Case Narrative

WO#: 18110484  
Date: 11/29/2018

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**CLIENT:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).

The Dissolved Methane (RSK175) analysis was subcontracted to Gulf Coast Analytical Laboratories, Inc. Their report is attached in its entirety.



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
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TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: www.element.com

Analytical Report  
(consolidated MDL)  
WO#: 18110484  
Date Reported 11/29/2018

**CLIENT:** Approach Environmental, LLC **Collection Date:** 11/13/2018 10:00:00 AM  
**Project:** LDNR Residential Water Wells  
**Lab ID:** 18110484-001 **Matrix:** WATER  
**Client Sample ID** 6729Z Blake Gamble

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>							
<b>TPH DRO/ORO IN WATER BY SW8015</b>							
TPH (Diesel Range)	0.389	0.00395	0.129		mg/L	1	11/16/2018 12:39:00 AM
TPH (Oil Range)	< 0.119	0.0472	0.119		mg/L	1	11/16/2018 12:39:00 AM
Surr: 4-Terphenyl-d14	80.9		51.4-146		%Rec	1	11/16/2018 12:39:00 AM
<b>TPH-GRO IN WATER BY SW8015</b>							
<b>SW8015B</b>							
TPH (Gasoline Range)	0.0732	0.0149	0.150	J	mg/L	1	11/14/2018 8:36:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	104		70-130		%Rec	1	11/14/2018 8:36:00 PM
<b>RCRA METALS - SW6010/7470A</b>							
<b>MERCURY IN GROUND WATER, TOTAL</b>							
Mercury	< 0.000200	0.0000540	0.000200		mg/L	1	11/16/2018 2:09:47 PM
<b>INORGANIC ANIONS IN WATER BY IC</b>							
<b>SW9056A</b>							
Chloride	50.7	0.166	2.50		mg/L	10	11/26/2018 11:28:13 AM
<b>RCRA METALS - SW6010/7470A</b>							
<b>METALS IN WATER BY ICP, TOTALS</b>							
Arsenic	< 0.0100	0.00895	0.0100		mg/L	1	11/27/2018 8:40:39 PM
Barium	0.182	0.00103	0.0100		mg/L	1	11/27/2018 8:40:39 PM
Cadmium	0.00110	0.000781	0.00500	J	mg/L	1	11/27/2018 8:40:39 PM
Chromium	< 0.0100	0.000483	0.0100		mg/L	1	11/27/2018 8:40:39 PM
Lead	< 0.0100	0.00488	0.0100		mg/L	1	11/27/2018 8:40:39 PM
Selenium	0.0101	0.00526	0.0200	J	mg/L	1	11/27/2018 8:40:39 PM
Silver	< 0.00500	0.000340	0.00500		mg/L	1	11/27/2018 8:40:39 PM
Sodium	51.2	2.32	5.00		mg/L	1	11/27/2018 8:40:39 PM
<b>PAH IN WATER</b>							
<b>SW8270C</b>							
2-Methylnaphthalene	0.00321	0.0000193	0.000513		mg/L	1	11/15/2018 5:07:00 PM
Acenaphthene	< 0.00103	0.0000535	0.00103		mg/L	1	11/15/2018 5:07:00 PM
Acenaphthylene	< 0.00103	0.0000115	0.00103		mg/L	1	11/15/2018 5:07:00 PM

**Qualifiers:** \* Value exceeds Maximum Contaminant Level.  
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ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank  
DF Dilution Factor  
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M Matrix Interference  
R RPD outside accepted recovery limits



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**Lab ID:** 18110484-001 **Matrix:** WATER  
**Client Sample ID** 6729Z Blake Gamble

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
<b>PAH IN WATER</b>							
					<b>SW8270C</b>	<b>SW3511</b>	Analyst: CRM
Anthracene	< 0.00103	0.00000611	0.00103		mg/L	1	11/15/2018 5:07:00 PM
Benzo(a)anthracene	< 0.000513	0.0000249	0.000513		mg/L	1	11/15/2018 5:07:00 PM
Benzo(a)pyrene	< 0.000174	0.0000466	0.000174		mg/L	1	11/15/2018 5:07:00 PM
Benzo(b)fluoranthene	< 0.000513	0.0000438	0.000513		mg/L	1	11/15/2018 5:07:00 PM
Benzo(k)fluoranthene	< 0.000513	0.0000630	0.000513		mg/L	1	11/15/2018 5:07:00 PM
Chrysene	< 0.000513	0.0000247	0.000513		mg/L	1	11/15/2018 5:07:00 PM
Dibenz(a,h)anthracene	< 0.00103	0.0000528	0.00103		mg/L	1	11/15/2018 5:07:00 PM
Fluoranthene	< 0.00103	0.00000554	0.00103		mg/L	1	11/15/2018 5:07:00 PM
Fluorene	0.000311	0.0000237	0.000616	J	mg/L	1	11/15/2018 5:07:00 PM
Indeno(1,2,3-cd)pyrene	< 0.000513	0.000147	0.000513		mg/L	1	11/15/2018 5:07:00 PM
Naphthalene	0.00568	0.0000264	0.00103		mg/L	1	11/15/2018 5:07:00 PM
Phenanthrene	0.000766	0.00000305	0.00103	J	mg/L	1	11/15/2018 5:07:00 PM
Pyrene	< 0.00103	0.00000119	0.00103		mg/L	1	11/15/2018 5:07:00 PM
Surr: 4-Terphenyl-d14	92.1	0	49.2-161		%Rec	1	11/15/2018 5:07:00 PM
<b>SEMIVOLATILE ORGANICS IN WATER</b>							
					<b>SW8270C</b>	<b>E625/SW351</b>	Analyst: KSK
1,2,4,5-Tetrachlorobenzene	< 0.00101	0.000505	0.00101		mg/L	1	11/15/2018 2:57:00 PM
1,2,4-Trichlorobenzene	< 0.00505	0.00101	0.00505		mg/L	1	11/15/2018 2:57:00 PM
1,2-Dichlorobenzene	< 0.00505	0.00101	0.00505		mg/L	1	11/15/2018 2:57:00 PM
1,3-Dichlorobenzene	< 0.00505	0.000509	0.00505		mg/L	1	11/15/2018 2:57:00 PM
1,3-Dinitrobenzene	< 0.00505	0.000505	0.00505		mg/L	1	11/15/2018 2:57:00 PM
1,4-Dichlorobenzene	< 0.00505	0.00101	0.00505		mg/L	1	11/15/2018 2:57:00 PM
2,3,4,6-Tetrachlorophenol	< 0.00505	0.000505	0.00505		mg/L	1	11/15/2018 2:57:00 PM
2,4,5-Trichlorophenol	< 0.0101	0.000505	0.0101		mg/L	1	11/15/2018 2:57:00 PM
2,4,6-Trichlorophenol	< 0.00505	0.000505	0.00505		mg/L	1	11/15/2018 2:57:00 PM
2,4-Dichlorophenol	< 0.00505	0.000505	0.00505		mg/L	1	11/15/2018 2:57:00 PM
2,4-Dimethylphenol	< 0.00505	0.000562	0.00505		mg/L	1	11/15/2018 2:57:00 PM
2,4-Dinitrophenol	< 0.0202	0.00202	0.0202		mg/L	1	11/15/2018 2:57:00 PM
2,4-Dinitrotoluene	< 0.00505	0.000505	0.00505		mg/L	1	11/15/2018 2:57:00 PM
2,6-Dinitrotoluene	< 0.00505	0.000505	0.00505		mg/L	1	11/15/2018 2:57:00 PM
2-Chloronaphthalene	< 0.00505	0.0000620	0.00505		mg/L	1	11/15/2018 2:57:00 PM
2-Chlorophenol	< 0.00505	0.0000545	0.00505		mg/L	1	11/15/2018 2:57:00 PM
2-Nitroaniline	< 0.00505	0.000505	0.00505		mg/L	1	11/15/2018 2:57:00 PM

**Qualifiers:** \* Value exceeds Maximum Contaminant Level.  
C Value is below Minimum Compound Limit.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank  
DF Dilution Factor  
H Holding times for preparation or analysis exceeded  
M Matrix Interference  
R RPD outside accepted recovery limits



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Analytical Report  
(consolidated MDL)  
WO#: 18110484  
Date Reported 11/29/2018

**CLIENT:** Approach Environmental, LLC **Collection Date:** 11/13/2018 10:00:00 AM  
**Project:** LDNR Residential Water Wells  
**Lab ID:** 18110484-001 **Matrix:** WATER  
**Client Sample ID** 6729Z Blake Gamble

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILE ORGANICS IN WATER</b> <b>Method:</b> SW8270C <b>QA/QC:</b> E625/SW351 <b>Analyst:</b> KSK							
3,3'-Dichlorobenzidine	< 0.0101	0.000481	0.0101	mg/L	1	11/15/2018 2:57:00 PM	
3-Nitroaniline	< 0.0202	0.000505	0.0202	mg/L	1	11/15/2018 2:57:00 PM	
4-Chloroaniline	< 0.00505	0.000240	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
4-Nitroaniline	< 0.00505	0.000505	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
4-Nitrophenol	< 0.0202	0.00505	0.0202	mg/L	1	11/15/2018 2:57:00 PM	
Aniline	< 0.00505	0.000495	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
Biphenyl	0.00625	0.000505	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
Bis(2-chloroethyl)ether	< 0.00505	0.0000825	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
Bis(2-chloroisopropyl)ether	< 0.00505	0.000505	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
Bis(2-ethylhexyl)phthalate	0.00790	0.000305	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
Butyl benzyl phthalate	< 0.00505	0.000107	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
Dibenzofuran	0.000299	0.0000808	0.00505	J mg/L	1	11/15/2018 2:57:00 PM	
Diethyl phthalate	< 0.00505	0.000505	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
Dimethyl phthalate	< 0.00505	0.000505	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
Di-n-octyl phthalate	< 0.0101	0.000183	0.0101	mg/L	1	11/15/2018 2:57:00 PM	
Dinoseb	< 0.00505	0.000303	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
Hexachlorobenzene	< 0.00101	0.000505	0.00101	mg/L	1	11/15/2018 2:57:00 PM	
Hexachlorobutadiene	< 0.00202	0.00101	0.00202	mg/L	1	11/15/2018 2:57:00 PM	
Hexachlorocyclopentadiene	< 0.0101	0.000505	0.0101	mg/L	1	11/15/2018 2:57:00 PM	
Hexachloroethane	< 0.00505	0.00202	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
Isophorone	< 0.00505	0.000181	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
Nitrobenzene	< 0.00101	0.000505	0.00101	mg/L	1	11/15/2018 2:57:00 PM	
N-Nitrosodi-n-propylamine	< 0.00505	0.000505	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
N-Nitrosodiphenylamine	< 0.00505	0.000144	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
Pentachlorophenol	< 0.0101	0.00101	0.0101	mg/L	1	11/15/2018 2:57:00 PM	
Phenol	< 0.00505	0.0000527	0.00505	mg/L	1	11/15/2018 2:57:00 PM	
Surr: 2,4,6-Tribromophenol	72.2	47.2-144	%Rec	1	11/15/2018 2:57:00 PM		
Surr: 2-Fluorobiphenyl	89.0	52.2-116	%Rec	1	11/15/2018 2:57:00 PM		
Surr: 2-Fluorophenol	47.9	27.3-80.6	%Rec	1	11/15/2018 2:57:00 PM		
Surr: 4-Terphenyl-d14	105	48.1-134	%Rec	1	11/15/2018 2:57:00 PM		
Surr: Nitrobenzene-d5	84.7	42.5-144	%Rec	1	11/15/2018 2:57:00 PM		
Surr: Phenol-d5	30.1	10-67.1	%Rec	1	11/15/2018 2:57:00 PM		

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**Project:** LDNR Residential Water Wells  
**Lab ID:** 18110484-001 **Matrix:** WATER  
**Client Sample ID** 6729Z Blake Gamble

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY GC/MS IN WATER</b>							
					<b>SW8260B</b>		Analyst: KSK
1,1,1,2-Tetrachloroethane	< 0.00500	0.000200	0.00500		mg/L	1	11/15/2018 9:24:00 PM
1,1,1-Trichloroethane	< 0.00500	0.000200	0.00500		mg/L	1	11/15/2018 9:24:00 PM
1,1,2,2-Tetrachloroethane	< 0.000500	0.000150	0.000500		mg/L	1	11/15/2018 9:24:00 PM
1,1,2-Trichloroethane	< 0.00500	0.000172	0.00500		mg/L	1	11/15/2018 9:24:00 PM
1,1-Dichloroethane	< 0.00500	0.000200	0.00500		mg/L	1	11/15/2018 9:24:00 PM
1,1-Dichloroethene	< 0.00500	0.000361	0.00500		mg/L	1	11/15/2018 9:24:00 PM
1,2-Dibromo-3-chloropropane	< 0.00500	0.000210	0.00500		mg/L	1	11/15/2018 9:24:00 PM
1,2-Dichlorobenzene	< 0.0200	0.000500	0.0200		mg/L	1	11/15/2018 9:24:00 PM
1,2-Dichloroethane	< 0.00500	0.000500	0.00500		mg/L	1	11/15/2018 9:24:00 PM
1,2-Dichloroethene, Total	< 0.00600	0.000400	0.00600		mg/L	1	11/15/2018 9:24:00 PM
1,2-Dichloropropane	< 0.00500	0.000148	0.00500		mg/L	1	11/15/2018 9:24:00 PM
1,3-Dichlorobenzene	< 0.0100	0.000500	0.0100		mg/L	1	11/15/2018 9:24:00 PM
1,4-Dichlorobenzene	< 0.0200	0.000500	0.0200		mg/L	1	11/15/2018 9:24:00 PM
2-Butanone	< 0.0100	0.000442	0.0100		mg/L	1	11/15/2018 9:24:00 PM
4-Methyl-2-pentanone	< 0.0100	0.000325	0.0100		mg/L	1	11/15/2018 9:24:00 PM
Acetone	< 0.0100	0.00226	0.0100		mg/L	1	11/15/2018 9:24:00 PM
Benzene	< 0.00500	0.000200	0.00500		mg/L	1	11/15/2018 9:24:00 PM
Bromodichloromethane	< 0.00500	0.000136	0.00500		mg/L	1	11/15/2018 9:24:00 PM
Bromoform	< 0.00500	0.000500	0.00500		mg/L	1	11/15/2018 9:24:00 PM
Bromomethane	< 0.00500	0.000688	0.00500		mg/L	1	11/15/2018 9:24:00 PM
Carbon disulfide	< 0.0100	0.000133	0.0100		mg/L	1	11/15/2018 9:24:00 PM
Carbon tetrachloride	< 0.00500	0.0000773	0.00500		mg/L	1	11/15/2018 9:24:00 PM
Chlorobenzene	< 0.00500	0.000200	0.00500		mg/L	1	11/15/2018 9:24:00 PM
Chlorodibromomethane	< 0.00500	0.000170	0.00500		mg/L	1	11/15/2018 9:24:00 PM
Chloroethane	< 0.0100	0.00155	0.0100		mg/L	1	11/15/2018 9:24:00 PM
Chloroform	< 0.00500	0.000200	0.00500		mg/L	1	11/15/2018 9:24:00 PM
Chloromethane	< 0.00500	0.00200	0.00500		mg/L	1	11/15/2018 9:24:00 PM
cis-1,2-Dichloroethene	< 0.00300	0.000200	0.00300		mg/L	1	11/15/2018 9:24:00 PM
cis-1,3-Dichloropropene	< 0.00200	0.000500	0.00200		mg/L	1	11/15/2018 9:24:00 PM
Ethylbenzene	< 0.00500	0.000200	0.00500		mg/L	1	11/15/2018 9:24:00 PM
Isobutyl alcohol	< 0.100	0.00400	0.100		mg/L	1	11/15/2018 9:24:00 PM
Methyl tert-butyl ether	< 0.00500	0.000500	0.00500		mg/L	1	11/15/2018 9:24:00 PM
Methylene chloride	< 0.00500	0.000457	0.00500		mg/L	1	11/15/2018 9:24:00 PM
Styrene	< 0.00500	0.000200	0.00500		mg/L	1	11/15/2018 9:24:00 PM

**Qualifiers:** \* Value exceeds Maximum Contaminant Level.  
C Value is below Minimum Compound Limit.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank  
DF Dilution Factor  
H Holding times for preparation or analysis exceeded  
M Matrix Interference  
R RPD outside accepted recovery limits



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Analytical Report  
(consolidated MDL)  
WO#: 18110484  
Date Reported 11/29/2018

**CLIENT:** Approach Environmental, LLC **Collection Date:** 11/13/2018 10:00:00 AM  
**Project:** LDNR Residential Water Wells  
**Lab ID:** 18110484-001 **Matrix:** WATER  
**Client Sample ID** 6729Z Blake Gamble

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
<b>VOLATILES BY GC/MS IN WATER</b>							
Tetrachloroethene	< 0.00500	0.000200	0.00500	mg/L	1	11/15/2018 9:24:00 PM	
Toluene	< 0.00500	0.000200	0.00500	mg/L	1	11/15/2018 9:24:00 PM	
trans-1,2-Dichloroethene	< 0.00300	0.000204	0.00300	mg/L	1	11/15/2018 9:24:00 PM	
trans-1,3-Dichloropropene	< 0.00200	0.000500	0.00200	mg/L	1	11/15/2018 9:24:00 PM	
Trichloroethene	< 0.00500	0.000500	0.00500	mg/L	1	11/15/2018 9:24:00 PM	
Trichlorofluoromethane	< 0.00500	0.00200	0.00500	mg/L	1	11/15/2018 9:24:00 PM	
Vinyl chloride	< 0.00200	0.00200	0.00200	mg/L	1	11/15/2018 9:24:00 PM	
Xylenes, Total	< 0.0150	0.00150	0.0150	mg/L	1	11/15/2018 9:24:00 PM	
Surr: 4-Bromofluorobenzene	111		65.1-136	%Rec	1	11/15/2018 9:24:00 PM	
Surr: Dibromofluoromethane	99.2		40.4-143	%Rec	1	11/15/2018 9:24:00 PM	
Surr: Toluene-d8	104		58.2-127	%Rec	1	11/15/2018 9:24:00 PM	
<b>TOTAL DISSOLVED SOLIDS</b>							
Total Dissolved Solids (Residue, Filterable)	265	11.9	20.0	mg/L	1	11/16/2018 9:34:00 AM	

**Qualifiers:** \* Value exceeds Maximum Contaminant Level.  
C Value is below Minimum Compound Limit.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank  
DF Dilution Factor  
H Holding times for preparation or analysis exceeded  
M Matrix Interference  
R RPD outside accepted recovery limits



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Analytical Report  
(consolidated MDL)  
WO#: 18110484  
Date Reported 11/29/2018

**CLIENT:** Approach Environmental, LLC **Collection Date:** 11/13/2018  
**Project:** LDNR Residential Water Wells  
**Lab ID:** 18110484-002 **Matrix:** AQUEOUS  
**Client Sample ID** Trip Blank

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
<b>TPH-GRO IN WATER BY SW8015</b>							
TPH (Gasoline Range)	0.0515	0.0149	0.150	J	mg/L	1	11/14/2018 9:31:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene							
	104		70-130	%Rec		1	11/14/2018 9:31:00 PM
<b>VOLATILES BY GC/MS IN WATER</b>							
1,1,1,2-Tetrachloroethane	< 0.00500	0.000200	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
1,1,1-Trichloroethane	< 0.00500	0.000200	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
1,1,2,2-Tetrachloroethane	< 0.000500	0.000150	0.000500	mg/L	1	11/15/2018 10:07:00 PM	
1,1,2-Trichloroethane	< 0.00500	0.000172	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
1,1-Dichloroethane	< 0.00500	0.000200	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
1,1-Dichloroethene	< 0.00500	0.000361	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
1,2-Dibromo-3-chloropropane	< 0.00500	0.000210	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
1,2-Dichlorobenzene	< 0.0200	0.000500	0.0200	mg/L	1	11/15/2018 10:07:00 PM	
1,2-Dichloroethane	< 0.00500	0.000500	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
1,2-Dichloroethene, Total	< 0.00600	0.000400	0.00600	mg/L	1	11/15/2018 10:07:00 PM	
1,2-Dichloropropane	< 0.00500	0.000148	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
1,3-Dichlorobenzene	< 0.0100	0.000500	0.0100	mg/L	1	11/15/2018 10:07:00 PM	
1,4-Dichlorobenzene	< 0.0200	0.000500	0.0200	mg/L	1	11/15/2018 10:07:00 PM	
2-Butanone	< 0.0100	0.000442	0.0100	mg/L	1	11/15/2018 10:07:00 PM	
4-Methyl-2-pentanone	< 0.0100	0.000325	0.0100	mg/L	1	11/15/2018 10:07:00 PM	
Acetone	< 0.0100	0.00226	0.0100	mg/L	1	11/15/2018 10:07:00 PM	
Benzene	< 0.00500	0.000200	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
Bromodichloromethane	< 0.00500	0.000136	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
Bromoform	< 0.00500	0.000500	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
Bromomethane	< 0.00500	0.000688	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
Carbon disulfide	< 0.0100	0.000133	0.0100	mg/L	1	11/15/2018 10:07:00 PM	
Carbon tetrachloride	< 0.00500	0.0000773	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
Chlorobenzene	< 0.00500	0.000200	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
Chlorodibromomethane	< 0.00500	0.000170	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
Chloroethane	< 0.0100	0.00155	0.0100	mg/L	1	11/15/2018 10:07:00 PM	
Chloroform	< 0.00500	0.000200	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
Chloromethane	< 0.00500	0.00200	0.00500	mg/L	1	11/15/2018 10:07:00 PM	
cis-1,2-Dichloroethene	< 0.00300	0.000200	0.00300	mg/L	1	11/15/2018 10:07:00 PM	

**Qualifiers:** \* Value exceeds Maximum Contaminant Level.  
C Value is below Minimum Compound Limit.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank  
DF Dilution Factor  
H Holding times for preparation or analysis exceeded  
M Matrix Interference  
R RPD outside accepted recovery limits



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Analytical Report  
(consolidated MDL)  
WO#: 18110484  
Date Reported 11/29/2018

**CLIENT:** Approach Environmental, LLC **Collection Date:** 11/13/2018  
**Project:** LDNR Residential Water Wells  
**Lab ID:** 18110484-002 **Matrix:** AQUEOUS  
**Client Sample ID** Trip Blank

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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**VOLATILES BY GC/MS IN WATER** **SW8260B** Analyst: KSK

cis-1,3-Dichloropropene	< 0.00200	0.000500	0.00200	mg/L	1	11/15/2018 10:07:00 PM
Ethylbenzene	< 0.00500	0.000200	0.00500	mg/L	1	11/15/2018 10:07:00 PM
Isobutyl alcohol	< 0.100	0.00400	0.100	mg/L	1	11/15/2018 10:07:00 PM
Methyl tert-butyl ether	< 0.00500	0.000500	0.00500	mg/L	1	11/15/2018 10:07:00 PM
Methylene chloride	< 0.00500	0.000457	0.00500	mg/L	1	11/15/2018 10:07:00 PM
Styrene	< 0.00500	0.000200	0.00500	mg/L	1	11/15/2018 10:07:00 PM
Tetrachloroethene	< 0.00500	0.000200	0.00500	mg/L	1	11/15/2018 10:07:00 PM
Toluene	< 0.00500	0.000200	0.00500	mg/L	1	11/15/2018 10:07:00 PM
trans-1,2-Dichloroethene	< 0.00300	0.000204	0.00300	mg/L	1	11/15/2018 10:07:00 PM
trans-1,3-Dichloropropene	< 0.00200	0.000500	0.00200	mg/L	1	11/15/2018 10:07:00 PM
Trichloroethene	< 0.00500	0.000500	0.00500	mg/L	1	11/15/2018 10:07:00 PM
Trichlorofluoromethane	< 0.00500	0.00200	0.00500	mg/L	1	11/15/2018 10:07:00 PM
Vinyl chloride	< 0.00200	0.00200	0.00200	mg/L	1	11/15/2018 10:07:00 PM
Xylenes, Total	< 0.0150	0.00150	0.0150	mg/L	1	11/15/2018 10:07:00 PM
Surr: 4-Bromofluorobenzene	106		65.1-136	%Rec	1	11/15/2018 10:07:00 PM
Surr: Dibromofluoromethane	104		40.4-143	%Rec	1	11/15/2018 10:07:00 PM
Surr: Toluene-d8	102		58.2-127	%Rec	1	11/15/2018 10:07:00 PM

**Qualifiers:** \* Value exceeds Maximum Contaminant Level.  
C Value is below Minimum Compound Limit.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank  
DF Dilution Factor  
H Holding times for preparation or analysis exceeded  
M Matrix Interference  
R RPD outside accepted recovery limits



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28291

Sample ID: MB-28291	SampType: MBLK	TestCode: 8270_W_REC	Units: mg/L	Prep Date: 11/14/2018	RunNo: 74065						
Client ID: PBW	Batch ID: 28291	TestNo: SW8270C	E625/SW3510	Analysis Date: 11/15/2018	SeqNo: 1852200						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4,5-Tetrachlorobenzene	< 0.00100	0.00100									
1,2,4-Trichlorobenzene	< 0.00500	0.00500									
1,2-Dichlorobenzene	< 0.00500	0.00500									
1,3-Dichlorobenzene	< 0.00500	0.00500									
1,3-Dinitrobenzene	< 0.00500	0.00500									
1,4-Dichlorobenzene	< 0.00500	0.00500									
2,3,4,6-Tetrachlorophenol	< 0.00500	0.00500									
2,4,5-Trichlorophenol	< 0.0100	0.0100									
2,4,6-Trichlorophenol	< 0.00500	0.00500									
2,4-Dichlorophenol	< 0.00500	0.00500									
2,4-Dimethylphenol	< 0.00500	0.00500									
2,4-Dinitrophenol	< 0.0200	0.0200									
2,4-Dinitrotoluene	< 0.00500	0.00500									
2,6-Dinitrotoluene	< 0.00500	0.00500									
2-Chloronaphthalene	< 0.00500	0.00500									
2-Chlorophenol	< 0.00500	0.00500									
2-Nitroaniline	< 0.00500	0.00500									
3,3'-Dichlorobenzidine	< 0.0100	0.0100									
3-Nitroaniline	< 0.0200	0.0200									
4-Chloroaniline	< 0.00500	0.00500									
4-Nitroaniline	< 0.00500	0.00500									
4-Nitropheno	< 0.0200	0.0200									
Aniline	< 0.00500	0.00500									
Biphenyl	< 0.00500	0.00500									
Bis(2-chloroethyl)ether	< 0.00500	0.00500									
Bis(2-chloroisopropyl)ether	< 0.00500	0.00500									

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28291

Sample ID: MB-28291	SampType: MBLK	TestCode: 8270_W_REC	Units: mg/L	Prep Date: 11/14/2018	RunNo: 74065						
Client ID: PBW	Batch ID: 28291	TestNo: SW8270C	E625/SW3510	Analysis Date: 11/15/2018	SeqNo: 1852200						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bis(2-ethylhexyl)phthalate	< 0.00500	0.00500									
Butyl benzyl phthalate	< 0.00500	0.00500									
Dibenzofuran	< 0.00500	0.00500									
Diethyl phthalate	< 0.00500	0.00500									
Dimethyl phthalate	< 0.00500	0.00500									
Di-n-octyl phthalate	< 0.0100	0.0100									
Dinoseb	< 0.00500	0.00500									
Hexachlorobenzene	< 0.00100	0.00100									
Hexachlorobutadiene	< 0.00200	0.00200									
Hexachlorocyclopentadiene	< 0.0100	0.0100									
Hexachloroethane	< 0.00500	0.00500									
Isophorone	< 0.00500	0.00500									
Nitrobenzene	< 0.00100	0.00100									
N-Nitrosodi-n-propylamine	< 0.00500	0.00500									
N-Nitrosodiphenylamine	< 0.00500	0.00500									
Pentachlorophenol	< 0.0100	0.0100									
Phenol	< 0.00500	0.00500									
Surr: 2,4,6-Tribromophenol	0.0232	0.03000		77.3	47.2	144					
Surr: 2-Fluorobiphenyl	0.0194	0.02000		96.8	52.2	116					
Surr: 2-Fluorophenol	0.0169	0.03000		56.3	27.3	80.6					
Surr: 4-Terphenyl-d14	0.0226	0.02000		113	48.1	134					
Surr: Nitrobenzene-d5	0.0188	0.02000		94.0	42.5	144					
Surr: Phenol-d5	0.0111	0.03000		37.1	10	67.1					

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28291

Sample ID: LCSD-28291	SampType: LCSD	TestCode: 8270_W_REC	Units: mg/L	Prep Date: 11/14/2018			RunNo: 74065				
Client ID: LCSS02	Batch ID: 28291	TestNo: SW8270C	E625/SW3510	Analysis Date: 11/15/2018			SeqNo: 1852202				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4,5-Tetrachlorobenzene	0.0469	0.00100	0.05000	0	93.8	51.3	119	0.04481	4.55	40	
1,2,4-Trichlorobenzene	0.0425	0.00500	0.05000	0	85.1	47.4	103	0.04175	1.84	40	
1,2-Dichlorobenzene	0.0427	0.00500	0.05000	0	85.4	32	119	0.04100	4.07	40	
1,3-Dichlorobenzene	0.0399	0.00500	0.05000	0	79.7	33.9	108	0.03860	3.24	40	
1,3-Dinitrobenzene	0.0520	0.00500	0.05000	0	104	56.5	132	0.04970	4.56	40	
1,4-Dichlorobenzene	0.0388	0.00500	0.05000	0	77.6	31.8	107	0.03738	3.78	40	
2,3,4,6-Tetrachlorophenol	0.0591	0.00500	0.05000	0	118	71.4	118	0.05368	9.66	40	S*
2,4,5-Trichlorophenol	0.0512	0.0100	0.05000	0	102	63.4	113	0.05092	0.492	40	
2,4,6-Trichlorophenol	0.0515	0.00500	0.05000	0	103	62.5	109	0.04930	4.44	40	
2,4-Dichlorophenol	0.0479	0.00500	0.05000	0	95.7	65.8	105	0.04628	3.38	40	
2,4-Dimethylphenol	0.0559	0.00500	0.05000	0	112	56.4	106	0.05218	6.80	40	S*
2,4-Dinitrophenol	0.0618	0.0200	0.05000	0	124	10	171	0.05625	9.36	40	
2,4-Dinitrotoluene	0.0503	0.00500	0.05000	0	101	72.6	107	0.04729	6.22	40	
2,6-Dinitrotoluene	0.0548	0.00500	0.05000	0	110	62.5	112	0.05124	6.75	40	
2-Chloronaphthalene	0.0437	0.00500	0.05000	0	87.5	43.2	121	0.04206	3.90	40	
2-Chlorophenol	0.0465	0.00500	0.05000	0	93.1	57.4	104	0.04375	6.20	40	
2-Nitroaniline	0.0542	0.00500	0.05000	0	108	71.4	120	0.05077	6.58	40	
3,3'-Dichlorobenzidine	0.0852	0.0100	0.1000	0	85.2	49.2	113	0.08101	5.07	40	
3-Nitroaniline	0.0416	0.0200	0.05000	0	83.2	37.7	116	0.03988	4.26	40	
4-Chloroaniline	0.0439	0.00500	0.05000	0	87.8	56.4	98.6	0.04238	3.57	40	
4-Nitroaniline	0.0543	0.00500	0.05000	0	109	64	113	0.05032	7.63	40	
4-Nitropheno	0.0256	0.0200	0.05000	0	51.2	22.5	63.1	0.02366	7.79	40	
Aniline	0.0426	0.00500	0.05000	0	85.1	48.9	102	0.03982	6.69	40	
Biphenyl	0.0475	0.00500	0.05000	0	95.0	41.7	130	0.04557	4.15	40	
Bis(2-chloroethyl)ether	0.0445	0.00500	0.05000	0	89.1	51.9	112	0.04166	6.67	40	
Bis(2-chloroisopropyl)ether	0.0465	0.00500	0.05000	0	93.0	50.1	125	0.04279	8.28	40	

**Qualifiers:** B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

J Analyte detected below quantitation limits

M Matrix Interference

ND Not Detected at the Reporting Limit

RL Reporting Limit

S Spike Recovery outside accepted recovery limits

SDL Sample detection limit

U Analyte not detected

W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 18110484  
 03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28291

Sample ID: LCSD-28291	SampType: LCSD	TestCode: 8270_W_REC	Units: mg/L	Prep Date: 11/14/2018			RunNo: 74065				
Client ID: LCSS02	Batch ID: 28291	TestNo: SW8270C	E625/SW3510	Analysis Date: 11/15/2018			SeqNo: 1852202				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bis(2-ethylhexyl)phthalate	0.0562	0.00500	0.05000	0	112	46.9	137	0.05214	7.47	40	
Butyl benzyl phthalate	0.0569	0.00500	0.05000	0	114	47.6	134	0.05284	7.44	40	
Dibenzofuran	0.0504	0.00500	0.05000	0	101	59.5	126	0.04852	3.82	40	
Diethyl phthalate	0.0526	0.00500	0.05000	0	105	55.4	121	0.04913	6.90	40	
Dimethyl phthalate	0.0523	0.00500	0.05000	0	105	66	109	0.04947	5.50	40	
Di-n-octyl phthalate	0.0566	0.0100	0.05000	0	113	36.9	145	0.05287	6.86	40	
Dinoseb	0.0522	0.00500	0.05000	0	104	10	180	0.04808	8.13	40	
Hexachlorobenzene	0.0444	0.00100	0.05000	0	88.8	59.5	100	0.04186	5.88	40	
Hexachlorobutadiene	0.0407	0.00200	0.05000	0	81.4	43.1	101	0.04097	0.683	40	
Hexachlorocyclopentadiene	0.0482	0.0100	0.05000	0	96.4	10	151	0.04780	0.792	40	
Hexachloroethane	0.0375	0.00500	0.05000	0	75.0	22.2	110	0.03646	2.81	40	
Isophorone	0.0554	0.00500	0.05000	0	111	63.1	110	0.05181	6.63	40	S*
Nitrobenzene	0.0476	0.00100	0.05000	0	95.1	67	108	0.04528	4.94	40	
N-Nitrosodi-n-propylamine	0.0457	0.00500	0.05000	0	91.4	49.4	130	0.04244	7.36	40	
N-Nitrosodiphenylamine	0.0503	0.00500	0.05000	0	101	67.1	105	0.04787	5.04	40	
Pentachlorophenol	0.0430	0.0100	0.05000	0	86.0	47.1	104	0.04123	4.26	40	
Phenol	0.0219	0.00500	0.05000	0	43.8	25.2	50.1	0.01973	10.4	40	
Surr: 2,4,6-Tribromophenol	0.0257		0.03000		85.7	47.2	144		0	40	
Surr: 2-Fluorobiphenyl	0.0212		0.02000		106	52.2	116		0	40	
Surr: 2-Fluorophenol	0.0204		0.03000		68.2	27.3	80.6		0	40	
Surr: 4-Terphenyl-d14	0.0264		0.02000		132	48.1	134		0	40	
Surr: Nitrobenzene-d5	0.0202		0.02000		101	42.5	144		0	40	
Surr: Phenol-d5	0.0133		0.03000		44.4	10	67.1		0	40	

**NOTES:**

S\* - High recovery(ies) indicate high bias. Data deemed acceptable as the specific target analyte(s) were not observed in the field sample(s).

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28291

Sample ID: LCS-28291	SampType: LCS	TestCode: 8270_W_REC	Units: mg/L	Prep Date: 11/14/2018			RunNo: 74065				
Client ID: LCSW	Batch ID: 28291	TestNo: SW8270C	E625/SW3510	Analysis Date: 11/15/2018			SeqNo: 1852203				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4,5-Tetrachlorobenzene	0.0448	0.00100	0.05000	0	89.6	51.3	119				
1,2,4-Trichlorobenzene	0.0417	0.00500	0.05000	0	83.5	47.4	103				
1,2-Dichlorobenzene	0.0410	0.00500	0.05000	0	82.0	32	119				
1,3-Dichlorobenzene	0.0386	0.00500	0.05000	0	77.2	33.9	108				
1,3-Dinitrobenzene	0.0497	0.00500	0.05000	0	99.4	56.5	132				
1,4-Dichlorobenzene	0.0374	0.00500	0.05000	0	74.8	31.8	107				
2,3,4,6-Tetrachlorophenol	0.0537	0.00500	0.05000	0	107	71.4	118				
2,4,5-Trichlorophenol	0.0509	0.0100	0.05000	0	102	63.4	113				
2,4,6-Trichlorophenol	0.0493	0.00500	0.05000	0	98.6	62.5	109				
2,4-Dichlorophenol	0.0463	0.00500	0.05000	0	92.6	65.8	105				
2,4-Dimethylphenol	0.0522	0.00500	0.05000	0	104	56.4	106				
2,4-Dinitrophenol	0.0563	0.0200	0.05000	0	113	10	171				
2,4-Dinitrotoluene	0.0473	0.00500	0.05000	0	94.6	72.6	107				
2,6-Dinitrotoluene	0.0512	0.00500	0.05000	0	102	62.5	112				
2-Chloronaphthalene	0.0421	0.00500	0.05000	0	84.1	43.2	121				
2-Chlorophenol	0.0438	0.00500	0.05000	0	87.5	57.4	104				
2-Nitroaniline	0.0508	0.00500	0.05000	0	102	71.4	120				
3,3'-Dichlorobenzidine	0.0810	0.0100	0.1000	0	81.0	49.2	113				
3-Nitroaniline	0.0399	0.0200	0.05000	0	79.8	37.7	116				
4-Chloroaniline	0.0424	0.00500	0.05000	0	84.8	56.4	98.6				
4-Nitroaniline	0.0503	0.00500	0.05000	0	101	64	113				
4-Nitropheno	0.0237	0.0200	0.05000	0	47.3	22.5	63.1				
Aniline	0.0398	0.00500	0.05000	0	79.6	48.9	102				
Biphenyl	0.0456	0.00500	0.05000	0	91.1	41.7	130				
Bis(2-chloroethyl)ether	0.0417	0.00500	0.05000	0	83.3	51.9	112				
Bis(2-chloroisopropyl)ether	0.0428	0.00500	0.05000	0	85.6	50.1	125				

**Qualifiers:** B Analyte detected in the associated Method Blank  
M Matrix Interference  
S Spike Recovery outside accepted recovery limits  
W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
SDL Sample detection limit

J Analyte detected below quantitation limits  
RL Reporting Limit  
U Analyte not detected



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28291

Sample ID: LCS-28291	SampType: LCS	TestCode: 8270_W_REC	Units: mg/L	Prep Date: 11/14/2018			RunNo: 74065				
Client ID: LCSW	Batch ID: 28291	TestNo: SW8270C	E625/SW3510	Analysis Date: 11/15/2018			SeqNo: 1852203				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bis(2-ethylhexyl)phthalate	0.0521	0.00500	0.05000	0	104	46.9	137				
Butyl benzyl phthalate	0.0528	0.00500	0.05000	0	106	47.6	134				
Dibenzofuran	0.0485	0.00500	0.05000	0	97.0	59.5	126				
Diethyl phthalate	0.0491	0.00500	0.05000	0	98.3	55.4	121				
Dimethyl phthalate	0.0495	0.00500	0.05000	0	98.9	66	109				
Di-n-octyl phthalate	0.0529	0.0100	0.05000	0	106	36.9	145				
Dinoseb	0.0481	0.00500	0.05000	0	96.2	10	180				
Hexachlorobenzene	0.0419	0.00100	0.05000	0	83.7	59.5	100				
Hexachlorobutadiene	0.0410	0.00200	0.05000	0	81.9	43.1	101				
Hexachlorocyclopentadiene	0.0478	0.0100	0.05000	0	95.6	10	151				
Hexachloroethane	0.0365	0.00500	0.05000	0	72.9	22.2	110				
Isophorone	0.0518	0.00500	0.05000	0	104	63.1	110				
Nitrobenzene	0.0453	0.00100	0.05000	0	90.6	67	108				
N-Nitrosodi-n-propylamine	0.0424	0.00500	0.05000	0	84.9	49.4	130				
N-Nitrosodiphenylamine	0.0479	0.00500	0.05000	0	95.7	67.1	105				
Pentachlorophenol	0.0412	0.0100	0.05000	0	82.5	47.1	104				
Phenol	0.0197	0.00500	0.05000	0	39.5	25.2	50.1				
Surr: 2,4,6-Tribromophenol	0.0260		0.03000		86.7	47.2	144				
Surr: 2-Fluorobiphenyl	0.0212		0.02000		106	52.2	116				
Surr: 2-Fluorophenol	0.0198		0.03000		66.1	27.3	80.6				
Surr: 4-Terphenyl-d14	0.0264		0.02000		132	48.1	134				
Surr: Nitrobenzene-d5	0.0201		0.02000		100	42.5	144				
Surr: Phenol-d5	0.0129		0.03000		42.8	10	67.1				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28291

Sample ID: MB-28291	SampType: MBLK	TestCode: 625_ALL	Units: mg/L	Prep Date: 11/14/2018	RunNo: 74168						
Client ID: PBW	Batch ID: 28291	TestNo: SW8270C	E625/SW3510	Analysis Date: 11/15/2018	SeqNo: 1855950						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	< 0.00400	0.00400									
1,3-Dinitrobenzene	< 0.00400	0.00400									
2,4,5-Trichlorophenol	< 0.00800	0.00800									
2,4,6-Trichlorophenol	< 0.00800	0.00800									
2,4-Dichlorophenol	< 0.00800	0.00800									
2,4-Dimethylphenol	< 0.00800	0.00800									
2,4-Dinitrophenol	< 0.0200	0.0200									
2,4-Dinitrotoluene	< 0.00400	0.00400									
2,6-Dinitrotoluene	< 0.00400	0.00400									
2-Chloronaphthalene	< 0.00400	0.00400									
2-Chlorophenol	< 0.00800	0.00800									
2-Nitroaniline	< 0.00400	0.00400									
3,3'-Dichlorobenzidine	< 0.00400	0.00400									
3-Nitroaniline	< 0.00400	0.00400									
4-Chloroaniline	< 0.00400	0.00400									
4-Nitroaniline	< 0.00400	0.00400									
4-Nitrophenol	< 0.0200	0.0200									
Aniline	< 0.00400	0.00400									
Bis(2-chloroethyl)ether	< 0.00400	0.00400									
Bis(2-chloroisopropyl)ether	< 0.00400	0.00400									
Bis(2-ethylhexyl)phthalate	< 0.00400	0.00400									
Butyl benzyl phthalate	< 0.00400	0.00400									
Dibenzofuran	< 0.00400	0.00400									
Diethyl phthalate	< 0.00400	0.00400									
Dimethyl phthalate	< 0.00400	0.00400									
Di-n-octyl phthalate	< 0.00400	0.00400									

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28291

Sample ID:	MB-28291	SampType:	MBLK	TestCode:	625_ALL	Units:	mg/L	Prep Date:	11/14/2018	RunNo:	74168	
Client ID:	PBW	Batch ID:	28291	TestNo:	SW8270C	E625/SW3510		Analysis Date:	11/15/2018	SeqNo:	1855950	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobenzene	< 0.00400	0.00400										
Hexachlorobutadiene	< 0.00400	0.00400										
Hexachlorocyclopentadiene	< 0.00400	0.00400										
Hexachloroethane	< 0.00400	0.00400										
Isophorone	< 0.00400	0.00400										
Nitrobenzene	< 0.00400	0.00400										
N-Nitrosodi-n-propylamine	< 0.00400	0.00400										
N-Nitrosodiphenylamine	< 0.00400	0.00400										
Pentachlorophenol	< 0.00400	0.00400										
Phenol	< 0.00800	0.00800										
Surrogate: 2,4,6-Tribromophenol	0.0232		0.03000			77.3	74	120				
Surrogate: 2-Fluorobiphenyl	0.0194		0.02000			96.8	63	111				
Surrogate: 2-Fluorophenol	0.0169		0.03000			56.3	40	71				
Surrogate: Nitrobenzene-d5	0.0188		0.02000			94.0	67	104				
Surrogate: Phenol-d5	0.0111		0.03000			37.1	27	58				
Surrogate: Terphenyl-d14	0.0226		0.02000			113	55	123				

Sample ID:	LCSD-28291	SampType:	LCSD	TestCode:	625_ALL	Units:	mg/L	Prep Date:	11/14/2018	RunNo:	74168	
Client ID:	LCSS02	Batch ID:	28291	TestNo:	SW8270C	E625/SW3510		Analysis Date:	11/15/2018	SeqNo:	1855951	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	0.0425	0.00400	0.05000	0	85.1	57	130	0.04175	1.84	30		
1,3-Dinitrobenzene	0.0520	0.00400	0.05000	0	104	79	120	0.04970	4.56	40		
2,4,5-Trichlorophenol	0.0512	0.00800	0.05000	0	102	65	120	0.05092	0.492	40		
2,4,6-Trichlorophenol	0.0515	0.00800	0.05000	0	103	52	129	0.04930	4.44	35		

**Qualifiers:** B Analyte detected in the associated Method Blank  
M Matrix Interference  
S Spike Recovery outside accepted recovery limits  
W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
SDL Sample detection limit

J Analyte detected below quantitation limits  
RL Reporting Limit  
U Analyte not detected



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# QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28291

Sample ID:	LCSD-28291	SampType:	LCSD	TestCode:	625_ALL	Units:	mg/L	Prep Date:	11/14/2018	RunNo:	74168	
Client ID:	LCSS02	Batch ID:	28291	TestNo:	SW8270C	E625/SW3510		Analysis Date:	11/15/2018	SeqNo:	1855951	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-Dichlorophenol		0.0479	0.00800	0.05000	0	95.7	53	122	0.04628	3.38	30	
2,4-Dimethylphenol		0.0559	0.00800	0.05000	0	112	42	120	0.05218	6.80	35	
2,4-Dinitrophenol		0.0618	0.0200	0.05000	0	124	5	173	0.05625	9.36	79	
2,4-Dinitrotoluene		0.0541	0.00400	0.05000	0	108	48	127	0.05081	6.26	25	
2,6-Dinitrotoluene		0.0548	0.00400	0.05000	0	110	68	137	0.05124	6.75	29	
2-Chloronaphthalene		0.0437	0.00400	0.05000	0	87.5	65	120	0.04206	3.90	15	
2-Chlorophenol		0.0465	0.00800	0.05000	0	93.1	36	120	0.04375	6.20	37	
2-Nitroaniline		0.0542	0.00400	0.05000	0	108	80	120	0.05077	6.58	40	
3,3'-Dichlorobenzidine		0.0829	0.00400	0.1000	0	82.9	8	213	0.07880	5.07	65	
3-Nitroaniline		0.0416	0.00400	0.05000	0	83.2	68	101	0.03988	4.26	40	
4-Chloroaniline		0.0439	0.00400	0.05000	0	87.8	65	107	0.04238	3.57	40	
4-Nitroaniline		0.0525	0.00400	0.05000	0	105	78	120	0.04866	7.63	40	
4-Nitrophenol		0.0256	0.0200	0.05000	0	51.2	13	129	0.02366	7.79	79	
Aniline		0.0426	0.00400	0.05000	0	85.1	39	101	0.03982	6.69	40	
Bis(2-chloroethyl)ether		0.0445	0.00400	0.05000	0	89.1	43	126	0.04166	6.67	65	
Bis(2-chloroisopropyl)ether		0.0455	0.00400	0.05000	0	91.0	63	139	0.04186	8.28	46	
Bis(2-ethylhexyl)phthalate		0.0551	0.00400	0.05000	0	110	29	137	0.05116	7.47	50	
Butyl benzyl phthalate		0.0569	0.00400	0.05000	0	114	5	140	0.05284	7.44	36	
Dibenzofuran		0.0494	0.00400	0.05000	0	98.7	81	120	0.04752	3.82	40	
Diethyl phthalate		0.0519	0.00400	0.05000	0	104	5	120	0.04841	6.91	60	
Dimethyl phthalate		0.0524	0.00400	0.05000	0	105	5	120	0.04955	5.50	110	
Di-n-octyl phthalate		0.0566	0.00400	0.05000	0	113	19	132	0.05287	6.86	42	
Hexachlorobenzene		0.0444	0.00400	0.05000	0	88.8	8	142	0.04186	5.88	33	
Hexachlorobutadiene		0.0407	0.00400	0.05000	0	81.4	38	120	0.04097	0.683	38	
Hexachlorocyclopentadiene		0.0545	0.00400	0.05000	0	109	10	116	0.05409	0.808	40	
Hexachloroethane		0.0375	0.00400	0.05000	0	75.0	55	120	0.03646	2.81	32	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 18110484  
 03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28291

Sample ID: <b>LCSD-28291</b>	SampType: <b>LCSD</b>	TestCode: <b>625_ALL</b>	Units: <b>mg/L</b>	Prep Date: <b>11/14/2018</b>	RunNo: <b>74168</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>28291</b>	TestNo: <b>SW8270C</b>	<b>E625/SW3510</b>	Analysis Date: <b>11/15/2018</b>	SeqNo: <b>1855951</b>
<b>Analyte</b>					
Isophorone	Result	PQL	SPK value	SPK Ref Val	%REC
0.0554	0.00400	0.05000	0	111	47
Nitrobenzene				95.1	54
0.0476	0.00400	0.05000	0	158	0.04528
N-Nitrosodi-n-propylamine				91.4	14
0.0457	0.00400	0.05000	0	198	0.04244
N-Nitrosodiphenylamine				101	71
0.0507	0.00400	0.05000	0	120	0.04824
Pentachlorophenol				84.0	38
0.0420	0.00400	0.05000	0	152	0.04014
Phenol				43.8	17
0.0219	0.00800	0.05000	0	120	0.01973
Surrogate: 2,4,6-Tribromophenol				10.4	39
0.0257		0.03000		6.63	56
Surrogate: 2-Fluorobiphenyl				85.7	74
0.0212		0.02000		4.94	37
Surrogate: 2-Fluorophenol				106	63
0.0204		0.03000		7.36	52
Surrogate: Nitrobenzene-d5				68.2	40
0.0202		0.02000		50.4	40
Surrogate: Phenol-d5				101	67
0.0133		0.03000		40.4	40
Surrogate: Terphenyl-d14				27	58
0.0263		0.02000		0.0	40
				132	S
				55	123

Sample ID: <b>LCS-28291</b>	SampType: <b>LCS</b>	TestCode: <b>625_ALL</b>	Units: <b>mg/L</b>	Prep Date: <b>11/14/2018</b>	RunNo: <b>74168</b>
Client ID: <b>LCSW</b>	Batch ID: <b>28291</b>	TestNo: <b>SW8270C</b>	<b>E625/SW3510</b>	Analysis Date: <b>11/15/2018</b>	SeqNo: <b>1855952</b>
<b>Analyte</b>					
1,2,4-Trichlorobenzene	Result	PQL	SPK value	SPK Ref Val	%REC
0.0417	0.00400	0.05000	0	83.5	57
1,3-Dinitrobenzene				130	
0.0497	0.00400	0.05000	0	99.4	79
2,4,5-Trichlorophenol				120	
0.0509	0.00800	0.05000	0	102	65
2,4,6-Trichlorophenol				120	
0.0493	0.00800	0.05000	0	98.6	52
2,4-Dichlorophenol				129	
0.0463	0.00800	0.05000	0	92.6	53
2,4-Dimethylphenol				122	
0.0522	0.00800	0.05000	0	104	42
2,4-Dinitrophenol				120	
0.0563	0.0200	0.05000	0	113	5
2,4-Dinitrotoluene				173	
0.0508	0.00400	0.05000	0	102	48
				127	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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Website: www.element.com

# QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28291

Sample ID: LCS-28291	SampType: LCS	TestCode: 625_ALL	Units: mg/L	Prep Date: 11/14/2018			RunNo: 74168				
Client ID: LCSW	Batch ID: 28291	TestNo: SW8270C	E625/SW3510	Analysis Date: 11/15/2018			SeqNo: 1855952				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,6-Dinitrotoluene	0.0512	0.00400	0.05000	0	102	68	137				
2-Chloronaphthalene	0.0421	0.00400	0.05000	0	84.1	65	120				
2-Chlorophenol	0.0438	0.00800	0.05000	0	87.5	36	120				
2-Nitroaniline	0.0508	0.00400	0.05000	0	102	80	120				
3,3'-Dichlorobenzidine	0.0788	0.00400	0.1000	0	78.8	8	213				
3-Nitroaniline	0.0399	0.00400	0.05000	0	79.8	68	101				
4-Chloroaniline	0.0424	0.00400	0.05000	0	84.8	65	107				
4-Nitroaniline	0.0487	0.00400	0.05000	0	97.3	78	120				
4-Nitrophenol	0.0237	0.0200	0.05000	0	47.3	13	129				
Aniline	0.0398	0.00400	0.05000	0	79.6	39	101				
Bis(2-chloroethyl)ether	0.0417	0.00400	0.05000	0	83.3	43	126				
Bis(2-chloroisopropyl)ether	0.0419	0.00400	0.05000	0	83.7	63	139				
Bis(2-ethylhexyl)phthalate	0.0512	0.00400	0.05000	0	102	29	137				
Butyl benzyl phthalate	0.0528	0.00400	0.05000	0	106	5	140				
Dibenzofuran	0.0475	0.00400	0.05000	0	95.0	81	120				
Diethyl phthalate	0.0484	0.00400	0.05000	0	96.8	5	120				
Dimethyl phthalate	0.0496	0.00400	0.05000	0	99.1	5	120				
Di-n-octyl phthalate	0.0529	0.00400	0.05000	0	106	19	132				
Hexachlorobenzene	0.0419	0.00400	0.05000	0	83.7	8	142				
Hexachlorobutadiene	0.0410	0.00400	0.05000	0	81.9	38	120				
Hexachlorocyclopentadiene	0.0541	0.00400	0.05000	0	108	10	116				
Hexachloroethane	0.0365	0.00400	0.05000	0	72.9	55	120				
Isophorone	0.0518	0.00400	0.05000	0	104	47	180				
Nitrobenzene	0.0453	0.00400	0.05000	0	90.6	54	158				
N-Nitrosodi-n-propylamine	0.0424	0.00400	0.05000	0	84.9	14	198				
N-Nitrosodiphenylamine	0.0482	0.00400	0.05000	0	96.5	71	120				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28291

Sample ID: <b>LCS-28291</b>	SampType: <b>LCS</b>	TestCode: <b>625_ALL</b>	Units: <b>mg/L</b>	Prep Date: <b>11/14/2018</b>	RunNo: <b>74168</b>
Client ID: <b>LCSW</b>	Batch ID: <b>28291</b>	TestNo: <b>SW8270C</b>	<b>E625/SW3510</b>	Analysis Date: <b>11/15/2018</b>	SeqNo: <b>1855952</b>
<hr/>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC
Pentachlorophenol	0.0401	0.00400	0.05000	0	80.3
Phenol	0.0197	0.00800	0.05000	0	39.5
Surr: 2,4,6-Tribromophenol	0.0260		0.03000		86.7
Surr: 2-Fluorobiphenyl	0.0212		0.02000		106
Surr: 2-Fluorophenol	0.0198		0.03000		66.1
Surr: Nitrobenzene-d5	0.0201		0.02000		100
Surr: Phenol-d5	0.0129		0.03000		42.8
Surr: Terphenyl-d14	0.0263		0.02000		132
				55	123
					S

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 18110484  
 03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28308

Sample ID:	MB-28308	SampType:	MBLK	TestCode:	8270_W_LVI_	Units:	mg/L	Prep Date:	11/15/2018	RunNo:	74057	
Client ID:	PBW	Batch ID:	28308	TestNo:	SW8270C SW3511			Analysis Date:	11/15/2018	SeqNo:	1852067	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene		< 0.000518		0.000518								
Acenaphthene		< 0.00104		0.00104								
Acenaphthylene		< 0.00104		0.00104								
Anthracene		< 0.00104		0.00104								
Benzo(a)anthracene		< 0.000518		0.000518								
Benzo(a)pyrene		< 0.000176		0.000176								
Benzo(b)fluoranthene		< 0.000518		0.000518								
Benzo(k)fluoranthene		< 0.000518		0.000518								
Chrysene		< 0.000518		0.000518								
Dibenz(a,h)anthracene		< 0.00104		0.00104								
Fluoranthene		< 0.00104		0.00104								
Fluorene		< 0.000621		0.000621								
Indeno(1,2,3-cd)pyrene		< 0.000518		0.000518								
Naphthalene		< 0.00104		0.00104								
Phenanthrene		< 0.00104		0.00104								
Pyrene		< 0.00104		0.00104								
Surr: 4-Terphenyl-d14		0.00276		0.002372			117	49.2	161			

Sample ID:	LCSD-28308	SampType:	LCSD	TestCode:	8270_W_LVI_	Units:	mg/L	Prep Date:	11/15/2018	RunNo:	74057	
Client ID:	LCSS02	Batch ID:	28308	TestNo:	SW8270C SW3511			Analysis Date:	11/15/2018	SeqNo:	1852069	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene		0.00244	0.000516	0.002357	0	103	60.8	127	0.001982	20.6	40	
Acenaphthene		0.00237	0.00103	0.002362	0	100	72.5	121	0.001877	23.1	40	
Acenaphthylene		0.00220	0.00103	0.002362	0	93.1	65.7	128	0.001806	19.6	40	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
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# QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28308

Sample ID: LCSD-28308	SampType: LCSD	TestCode: 8270_W_LVI_	Units: mg/L	Prep Date: 11/15/2018	RunNo: 74057					
Client ID: LCSS02	Batch ID: 28308	TestNo: SW8270C	SW3511	Analysis Date: 11/15/2018	SeqNo: 1852069					
<b>Analyte</b> <b>Result</b> <b>PQL</b> <b>SPK value</b> <b>SPK Ref Val</b> <b>%REC</b> <b>LowLimit</b> <b>HighLimit</b> <b>RPD Ref Val</b> <b>%RPD</b> <b>RPDLimit</b> <b>Qual</b>										
Anthracene	0.00208	0.00103	0.002362	0	87.9	73.4	120	0.001673	21.5	40
Benzo(a)anthracene	0.00229	0.000516	0.002362	0	96.8	69	121	0.001853	20.9	40
Benzo(a)pyrene	0.00240	0.000175	0.002362	0	101	70.6	120	0.001926	21.7	40
Benzo(b)fluoranthene	0.00226	0.000516	0.002362	0	95.5	65.3	127	0.001980	13.0	40
Benzo(k)fluoranthene	0.00233	0.000516	0.002362	0	98.9	68.6	125	0.001868	22.2	40
Chrysene	0.00223	0.000516	0.002362	0	94.3	74.4	120	0.001859	18.0	40
Dibenz(a,h)anthracene	0.00242	0.00103	0.002362	0	103	66.4	126	0.002001	19.0	40
Fluoranthene	0.00237	0.00103	0.002362	0	100	70.7	121	0.002131	10.4	40
Fluorene	0.00243	0.000619	0.002362	0	103	62.5	134	0.001943	22.4	40
Indeno(1,2,3-cd)pyrene	0.00219	0.000516	0.002362	0	92.9	66.9	120	0.001754	22.3	40
Naphthalene	0.00220	0.00103	0.002362	0	93.1	63.5	137	0.001859	16.8	40
Phenanthrene	0.00237	0.00103	0.002362	0	100	74.1	118	0.001922	20.9	40
Pyrene	0.00238	0.00103	0.002362	0	101	73.2	120	0.001706	32.9	40
Surr: 4-Terphenyl-d14	0.00214		0.002362		90.7	49.2	161		0	40

Sample ID: LCS-28308	SampType: LCS	TestCode: 8270_W_LVI_	Units: mg/L	Prep Date: 11/15/2018	RunNo: 74057					
Client ID: LCSW	Batch ID: 28308	TestNo: SW8270C	SW3511	Analysis Date: 11/15/2018	SeqNo: 1852070					
<b>Analyte</b> <b>Result</b> <b>PQL</b> <b>SPK value</b> <b>SPK Ref Val</b> <b>%REC</b> <b>LowLimit</b> <b>HighLimit</b> <b>RPD Ref Val</b> <b>%RPD</b> <b>RPDLimit</b> <b>Qual</b>										
2-Methylnaphthalene	0.00198	0.000517	0.002362	0	83.9	60.8	127			
Acenaphthene	0.00188	0.00103	0.002366	0	79.3	72.5	121			
Acenaphthylene	0.00181	0.00103	0.002366	0	76.3	65.7	128			
Anthracene	0.00167	0.00103	0.002366	0	70.7	73.4	120			S
Benzo(a)anthracene	0.00185	0.000517	0.002366	0	78.3	69	121			
Benzo(a)pyrene	0.00193	0.000176	0.002366	0	81.4	70.6	120			

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28308

Sample ID: LCS-28308	SampType: LCS	TestCode: 8270_W_LVI_	Units: mg/L	Prep Date: 11/15/2018	RunNo: 74057						
Client ID: LCSW	Batch ID: 28308	TestNo: SW8270C	SW3511	Analysis Date: 11/15/2018	SeqNo: 1852070						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	0.00198	0.000517	0.002366	0	83.7	65.3	127				
Benzo(k)fluoranthene	0.00187	0.000517	0.002366	0	78.9	68.6	125				
Chrysene	0.00186	0.000517	0.002366	0	78.6	74.4	120				
Dibenz(a,h)anthracene	0.00200	0.00103	0.002366	0	84.5	66.4	126				
Fluoranthene	0.00213	0.00103	0.002366	0	90.1	70.7	121				
Fluorene	0.00194	0.000620	0.002366	0	82.1	62.5	134				
Indeno(1,2,3-cd)pyrene	0.00175	0.000517	0.002366	0	74.1	66.9	120				
Naphthalene	0.00186	0.00103	0.002366	0	78.5	63.5	137				
Phenanthrene	0.00192	0.00103	0.002366	0	81.2	74.1	118				
Surr: 4-Terphenyl-d14	0.00184		0.002366		77.7	49.2	161				

**NOTES:**

S: Spike outside of recovery limits. Sample(s) could not be re-extracted due to insufficient volume.

Sample ID: LCS-28308	SampType: LCS	TestCode: 8270_W_LVI_	Units: mg/L	Prep Date: 11/15/2018	RunNo: 74057						
Client ID: LCSW	Batch ID: 28308	TestNo: SW8270C	SW3511	Analysis Date: 11/16/2018	SeqNo: 1852353						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	0.00181	0.00103	0.002366	0	76.6	73.2	120				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28309

Sample ID: LCS-D-28309	SampType: LCS	TestCode: 8015_DO_W_	Units: mg/L	Prep Date: 11/15/2018	RunNo: 74069					
Client ID: LCSW	Batch ID: 28309	TestNo: SW8015B	SW3511	Analysis Date: 11/15/2018	SeqNo: 1852357					
<b>Analyte</b>										
TPH (Diesel Range)	Result	PQL	SPK value	SPK Ref Val	%REC					
Surrogate: 4-Terphenyl-d14	2.03	0.134	1.766	0	115	70	130			
	0.0607		0.05886		103	51.4	146			

Sample ID: LCSD-D-28309	SampType: LCSD	TestCode: 8015_DO_W_	Units: mg/L	Prep Date: 11/15/2018	RunNo: 74069					
Client ID: LCSS02	Batch ID: 28309	TestNo: SW8015B	SW3511	Analysis Date: 11/15/2018	SeqNo: 1852358					
<b>Analyte</b>										
TPH (Diesel Range)	Result	PQL	SPK value	SPK Ref Val	%REC					
Surrogate: 4-Terphenyl-d14	2.00	0.134	1.766	0	113	70	130	2.025	1.49	14.1
	0.0560		0.05887		95.2	51.4	146		0	40

Sample ID: LCSD-M-28309	SampType: LCSD	TestCode: 8015_DO_W_	Units: mg/L	Prep Date: 11/15/2018	RunNo: 74069					
Client ID: LCSS02	Batch ID: 28309	TestNo: SW8015B	SW3511	Analysis Date: 11/16/2018	SeqNo: 1852359					
<b>Analyte</b>										
TPH (Oil Range)	Result	PQL	SPK value	SPK Ref Val	%REC					
Surrogate: 4-Terphenyl-d14	1.98	0.125	1.779	0	111	70	130	1.904	3.73	23.2
	0.0594		0.05931		100	51.4	146		0	40

Sample ID: LCS-M-28309	SampType: LCS	TestCode: 8015_DO_W_	Units: mg/L	Prep Date: 11/15/2018	RunNo: 74069					
Client ID: LCSW	Batch ID: 28309	TestNo: SW8015B	SW3511	Analysis Date: 11/15/2018	SeqNo: 1852360					
<b>Analyte</b>										
TPH (Oil Range)	Result	PQL	SPK value	SPK Ref Val	%REC					
	1.90	0.125	1.783	0	107	70	130			

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28309

Sample ID: <b>LCS-M-28309</b>	SampType: <b>LCS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>11/15/2018</b>	RunNo: <b>74069</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>28309</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>11/15/2018</b>	SeqNo: <b>1852360</b>						
	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surf: 4-Terphenyl-d14	0.0581		0.05943		97.8	51.4	146				

Sample ID: <b>MB-28309</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>11/15/2018</b>	RunNo: <b>74069</b>						
Client ID: <b>PBW</b>	Batch ID: <b>28309</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>11/15/2018</b>	SeqNo: <b>1852361</b>						
	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	0.0645	0.135									J
TPH (Oil Range)	< 0.125	0.125									
Surf: 4-Terphenyl-d14	0.0549		0.05934		92.6	51.4	146				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28324

Sample ID: MB-28324	SampType: MBLK	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 11/16/2018	RunNo: 74076
Client ID: PBW	Batch ID: 28324	TestNo: SW7470A		Analysis Date: 11/16/2018	SeqNo: 1852569
Analyte					
Mercury	Result	PQL	SPK value	SPK Ref Val	%REC
Mercury	< 0.000200	0.000200			

Sample ID: LCS-28324	SampType: LCS	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 11/16/2018	RunNo: 74076
Client ID: LCSW	Batch ID: 28324	TestNo: SW7470A		Analysis Date: 11/16/2018	SeqNo: 1852570
Analyte					
Mercury	Result	PQL	SPK value	SPK Ref Val	%REC
Mercury	0.00968	0.000200	0.01000	0	96.8
				80	120

Sample ID: LCSD-28324	SampType: LCSD	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 11/16/2018	RunNo: 74076
Client ID: LCSS02	Batch ID: 28324	TestNo: SW7470A		Analysis Date: 11/16/2018	SeqNo: 1852571
Analyte					
Mercury	Result	PQL	SPK value	SPK Ref Val	%REC
Mercury	0.00954	0.000200	0.01000	0	95.4
				80	120
				0.009683	1.47
					20

Sample ID: 18110484-001DMS	SampType: MS	TestCode: HG_W_7470A	Units: mg/L	Prep Date: 11/16/2018	RunNo: 74076
Client ID: 6729Z Blake Gamble	Batch ID: 28324	TestNo: SW7470A		Analysis Date: 11/16/2018	SeqNo: 1852575
Analyte					
Mercury	Result	PQL	SPK value	SPK Ref Val	%REC
Mercury	0.00862	0.000200	0.01000	0	86.2
				75	125

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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Website: www.element.com

## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28324

Sample ID:	18110484-001DMSD	SampType:	MSD	TestCode:	HG_W_7470A	Units:	mg/L	Prep Date:	11/16/2018	RunNo:	74076	
Client ID:	6729Z Blake Gamble	Batch ID:	28324	TestNo:	SW7470A			Analysis Date:	11/16/2018	SeqNo:	1852576	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00870	0.000200	0.01000	0	87.0	75	125	0.008622	0.880	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28394

Sample ID:	MB-28394	SampType:	MBLK	TestCode:	6010_W	Units:	mg/L	Prep Date:	11/27/2018	RunNo:	74271	
Client ID:	PBW	Batch ID:	28394	TestNo:	SW6010B			Analysis Date:	11/27/2018	SeqNo:	1858598	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		0.00900	0.0100									J
Barium		< 0.0100	0.0100									
Cadmium		< 0.00500	0.00500									
Chromium		< 0.0100	0.0100									
Lead		< 0.0100	0.0100									
Selenium		0.0166	0.0200									J
Silver		< 0.00500	0.00500									
Sodium		< 10.0	10.0									

Sample ID:	LCS-28394	SampType:	LCS	TestCode:	6010_W	Units:	mg/L	Prep Date:	11/27/2018	RunNo:	74271	
Client ID:	LCSW	Batch ID:	28394	TestNo:	SW6010B			Analysis Date:	11/27/2018	SeqNo:	1858599	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		0.481	0.0100	0.5000	0	96.3	80	120				
Barium		0.474	0.0100	0.5000	0	94.7	80	120				
Cadmium		0.470	0.00500	0.5000	0	94.0	80	120				
Chromium		0.474	0.0100	0.5000	0	94.8	80	120				
Lead		0.474	0.0100	0.5000	0	94.8	80	120				
Selenium		0.494	0.0200	0.5000	0	98.8	80	120				
Silver		0.0960	0.00500	0.1000	0	96.0	80	120				
Sodium		47.9	10.0	50.00	0	95.7	80	120				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28394

Sample ID:	LCSD-28394	SampType:	LCSD	TestCode:	6010_W	Units:	mg/L	Prep Date:	11/27/2018	RunNo:	74271	
Client ID:	LCSS02	Batch ID:	28394	TestNo:	SW6010B	Analysis Date:			11/27/2018	SeqNo:	1858600	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		0.485	0.0100	0.5000	0	97.1	80	120	0.4813	0.828	20	
Barium		0.477	0.0100	0.5000	0	95.5	80	120	0.4737	0.778	20	
Cadmium		0.473	0.00500	0.5000	0	94.6	80	120	0.4702	0.615	20	
Chromium		0.477	0.0100	0.5000	0	95.3	80	120	0.4742	0.505	20	
Lead		0.478	0.0100	0.5000	0	95.5	80	120	0.4739	0.799	20	
Selenium		0.499	0.0200	0.5000	0	99.8	80	120	0.4941	0.987	20	
Silver		0.0963	0.00500	0.1000	0	96.3	80	120	0.09600	0.312	20	
Sodium		50.8	10.0	50.00	0	102	80	120	47.86	6.00	20	

Sample ID:	18110551-014DMS	SampType:	MS	TestCode:	6010_W	Units:	mg/L	Prep Date:	11/27/2018	RunNo:	74271	
Client ID:	ZZZZZZ	Batch ID:	28394	TestNo:	SW6010B	Analysis Date:			11/27/2018	SeqNo:	1858618	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		0.496	0.0100	0.5000	0.01340	96.5	75	125				
Barium		0.499	0.0100	0.5000	0	99.8	75	125				
Cadmium		0.471	0.00500	0.5000	0.0008000	94.1	75	125				
Chromium		0.497	0.0100	0.5000	0	99.4	75	125				
Lead		0.487	0.0100	0.5000	0	97.3	75	125				
Selenium		0.481	0.0200	0.5000	0	96.3	75	125				
Silver		0.0959	0.00500	0.1000	0	95.9	75	125				
Sodium		53.0	10.0	50.00	0	106	75	125				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** 28394

Sample ID:	18110551-014DMSD	SampType:	MSD	TestCode:	6010_W	Units:	mg/L	Prep Date:	11/27/2018	RunNo:	74271	
Client ID:	ZZZZZZ	Batch ID:	28394	TestNo:	SW6010B			Analysis Date:	11/27/2018	SeqNo:	1858619	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		0.511	0.0100	0.5000	0.01340	99.4	75	125	0.4959	2.92	20	
Barium		0.502	0.0100	0.5000	0	100	75	125	0.4990	0.579	20	
Cadmium		0.474	0.00500	0.5000	0.0008000	94.6	75	125	0.4711	0.571	20	
Chromium		0.500	0.0100	0.5000	0	100	75	125	0.4969	0.642	20	
Lead		0.489	0.0100	0.5000	0	97.8	75	125	0.4867	0.471	20	
Selenium		0.482	0.0200	0.5000	0	96.4	75	125	0.4813	0.166	20	
Silver		0.0966	0.00500	0.1000	0	96.6	75	125	0.09590	0.727	20	
Sodium		52.9	10.0	50.00	0	106	75	125	52.98	0.170	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** R74020

Sample ID: <b>LCS GAS</b>	SampType: <b>LCS</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>74020</b>
Client ID: <b>LCSW</b>	Batch ID: <b>R74020</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>11/14/2018</b>	SeqNo: <b>1851185</b>
Analyte					
	Result	PQL	SPK value	SPK Ref Val	%REC
TPH (Gasoline Range)	13.3	0.150	12.50	0	106
				80	130

Sample ID: <b>LCSD GAS</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>74020</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>R74020</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>11/14/2018</b>	SeqNo: <b>1851186</b>
Analyte					
	Result	PQL	SPK value	SPK Ref Val	%REC
TPH (Gasoline Range)	12.4	0.150	12.50	0	99.5
				80	130
				13.31	6.75
					20

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>74020</b>
Client ID: <b>PBW</b>	Batch ID: <b>R74020</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>11/14/2018</b>	SeqNo: <b>1851187</b>
Analyte					
	Result	PQL	SPK value	SPK Ref Val	%REC
TPH (Gasoline Range)	0.0893	0.150			J
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0500		0.05000	100	70
				130	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** R74058

Sample ID: MB-R74058	SampType: MBLK	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 74058
Client ID: PBW	Batch ID: R74058	TestNo: SM2540C		Analysis Date: 11/16/2018	SeqNo: 1853451
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)	< 20.0	20.0			

Sample ID: LCS-R74058	SampType: LCS	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 74058
Client ID: LCSW	Batch ID: R74058	TestNo: SM2540C		Analysis Date: 11/16/2018	SeqNo: 1853452
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)	1,010	20.0	1,000	0	101 85 115

Sample ID: LCSD-R74058	SampType: LCSD	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 74058
Client ID: LCSS02	Batch ID: R74058	TestNo: SM2540C		Analysis Date: 11/16/2018	SeqNo: 1853453
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)	1,010	20.0	1,000	0	101 85 115 1,008 0.0992 10

Sample ID: 18110410-001CDUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 74058
Client ID: ZZZZZZ	Batch ID: R74058	TestNo: SM2540C		Analysis Date: 11/16/2018	SeqNo: 1853458
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)	1,360	100			1,360 0 10

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** R74058

Sample ID: 18110410-001CDUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 74058
Client ID: ZZZZZZ	Batch ID: R74058	TestNo: SM2540C		Analysis Date: 11/16/2018	SeqNo: 1853458
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Sample ID: 18110485-001EDUP	SampType: DUP	TestCode: TDS_2540C	Units: mg/L	Prep Date:	RunNo: 74058
Client ID: ZZZZZZ	Batch ID: R74058	TestNo: SM2540C		Analysis Date: 11/16/2018	SeqNo: 1853460
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Total Dissolved Solids (Residue, Filterable) 523 20.0 516.0 1.35 10

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** R74059

Sample ID: MB	SampType: MBLK	TestCode: 8260_W_REC	Units: mg/L	Prep Date:	RunNo: 74059						
Client ID: PBW	Batch ID: R74059	TestNo: SW8260B		Analysis Date: 11/15/2018	SeqNo: 1852071						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	< 0.00500	0.00500									
1,1,1-Trichloroethane	< 0.00500	0.00500									
1,1,2,2-Tetrachloroethane	< 0.000500	0.000500									
1,1,2-Trichloroethane	< 0.00500	0.00500									
1,1-Dichloroethane	< 0.00500	0.00500									
1,1-Dichloroethene	< 0.00500	0.00500									
1,2-Dibromo-3-chloropropane	< 0.00500	0.00500									
1,2-Dichlorobenzene	< 0.0200	0.0200									
1,2-Dichloroethane	< 0.00500	0.00500									
1,2-Dichloroethene, Total	< 0.00600	0.00600									
1,2-Dichloropropane	< 0.00500	0.00500									
1,3-Dichlorobenzene	< 0.0100	0.0100									
1,4-Dichlorobenzene	< 0.0200	0.0200									
2-Butanone	< 0.0100	0.0100									
4-Methyl-2-pentanone	< 0.0100	0.0100									
Acetone	< 0.0100	0.0100									
Benzene	< 0.00500	0.00500									
Bromodichloromethane	< 0.00500	0.00500									
Bromoform	< 0.00500	0.00500									
Bromomethane	< 0.00500	0.00500									
Carbon disulfide	< 0.0100	0.0100									
Carbon tetrachloride	< 0.00500	0.00500									
Chlorobenzene	< 0.00500	0.00500									
Chlorodibromomethane	< 0.00500	0.00500									
Chloroethane	< 0.0100	0.0100									
Chloroform	< 0.00500	0.00500									

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** R74059

Sample ID: MB	SampType: MBLK	TestCode: 8260_W_REC	Units: mg/L	Prep Date:	RunNo: 74059						
Client ID: PBW	Batch ID: R74059	TestNo: SW8260B		Analysis Date: 11/15/2018	SeqNo: 1852071						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	< 0.00500	0.00500									
cis-1,2-Dichloroethene	< 0.00300	0.00300									
cis-1,3-Dichloropropene	< 0.00200	0.00200									
Ethylbenzene	< 0.00500	0.00500									
Isobutyl alcohol	< 0.100	0.100									
Methyl tert-butyl ether	< 0.00500	0.00500									
Methylene chloride	< 0.00500	0.00500									
Styrene	< 0.00500	0.00500									
Tetrachloroethene	< 0.00500	0.00500									
Toluene	< 0.00500	0.00500									
trans-1,2-Dichloroethene	< 0.00300	0.00300									
trans-1,3-Dichloropropene	< 0.00200	0.00200									
Trichloroethene	< 0.00500	0.00500									
Trichlorofluoromethane	< 0.00500	0.00500									
Vinyl chloride	< 0.00200	0.00200									
Xylenes, Total	< 0.0150	0.0150									
Surr: 4-Bromofluorobenzene	0.0321	0.03000			107	65.1	136				
Surr: Dibromofluoromethane	0.0304	0.03000			101	40.4	143				
Surr: Toluene-d8	0.0304	0.03000			101	58.2	127				

Sample ID: LCSD 17221A-8	SampType: LCSD	TestCode: 8260_W_REC	Units: mg/L	Prep Date:	RunNo: 74059						
Client ID: LCSS02	Batch ID: R74059	TestNo: SW8260B		Analysis Date: 11/15/2018	SeqNo: 1852075						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	0.0513	0.00500	0.05000	0	103	73.4	120	0.05105	0.566	20	

**Qualifiers:** B Analyte detected in the associated Method Blank  
M Matrix Interference  
S Spike Recovery outside accepted recovery limits  
W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
SDL Sample detection limit

J Analyte detected below quantitation limits  
RL Reporting Limit  
U Analyte not detected



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# QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** R74059

Sample ID:	LCSD 17221A-8	SampType:	LCSD	TestCode:	8260_W_REC	Units:	mg/L	Prep Date:			RunNo: 74059		
Client ID:	LCSS02	Batch ID:	R74059	TestNo:	SW8260B	Analysis Date:			11/15/2018	SeqNo: 1852075			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
1,1,1-Trichloroethane		0.0477	0.00500	0.05000	0	95.3	64.5	127	0.04818	1.06	20		
1,1,2,2-Tetrachloroethane		0.0575	0.000500	0.05000	0	115	63.6	120	0.05592	2.72	20		
1,1,2-Trichloroethane		0.0522	0.00500	0.05000	0	104	74.9	120	0.05194	0.442	20		
1,1-Dichloroethane		0.0476	0.00500	0.05000	0	95.3	67.9	123	0.04828	1.36	20		
1,1-Dichloroethene		0.0460	0.00500	0.05000	0	92.1	60.3	135	0.04832	4.81	20		
1,2-Dibromo-3-chloropropane		0.0584	0.00500	0.05000	0	117	56.6	132	0.05975	2.25	20		
1,2-Dichlorobenzene		0.0521	0.0200	0.05000	0	104	76.4	120	0.05156	1.06	20		
1,2-Dichloroethane		0.0500	0.00500	0.05000	0	100	67.5	124	0.05035	0.658	20		
1,2-Dichloroethene, Total		0.0999	0.00600	0.1000	0	99.9	72.5	122	0.1020	2.10	20		
1,2-Dichloropropane		0.0536	0.00500	0.05000	0	107	77.2	120	0.05248	2.17	20		
1,3-Dichlorobenzene		0.0514	0.0100	0.05000	0	103	75.1	120	0.05062	1.57	20		
1,4-Dichlorobenzene		0.0516	0.0200	0.05000	0	103	76.1	120	0.05030	2.49	20		
2-Butanone		0.0492	0.0100	0.05000	0	98.4	61	127	0.05156	4.64	20		
4-Methyl-2-pentanone		0.0486	0.0100	0.05000	0	97.3	54.1	129	0.05207	6.79	20		
Acetone		0.0921	0.0100	0.1000	0	92.1	52.1	135	0.09263	0.530	20		
Benzene		0.0484	0.00500	0.05000	0	96.8	67.8	125	0.04887	0.987	20		
Bromodichloromethane		0.0523	0.00500	0.05000	0	105	72	120	0.05112	2.32	20		
Bromoform		0.0547	0.00500	0.05000	0	109	70.4	121	0.05520	0.892	20		
Bromomethane		0.0459	0.00500	0.05000	0	91.8	41.6	157	0.04446	3.19	20		
Carbon disulfide		0.0433	0.0100	0.05000	0	86.7	52.2	135	0.04588	5.69	20		
Carbon tetrachloride		0.0438	0.00500	0.05000	0	87.7	65.6	125	0.04414	0.705	20		
Chlorobenzene		0.0512	0.00500	0.05000	0	103	74.5	120	0.05106	0.371	20		
Chlorodibromomethane		0.0527	0.00500	0.05000	0	105	75	120	0.05330	1.17	20		
Chloroethane		0.0390	0.0100	0.05000	0	78.0	49.5	146	0.03972	1.83	20		
Chloroform		0.0489	0.00500	0.05000	0	97.7	71	120	0.04911	0.510	20		
Chloromethane		0.0382	0.00500	0.05000	0	76.5	45.8	145	0.04053	5.81	20		

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



Element Materials Technology Lafayette  
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 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: www.element.com

# QC SUMMARY REPORT

WO#: 18110484  
 03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** R74059

Sample ID: LCSD 17221A-8	SampType: LCSD	TestCode: 8260_W_REC	Units: mg/L	Prep Date:				RunNo: 74059			
Client ID: LCSS02	Batch ID: R74059	TestNo: SW8260B		Analysis Date: 11/15/2018				SeqNo: 1852075			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,2-Dichloroethene	0.0515	0.00300	0.05000	0	103	73.8	124	0.05168	0.329	20	
cis-1,3-Dichloropropene	0.0575	0.00200	0.05000	0	115	80	120	0.05659	1.54	20	
Ethylbenzene	0.0530	0.00500	0.05000	0	106	76.9	118	0.05325	0.471	20	
Isobutyl alcohol	0.494	0.100	0.5000	0	98.8	70	130	0.5609	12.6	20	
Methyl tert-butyl ether	0.0488	0.00500	0.05000	0	97.7	62.6	134	0.05066	3.66	20	
Methylene chloride	0.0486	0.00500	0.05000	0	97.2	65.8	125	0.04668	4.03	20	
Styrene	0.0505	0.00500	0.05000	0	101	79	120	0.04969	1.58	20	
Tetrachloroethene	0.0781	0.00500	0.05000	0	156	68.6	152	0.08156	4.31	20	S*
Toluene	0.0499	0.00500	0.05000	0	99.7	73.3	120	0.04891	1.92	20	
trans-1,2-Dichloroethene	0.0484	0.00300	0.05000	0	96.7	67.7	124	0.05038	4.07	20	
trans-1,3-Dichloropropene	0.0574	0.00200	0.05000	0	115	79.6	121	0.05722	0.262	20	
Trichloroethene	0.0489	0.00500	0.05000	0	97.7	74.5	124	0.04991	2.13	20	
Trichlorofluoromethane	0.0437	0.00500	0.05000	0	87.5	45.2	142	0.04582	4.64	20	
Vinyl chloride	0.0441	0.00200	0.05000	0	88.1	37.4	174	0.04566	3.57	20	
Xylenes, Total	0.159	0.0150	0.1500	0	106	80	120	0.1578	0.632	20	
Surr: 4-Bromofluorobenzene	0.0363		0.03000		121	65.1	136		0	20	
Surr: Dibromofluoromethane	0.0290		0.03000		96.7	40.4	143		0	20	
Surr: Toluene-d8	0.0313		0.03000		104	58.2	127		0	20	

**NOTES:**

S\* - High recovery(ies) indicate high bias. Data deemed acceptable as the specific target analyte(s) were not observed in the field sample(s).

Sample ID: LCS 17221A-82	SampType: LCS	TestCode: 8260_W_REC	Units: mg/L	Prep Date:				RunNo: 74059			
Client ID: LCSW	Batch ID: R74059	TestNo: SW8260B		Analysis Date: 11/15/2018				SeqNo: 1852076			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	0.0510	0.00500	0.05000	0	102	73.4	120				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** R74059

Sample ID: LCS 17221A-82	SampType: LCS	TestCode: 8260_W_REC	Units: mg/L	Prep Date:			RunNo: 74059				
Client ID: LCSW	Batch ID: R74059	TestNo: SW8260B		Analysis Date: 11/15/2018			SeqNo: 1852076				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	0.0482	0.00500	0.05000	0	96.4	64.5	127				
1,1,2,2-Tetrachloroethane	0.0559	0.000500	0.05000	0	112	63.6	120				
1,1,2-Trichloroethane	0.0519	0.00500	0.05000	0	104	74.9	120				
1,1-Dichloroethane	0.0483	0.00500	0.05000	0	96.6	67.9	123				
1,1-Dichloroethene	0.0483	0.00500	0.05000	0	96.6	60.3	135				
1,2-Dibromo-3-chloropropane	0.0598	0.00500	0.05000	0	120	56.6	132				
1,2-Dichlorobenzene	0.0516	0.0200	0.05000	0	103	76.4	120				
1,2-Dichloroethane	0.0504	0.00500	0.05000	0	101	67.5	124				
1,2-Dichloroethene, Total	0.102	0.00600	0.1000	0	102	72.5	122				
1,2-Dichloropropane	0.0525	0.00500	0.05000	0	105	77.2	120				
1,3-Dichlorobenzene	0.0506	0.0100	0.05000	0	101	75.1	120				
1,4-Dichlorobenzene	0.0503	0.0200	0.05000	0	101	76.1	120				
2-Butanone	0.0516	0.0100	0.05000	0	103	61	127				
4-Methyl-2-pentanone	0.0521	0.0100	0.05000	0	104	54.1	129				
Acetone	0.0926	0.0100	0.1000	0	92.6	52.1	135				
Benzene	0.0489	0.00500	0.05000	0	97.7	67.8	125				
Bromodichloromethane	0.0511	0.00500	0.05000	0	102	72	120				
Bromoform	0.0552	0.00500	0.05000	0	110	70.4	121				
Bromomethane	0.0445	0.00500	0.05000	0	88.9	41.6	157				
Carbon disulfide	0.0459	0.0100	0.05000	0	91.8	52.2	135				
Carbon tetrachloride	0.0441	0.00500	0.05000	0	88.3	65.6	125				
Chlorobenzene	0.0511	0.00500	0.05000	0	102	74.5	120				
Chlorodibromomethane	0.0533	0.00500	0.05000	0	107	75	120				
Chloroethane	0.0397	0.0100	0.05000	0	79.4	49.5	146				
Chloroform	0.0491	0.00500	0.05000	0	98.2	71	120				
Chloromethane	0.0405	0.00500	0.05000	0	81.1	45.8	145				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** R74059

Sample ID:	LCS 17221A-82	SampType:	LCS	TestCode:	8260_W_REC	Units:	mg/L	Prep Date:		RunNo:	74059	
Client ID:	LCSW	Batch ID:	R74059	TestNo:	SW8260B			Analysis Date:	11/15/2018	SeqNo:	1852076	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,2-Dichloroethene		0.0517	0.00300	0.05000	0	103	73.8	124				
cis-1,3-Dichloropropene		0.0566	0.00200	0.05000	0	113	80	120				
Ethylbenzene		0.0532	0.00500	0.05000	0	106	76.9	118				
Isobutyl alcohol		0.561	0.100	0.5000	0	112	70	130				
Methyl tert-butyl ether		0.0507	0.00500	0.05000	0	101	62.6	134				
Methylene chloride		0.0467	0.00500	0.05000	0	93.4	65.8	125				
Styrene		0.0497	0.00500	0.05000	0	99.4	79	120				
Tetrachloroethene		0.0816	0.00500	0.05000	0	163	68.6	152				S*
Toluene		0.0489	0.00500	0.05000	0	97.8	73.3	120				
trans-1,2-Dichloroethene		0.0504	0.00300	0.05000	0	101	67.7	124				
trans-1,3-Dichloropropene		0.0572	0.00200	0.05000	0	114	79.6	121				
Trichloroethene		0.0499	0.00500	0.05000	0	99.8	74.5	124				
Trichlorofluoromethane		0.0458	0.00500	0.05000	0	91.6	45.2	142				
Vinyl chloride		0.0457	0.00200	0.05000	0	91.3	37.4	174				
Xylenes, Total		0.158	0.0150	0.1500	0	105	80	120				
Surr: 4-Bromofluorobenzene		0.0373		0.03000		124	65.1	136				
Surr: Dibromofluoromethane		0.0289		0.03000		96.3	40.4	143				
Surr: Toluene-d8		0.0309		0.03000		103	58.2	127				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** R74205

Sample ID: MBLK	SampType: MBLK	TestCode: 9056_W	Units: mg/L	Prep Date:	RunNo: 74205
Client ID: PBW	Batch ID: R74205	TestNo: SW9056A		Analysis Date: 11/26/2018	SeqNo: 1857113
<b>Analyte</b>					
Chloride	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Sample ID: LCS	SampType: LCS	TestCode: 9056_W	Units: mg/L	Prep Date:	RunNo: 74205
Client ID: LCSW	Batch ID: R74205	TestNo: SW9056A		Analysis Date: 11/26/2018	SeqNo: 1857114
<b>Analyte</b>					
Chloride	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Sample ID: LCSD	SampType: LCSD	TestCode: 9056_W	Units: mg/L	Prep Date:	RunNo: 74205
Client ID: LCSS02	Batch ID: R74205	TestNo: SW9056A		Analysis Date: 11/26/2018	SeqNo: 1857115
<b>Analyte</b>					
Chloride	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Sample ID: 18110542-002BMS	SampType: MS	TestCode: 9056_W	Units: mg/L	Prep Date:	RunNo: 74205
Client ID: ZZZZZZ	Batch ID: R74205	TestNo: SW9056A		Analysis Date: 11/26/2018	SeqNo: 1857120
<b>Analyte</b>					
Chloride	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## QC SUMMARY REPORT

WO#: 18110484  
03-Dec-18

**Client:** Approach Environmental, LLC  
**Project:** LDNR Residential Water Wells

**BatchID:** R74205

Sample ID:	18110542-002BMSD	SampType:	MSD	TestCode:	9056_W	Units:	mg/L	Prep Date:		RunNo:	74205	
Client ID:	ZZZZZZ	Batch ID:	R74205	TestNo:	SW9056A	Analysis Date:				SeqNo:	1857121	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		2,950	50.0	1,000	1,942	101	80	120	2,938	0.377	15	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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## Sample Log-In Check List

Client Name: APPROACH\_ENVIRONM Work Order Number: 18110484 RcptNo: 1

Logged by:	Tammy Thibodeaux	11/14/2018 9:55:00 AM	<i>Tammy Thibodeaux</i>
Completed By:	Tammy Thibodeaux	11/14/2018 10:26:39 AM	<i>Tammy Thibodeaux</i>
Reviewed By:	Caitlin Duplantis	11/15/2018 12:55:40 PM	<i>Caitlin Duplantis</i>

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present   
2. How was the sample delivered? Element

### Log In

3. Coolers are present? Yes  No  NA   
4. Shipping container/cooler in good condition? Yes  No   
Custody seals intact on shipping container/cooler? Yes  No  Not Present   
No. Seal Date: Signed By:  
5. Was an attempt made to cool the samples? Yes  No  NA   
6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
7. Sample(s) in proper container(s)? Yes  No   
8. Sufficient sample volume for indicated test(s)? Yes  No   
9. Are samples (except VOA and ONG) properly preserved? Yes  No   
10. Was preservative added to bottles? Yes  No  NA   
11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
12. Were any sample containers received broken? Yes  No   
13. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes  No   
14. Are matrices correctly identified on Chain of Custody? Yes  No   
15. Is it clear what analyses were requested? Yes  No   
16. Were all holding times able to be met?  
(If no, notify customer for authorization.) Yes  No

### Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

Added trip blank information to COC. It is also associated with the 6576Z Herman Gamble sample logged in under workorder 1811.

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.7	Good	Not Present			

# ANALYTICAL RESULTS

PERFORMED BY

**GCAL, LLC**  
**7979 Innova on Park Dr.**  
**Baton Rouge, LA 70820**

**Report Date** 11/21/2018

**GCAL Report** 218111558

9999999999

**Project** 18110484

<b><i>Deliver To</i></b>	<b><i>Addi onal Recipients</i></b>
Annie Reedy  Element Materials Technology  2417 W Pinhook Rd Lafaye e, LA 70508 800-737-2378	Caitlin Duplan s, Element Materials Technology Cris na Thibeaux, Element Materials Technology Rhonda David, Element Materials Technology Buffy Hudson, Element Materials Technology



## Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

### Common Abbreviations that may be Utilized in this Report

<b>ND</b>	Indicates the result was Not Detected at the specified reporting limit
<b>NO</b>	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
<b>DO</b>	Indicates the result was Diluted Out
<b>MI</b>	Indicates the result was subject to Matrix Interference
<b>TNTC</b>	Indicates the result was Too Numerous To Count
<b>SUBC</b>	Indicates the analysis was Sub-Contracted
<b>FLD</b>	Indicates the analysis was performed in the Field
<b>DL</b>	Detection Limit
<b>LOD</b>	Limit of Detection
<b>LOQ</b>	Limit of Quantitation
<b>RE</b>	Re-analysis
<b>CF</b>	HPLC or GC Confirmation
<b>00:01</b>	Reported as a time equivalent to 12:00 AM

### Reporting Flags that may be Utilized in this Report

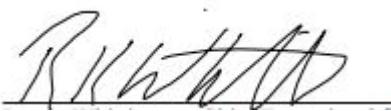
<b>J or I</b>	Indicates the result is between the MDL and LOQ
<b>J</b>	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
<b>U</b>	Indicates the compound was analyzed for but not detected
<b>B or V</b>	Indicates the analyte was detected in the associated Method Blank
<b>Q</b>	Indicates a non-compliant QC Result (See Q Flag Application Report)
*	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
<b>E</b>	Organics - The result is estimated because it exceeded the instrument calibration range
<b>E</b>	Metals - % difference for the serial dilution is > 10%
<b>L</b>	Reporting Limits adjusted to meet risk-based limit.
<b>P</b>	RPD between primary and confirmation result is greater than 40
<b>DL</b>	Diluted analysis when appended to Client Sample ID

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.



Authorized Signature  
GCAL Report 218111558

## Certifications

<b>Certification</b>	<b>Certification Number</b>
DOD ELAP	L16-398-R5
Alabama	01955
Arkansas	18-062-0
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234

## Case Narrative

**Client:** Element Materials Technology      **Report:** 218111558

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

**No anomalies were found for the analyzed sample(s).**



Report#: 218111558

Project ID: 18110484

Report Date: 11/21/2018

## Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21811155801	6729Z Blake Gamble	Water	11/13/2018 10:00	11/15/2018 10:03

## Sample Results

<b>6729Z Blake Gamble</b>	Collect Date	11/13/2018 10:00	GCAL ID	21811155801
	Receive Date	11/15/2018 10:03	Matrix	Water

EPA RSK-175

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/21/2018 14:48	JAR	648589
<b>CAS#</b>	<b>Parameter</b>			<b>Result</b>	<b>LOQ</b>	<b>Units</b>
<b>74-82-8</b>	<b>Methane</b>			<b>16.7</b>	<b>2.00</b>	<b>ug/L</b>
<b>CAS#</b>	<b>Surrogate</b>		<b>Conc. Spiked</b>	<b>Conc. Rec</b>	<b>Units</b>	<b>% Recovery</b>
115-07-1	Propene		40.50	33.7	ug/L	83
						Rec Limits
						40 - 143

## GC Volatiles QC Summary

<b>Analytical Batch</b> 648589	Client ID GCAL ID Sample Type Prep Date Analysis Date Matrix	MB648589 1871586 MB NA 11/21/2018 11:15 Water	LCS648589 1871587 LCS NA 11/21/2018 11:21 Water				
<b>EPA RSK-175</b>		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R
Methane <b>Surrogate</b> Propene	74-82-8 115-07-1	ND 25.6	2.00 63	17.5 40.5	15.1 33.4	86 82	39 - 120 40 - 143



## CHAIN OF CUSTODY RECORD

Omega COCID 7793

PAGE: 1 OF: 1

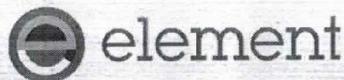
## ADDRESS

Element Materials Technology  
Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483  
FAX: (337) 233-6540  
Website: [www.element.com](http://www.element.com)

SUB CONTRACTOR: <b>GCAL</b>		COMPANY: <b>Gulf Coast</b>		SPECIAL INSTRUCTIONS / COMMENTS: methane by RSK175///PO ELA 01972PO			
ADDRESS: <b>7979 GSRI Avenue</b>							
CITY, STATE, ZIP: <b>Baton Rouge, LA 70820</b>							
PHONE: <b>(225) 769-4900</b> FAX: <b>(225) 767-5717</b> EMAIL:							
ACCOUNT #:							
ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
1	18110484-001G	6729Z Blake Gambl	VOAU	Water	11/13/2018 10:00:00 AM	2	
	METHANE_SUB (RSK-175)						

Relinquished By: <i>James Stibodeau</i>	Date: 11/14/2018	Time: 1500	Received By: <i>Robert Benoit</i>	Date: 11-14-18	Time: 1500	REPORT TRANSMITTAL DESIRED:			
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	<input type="checkbox"/> HARDCOPY (extra cost)	<input type="checkbox"/> FAX	<input type="checkbox"/> EMAIL	<input type="checkbox"/> ONLINE
Relinquished By: <i>Robert Benoit</i>	Date: 11-15-18	Time: 1003	Received By: <i>Tom</i>	Date: 11-15-18	Time: 1003	FOR LAB USE ONLY Temp of samples <i>5.7629 °C</i> Attempt to Cool? _____			
TAT: Standard <input type="checkbox"/>	RUSH	Next BD <input type="checkbox"/>	2nd BD <input type="checkbox"/>	3rd BD <input type="checkbox"/>	Comments: <i>21°C RH</i>				
Note: RUSH requests will incur surcharges!									

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## CHAIN OF CUSTODY RECORD

Omega COCID 7793

PAGE: 1 OF: 1

SUB CONTRACTOR: <b>GCAL</b>	COMPANY: <b>Gulf Coast</b>	SPECIAL INSTRUCTIONS / COMMENTS: methane by RSK175////PO.ELA.01972PO					
ADDRESS: <b>7979 GSRI Avenue</b>							
CITY, STATE, ZIP: <b>Baton Rouge, LA 70820</b>							
PHONE: <b>(225) 769-4900</b>	FAX: <b>(225) 767-5717</b>	EMAIL:					
ACCOUNT #:							
ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Pr HOT Sample Notation, Addition
1	18110484-001G METHANE_SUB (RSK-175)	6729Z Blake Gambl	VOAU	Water	11/13/2018 10:00:00 AM	2	

SampleID: 6729Z Blake Gamble

Client ID: 4462 - Element M

SDG: 218111558

PM: JLM



Relinquished By: <i>Wally of Shreveport</i>	Date: <b>11/14/2018</b>	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
TAT: Standard <input type="checkbox"/>	RUSH	Next BD <input type="checkbox"/>	2nd BD <input type="checkbox"/>	3rd BD <input type="checkbox"/>	Note: RUSH requests will incur surcharges!

REPORT TRANSMITTAL DESI					
<input type="checkbox"/> HARDCOPY (extra cost)			<input type="checkbox"/> FAX <input type="checkbox"/> EMA		
FOR LAB USE ONLY					
Temp of samples	°C		Attempt to C		
Comments:					

GCAL Report#: 218111558



## SAMPLE RECEIVING CHECKLIST



SAMPLE DELIVERY GROUP 218 11 58		CHECKLIST		
Client 4462 - Element Materials Technology	PM JLM Transport Method C S	<input checked="" type="checkbox"/> Samples received with proper thermal preservation? <input checked="" type="checkbox"/> Radioactivity is <1 00 cpm? If no, record cpm value in notes section. <input checked="" type="checkbox"/> COC relinquished and complete (including sampleIDs, collect times, and sampler)? <input checked="" type="checkbox"/> All containers received in good condition and within hold time? <input checked="" type="checkbox"/> All sample labels and containers received match the chain of custody? <input type="checkbox"/> Preservatives added to any containers? <input checked="" type="checkbox"/> If received, was headspace for VOC water containers < 6 mm? <input type="checkbox"/> Samples collected in containers provided by GCAL?		
C OLLERS		DISCREPANCIES	LAB PRESERVATIONS	
Airbill	Thermometer ID: E29	Temp °C 5.7	None	
NOTES				



element™

## Chain of Custody

Laboratory  
Number:

18110484

Company Name:  
Approach Env.  
Contact Name:  
Mark Moore  
Address:  
1000 Grimmett Dr.  
  
City, State Zip:  
Shreveport, LA 71107  
Phone Number:  
318 464 9191  
Fax Number:  
  
E-mail Address:  
draed@Approachenv.com

## Billing Information:

Same

PO Number:

Project Name/Number:  
LDNR Residential  
wells

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## Matrix Code

DW = Drinking Water  
WW = Waste Water  
GW = Ground Water  
AQ = Aqueous  
OT = Other  
SL = Sludge SOL = Solid  
O = Oil SO = Soil  
F = Food SW = Swab  
NG = Natural Gas  
NGL = Natural Gas Liquid  
PW = Produced Water  
CF = Completion Fluid

Quote Number:

Required QC Level

Sampler's Signature

Bill Monthly

 Yes No

Shipping Method:

UPS / FedEx / NOW  
DHL / Element / Hand / Mail

Which Regulations Apply:	Turn Time	(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container		Requested Tests						Comments	
			Quantity	Type	P=Plastic, G=Glass, V=Vial	Pres.	TDS	pH & DO	Dissolved Metals	Sodium	Chlorides	
Sample ID/Description	Collection Information			Matrix	VOC 8260	SemiVOC 8270						
6729 Z Blake Gamble	11/13/18	1000 G W	13 p,g	HCl HNO3	X X X X X X X X X X							
TRIPOLANK	11/13/18	- G Ag 3 ✓		HCl	X							

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1 <i>Rick Dillman</i>	11/13/18 15:15	<i>Tom Ruckel</i>	11-13-18 3:15 PM	Received at lab on ice? <input checked="" type="checkbox"/>
2 <i>Tom Ruckel</i>	11/14/18 08:00	<i>Young Fab</i>	11-14-18 08:00	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 1.7
3 <i>Young Fab</i>	11/14/18 9:55		11-14-18 09:55	

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples.  
Element Materials Technology reserves the right to return unused sample portions.

(IR10)

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