

August 28, 2015

EMNRD Oil Conservation District 1 1625 N. French Drive Hobbs, NM 88240

RE: Corrective Action Final Report

Responsible Party Information: Key Energy 6 Desta Dr Midland TX 79705

Telephone: 432- 571-7536

Incident Description: Diesel Fuel Release Incident Time/Date: 05:40 MST July 31, 20915

Incident Street Address: Coyote Rd and Hwy 176 Eunice, NM Lea County

Property Owner Information: NM DOT Property Owner Address:

Regulatory Report #'s Dispatcher Gloria acknowledged receipt. ERTS Project # 07312015EUNM26344

Dear Ms. Jones:

The following serves as the final report detailing the emergency response and corrective actions taken in response to the incident that occurred on July 31, 2015 at the above referenced location.

Incident Background:

On July 31, 2015 Key Energy reported that a tanker transporting oil well product ion water was involved in a single vehicle accident resulting in a roll over and release of approximately 50 bbls to the roadside shoulder and adjacent ditch line. See site maps (Appendix 1)

Emergency Response:

On July 31, 2015 Desiree Crenshaw retained ERTS to manage and oversee environmental operations for the incident. ERTS dispatched Envirosure out of Midland, TX to the site to perform emergency and remediation operations.

Regulatory Notifications:



Pursuant to New Mexico regulations title 18, Chapter 2 Section 18.2.3.17 ERTS notified the NM Environmental Department of the release on July 31, 2015 and Dispatcher Gloria acknowledged receipt of the report. See State initial report and C-141 form (Appendix 2)

Corrective Action:

On July 31, 2015 Envirosure personnel arrived onsite to contain and secure the site until utility locates and permits could be obtained. The size of the impacted area was confirmed to 500' by up to 3' wide at depths ranging from 6" to 10" It was also confirmed that there were no storm drains or surface water impacted. On August 1, 2015 Envirosure returned to the site and excavated all impacted soils, confirmation samples were collected at 75' intervals throughout the excavation area. The site was backfilled and restored to pre-incident conditions. The confirmation samples indicate that all the material was recovered. There was one sample that did show results for hydro carbons C12-C-35, due to the location and depth to ground water these results do not seem to pose any risk to the environment. See an analytical results (Appendix 3). Please see photos of the site (Appendix 4)

Waste Disposal:

One 20 yd roll off of contaminated soil is staged at the Envirosure facility in Midland Texas and is pending transportation and disposal.

Conclusions and Recommendations:

No evidence was found that suggests any environmental impact remains on the site following corrective action. ERTS recommends that the incident be closed.

ERTS and Key Energy appreciate your assistance in this matter. If you have any questions regarding this project, please do not hesitate to contact me at (440) 543-2400 Extension (306).

Respectfully, Emergency Response & Training Solutions

George Sabo Operations Manager



Appendix 1 Site map





Appendix 2

State initial report



Spill Report Forn

NMED Incident# District Code Country:	
*Received by: *Date received: Time:	
Date spill occurred 7/31 2015 Time: 4:40	
*Date spill discovered <u>7/3//2015</u> Time: <u>4:40</u>	
Date spill stopped 7/31/2015 Time: 4:40	
Caller Name: <u>George Sabo</u> Title: <u>Operations Manager</u>	
Address: 6001 cochron Rd City: Solon	
Telephone No. <u>440-349-J700 k 306</u> State: <u>014</u> Zip Code <u>4413 9</u>	
*Spiller (RP) Key Energy	
Address: 6 Desta Dr City: MidLowd	
Telephone No. <u>432 - 57/ - 7536</u> State: <u>TX</u> Zip Code <u>7970 - 5</u>	
*Spill Location Counter Rd & Hur MG EUNice, NM Lee Count (such as highway, street names, etc.)	Q
Source/Cause: Single Whiche Roll over	
Materials spilled: Produced Water Amount: 2100 gert	
2) Amount:	
Weather Conditions: Injuries:	
Environmental Damage:	
Mitigate Actions: Free Liquial Vacue med UP	
Nearest waterbody affected:	
Depth to Groundwater:	



More Info Menu

1) NMED contacts

Offices contacted:	SWQB	GWB	USTB	SWB
District/Field Office:				
NPDES Permits #		Groundwater P	Permit #	
2) Other contacts	(other agenci	es)		
U.S. Fish & Wildlife _		NM Game & Fish	USEPA	
Epidemiology		Downstream Users		
Other:	y Officials, Indian Pue	eblos, etc.)		
Other				
 Communication HWB detail(n 				
5) SWQB 1-203 De	tail			
Agency Jurisdiction (Private, Municipality, Doe, D	OD, Parks, etchas a	a lookup)		-
Latitude		_ Longitude		
And/or	8			
Township, Range, Se (Very important for future G	ction S use)			
Cleanup started:	Yes o	No o	Date:	Time:
Cleanup completed:	Yes o	No o	Date:	Time:
Comments:				

District I 1625 N. French Dr., Hobbs, NM 88240 District II 1301 W. Grand Avenue, Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

RECEIVED State of New Mexico By OCD District 1 at 12:06 pm, Sep 04, 2015 Energy Minerals and Natural R

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

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

			OPERATOR	Initial Report	x⊠	Final Report
Name of Company	Key Energy		Contact Daniel Gibson			
Address 6 Desta Dr			Telephone No.432-571-7536			
Facility Name			Facility Type			
Surface Owner		Mineral Owner	•	Lease No.		

Surface Owner

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County Lea

Latitude 32.442761 _____ Longitude _-103.196648_

NATURE OF RELEASE

Volume of Release 50 BBLS	Volume Recovered50 BBLS
Date and Hour of	Date and Hour of Discovery7/31/2015
Occurrence7/312015 0540 am	0940
If YES, To Whom?	
New Mexico Env. Protection	
Date and Hour 7/31/2015 0955	
If YES, Volume Impacting the W	atercourse.
	D
By OCD Distri	ct 1 at 12:06 pm, Sep 04, 2015
0	•
ed and secured the site until locates co	build be performed for remediation
and The energy mostly energy and	overenover with woods. There did not enneg
the excavated to a depth of 6-10 then	back filled. Samples were collected every
the best of my knowledge and unders	tand that pursuant to NMOCD rules and
does not reneve the operator of respo	isibility for compliance with any other
<u>OIL CONSER</u>	VATION DIVISION
<u>OIL CONSER</u>	
OIL CONSER	Jan Llye
Approved by District Supervisor:	Jan L'hyer
Approved by District Supervisor: Approval Date: 09/04/2015	Jan L'hyer
Approved by District Supervisor:	Jan L'hyer
	Date and Hour of Occurrence7/312015 0540 am If YES, To Whom? New Mexico Env. Protection Date and Hour 7/31/2015 0955 If YES, Volume Impacting the W APPROVE By OCD District ed releasing the material onto the road ed and secured the site until locates co road. The area was mostly gravel and are excavated to a depth of 6-10" then the best of my knowledge and unders notifications and perform corrective a he NMOCD marked as "Final Report tte contamination that pose a threat to does not relieve the operator of respon

* Attach Additional Sheets If Necessary

nJXK1524743275



Appendix 3

Analytical Results

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



Analytical Report

Prepared for:

Antonio Rodriguez Envirosure Resources 1300 West County Road 114 Suite B Midland, TX 79706

Project: Key Energy Project Number: 300-15-0128 Location: Hwy 176W Eunice, NM

Lab Order Number: 5H18008



NELAP/TCEQ # T104704156-13-3

Report Date: 08/21/15

Envirosure Resources 1300 West County Road 114 Suite B Midland TX, 79706

Project: Key Energy Project Number: 300-15-0128 Project Manager: Antonio Rodriguez

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
A-1 Key 0-6"	5H18008-01	Soil	08/18/15 11:40	08-18-2015 16:00
B-2 Key 0-6"	5H18008-02	Soil	08/18/15 11:50	08-18-2015 16:00
C-3 Key 0-6"	5H18008-03	Soil	08/18/15 11:57	08-18-2015 16:00
D-4 Key 0-6"	5H18008-04	Soil	08/18/15 12:03	08-18-2015 16:00
E-5 Key 0-6"	5H18008-05	Soil	08/18/15 12:15	08-18-2015 16:00
F-6 Key 0-6"	5H18008-06	Soil	08/18/15 00:00	08-18-2015 16:00
Background1 0-6"	5H18008-07	Soil	08/18/15 12:00	08-18-2015 16:00
Background2 0-6"	5H18008-08	Soil	08/18/15 00:00	08-18-2015 16:00

A-1 Key 0-6'' 5H18008-01 (Soil)

51118008-01 (501)												
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
	Pern	nian Basin H	Invironmen	tal Lab, I	L. P.							
Organics by GC												
Benzene	ND	0.00103	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B				
Toluene	ND	0.00206	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B				
Ethylbenzene	ND	0.00103	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B				
Xylene (p/m)	ND	0.00206	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B				
Xylene (o)	ND	0.00103	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B				
Surrogate: 4-Bromofluorobenzene		115 %	75-1	25	P5H2109	08/21/15	08/21/15	EPA 8021B				
Surrogate: 1,4-Difluorobenzene		120 %	75-1.	25	P5H2109	08/21/15	08/21/15	EPA 8021B				
General Chemistry Parameters by EPA	A / Standard Method	s										
Chloride	3.47	1.03	mg/kg dry	1	P5H2005	08/19/15	08/19/15	EPA 300.0				
% Moisture	3.0	0.1	%	1	P5H2001	08/20/15	08/20/15	% calculation				
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 80	15M										
C6-C12	ND	25.8	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M				
>C12-C28	114	25.8	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M				
>C28-C35	41.7	25.8	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M				
Surrogate: 1-Chlorooctane		96.6 %	70-1.	30	P5H2002	08/19/15	08/19/15	TPH 8015M				
Surrogate: o-Terphenyl		119 %	70-1.	30	P5H2002	08/19/15	08/19/15	TPH 8015M				
Total Petroleum Hydrocarbon C6-C35	155	25.8	mg/kg dry	1	[CALC]	08/19/15	08/19/15	calc				

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Project: Key Energy Project Number: 300-15-0128 Project Manager: Antonio Rodriguez

B-2 Key 0-6"

5H18008-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Invironme	ntal Lab, 1	L .P.				
Organics by GC									
Benzene	ND	0.00101	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Toluene	ND	0.00202	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Ethylbenzene	ND	0.00101	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Xylene (p/m)	ND	0.00202	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Xylene (o)	ND	0.00101	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		120 %	75-1	25	P5H2109	08/21/15	08/21/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		116 %	75-1	25	P5H2109	08/21/15	08/21/15	EPA 8021B	
General Chemistry Parameters by El	PA / Standard Method	ls							
Chloride	33.1	1.01	mg/kg dry	1	P5H2005	08/19/15	08/19/15	EPA 300.0	
% Moisture	1.0	0.1	%	1	P5H2001	08/20/15	08/20/15	% calculation	
Total Petroleum Hydrocarbons C6-C.	35 by EPA Method 80	15M							
C6-C12	ND	25.3	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
>C12-C28	44.6	25.3	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
>C28-C35	ND	25.3	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
Surrogate: 1-Chlorooctane		96.0 %	70-1	30	P5H2002	08/19/15	08/19/15	TPH 8015M	
Surrogate: o-Terphenyl		118 %	70-1	30	P5H2002	08/19/15	08/19/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	44.6	25.3	mg/kg dry	1	[CALC]	08/19/15	08/19/15	calc	

C-3 Key 0-6"

5H18008-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	iian Basin E	Invironmen	tal Lab, l	 .				
Organics by GC									
Benzene	ND	0.00100	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Toluene	ND	0.00200	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Xylene (o)	ND	0.00100	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		118 %	75-12	25	P5H2109	08/21/15	08/21/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		121 %	75-12	25	P5H2109	08/21/15	08/21/15	EPA 8021B	
General Chemistry Parameters by EPA /	Standard Methods	5							
Chloride	38.8	1.00	mg/kg dry	1	P5H2005	08/19/15	08/19/15	EPA 300.0	
% Moisture	ND	0.1	%	1	P5H2001	08/20/15	08/20/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 h	by EPA Method 801	15M							
C6-C12	ND	25.0	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
>C12-C28	ND	25.0	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
>C28-C35	ND	25.0	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
Surrogate: 1-Chlorooctane		98.1 %	70-13	30	P5H2002	08/19/15	08/19/15	TPH 8015M	
Surrogate: o-Terphenyl		120 %	70-13	30	P5H2002	08/19/15	08/19/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	25.0	mg/kg dry	1	[CALC]	08/19/15	08/19/15	calc	

D-4 Key 0-6"

5H18008-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	ian Basin F	Environmer	ntal Lab, I	L .P.				
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Toluene	ND	0.00204	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Ethylbenzene	ND	0.00102	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Xylene (p/m)	ND	0.00204	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Xylene (o)	ND	0.00102	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		120 %	75-1	25	P5H2109	08/21/15	08/21/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		115 %	75-1	25	P5H2109	08/21/15	08/21/15	EPA 8021B	
General Chemistry Parameters by EPA	/ Standard Method	s							
Chloride	19.4	1.02	mg/kg dry	1	P5H2005	08/19/15	08/19/15	EPA 300.0	
% Moisture	2.0	0.1	%	1	P5H2001	08/20/15	08/20/15	% calculation	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 80	15M							
C6-C12	ND	25.5	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
Surrogate: 1-Chlorooctane		96.2 %	70-1	30	P5H2002	08/19/15	08/19/15	TPH 8015M	
Surrogate: o-Terphenyl		117 %	70-1	30	P5H2002	08/19/15	08/19/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	08/19/15	08/19/15	calc	

E-5 Key 0-6"

5H18008-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin H	Environmer	ntal Lab, I	L .P.				
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Toluene	ND	0.00204	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Ethylbenzene	ND	0.00102	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Xylene (p/m)	ND	0.00204	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Xylene (o)	ND	0.00102	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		117 %	75-1	25	P5H2109	08/21/15	08/21/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		112 %	75-1	25	P5H2109	08/21/15	08/21/15	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	ls							
Chloride	6.72	1.02	mg/kg dry	1	P5H2005	08/19/15	08/19/15	EPA 300.0	
% Moisture	2.0	0.1	%	1	P5H2001	08/20/15	08/20/15	% calculation	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 80	15M							
C6-C12	ND	25.5	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
Surrogate: 1-Chlorooctane		96.5 %	70-1	30	P5H2002	08/19/15	08/19/15	TPH 8015M	
Surrogate: o-Terphenyl		120 %	70-1	30	P5H2002	08/19/15	08/19/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	08/19/15	08/19/15	calc	

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Project: Key Energy Project Number: 300-15-0128 Project Manager: Antonio Rodriguez

F-6 Key 0-6"

5H18008-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Invironme	ntal Lab, 1	L .P.				
Organics by GC									
Benzene	ND	0.00101	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Toluene	ND	0.00202	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Ethylbenzene	ND	0.00101	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Xylene (p/m)	ND	0.00202	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Xylene (o)	ND	0.00101	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		117 %	75-1	25	P5H2109	08/21/15	08/21/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		116 %	75-1	25	P5H2109	08/21/15	08/21/15	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	s							
Chloride	10.8	1.01	mg/kg dry	1	P5H2005	08/19/15	08/19/15	EPA 300.0	
% Moisture	1.0	0.1	%	1	P5H2001	08/20/15	08/20/15	% calculation	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 80	15M							
C6-C12	ND	25.3	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
>C12-C28	ND	25.3	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
>C28-C35	ND	25.3	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M	
Surrogate: 1-Chlorooctane		98.4 %	70-1	30	P5H2002	08/19/15	08/19/15	TPH 8015M	
Surrogate: o-Terphenyl		121 %	70-1	30	P5H2002	08/19/15	08/19/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	25.3	mg/kg dry	1	[CALC]	08/19/15	08/19/15	calc	

Background1 0-6"

5H18008-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes				
	Pern	nian Basin F	Invironmen	ital Lab, I	L .P.								
rganics by GC													
Benzene	ND	0.00101	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B					
Toluene	ND	0.00202	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B					
Ethylbenzene	ND	0.00101	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B					
Xylene (p/m)	ND	0.00202	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B					
Xylene (o)	ND	0.00101	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B					
Surrogate: 4-Bromofluorobenzene		125 %	75-1.	25	P5H2109	08/21/15	08/21/15	EPA 8021B					
Surrogate: 1,4-Difluorobenzene		110 %	75-1.	25	P5H2109	08/21/15	08/21/15	EPA 8021B					
General Chemistry Parameters by EPA	Standard Method	s											
Chloride	5.82	1.01	mg/kg dry	1	P5H2005	08/19/15	08/19/15	EPA 300.0					
% Moisture	1.0	0.1	%	1	P5H2001	08/20/15	08/20/15	% calculation					
Total Petroleum Hydrocarbons C6-C35	oy EPA Method 80	15M											
C6-C12	ND	25.3	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M					
>C12-C28	ND	25.3	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M					
>C28-C35	ND	25.3	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M					
Surrogate: 1-Chlorooctane		98.2 %	70-1.	30	P5H2002	08/19/15	08/19/15	TPH 8015M					
Surrogate: o-Terphenyl		119 %	70-1.	30	P5H2002	08/19/15	08/19/15	TPH 8015M					
Total Petroleum Hydrocarbon C6-C35	ND	25.3	mg/kg dry	1	[CALC]	08/19/15	08/19/15	calc					

Background2 0-6"

5H18008-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes						
	Peri	mian Basin E	nvironmen	tal Lab, I											
Organics by GC															
Benzene	ND	0.00100	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B							
Toluene	ND	0.00200	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B							
Ethylbenzene	ND	0.00100	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B							
Xylene (p/m)	ND	0.00200	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B							
Xylene (o)	ND	0.00100	mg/kg dry	1	P5H2109	08/21/15	08/21/15	EPA 8021B							
Surrogate: 4-Bromofluorobenzene		125 %	75-12	25	P5H2109	08/21/15	08/21/15	EPA 8021B							
Surrogate: 1,4-Difluorobenzene		110 %	75-12	25	P5H2109	08/21/15	08/21/15	EPA 8021B							
General Chemistry Parameters by EPA / Sta	ndard Methoo	ls													
Chloride	ND	1.00	mg/kg dry	1	P5H2005	08/19/15	08/19/15	EPA 300.0							
% Moisture	ND	0.1	%	1	P5H2001	08/20/15	08/20/15	% calculation							
Total Petroleum Hydrocarbons C6-C35 by E	PA Method 8()15M													
C6-C12	ND	25.0	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M							
>C12-C28	ND	25.0	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M							
	ND	25.0	mg/kg dry	1	P5H2002	08/19/15	08/19/15	TPH 8015M							
>C28-C35															
<u> </u>	`	96.5 %	70-1.	30	P5H2002	08/19/15	08/19/15	TPH 8015M							
>C28-C35 Surrogate: 1-Chlorooctane Surrogate: o-Terphenyl		96.5 % 117 %	70-1. 70-1.		P5H2002 P5H2002	08/19/15 08/19/15	08/19/15 08/19/15	TPH 8015M TPH 8015M							

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 P5H2109 - General Preparatio	on (GC)									
Blank (P5H2109-BLK1)				Prepared &	Analyzed:	08/21/15				
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	0.0616		"	0.0500		123	75-125			
Surrogate: 4-Bromofluorobenzene	0.0576		"	0.0500		115	75-125			
LCS (P5H2109-BS1)				Prepared &	Analyzed:	08/21/15				
Benzene	0.0823	0.00100	mg/kg wet	0.100		82.3	70-130			
Toluene	0.0986	0.00200	"	0.100		98.6	70-130			
Ethylbenzene	0.113	0.00100	"	0.100		113	70-130			
Xylene (p/m)	0.215	0.00200	"	0.200		108	70-130			
Xylene (o)	0.108	0.00100	"	0.100		108	70-130			
Surrogate: 4-Bromofluorobenzene	0.0662		"	0.0500		132	75-125			S-GC
Surrogate: 1,4-Difluorobenzene	0.0606		"	0.0500		121	75-125			
LCS Dup (P5H2109-BSD1)				Prepared &	Analyzed:	08/21/15				
Benzene	0.0811	0.00100	mg/kg wet	0.100		81.1	70-130	1.41	20	
Toluene	0.0974	0.00200	"	0.100		97.4	70-130	1.20	20	
Ethylbenzene	0.109	0.00100	"	0.100		109	70-130	3.38	20	
Xylene (p/m)	0.207	0.00200	"	0.200		103	70-130	4.09	20	
Xylene (o)	0.104	0.00100		0.100		104	70-130	3.95	20	
Surrogate: 1,4-Difluorobenzene	0.0622		"	0.0500		124	75-125			
Surrogate: 4-Bromofluorobenzene	0.0654		"	0.0500		131	75-125			S-GC

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P5H2001 - % Solids										
Blank (P5H2001-BLK1)				Prepared &	Analyzed:	08/20/15				
% Moisture	ND	0.1	%							
Duplicate (P5H2001-DUP1)	Sou	rce: 5H19001-	-02	Prepared &	Analyzed:	08/20/15				
% Moisture	6.0 0.1 %				6.0			0.00	20	
Duplicate (P5H2001-DUP2)	Source: 5H19006-03 Pr				Analyzed:	08/20/15				
% Moisture	10.0	0.1	%	1	11.0			9.52	20	
Duplicate (P5H2001-DUP3)	Sou	rce: 5H19006-	-05	Prepared &	Analyzed:	08/20/15				
% Moisture	13.0	0.1	%		13.0			0.00	20	
Batch P5H2005 - *** DEFAULT PREP ***										
Blank (P5H2005-BLK1)				Prepared &	Analyzed:	08/19/15				
Chloride	ND	1.00	mg/kg wet							
LCS (P5H2005-BS1)				Prepared &	Analyzed:	08/19/15				
Chloride	108	1.00	mg/kg wet	100		108	80-120			
LCS Dup (P5H2005-BSD1)				Prepared &	Analyzed:	08/19/15				
Chloride	103	1.00	mg/kg wet	100	y	103	80-120	4.91	20	
Duplicate (P5H2005-DUP1)	Sou	rce: 5H14014-	-02	Prepared &	Analyzed:	08/19/15				
Chloride	17.7	1.05	mg/kg dry		20.7			15.2	20	
Duplicate (P5H2005-DUP2)	Sou	rce: 5H18008-	-04	Prepared &	Analyzed:	08/20/15				
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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 P5H2005 - *** DEFAULT PREP ***										
Matrix Spike (P5H2005-MS1)	Sou	Source: 5H14014-02			Analyzed:	08/19/15				
Chloride	105	1.05	mg/kg dry	105	20.7	80.4	80-120			

Permian Basin Environmental Lab, L.P.

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	
Analyte	Kesuit	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes	
Batch P5H2002 - TX 1005											
Blank (P5H2002-BLK1)				Prepared &	Analyzed:	08/19/15					
C6-C12	ND	25.0	mg/kg wet								
>C12-C28	ND	25.0	"								
>C28-C35	ND	25.0	"								
Surrogate: 1-Chlorooctane	99.7		"	100		99 .7	70-130				
Surrogate: o-Terphenyl	60.5		"	50.0		121	70-130				
LCS (P5H2002-BS1)				Prepared &	Analyzed:	08/19/15					
C6-C12	854	25.0	mg/kg wet	1000		85.4	75-125				
>C12-C28	1010	25.0	"	1000		101	75-125				
Surrogate: 1-Chlorooctane	121		"	100		121	70-130				
Surrogate: o-Terphenyl	54.6		"	50.0		109	70-130				
LCS Dup (P5H2002-BSD1)				Prepared &	Analyzed:	08/19/15					
C6-C12	869	25.0	mg/kg wet	1000		86.9	75-125	1.74	20		
>C12-C28	1010	25.0	"	1000		101	75-125	0.0844	20		
Surrogate: 1-Chlorooctane	122		"	100		122	70-130				
Surrogate: o-Terphenyl	55.8		"	50.0		112	70-130				
Duplicate (P5H2002-DUP1)	Sou	irce: 5H18007	7-03	Prepared & Analyzed: 08/19/15							
C6-C12	228	126	mg/kg dry		176			25.6	20	R	
>C12-C28	9730	126	"		10500			7.50	20		
Surrogate: 1-Chlorooctane	97.9		"	101		96.9	70-130				
Surrogate: o-Terphenyl	56.2		"	50.5		111	70-130				

Notes and Definitions

S-GC	Surrogate recovery outside of control limits.	The data was accepted based	on valid recovery of the remaining surrogat	te.

- R3 The RPD exceeded the acceptance limit due to sample matrix effects.
- 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

un Barron

Report Approved By:

Date:

8/21/2015

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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-S- S-	Date	Date				\mathcal{H}		7					HNO ₃ HCl H ₂ SO ₄ NaOH Na ₂ S ₂ O ₃ None Other (Specify)	ainers	11	77-522-2105				in Environn Infy Road as 79706
8-18-15	Date	Date				\mathcal{A}		×					HNO ₃ HCI H ₂ SO ₄ NaOH Na ₂ S ₂ O ₃ None	ainers	Q. ESP247.	77-522-2105				in Environmental Lab, LP Inty Road 1213 as 79706
8-18-15						\mathcal{H}				×			HNO3 HCI H2SO4 NaOH Na2S2O3 None Other (Specify) DW=Drinking Water SL=Sludge GW = groundwater SL=Sludge GW = groundwater SL=Sludge	ainers Matrix	Q. ESP247.	77-522-2105		Pro	P	in Environmental Lab, LP Inty Road 1213 as 79706
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8-18-15 16:00	Time	Time	Lai VQ										HNO3 HCI HCI HCI H2SO4 HCI NaOH HCI NaQH HCI NaQH HCI NaQH HCI NaQH HCI NaQH HCI None HCI Other (Specify) HCI DW=Drinking Water SL=Sludge Solt/Solid NP=Non-Potable Specify Other TPH: 418.1 8015M	ainers Matrix	Q. ESP247.	77-522	P0 #	Project Loc:	Project #	EST Basin Environmental Lab, LP I. County Road 1213 I, Texas 79706 Project Name:
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8-18-15 16:00	Time	Time	Laboratory Sampla Cuu VOCs Flee vi							<i>+</i>			HNO3 HCI HCI HCI H ₂ SO4 HCI NaOH Na2S203 None HCI Other (Specify) HCI DW=Drinking Water SL=Sludge Seol/Solid GW = Groundwater SI=Sol/Solid NP=Non-Potable Specify Other TPH: 418.1 8015M TPH: TX 1005 TX 1006 Cations (Ca, Mg, Na, K) Anions (C) ISO4, Alkalinity) SAR / ESP / CEC Seol (Solid)	ainers Matrix 15 1	OLSP247. Con	77-522-2105 Report Format:	1		Α	in Environmental Lab, LP Inty Road 1213 as 79706 Project Name: Ka
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Sale Time Temperature Upon Received - 1/6:100 Received - 4	Time	Time	Laboratory, Commental Sample contents the structure VOCs Free of Headspece?										HNO3 HCI H2SO4 NaOH Na2S203 None Other (Specify) DW=Drinking Water SL=Sludge GW = Groundwater SL=Sludge GW = Groundwater SL=Sludge GW = Groundwater SL=Sludge TPH: 18.1 ROITSM 80 TPH: 418.1 Q015M 80 TPH: 1005 Cations (Ca, Mg, Na, K) Anions (CMSO4, Alkalinity) SAR / ESP / CEC Metals: As Ag Ba Cd Cr Pb Hg Volatiles Semivolatites BTEX (C2) //5030 of BTEX 82	TCLP: TOTAL: ainers Matrix فظ	OLSP247. Con	77-522-2105 Report Format: Thetandard	Po#		Α	in Environmental Lab, LP Inty Road 1213 as 79706 Project Name: Ka
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INVOICE

Invoice To:		Invoice Number		<u>Remit To:</u>	<u>Remit To:</u>						
Antonio Rodrig	guez	5080160-EnviroSu	re	Accounts Receiva	ıble						
Envirosure Res	sources			Permian Basin l	Environmental I	Lab, L.P.					
1300 West Cou	inty Road 114 Suite B	Invoiced On:		10014 SCR 121	3						
Midland, TX 7	9706	08/21/15		Midland, TX 79	706						
<u>PO Number</u>		Received		Project							
12-0128		08/18/15		Key Energy							
Customer		<u>Terms</u>		Project Number							
Antonio Rodrig	guez	NET 30		300-15-0128							
Envirosure Res	sources										
Project Manag	<u>zer</u>	Work Order(s)									
Brent Barron		5H18008									
Quantity	Analysis/Description		Matrix		Unit Cost	Extended Cost					
Permian Basin	1 Environmental Lab, L.P.										
8	TPH8015 Total Calc [5 day]		Soil		\$45.00	\$360.00					
8	Solids, Dry Weight [3 day]		Soil		\$5.00	\$40.00					
8	Chloride-300.0 [5 day]		Soil		\$20.00	\$160.00					
8	8021B BTEX [3 day]		Soil		\$40.00	\$320.00					

Invoice Total:

\$880.00

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Appendix 4

Photos











7/31/15 ERTS Ploj#26344 Eunice NM Process Water











7/31/15 ERTS Proj#26344 Eunice NM Process Water



