

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	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 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	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 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⁻) (Method SM 4500Cl-B). The results of the analysis are presented in the table below (Appendix C):

Sample Date	Depth	Chloride (mg/kg)
05/13/16		
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

om 3H

Devon Cotton
Draw 172 H
Vicinity Map

Go Rd 1-B

Google earth

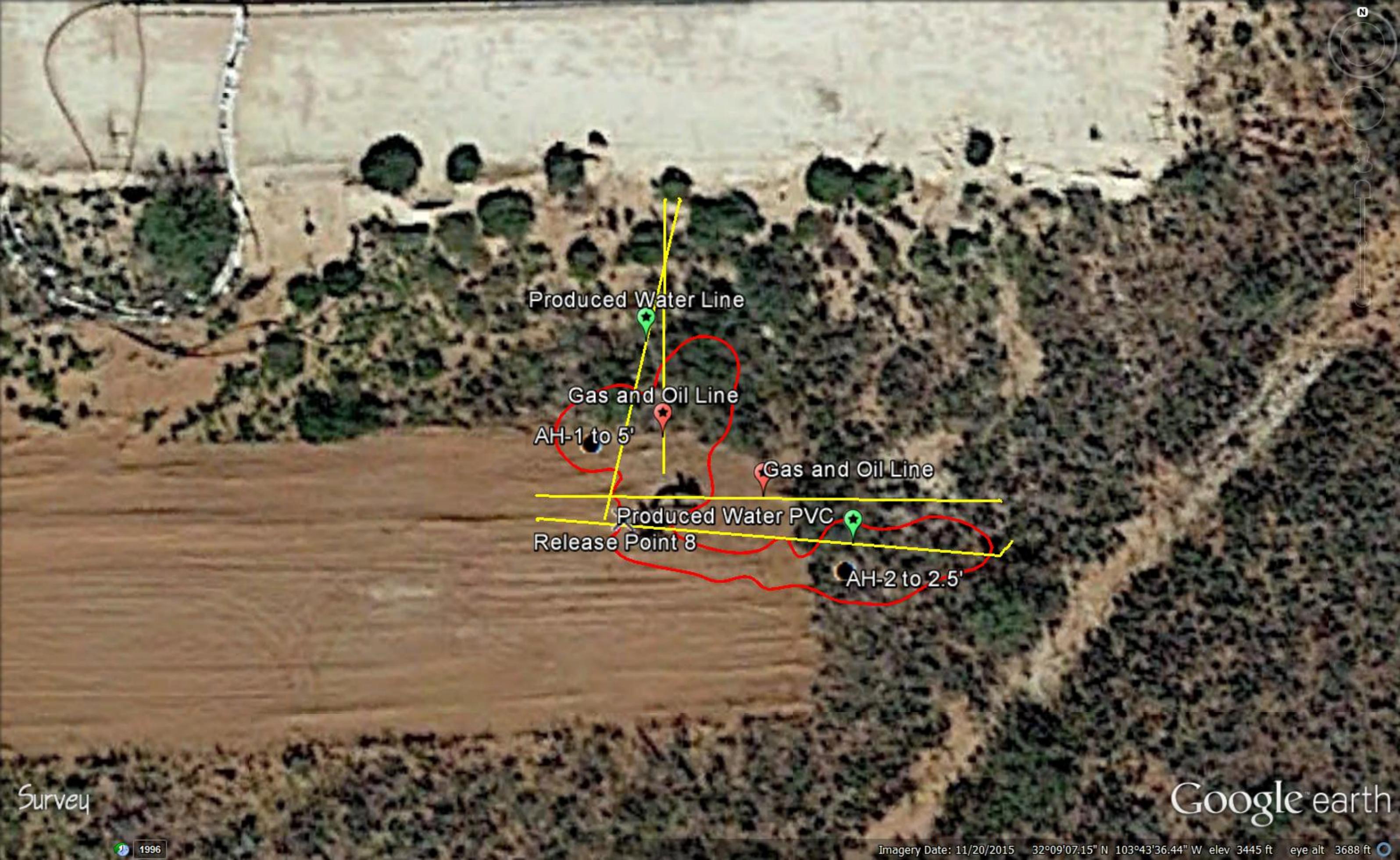
Survey

© 2016 Google

1996

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

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

1996

Imagery Date: 11/20/2015 32°09'07.15" N 103°43'36.44" W elev 3445 ft eye alt 3688 ft

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

Form C-141
Revised August 8, 2011

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

Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

NAB 1613135426

OPERATOR

Initial Report Final Report

Name of Company Devon Energy Production <i>LD137</i>	Contact Jake Harrington, Production Foreman
Address 6488 Seven Rivers Hwy Artesia, NM 88220	Telephone No. 432-214-5175
Facility Name Cotton Draw Unit 172H	Facility Type Oil

Surface Owner Federal	Mineral Owner Federal	API No. 30-015-42426
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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
O	I	25S	31E	0195	South	1345	East	Eddy

Latitude: 32.090941

Longitude: -103.433837

NATURE OF RELEASE

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

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

222-3683

* Attach Additional Sheets If Necessary

Patterson, Heather, EMNRD

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
C 02250			ED	3	1	4	21	25S	31E	614912	3553620*	400	390	10
C 02568			ED	4	3	1	01	25S	31E	619103	3558892*	1025		
C 02569			ED	4	4	2	02	25S	31E	618699	3558891*	1016		
C 02570			ED	4	2	4	02	25S	31E	618704	3558489*	895		
C 02571			ED	4	1	2	02	25S	31E	618292	3559294*	860		
C 02572			ED	4	2	2	02	25S	31E	618695	3559294*	852		
C 02573			ED	1	4	2	02	25S	31E	618499	3559091*			
C 02574			ED	1	1	2	02	25S	31E	618092	3559494*			
C 03830 POD1		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.

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".

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, SM4500Cl-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, SM4500Cl-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, SM4500Cl-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

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



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



Celey D. Keene, Lab Director/Quality Manager

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