Environmental & Safety Solutions, Inc.

Electronic Correspondence

December 29, 2015

Mr. Mike Bratcher
State of New Mexico
Oil Conservation Division
811 S. 1st Street
Artesia, NM 88210
mike.bratcher@state.nm.us

Re: Corrective Action Plan- 2RP-3363
Memorial Production Operating, Federal R6
Legal: Unit C, Sec 10, T17S, R30E, Eddy County, NM
Latitude/Longitude: 32.855446/ -103.952680
Etech Project Number: 416-6681-000
Depth to Groundwater: >300 feet
Release Type: Produced Water

Contaminants of Concern (COC's)	Threshold Levels
Chlorides	1,000 mg/kg
TPH	5,000 mg/kg
Benzene	10 mg/kg
BTEX	50 mg/kg

Dear Mike:

Etech Environmental & Safety Solutions, Inc. (Etech) is submitting the following corrective action plan on the aforementioned site for your review and approval.

Background

On October 28, 2015 a leak was discovered and reported from the Federal R6 flow line. The steel above ground transfer line formed a hole from corrosion causing the release of approximately 5 barrels (bbl.) of crude oil and 15 bbl. of produced water into the pasture. A vacuum truck was dispatched to recover fluid once the spill was discovered; approximately 1 bbl. of crude oil and 3 bbl. of produced water were recovered. An assessment of the site was conducted on November 3, 2015 by Etech personnel. The release flowed south from the transfer line for approximately 160 feet and was approximately 15 feet wide. The impacted area affected approximately 3,550 square feet of surface area.

An initial sampling was conducted of the impacted area on November 3, 2015. Samples were collected from three (3) locations of the impacted area. Note: All of the samples were collected from low areas to present a "worse case" basis. The samples were analyzed for TPH, BTEX and Chlorides. TPH levels ranged from non-detect to 15,500 mg/kg. Benzene levels and BTEX levels were found to be below regulatory levels. Chloride levels ranged from 72.4 to 18,600 mg/kg. Due to the site not being delineated to below 250 mg/kg chlorides and 1,000 mg/kg TPH on initial assessment, the site was further delineated on December 9, 2015 utilizing an air rotary rig. Samples were collected at AH 2 and

AH 3 at 1 foot intervals until field screening levels for chlorides were below 250 mg/kg. Chloride levels were below 250 mg/kg at 19-20 feet below grade at AH 2 and 19-20 feet below grade at AH 3. A copy of the assessment sheet and analytical results are attached.

Scope of Work

The corrective action for this site will be to excavate the first four feet below grade at AH 2 and dispose of this material at Lea Land, Inc. landfill. We estimate that approximately 60 cubic yards (CY) of material will be excavated from this area. For the area at AH 3, the first foot of material will be excavated and disposed of. Etech estimates that approximately 25 CY of material will be excavated and disposed of. Approximately 85 CY of material will be disposed of for the project. Following excavation and disposal, the site will be treated with DeSalt Plus and cleansorb to lower chloride and TPH levels below regulatory thresholds. The impacted soil will be treated with DeSalt Plus to lower the chloride and sodium levels in the root zone. We believe this to be the most practicable way to approach this site, due to the depth to groundwater in the area being greater than 300 feet and the soil's sandy content. Therefore, the corrective action goals for this project will be 1,000 mg/kg of chlorides and 5,000 mg/kg of TPH. The particulars for remediation will involve the actions summarized as follows:

1. Placement of a one-call for utility location.
2. The first four feet of soil will be mechanically excavated around AH 2. The excavated area will then be treated with a mixture of DeSalt and fresh water as well as a microbial agent. The excavated area will then be mechanically tilled to incorporate the amendments.
3. The area around AH 3 will be excavated to a depth of 1 foot. The excavated area will then be treated with a mixture of DeSalt and fresh water as well as a microbial agent. The excavated area will then be mechanically tilled to incorporate the amendments.
4. The area around AH 1 will be mechanically tilled. The impacted area will then be treated with a mixture of DeSalt and fresh water as well as a microbial agent. The area will then be mechanically tilled to incorporate the amendments.
5. All excavated material will be staged on plastic until it is disposed of.
6. Once screening determines the remediation objectives have been reached, confirmation samples will be collected to confirm that remediation goals have been reached.
7. If the results of analysis indicate that the hydrocarbon or chloride levels are above regulatory threshold levels, additional treatment will be performed until the remediation objectives are met.
8. The site will be seeded with BLM #2. Seeding will take place when the seasonal conditions are conducive to maximizing the potential for seed germination. Actual seeding will be accomplished by broadcast or drilling; whichever is the most practical for the site.

Notifications and Special Conditions

1. The OCD and BLM will be notified prior to the commencement of on-site operations.
2. The OCD and BLM will be notified prior to each sampling event to allow the opportunity to witness the sampling events. Splits will be made available if requested.
3. Prior to seeding, the OCD and BLM will be notified when the site is closed for final inspection.
4. A final report documenting the closure of the site will be submitted along with a final C-141.

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 me at (432) 563-2200 (office) or via email at tim@etechenv.com.

Respectfully:

Tim McMinn

cc: Heather Patterson, NMOCD Division 2 Office
Dara Glass, BLM Carlsbad District Office

Attachment A
Initial C-141

NM OIL CONSERVATION
ARTESIA DISTRICT
OCT 28 2015
RECEIVED

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011
Submit 1 copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1530236164 303900 **OPERATOR** ☑ Initial Report ☐ Final Report

Name of Company Memorial Production Operating LLC	Contact Heather Dolphin
Address 500 Dallas Street Houston TX 77002	Telephone No. 832-797-1334
Facility Name Federal R #006 (Closest Well)	Facility Type Flowline

Surface Owner	Mineral Owner	API No. 30-015-22018

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	10	17S	30E					Eddy

Latitude 32.8545113 **Longitude** -103.9620132 (NAD83)

NATURE OF RELEASE

5bbls oil/ 15bbls pw 1bbl oil/ 3bbls pw

Type of Release Oil/ Produced Water	Volume of Release 10/28/15	Volume Recovered 0bbl
Source of Release Flowline	Date and Hour of Occurrence	Date and Hour of Discovery 3:00 pm
Was Immediate Notice Given? ☐ Yes ☐ No ☐ Not Required	If YES, To Whom? Heather Patterson/ Mike Bratcher, OCD & Shelly Tucker/ Art Arias, BLM	
By Whom? Heather Dolphin	Date and Hour 10/28/15 3:45pm	
Was a Watercourse Reached? ☐ Yes ☐ No	If YES, Volume Impacting the Watercourse. n/a	

If a Watercourse was Impacted, Describe Fully.*

n/a

Describe Cause of Problem and Remedial Action Taken.*

Injection line developed a hole.

Describe Area Affected and Cleanup Action Taken.*

40ft by 3ft one 12ft BY 17 pool 1/4" deep in the pasture. Will clean-up per OCD/ BLM instruction.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:

Printed Name: Heather Dolphin

Title: Sr. Regulatory Specialist

E-mail Address: heather.dolphin@memorialrd.com

Date: 10/28/15 Phone: 832-797-1334

OIL CONSERVATION DIVISION

Signed By Mike Bratcher

Approved by Environmental Specialist:

Approval Date: 10/29/15 Expiration Date: N/A

Conditions of Approval: Attached ☐

Remediation per O.C.D. Rules & Guidelines

SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 11/29/15

2RP-3363

* Attach Additional Sheets If Necessary

Attachment B
Annotated Aerial Imagery

ETECH Environmental & Safety Solutions, Inc.

Delineation & Assessment Report ©	Lease Name:	Federal R6	Case No.:	416-6681-000
	Date Assessed:	November 3, 2015		

Assessment Results

Sample I.D.	Depth (ft.)	Chlorides (mg/kg)	TPH (mg/kg)	Benzene (mg/kg)	BTEX (mg/kg)
AH 1	0-1	1860	1520	0.00189	0.13639
AH 1	1-2	72.4	ND	ND	0.0153
AH 1	2-3	75.9	41.9	ND	ND
AH 1	3-4	72.5	58.8	ND	ND
AH 1	4-5	271	264	ND	ND
AH 1	5-6	240	42	ND	ND
AH 1	6-7	287	257	ND	ND
AH 2	0-1	7120	15500	0.0786	46.0086
AH 2	1-2	7930	12400	0.165	30.195
AH 2	2-3	18600	6980	0.0759	15.9549
AH 2	3-4	16500	9840	0.0861	19.8461
AH 3	0-1	2770	8250	0.00602	0.57102
AH 3	1-2	2880	566	ND	0.00907
AH 3	2-3	2410	184	ND	ND

eTECH Environmental & Safety Solutions, Inc.

Geoprobe Data©

Lease Name:	Federal R6	Case No.:	416-6681-000
Date Assessed:	December 9, 2015		

Assessment Results

Sample I.D.	Depth (ft.)	Chlorides (mg/kg)	TPH (mg/kg)
AH 2	4-5	4010	241
AH 2	5-6	1360	ND
AH 2	6-7	2790	ND
AH 2	7-8	1960	ND
AH 2	8-9	2430	ND
AH 2	9-10	3220	NA
AH 2	10-11	2790	NA
AH 2	11-12	900	NA
AH 2	12-13	1160	NA
AH 2	13-14	1470	NA
AH 2	14-15	980	ND
AH 2	15-16	520	ND
AH 2	16-17	590	ND
AH 2	17-18	330	ND
AH 2	18-19	167	ND
AH 2	19-20	108	ND
AH 3	4-6	1580	NA
AH 3	5-6	2790	NA
AH 3	6-7	2790	NA
AH 3	7-8	980	NA
AH 3	8-9	980	NA
AH 3	9-10	590	NA
AH 3	10-11	590	NA
AH 3	11-12	670	NA
AH 3	12-13	900	NA
AH 3	13-14	740	NA
AH 3	14-15	1070	NA
AH 3	15-16	980	NA
AH 3	16-17	740	NA
AH 3	17-18	520	NA
AH 3	18-19	276	NA
AH 3	19-20	230	NA

Attachment C
Photograph Log

Federal R6

Federal R6

Federal R6

Federal R6

Attachment D
Analytical Results

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
10014 SCR 1213
Midland, TX 79706

PBELAB

Analytical Report

Prepared for:

Tim McMinn

E Tech Environmental & Safety Solutions, Inc.

13000 West County Road 100

Odessa, TX 79765

Project: Federal R6

Project Number: 416-6681-000

Location: Memorial

Lab Order Number: 5K06008

NELAP/TCEQ # T104704156-13-3

Report Date: 11/19/15

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

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

Fax: (432) 563-2213

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Auger hole 1 0-1'	5K06008-01	Soil	11/04/15 09:45	11-05-2015 16:45
Auger hole 1 1-2'	5K06008-02	Soil	11/04/15 10:00	11-05-2015 16:45
Auger hole 1 2-3'	5K06008-03	Soil	11/04/15 10:15	11-05-2015 16:45
Auger hole 1 3-4'	5K06008-04	Soil	11/04/15 10:30	11-05-2015 16:45
Auger hole 1 4-5'	5K06008-05	Soil	11/04/15 10:50	11-05-2015 16:45
Auger hole 1 5-6'	5K06008-06	Soil	11/04/15 10:55	11-05-2015 16:45
Auger hole 1 6-7'	5K06008-07	Soil	11/04/15 11:10	11-05-2015 16:45
Auger hole 2 0-1'	5K06008-08	Soil	11/04/15 11:15	11-05-2015 16:45
Auger hole 2 1-2'	5K06008-09	Soil	11/04/15 11:25	11-05-2015 16:45
Auger hole 2 2-3'	5K06008-10	Soil	11/04/15 11:30	11-05-2015 16:45
Auger hole 2 3-4'	5K06008-11	Soil	11/04/15 11:40	11-05-2015 16:45
Auger hole 3 0-1'	5K06008-12	Soil	11/04/15 11:50	11-05-2015 16:45
Auger hole 3 1-2'	5K06008-13	Soil	11/04/15 11:55	11-05-2015 16:45
Auger hole 3 2-3'	5K06008-14	Soil	11/04/15 12:00	11-05-2015 16:45

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Odessa TX, 79765

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Fax: (432) 563-2213

Auger hole 1 0-1'

5K06008-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.00189**	0.00114	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Toluene	**0.0295**	0.00227	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Ethylbenzene	**0.0251**	0.00114	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (p/m)	**0.0404**	0.00227	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (o)	**0.0395**	0.00114	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*104 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*84.6 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1860**	5.68	mg/kg dry	5	P5K1018	11/09/15	11/10/15	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**191**	142	mg/kg dry	5	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C12-C28	**1170**	142	mg/kg dry	5	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C28-C35	**156**	142	mg/kg dry	5	P5K0902	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*87.2 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*104 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**1520**	142	mg/kg dry	5	[CALC]	11/06/15	11/07/15	calc	

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

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

Fax: (432) 563-2213

Auger hole 1 1-2'

5K06008-02 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00115	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Toluene	ND	0.00230	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Ethylbenzene	ND	0.00115	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (p/m)	**0.0153**	0.00230	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (o)	ND	0.00115	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*96.9 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*97.5 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**72.4**	1.15	mg/kg dry	1	P5K1020	11/10/15	11/11/15	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.7	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C12-C28	ND	28.7	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C28-C35	ND	28.7	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*110 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*139 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	28.7	mg/kg dry	1	[CALC]	11/06/15	11/07/15	calc	

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Odessa TX, 79765

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

Fax: (432) 563-2213

Auger hole 1 2-3'

5K06008-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00114	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Toluene	ND	0.00227	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Ethylbenzene	ND	0.00114	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (p/m)	ND	0.00227	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (o)	ND	0.00114	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*110 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*101 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**75.9**	1.14	mg/kg dry	1	P5K1020	11/10/15	11/11/15	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.4	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C12-C28	**41.9**	28.4	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*91.0 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*113 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**41.9**	28.4	mg/kg dry	1	[CALC]	11/06/15	11/07/15	calc	

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Auger hole 1 3-4'

5K06008-04 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Toluene	ND	0.00215	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*107 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*108 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**72.5**	1.08	mg/kg dry	1	P5K1020	11/10/15	11/11/15	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C12-C28	**58.8**	26.9	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*87.5 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*107 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**58.8**	26.9	mg/kg dry	1	[CALC]	11/06/15	11/07/15	calc	

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

Project: Federal R6
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Project Manager: Tim McMinn

Fax: (432) 563-2213

Auger hole 1 4-5'

5K06008-05 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Toluene	ND	0.00217	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*83.7 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*101 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**271**	1.09	mg/kg dry	1	P5K1020	11/10/15	11/11/15	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**27.2**	27.2	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C12-C28	**231**	27.2	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C28-C35	**33.1**	27.2	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*111 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*136 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	**264**	27.2	mg/kg dry	1	[CALC]	11/06/15	11/07/15	calc	

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

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

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Auger hole 1 5-6'

5K06008-06 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Toluene	ND	0.00217	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*94.2 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*104 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**240**	1.09	mg/kg dry	1	P5K1020	11/10/15	11/11/15	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C12-C28	**42.0**	27.2	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*102 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*126 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**42.0**	27.2	mg/kg dry	1	[CALC]	11/06/15	11/07/15	calc	

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Auger hole 1 6-7'

5K06008-07 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00119	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Toluene	ND	0.00238	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Ethylbenzene	ND	0.00119	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (p/m)	ND	0.00238	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (o)	ND	0.00119	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*78.9 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*134 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	*S-GC*
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**287**	1.19	mg/kg dry	1	P5K1020	11/10/15	11/11/15	EPA 300.0	
% Moisture	**16.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.8	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C12-C28	**223**	29.8	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C28-C35	**34.2**	29.8	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*111 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*137 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	**257**	29.8	mg/kg dry	1	[CALC]	11/06/15	11/07/15	calc	

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Auger hole 2 0-1'

5K06008-08 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.0786**	0.0549	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Toluene	**6.18**	0.110	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Ethylbenzene	**9.35**	0.0549	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Xylene (p/m)	**20.1**	0.110	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Xylene (o)	**10.3**	0.0549	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*100 %*	*75-125*		*P5K1702*	*11/16/15*	*11/16/15*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*89.2 %*	*75-125*		*P5K1702*	*11/16/15*	*11/16/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**7120**	27.5	mg/kg dry	25	P5K1020	11/10/15	11/11/15	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**3250**	275	mg/kg dry	10	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C12-C28	**10600**	275	mg/kg dry	10	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C28-C35	**1580**	275	mg/kg dry	10	P5K0902	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*117 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*108 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**15500**	275	mg/kg dry	10	[CALC]	11/06/15	11/07/15	calc	

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Auger hole 2 1-2'

5K06008-09 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.165**	0.0549	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Toluene	**3.44**	0.110	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Ethylbenzene	**7.36**	0.0549	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Xylene (p/m)	**13.0**	0.110	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Xylene (o)	**6.23**	0.0549	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*121 %*	*75-125*		*P5K1702*	*11/16/15*	*11/16/15*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*76.2 %*	*75-125*		*P5K1702*	*11/16/15*	*11/16/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**7930**	27.5	mg/kg dry	25	P5K1020	11/10/15	11/11/15	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**2710**	275	mg/kg dry	10	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C12-C28	**8420**	275	mg/kg dry	10	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C28-C35	**1270**	275	mg/kg dry	10	P5K0902	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*128 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*129 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**12400**	275	mg/kg dry	10	[CALC]	11/06/15	11/07/15	calc	

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Auger hole 2 2-3'

5K06008-10 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.0759**	0.0617	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Toluene	**0.769**	0.123	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Ethylbenzene	**4.66**	0.0617	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Xylene (p/m)	**7.40**	0.123	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Xylene (o)	**3.05**	0.0617	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*75.9 %*	*75-125*		*P5K1702*	*11/16/15*	*11/16/15*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*126 %*	*75-125*		*P5K1702*	*11/16/15*	*11/16/15*	*EPA 8021B*	*S-GC*
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**18600**	61.7	mg/kg dry	50	P5K1020	11/10/15	11/11/15	EPA 300.0	
% Moisture	**19.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**1160**	154	mg/kg dry	5	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C12-C28	**5070**	154	mg/kg dry	5	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C28-C35	**751**	154	mg/kg dry	5	P5K0902	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*140 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	*S-GC*
Surrogate: o-Terphenyl		*127 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**6980**	154	mg/kg dry	5	[CALC]	11/06/15	11/07/15	calc	

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Auger hole 2 3-4'

5K06008-11 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.0861**	0.0602	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Toluene	**1.85**	0.120	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Ethylbenzene	**6.06**	0.0602	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Xylene (p/m)	**8.30**	0.120	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Xylene (o)	**3.55**	0.0602	mg/kg dry	50	P5K1702	11/16/15	11/16/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*83.1 %*	*75-125*		*P5K1702*	*11/16/15*	*11/16/15*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*113 %*	*75-125*		*P5K1702*	*11/16/15*	*11/16/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**16500**	60.2	mg/kg dry	50	P5K1020	11/10/15	11/11/15	EPA 300.0	
% Moisture	**17.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**1520**	151	mg/kg dry	5	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C12-C28	**7250**	151	mg/kg dry	5	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C28-C35	**1080**	151	mg/kg dry	5	P5K0902	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*133 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	*S-GC*
Surrogate: o-Terphenyl		*126 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**9840**	151	mg/kg dry	5	[CALC]	11/06/15	11/07/15	calc	

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Auger hole 3 0-1'

5K06008-12 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.00602**	0.00104	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Toluene	**0.129**	0.00208	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Ethylbenzene	**0.126**	0.00104	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (p/m)	**0.208**	0.00208	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (o)	**0.102**	0.00104	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*117 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*113 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2770**	10.4	mg/kg dry	10	P5K1020	11/10/15	11/11/15	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**666**	260	mg/kg dry	10	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C12-C28	**6540**	260	mg/kg dry	10	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C28-C35	**1050**	260	mg/kg dry	10	P5K0902	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*119 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*135 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	**8250**	260	mg/kg dry	10	[CALC]	11/06/15	11/07/15	calc	

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Auger hole 3 1-2'

5K06008-13 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00105	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Toluene	**0.00216**	0.00211	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Ethylbenzene	**0.00144**	0.00105	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (p/m)	**0.00252**	0.00211	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (o)	**0.00295**	0.00105	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*106 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*105 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2880**	10.5	mg/kg dry	10	P5K1020	11/10/15	11/11/15	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**33.2**	26.3	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C12-C28	**434**	26.3	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
>C28-C35	**99.4**	26.3	mg/kg dry	1	P5K0902	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*111 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*137 %*	*70-130*		*P5K0902*	*11/06/15*	*11/07/15*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	**566**	26.3	mg/kg dry	1	[CALC]	11/06/15	11/07/15	calc	

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Auger hole 3 2-3'

5K06008-14 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Toluene	ND	0.00215	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P5K0606	11/06/15	11/06/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*96.5 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*135 %*	*75-125*		*P5K0606*	*11/06/15*	*11/06/15*	*EPA 8021B*	*S-GC*
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2410**	10.8	mg/kg dry	10	P5K1020	11/10/15	11/11/15	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P5K0901	11/09/15	11/09/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P5K0903	11/06/15	11/07/15	TPH 8015M	
>C12-C28	**184**	26.9	mg/kg dry	1	P5K0903	11/06/15	11/07/15	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P5K0903	11/06/15	11/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*113 %*	*70-130*		*P5K0903*	*11/06/15*	*11/07/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*139 %*	*70-130*		*P5K0903*	*11/06/15*	*11/07/15*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	**184**	26.9	mg/kg dry	1	[CALC]	11/06/15	11/07/15	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
Batch P5K0606 - General Preparation (GC)										
Blank (P5K0606-BLK1)				Prepared & Analyzed: 11/06/15						
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	*0.0481*		*"*	*0.0500*		*96.2*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0626*		*"*	*0.0500*		*125*	*75-125*			
LCS (P5K0606-BS1)				Prepared & Analyzed: 11/06/15						
Benzene	0.0752	0.00100	mg/kg wet	0.100		75.2	70-130			
Toluene	0.0887	0.00200	"	0.100		88.7	70-130			
Ethylbenzene	0.101	0.00100	"	0.100		101	70-130			
Xylene (p/m)	0.173	0.00200	"	0.200		86.6	70-130			
Xylene (o)	0.0928	0.00100	"	0.100		92.8	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0684*		*"*	*0.0500*		*137*	*75-125*			*S-GC*
Surrogate: 1,4-Difluorobenzene	*0.0580*		*"*	*0.0500*		*116*	*75-125*			
LCS Dup (P5K0606-BSD1)				Prepared & Analyzed: 11/06/15						
Benzene	0.0750	0.00100	mg/kg wet	0.100		75.0	70-130	0.240	20	
Toluene	0.0869	0.00200	"	0.100		86.9	70-130	2.06	20	
Ethylbenzene	0.0965	0.00100	"	0.100		96.5	70-130	4.73	20	
Xylene (p/m)	0.165	0.00200	"	0.200		82.4	70-130	4.90	20	
Xylene (o)	0.0873	0.00100	"	0.100		87.3	70-130	6.15	20	
Surrogate: 1,4-Difluorobenzene	*0.0595*		*"*	*0.0500*		*119*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0650*		*"*	*0.0500*		*130*	*75-125*			*S-GC*
Batch P5K1702 - General Preparation (GC)										
Blank (P5K1702-BLK1)				Prepared & Analyzed: 11/16/15						
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	*0.0488*		*"*	*0.0500*		*97.6*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0606*		*"*	*0.0500*		*121*	*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
Batch P5K1702 - General Preparation (GC)										
LCS (P5K1702-BS1)				Prepared & Analyzed: 11/16/15						
Benzene	0.0978	0.00100	mg/kg wet				70-130			
Toluene	0.109	0.00200	"				70-130			
Ethylbenzene	0.110	0.00100	"				70-130			
Xylene (p/m)	0.210	0.00200	"				70-130			
Xylene (o)	0.107	0.00100	"				70-130			
Surrogate: 4-Bromofluorobenzene	*0.0516*		*"*	*0.0500*		*103*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0659*		*"*	*0.0500*		*132*	*75-125*			*S-GC*
LCS Dup (P5K1702-BSD1)				Prepared & Analyzed: 11/16/15						
Benzene	0.0926	0.00100	mg/kg wet				70-130		20	
Toluene	0.107	0.00200	"				70-130		20	
Ethylbenzene	0.104	0.00100	"				70-130		20	
Xylene (p/m)	0.206	0.00200	"				70-130		20	
Xylene (o)	0.107	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	*0.0694*		*"*	*0.0500*		*139*	*75-125*			*S-GC*
Surrogate: 4-Bromofluorobenzene	*0.0525*		*"*	*0.0500*		*105*	*75-125*			

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 P5K0901 - % Solids										
Blank (P5K0901-BLK1)				Prepared & Analyzed: 11/09/15						
% Moisture	ND	0.1	%							
Duplicate (P5K0901-DUP1)		**Source: 5K06005-01**		Prepared & Analyzed: 11/09/15						
% Moisture	5.0	0.1	%		5.0			0.00	20	
Duplicate (P5K0901-DUP2)		**Source: 5K06006-01**		Prepared & Analyzed: 11/09/15						
% Moisture	3.0	0.1	%		2.0			40.0	20	
Batch P5K1018 - * DEFAULT PREP *** **										
Blank (P5K1018-BLK1)				Prepared: 11/09/15 Analyzed: 11/10/15						
Chloride	ND	1.00	mg/kg wet							
LCS (P5K1018-BS1)				Prepared: 11/09/15 Analyzed: 11/10/15						
Chloride	92.9	1.00	mg/kg wet	100		92.9	80-120			
LCS Dup (P5K1018-BSD1)				Prepared: 11/09/15 Analyzed: 11/10/15						
Chloride	91.8	1.00	mg/kg wet	100		91.8	80-120	1.22	20	
Duplicate (P5K1018-DUP1)		**Source: 5K06002-01**		Prepared: 11/09/15 Analyzed: 11/10/15						
Chloride	1590	5.68	mg/kg dry		1590			0.136	20	
Duplicate (P5K1018-DUP2)		**Source: 5K06006-01**		Prepared: 11/09/15 Analyzed: 11/10/15						
Chloride	1160	5.10	mg/kg dry		1160			0.259	20	
Batch P5K1020 - * DEFAULT PREP *** **										
Blank (P5K1020-BLK1)				Prepared & Analyzed: 11/10/15						
Chloride	ND	1.00	mg/kg wet							

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 P5K1020 - * DEFAULT PREP *** **										
LCS (P5K1020-BS1)				Prepared & Analyzed: 11/10/15						
Chloride	93.1	1.00	mg/kg wet	100		93.1	80-120			
LCS Dup (P5K1020-BSD1)				Prepared & Analyzed: 11/10/15						
Chloride	94.8	1.00	mg/kg wet	100		94.8	80-120	1.77	20	
Duplicate (P5K1020-DUP1)		**Source: 5K06008-03**		Prepared: 11/10/15 Analyzed: 11/11/15						
Chloride	75.4	1.14	mg/kg dry		75.9			0.676	20	
Duplicate (P5K1020-DUP2)		**Source: 5K05003-01**		Prepared: 11/10/15 Analyzed: 11/11/15						
Chloride	41.2	1.18	mg/kg dry		41.0			0.486	20	
Matrix Spike (P5K1020-MS1)		**Source: 5K06008-03**		Prepared: 11/10/15 Analyzed: 11/11/15						
Chloride	201	1.14	mg/kg dry	142	75.9	88.1	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
Batch P5K0902 - TX 1005										
Blank (P5K0902-BLK1)				Prepared: 11/06/15 Analyzed: 11/07/15						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*92.0*		*"*	*100*		*92.0*	*70-130*			
Surrogate: o-Terphenyl	*55.6*		*"*	*50.0*		*111*	*70-130*			
LCS (P5K0902-BS1)				Prepared: 11/06/15 Analyzed: 11/07/15						
C6-C12	850	25.0	mg/kg wet	1000		85.0	75-125			
>C12-C28	831	25.0	"	1000		83.1	75-125			
Surrogate: 1-Chlorooctane	*101*		*"*	*100*		*101*	*70-130*			
Surrogate: o-Terphenyl	*46.8*		*"*	*50.0*		*93.6*	*70-130*			
LCS Dup (P5K0902-BSD1)				Prepared: 11/06/15 Analyzed: 11/07/15						
C6-C12	885	25.0	mg/kg wet	1000		88.5	75-125	4.09	20	
>C12-C28	867	25.0	"	1000		86.7	75-125	4.17	20	
Surrogate: 1-Chlorooctane	*105*		*"*	*100*		*105*	*70-130*			
Surrogate: o-Terphenyl	*49.1*		*"*	*50.0*		*98.2*	*70-130*			
Duplicate (P5K0902-DUP1)	**Source: 5K06008-07**			Prepared: 11/06/15 Analyzed: 11/07/15						
C6-C12	28.4	29.8	mg/kg dry		25.4			11.0	20	
>C12-C28	207	29.8	"		223			7.59	20	
Surrogate: 1-Chlorooctane	*137*		*"*	*119*		*115*	*70-130*			
Surrogate: o-Terphenyl	*84.2*		*"*	*59.5*		*141*	*70-130*			*S-GC*
Batch P5K0903 - TX 1005										
Blank (P5K0903-BLK1)				Prepared: 11/06/15 Analyzed: 11/07/15						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*104*		*"*	*100*		*104*	*70-130*			
Surrogate: o-Terphenyl	*62.4*		*"*	*50.0*		*125*	*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
Batch P5K0903 - TX 1005										
LCS (P5K0903-BS1)				Prepared: 11/06/15 Analyzed: 11/07/15						
C6-C12	1020	25.0	mg/kg wet	1000		102	75-125			
>C12-C28	1030	25.0	"	1000		103	75-125			
Surrogate: 1-Chlorooctane	*120*		*"*	*100*		*120*	*70-130*			
Surrogate: o-Terphenyl	*56.6*		*"*	*50.0*		*113*	*70-130*			
LCS Dup (P5K0903-BSD1)				Prepared: 11/06/15 Analyzed: 11/07/15						
C6-C12	1040	25.0	mg/kg wet	1000		104	75-125	1.75	20	
>C12-C28	1050	25.0	"	1000		105	75-125	1.68	20	
Surrogate: 1-Chlorooctane	*124*		*"*	*100*		*124*	*70-130*			
Surrogate: o-Terphenyl	*58.2*		*"*	*50.0*		*116*	*70-130*			
Duplicate (P5K0903-DUP1)	**Source: 5K06008-14**			Prepared: 11/06/15 Analyzed: 11/07/15						
C6-C12	21.4	26.9	mg/kg dry		19.8			7.71	20	
>C12-C28	180	26.9	"		184			2.01	20	
Surrogate: 1-Chlorooctane	*124*		*"*	*108*		*115*	*70-130*			
Surrogate: o-Terphenyl	*76.8*		*"*	*53.8*		*143*	*70-130*			*S-GC*

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
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: Brent Barron Date: 11/19/2015

Brent Barron, Laboratory Director/Technical Director

tg 1 of 2

Etech Environmental & Safety Solutions, Inc.

P.O. Box 8469
Midland, Texas 79708

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUE

Phone: 432-563-2200
Fax: 432-563-2213

Project Manager: Tim McMinn
Project Name: Federal RG
Company Name: Etech Environmental & Safety Solutions, Inc.
Project #: 116-16691-000
Company Address: P.O. Box 8469
Project Loc: Memorial
City/State/Zip: Midland/TX/79708
PO #:
Telephone No: 432-563-2200 Fax No: 432-563-2213
Report Format: ☑ Standard ☐ TRRP ☐ NPDES
Sampler Signature: e-mail: Tim@etech.com

LAB: SPL - Lafayette, LA
ORDER #: 590606008

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	No. of Containers	Preservation & # of Containers: Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge	GW = Groundwater S=Soil/Solid	NP=Non-Potable Specify Other	Analyze For: TPH: 418.1 8015M	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	TOC	Chlorides	RUSH TAT (Pre-Scheduled) 24HOUR	Standard TAT
01	Auger hole 1	0	1'	11-4-15	9:45	1	☑								S			☑							☑				☑		☑
02	"	1	2'		10:00	1	☑								S			☑							☑				☑		☑
03	"	2	3'		10:15	1	☑								S			☑							☑				☑		☑
04	"	3	4'		10:30	1	☑								S			☑							☑				☑		☑
05	"	4	5'		10:50	1	☑								S			☑							☑				☑		☑
06	"	5	6'		10:55	1	☑								S			☑							☑				☑		☑
07	"	10	7'		11:10	1	☑								S			☑							☑				☑		☑
08	Auger hole 2	0	1		11:15	1	☑								S			☑							☑				☑		☑
09	"	1	2		11:25	1	☑								S			☑							☑				☑		☑
10	"	2	3		11:30	1	☑								S			☑							☑				☑		☑

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
Kelsey Beary	11-5-15	3:30			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
			KJB	11-5-15	4:45

Laboratory Comments:
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
Labels on container(s) Y N
Custody seals on container(s) Y N
Custody seals on cooler(s) Y N
Sample Hand Delivered Y N
by Sampler/Client Rep. ? Y N
by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt: 3.0 °C

Etech Environmental & Safety Solutions, Inc.

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUE

P.O. Box 8469
Midland, Texas 79708
Phone: 432-563-2200
Fax: 432-563-2213

Project Manager: Tim McMinn

Company Name: Etech Environmental & Safety Solutions, Inc.

Company Address: P.O. Box 8469

City/State/Zip: Midland/TX/79708

Telephone No: 432-563-2200

Fax No: 432-563-2213

Sampler Signature:

e-mail: Tim@etech.com

Project Name: Federal R

Project #: 416-6681-000

Project Loc: Memorial

PO #:

Report Format: ☑ Standard ☐ TRRP ☐ NPDES

LAB: SPL - Lafayette, LA

ORDER #: 5K06008

Preservation & # of Containers | Matrix | Analyze For (TCLP: / TOTAL:)

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	No. of Containers	Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	TPH: 418.1 8015M 1005 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	TOC	Chlorides			RUSH TAT (Pre-Schedule) 24HOUR	Standard TAT
01	Auger hole 2	3	4	11-4-15	11:40		☑								S	☑							☑				☑				☑
02	Auger hole 3	0	1	,,	11:50		☑								S	☑							☑				☑				☑
03	,, ,,	1	2	,,	11:55		☑								S	☑							☑				☑				☑
04	,, ,,	2	3	,,	12:10		☑								S	☑							☑				☑				☑

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
Bobbey Beary	11-5-15	3:30			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: R.W.D.E KPB	11-5-15	4:45

Laboratory Comments:

Sample Containers Intact?	(Y)	N
VOCs Free of Headspace?	(Y)	N
Labels on container(s)	(Y)	N
Custody seals on container(s)	(Y)	N
Custody seals on cooler(s)	(Y)	N
Sample Hand Delivered	(Y)	N
by Sampler/Client Rep. ?		N
by Courier? UPS DHL FedEx Lone Star		

Temperature Upon Receipt: 3.0 (-1) NC

Quantab Chloride Test Strip Analysis Sheet

Date: 12/17/2015 **Client:** Memorial

Site: Federal R 6 **Project Number:** 416-6681-000

Technican: BB **Strip Lot Number(s):**

Sample ID	Titrator Range	Dilution	Test Strip Result (ppm)	Final Result (ppm)	Notations
AH 2 4-5		10	401.0	4010.00	
AH 2 5-6		10	136.0	1360.00	
AH 2 6-7		10	279.0	2790.00	
AH 2 7-8		10	196.0	1960.00	
AH 2 8-9		10	243.0	2430.00	
		10			
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Titrator Range: A= 30-600 B=300-6000 ppm
Soil Sample Volume: 10 Grams
Distilled Water Volume = 100 ml

Quantab Chloride Test Strip Analysis Sheet

Date: 12/22/2015 **Client:** Memorial

Site: Federal r6 **Project Number:** 416-6681

Technican: **Strip Lot Number(s):**

Sample ID	Titrator Range	Dilution	Test Strip Result (ppm)	Final Result (ppm)	Notations
AH 2 9-10		10	322.0	3220.00	
AH 2 10-11		10	279.0	2790.00	
AH 2 11-12		10	90.0	900.00	
AH 2 12-13		10	116.0	1160.00	
AH 2 13-14		10	147.0	1470.00	
AH 2 14-15		10	98.0	980.00	
AH 2 15-16		10	52.0	520.00	
AH 2 16-17		10	59.0	590.00	
AH 2 17-18		10	33.0	330.00	
AH 2 18-19		10	BDL	#VALUE!	
AH 2 19-20		10	BDL	#VALUE!	
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Titrator Range: A= 30-600 B=300-6000 ppm
Soil Sample Volume: 10 Grams
Distilled Water Volume = 100 ml

Quantab Chloride Test Strip Analysis Sheet

Date: 12/17/2015 **Client:** Memorial

Site: Federal R6 **Project Number:** 416-6681-000

Technican: BB **Strip Lot Number(s):**

Sample ID	Titrator Range	Dilution	Test Strip Result (ppm)	Final Result (ppm)	Notations
AH 3 4-6		10	158.0	1580.00	
AH 3 5-6		10	279.0	2790.00	
AH 3 6-7		10	279.0	2790.00	
AH 3 7-8		10	98.0	980.00	
AH 3 8-9		10	98.0	980.00	
AH 3 9-10		10	59.0	590.00	
AH 3 10-11		10	59.0	590.00	
AH 3 11-12		10	67.0	670.00	
AH 3 12-13		10	90.0	900.00	
AH 3 13-14		10	74.0	740.00	
AH 3 14-15		10	107.0	1070.00	
AH 3 15-16		10	98.0	980.00	
		10			
		10			
		10			
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Titrator Range: A= 30-600 B=300-6000 ppm
Soil Sample Volume: 10 Grams
Distilled Water Volume = 100 ml

Quantab Chloride Test Strip Analysis Sheet

Date: 12/18/2015 **Client:** Memorial

Site: Federal R6 **Project Number:** 416-6681-000

Technican: **Strip Lot Number(s):**

Sample ID	Titrator Range	Dilution	Test Strip Result (ppm)	Final Result (ppm)	Notations
AH 3 16-17		10	74.0	740.00	
AH 3 17-18		10	52.0	520.00	
AH 3 18-19		10	BDL	#VALUE!	
AH 3 19-20		10	BDL	#VALUE!	
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Titrator Range: A= 30-600 B=300-6000 ppm

Soil Sample Volume: 10 Grams

Distilled Water Volume = 100 ml

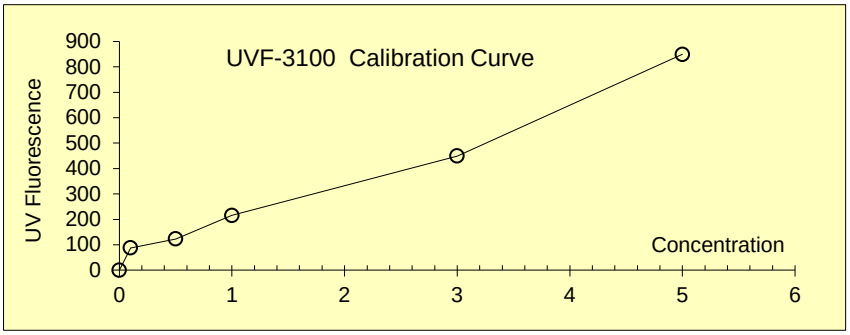
Extended Diesel Range Organic Hydrocarbons Analysis Report

site LAB® **EDRO C10-C40 Aromatics in Soil, Sediment & Water**

Client:		**Project Name:**	
Address:		**Job #:**	
		File #:	
		Matrix:	
Phone:		**Date Collected:**	
Contact:		**Date Received:**	
		Date Extracted:	
Operator:		**Date Analyzed:**	
Signature:		**Date Reported:**	
Date:	Time:		

Standard Concentration	UVF-3100 Calibration Raw Fluorescence
0	0
0.1	87.8
0.5	123.2
1.0	215.4
3.0	449.1
5.0	849.2

site LAB
Calibration Product #: CAL-042
Units (ppm or mg/Kg): ppm



Linearity = 0.993

UVF Run#:	Sample ID & Description	UVF Raw Fluorescence	Test Sample Concentration (ppm)	Dilution Factor	Test Result:
12	**AH 2 14-15**	-0.42	0	1,000	**Concentration... Too Low (ND)**
13	**AH 2 15-16**	-2.21	-0.003	1,000	**Concentration... Too Low (ND)**
14	**AH 2 16-17**	34.55	0.039	1,000	**Concentration... Too Low (ND)**
15	**AH 2 17-18**	-0.52	0	1,000	**Concentration... Too Low (ND)**
16	**AH 2 18-19**	-0.11	0	1,000	**Concentration... Too Low (ND)**
17	**AH 2 19-20**	-2.33	-0.003	1,000	**Concentration... Too Low (ND)**
18	**AH 2 4-5**	100.30	0.241	1,000	**241.0 ppm**
19	**AH 2 5-6**	3.78	0.004	1,000	**Concentration... Too Low (ND)**
20	**AH 2 6-7**	4.22	0.005	1,000	**Concentration... Too Low (ND)**
21	**AH 2 7-8**	-10.27	-0.012	1,000	**Concentration... Too Low (ND)**
22	**AH 2 8-9**	2.93	0.003	1,000	**Concentration... Too Low (ND)**
12		1.00	1	1	**1.0 ppm**
13		1.00	1	1	**1.0 ppm**
14		1.00	1	1	**1.0 ppm**
15		1.00	1	1	**1.0 ppm**
16		1.00	1	1	**1.0 ppm**
17		1.00	1	1	**1.0 ppm**
18		1.00	1	1	**1.0 ppm**
19		1.00	1	1	**1.0 ppm**
20		1.00	1	1	**1.0 ppm**

Comments: Results reported in wet weight.

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
10014 SCR 1213
Midland, TX 79706

PBELAB

Analytical Report

Prepared for:

Tim McMinn

E Tech Environmental & Safety Solutions, Inc.

13000 West County Road 100

Odessa, TX 79765

Project: Federal R6

Project Number: 416-6681-000

Location: Memorial

Lab Order Number: 5L22001

NELAP/TCEQ # T104704156-13-3

Report Date: 12/30/15

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

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

Fax: (432) 563-2213

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Auger Hole 2 18'-19'	5L22001-01	Soil	12/17/15 14:10	12-22-2015 10:00
Auger Hole 2 19'-20'	5L22001-02	Soil	12/17/15 14:15	12-22-2015 10:00

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

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

Fax: (432) 563-2213

Auger Hole 2 18'-19'

5L22001-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**167**	1.08	mg/kg dry	1	P5L2302	12/23/15	12/23/15	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P5L2301	12/23/15	12/23/15	% calculation	

E Tech Environmental & Safety Solutions, Inc.	Project: Federal R6	Fax: (432) 563-2213
13000 West County Road 100	Project Number: 416-6681-000	
Odessa TX, 79765	Project Manager: Tim McMinn	

Auger Hole 2 19'-20'

5L22001-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**108**	1.06	mg/kg dry	1	P5L2302	12/23/15	12/23/15	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P5L2301	12/23/15	12/23/15	% calculation	

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 P5L2301 - % Solids										
Blank (P5L2301-BLK1)				Prepared & Analyzed: 12/23/15						
% Moisture	ND	0.1	%							
Duplicate (P5L2301-DUP1)		**Source: 5L21003-03**		Prepared & Analyzed: 12/23/15						
% Moisture	4.0	0.1	%		5.0			22.2	20	
Duplicate (P5L2301-DUP2)		**Source: 5L22008-04**		Prepared & Analyzed: 12/23/15						
% Moisture	14.0	0.1	%		14.0			0.00	20	
Duplicate (P5L2301-DUP3)		**Source: 5L22011-04**		Prepared & Analyzed: 12/23/15						
% Moisture	5.0	0.1	%		5.0			0.00	20	
Batch P5L2302 - * DEFAULT PREP *** **										
Blank (P5L2302-BLK1)				Prepared & Analyzed: 12/23/15						
Chloride	ND	1.00	mg/kg wet							
LCS (P5L2302-BS1)				Prepared & Analyzed: 12/23/15						
Chloride	236	1.00	mg/kg wet	200		118	80-120			
LCS Dup (P5L2302-BSD1)				Prepared & Analyzed: 12/23/15						
Chloride	234	1.00	mg/kg wet	200		117	80-120	0.868	20	
Duplicate (P5L2302-DUP1)		**Source: 5L22001-01**		Prepared & Analyzed: 12/23/15						
Chloride	ND	1.08	mg/kg dry		167				20	
Matrix Spike (P5L2302-MS1)		**Source: 5L22001-01**		Prepared & Analyzed: 12/23/15						
Chloride	397	1.08	mg/kg dry	215	167	107	80-120			

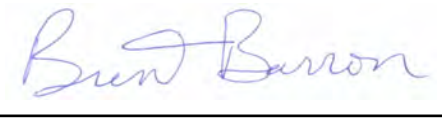
E Tech Environmental & Safety Solutions, Inc.
13000 West County Road 100
Odessa TX, 79765

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

Fax: (432) 563-2213

Notes and Definitions

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: 12/30/2015

Brent Barron, Laboratory Director/Technical Director

Etech Environmental & Safety Solutions, Inc.

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUE

P.O. Box 8469
Midland, Texas 79708
Phone: 432-563-2200
Fax: 432-563-2213

Project Manager: Tim McMinn
Company Name: Etech Environmental & Safety Solutions, Inc.
Company Address: P.O. Box 8469
City/State/Zip: Midland/TX/79708
Telephone No: 432-563-2200 Fax No: 432-563-2213
Sampler Signature: e-mail: Tim@etech.com

Project Name: Federal #6
Project #: 416-06091-002
Project Loc: Memorial
PO #:
Report Format: ☑ Standard ☐ TRRP ☐ NPDES

LAB: SPL - Lafayette, LA
ORDER #: 512001

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	No. of Containers	Preservation & # of Containers: Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW=Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TPH: 418.1 8015M 1005 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	TOC	Chloride	RUSH TAT (Pre-Schedule) 24HOUR	Standard TAT
01	Auger hole 2	18	19	12-17-15	1410	1	✓								S												✓		✓
02	" "	19	20	12-17-15	1415	1	✓								S												✓		✓

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
Rodney Beary	12-22-15	10:00			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
				12-22-15	1000

Laboratory Comments:

Sample Containers Intact?	Y N
VOCs Free of Headspace?	N
Labels on container(s)	N
Custody seals on container(s)	N
Custody seals on cooler(s)	N
Sample Hand Delivered by Sampler/Client Rep. ?	N
by Courier? UPS DHL FedEx Lone Star	

Temperature Upon Receipt: 4.0 °C

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
10014 SCR 1213
Midland, TX 79706

PBELAB

Analytical Report

Prepared for:

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

Project: Federal R6
Project Number: 416-6681-000
Location: Memorial

Lab Order Number: 5L22004

NELAP/TCEQ # T104704156-13-3

Report Date: 12/30/15

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

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

Fax: (432) 563-2213

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Auger Hole 2 6'-7'	5L22004-01	Soil	12/18/15 08:50	12-22-2015 10:00
Auger Hole 2 7'-8'	5L22004-02	Soil	12/18/15 08:55	12-22-2015 10:00

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

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

Fax: (432) 563-2213

Auger Hole 2 6'-7'

5L22004-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**17.0**	0.1	%	1	P5L2301	12/23/15	12/23/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	30.1	mg/kg dry	1	P5L2306	12/22/15	12/22/15	TPH 8015M	
>C12-C28	ND	30.1	mg/kg dry	1	P5L2306	12/22/15	12/22/15	TPH 8015M	
>C28-C35	ND	30.1	mg/kg dry	1	P5L2306	12/22/15	12/22/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*106 %*	*70-130*		*P5L2306*	*12/22/15*	*12/22/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*124 %*	*70-130*		*P5L2306*	*12/22/15*	*12/22/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	30.1	mg/kg dry	1	[CALC]	12/22/15	12/22/15	calc	

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

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

Fax: (432) 563-2213

Auger Hole 2 7'-8'

5L22004-02 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**12.0**	0.1	%	1	P5L2301	12/23/15	12/23/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.4	mg/kg dry	1	P5L2306	12/22/15	12/22/15	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P5L2306	12/22/15	12/22/15	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P5L2306	12/22/15	12/22/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*103 %*	*70-130*		*P5L2306*	*12/22/15*	*12/22/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*117 %*	*70-130*		*P5L2306*	*12/22/15*	*12/22/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	12/22/15	12/22/15	calc	

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Odessa TX, 79765

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

Fax: (432) 563-2213

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 P5L2301 - % Solids										
Blank (P5L2301-BLK1)				Prepared & Analyzed: 12/23/15						
% Moisture	ND	0.1	%							
Duplicate (P5L2301-DUP1)		**Source: 5L21003-03**		Prepared & Analyzed: 12/23/15						
% Moisture	4.0	0.1	%		5.0			22.2	20	
Duplicate (P5L2301-DUP2)		**Source: 5L22008-04**		Prepared & Analyzed: 12/23/15						
% Moisture	14.0	0.1	%		14.0			0.00	20	
Duplicate (P5L2301-DUP3)		**Source: 5L22011-04**		Prepared & Analyzed: 12/23/15						
% Moisture	5.0	0.1	%		5.0			0.00	20	

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

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

Fax: (432) 563-2213

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
Batch P5L2306 - TX 1005										
Blank (P5L2306-BLK1)				Prepared & Analyzed: 12/22/15						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*86.4*		*"*	*100*		*86.4*	*70-130*			
Surrogate: o-Terphenyl	*48.0*		*"*	*50.0*		*96.1*	*70-130*			
LCS (P5L2306-BS1)				Prepared & Analyzed: 12/22/15						
C6-C12	912	25.0	mg/kg wet	1000		91.2	75-125			
>C12-C28	907	25.0	"	1000		90.7	75-125			
Surrogate: 1-Chlorooctane	*108*		*"*	*100*		*108*	*70-130*			
Surrogate: o-Terphenyl	*45.6*		*"*	*50.0*		*91.3*	*70-130*			
LCS Dup (P5L2306-BSD1)				Prepared & Analyzed: 12/22/15						
C6-C12	907	25.0	mg/kg wet	1000		90.7	75-125	0.562	20	
>C12-C28	881	25.0	"	1000		88.1	75-125	2.88	20	
Surrogate: 1-Chlorooctane	*106*		*"*	*100*		*106*	*70-130*			
Surrogate: o-Terphenyl	*45.2*		*"*	*50.0*		*90.4*	*70-130*			
Matrix Spike (P5L2306-MS1)	**Source: 5L21003-03**			Prepared & Analyzed: 12/22/15						
C6-C12	936	26.3	mg/kg dry	1050	35.6	85.5	75-125			
>C12-C28	1590	26.3	"	1050	1010	55.7	75-125			QM-05
Surrogate: 1-Chlorooctane	*112*		*"*	*105*		*107*	*70-130*			
Surrogate: o-Terphenyl	*49.6*		*"*	*52.6*		*94.2*	*70-130*			
Matrix Spike Dup (P5L2306-MSD1)	**Source: 5L21003-03**			Prepared & Analyzed: 12/22/15						
C6-C12	1000	26.3	mg/kg dry	1050	35.6	91.6	75-125	6.88	20	
>C12-C28	1760	26.3	"	1050	1010	71.0	75-125	24.3	20	QM-05
Surrogate: 1-Chlorooctane	*117*		*"*	*105*		*111*	*70-130*			
Surrogate: o-Terphenyl	*52.6*		*"*	*52.6*		*100*	*70-130*			

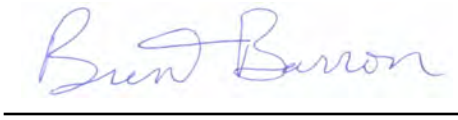
E Tech Environmental & Safety Solutions, Inc.
13000 West County Road 100
Odessa TX, 79765

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

Fax: (432) 563-2213

Notes and Definitions

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: 12/30/2015

Brent Barron, Laboratory Director/Technical Director

Etech Environmental & Safety Solutions, Inc.

CHAIN OF CUSTODY RECORD AND ANALYSIS REQU

P.O. Box 8469
Midland, Texas 79708

Phone: 432-563-2200
Fax: 432-563-2213

Project Manager: Tim McMinn
Company Name: Etech Environmental & Safety Solutions, Inc.
Company Address: P.O. Box 8469
City/State/Zip: Midland/TX/79708
Telephone No: 432-563-2200 Fax No: 432-563-2213
Sampler Signature:
e-mail: Tim@etech.com

Project Name: Federal #6
Project #: 416-06681-000
Project Loc: Memorial
PO #:
Report Format: ☑ Standard ☐ TRRP ☐ NPDES

LAB: SPL - Lafayette, LA
ORDER #: 512004

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	No. of Containers	Preservation & # of Containers: Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW=Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TOTAL: TPH: 418.1 8015M 1005 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	TOC	RUSH TAT (Pre-Schedule) 24HOUR	Standard TAT
01	AH 2	6	7	12-19-15	8:50	1	☑	☐							S	☑	☑											☑
02	AH 2	7	8	12-19-15	8:55	1	☑	☐							S	☑												☑

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
Kelsey Beary	12-22-15	10:00			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
				12-22-15	10:00

Laboratory Comments:

Sample Containers Intact?	N
VOCs Free of Headspace?	N
Labels on container(s)	N
Custody seals on container(s)	N
Custody seals on cooler(s)	N
Sample Hand Delivered	N
by Sampler/Client Rep. ?	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt: 4.0 NCF °C 21

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
10014 SCR 1213
Midland, TX 79706

PBELAB

Analytical Report

Prepared for:

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

Project: Federal R6
Project Number: 416-6681-000
Location: Memorial

Lab Order Number: 5L22002

NELAP/TCEQ # T104704156-13-3

Report Date: 12/30/15

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

Project: Federal R6
Project Number: 416-6681-000
Project Manager: Tim McMinn

Fax: (432) 563-2213

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Auger Hole 3 18'-19'	5L22002-01	Soil	12/16/15 16:10	12-22-2015 10:00
Auger Hole 3 19'-20'	5L22002-02	Soil	12/16/15 16:15	12-22-2015 10:00

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Auger Hole 3 18'-19'

5L22002-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**276**	1.02	mg/kg dry	1	P5L2302	12/23/15	12/23/15	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P5L2301	12/23/15	12/23/15	% calculation	

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Auger Hole 3 19'-20'

5L22002-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**230**	1.03	mg/kg dry	1	P5L2302	12/23/15	12/23/15	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P5L2301	12/23/15	12/23/15	% calculation	

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 P5L2301 - % Solids										
Blank (P5L2301-BLK1)				Prepared & Analyzed: 12/23/15						
% Moisture	ND	0.1	%							
Duplicate (P5L2301-DUP1)		**Source: 5L21003-03**		Prepared & Analyzed: 12/23/15						
% Moisture	4.0	0.1	%		5.0			22.2	20	
Duplicate (P5L2301-DUP2)		**Source: 5L22008-04**		Prepared & Analyzed: 12/23/15						
% Moisture	14.0	0.1	%		14.0			0.00	20	
Duplicate (P5L2301-DUP3)		**Source: 5L22011-04**		Prepared & Analyzed: 12/23/15						
% Moisture	5.0	0.1	%		5.0			0.00	20	
Batch P5L2302 - * DEFAULT PREP *** **										
Blank (P5L2302-BLK1)				Prepared & Analyzed: 12/23/15						
Chloride	ND	1.00	mg/kg wet							
LCS (P5L2302-BS1)				Prepared & Analyzed: 12/23/15						
Chloride	236	1.00	mg/kg wet	200		118	80-120			
LCS Dup (P5L2302-BSD1)				Prepared & Analyzed: 12/23/15						
Chloride	234	1.00	mg/kg wet	200		117	80-120	0.868	20	
Duplicate (P5L2302-DUP1)		**Source: 5L22001-01**		Prepared & Analyzed: 12/23/15						
Chloride	ND	1.08	mg/kg dry		167				20	
Matrix Spike (P5L2302-MS1)		**Source: 5L22001-01**		Prepared & Analyzed: 12/23/15						
Chloride	397	1.08	mg/kg dry	215	167	107	80-120			

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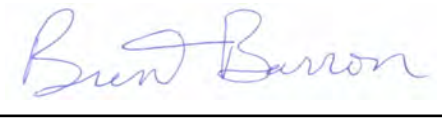
Notes and Definitions

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: 12/30/2015

Brent Barron, Laboratory Director/Technical Director

Etech Environmental & Safety Solutions, Inc.

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUE

P.O. Box 8469
Midland, Texas 79708

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Project Manager: Tim McMinn
Company Name: Etech Environmental & Safety Solutions, Inc.
Company Address: P.O. Box 8469
City/State/Zip: Midland/TX/79708
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Sampler Signature:
e-mail: Tim@etech.com

Project Name: Federal Rlp
Project #: 416-10691-002
Project Loc: Memorial
PO #:
Report Format: ☑ Standard ☐ TRRP ☐ NPDES

LAB: SPL - Lafayette, LA
ORDER #: 5L22002

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	No. of Containers	Preservation & # of Containers: Ice	HNO3	HCl	H2SO4	NaOH	Na2S2O3	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW=Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TPH: 418.1 8015M 1005 1006	TOTAL: TPH: 418.1 8015M 1005 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	TOC	Chlorides			RUSH TAT (Pre-Schedule) 24HOUR	Standard TAT
01	Auger hole 3	18	19	12.16.15	4:10	1	☑								S													☑				☑
02	" "	19	20	12.16.15	4:15	1	☑								S													☑				☑

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
Debbey Beaty	12.22.15	10:00			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
				12/22/15	10:00

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered	Y	N
by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt: 4.0 °C