



Environmental & Safety Solutions, Inc.

Electronic Correspondence

October 19, 2017

Re: Delineation and Remediation Scope of Work Report
Linn Operating Barclay State Battery Spill 082017
Legal: Unit 7, Sec 2, T23S R31E, Eddy County, NM
Latitude/Longitude: 32.33152919/ -103.74268849
Etech Project Number: 253-8662
Depth to Groundwater: 168 feet – New Mexico Office of the State Engineer

Release Type: Crude Oil

Table with 2 columns: Contaminants of Concern (COCs) and Threshold Levels. Rows include TPH (5000 mg/kg), Benzene (10 mg/kg), BTEX (50 mg/kg), and Chlorides (600 mg/kg).

Etech Environmental & Safety Solutions, Inc. (Etech) is submitting the following delineation and remediation scope of work report on the aforementioned site for review and approval.

Background

On August 29, 2017, Etech responded to a reportable release at the Barclay State Battery site located in Eddy County, New Mexico, that is operated by Linn Operating, Incorporated (Linn). According to Linn’s spill report, the release was caused by a hole in the bottom of the three (3) inch oil dump line connected to the production heater. There was approximately twelve (12) barrels of crude oil released, with five (5) barrels of free standing fluids recovered. The release impacted approximately 1,895 square feet of surface area inside the firewall of the facility. Contaminated soil was excavated and placed on plastic by a third party contractor.

Delineation Activities

Delineation activities were conducted at the impacted area on August 29, 2017 by Etech. Soil samples from the impacted area were collected by hand auger from five (5) soil sample locations labeled Auger Hole 1 through Auger Hole 5 (See Attachment A, Annotated Aerial Imagery). Soil samples were collected at depths of six (6) inches, twelve (12) inches, twenty-four (24) inches, and thirty-six (36) inches below ground surface (bgs) at each soil sample location. Soil samples were submitted to Permian Basin Environmental Laboratory (PBELAB) and analyzed for chlorides, TPH, benzene, and BTEX. The laboratory results determined that the chloride concentrations ranged from no analytical detection to 1,150 mg/kg, TPH levels ranged from no analytical detection to 19,800 mg/kg, benzene levels ranged from no analytical detection to 0.136 mg/kg, and BTEX levels ranged from no analytical detection to 27.7 mg/kg (See Table 1 Summary of Delineation Sampling Analytical Results below).

**Table 1
Summary of Delineation Sampling Analytical Results**

Sample ID	Depth	Date	C6-C12	>C12-C28	>C28- C35	Total TPH (mg/kg)	Benzene (mg/kg)	BTEX (mg/kg)	Chlorides (mg/kg)
Auger Hole 1	6"	8/29/17	1,010	6,210	1,830	9,060	0.136	10.286	1,150
Auger Hole 1	12"	8/29/17	ND	73.4	ND	73.4	ND	0.0390	681
Auger Hole 1	24"	8/29/17	ND	42.9	ND	42.9	ND	ND	1,080
Auger Hole 1	36"	8/29/17	ND	122	ND	122	ND	ND	538
Auger Hole 2	6"	8/29/17	118	732	140	990	ND	1.6863	8.24
Auger Hole 2	12"	8/29/17	41.7	207	35.8	285	ND	ND	ND
Auger Hole 2	24"	8/29/17	ND	49.4	ND	49.4	ND	ND	ND
Auger Hole 2	36"	8/29/17	ND	42.7	ND	42.7	ND	ND	ND
Auger Hole 3	6"	8/29/17	3,990	13,400	2,420	19,800	0.0699	27.7	32.7
Auger Hole 3	12"	8/29/17	ND	62.2	ND	62.2	ND	ND	11.5
Auger Hole 3	24"	8/29/17	ND	ND	ND	ND	ND	ND	ND
Auger Hole 3	36"	8/29/17	ND	ND	ND	ND	ND	ND	ND
Auger Hole 4	6"	8/29/17	858	13,900	2,830	17,600	0.0606	0.3043	190
Auger Hole 4	12"	8/29/17	33.7	592	252	877	ND	0.00166	32.3
Auger Hole 4	24"	8/29/17	ND	ND	ND	ND	ND	ND	18.5
Auger Hole 4	36"	8/29/17	ND	126	ND	126	ND	ND	19.6
Auger Hole 5	6"	8/29/17	40.1	361	62.8	464	ND	ND	135
Auger Hole 5	12"	8/29/17	ND	133	ND	133	ND	ND	92.1
Auger Hole 5	24"	8/29/17	ND	ND	ND	ND	ND	ND	9.51
Auger Hole 5	36"	8/29/17	ND	ND	ND	ND	ND	ND	ND

Bold values indicate above regulatory threshold levels

Depth to Groundwater Data

Depth to groundwater data was obtained from the New Mexico Office of the State Engineer (OSE) and indicates that the data point to the site displays a depth to ground water of 168 feet bgs

Attachment C contains a diagram displaying the location of the Barclay State Battery and the locations of the closest OSE data points to the Barclay State Battery.

Scope of Work for Remediation of the Release

After finding the release the initial remediation activities conducted at the site included the excavation of the top 1 foot of impacted soil associated with the release and stockpiling on plastic. This remediation activity was conducted prior to the above referenced delineation activities.

Based on the delineation of the site it was determined that soil impacted above OCD regulatory standards for TPH were found in the top 6 inches of the soil within the impacted area of the excavation. A review of the chloride data indicated the chloride impacts extended to an approximate depth of 30 inches within the area of auger hole 1.

Based on the findings of the site delineation and the initial remediation activities it has been determined an additional 2.5 feet of impacted soil within the area of auger hole 1 will need to be excavated along with an additional 8 to 10 inches within the areas of auger holes 3 and 4. The additional excavation activities will be completed in the northern and southern sections of the identified release area.

After completing the additional remediation activities, samples will be collected from the bottom and side walls of the excavations to document the removal of the impacted soil. When confirmation sample analytical results are received and determined to be within the current OCD regulations, the site will be

backfilled with clean fill and leveled to the previous grade. A final report will be generated and submitted to the OCD regional office to document the remediation and closure of the release.

Thank you for your assistance on this matter. Should you have any questions, require additional information, or have any additional stipulations for this site, please contact me at (432) 563-2200 (office) or via email at shane@etechnv.com.

Respectfully:

A handwritten signature in black ink, appearing to read "Shane Estep", with a long horizontal flourish extending to the right.

Shane Estep
Geologist
Etech Environmental & Safety Solutions, Inc.

Attachment A
Initial C-141

Attachment A
Annotated Aerial Imagery



**Attachment B
Photograph Log**



View of release point.



View of release point and pooled oil.



View of pooled oil north of tank battery containment.



View of repaired line and initial remediation activities.



View of release area after initial remediation activities.



View of release area after initial remediation activities.

Attachment
Depth to Groundwater Data

GROUND WATER SEARCH

Linn Energy Barclay State Battery

UL: J Sec: 2 T: 23S R: 31E

Groundwater Depth: 168 ft.

- = NM Office of the State Engineer
- = U.S. Geological Survey (unknown well)
- ✗ = Site Location

By: Amy Ruth

<p>28 450' EXP DOE ● 401' MON DOE ●</p>	<p>27</p>	<p>26</p>	<p>25</p>	<p>30</p>
<p>33 428' MON DOE ●</p>	<p>34</p>	<p>35</p>	<p>T22S R31E 36</p>	<p>T22S R32E 31</p>
<p>4 168' STK BLM ●</p>	<p>3</p>	<p>2 ✗</p>	<p>T23S R31E 1</p>	<p>T23S R32E 6</p>
<p>9</p>	<p>10</p>	<p>11</p>	<p>12</p>	<p>7</p>
<p>16</p>	<p>15</p>	<p>14</p>	<p>13</p>	<p>18</p>

Attachment D
Analytical Results

**PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701**



Analytical Report

Prepared for:

Shane Estep
E Tech Environmental & Safety Solutions, Inc.
13000 West County Road 100
Odessa, TX 79765

Project: Barclay State Battery Spill

Project Number: 253-8662

Location: Linn Energy

Lab Order Number: 7H31004



NELAP/TCEQ # T104704516-16-7

Report Date: 09/11/17

E Tech Environmental & Safety Solutions, Inc.
13000 West County Road 100
Odessa TX, 79765

Project: Barclay State Battery Spill
Project Number: 253-8662
Project Manager: Shane Estep

Fax: (432) 563-2213

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Auger Hole 1 6"	7H31004-01	Soil	08/29/17 12:05	08-31-2017 09:12
Auger Hole 1 12"	7H31004-02	Soil	08/29/17 12:10	08-31-2017 09:12
Auger Hole 1 24"	7H31004-03	Soil	08/29/17 12:15	08-31-2017 09:12
Auger Hole 1 36"	7H31004-04	Soil	08/29/17 12:20	08-31-2017 09:12
Auger Hole 2 6"	7H31004-05	Soil	08/29/17 12:25	08-31-2017 09:12
Auger Hole 2 12"	7H31004-06	Soil	08/29/17 12:30	08-31-2017 09:12
Auger Hole 2 24"	7H31004-07	Soil	08/29/17 12:35	08-31-2017 09:12
Auger Hole 2 36"	7H31004-08	Soil	08/29/17 12:40	08-31-2017 09:12
Auger Hole 3 6"	7H31004-09	Soil	08/29/17 12:45	08-31-2017 09:12
Auger Hole 3 12"	7H31004-10	Soil	08/29/17 12:50	08-31-2017 09:12
Auger Hole 3 24"	7H31004-11	Soil	08/29/17 12:55	08-31-2017 09:12
Auger Hole 3 36"	7H31004-12	Soil	08/29/17 13:00	08-31-2017 09:12
Auger Hole 4 6"	7H31004-13	Soil	08/29/17 13:05	08-31-2017 09:12
Auger Hole 4 12"	7H31004-14	Soil	08/29/17 13:10	08-31-2017 09:12
Auger Hole 4 24"	7H31004-15	Soil	08/29/17 13:15	08-31-2017 09:12
Auger Hole 4 36"	7H31004-16	Soil	08/29/17 13:20	08-31-2017 09:12
Auger Hole 5 6"	7H31004-17	Soil	08/29/17 13:25	08-31-2017 09:12
Auger Hole 5 12"	7H31004-18	Soil	08/29/17 13:30	08-31-2017 09:12
Auger Hole 5 24"	7H31004-19	Soil	08/29/17 13:35	08-31-2017 09:12
Auger Hole 5 36"	7H31004-20	Soil	08/29/17 13:40	08-31-2017 09:12

Auger Hole 1 6"
7H31004-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	0.136	0.0222	mg/kg dry	20	P710108	09/01/17	09/01/17	EPA 8021B	
Toluene	2.27	0.0444	mg/kg dry	20	P710108	09/01/17	09/01/17	EPA 8021B	
Ethylbenzene	2.24	0.0222	mg/kg dry	20	P710108	09/01/17	09/01/17	EPA 8021B	
Xylene (p/m)	4.30	0.0444	mg/kg dry	20	P710108	09/01/17	09/01/17	EPA 8021B	
Xylene (o)	1.34	0.0222	mg/kg dry	20	P710108	09/01/17	09/01/17	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		22.0 %		75-125	P710108	09/01/17	09/01/17	EPA 8021B	S-GC
<i>Surrogate: 1,4-Difluorobenzene</i>		89.0 %		75-125	P710108	09/01/17	09/01/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	1150	5.56	mg/kg dry	5	P710112	09/01/17	09/05/17	EPA 300.0	
% Moisture	10.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	1010	139	mg/kg dry	5	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	6210	139	mg/kg dry	5	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	1830	139	mg/kg dry	5	P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		105 %		70-130	P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		93.0 %		70-130	P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	9060	139	mg/kg dry	5	[CALC]	09/01/17	09/01/17	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: Barclay State Battery Spill
 Project Number: 253-8662
 Project Manager: Shane Estep

Fax: (432) 563-2213

Auger Hole 1 12"
7H31004-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.0204	mg/kg dry	20	P710108	09/01/17	09/01/17	EPA 8021B	
Toluene	ND	0.0408	mg/kg dry	20	P710108	09/01/17	09/01/17	EPA 8021B	
Ethylbenzene	ND	0.0204	mg/kg dry	20	P710108	09/01/17	09/01/17	EPA 8021B	
Xylene (p/m)	ND	0.0408	mg/kg dry	20	P710108	09/01/17	09/01/17	EPA 8021B	
Xylene (o)	0.0390	0.0204	mg/kg dry	20	P710108	09/01/17	09/01/17	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		38.4 %	75-125		P710108	09/01/17	09/01/17	EPA 8021B	S-GC
<i>Surrogate: 1,4-Difluorobenzene</i>		104 %	75-125		P710108	09/01/17	09/01/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	681	1.02	mg/kg dry	1	P710112	09/01/17	09/05/17	EPA 300.0	
% Moisture	2.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.5	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	73.4	25.5	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		126 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		115 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	73.4	25.5	mg/kg dry	1	[CALC]	09/01/17	09/01/17	calc	

Auger Hole 1 24"
7H31004-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00104	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.00208	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.00104	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.00208	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.00104	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		98.8 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		38.0 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	S-GC

General Chemistry Parameters by EPA / Standard Methods

Chloride	1080	5.21	mg/kg dry	5	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	4.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.0	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	42.9	26.0	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: 1-Chlorooctane		118 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: o-Terphenyl		107 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	42.9	26.0	mg/kg dry	1	[CALC]	09/01/17	09/01/17	calc	

Auger Hole 1 36"
7H31004-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.0206	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.0412	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.0206	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.0412	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.0206	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		36.7 %		75-125	P710108	09/01/17	09/02/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		98.8 %		75-125	P710108	09/01/17	09/02/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	538	1.03	mg/kg dry	1	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	3.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.8	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	122	25.8	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: 1-Chlorooctane		118 %		70-130	P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: o-Terphenyl		105 %		70-130	P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	122	25.8	mg/kg dry	1	[CALC]	09/01/17	09/01/17	calc	

Auger Hole 2 6"
7H31004-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.0204	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Toluene	0.0643	0.0408	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	0.313	0.0204	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	0.970	0.0408	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	0.339	0.0204	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		97.2 %		75-125	P710108	09/01/17	09/02/17	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		%		75-125	P710108	09/01/17	09/02/17	EPA 8021B	S-GC

General Chemistry Parameters by EPA / Standard Methods

Chloride	8.24	1.02	mg/kg dry	1	P710112	09/01/17	09/05/17	EPA 300.0	
% Moisture	2.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	118	25.5	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	732	25.5	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	140	25.5	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		123 %		70-130	P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		108 %		70-130	P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	990	25.5	mg/kg dry	1	[CALC]	09/01/17	09/01/17	calc	

Auger Hole 2 12"
7H31004-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00103	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.00206	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.00103	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.00206	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.00103	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		34.5 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		100 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.03	mg/kg dry	1	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	3.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	41.7	25.8	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	207	25.8	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	35.8	25.8	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: 1-Chlorooctane		127 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: o-Terphenyl		117 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	285	25.8	mg/kg dry	1	[CALC]	09/01/17	09/01/17	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: Barclay State Battery Spill
 Project Number: 253-8662
 Project Manager: Shane Estep

Fax: (432) 563-2213

Auger Hole 2 24"
7H31004-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.0204	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.0408	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.0204	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.0408	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.0204	mg/kg dry	20	P710108	09/01/17	09/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		45.7 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		109 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.02	mg/kg dry	1	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	2.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.5	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	49.4	25.5	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: 1-Chlorooctane		108 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: o-Terphenyl		101 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	49.4	25.5	mg/kg dry	1	[CALC]	09/01/17	09/01/17	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: Barclay State Battery Spill
 Project Number: 253-8662
 Project Manager: Shane Estep

Fax: (432) 563-2213

Auger Hole 2 36"
7H31004-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00101	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.00202	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.00101	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.00202	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.00101	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		35.8 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		97.7 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.01	mg/kg dry	1	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	1.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.3	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	42.7	25.3	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	ND	25.3	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: 1-Chlorooctane		114 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: o-Terphenyl		103 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	42.7	25.3	mg/kg dry	1	[CALC]	09/01/17	09/01/17	calc	

Auger Hole 3 6"
7H31004-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	0.0699	0.0215	mg/kg dry	20	P710108	09/01/17	09/05/17	EPA 8021B	
Toluene	4.76	0.0430	mg/kg dry	20	P710108	09/01/17	09/05/17	EPA 8021B	
Ethylbenzene	7.19	0.0215	mg/kg dry	20	P710108	09/01/17	09/05/17	EPA 8021B	
Xylene (p/m)	10.9	0.0430	mg/kg dry	20	P710108	09/01/17	09/05/17	EPA 8021B	
Xylene (o)	4.78	0.0215	mg/kg dry	20	P710108	09/01/17	09/05/17	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		106 %	75-125		P710108	09/01/17	09/05/17	EPA 8021B	S-GC
<i>Surrogate: 1,4-Difluorobenzene</i>		76.5 %	75-125		P710108	09/01/17	09/05/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	32.7	1.08	mg/kg dry	1	P710112	09/01/17	09/05/17	EPA 300.0	
% Moisture	7.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	3990	134	mg/kg dry	5	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	13400	134	mg/kg dry	5	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	2420	134	mg/kg dry	5	P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		113 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		91.3 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	19800	134	mg/kg dry	5	[CALC]	09/01/17	09/01/17	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: Barclay State Battery Spill
 Project Number: 253-8662
 Project Manager: Shane Estep

Fax: (432) 563-2213

Auger Hole 3 12"
7H31004-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00108	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.00215	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		41.8 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		107 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	11.5	1.08	mg/kg dry	1	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	7.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.9	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	62.2	26.9	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: 1-Chlorooctane		119 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: o-Terphenyl		106 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	62.2	26.9	mg/kg dry	1	[CALC]	09/01/17	09/01/17	calc	

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 Odessa TX, 79765

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 Project Manager: Shane Estep

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Auger Hole 3 24"
7H31004-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00103	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.00206	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.00103	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.00206	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.00103	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		33.2 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		100 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.03	mg/kg dry	1	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	3.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.8	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: 1-Chlorooctane		125 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: o-Terphenyl		115 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	09/01/17	09/01/17	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: Barclay State Battery Spill
 Project Number: 253-8662
 Project Manager: Shane Estep

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Auger Hole 3 36"
7H31004-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00103	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.00206	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.00103	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.00206	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.00103	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		96.2 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		34.9 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	S-GC

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.03	mg/kg dry	1	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	3.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.8	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		117 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		109 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	09/01/17	09/01/17	calc	

Auger Hole 4 6"
7H31004-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	0.0606	0.00111	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Toluene	0.128	0.00222	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	0.0308	0.00111	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	0.0575	0.00222	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	0.0274	0.00111	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		30.8 %		75-125	P710108	09/01/17	09/02/17	EPA 8021B	S-GC
<i>Surrogate: 1,4-Difluorobenzene</i>		107 %		75-125	P710108	09/01/17	09/02/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	190	1.11	mg/kg dry	1	P710112	09/01/17	09/05/17	EPA 300.0	
% Moisture	10.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	858	278	mg/kg dry	10	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	13900	278	mg/kg dry	10	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	2830	278	mg/kg dry	10	P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		103 %		70-130	P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		92.6 %		70-130	P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	17600	278	mg/kg dry	10	[CALC]	09/01/17	09/01/17	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: Barclay State Battery Spill
 Project Number: 253-8662
 Project Manager: Shane Estep

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Auger Hole 4 12"
7H31004-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00102	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.00204	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.00102	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.00204	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	0.00166	0.00102	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		32.0 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	S-GC
<i>Surrogate: 1,4-Difluorobenzene</i>		107 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	32.3	1.02	mg/kg dry	1	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	2.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	33.7	25.5	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	592	25.5	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	252	25.5	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		122 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		114 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	877	25.5	mg/kg dry	1	[CALC]	09/01/17	09/01/17	calc	

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 13000 West County Road 100
 Odessa TX, 79765

Project: Barclay State Battery Spill
 Project Number: 253-8662
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Auger Hole 4 24"
7H31004-15 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00104	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.00208	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.00104	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.00208	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.00104	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		37.8 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		101 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	18.5	1.04	mg/kg dry	1	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	4.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.0	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: 1-Chlorooctane		120 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Surrogate: o-Terphenyl		109 %	70-130		P710105	09/01/17	09/01/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	09/01/17	09/01/17	calc	

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 13000 West County Road 100
 Odessa TX, 79765

Project: Barclay State Battery Spill
 Project Number: 253-8662
 Project Manager: Shane Estep

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Auger Hole 4 36"
7H31004-16 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00103	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.00206	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.00103	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.00206	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.00103	mg/kg dry	1	P710108	09/01/17	09/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		38.7 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		102 %	75-125		P710108	09/01/17	09/02/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	19.6	1.03	mg/kg dry	1	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	3.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.8	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
>C12-C28	126	25.8	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
Surrogate: 1-Chlorooctane		132 %	70-130		P710106	09/01/17	09/02/17	TPH 8015M	S-GC
Surrogate: o-Terphenyl		119 %	70-130		P710106	09/01/17	09/02/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	126	25.8	mg/kg dry	1	[CALC]	09/01/17	09/02/17	calc	

Auger Hole 5 6"
7H31004-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00115	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.00230	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.00115	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.00230	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.00115	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		101 %	75-125		P710109	09/01/17	09/02/17	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		44.3 %	75-125		P710109	09/01/17	09/02/17	EPA 8021B	S-GC

General Chemistry Parameters by EPA / Standard Methods

Chloride	135	1.15	mg/kg dry	1	P710112	09/01/17	09/05/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	40.1	28.7	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
>C12-C28	361	28.7	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
>C28-C35	62.8	28.7	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		95.4 %	70-130		P710106	09/01/17	09/02/17	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		89.7 %	70-130		P710106	09/01/17	09/02/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	464	28.7	mg/kg dry	1	[CALC]	09/01/17	09/02/17	calc	

Auger Hole 5 12"
7H31004-18 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00116	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.00233	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.00116	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.00233	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.00116	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		101 %	75-125		P710109	09/01/17	09/02/17	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		32.5 %	75-125		P710109	09/01/17	09/02/17	EPA 8021B	S-GC

General Chemistry Parameters by EPA / Standard Methods

Chloride	92.1	1.16	mg/kg dry	1	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	14.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	29.1	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
>C12-C28	133	29.1	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		117 %	70-130		P710106	09/01/17	09/02/17	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		110 %	70-130		P710106	09/01/17	09/02/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	133	29.1	mg/kg dry	1	[CALC]	09/01/17	09/02/17	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: Barclay State Battery Spill
 Project Number: 253-8662
 Project Manager: Shane Estep

Fax: (432) 563-2213

Auger Hole 5 24"
7H31004-19 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00104	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.00208	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.00104	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.00208	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.00104	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		106 %	75-125		P710109	09/01/17	09/02/17	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		38.2 %	75-125		P710109	09/01/17	09/02/17	EPA 8021B	S-GC

General Chemistry Parameters by EPA / Standard Methods

Chloride	9.51	1.04	mg/kg dry	1	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	4.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.0	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		139 %	70-130		P710106	09/01/17	09/02/17	TPH 8015M	S-GC
<i>Surrogate: o-Terphenyl</i>		130 %	70-130		P710106	09/01/17	09/02/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	09/01/17	09/02/17	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: Barclay State Battery Spill
 Project Number: 253-8662
 Project Manager: Shane Estep

Fax: (432) 563-2213

Auger Hole 5 36"
7H31004-20 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00101	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Toluene	ND	0.00202	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Ethylbenzene	ND	0.00101	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Xylene (p/m)	ND	0.00202	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Xylene (o)	ND	0.00101	mg/kg dry	1	P710109	09/01/17	09/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		34.6 %	75-125		P710109	09/01/17	09/02/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		103 %	75-125		P710109	09/01/17	09/02/17	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	ND	1.01	mg/kg dry	1	P710613	09/06/17	09/10/17	EPA 300.0	
% Moisture	1.0	0.1	%	1	P710501	09/05/17	09/05/17	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.3	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
>C12-C28	ND	25.3	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
>C28-C35	ND	25.3	mg/kg dry	1	P710106	09/01/17	09/02/17	TPH 8015M	
Surrogate: 1-Chlorooctane		135 %	70-130		P710106	09/01/17	09/02/17	TPH 8015M	S-GC
Surrogate: o-Terphenyl		122 %	70-130		P710106	09/01/17	09/02/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	25.3	mg/kg dry	1	[CALC]	09/01/17	09/02/17	calc	

Organics by GC - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P710108 - General Preparation (GC)

Blank (P710108-BLK1)										
										Prepared & Analyzed: 09/01/17
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0618		"	0.0600		103	75-125			
Surrogate: 4-Bromofluorobenzene	0.0284		"	0.0600		47.4	75-125			S-GC

LCS (P710108-BS1)										
										Prepared & Analyzed: 09/01/17
Benzene	0.101	0.00100	mg/kg wet	0.100		101	70-130			
Toluene	0.102	0.00200	"	0.100		102	70-130			
Ethylbenzene	0.0938	0.00100	"	0.100		93.8	70-130			
Xylene (p/m)	0.182	0.00200	"				70-130			
Xylene (o)	0.0817	0.00100	"				70-130			
Surrogate: 4-Bromofluorobenzene	0.0264		"	0.0600		44.0	75-125			S-GC
Surrogate: 1,4-Difluorobenzene	0.0665		"	0.0600		111	75-125			

LCS Dup (P710108-BSD1)										
										Prepared & Analyzed: 09/01/17
Benzene	0.115	0.00100	mg/kg wet	0.100		115	70-130	12.8	20	
Toluene	0.110	0.00200	"	0.100		110	70-130	7.29	20	
Ethylbenzene	0.100	0.00100	"	0.100		100	70-130	6.49	20	
Xylene (p/m)	0.180	0.00200	"				70-130		20	
Xylene (o)	0.0803	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	0.0726		"	0.0600		121	75-125			
Surrogate: 4-Bromofluorobenzene	0.0253		"	0.0600		42.2	75-125			S-GC

Matrix Spike (P710108-MS1)										
										Source: 7H31004-03
										Prepared: 09/01/17 Analyzed: 09/02/17
Benzene	0.124	0.00104	mg/kg dry	0.104	ND	119	80-120			
Toluene	0.123	0.00208	"	0.104	ND	118	80-120			
Ethylbenzene	0.107	0.00104	"	0.104	ND	103	80-120			
Xylene (p/m)	0.179	0.00208	"		ND		80-120			
Xylene (o)	0.0848	0.00104	"		ND		80-120			
Surrogate: 4-Bromofluorobenzene	0.0215		"	0.0625		34.4	75-125			S-GC
Surrogate: 1,4-Difluorobenzene	0.0684		"	0.0625		109	75-125			

Organics by GC - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P710108 - General Preparation (GC)

Matrix Spike Dup (P710108-MSD1)		Source: 7H31004-03		Prepared: 09/01/17		Analyzed: 09/02/17				
Benzene	0.125	0.00104	mg/kg dry	0.104	ND	120	80-120	0.846	20	
Toluene	0.120	0.00208	"	0.104	ND	115	80-120	2.24	20	
Ethylbenzene	0.104	0.00104	"	0.104	ND	99.5	80-120	3.47	20	
Xylene (p/m)	0.123	0.00208	"		ND		80-120		20	
Xylene (o)	0.0845	0.00104	"		ND		80-120		20	
Surrogate: 1,4-Difluorobenzene	0.0594		"	0.0625		95.1	75-125			
Surrogate: 4-Bromofluorobenzene	0.0195		"	0.0625		31.2	75-125			S-GC

Batch P710109 - General Preparation (GC)

Blank (P710109-BLK1)				Prepared: 09/01/17		Analyzed: 09/02/17				
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	0.0222		"	0.0600		37.0	75-125			S-GC
Surrogate: 1,4-Difluorobenzene	0.0630		"	0.0600		105	75-125			

LCS (P710109-BS1)				Prepared: 09/01/17		Analyzed: 09/02/17				
Benzene	0.0964	0.00100	mg/kg wet	0.100		96.4	70-130			
Toluene	0.0975	0.00200	"	0.100		97.5	70-130			
Ethylbenzene	0.0844	0.00100	"	0.100		84.4	70-130			
Xylene (p/m)	0.161	0.00200	"				70-130			
Xylene (o)	0.0692	0.00100	"				70-130			
Surrogate: 1,4-Difluorobenzene	0.0714		"	0.0600		119	75-125			
Surrogate: 4-Bromofluorobenzene	0.0221		"	0.0600		36.9	75-125			S-GC

Organics by GC - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P7I0109 - General Preparation (GC)

LCS Dup (P7I0109-BSD1)

Prepared: 09/01/17 Analyzed: 09/02/17

Benzene	0.0996	0.00100	mg/kg wet	0.100		99.6	70-130	3.28	20	
Toluene	0.102	0.00200	"	0.100		102	70-130	4.07	20	
Ethylbenzene	0.0888	0.00100	"	0.100		88.8	70-130	5.03	20	
Xylene (p/m)	0.185	0.00200	"				70-130		20	
Xylene (o)	0.0816	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	0.0672		"	0.0600		112	75-125			
Surrogate: 4-Bromofluorobenzene	0.0215		"	0.0600		35.8	75-125			S-GC

Matrix Spike (P7I0109-MS1)

Source: 7H31016-01

Prepared: 09/01/17 Analyzed: 09/02/17

Benzene	0.0610	0.00102	mg/kg dry	0.0510	ND	120	80-120			
Toluene	0.0494	0.00204	"	0.0510	ND	96.9	80-120			
Ethylbenzene	0.0267	0.00102	"	0.0510	ND	52.4	80-120			QM-05
Xylene (p/m)	0.0456	0.00204	"		ND		80-120			
Xylene (o)	0.0219	0.00102	"		ND		80-120			
Surrogate: 4-Bromofluorobenzene	0.0215		"	0.0612		35.1	75-125			S-GC
Surrogate: 1,4-Difluorobenzene	0.0703		"	0.0612		115	75-125			

Matrix Spike Dup (P7I0109-MSD1)

Source: 7H31016-01

Prepared: 09/01/17 Analyzed: 09/02/17

Benzene	0.0634	0.00102	mg/kg dry	0.0510	ND	124	80-120	3.89	20	QM-05
Toluene	0.0522	0.00204	"	0.0510	ND	102	80-120	5.34	20	
Ethylbenzene	0.0323	0.00102	"	0.0510	ND	63.3	80-120	18.8	20	QM-05
Xylene (p/m)	0.0695	0.00204	"		ND		80-120		20	
Xylene (o)	0.0299	0.00102	"		ND		80-120		20	
Surrogate: 1,4-Difluorobenzene	0.0754		"	0.0612		123	75-125			
Surrogate: 4-Bromofluorobenzene	0.0241		"	0.0612		39.3	75-125			S-GC

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P7I0112 - * DEFAULT PREP *****

Blank (P7I0112-BLK1)				Prepared: 09/01/17 Analyzed: 09/05/17						
Chloride	ND	1.00	mg/kg wet							
LCS (P7I0112-BS1)				Prepared: 09/01/17 Analyzed: 09/05/17						
Chloride	425	1.00	mg/kg wet	400		106	80-120			
LCS Dup (P7I0112-BSD1)				Prepared: 09/01/17 Analyzed: 09/05/17						
Chloride	425	1.00	mg/kg wet	400		106	80-120	0.00706	20	
Duplicate (P7I0112-DUP1)				Source: 7H31004-01 Prepared: 09/01/17 Analyzed: 09/05/17						
Chloride	1160	5.56	mg/kg dry		1150			0.308	20	
Duplicate (P7I0112-DUP2)				Source: 7H31010-05 Prepared: 09/01/17 Analyzed: 09/05/17						
Chloride	10.8	1.06	mg/kg dry		10.6			2.09	20	
Matrix Spike (P7I0112-MS1)				Source: 7H31004-01 Prepared: 09/01/17 Analyzed: 09/05/17						
Chloride	2320	5.56	mg/kg dry	1110	1150	105	80-120			

Batch P7I0501 - * DEFAULT PREP *****

Blank (P7I0501-BLK1)				Prepared & Analyzed: 09/05/17						
% Moisture	ND	0.1	%							
Duplicate (P7I0501-DUP1)				Source: 7H31004-06 Prepared & Analyzed: 09/05/17						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P7I0501-DUP2)				Source: 7H31009-06 Prepared & Analyzed: 09/05/17						
% Moisture	1.0	0.1	%		1.0			0.00	20	

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7I0501 - *** DEFAULT PREP ***										
Duplicate (P7I0501-DUP3)		Source: 7H31017-02			Prepared & Analyzed: 09/05/17					
% Moisture	2.0	0.1	%		2.0			0.00	20	
Batch P7I0613 - *** DEFAULT PREP ***										
Blank (P7I0613-BLK1)		Prepared: 09/06/17 Analyzed: 09/07/17								
Chloride	ND	1.00	mg/kg wet							
LCS (P7I0613-BS1)		Prepared: 09/06/17 Analyzed: 09/10/17								
Chloride	404	1.00	mg/kg wet	400		101	80-120			
LCS Dup (P7I0613-BSD1)		Prepared: 09/06/17 Analyzed: 09/10/17								
Chloride	408	1.00	mg/kg wet	400		102	80-120	1.04	20	
Duplicate (P7I0613-DUP1)		Source: 7I06006-07			Prepared: 09/06/17 Analyzed: 09/10/17					
Chloride	5430	27.8	mg/kg dry		5460			0.439	20	
Duplicate (P7I0613-DUP2)		Source: 7H31004-14			Prepared: 09/06/17 Analyzed: 09/10/17					
Chloride	32.9	1.02	mg/kg dry		32.3			2.00	20	
Matrix Spike (P7I0613-MS1)		Source: 7I06006-07			Prepared: 09/06/17 Analyzed: 09/10/17					
Chloride	7620	27.8	mg/kg dry	2220	5460	97.5	80-120			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P710105 - General Preparation (GC)

Blank (P710105-BLK1)

Prepared & Analyzed: 09/01/17

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	135		"	100		135	70-130			S-GC
Surrogate: o-Terphenyl	64.4		"	50.0		129	70-130			

LCS (P710105-BS1)

Prepared & Analyzed: 09/01/17

C6-C12	1040	25.0	mg/kg wet	1000		104	75-125			
>C12-C28	1080	25.0	"	1000		108	75-125			
Surrogate: 1-Chlorooctane	115		"	100		115	70-130			
Surrogate: o-Terphenyl	48.8		"	50.0		97.6	70-130			

LCS Dup (P710105-BSD1)

Prepared & Analyzed: 09/01/17

C6-C12	1060	25.0	mg/kg wet	1000		106	75-125	1.95	20	
>C12-C28	1130	25.0	"	1000		113	75-125	4.38	20	
Surrogate: 1-Chlorooctane	120		"	100		120	70-130			
Surrogate: o-Terphenyl	50.6		"	50.0		101	70-130			

Matrix Spike (P710105-MS1)

Source: 7H31004-08

Prepared & Analyzed: 09/01/17

C6-C12	941	25.3	mg/kg dry	1010	20.8	91.1	75-125			
>C12-C28	1200	25.3	"	1010	42.7	114	75-125			
Surrogate: 1-Chlorooctane	126		"	101		124	70-130			
Surrogate: o-Terphenyl	60.1		"	50.5		119	70-130			

Matrix Spike Dup (P710105-MSD1)

Source: 7H31004-08

Prepared & Analyzed: 09/01/17

C6-C12	912	25.3	mg/kg dry	1010	20.8	88.2	75-125	3.19	20	
>C12-C28	1130	25.3	"	1010	42.7	108	75-125	6.24	20	
Surrogate: 1-Chlorooctane	108		"	101		107	70-130			
Surrogate: o-Terphenyl	56.7		"	50.5		112	70-130			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P710106 - General Preparation (GC)

Blank (P710106-BLK1)

Prepared & Analyzed: 09/01/17

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	130		"	100		130	70-130			
Surrogate: o-Terphenyl	59.7		"	50.0		119	70-130			

LCS (P710106-BS1)

Prepared & Analyzed: 09/01/17

C6-C12	1030	25.0	mg/kg wet	1000		103	75-125			
>C12-C28	1170	25.0	"	1000		117	75-125			
Surrogate: 1-Chlorooctane	125		"	100		125	70-130			
Surrogate: o-Terphenyl	59.5		"	50.0		119	70-130			

LCS Dup (P710106-BSD1)

Prepared & Analyzed: 09/01/17

C6-C12	1090	25.0	mg/kg wet	1000		109	75-125	6.32	20	
>C12-C28	1160	25.0	"	1000		116	75-125	0.973	20	
Surrogate: 1-Chlorooctane	126		"	100		126	70-130			
Surrogate: o-Terphenyl	66.1		"	50.0		132	70-130			S-GC

Matrix Spike (P710106-MS1)

Source: 7H31004-19

Prepared: 09/01/17 Analyzed: 09/02/17

C6-C12	897	26.0	mg/kg dry	1040	23.7	83.8	75-125			
>C12-C28	1200	26.0	"	1040	21.9	113	75-125			
Surrogate: 1-Chlorooctane	136		"	104		131	70-130			S-GC
Surrogate: o-Terphenyl	52.3		"	52.1		100	70-130			

Matrix Spike Dup (P710106-MSD1)

Source: 7H31004-19

Prepared: 09/01/17 Analyzed: 09/02/17

C6-C12	960	26.0	mg/kg dry	1040	23.7	89.9	75-125	7.01	20	
>C12-C28	1170	26.0	"	1040	21.9	111	75-125	1.94	20	
Surrogate: 1-Chlorooctane	119		"	104		114	70-130			
Surrogate: o-Terphenyl	55.6		"	52.1		107	70-130			

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By:



Date: 9/11/2017

Brent Barron, Laboratory Director/Technical Director

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