



# Devon Energy

**Shugart 25-1**

## REMEDIATION WORK PLAN

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API No. 30-015-31454

Release Date: 08/08/14

Unit Letter K, Section 25, Township 18 South, Range 31 East

**September 8, 2014**

**Prepared by:**

Environmental Department  
Diversified Field Service, Inc.  
206 West Snyder  
Hobbs, NM 88240  
Phone: (575)964-8394  
Fax: (575)393-8396

Mike Bratcher  
Environmental Specialist  
NM Oil Conservation District – Division 2  
811 S. First St.  
Artesia, NM 88210

**RE: Devon Energy Shugart 25 Federal #1**  
UL/K, Section 25, T18S, R31E  
API No. 30-015-31454

Mr. Bratcher,

Devon Energy has retained Diversified Field Service, Inc. (DFSI) to address environmental issues for the site detailed herein.

The site is located south west of Maljamar NM, in Eddy County. The leak site resulted from a produced water leak. The source of the leak was due to a ball valve being left open on the load line. A C-141 was submitted to the NMOCD on August 15, 2014 (2RP-not on file as of 9/8/14).

### **Site Assessment and Delineation**

On August 18, 2014 DFSI personnel obtained surface and delineation samples of the leak area, which included SP1-SP3. All of the sample points cleaned up below the required levels, SP1 was delineated to 14', SP2 was delineated to 13' and SP3 was delineated to 7'bgs.

Field samples were taken on three sample points, each sample was tested for chlorides levels as well as TPH. The TPH samples were performed using a Mini Rae Photoionization Detector (PID). All clean field samples found under the BLM/NMOCD standards, were taken to Cardinal Lab of Hobbs to obtain confirmation samples. And the results confirmed that bottom samples of each sample point were as follows:

SP1: 14'bgs - <16 mg/kg chlorides, <0.300 mg/kg BTEX and <10 mg/kg TPH 8015M  
SP2: 13'bgs - <16 mg/kg chlorides, <0.300 mg/kg BTEX and <10 mg/kg TPH 8015M  
SP3: 7'bgs - <16 mg/kg chlorides, <0.300 mg/kg BTEX and <10 mg/kg TPH 8015M

DFSI has conducted a groundwater study of the area and has determined that according to the New Mexico Office of the State Engineer the average depth to groundwater for this area is 236 foot below ground surface. Therefore, no eminent danger of groundwater impact or threat to life is anticipated.

## Conclusion

After careful review DFSI on behalf of Devon Energy would like to propose the following:

### Option 1

Excavate the entire 430 sq. ft. area of compacted soil to 3'bgs, haul the contaminated soil to an approved disposal site, line with a 20 mil liner and backfill with fresh imported topsoil. Then reseed the entire area with a native vegetation mixture as per the BLM's guidelines for returning the site to its natural state.

Side wall samples will be taking during the excavation procedure to ensure that all contaminants have been remediated. These samples will also be taken to an approved lab for confirmation before backfilling will take place.

Following the approval of one of Option 1 above and after the remediation has taken place, DFSI will submit all proper closure documentation to the NMOCD and BLM in accordance to the State and Federal Guidelines set forth.

Please feel free to contact me with any questions concerning this remediation plan request.

Sincerely,



Natalie Gladden  
Environmental Director  
Diversified Field Service, Inc.  
206 West Snyder  
Hobbs, NM 88240  
Office: (575)964-8394  
Mobile: (575)602-1786  
Fax: (575)964-8396  
Email: [ngladden@diversifiedfsi.com](mailto:ngladden@diversifiedfsi.com)

cc Sol Hughes/Jeff Robertson  
NM Bureau of Land Management

Attachments: Initial Form C-141  
Site/Sample Map  
Sample Data  
Lab Analytical Data






# Site Diagram

Devon, Shugart 25 Federal #001  
UL/E, Sec. 25 T18S R31E  
Eddy County, NM  
Drafted By: Lance Crenshaw, 9-3-14

0 0.002 0.004 0.008 Miles



Spill Area:  
430 sq. ft.

## Legend


-  Soil Bores
-  sample\_pts
-  Source

## Pipeline





### Type

-  Above Ground Line
-  Buried Line

## Spill

-  <all other values>

## Spill\_Media

-  Oil and Produced H2O
-  Oil
-  Other
-  Produced Water

SP1  
SP2  
SP3

Lance Crenshaw  
GIS Technician

Soil Remediation and Ground Water Remediation  
Environmental Assessments  
Regulatory Compliance



Environmental

**DFS**

Services

Office: 575-964-8394

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Email: lcrenshaw@diversifiedfsi.com

Source: Esri, DigitalGlobe, GeoEye, IGN, swisstopo, and the GIS User Community

Diversified Environmental Services

Company Name: DevonEnergy  
Location Name: Shugart 25-1

SP Date: 8/18/2014  
Rel Date: \_\_\_\_\_

SP1	CHL	TPH	SP2	CHL	TPH	SP3	CHL	TPH	SP4	CHL	TPH	SP5	CHL	TPH
Surf	4448	183.4	surf	5067	9832	surf	2999	182.3						
1'	4473	1710.4	1'	5523	10372	1'	2474	22.3						
2'	4548	1784	2'	5548	998.1	2'	947	59.3						
3'	4723	12374	3'	5473	7823	3'	1049	38.2						
4'	4973	382.4	4'	4973	542.8	4'	1024	20.3						
5'	3548	361.2	5'	4973	182.9	5'	1024	7.2						
6'	3523	299.3	6'	5448	151.8	6'	874	4.8						
7'	3273	193.2	7'	4448	99.6	7'	2499	3.2						
8'	3373	178.6	8'	2474	57.3	7'	<16	<10						
9'	2474	99.3	9'	2399	28.2									
10'	2224	102.8	10'	1349	2.2									
11'	1024	77.2	11'	974	3.8									
12'	974	68.3	12'	699	2.1									
13'	874	29.2	13'	448	1.8									
14'	774	8.3	13'	<16	<10									
14'	<16	<10												

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples

August 27, 2014

RAY CARTER

Devon Energy Corp- Artesia

P.O. Box 250

Artesia, NM 88211

RE: SHUGART 25-1

Enclosed are the results of analyses for samples received by the laboratory on 08/21/14 16:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

Devon Energy Corp- Artesia  
RAY CARTER  
P.O. Box 250  
Artesia NM, 88211  
Fax To: (505) 746-9072

Received: 08/21/2014  
Reported: 08/27/2014  
Project Name: SHUGART 25-1  
Project Number: 1007105301  
Project Location: EDDY CO

Sampling Date: 08/19/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP. 1 @ 14' (H402577-01)**

BTEx 8021B		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/26/2014	ND	1.82	91.1	2.00	6.10	
Toluene*	<0.050	0.050	08/26/2014	ND	1.70	84.9	2.00	5.49	
Ethylbenzene*	<0.050	0.050	08/26/2014	ND	1.92	95.8	2.00	4.27	
Total Xylenes*	<0.150	0.150	08/26/2014	ND	5.67	94.5	6.00	4.97	
Total BTEx	<0.300	0.300	08/26/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	08/26/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/25/2014	ND	196	98.2	200	1.17	
DRO >C10-C28	<10.0	10.0	08/25/2014	ND	211	106	200	2.94	

Surrogate: 1-Chlorooctane 111 % 65.2-140

Surrogate: 1-Chlorooctadecane 135 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Project Location: EDDY CO

Sampling Date: 08/19/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP. 2 @ 13' (H402577-02)**

BTX 8021B		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/26/2014	ND	1.82	91.1	2.00	6.10		
Toluene*	<0.050	0.050	08/26/2014	ND	1.70	84.9	2.00	5.49		
Ethylbenzene*	<0.050	0.050	08/26/2014	ND	1.92	95.8	2.00	4.27		
Total Xylenes*	<0.150	0.150	08/26/2014	ND	5.67	94.5	6.00	4.97		
Total BTX	<0.300	0.300	08/26/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/26/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/25/2014	ND	196	98.2	200	1.17	
DRO >C10-C28	<10.0	10.0	08/25/2014	ND	211	106	200	2.94	

Surrogate: 1-Chlorooctane 114 % 65.2-140

Surrogate: 1-Chlorooctadecane 137 % 63.6-154

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\*=Accredited Analyte

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Project Number: 1007105301  
Project Location: EDDY CO

Sampling Date: 08/19/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP. 3 @ 7' (H402577-03)**

BTX 8021B		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/26/2014	ND	1.82	91.1	2.00	6.10	
Toluene*	<0.050	0.050	08/26/2014	ND	1.70	84.9	2.00	5.49	
Ethylbenzene*	<0.050	0.050	08/26/2014	ND	1.92	95.8	2.00	4.27	
Total Xylenes*	<0.150	0.150	08/26/2014	ND	5.67	94.5	6.00	4.97	
Total BTX	<0.300	0.300	08/26/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	08/26/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/25/2014	ND	196	98.2	200	1.17	
DRO >C10-C28	<10.0	10.0	08/25/2014	ND	211	106	200	2.94	

Surrogate: 1-Chlorooctane 115 % 65.2-140

Surrogate: 1-Chlorooctadecane 132 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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