

**Devon Energy Production Co LP  
Cotton Draw 163 (11 Federal #2H)  
Delineation Report and Work Plan**

**Unit Letter C, Section 11, T25S, R31E  
Eddy County, New Mexico  
2RP-2736  
2RP-3021**

**August 20, 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**

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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 Alfredo's Trucking to perform site delineation for delineation of two environmental incidents. On January 12, 2015 A Bosque employee was servicing the filter socks in the dual filter pod when the hose connected to the KC nipple directly underneath the filter pot disconnected creating a release of over 15 bbls. of fluid. The C-141 associated with this incident was filed with the NMOCD on January 14, 2015 and assigned (**2RP-2736**). On April 29, 2015 The Poseidon tank for this location incurred a puncture that was allegedly caused by the use of a power washer. The secondary containment was punctured by an anchor causing an approximate 7.5 bbls of produced water release onto the location (**2RP-3021**). Vacuum trucks were utilized to recover the fluid. A C-141 was submitted to the NMOCD and the BLM respectively, on May 04, 2015 (**Appendix A**). This site is situated in Eddy County, Section 11, Township 25S, and Range 31E.

**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 11, Township 25S, Range 31E is approximately 400' bgs. Further research of the New Mexico Office of the State Engineer records indicate 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 (**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 1000 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 May12, 2015, SESI was onsite with Alfredo's Trucking, as well as a Devon representative to photograph, and map the spill area.

On June 04, 2015, SESI personnel returned to the site in order to confirm vertical extent of the impacted area. Six representative sample points were established inside the impacted area. The representative soil samples were properly packaged, preserved and transported to Cardinal Laboratories, Hobbs, NM and analyzed for Chloride constituent. The returned analyses for Cl<sup>-</sup> is recapped in the following table:

Sample Date 06/04/15	Chloride (mg/kg)
Depth	
AH-1 Surface	10400
AH-1 1'	4560
AH-1 2'	4160
AH-2 Surface	20400
AH-2 1'	4240
AH-2 2'	6080
AH-2 3'	4800
AH-3 Surface	10200
AH-3 1'	4160
AH-3 2'	4960
AH-3 3'	6080
AH-4 Surface	4960
AH-4 1'	1600
AH-4 2'	3320
AH-4 3'	8720
AH-4 4'	8640
AH-5 Surface	1310
AH-5 1'	160
AH-5 2'	96
AH-5 3'	80
AH-6 Surface	1640
AH-6 1'	256
AH-6 2'	2240
AH-6 3'	1170
AH-6 4'	1660

On August 14, 2015, SESI personnel were on location with Hobbs Anchor to retrieve a soil bore representation in order to determine vertical extent. The soil bore was extracted between the previous AH-2 and AH-3, which indicated the deepest impact from the previous analytical. The soil bore was transported to Cardinal Laboratories, Hobbs, NM and analyzed for Chloride constituents. The following is a recap of that analyses (Appendix C).

Sample Date 08/14/15	Chloride (mg/kg)
Depth	
BH-1 8'	256
BH-1 10'	464

## VI. Action Plan

Excavate to a depth of 4' bgs., installing a 30 mil. Liner and backfilling with a layer of clean topsoil followed by like surface material. Contaminated soils will be transported to an approved NMOCD facility for disposal. Composite confirmation samples will be taken from the sides and bottom of the excavation area. The representative soil samples will be taken to a commercial laboratory for final analysis and confirmation. The surface area will be returned to grade, esthetically restoring the area.

Final closure documentation will be submitted to the NMOCD upon completion of aforementioned filed activities. The closure documentation will be inclusive of field titrations and laboratory confirmations of representative sidewall and bottom samples.

## VII. Figures & Appendices

Figure 1 – Vicinity Map

Figure 2 – Site Plan

Appendix A – C-141

Appendix B – Groundwater Analysis

Appendix C – Analytical Results

Appendix D – Photo Documentation

**Figure 1  
Vicinity Map**



**Figure 2  
Site Plan**





© 2015 Google

Google earth

1996

Imagery Date: 2/13/2014 32°09'04.47" N 103°45'04.15" W elev 3433 ft eye alt 3659 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  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

NM OIL CONSERVATION

ARTESIA DISTRICT

JAN 13 2015

Form C-141  
Revised August 8, 2011

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

RECEIVED

Release Notification and Corrective Action

NAB1501441507

OPERATOR

☒ Initial Report ☒ Final Report

Name of Company: <b>Devon Energy Production Co LP</b> (6137)	Contact: <b>Brian Kuh</b>
Address: <b>PO Box 250 Artesia, NM 88211</b>	Telephone No. <b>575- 616-1540</b>
Facility Name: <b>Cotton Draw 11 Federal #2H</b>	Facility Type: <b>Well location</b>

Surface Owner: <b>Federal</b>	Mineral Owner: <b>Federal</b>	API No. <b>30-015-39375</b>
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LOCATION OF RELEASE

AKA Cotton Draw Unit 163 H

Unit Letter <b>C</b>	Section <b>11</b>	Township <b>25S</b>	Range <b>31E</b>	Feet from the <b>330</b>	North/South Line <b>North</b>	Feet from the <b>1980</b>	East/West Line <b>West</b>	County <b>Eddy</b>
-------------------------	----------------------	------------------------	---------------------	-----------------------------	----------------------------------	------------------------------	-------------------------------	-----------------------

Latitude: \_\_\_\_\_ Longitude: 32.151232  
103.750816

NATURE OF RELEASE

Type of Release: <b>Produced water</b>	Volume of Release: <b>15 bbls</b>	Volume Recovered: <b>15 bbl</b>
Source of Release: <b>Bosque produced water filtering pod</b>	Date and Hour of Occurrence <b>01/12/2015, approx. 6:25 A.M.</b>	Date and Hour of Discovery <b>01/12/2015, approx. 6:25 A.M.</b>
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? <b>OCD-Mike Bratcher BLM-Jim Amos</b>	
By Whom? <b>Brian Kuh, Foreman</b>	Date and Hour: <b>01/12/2015; OCD: 2:41 P.M. BLM: 2:44 P.M.</b>	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

On the Cotton Draw 11 Fed 2H, a Bosque employee was changing the filter socks in the dual filter pod when the hose connecting to the KC nipple directly underneath the filter pot disconnected causing the release of approximately 15 barrels of produced water. The hose clamp that holds the hose in place broke causing the pressure of the water to disconnect the hose. The produced water overflowed it's containment (20 ft x 20 ft x 8 in) due to one corner of the containment being lower than the rest, which was caused by an unlevelled surface. Approximately 10 barrels of produced water escaped the containment and on to the pad while another 5 barrels stayed in the containment. The produced water did not leave the pad. Cleanup at the location was started shortly after the release and was completed that day.

Describe Area Affected and Cleanup Action Taken.\*

A vacuum truck, skid steer, backhoe, and dump truck were all used to clean up the entire spill.

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:	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: <b>Denise Menoud</b>	Signed By <u>Mike Bratcher</u>	
Title: <b>Field Admin Support</b>	Approved by Environmental Specialist:	
E-mail Address: <b>Denise.Menoud@dmv.com</b>	Approval Date: <u>1/14/15</u>	Expiration Date: <u>N/A</u>
Date: <b>01/13/2015</b> Phone: <b>575-746-5544</b>	Conditions of Approval: <b>FINAL</b>	Attached <input type="checkbox"/>

\* Attach Additional Sheets If Necessary

2RP-2736

MAY 05 2015

Form C-141  
Revised August 8, 2011

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

Submittal Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

### Release Notification and Corrective Action

**NAB1515228638**

#### OPERATOR

☒ Initial Report    ☐ Final Report

Name of Company: <b>Devon Energy Production Co LP (6137)</b>	Contact: <b>Brian Kuh, Devon Foreman</b>
Address: <b>PO Box 250 Artesia, NM 88211</b>	Telephone No. <b>575- 513-9136</b>
Facility Name: <b>Cotton Draw 11 Fed 2H</b>	Facility Type: <b>Well location - Poseidon Tank</b>
Surface Owner: <b>Federal</b>	Mineral Owner: <b>Federal</b> API No. <b>30-015-39375</b>

#### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
<b>C</b>	<b>11</b>	<b>25S</b>	<b>31E</b>	<b>330</b>	<b>North</b>	<b>1980</b>	<b>West</b>	<b>Eddy</b>

Latitude: 32deg 9' 4.648" N    Longitude: 103deg 45' 3.002" W

#### NATURE OF RELEASE

Type of Release: <b>Produced Water</b>	Volume of Release: <b>7.5 bbls</b>	Volume Recovered: <b>5 bbl +</b>
Source of Release: <b>Poseidon Tank on location</b>	Date and Hour of Occurrence: <b>4/29/15, 7:00 PM</b>	Date and Hour of Discovery: <b>4/29/15, 7:00 PM</b>
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? <b>(OCD-Mike Bratcher    BLM-Jeff Robertson)</b>	
By Whom? <b>Brian Kuh, Devon Foreman</b>	Date and Hour: <b>(5/4/15, 10:45 AM)</b>	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. <b>N/A</b>	

If a Watercourse was Impacted, Describe Fully.\*

N/A

Describe Cause of Problem and Remedial Action Taken.\*

A small hole on the underside of the Poseidon tank may have been caused by a power washer which caused the initial leak, then another hole was discovered in the secondary containment caused by an anchor. Vacuum trucks were used to recover the produced water.

Describe Area Affected and Cleanup Action Taken.\*

The rest of the water in the tank was transferred to another tank at the Trionyx location so the hole may be mended. Vacuum trucks were used to recover the produced water. Alfredo's will take soil samples once the tank has been moved and remediation will take place accordingly.

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>Denise Menoud</i>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: <b>Denise Menoud</b>	Approved by Environmental Specialist: <i>Mike Bratcher</i>	
Title: <b>Field Admin Support</b>	Approval Date: <b>4/11/15</b>	Expiration Date: <b>N/A</b>
E-mail Address: <b>Denise.Menoud@dmn.com</b>	Conditions of Approval:	
Date: <b>5/4/2015</b> Phone: <b>575-746-5544</b>	Remediation per O.C.D. Rules & Guidelines	

**SUBMIT REMEDIATION PROPOSAL NO**

LATER THAN: **6/2/15**

Attached ☐

\* Attach Additional Sheets If Necessary

**2RP-3021**



7.5 bbls PW Spill

## Devon GIS Mapping



Disclaimer: This plat is for illustrative purposes only and is neither a legally recorded map nor a survey and is not intended to be used as one.

Scale: 1:564

Date Printed: 5/4/2015 5:15:48 PM

## **Appendix B**

# **Groundwater Analysis**



# 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**



June 25, 2015

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: COTTON DRAW #163

Enclosed are the results of analyses for samples received by the laboratory on 06/25/15 8:11.

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:**

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

 Received: 06/25/2015  
 Reported: 06/25/2015  
 Project Name: COTTON DRAW #163  
 Project Number: ALF-15-007  
 Project Location: LEA COUNTY, NM

 Sampling Date: 06/04/2015  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: AH-1 SURFACE (H501647-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10400	16.0	06/25/2015	ND	448	112	400	7.41	

**Sample ID: AH-1 1' (H501647-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4560	16.0	06/25/2015	ND	448	112	400	7.41	

**Sample ID: AH-1 2' (H501647-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4160	16.0	06/25/2015	ND	448	112	400	7.41	

**Sample ID: AH-2 SURFACE (H501647-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	20400	16.0	06/25/2015	ND	448	112	400	7.41	

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: 06/25/2015  
 Reported: 06/25/2015  
 Project Name: COTTON DRAW #163  
 Project Number: ALF-15-007  
 Project Location: LEA COUNTY, NM

Sampling Date: 06/04/2015  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: AH-2 1' (H501647-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4240	16.0	06/25/2015	ND	448	112	400	7.41		

**Sample ID: AH-2 2' (H501647-06)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6080	16.0	06/25/2015	ND	448	112	400	7.41	

**Sample ID: AH-2 3' (H501647-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4800	16.0	06/25/2015	ND	448	112	400	7.41		

**Sample ID: AH-3 SURFACE (H501647-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10200	16.0	06/25/2015	ND	448	112	400	7.41	

**Sample ID: AH-3 1' (H501647-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4160	16.0	06/25/2015	ND	448	112	400	7.41	

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: 06/25/2015  
Reported: 06/25/2015  
Project Name: COTTON DRAW #163  
Project Number: ALF-15-007  
Project Location: LEA COUNTY, NM

Sampling Date: 06/04/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-3 2' (H501647-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4960	16.0	06/25/2015	ND	448	112	400	7.41		

**Sample ID: AH -3 3' (H501647-11)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6080	16.0	06/25/2015	ND	448	112	400	7.41	

**Sample ID: AH-4 SURFACE (H501647-12)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4960	16.0	06/25/2015	ND	448	112	400	7.41	

**Sample ID: AH-4 1' (H501647-13)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1600	16.0	06/25/2015	ND	448	112	400	7.41		

**Sample ID: AH-4 2' (H501647-14)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3320	16.0	06/25/2015	ND	416	104	400	3.92	

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: 06/25/2015  
Reported: 06/25/2015  
Project Name: COTTON DRAW #163  
Project Number: ALF-15-007  
Project Location: LEA COUNTY, NM

Sampling Date: 06/04/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-4 3' (H501647-15)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8720	16.0	06/25/2015	ND	416	104	400	3.92	

**Sample ID: AH-4 4' (H501647-16)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8640	16.0	06/25/2015	ND	416	104	400	3.92	

**Sample ID: AH-5 SURFACE (H501647-17)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1310	16.0	06/25/2015	ND	416	104	400	3.92	

**Sample ID: AH-5 1' (H501647-18)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	06/25/2015	ND	416	104	400	3.92	

**Sample ID: AH-5 2' (H501647-19)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	06/25/2015	ND	416	104	400	3.92	

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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: 06/25/2015  
 Reported: 06/25/2015  
 Project Name: COTTON DRAW #163  
 Project Number: ALF-15-007  
 Project Location: LEA COUNTY, NM

 Sampling Date: 06/04/2015  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: AH-5 3' (H501647-20)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	06/25/2015	ND	416	104	400	3.92	

**Sample ID: AH-6 SURFACE (H501647-21)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1640	16.0	06/25/2015	ND	416	104	400	3.92	

**Sample ID: AH-6 1' (H501647-22)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	06/25/2015	ND	416	104	400	3.92	

**Sample ID: AH-6 2' (H501647-23)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2240	16.0	06/25/2015	ND	416	104	400	3.92	

**Sample ID: AH-6 3' (H501647-24)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1170	16.0	06/25/2015	ND	416	104	400	3.92	

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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: 06/25/2015  
Reported: 06/25/2015  
Project Name: COTTON DRAW #163  
Project Number: ALF-15-007  
Project Location: LEA COUNTY, NM

Sampling Date: 06/04/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-6 4' (H501647-25)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1660	16.0	06/25/2015	ND	416	104	400	3.92		

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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

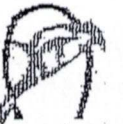
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Celey D. Keene, Lab Director/Quality Manager





# ARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240

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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 3

### ANALYSIS REQUEST

BILL TO

P.O. #:

Company:

Address:

City:

State:

Zip:

Phone #:

Fax #:

Project Name:

Project Location:

Project #:

Project Owner:

Project Manager:

Project Address:

Project City:

Project State:

Project Zip:

Project Phone #:

Project Fax #:

Project Project Name:

Project Project Location:

Project Project #:

Project Project Owner:

Project Project Manager:

Project Project Address:

Project Project City:

Project Project State:

Project Project Zip:

Project Project Phone #:

Project Project Fax #:

Project Project Project Name:

Project Project Project Location:

Project Project Project #:

Project Project Project Owner:

Project Project Project Manager:

Project Project Project Address:

Project Project Project City:

Project Project Project State:

Project Project Project Zip:

Project Project Project Phone #:

Project Project Project Fax #:

Project Project Project Project Name:

Project Project Project Project Location:

Project Project Project Project #:

Project Project Project Project Owner:

Project Project Project Project Manager:

Project Project Project Project Address:

Project Project Project Project City:

Project Project Project Project State:

Project Project Project Project Zip:

Project Project Project Project Phone #:

Project Project Project Project Fax #:

Project Project Project Project Project Name:

Project Project Project Project Project Location:

Project Project Project Project Project #:

Project Project Project Project Project Owner:

Project Project Project Project Project Manager:

Project Project Project Project Project Address:

Project Project Project Project Project City:

Project Project Project Project Project State:

Project Project Project Project Project Zip:

Project Project Project Project Project Phone #:

Project Project Project Project Project Fax #:

Project Project Project Project Project Project Name:

Project Project Project Project Project Project Location:

Project Project Project Project Project Project #:

Project Project Project Project Project Project Owner:

Project Project Project Project Project Project Manager:

Project Project Project Project Project Project Address:

Project Project Project Project Project Project City:

Project Project Project Project Project Project State:

Project Project Project Project Project Project Zip:

Project Project Project Project Project Project Phone #:

Project Project Project Project Project Project Fax #:

Project Project Project Project Project Project Project Name:

Project Project Project Project Project Project Project Location:

Project Project Project Project Project Project Project #:

Project Project Project Project Project Project Project Owner:

Project Project Project Project Project Project Project Manager:

Project Project Project Project Project Project Project Address:

Project Project Project Project Project Project Project City:





ARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240  
(505) 393-2326 Fax (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

ANALYSIS REQUEST

BILL TO

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 #: ALF-15-007 Project Owner: AEPHAB

Project Name: Cotton Draw 163

Project Location: Deer County

Sampler Name: SSA. Barry

For Use Only

Lab I.D.

Sample I.D.

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	ANALYSIS REQUEST					
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :								
#501647	ATT-3	3 ft	1							06/04	1240						
	ATT-4	Surface	1							06/04	1315						
	ATT-4	1 ft	1							06/04	1320						
	ATT-4	2 ft	1							06/04	1335						
	ATT-4	3 ft	1							06/04	1340						
	ATT-4	4 ft	1							06/04	1350						
	ATT-5	Surface	1							06/04	1400						
	ATT-5	1 ft	1							06/04	1415						
	ATT-5	2 ft	1							06/04	1435						
	ATT-5	3 ft	1							06/04	1440						

PLEASE NOTE: Chain of Custody and Delivered Containers clearly and legibly marked with the name of the client for the sample, the name of the sampler, the date and time of collection, and the location of the sample. All claims including those for negligence and any other claims shall be deemed waived unless made in writing and received by Cardinal within 90 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 services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Sampler Relinquished By: SSA. Barry Date: 06/25/15 Time: 0800

Relinquished By: SSA. Barry Date: 06/25/15 Time: 8:11

Received By: Judy Garcia

Delivered By: (Circle One) 23.40

Sampler - UPS - Bus - Other: 23.40

REMARKS: *Back*

Phone Result: ☒ Yes ☐ No Add'l Phone #:   
Fax Result: ☐ Yes ☐ No Add'l Fax #:   
Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.





# ARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240  
(505) 393-2326 Fax (505) 393-2476

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page \_\_\_\_ of \_\_\_\_

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 #: AT-15-007 Project Owner: ARPA

Project Name: Cotton Draw 163

Project Location: Lee County

Sampler Name: Don Jerry

Lab I.D. Sample I.D.

#501647

AT-6 Surface  
AT-6 1st  
AT-6 2nd  
AT-6 3rd  
AT-6 4th  
AT-6 5th

(G)RAB OR (C)OMP.		# CONTAINERS	
GROUNDWATER			
WASTEWATER			
SOIL			
OIL			
SLUDGE			
OTHER :			
ACID/BASE:			
ICE / COOL			
OTHER :			

DATE	TIME
06/04	1450
06/04	1455
06/04	1515
06/04	1520
06/04	1530

CE Corridor

### ANALYSIS REQUEST

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Sampler Relinquished:

Reinquinished By: Don Jerry

Date: 06/05/15  
Time: 8:11

Received By: Judy Garcia

Delivered By: (Circle One)

Sampler - UPS - Bus - Other:

23.4c

Temp.

Sample Condition  
Cool Inlet ☐ Yes ☐ No  
Inlet ☐ Yes ☐ No

CHECKED BY: [Signature]

PHONE RESULT: ☐ Yes ☐ No  
FAX RESULT: ☐ Yes ☐ No  
Add'l Phone #:   
Add'l Fax #:   
REMARKS: Just

Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 2.45% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

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#54



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

---

August 18, 2015

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: DEVON COTTON DRAW 163

Enclosed are the results of analyses for samples received by the laboratory on 08/18/15 9:00.

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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

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:	08/18/2015	Sampling Date:	08/14/2015
Reported:	08/18/2015	Sampling Type:	Soil
Project Name:	DEVON COTTON DRAW 163	Sampling Condition:	Cool & Intact
Project Number:	ALF-15-007	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY		

**Sample ID: BH-1 8' (H502150-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	08/18/2015	ND	416	104	400	0.00	

**Sample ID: BH-1 10' (H502150-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	464	16.0	08/18/2015	ND	416	104	400	0.00	

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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





## **Appendix D Photo Documentation**



**Devon Energy**  
**Cotton Draw 11 Federal #2H**  
**API 30-015-39375**



Sign marking location 05-12-15



SE corner looking north



NW corner looking SE



Spill Run looking SW



Surface impact 05-12-15



Excavated area SW corner looking East

**Devon Energy**  
**Cotton Draw 11 Federal #2H**  
**API 30-015-39375**



Soil Bore 08-14-15



Soil Bore Hole 08-14-15



Bore Hole Backfilled 08-14-15