

Devon Energy Production Co LP

Cotton Draw Unit SWD 181

Delineation Report and Work Plan

**Unit Letter H, Section 36, T24S, R31E
Eddy County, New Mexico**

30-015-41649

October 29, 2015



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**

TABLE OF CONTENTS

I. COMPANY CONTACTS.....	1
II. BACKGROUND.....	1
III. SURFACE AND GROUND WATER.....	1
IV. CHARACTERIZATION.....	1
V. WORK PERFORMED.....	2
VI. ACTION PLAN.....	2
VII. FIGURES & APPENDICES	3
Figure 1 – Vicinity Map.....	5
Figure 2 – Site Plan	6
Appendix A – C-141	9
Appendix B – Groundwater	11
Appendix C – Photo Documentation	12
Appendix D – Analytical Data.....	123

I. Company Contacts

Representative	Company	Telephone	E-mail
Brett Fulks	Devon Energy Prod.	575-748-1844	Brett.Fulks@dvn.com
Bob Allen	SESI	575-397-0510	ballen@sesi-nm.com

II. Background

Safety and Environmental Solutions, Inc., hereinafter referred to as (SESI) was engaged by Devon Energy to perform site assessment and delineation on the Cotton Draw Unit SWD 181, concerning a one hundred barrel (100 bbl) release comprising of produced water. This site is situated in Eddy County, Section 36, Township 24S, and Range 31E.

According to the C-141, a load line valve was inadvertently left open. This resulted in a 100 bbl. Release of produced water onto the pad area. The valve was shut in as soon as possible. This created an area of impact measuring approximately 50' X 100'. A vacuum truck was utilized to recover approximately Fifty (50 bbl.) of fluid in order to minimize impact to ground surface (Appendix A). Check valves have since been installed on the load lines in an effort to prevent this type of spill from reoccurrence.

III. Surface and Ground Water

There is no record of groundwater in the immediate vicinity of the site location. Further research of the New Mexico Office of the State Engineer website reveals records for Eddy County, Section 36, Township 24S, and Range 31E which indicate the average depth to groundwater for the area to be 182' bgs. (Appendix B).

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	X
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	X
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	X
RANKING SCORE (TOTAL POINTS)			0

V. Work Performed

On October 12, 2015, SESI was onsite to photograph, assess and map the spill area.

SESI personnel visited the site to conduct a vertical and horizontal delineation of the impacted area. It was determined that two (2) sample point positions would be sufficient given the dynamics and outlay of the area. The two bore holes were advanced to depths of 4' bgs., where vertical extent was reached in each bore hole. Representative soil samples were properly packaged, preserved and transported to Cardinal Laboratories, Hobbs New Mexico and analyzed for Chloride (Cl⁻) (Method SM 4500Cl-B). The results of the analysis are presented in the table below (Appendix D):

Sample Date 10/12/2015		Chloride (mg/kg)
Depth		
BH-1 Surf-1'		64.0
BH-1 2'		32.0
BH-1 3'		272
BH-1 4'		16.0
BH-2 Surf-1'		128
BH-2 2'		48.0
BH-2 3'		32.0
BH-2 4'		64.0

On October 23, 2015, Bob Allen from SESI met on-site with representative, Brett Fulks and Gary Michaels from Devon Energy. The site is a Salt Water Disposal Facility with a significant amount of trucking and disposal activity. The location of the spill area is immediately under the load line stations for trucks. The spill traversed west into the bermed area south of the battery. The area under the load lines has a significant number of water, as well as electrical lines that crisscross the area making excavation in this area unfeasible. Excavation in this area will necessitate the costly shutdown of the facility for an undetermined amount of time. Saving the removal of the lines, excavation in this area would not achieve reasonable remediation of the spill. (Appendix C).

VI. Action Plan

Due to the results listed above and the dynamics of this site; the following action plan is proposed:

Excavate and remove 2' bgs., excavating contaminated soils from the south and west side of the tank battery, as indicated (Figure 2), and transporting to an approved NMOCD facility for disposal. It is requested that the impacted area immediately around the load lines not be excavated at this time, but deferred to closure in order to not interrupt the operation of the facility and for safety concerns. Composite samples will be taken from the sides and bottom of the excavated area. The samples will be taken to a commercial laboratory for final analysis and confirmation. The excavated area will be backfilled with material similar to that removed, returning to grade and esthetically restoring the area.

VII. Figures & Appendices

Figure 1 – Vicinity Map

Figure 2 – Site Plan

Appendix A – C-141

Appendix B – Groundwater

Appendix C – Photo Documentation

Appendix D - Analytical

Figure 1

Vicinity Map

Turn left onto NM-128 E Turn left onto NM-128 E

Cotton Draw Unit SWD 181

Cotton Draw 10 Federal Com 3H
Devon Cotton Draw 11

© 2015 Google

Google earth

Imagery Date: 2/13/2014 32°10'49.01" N 103°38'57.48" W elev 3558 ft eye alt 16.17 mi

Figure 2
Site Plan

Tank 7
Tank 8
Tank 14
Tank 15
Tank 6
Tank 16
Tank 5
Tank 17
Tank 18
BH-1

1'	Cl 64.0 mg/kg
2'	Cl 32.0
3'	Cl 272
4'	Cl 16.0

BH-2

1'	Cl 128 mg/kg
2'	Cl 48
3'	Cl 32
4'	Cl 64

Cotton Draw Unit SWD 181

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

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Devon Energy Production Company	Contact	Joah Weidemann; Production Foreman
Address	6488 Seven Rivers Hwy Artesia, NM 88210	Telephone No.	575-513-1528
Facility Name	Cotton Draw Unit SWD 181	Facility Type	Salt Water Disposal

Surface Owner:	Federal	Mineral Owner:	Federal	API No	30-015-41649
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	36	24S	31E	1568	North	1189	East	Eddy

Latitude: N 32.1767786

Longitude: W 103.7268063

NATURE OF RELEASE

Type of Release	produced water spill	Volume of Release	100BBLS	Volume Recovered	30BBLS
Source of Release	Load line valve left open	Date and Hour of Occurrence	February 24, 2015 3:00 PM	Date and Hour of Discovery	February 24, 2015 3:00 PM
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	Jeff Robertson; BLM & Mike Bratcher; OCD		
By Whom?	Assistant Production Foreman; Kevin Phillips	Date and Hour	February 24, 2015 @6:45PM		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.*

A load line valve was left open resulting in 100BBLS of produced water being released onto the location. The valve was shut as soon as the release was noticed.

Describe Area Affected and Cleanup Action Taken.*

The 100BBLS of released produced water affected an area approximately 50' x 100' on the southwest side of the location. A vacuum truck recovered 30BBLS of the released fluid. The produced water did not leave the pad and did not reach the pasture.

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: <i>Sandy Farley</i>	<u>OIL CONSERVATION DIVISION</u>		
Printed Name: Sandra Farley			
Title: Field Admin Support	Approved by Environmental Specialist:	Approval Date:	Expiration Date:
E-mail Address: sandy.farley@dvn.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 2.26.15 Phone: 575.746.5587			

* Attach Additional Sheets If Necessary

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
C 02405	C	ED		4	1	02	24S	31E		617690	3568631*	275	160	115
C 02440	C	ED		2	3	10	24S	31E		616103	3566599*	350		
C 02460	C	ED			3	02	24S	31E		617496	3568022*	320		
C 02460 POD2	C	ED			3	02	24S	31E		617496	3568022*	320		
C 02464	C	ED		3	4	1	02	24S	31E	617589	3568530*	320	205	115
C 02661		ED		3	3	1	04	24S	31E	613969	3568485*	708		
C 02783	CUB	ED		3	3	1	04	24S	31E	613911	3568461	708		
C 02783 POD2	C	ED		3	3	1	04	24S	31E	613911	3568461	672		
C 02784	C	ED		4	2	4	04	24S	31E	613911	3568461	584		
C 02785		ED		3	3	1	04	24S	31E	613969	3568485*	692		

Average Depth to Water: **182 feet**

Minimum Depth: **160 feet**

Maximum Depth: **205 feet**

Record Count: 10

Basin/County Search:

County: Eddy

PLSS Search:

Township: 24S

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

Photo Documentation

**Devon Energy
Cotton Draw Unit SWD 181
API 30-015-41649**



Site at Fill Lines



Looking Northeast



Impact at rear of tanks



Impacted area north side of site



Appendix D Analytical



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

October 20, 2015

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: COTTON DRAW #181 SWD

Enclosed are the results of analyses for samples received by the laboratory on 10/16/15 15:30.

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.

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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

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:	10/16/2015	Sampling Date:	10/16/2015
Reported:	10/20/2015	Sampling Type:	Soil
Project Name:	COTTON DRAW #181 SWD	Sampling Condition:	** (See Notes)
Project Number:	DEV-15-003	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: BH-1 SURF - 1' (H502714-01)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	10/20/2015	ND	448	112	400	7.41	

Sample ID: BH-1 2' (H502714-02)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	10/20/2015	ND	352	88.0	400	12.8	

Sample ID: BH-1 3' (H502714-03)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	10/20/2015	ND	352	88.0	400	12.8	

Sample ID: BH-1 4' (H502714-04)

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	10/20/2015	ND	352	88.0	400	12.8	

Cardinal Laboratories

*=Accredited Analyte

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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:	10/16/2015	Sampling Date:	10/16/2015
Reported:	10/20/2015	Sampling Type:	Soil
Project Name:	COTTON DRAW #181 SWD	Sampling Condition:	** (See Notes)
Project Number:	DEV-15-003	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: BH-2 SURF - 1' (H502714-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	10/20/2015	ND	352	88.0	400	12.8	

Sample ID: BH-2 2' (H502714-06)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	10/20/2015	ND	352	88.0	400	12.8	

Sample ID: BH-2 3' (H502714-07)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	10/20/2015	ND	352	88.0	400	12.8	

Sample ID: BH-2 4' (H502714-08)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	10/20/2015	ND	352	88.0	400	12.8	

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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

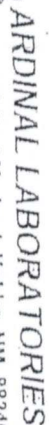
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Celey D. Keene, Lab Director/Quality Manager



101 East Marland, Hobbs, NM 88240

(505) 393-2326 Fax (505) 393-2476

Page _____ of _____

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Safety & Environmental Solutions, Inc.

Project Manager: Bob Allen

Address: 703 East Clinton

City: Hobbs **State:** NM **zip:** 88240

Phone #: 575-397-0510 **Fax #:** 575-393-4388

Project #: DEL-15-203 **Project Owner:** DENVER

Project Name: Central Drive 181 SWD

Project Location: Los County

Sampler Name: Sasha Jurek

FOR LAB USE ONLY

P.O. #:

Company: Same

Attn:

Address:

City:

State: **zip:**

Phone #:

Fax #:

Lab I.D. Sample I.D.

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX							DATE	TIME	REMARKS	
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:				ICE / COOL
15027114														
1	BH-1	5m-1-ft	1									10/16	1000	Chlorides
2	BH-1	2-5 ft	1									10/16	1010	
3	BH-1	3-4 ft	1									10/16	1015	
4	BH-1	4-4 ft	1									10/16	1030	
5	BH-2	5m-1-ft	1									10/16	1100	
6	BH-2	2-5 ft	1									10/16	1105	
7	BH-2	3-5 ft	1									10/16	1130	
8	BH-2	4-4 ft	1									10/16	1145	

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Sampler Relinquished: Sasha Jurek **Date:** 10/16/15 **Received By:** [Signature]

Relinquished By: [Signature] **Date:** 10/16/15 **Received By:** [Signature]

Temp: 14.80 **Sample Condition:** Cool ☒ Intact ☐ Yes ☐ No **Checked By:** [Signature]

Delivered By: (Circle One) **Sampler - UPS - Bus - Other:**

REMARKS:

Phone Result: ☐ Yes ☐ No **Add'l Phone #:**

Fax Result: ☐ Yes ☐ No **Add'l Fax #:**

Terms and Conditions: Payment will be charged on all accounts more than 30 days past due at the rate of 2.5% per annum from the original date of invoice and all costs of collections, including attorney's fees.