

# **Devon Energy Production Co LP**

**Cotton Draw Unit #172H**

## **Delineation Report and Work Plan**

**Unit Letter O, Section 1, T25S, R31E  
Eddy County, New Mexico**

**30-015-42426**

**May 27, 2016**



**Prepared for:**

**Devon Energy Production Co., LP  
PO Box 250  
Artesia, New Mexico 88211**

**By:**

**Safety & Environmental Solutions, Inc.  
703 East Clinton Street  
Hobbs, New Mexico 88240  
(575) 397-0510**

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## I. Company Contacts

Representative	Company	Telephone	E-mail
Brett Fulks	Devon Energy Prod.	575-748-1844	<a href="mailto:Brett.Fulks@dvn.com">Brett.Fulks@dvn.com</a>
Bob Allen	SESI	575-397-0510	<a href="mailto:ballen@sesi-nm.com">ballen@sesi-nm.com</a>

## II. Background

Safety and Environmental Solutions, Inc., hereinafter referred to as (SESI) was engaged by Devon Energy to perform site delineation on the Cotton Draw Unit 172H, concerning a Twenty (20) bbl. release comprising of produced water. This site is situated in Eddy County, Section 1, Township 25S, and Range 31E.

According to the C-141: A gasket that was located between the valve and pipe on the main water line blew out. In order to minimize impact and fluid loss the valves located on each side of the line were immediately shut in so that the line could be bypassed in order to stop the water flow. The fluid traversed the right of way impacting a 75' X 75' area. SESI was contacted to assess and remediate the area. The spill area was mapped, using a Trimble Juno 3B, and it was determined that the total area of impact was estimated to be 1,824.32 sq. ft. The NMOCD and BLM were notified on May 06, 2016. The C-141 was filed and stamped by the same on May 09, 2016 assigning this event number **2RP-3683** (Appendix A).

## III. Surface and Ground Water

There is no record of groundwater in the immediate vicinity of the site location. According to the topography map for Eddy County the depth to ground water for Section 1, Township 25S, Range 31E is approximately 400' bgs. Further research of the New Mexico Office of the State Engineer records indicates the average depth to groundwater for the area to be 390' bgs. Thereby, posing no eminent threat or danger to life forms in the area.

## IV. Characterization

The target cleanup levels are determined using the *Guidelines for Remediation of Leaks, Spills and Releases* published by the NMOCD (August 13, 1993). Based on the ranking criteria presented below, the applicable Recommended Remediation Action Levels (RRAL) are 10 parts per million (ppm) Benzene, 50 ppm combined benzene, toluene, ethyl benzene, and total xylenes (BTEX), and 5,000 ppm Total Petroleum Hydrocarbons (TPH). Characterization of vertical extent of chloride concentration to a level of 250 mg/kg (PPM) is also required.

Depth to Ground Water:			
(Vertical distance from contaminants to seasonal high water elevation of groundwater)	Less than 50 feet	20 points	
	50 feet to 99 feet	10 points	
	>100 feet	0 points	<b>X</b>
Wellhead Protection Area:			
(Less than 200 feet from a private domestic water source; or less than 1000 feet from all other water sources)	Yes	20 points	
	No	0 points	<b>X</b>
Distance to Surface Water:			

(Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet	20 points	
	200 feet to 1000 feet	10 points	
	>1000 feet	0 points	<b>X</b>
<b>RANKING SCORE (TOTAL POINTS)</b>			<b>0</b>

## V. Work Performed

On May 13, 2016 SESI was onsite to photograph, assess and map the spill area. The area of the leak was located southeast of the battery, traversing from East to West in the Right of Way. Please note: There were 4" water lines connected to 10" pipe that traverse both East and West as well as North and South of the impacted area (Figure 2). Two Auger holes were advanced at an attempt to determine vertical extent. The first Auger hole labeled as AH-1 was advanced, retrieving representative soil samples at 1' intervals to a depth of 5', whereby auger refusal was encountered. The second Auger hole, labeled as AH-2 was advanced, retrieving representative soil samples at 1' intervals until refusal was again met at 2.5' BGS. In both areas of sampling a solid rock bed of Caliche was encountered. Representative soil samples were properly packaged, preserved and transported to Cardinal Laboratories, Hobbs New Mexico and analyzed for Chloride (Cl<sup>-</sup>) (Method SM 4500Cl-B). The results of the analysis are presented in the table below (Appendix C):

Sample Date 05/13/16	Depth	Chloride (mg/kg)
Sample ID		
AH-1	Surface	8260
AH-1	5'	2680
AH-2	Surface	8130
AH-2	2'	6080

## VI. Action Plan

Due to the results listed above and the dynamics of the impacted area, the following action plan is proposed:

Since the average depth to groundwater for this area is 390' BGS., SESI respectfully requests approval to remove the impacted soil to a depth of 2' BGS, where the hard layer of caliche is encountered. It is further requested that in order to maintain safety and clear any risk of any further impact, that the areas lying within 10' of either side of the high pressure water lines remain undisturbed. Representative soil samples of the sidewalls and bottom of excavated area will be sent to Cardinal Labs of Hobbs, NM for confirmation. The excavated area would be lined with a 20 mil. Liner, backfilling with material similar to that removed and returning the area to grade.

Upon completion of all approved remediation activity: all necessary closure documentation related to this incident will be submitted to Devon Energy.

**VII. Figures & Appendices**

Figure 1 – Vicinity Map

Figure 2 – Site Plan

Appendix A – C-141

Appendix B – Groundwater

Appendix C – Analytical Results

Appendix D – Photo Documentation

# **Figure 1**

## **Vicinity Map**



Cotton Draw Unit SWD 181

Cotton Draw Unit 172H

Devon Cotton Draw 11

ES SP-6 East Wall ES SP-2 Bottom  
Oil or Gas Well 21

Devon Cotton  
Draw 172 H  
Vicinity Map

Co Rd 1-B

Google earth

Imagery Date: 11/20/2015 32°09'30.49" N 103°43'44.18" W elev 3463 ft eye alt 22283 ft

1996

Survey

© 2016 Google



**Figure 2**  
**Site Plan**





Produced Water Line

Gas and Oil Line

AH-1 to 5'

Gas and Oil Line

Produced Water PVC

Release Point 8

AH-2 to 2.5'

Survey

Google earth



# **Appendix A**

## **C-141**

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**

**NAB1613135426**

<b>Name of Company</b> Devon Energy Production <b>LD137</b>	<b>OPERATOR</b> <input checked="" type="checkbox"/> Initial Report <input type="checkbox"/> Final Report
<b>Address</b> 6488 Seven Rivers Hwy Artesia, NM 88220	<b>Contact</b> Jake Harrington, Production Foreman
<b>Facility Name</b> Cotton Draw Unit 172H	<b>Telephone No.</b> 432-214-5175
	<b>Facility Type</b> Oil

<b>Surface Owner</b> Federal	<b>Mineral Owner</b> Federal	<b>API No.</b> 30-015-42426
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**LOCATION OF RELEASE**

Unit Letter O	Section 1	Township 25S	Range 31E	Feet from the 0195	North/South Line South	Feet from the 1345	East/West Line East	County Eddy
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**Latitude:** 32.090941

**Longitude:** -103.433837

**NATURE OF RELEASE**

<b>Type of Release</b> Produced water release	<b>Volume of Release</b> 20bbls	<b>Volume Recovered</b> 0bbls
<b>Source of Release</b> Gasket between the valve & pipe	<b>Date and Hour of Occurrence</b> May 6, 2016 @ 1:30 PM	<b>Date and Hour of Discovery</b> May 6, 2016 @ 1:30 PM
<b>Was Immediate Notice Given?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	<b>If YES, To Whom?</b> Shelly Tucker, BLM Mike Bratcher, OCD	
<b>By Whom?</b> Matt Nettles, Asst. Production Foreman	<b>Date and Hour</b> May 6, 2016 @ 2:30 Shelly Tucker, BLM May 6, 2016 @ 2:45 Mike Bratcher, OCD	
<b>Was a Watercourse Reached?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>If YES, Volume Impacting the Watercourse</b> N/A	

**NM OIL CONSERVATION**  
ARTESIA DISTRICT  
MAY 09 2016


**RECEIVED**

**If a Watercourse was Impacted, Describe Fully.\***  
N/A

**Describe Cause of Problem and Remedial Action Taken.\***  
Gasket blew out on main water line between the valve and the pipe. The valves on each side of the line were immediately shut so the line could be bypassed to stop the water flow. The line is currently out of service waiting on repairs.

**Describe Area Affected and Cleanup Action Taken.\***  
20bbls produced water was released in the right-of-way with 0bbls recovered. The release was in the right-of-way South of location in a 75' x 75' area. All fluid remained in the right-of-way. An environmental agency will be contacted for remediation of the affected area.

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.

<b>Signature:</b> Sheila Fisher	<b>OIL CONSERVATION DIVISION</b>	
<b>Printed Name:</b> Sheila Fisher	<b>Approved by Environmental Specialist:</b> 	
<b>Title:</b> Field Admin Support	<b>Approval Date:</b> 5/10/16	<b>Expiration Date:</b> N/A
<b>E-mail Address:</b> Sheila.Fisher@dvn.com	<b>Conditions of Approval:</b> <b>Remediation per O.C.D. Rules &amp; Guidelines</b> <input checked="" type="checkbox"/> <b>SUBMIT REMEDIATION PROPOSAL NO</b>	
<b>Date:</b> 5/9/16 <b>Phone:</b> 575.748.1829	<b>LATER THAN:</b> 6/10/16	

\* Attach Additional Sheets If Necessary

**22P-3683**



## **Patterson, Heather, EMNRD**

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**From:** Fisher, Sheila <Sheila.Fisher@dvn.com>  
**Sent:** Monday, May 09, 2016 10:51 AM  
**To:** Shelly Tucker (stucker@blm.gov); Patterson, Heather, EMNRD; Bratcher, Mike, EMNRD  
**Cc:** Fulks, Brett; Nettles, Matt; Carter, Ray; Harrington, Jake  
**Subject:** Cotton Draw Unit 172H\_20bbl pw release\_5.6.16  
**Attachments:** Cotton Draw Unit 172H\_20bbl pw release\_Initial C-141\_5.6.16.doc; Cotton Draw Unit 172H\_20bbl pw release\_GIS Image\_5.6.16.pdf; Cotton Draw Unit 172H\_20bbl pw release\_pic 1 of 1\_5.6.16.jpg

Good Afternoon,

Attached please find the Initial C-141, GIS Image and photos for the 20bbl produced water release at the Cotton Draw Unit 172H.

If you have any questions please feel free to contact me.

Thank you,

*Sheila Fisher*  
Field Admin Support  
Production  
B-Schedule

**Devon Energy Corporation**  
PO Box 250  
Artesia, NM 88211  
575 748 1829 Direct



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## **Appendix B**

### **Groundwater**



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,  
O=orphaned,  
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
<a href="#">C 02250</a>			ED	3	1	4	21	25S	31E	614912	3553620*	400	390	10
<a href="#">C 02568</a>			ED	4	3	1	01	25S	31E	619103	3558892*	1025		
<a href="#">C 02569</a>			ED	4	4	2	02	25S	31E	618699	3558891*	1016		
<a href="#">C 02570</a>			ED	4	2	4	02	25S	31E	618704	3558489*	895		
<a href="#">C 02571</a>			ED	4	1	2	02	25S	31E	618292	3559294*	860		
<a href="#">C 02572</a>			ED	4	2	2	02	25S	31E	618695	3559294*	852		
<a href="#">C 02573</a>			ED	1	4	2	02	25S	31E	618499	3559091*			
<a href="#">C 02574</a>			ED	1	1	2	02	25S	31E	618092	3559494*			
<a href="#">C 03830 POD1</a>		CUB	ED	4	2	4	02	25S	31E	618632	3558432	450		

Average Depth to Water: **390 feet**

Minimum Depth: **390 feet**

Maximum Depth: **390 feet**

Record Count: 9

### Basin/County Search:

County: Eddy

### PLSS Search:

Township: 25S

Range: 31E

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



## **Appendix C – Analytical Results**

May 19, 2016

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: DEV-16-011

Enclosed are the results of analyses for samples received by the laboratory on 05/16/16 8:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-15-7. 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:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 05/16/2016  
Reported: 05/19/2016  
Project Name: DEV-16-011  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 05/13/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-1 SURFACE (H601059-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8260	16.0	05/17/2016	ND	416	104	400	0.00	

**Sample ID: AH-1 5' (H601059-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2680	16.0	05/17/2016	ND	416	104	400	0.00	

**Sample ID: AH-2 SURFACE (H601059-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8130	16.0	05/17/2016	ND	416	104	400	0.00	

**Sample ID: AH-2 2' (H601059-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6080	16.0	05/17/2016	ND	416	104	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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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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Cardinal Laboratories

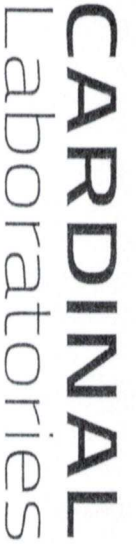
\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

[illegible]

# **Appendix D**

## **Site Photographs**



**Devon Energy  
Cotton Draw Unit 172H**



Spill Area looking Northwest



Spill run looking West



Impacted area looking North



Impacted area traversing East Right of Way



Source of Impact



Impacted area traversing East Right of Way



**Devon Energy  
Cotton Draw Unit 172H**



Impacted area looking Northeast



Pooling area of AH-2



View of Auger Hole 2-Refusal



Pooling Area of AH-1



View of Auger Hole 1



View of Sample Points