



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

November 06, 2018

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

Order No.: 18100869

RE: Approach Environmental - LDNR Residential Water Wells

Dear Mark Moore:

Element Materials Technology Lafayette received 2 sample(s) on 10/23/2018 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



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Case Narrative

WO#: 18100869
Date: 11/6/2018

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

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.



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Analytical Report

(consolidated MDL)

WO#: **18100869**

Date Reported: **11/6/2018**

CLIENT: Approach Environmental, LLC **Collection Date:** 10/22/2018 1:40:00 PM
Project: Approach Environmental - LDNR Residential Water Wells
Lab ID: 18100869-001 **Matrix:** WATER
Client Sample ID 9313 Z Wymon McClary

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TPH-D/O IN WATER BY SW8015					SW8015B	SW3511	Analyst: CRM
TPH DRO/ORO IN WATER BY SW8015							
TPH (Diesel Range)	< 0.134	0.00409	0.134		mg/L	1	10/24/2018 1:04:00 PM
TPH (Oil Range)	< 0.124	0.0488	0.124		mg/L	1	10/24/2018 1:04:00 PM
Surr: 4-Terphenyl-d14	86.1		51.4-146		%Rec	1	10/24/2018 1:04:00 PM
TPH-GRO IN WATER BY SW8015					SW8015B		Analyst: CRM
TPH (Gasoline Range)	0.0499	0.0149	0.150	J	mg/L	1	10/23/2018 12:01:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	105		70-130		%Rec	1	10/23/2018 12:01:00 PM
RCRA METALS - SW6010/7470A					SW7470A		Analyst: KML
MERCURY IN GROUND WATER, TOTAL							
Mercury	< 0.000200	0.0000540	0.000200		mg/L	1	10/26/2018 2:32:41 PM
INORGANIC ANIONS IN WATER BY IC					SW9056A		Analyst: SGP
Chloride	50.3	0.332	5.00		mg/L	20	10/25/2018 10:14:44 AM
RCRA METALS - SW6010/7470A					SW6010B		Analyst: STS
METALS IN WATER BY ICP, TOTALS							
Arsenic	0.0163	0.00895	0.0100		mg/L	1	10/30/2018 8:21:19 PM
Barium	0.106	0.00103	0.0100		mg/L	1	10/30/2018 8:21:19 PM
Cadmium	0.000800	0.000781	0.00500	J	mg/L	1	10/30/2018 8:21:19 PM
Chromium	0.0146	0.000483	0.0100		mg/L	1	10/30/2018 8:21:19 PM
Lead	0.00970	0.00488	0.0100	J	mg/L	1	10/30/2018 8:21:19 PM
Selenium	0.0119	0.00526	0.0200	J	mg/L	1	10/30/2018 8:21:19 PM
Silver	< 0.00500	0.000340	0.00500		mg/L	1	10/30/2018 8:21:19 PM
Sodium	218	2.32	5.00		mg/L	1	10/30/2018 8:21:19 PM
PAH IN WATER BY EPA 8270C					SW8270C	SW3511	Analyst: CRM
2-Methylnaphthalene	< 0.000522	0.0000196	0.000522		mg/L	1	10/23/2018 3:58:00 PM
Acenaphthene	< 0.00104	0.0000544	0.00104		mg/L	1	10/23/2018 3:58:00 PM
Acenaphthylene	< 0.00104	0.000117	0.00104		mg/L	1	10/23/2018 3:58:00 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
C	Value is below Minimum Compound Limit.	DF	Dilution Factor
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits



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Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PAH IN WATER BY EPA 8270C					SW8270C	SW3511	Analyst: CRM
Anthracene	< 0.00104	0.00000622	0.00104		mg/L	1	10/23/2018 3:58:00 PM
Benzo(a)anthracene	< 0.000522	0.0000254	0.000522		mg/L	1	10/23/2018 3:58:00 PM
Benzo(a)pyrene	< 0.000178	0.0000474	0.000178		mg/L	1	10/23/2018 3:58:00 PM
Benzo(b)fluoranthene	< 0.000522	0.0000446	0.000522		mg/L	1	10/23/2018 3:58:00 PM
Benzo(k)fluoranthene	< 0.000522	0.0000641	0.000522		mg/L	1	10/23/2018 3:58:00 PM
Chrysene	< 0.000522	0.0000252	0.000522		mg/L	1	10/23/2018 3:58:00 PM
Dibenz(a,h)anthracene	< 0.00104	0.0000537	0.00104		mg/L	1	10/23/2018 3:58:00 PM
Fluoranthene	< 0.00104	0.00000564	0.00104		mg/L	1	10/23/2018 3:58:00 PM
Fluorene	< 0.000626	0.0000241	0.000626		mg/L	1	10/23/2018 3:58:00 PM
Indeno(1,2,3-cd)pyrene	< 0.000522	0.000150	0.000522		mg/L	1	10/23/2018 3:58:00 PM
Naphthalene	< 0.00104	0.0000269	0.00104		mg/L	1	10/23/2018 3:58:00 PM
Phenanthrene	< 0.00104	0.00000311	0.00104		mg/L	1	10/23/2018 3:58:00 PM
Pyrene	< 0.00104	0.00000121	0.00104		mg/L	1	10/23/2018 3:58:00 PM
Surr: 4-Terphenyl-d14	47.3	0	49.2-161	S	%Rec	1	10/23/2018 3:58:00 PM

NOTES:

Note: Low surrogate recovery caused by emulsions during extraction procedure.

SEMIVOLATILE ORGANICS IN WATER					SW8270C	E625/SW351	Analyst: KSK
1,2,4,5-Tetrachlorobenzene	< 0.00101	0.000505	0.00101		mg/L	1	10/24/2018 1:49:00 PM
1,2,4-Trichlorobenzene	< 0.00505	0.00101	0.00505		mg/L	1	10/24/2018 1:49:00 PM
1,2-Dichlorobenzene	< 0.00505	0.00101	0.00505		mg/L	1	10/24/2018 1:49:00 PM
1,3-Dichlorobenzene	< 0.00505	0.000509	0.00505		mg/L	1	10/24/2018 1:49:00 PM
1,3-Dinitrobenzene	< 0.00505	0.000505	0.00505		mg/L	1	10/24/2018 1:49:00 PM
1,4-Dichlorobenzene	< 0.00505	0.00101	0.00505		mg/L	1	10/24/2018 1:49:00 PM
2,3,4,6-Tetrachlorophenol	< 0.00505	0.000505	0.00505		mg/L	1	10/24/2018 1:49:00 PM
2,4,5-Trichlorophenol	< 0.0101	0.000505	0.0101		mg/L	1	10/24/2018 1:49:00 PM
2,4,6-Trichlorophenol	< 0.00505	0.000505	0.00505		mg/L	1	10/24/2018 1:49:00 PM
2,4-Dichlorophenol	< 0.00505	0.000505	0.00505		mg/L	1	10/24/2018 1:49:00 PM
2,4-Dimethylphenol	< 0.00505	0.000562	0.00505		mg/L	1	10/24/2018 1:49:00 PM
2,4-Dinitrophenol	< 0.0202	0.00202	0.0202		mg/L	1	10/24/2018 1:49:00 PM
2,4-Dinitrotoluene	< 0.00505	0.000505	0.00505		mg/L	1	10/24/2018 1:49:00 PM
2,6-Dinitrotoluene	< 0.00505	0.000505	0.00505		mg/L	1	10/24/2018 1:49:00 PM
2-Chloronaphthalene	< 0.00505	0.0000620	0.00505		mg/L	1	10/24/2018 1:49:00 PM

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Lab ID: 18100869-001 **Matrix:** WATER
Client Sample ID 9313 Z Wymon McClary

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SEMIVOLATILE ORGANICS IN WATER				SW8270C	E625/SW351	Analyst: KSK	
2-Chlorophenol	< 0.00505	0.0000545	0.00505		mg/L	1	10/24/2018 1:49:00 PM
2-Nitroaniline	< 0.00505	0.000505	0.00505		mg/L	1	10/24/2018 1:49:00 PM
3,3'-Dichlorobenzidine	< 0.0101	0.000481	0.0101		mg/L	1	10/24/2018 1:49:00 PM
3-Nitroaniline	< 0.0202	0.000505	0.0202		mg/L	1	10/24/2018 1:49:00 PM
4-Chloroaniline	< 0.00505	0.000240	0.00505		mg/L	1	10/24/2018 1:49:00 PM
4-Nitroaniline	< 0.00505	0.000505	0.00505		mg/L	1	10/24/2018 1:49:00 PM
4-Nitrophenol	< 0.0202	0.00505	0.0202		mg/L	1	10/24/2018 1:49:00 PM
Aniline	< 0.00505	0.000495	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Biphenyl	< 0.00505	0.000505	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Bis(2-chloroethyl)ether	< 0.00505	0.0000825	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Bis(2-chloroisopropyl)ether	< 0.00505	0.000505	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Bis(2-ethylhexyl)phthalate	< 0.00505	0.000305	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Butyl benzyl phthalate	< 0.00505	0.000107	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Dibenzofuran	< 0.00505	0.0000808	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Diethyl phthalate	< 0.00505	0.000505	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Dimethyl phthalate	< 0.00505	0.000505	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Di-n-octyl phthalate	< 0.0101	0.000183	0.0101		mg/L	1	10/24/2018 1:49:00 PM
Dinoseb	< 0.00505	0.000303	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Hexachlorobenzene	< 0.00101	0.000505	0.00101		mg/L	1	10/24/2018 1:49:00 PM
Hexachlorobutadiene	< 0.00202	0.00101	0.00202		mg/L	1	10/24/2018 1:49:00 PM
Hexachlorocyclopentadiene	< 0.0101	0.000505	0.0101		mg/L	1	10/24/2018 1:49:00 PM
Hexachloroethane	< 0.00505	0.00202	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Isophorone	< 0.00505	0.000181	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Nitrobenzene	< 0.00101	0.000505	0.00101		mg/L	1	10/24/2018 1:49:00 PM
N-Nitrosodi-n-propylamine	< 0.00505	0.000505	0.00505		mg/L	1	10/24/2018 1:49:00 PM
N-Nitrosodiphenylamine	< 0.00505	0.000144	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Pentachlorophenol	< 0.0101	0.00101	0.0101		mg/L	1	10/24/2018 1:49:00 PM
Phenol	< 0.00505	0.0000527	0.00505		mg/L	1	10/24/2018 1:49:00 PM
Surr: 2,4,6-Tribromophenol	76.6		47.2-144		%Rec	1	10/24/2018 1:49:00 PM
Surr: 2-Fluorobiphenyl	78.8		52.2-116		%Rec	1	10/24/2018 1:49:00 PM
Surr: 2-Fluorophenol	45.1		27.3-80.6		%Rec	1	10/24/2018 1:49:00 PM
Surr: 4-Terphenyl-d14	85.8		48.1-134		%Rec	1	10/24/2018 1:49:00 PM
Surr: Nitrobenzene-d5	75.3		42.5-144		%Rec	1	10/24/2018 1:49:00 PM
Surr: Phenol-d5	30.2		10-67.1		%Rec	1	10/24/2018 1:49:00 PM

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Project: Approach Environmental - LDNR Residential Water Wells
Lab ID: 18100869-001 **Matrix:** WATER
Client Sample ID 9313 Z Wymon McClary

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILES BY GC/MS IN WATER				SW8260B		Analyst: KSK	
1,1,1,2-Tetrachloroethane	< 0.00500	0.000200	0.00500		mg/L	1	10/23/2018 11:52:00 AM
1,1,1-Trichloroethane	< 0.00500	0.000200	0.00500		mg/L	1	10/23/2018 11:52:00 AM
1,1,2,2-Tetrachloroethane	< 0.000500	0.000150	0.000500		mg/L	1	10/23/2018 11:52:00 AM
1,1,2-Trichloroethane	< 0.00500	0.000172	0.00500		mg/L	1	10/23/2018 11:52:00 AM
1,1-Dichloroethane	< 0.00500	0.000200	0.00500		mg/L	1	10/23/2018 11:52:00 AM
1,1-Dichloroethene	< 0.00500	0.000361	0.00500		mg/L	1	10/23/2018 11:52:00 AM
1,2-Dibromo-3-chloropropane	< 0.00500	0.000210	0.00500		mg/L	1	10/23/2018 11:52:00 AM
1,2-Dichlorobenzene	< 0.0200	0.000500	0.0200		mg/L	1	10/23/2018 11:52:00 AM
1,2-Dichloroethane	< 0.00500	0.000500	0.00500		mg/L	1	10/23/2018 11:52:00 AM
1,2-Dichloroethene, Total	< 0.00600	0.000400	0.00600		mg/L	1	10/23/2018 11:52:00 AM
1,2-Dichloropropane	< 0.00500	0.000148	0.00500		mg/L	1	10/23/2018 11:52:00 AM
1,3-Dichlorobenzene	< 0.0100	0.000500	0.0100		mg/L	1	10/23/2018 11:52:00 AM
1,4-Dichlorobenzene	< 0.0200	0.000500	0.0200		mg/L	1	10/23/2018 11:52:00 AM
2-Butanone	< 0.0100	0.000442	0.0100		mg/L	1	10/23/2018 11:52:00 AM
4-Methyl-2-pentanone	< 0.0100	0.000325	0.0100		mg/L	1	10/23/2018 11:52:00 AM
Acetone	< 0.0100	0.00226	0.0100		mg/L	1	10/23/2018 11:52:00 AM
Benzene	< 0.00500	0.000200	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Bromodichloromethane	< 0.00500	0.000136	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Bromoform	< 0.00500	0.000500	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Bromomethane	< 0.00500	0.000688	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Carbon disulfide	< 0.0100	0.000133	0.0100		mg/L	1	10/23/2018 11:52:00 AM
Carbon tetrachloride	< 0.00500	0.0000773	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Chlorobenzene	< 0.00500	0.000200	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Chlorodibromomethane	< 0.00500	0.000170	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Chloroethane	< 0.0100	0.00155	0.0100		mg/L	1	10/23/2018 11:52:00 AM
Chloroform	< 0.00500	0.000200	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Chloromethane	< 0.00500	0.00200	0.00500		mg/L	1	10/23/2018 11:52:00 AM
cis-1,2-Dichloroethene	< 0.00300	0.000200	0.00300		mg/L	1	10/23/2018 11:52:00 AM
cis-1,3-Dichloropropene	< 0.00200	0.000500	0.00200		mg/L	1	10/23/2018 11:52:00 AM
Ethylbenzene	< 0.00500	0.000200	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Isobutyl alcohol	< 0.100	0.00400	0.100		mg/L	1	10/23/2018 11:52:00 AM
Methyl tert-butyl ether	< 0.00500	0.000500	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Methylene chloride	< 0.00500	0.000457	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Styrene	< 0.00500	0.000200	0.00500		mg/L	1	10/23/2018 11:52:00 AM

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Client Sample ID 9313 Z Wymon McClary

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VOLATILES BY GC/MS IN WATER				SW8260B		Analyst: KSK	
Tetrachloroethene	< 0.00500	0.000200	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Toluene	< 0.00500	0.000200	0.00500		mg/L	1	10/23/2018 11:52:00 AM
trans-1,2-Dichloroethene	< 0.00300	0.000204	0.00300		mg/L	1	10/23/2018 11:52:00 AM
trans-1,3-Dichloropropene	< 0.00200	0.000500	0.00200		mg/L	1	10/23/2018 11:52:00 AM
Trichloroethene	< 0.00500	0.000500	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Trichlorofluoromethane	< 0.00500	0.00200	0.00500		mg/L	1	10/23/2018 11:52:00 AM
Vinyl chloride	< 0.00200	0.00200	0.00200		mg/L	1	10/23/2018 11:52:00 AM
Xylenes, Total	< 0.0150	0.00150	0.0150		mg/L	1	10/23/2018 11:52:00 AM
Surr: 4-Bromofluorobenzene	100		65.1-136		%Rec	1	10/23/2018 11:52:00 AM
Surr: Dibromofluoromethane	95.1		40.4-143		%Rec	1	10/23/2018 11:52:00 AM
Surr: Toluene-d8	103		58.2-127		%Rec	1	10/23/2018 11:52:00 AM
TOTAL DISSOLVED SOLIDS				SM2540C		Analyst: GMS	
Total Dissolved Solids (Residue, Filterable)	484	11.9	20.0		mg/L	1	10/24/2018 7:58:00 AM

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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28121

Sample ID	LCS-D-28121	SampType: LCS	TestCode: 8015_DO_W_	Units: mg/L	Prep Date: 10/23/2018	RunNo: 73573					
Client ID:	LCSW	Batch ID: 28121	TestNo: SW8015B	SW3511	Analysis Date: 10/24/2018	SeqNo: 1840427					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range) 1.79 0.135 1.783 0 100 70 130
 Surr: 4-Terphenyl-d14 0.0628 0.05943 106 51.4 146

Sample ID	LCSD-D-28121	SampType: LCSD	TestCode: 8015_DO_W_	Units: mg/L	Prep Date: 10/23/2018	RunNo: 73573					
Client ID:	LCSS02	Batch ID: 28121	TestNo: SW8015B	SW3511	Analysis Date: 10/24/2018	SeqNo: 1840428					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range) 1.68 0.135 1.784 0 94.0 70 130 1.785 6.24 14.1
 Surr: 4-Terphenyl-d14 0.0563 0.05947 94.7 51.4 146 0 40

Sample ID	LCSD-M-28121	SampType: LCSD	TestCode: 8015_DO_W_	Units: mg/L	Prep Date: 10/23/2018	RunNo: 73573					
Client ID:	LCSS02	Batch ID: 28121	TestNo: SW8015B	SW3511	Analysis Date: 10/24/2018	SeqNo: 1840429					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range) 1.63 0.124 1.774 0 91.7 70 130 1.543 5.29 23.2
 Surr: 4-Terphenyl-d14 0.0649 0.05912 110 51.4 146 0 40

Sample ID	LCS-M-28121	SampType: LCS	TestCode: 8015_DO_W_	Units: mg/L	Prep Date: 10/23/2018	RunNo: 73573					
Client ID:	LCSW	Batch ID: 28121	TestNo: SW8015B	SW3511	Analysis Date: 10/24/2018	SeqNo: 1840430					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range) 1.54 0.124 1.775 0 86.9 70 130

Qualifiers: 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 sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28121

Sample ID	LCS-M-28121	SampType:	LCS	TestCode:	8015_DO_W_	Units:	mg/L	Prep Date:	10/23/2018	RunNo:	73573			
Client ID:	LCSW	Batch ID:	28121	TestNo:	SW8015B	SW3511		Analysis Date:	10/24/2018	SeqNo:	1840430			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr:	4-Terphenyl-d14	0.0630			0.05917			106	51.4	146				

Sample ID	MB-28121	SampType:	MBLK	TestCode:	8015_DO_W_	Units:	mg/L	Prep Date:	10/23/2018	RunNo:	73573			
Client ID:	PBW	Batch ID:	28121	TestNo:	SW8015B	SW3511		Analysis Date:	10/24/2018	SeqNo:	1840431			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		< 0.134		0.134										
TPH (Oil Range)		< 0.124		0.124										
Surr:	4-Terphenyl-d14	0.0597			0.05882			102	51.4	146				

Qualifiers:

- | | | | | | |
|-----|--|----|--|---|---|
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits | M | Matrix Interference |
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| SDL | Sample detection limit | U | Analyte not detected | W | Sample container temperature is out of limit as specified |



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28122

Sample ID	MB-28122	SampType:	MBLK	TestCode:	8270_W_LVI_	Units:	mg/L	Prep Date:	10/23/2018	RunNo:	73545		
Client ID:	PBW	Batch ID:	28122	TestNo:	SW8270C	SW3511		Analysis Date:	10/23/2018	SeqNo:	1839998		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene		< 0.000516		0.000516									
Acenaphthene		< 0.00103		0.00103									
Acenaphthylene		< 0.00103		0.00103									
Anthracene		< 0.00103		0.00103									
Benzo(a)anthracene		< 0.000516		0.000516									
Benzo(a)pyrene		< 0.000176		0.000176									
Benzo(b)fluoranthene		< 0.000516		0.000516									
Benzo(k)fluoranthene		< 0.000516		0.000516									
Chrysene		< 0.000516		0.000516									
Dibenz(a,h)anthracene		< 0.00103		0.00103									
Fluoranthene		< 0.00103		0.00103									
Fluorene		< 0.000619		0.000619									
Indeno(1,2,3-cd)pyrene		< 0.000516		0.000516									
Naphthalene		< 0.00103		0.00103									
Phenanthrene		< 0.00103		0.00103									
Pyrene		< 0.00103		0.00103									
Surr: 4-Terphenyl-d14		0.00253			0.002364		107	49.2	161				

Sample ID	LCSD-28122	SampType:	LCSD	TestCode:	8270_W_LVI_	Units:	mg/L	Prep Date:	10/23/2018	RunNo:	73545		
Client ID:	LCSS02	Batch ID:	28122	TestNo:	SW8270C	SW3511		Analysis Date:	10/23/2018	SeqNo:	1840001		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene		0.00230		0.000516	0.002358	0	97.7	60.8	127	0.002088	9.89	40	
Acenaphthene		0.00256		0.00103	0.002362	0	109	72.5	121	0.001939	27.7	40	
Acenaphthylene		0.00236		0.00103	0.002362	0	99.8	65.7	128	0.002259	4.24	40	

Qualifiers:

H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	M	Matrix Interference
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SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28122

Sample ID	LCSD-28122	SampType:	LCSD	TestCode:	8270_W_LVI_ Units: mg/L	Prep Date:	10/23/2018	RunNo:	73545		
Client ID:	LCSS02	Batch ID:	28122	TestNo:	SW8270C SW3511	Analysis Date:	10/23/2018	SeqNo:	1840001		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Anthracene	0.00202	0.00103	0.002362	0	85.7	73.4	120	0.001827	10.2	40	
Benzo(a)anthracene	0.00249	0.000516	0.002362	0	106	69	121	0.002338	6.40	40	
Benzo(a)pyrene	0.00234	0.000175	0.002362	0	99.0	70.6	120	0.002112	10.1	40	
Benzo(b)fluoranthene	0.00239	0.000516	0.002362	0	101	65.3	127	0.002265	5.58	40	
Benzo(k)fluoranthene	0.00283	0.000516	0.002362	0	120	68.6	125	0.002706	4.47	40	
Chrysene	0.00272	0.000516	0.002362	0	115	74.4	120	0.002472	9.69	40	
Dibenz(a,h)anthracene	0.00265	0.00103	0.002362	0	112	66.4	126	0.002721	2.59	40	
Fluoranthene	0.00264	0.00103	0.002362	0	112	70.7	121	0.002742	3.60	40	
Fluorene	0.00225	0.000619	0.002362	0	95.4	62.5	134	0.001665	30.0	40	
Indeno(1,2,3-cd)pyrene	0.00276	0.000516	0.002362	0	117	66.9	120	0.002717	1.64	40	
Naphthalene	0.00234	0.00103	0.002362	0	99.1	63.5	137	0.002116	10.1	40	
Phenanthrene	0.00242	0.00103	0.002362	0	102	74.1	118	0.002313	4.52	40	
Pyrene	0.00261	0.00103	0.002362	0	111	73.2	120	0.002336	11.2	40	
Surr: 4-Terphenyl-d14	0.00277		0.002362		117	49.2	161		0	40	

Sample ID	LCS-28122	SampType:	LCS	TestCode:	8270_W_LVI_ Units: mg/L	Prep Date:	10/23/2018	RunNo:	73545		
Client ID:	LCSW	Batch ID:	28122	TestNo:	SW8270C SW3511	Analysis Date:	10/23/2018	SeqNo:	1840002		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	0.00209	0.000519	0.002372	0	88.0	60.8	127				
Acenaphthene	0.00194	0.00104	0.002376	0	81.6	72.5	121				
Acenaphthylene	0.00226	0.00104	0.002376	0	95.1	65.7	128				
Anthracene	0.00183	0.00104	0.002376	0	76.9	73.4	120				
Benzo(a)anthracene	0.00234	0.000519	0.002376	0	98.4	69	121				
Benzo(a)pyrene	0.00211	0.000176	0.002376	0	88.9	70.6	120				

Qualifiers: 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
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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28122

Sample ID	LCS-28122	SampType:	LCS	TestCode:	8270_W_LVI_	Units:	mg/L	Prep Date:	10/23/2018	RunNo:	73545
Client ID:	LCSW	Batch ID:	28122	TestNo:	SW8270C		SW3511	Analysis Date:	10/23/2018	SeqNo:	1840002
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	0.00226	0.000519	0.002376	0	95.3	65.3	127				
Benzo(k)fluoranthene	0.00271	0.000519	0.002376	0	114	68.6	125				
Chrysene	0.00247	0.000519	0.002376	0	104	74.4	120				
Dibenz(a,h)anthracene	0.00272	0.00104	0.002376	0	115	66.4	126				
Fluoranthene	0.00274	0.00104	0.002376	0	115	70.7	121				
Fluorene	0.00167	0.000623	0.002376	0	70.1	62.5	134				
Indeno(1,2,3-cd)pyrene	0.00272	0.000519	0.002376	0	114	66.9	120				
Naphthalene	0.00212	0.00104	0.002376	0	89.1	63.5	137				
Phenanthrene	0.00231	0.00104	0.002376	0	97.3	74.1	118				
Pyrene	0.00234	0.00104	0.002376	0	98.3	73.2	120				
Surr: 4-Terphenyl-d14	0.00263		0.002376		111	49.2	161				

Qualifiers:
 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#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28129

Sample ID	MB-28129	SampType:	MBLK	TestCode:	8270_W_REC	Units:	mg/L	Prep Date:	10/23/2018	RunNo:	73575
Client ID:	PBW	Batch ID:	28129	TestNo:	SW8270C	E625/SW351		Analysis Date:	10/24/2018	SeqNo:	1840532
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-Nitrophenol	< 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									

Qualifiers:
 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#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28129

Sample ID	MB-28129	SampType:	MBLK	TestCode:	8270_W_REC	Units:	mg/L	Prep Date:	10/23/2018	RunNo:	73575
Client ID:	PBW	Batch ID:	28129	TestNo:	SW8270C	E625/SW351		Analysis Date:	10/24/2018	SeqNo:	1840532
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	0.0260		0.03000		86.7	47.2	144				
Surr: 2-Fluorobiphenyl	0.0186		0.02000		92.9	52.2	116				
Surr: 2-Fluorophenol	0.0153		0.03000		51.0	27.3	80.6				
Surr: 4-Terphenyl-d14	0.0212		0.02000		106	48.1	134				
Surr: Nitrobenzene-d5	0.0178		0.02000		88.9	42.5	144				
Surr: Phenol-d5	0.0108		0.03000		36.0	10	67.1				

Qualifiers:

- | | | | | | |
|-----|--|----|--|---|--|
| 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 sf |



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28129

Sample ID	LCSD-28129	SampType:	LCSD	TestCode:	8270_W_REC	Units:	mg/L	Prep Date:	10/23/2018	RunNo:	73575
Client ID:	LCSS02	Batch ID:	28129	TestNo:	SW8270C	E625/SW351		Analysis Date:	10/24/2018	SeqNo:	1840535
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4,5-Tetrachlorobenzene	0.0411	0.00100	0.05000	0	82.2	51.3	119	0.04249	3.32	40	
1,2,4-Trichlorobenzene	0.0374	0.00500	0.05000	0	74.7	47.4	103	0.03492	6.73	40	
1,2-Dichlorobenzene	0.0387	0.00500	0.05000	0	77.3	32	119	0.03549	8.56	40	
1,3-Dichlorobenzene	0.0364	0.00500	0.05000	0	72.8	33.9	108	0.03359	8.07	40	
1,3-Dinitrobenzene	0.0480	0.00500	0.05000	0	96.0	56.5	132	0.04366	9.50	40	
1,4-Dichlorobenzene	0.0356	0.00500	0.05000	0	71.3	31.8	107	0.03260	8.89	40	
2,3,4,6-Tetrachlorophenol	0.0527	0.00500	0.05000	0	105	71.4	118	0.04927	6.80	40	
2,4,5-Trichlorophenol	0.0504	0.0100	0.05000	0	101	63.4	113	0.04664	7.75	40	
2,4,6-Trichlorophenol	0.0488	0.00500	0.05000	0	97.6	62.5	109	0.04523	7.63	40	
2,4-Dichlorophenol	0.0465	0.00500	0.05000	0	93.1	65.8	105	0.04323	7.40	40	
2,4-Dimethylphenol	0.0472	0.00500	0.05000	0	94.3	56.4	106	0.04350	8.09	40	
2,4-Dinitrophenol	0.0524	0.0200	0.05000	0	105	10	171	0.04678	11.3	40	
2,4-Dinitrotoluene	0.0471	0.00500	0.05000	0	94.2	72.6	107	0.04262	10.0	40	
2,6-Dinitrotoluene	0.0506	0.00500	0.05000	0	101	62.5	112	0.04618	9.15	40	
2-Chloronaphthalene	0.0417	0.00500	0.05000	0	83.5	43.2	121	0.03848	8.15	40	
2-Chlorophenol	0.0439	0.00500	0.05000	0	87.7	57.4	104	0.03997	9.30	40	
2-Nitroaniline	0.0512	0.00500	0.05000	0	102	71.4	120	0.04667	9.25	40	
3,3'-Dichlorobenzidine	0.0894	0.0100	0.1000	0	89.4	49.2	113	0.08432	5.86	40	
3-Nitroaniline	0.0427	0.0200	0.05000	0	85.4	37.7	116	0.03818	11.2	40	
4-Chloroaniline	0.0443	0.00500	0.05000	0	88.5	56.4	98.6	0.04006	9.98	40	
4-Nitroaniline	0.0516	0.00500	0.05000	0	103	64	113	0.04680	9.76	40	
4-Nitrophenol	0.0244	0.0200	0.05000	0	48.8	22.5	63.1	0.02152	12.6	40	
Aniline	0.0374	0.00500	0.05000	0	74.8	48.9	102	0.03428	8.63	40	
Biphenyl	0.0445	0.00500	0.05000	0	89.0	41.7	130	0.04096	8.28	40	
Bis(2-chloroethyl)ether	0.0430	0.00500	0.05000	0	86.0	51.9	112	0.03883	10.2	40	
Bis(2-chloroisopropyl)ether	0.0470	0.00500	0.05000	0	94.0	50.1	125	0.04230	10.5	40	

Qualifiers:
 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

M Matrix Interference
 S Spike Recovery outside accepted recovery limits
 W Sample container temperature is out of limit as sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28129

Sample ID	LCSD-28129	SampType:	LCSD	TestCode:	8270_W_REC	Units:	mg/L	Prep Date:	10/23/2018	RunNo:	73575
Client ID:	LCSS02	Batch ID:	28129	TestNo:	SW8270C	E625/SW351		Analysis Date:	10/24/2018	SeqNo:	1840535
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bis(2-ethylhexyl)phthalate	0.0556	0.00500	0.05000	0	111	46.9	137	0.04839	13.8	40	
Butyl benzyl phthalate	0.0523	0.00500	0.05000	0	105	47.6	134	0.04824	7.99	40	
Dibenzofuran	0.0480	0.00500	0.05000	0	96.1	59.5	126	0.04391	8.98	40	
Diethyl phthalate	0.0496	0.00500	0.05000	0	99.2	55.4	121	0.04526	9.16	40	
Dimethyl phthalate	0.0497	0.00500	0.05000	0	99.5	66	109	0.04550	8.91	40	
Di-n-octyl phthalate	0.0516	0.0100	0.05000	0	103	36.9	145	0.04710	9.17	40	
Dinoseb	0.0451	0.00500	0.05000	0	90.1	10	180	0.04064	10.3	40	
Hexachlorobenzene	0.0459	0.00100	0.05000	0	91.8	59.5	100	0.04242	7.92	40	
Hexachlorobutadiene	0.0352	0.00200	0.05000	0	70.5	43.1	101	0.03307	6.32	40	
Hexachlorocyclopentadiene	0.0430	0.0100	0.05000	0	86.0	10	151	0.04009	7.05	40	
Hexachloroethane	0.0335	0.00500	0.05000	0	66.9	22.2	110	0.03084	8.11	40	
Isophorone	0.0520	0.00500	0.05000	0	104	63.1	110	0.04750	9.06	40	
Nitrobenzene	0.0450	0.00100	0.05000	0	89.9	67	108	0.04126	8.58	40	
N-Nitrosodi-n-propylamine	0.0444	0.00500	0.05000	0	88.9	49.4	130	0.04007	10.4	40	
N-Nitrosodiphenylamine	0.0465	0.00500	0.05000	0	93.0	67.1	105	0.04302	7.81	40	
Pentachlorophenol	0.0405	0.0100	0.05000	0	80.9	47.1	104	0.03758	7.43	40	
Phenol	0.0220	0.00500	0.05000	0	44.1	25.2	50.1	0.01990	10.2	40	
Surr: 2,4,6-Tribromophenol	0.0272		0.03000		90.6	47.2	144		0	40	
Surr: 2-Fluorobiphenyl	0.0196		0.02000		98.1	52.2	116		0	40	
Surr: 2-Fluorophenol	0.0186		0.03000		62.0	27.3	80.6		0	40	
Surr: 4-Terphenyl-d14	0.0227		0.02000		113	48.1	134		0	40	
Surr: Nitrobenzene-d5	0.0188		0.02000		93.8	42.5	144		0	40	
Surr: Phenol-d5	0.0122		0.03000		40.6	10	67.1		0	40	

Qualifiers:
 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

M Matrix Interference
 S Spike Recovery outside accepted recovery limits
 W Sample container temperature is out of limit as sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28129

Sample ID	LCS-28129	SampType:	LCS	TestCode:	8270_W_REC	Units:	mg/L	Prep Date:	10/23/2018	RunNo:	73575
Client ID:	LCSW	Batch ID:	28129	TestNo:	SW8270C	E625/SW351		Analysis Date:	10/24/2018	SeqNo:	1840536
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4,5-Tetrachlorobenzene	0.0425	0.00100	0.05000	0	85.0	51.3	119				
1,2,4-Trichlorobenzene	0.0349	0.00500	0.05000	0	69.8	47.4	103				
1,2-Dichlorobenzene	0.0355	0.00500	0.05000	0	71.0	32	119				
1,3-Dichlorobenzene	0.0336	0.00500	0.05000	0	67.2	33.9	108				
1,3-Dinitrobenzene	0.0437	0.00500	0.05000	0	87.3	56.5	132				
1,4-Dichlorobenzene	0.0326	0.00500	0.05000	0	65.2	31.8	107				
2,3,4,6-Tetrachlorophenol	0.0493	0.00500	0.05000	0	98.5	71.4	118				
2,4,5-Trichlorophenol	0.0466	0.0100	0.05000	0	93.3	63.4	113				
2,4,6-Trichlorophenol	0.0452	0.00500	0.05000	0	90.5	62.5	109				
2,4-Dichlorophenol	0.0432	0.00500	0.05000	0	86.5	65.8	105				
2,4-Dimethylphenol	0.0435	0.00500	0.05000	0	87.0	56.4	106				
2,4-Dinitrophenol	0.0468	0.0200	0.05000	0	93.6	10	171				
2,4-Dinitrotoluene	0.0426	0.00500	0.05000	0	85.2	72.6	107				
2,6-Dinitrotoluene	0.0462	0.00500	0.05000	0	92.4	62.5	112				
2-Chloronaphthalene	0.0385	0.00500	0.05000	0	77.0	43.2	121				
2-Chlorophenol	0.0400	0.00500	0.05000	0	79.9	57.4	104				
2-Nitroaniline	0.0467	0.00500	0.05000	0	93.3	71.4	120				
3,3'-Dichlorobenzidine	0.0843	0.0100	0.1000	0	84.3	49.2	113				
3-Nitroaniline	0.0382	0.0200	0.05000	0	76.4	37.7	116				
4-Chloroaniline	0.0401	0.00500	0.05000	0	80.1	56.4	98.6				
4-Nitroaniline	0.0468	0.00500	0.05000	0	93.6	64	113				
4-Nitrophenol	0.0215	0.0200	0.05000	0	43.0	22.5	63.1				
Aniline	0.0343	0.00500	0.05000	0	68.6	48.9	102				
Biphenyl	0.0410	0.00500	0.05000	0	81.9	41.7	130				
Bis(2-chloroethyl)ether	0.0388	0.00500	0.05000	0	77.7	51.9	112				
Bis(2-chloroisopropyl)ether	0.0423	0.00500	0.05000	0	84.6	50.1	125				

Qualifiers: 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 sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28129

Sample ID	LCS-28129	SampType: LCS	TestCode: 8270_W_REC	Units: mg/L	Prep Date: 10/23/2018	RunNo: 73575					
Client ID: LCSW	Batch ID: 28129	TestNo: SW8270C	E625/SW351	Analysis Date: 10/24/2018	SeqNo: 1840536						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bis(2-ethylhexyl)phthalate	0.0484	0.00500	0.05000	0	96.8	46.9	137				
Butyl benzyl phthalate	0.0482	0.00500	0.05000	0	96.5	47.6	134				
Dibenzofuran	0.0439	0.00500	0.05000	0	87.8	59.5	126				
Diethyl phthalate	0.0453	0.00500	0.05000	0	90.5	55.4	121				
Dimethyl phthalate	0.0455	0.00500	0.05000	0	91.0	66	109				
Di-n-octyl phthalate	0.0471	0.0100	0.05000	0	94.2	36.9	145				
Dinoseb	0.0406	0.00500	0.05000	0	81.3	10	180				
Hexachlorobenzene	0.0424	0.00100	0.05000	0	84.8	59.5	100				
Hexachlorobutadiene	0.0331	0.00200	0.05000	0	66.1	43.1	101				
Hexachlorocyclopentadiene	0.0401	0.0100	0.05000	0	80.2	10	151				
Hexachloroethane	0.0308	0.00500	0.05000	0	61.7	22.2	110				
Isophorone	0.0475	0.00500	0.05000	0	95.0	63.1	110				
Nitrobenzene	0.0413	0.00100	0.05000	0	82.5	67	108				
N-Nitrosodi-n-propylamine	0.0401	0.00500	0.05000	0	80.1	49.4	130				
N-Nitrosodiphenylamine	0.0430	0.00500	0.05000	0	86.0	67.1	105				
Pentachlorophenol	0.0376	0.0100	0.05000	0	75.2	47.1	104				
Phenol	0.0199	0.00500	0.05000	0	39.8	25.2	50.1				
Surr: 2,4,6-Tribromophenol	0.0265		0.03000		88.5	47.2	144				
Surr: 2-Fluorobiphenyl	0.0194		0.02000		96.9	52.2	116				
Surr: 2-Fluorophenol	0.0180		0.03000		60.2	27.3	80.6				
Surr: 4-Terphenyl-d14	0.0221		0.02000		111	48.1	134				
Surr: Nitrobenzene-d5	0.0185		0.02000		92.6	42.5	144				
Surr: Phenol-d5	0.0119		0.03000		39.8	10	67.1				

Qualifiers:

- | | | | | | |
|-----|--|----|--|---|--|
| 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 sf |



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28150

Sample ID	MB-28150	SampType:	MBLK	TestCode:	HG_W_7470	Units:	mg/L	Prep Date:	10/26/2018	RunNo:	73631					
Client ID:	PBW	Batch ID:	28150	TestNo:	SW7470A			Analysis Date:	10/26/2018	SeqNo:	1842059					
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		< 0.000200		0.000200												

Sample ID	LCS-28150	SampType:	LCS	TestCode:	HG_W_7470	Units:	mg/L	Prep Date:	10/26/2018	RunNo:	73631					
Client ID:	LCSW	Batch ID:	28150	TestNo:	SW7470A			Analysis Date:	10/26/2018	SeqNo:	1842060					
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0108		0.000200		0.01000		0		108	80	120				

Sample ID	LCSD-28150	SampType:	LCSD	TestCode:	HG_W_7470	Units:	mg/L	Prep Date:	10/26/2018	RunNo:	73631					
Client ID:	LCSS02	Batch ID:	28150	TestNo:	SW7470A			Analysis Date:	10/26/2018	SeqNo:	1842061					
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0106		0.000200		0.01000		0		106	80	120	0.01084	2.60	20	

Sample ID	18100869-001DMS	SampType:	MS	TestCode:	HG_W_7470	Units:	mg/L	Prep Date:	10/26/2018	RunNo:	73631					
Client ID:	9313 Z Wymon McC	Batch ID:	28150	TestNo:	SW7470A			Analysis Date:	10/26/2018	SeqNo:	1842065					
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0104		0.000200		0.01000		0		104	75	125				

Qualifiers:

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 sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC

Project: Approach Environmental - LDNR Residential W

BatchID: 28150

Sample ID	18100869-001DMSD	SampType:	MSD	TestCode:	HG_W_7470	Units:	mg/L	Prep Date:	10/26/2018	RunNo:	73631											
Client ID:	9313 Z Wymon McC	Batch ID:	28150	TestNo:	SW7470A			Analysis Date:	10/26/2018	SeqNo:	1842066											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual

Mercury		0.0102		0.000200		0.01000		0		102		75		125		0.01041		1.60		20		
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Qualifiers:

- | | | | | | |
|-----|--|----|--|---|--|
| 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 sp |



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28160

Sample ID	MB-28160	SampType:	MBLK	TestCode:	6010_W	Units:	mg/L	Prep Date:	10/29/2018	RunNo:	73708						
Client ID:	PBW	Batch ID:	28160	TestNo:	SW6010B			Analysis Date:	10/30/2018	SeqNo:	1843572						
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual
Arsenic		< 0.0100		0.0100													J
Barium		< 0.0100		0.0100													
Cadmium		< 0.00500		0.00500													
Chromium		< 0.0100		0.0100													
Lead		< 0.0100		0.0100													
Selenium		0.0137		0.0200													J
Silver		0.000800		0.00500													J
Sodium		< 10.0		10.0													

Sample ID	LCS-28160	SampType:	LCS	TestCode:	6010_W	Units:	mg/L	Prep Date:	10/29/2018	RunNo:	73708						
Client ID:	LCSW	Batch ID:	28160	TestNo:	SW6010B			Analysis Date:	10/30/2018	SeqNo:	1843573						
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual
Arsenic		0.490		0.0100		0.5000		0		98.0	80	120					
Barium		0.489		0.0100		0.5000		0		97.9	80	120					
Cadmium		0.482		0.00500		0.5000		0		96.4	80	120					
Chromium		0.485		0.0100		0.5000		0		96.9	80	120					
Lead		0.488		0.0100		0.5000		0		97.5	80	120					
Selenium		0.500		0.0200		0.5000		0		100	80	120					
Silver		0.0956		0.00500		0.1000		0		95.6	80	120					
Sodium		50.0		10.0		50.00		0		100	80	120					

Qualifiers:

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 sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28160

Sample ID	LCSD-28160	SampType:	LCSD	TestCode:	6010_W	Units:	mg/L	Prep Date:	10/29/2018	RunNo:	73708
Client ID:	LCSS02	Batch ID:	28160	TestNo:	SW6010B	Analysis Date:	10/30/2018	SeqNo:	1843574		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.501	0.0100	0.5000	0	100	80	120	0.4901	2.14	20	
Barium	0.495	0.0100	0.5000	0	99.0	80	120	0.4893	1.12	20	
Cadmium	0.486	0.00500	0.5000	0	97.2	80	120	0.4822	0.785	20	
Chromium	0.489	0.0100	0.5000	0	97.9	80	120	0.4846	0.965	20	
Lead	0.496	0.0100	0.5000	0	99.2	80	120	0.4877	1.67	20	
Selenium	0.507	0.0200	0.5000	0	101	80	120	0.5002	1.43	20	
Silver	0.0963	0.00500	0.1000	0	96.3	80	120	0.09560	0.730	20	
Sodium	47.1	10.0	50.00	0	94.2	80	120	50.01	6.01	20	

Sample ID	18100889-003AMS	SampType:	MS	TestCode:	6010_W	Units:	mg/L	Prep Date:	10/29/2018	RunNo:	73708
Client ID:	ZZZZZ	Batch ID:	28160	TestNo:	SW6010B	Analysis Date:	10/30/2018	SeqNo:	1843578		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.514	0.0100	0.5000	0	103	75	125				
Barium	1.27	0.0100	0.5000	0.8521	83.8	75	125				
Cadmium	0.509	0.00500	0.5000	0.003600	101	75	125				
Chromium	0.481	0.0100	0.5000	0.01060	94.0	75	125				
Lead	0.446	0.0100	0.5000	0.005300	88.1	75	125				
Selenium	0.658	0.0200	0.5000	0.1699	97.7	75	125				
Silver	0.108	0.00500	0.1000	0	108	75	125				
Sodium	11,700	10.0	50.00	11,850	-280	75	125				S

Qualifiers: 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 sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: 28160

Sample ID	18100889-003AMSD	SampType:	MSD	TestCode:	6010_W	Units:	mg/L	Prep Date:	10/29/2018	RunNo:	73708
Client ID:	ZZZZZZ	Batch ID:	28160	TestNo:	SW6010B			Analysis Date:	10/30/2018	SeqNo:	1843581
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.522	0.0100	0.5000	0	104	75	125	0.5143	1.39	20	
Barium	1.38	0.0100	0.5000	0.8521	107	75	125	1.271	8.58	20	
Cadmium	0.514	0.00500	0.5000	0.003600	102	75	125	0.5093	0.860	20	
Chromium	0.489	0.0100	0.5000	0.01060	95.7	75	125	0.4806	1.79	20	
Lead	0.448	0.0100	0.5000	0.005300	88.6	75	125	0.4457	0.537	20	
Selenium	0.691	0.0200	0.5000	0.1699	104	75	125	0.6584	4.89	20	
Silver	0.108	0.00500	0.1000	0	108	75	125	0.1076	0.464	20	
Sodium	11,700	10.0	50.00	11,850	-300	75	125	11,710	0.0854	20	S

NOTES:

S - Analyte concentration in native sample was too high for accurate spike recovery(ies). The method is in control as indicated by the laboratory control sample (LCS).

Qualifiers:	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 sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: R73543

Sample ID	MB-R73543	SampType:	MBLK	TestCode:	TDS_2540C	Units:	mg/L	Prep Date:		RunNo:	73543			
Client ID:	PBW	Batch ID:	R73543	TestNo:	SM2540C			Analysis Date:	10/24/2018	SeqNo:	1841468			
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-R73543	SampType:	LCS	TestCode:	TDS_2540C	Units:	mg/L	Prep Date:		RunNo:	73543			
Client ID:	LCSW	Batch ID:	R73543	TestNo:	SM2540C			Analysis Date:	10/24/2018	SeqNo:	1841469			
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-R73543	SampType:	LCSD	TestCode:	TDS_2540C	Units:	mg/L	Prep Date:		RunNo:	73543			
Client ID:	LCSS02	Batch ID:	R73543	TestNo:	SM2540C			Analysis Date:	10/24/2018	SeqNo:	1841470			
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 1,007 0.198 10

Sample ID	18100869-002EDUP	SampType:	DUP	TestCode:	TDS_2540C	Units:	mg/L	Prep Date:		RunNo:	73543			
Client ID:	9342 Z Wymon McC	Batch ID:	R73543	TestNo:	SM2540C			Analysis Date:	10/24/2018	SeqNo:	1841473			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable) 587 20.0 584.0 0.512 10

Qualifiers: 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 s



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 Website: www.element.com

QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC

Project: Approach Environmental - LDNR Residential W

BatchID: R73543

Sample ID	18100869-002EDUP	SampType:	DUP	TestCode:	TDS_2540C	Units:	mg/L	Prep Date:		RunNo:	73543
Client ID:	9342 Z Wymon McC	Batch ID:	R73543	TestNo:	SM2540C			Analysis Date:	10/24/2018	SeqNo:	1841473
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sample ID	18100886-002ADUP	SampType:	DUP	TestCode:	TDS_2540C	Units:	mg/L	Prep Date:		RunNo:	73543
Client ID:	ZZZZZZ	Batch ID:	R73543	TestNo:	SM2540C			Analysis Date:	10/24/2018	SeqNo:	1841476
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		621		20.0						584.0	6.14 10

Qualifiers:

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 sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: R73546

Sample ID MB	SampType: MBLK	TestCode: 8260_W_REC	Units: mg/L	Prep Date:	RunNo: 73546						
Client ID: PBW	Batch ID: R73546	TestNo: SW8260B		Analysis Date: 10/23/2018	SeqNo: 1840003						
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									

Qualifiers:
 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

M Matrix Interference
 S Spike Recovery outside accepted recovery limits
 W Sample container temperature is out of limit as sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: R73546

Sample ID	MB	SampType:	MBLK	TestCode:	8260_W_REC	Units:	mg/L	Prep Date:	RunNo:	73546	
Client ID:	PBW	Batch ID:	R73546	TestNo:	SW8260B	Analysis Date:	10/23/2018	SeqNo:	1840003		
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	0.00309	0.0150									J
Surr: 4-Bromofluorobenzene	0.0314		0.03000		105	65.1	136				
Surr: Dibromofluoromethane	0.0292		0.03000		97.5	40.4	143				
Surr: Toluene-d8	0.0304		0.03000		101	58.2	127				

Sample ID	LCSD 17221A-7	SampType:	LCSD	TestCode:	8260_W_REC	Units:	mg/L	Prep Date:	RunNo:	73546	
Client ID:	LCSS02	Batch ID:	R73546	TestNo:	SW8260B	Analysis Date:	10/23/2018	SeqNo:	1840006		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	0.0485	0.00500	0.05000	0	96.9	73.4	120	0.04856	0.186	20	

Qualifiers:

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 sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: R73546

Sample ID	LCSD 17221A-7	SampType: LCSD	TestCode: 8260_W_REC	Units: mg/L	Prep Date:	RunNo: 73546					
Client ID: LCSS02	Batch ID: R73546	TestNo: SW8260B	Analysis Date: 10/23/2018	SeqNo: 1840006							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	0.0480	0.00500	0.05000	0	96.1	64.5	127	0.04621	3.88	20	
1,1,2,2-Tetrachloroethane	0.0501	0.000500	0.05000	0	100	63.6	120	0.04724	5.96	20	
1,1,2-Trichloroethane	0.0468	0.00500	0.05000	0	93.5	74.9	120	0.04683	0.150	20	
1,1-Dichloroethane	0.0468	0.00500	0.05000	0	93.6	67.9	123	0.04421	5.67	20	
1,1-Dichloroethene	0.0441	0.00500	0.05000	0	88.2	60.3	135	0.04326	1.92	20	
1,2-Dibromo-3-chloropropane	0.0528	0.00500	0.05000	0	106	56.6	132	0.04777	9.95	20	
1,2-Dichlorobenzene	0.0488	0.0200	0.05000	0	97.6	76.4	120	0.04815	1.36	20	
1,2-Dichloroethane	0.0459	0.00500	0.05000	0	91.9	67.5	124	0.04516	1.71	20	
1,2-Dichloroethene, Total	0.0980	0.00600	0.1000	0	98.0	72.5	122	0.09427	3.91	20	
1,2-Dichloropropane	0.0481	0.00500	0.05000	0	96.1	77.2	120	0.04647	3.38	20	
1,3-Dichlorobenzene	0.0485	0.0100	0.05000	0	97.0	75.1	120	0.04760	1.89	20	
1,4-Dichlorobenzene	0.0487	0.0200	0.05000	0	97.4	76.1	120	0.04651	4.58	20	
2-Butanone	0.0492	0.0100	0.05000	0	98.4	61	127	0.04505	8.79	20	
4-Methyl-2-pentanone	0.0471	0.0100	0.05000	0	94.3	54.1	129	0.04363	7.73	20	
Acetone	0.0855	0.0100	0.1000	0	85.5	52.1	135	0.08135	4.93	20	
Benzene	0.0490	0.00500	0.05000	0	97.9	67.8	125	0.04717	3.72	20	
Bromodichloromethane	0.0484	0.00500	0.05000	0	96.7	72	120	0.04687	3.11	20	
Bromoform	0.0497	0.00500	0.05000	0	99.5	70.4	121	0.04913	1.21	20	
Bromomethane	0.0427	0.00500	0.05000	0	85.3	41.6	157	0.04057	5.05	20	
Carbon disulfide	0.0455	0.0100	0.05000	0	91.0	52.2	135	0.04423	2.87	20	
Carbon tetrachloride	0.0475	0.00500	0.05000	0	94.9	65.6	125	0.04657	1.89	20	
Chlorobenzene	0.0462	0.00500	0.05000	0	92.4	74.5	120	0.04553	1.42	20	
Chlorodibromomethane	0.0492	0.00500	0.05000	0	98.5	75	120	0.04987	1.29	20	
Chloroethane	0.0398	0.0100	0.05000	0	79.6	49.5	146	0.03799	4.65	20	
Chloroform	0.0467	0.00500	0.05000	0	93.3	71	120	0.04519	3.22	20	
Chloromethane	0.0441	0.00500	0.05000	0	88.3	45.8	145	0.04259	3.55	20	

Qualifiers:
 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

M Matrix Interference
 S Spike Recovery outside accepted recovery limits
 W Sample container temperature is out of limit as sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: R73546

Sample ID	LCSD 17221A-7	SampType: LCSD	TestCode: 8260_W_REC	Units: mg/L	Prep Date:	RunNo: 73546					
Client ID:	LCSS02	Batch ID: R73546	TestNo: SW8260B	Analysis Date: 10/23/2018	SeqNo: 1840006						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,2-Dichloroethene	0.0511	0.00300	0.05000	0	102	73.8	124	0.04848	5.30	20	
cis-1,3-Dichloropropene	0.0522	0.00200	0.05000	0	104	80	120	0.05147	1.50	20	
Ethylbenzene	0.0506	0.00500	0.05000	0	101	76.9	118	0.05010	0.954	20	
Isobutyl alcohol	0.522	0.100	0.5000	0	104	70	130	0.4461	15.7	20	
Methyl tert-butyl ether	0.0528	0.00500	0.05000	0	106	62.6	134	0.05044	4.52	20	
Methylene chloride	0.0468	0.00500	0.05000	0	93.6	65.8	125	0.04658	0.428	20	
Styrene	0.0452	0.00500	0.05000	0	90.4	79	120	0.04493	0.555	20	
Tetrachloroethene	0.0444	0.00500	0.05000	0	88.8	68.6	152	0.04511	1.63	20	
Toluene	0.0456	0.00500	0.05000	0	91.3	73.3	120	0.04654	1.95	20	
trans-1,2-Dichloroethene	0.0469	0.00300	0.05000	0	93.8	67.7	124	0.04578	2.44	20	
trans-1,3-Dichloropropene	0.0509	0.00200	0.05000	0	102	79.6	121	0.05153	1.25	20	
Trichloroethene	0.0475	0.00500	0.05000	0	94.9	74.5	124	0.04717	0.634	20	
Trichlorofluoromethane	0.0442	0.00500	0.05000	0	88.5	45.2	142	0.04371	1.18	20	
Vinyl chloride	0.0451	0.00200	0.05000	0	90.1	37.4	174	0.04421	1.90	20	
Xylenes, Total	0.135	0.0150	0.1500	0	90.0	80	120	0.1333	1.27	20	
Surr: 4-Bromofluorobenzene	0.0343		0.03000		114	65.1	136		0	20	
Surr: Dibromofluoromethane	0.0275		0.03000		91.7	40.4	143		0	20	
Surr: Toluene-d8	0.0292		0.03000		97.3	58.2	127		0	20	

Sample ID	LCS 17221A-79	SampType: LCS	TestCode: 8260_W_REC	Units: mg/L	Prep Date:	RunNo: 73546					
Client ID:	LCSSW	Batch ID: R73546	TestNo: SW8260B	Analysis Date: 10/23/2018	SeqNo: 1840007						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	0.0486	0.00500	0.05000	0	97.1	73.4	120				
1,1,1-Trichloroethane	0.0462	0.00500	0.05000	0	92.4	64.5	127				

Qualifiers:

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 sj



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: R73546

Sample ID	LCS 17221A-79	SampType: LCS	TestCode: 8260_W_REC	Units: mg/L	Prep Date:	RunNo: 73546					
Client ID:	LCSW	Batch ID: R73546	TestNo: SW8260B	Analysis Date: 10/23/2018	SeqNo: 1840007						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	0.0472	0.000500	0.05000	0	94.5	63.6	120				
1,1,2-Trichloroethane	0.0468	0.00500	0.05000	0	93.7	74.9	120				
1,1-Dichloroethane	0.0442	0.00500	0.05000	0	88.4	67.9	123				
1,1-Dichloroethene	0.0433	0.00500	0.05000	0	86.5	60.3	135				
1,2-Dibromo-3-chloropropane	0.0478	0.00500	0.05000	0	95.5	56.6	132				
1,2-Dichlorobenzene	0.0482	0.0200	0.05000	0	96.3	76.4	120				
1,2-Dichloroethane	0.0452	0.00500	0.05000	0	90.3	67.5	124				
1,2-Dichloroethene, Total	0.0943	0.00600	0.1000	0	94.3	72.5	122				
1,2-Dichloropropane	0.0465	0.00500	0.05000	0	92.9	77.2	120				
1,3-Dichlorobenzene	0.0476	0.0100	0.05000	0	95.2	75.1	120				
1,4-Dichlorobenzene	0.0465	0.0200	0.05000	0	93.0	76.1	120				
2-Butanone	0.0450	0.0100	0.05000	0	90.1	61	127				
4-Methyl-2-pentanone	0.0436	0.0100	0.05000	0	87.3	54.1	129				
Acetone	0.0814	0.0100	0.1000	0	81.4	52.1	135				
Benzene	0.0472	0.00500	0.05000	0	94.3	67.8	125				
Bromodichloromethane	0.0469	0.00500	0.05000	0	93.7	72	120				
Bromoform	0.0491	0.00500	0.05000	0	98.3	70.4	121				
Bromomethane	0.0406	0.00500	0.05000	0	81.1	41.6	157				
Carbon disulfide	0.0442	0.0100	0.05000	0	88.5	52.2	135				
Carbon tetrachloride	0.0466	0.00500	0.05000	0	93.1	65.6	125				
Chlorobenzene	0.0455	0.00500	0.05000	0	91.1	74.5	120				
Chlorodibromomethane	0.0499	0.00500	0.05000	0	99.7	75	120				
Chloroethane	0.0380	0.0100	0.05000	0	76.0	49.5	146				
Chloroform	0.0452	0.00500	0.05000	0	90.4	71	120				
Chloromethane	0.0426	0.00500	0.05000	0	85.2	45.8	145				
cis-1,2-Dichloroethene	0.0485	0.00300	0.05000	0	97.0	73.8	124				

Qualifiers: 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 sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: R73546

Sample ID	LCS 17221A-79	SampType:	LCS	TestCode:	8260_W_REC	Units:	mg/L	Prep Date:		RunNo:	73546
Client ID:	LCSW	Batch ID:	R73546	TestNo:	SW8260B			Analysis Date:	10/23/2018	SeqNo:	1840007
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,3-Dichloropropene	0.0515	0.00200	0.05000	0	103	80	120				
Ethylbenzene	0.0501	0.00500	0.05000	0	100	76.9	118				
Isobutyl alcohol	0.446	0.100	0.5000	0	89.2	70	130				
Methyl tert-butyl ether	0.0504	0.00500	0.05000	0	101	62.6	134				
Methylene chloride	0.0466	0.00500	0.05000	0	93.2	65.8	125				
Styrene	0.0449	0.00500	0.05000	0	89.9	79	120				
Tetrachloroethene	0.0451	0.00500	0.05000	0	90.2	68.6	152				
Toluene	0.0465	0.00500	0.05000	0	93.1	73.3	120				
trans-1,2-Dichloroethene	0.0458	0.00300	0.05000	0	91.6	67.7	124				
trans-1,3-Dichloropropene	0.0515	0.00200	0.05000	0	103	79.6	121				
Trichloroethene	0.0472	0.00500	0.05000	0	94.3	74.5	124				
Trichlorofluoromethane	0.0437	0.00500	0.05000	0	87.4	45.2	142				
Vinyl chloride	0.0442	0.00200	0.05000	0	88.4	37.4	174				
Xylenes, Total	0.133	0.0150	0.1500	0	88.9	80	120				
Surr: 4-Bromofluorobenzene	0.0348		0.03000		116	65.1	136				
Surr: Dibromofluoromethane	0.0272		0.03000		90.7	40.4	143				
Surr: Toluene-d8	0.0302		0.03000		101	58.2	127				

Qualifiers:

- | | | | | | |
|-----|--|----|--|---|--|
| 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 sp |



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC

Project: Approach Environmental - LDNR Residential W

BatchID: R73552

Sample ID	GAS LCS	SampType:	LCS	TestCode:	8015_G_W	Units:	mg/L	Prep Date:		RunNo:	73552											
Client ID:	LCSW	Batch ID:	R73552	TestNo:	SW8015B			Analysis Date:	10/23/2018	SeqNo:	1840048											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual
TPH (Gasoline Range)		11.8		0.150		12.50		0		94.7		80		130								

Sample ID	GAS LCSD	SampType:	LCSD	TestCode:	8015_G_W	Units:	mg/L	Prep Date:		RunNo:	73552											
Client ID:	LCSS02	Batch ID:	R73552	TestNo:	SW8015B			Analysis Date:	10/23/2018	SeqNo:	1840049											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual
TPH (Gasoline Range)		11.9		0.150		12.50		0		95.2		80		130		11.84		0.537		20		

Sample ID	MBLK	SampType:	MBLK	TestCode:	8015_G_W	Units:	mg/L	Prep Date:		RunNo:	73552											
Client ID:	PBW	Batch ID:	R73552	TestNo:	SW8015B			Analysis Date:	10/23/2018	SeqNo:	1840050											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual
TPH (Gasoline Range)		0.0974		0.150																		J
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0515				0.05000				103		70		130								

Qualifiers:

- | | | | | | |
|-----|--|----|--|---|--|
| 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 sf |



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

QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC
Project: Approach Environmental - LDNR Residential W

BatchID: R73590

Sample ID	MBLK	SampType:	MBLK	TestCode:	9056_W	Units:	mg/L	Prep Date:		RunNo:	73590			
Client ID:	PBW	Batch ID:	R73590	TestNo:	SW9056A			Analysis Date:	10/25/2018	SeqNo:	1841489			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride < 0.250 0.250

Sample ID	LCS	SampType:	LCS	TestCode:	9056_W	Units:	mg/L	Prep Date:		RunNo:	73590			
Client ID:	LCSW	Batch ID:	R73590	TestNo:	SW9056A			Analysis Date:	10/25/2018	SeqNo:	1841490			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 10.7 0.250 10.00 0 107 80 120

Sample ID	LCSD	SampType:	LCSD	TestCode:	9056_W	Units:	mg/L	Prep Date:		RunNo:	73590			
Client ID:	LCSS02	Batch ID:	R73590	TestNo:	SW9056A			Analysis Date:	10/25/2018	SeqNo:	1841491			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 10.2 0.250 10.00 0 102 80 120 10.67 4.51 15

Sample ID	18100886-002ams	SampType:	MS	TestCode:	9056_W	Units:	mg/L	Prep Date:		RunNo:	73590			
Client ID:	ZZZZZZ	Batch ID:	R73590	TestNo:	SW9056A			Analysis Date:	10/25/2018	SeqNo:	1841499			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 190 5.00 100.0 95.36 95.1 80 120

Qualifiers: 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 sf



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QC SUMMARY REPORT

WO#: 18100869
 06-Nov-18

Client: Approach Environmental, LLC

Project: Approach Environmental - LDNR Residential W

BatchID: R73590

Sample ID	18100886-002amsd	SampType:	MSD	TestCode:	9056_W	Units:	mg/L	Prep Date:		RunNo:	73590		
Client ID:	ZZZZZZ	Batch ID:	R73590	TestNo:	SW9056A			Analysis Date:	10/25/2018	SeqNo:	1841500		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		194		5.00	100.0	95.36	99.1	80	120	190.5	2.09	15	

Qualifiers:

- | | | | | | |
|-----|--|----|--|---|--|
| 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 sp |



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Sample Log-In Check List

Client Name: **APPROACH_ENVIRONM** Work Order Number: **18100869** RcptNo: **1**

Logged by:	Tammy Thibodeaux	10/23/2018 9:30:00 AM	<i>Tammy Thibodeaux</i>
Completed By:	Tammy Thibodeaux	10/23/2018 9:57:14 AM	<i>Tammy Thibodeaux</i>
Reviewed By:	Caitlin Duplantis	10/23/2018 11:07:22 AM	<i>Caitlin Duplantis</i>

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? FedEx
Tracking No.: 783379787031

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? Yes No
 (Note discrepancies on chain of custody)
 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? Yes No
 (If no, notify customer for authorization.)

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:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.5	Good	Not Present			

ANALYTICAL RESULTS

PERFORMED BY

GCAL, LLC

7979 Innovation Park Dr.
Baton Rouge, LA 70820

Report Date 11/06/2018

GCAL Report 218102470



Project 18100869

<i>Deliver To</i>	<i>Additional Recipients</i>
Annie Reedy	Caitlin Duplantis, Element Materials Technology
Element Materials Technology	Cristina Thibeaux, Element Materials Technology
2417 W Pinhook Rd	Rhonda David, Element Materials Technology
Lafayette, LA 70508	Buffy Hudson, Element Materials Technology
800-737-2378	



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

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

Reporting Flags that may be Utilized in this Report

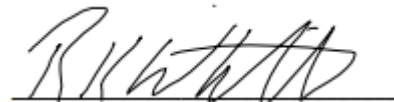
J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	Organics - The result is estimated because it exceeded the instrument calibration range
E	Metals - % difference for the serial dilution is > 10%
L	Reporting Limits adjusted to meet risk-based limit.
P	RPD between primary and confirmation result is greater than 40
DL	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 218102470

Certifications

Certification	Certification Number
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:** 218102470

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.

PM COMMENT

Client requested that we report the samples on separate reports. (Jessica Monfore 11/06/2018 11:34)

VOLATILES GAS CHROMATOGRAPHY

In the EPA RSK-175 analysis, the recovery for the surrogate is reported as diluted out for those analyses performed at a 10 or higher dilution.

Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21810247001	9313 Z Wymon McClary	Water	10/22/2018 13:40	10/24/2018 10:40

Sample Results

9313 Z Wymon McClary	Collect Date	10/22/2018 13:40	GCAL ID	21810247001
	Receive Date	10/24/2018 10:40	Matrix	Water

EPA RSK-175

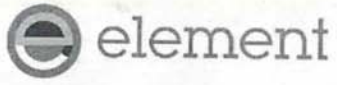
Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	20	11/02/2018 18:32	JAR	647208

CAS#	Parameter	Result	LOQ	Units
74-82-8	Methane	558	40.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
115-07-1	Propene	40.50	Diluted Out	ug/L	0*	40 - 143

GC Volatiles QC Summary

Analytical Batch 647208	Client ID GCAL ID Sample Type Prep Date Analysis Date Matrix	MB647208 1864685 MB NA 11/02/2018 12:25 Water	LCS647208 1864686 LCS NA 11/02/2018 16:59 Water	LCSD647208 1864687 LCSD NA 11/02/2018 17:06 Water								
EPA RSK-175		Units Result	ug/L LOQ	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Methane	74-82-8	ND	2.00	17.5	14.6	83	39 - 120	17.5	16.0	91	9	27
Surrogate Propene	115-07-1	34.5	85	40.5	26	64	40 - 143	40.5	28.6	71	NA	NA



CHAIN OF CUSTODY RECORD

Omega COCID 7718

Client ID: 4462 - Element Materials Technology

SDG: 218102470

PM: JLM



FAX: (337) 233-6540
Website: www.element.com

SUB CONTRACTOR: GCAL		COMPANY: Gulf Coast		SPECIAL INSTRUCTIONS / COMMENTS:			
ADDRESS: 7979 GSRI Avenue		PO ELA01972PO,					
CITY, STATE, ZIP: Baton Rouge, LA 70820							
PHONE: (225) 769-4900		FAX: (225) 767-5717		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	18100869-001G METHANE_SUB (RSK-175)	9313 Z Wymon Mc	VOAU	Water	10/22/2018 1:40:00 PM	2	
2	18100869-002G METHANE_SUB (RSK-175)	9312 Z Wymon Mc CCT 11/6/18	VOAU	Water	10/22/2018 1:40:00 PM	2	

Relinquished By: <i>[Signature]</i>	Date: 10/23/2018	Time: 1530	Received By: <i>[Signature]</i>	Date: 10-23-18	Time: 1530	REPORT TRANSMITTAL DESIRED: <input type="checkbox"/> HARDCOPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE 330PM E29 FOR LAB USE ONLY Temp of samples <u>4.1</u> °C Attempt to Cool? <u>ice</u> Comments: _____
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	
Relinquished By: <i>[Signature]</i>	Date: 10-24-18	Time: 1040	Received By: <i>[Signature]</i>	Date: 10-24-18	Time: 1040	
TAT: Standard <input type="checkbox"/> RUSH <input checked="" type="checkbox"/> Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/> Note: RUSH requests will incur surcharges!						



SAMPLE RECEIVING CHECKLIST




SAMPLE DELIVERY GROUP 218102470			CHECKLIST		YES	NO
Client PM JLM 4462 - Element Materials Technology	Transport Method CUST		Samples received with proper thermal preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Radioactivity is <1600 cpm? If no, record cpm value in notes section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Profile Number 271810	Received By Savage, Tiffany R		COC relinquished and complete (including sampleIDs, collect times, and sampler)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			All containers received in good condition and within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Line Item(s) 1 - Water	Receive Date(s) 10/24/18		All sample labels and containers received match the chain of custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Preservative added to any containers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
			If received, was headspace for VOC water containers < 6mm?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			Samples collected in containers provided by GCAL?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
COOLERS			DISCREPANCIES	LAB PRESERVATIONS		
Airbill	Thermometer ID: E29	Temp °C	None	None		
		4.1				
NOTES						



Chain of Custody

Laboratory Number: 18100869

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	Client Information: <u>Approach Environmental</u> <u>Mark Moore</u> <u>1000 Grinnette dr.</u> <u>Shreveport, La 71107</u> <u>318 464 9191</u> <u>18mmoz@approchem.com</u>	Billing Information: <u>Same</u>	PO Number: Quote Number: Required QC Level:	Project Name/Number: Sampler's Signature: 	Page <u>1</u> of <u>1</u> 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
	Phone Number: Fax Number: E-mail Address:	Ext: Ext:	Bill Monthly <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Shipping Method: UPS / <u>FedEx</u> / NOW DHL / Element / Hand / Mail	

Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	Turn Time <input type="checkbox"/> Standard <input checked="" type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input checked="" type="checkbox"/> 2 Day <input type="checkbox"/> Other	Collection Information				Container Quantity Type P=Plastic, G=Glass, V=Vial	Pres. HCl, HNO ₃ , H ₂ SO ₄ , NaOH, Na ₂ S ₂ O ₃	Requested Tests								Comments	
		Sample ID/Description	Date	Time	Grab / Composite			Matrix	VOC-g260	semi-voc g270	RCRA Metals	TDS	TPH-G, O	Dissolved Methanols	Sodium		Chlorides
		<u>10/22/18</u>	<u>1340</u>	<u>G</u>	<u>w</u>	<u>13</u>	<u>P, G</u>	<u>HCl HNO3</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>48-hr rush</u> <u>on voc's</u> <u># method</u> <u>detection limits</u> <u>as discussed.</u> <u>783379787031</u>

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
<u>[Signature]</u>	<u>1700 10/22/18</u>	<u>FedEx</u>	<u>10/22/18 1700</u>	
<u>FedEx</u>	<u>10/23/18 0930</u>	<u>[Signature]</u>	<u>10/23/18 0930</u>	Received at lab on ice?
				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: <u>3.5</u>

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.

8800 North US 31
Columbus, IN
47201 USA
P 812-375-0531
F 812-375-0731

328 Ley Road, Suite 100
Fort Wayne, IN
46825 USA
P 260-471-7000
F 260-471-7777

909 Executive Dr
Warsaw, IN
46580 USA
P 574-267-3305
F 574-269-8399

3317 Cleveland Road, Suite 100A
Paris, IN 40364
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