



February 18, 2016

Mr. Mike Bratcher
NMOCD District 2
811 S. 1st Street
Artesia, NM 88210

Subject: **Soil Assessment and Remediation Work Plan**
Devon Energy Corporation
Cotton Draw Unit #167H
API # 30-015-41385 2RP-3422

Dear Mr. Bratcher,

Devon Energy Corporation (Devon) has contracted Talon/LPE (Talon) to perform soil assessment and remediation services at the above referenced location. The results of our soil assessment and proposed remediation activities consist of the following.

Incident Date

November 30, 2015

Background Information

The Cotton Draw #167H is located approximately fifty-eight (58) miles southeast of Carlsbad, New Mexico. The legal location for this site is Unit Letter N of Section 36, Township 36 South, and Range 31 East in Eddy County, New Mexico. More specifically the latitude and longitude for the location are 32.187397 North and - 103.732948 West. See site plan in [Appendix I](#).

According to the soil survey provided by the United States Department of Agriculture Natural Resources Conservation Service, the soil in this area is made up of the Pajarito loamy fine sand with 0 to 3 percent slopes, eroded. Per the New Mexico Bureau of Geology and Mineral Resources, the local surface and shallow geology is Holocene to middle Pleistocene Eolian deposits. Drainage courses in this area are normally dry. According to the New Mexico Office of the State Engineer there are 8 wells in the vicinity and they all appear to be dry wells. See Appendix II for the referenced groundwater data.

The ranking for this site is **0** Based on the following:

Depth to ground water	>100'
Wellhead Protection Area	>1000'
Distance to surface water body	>1000'

Incident Description

A split in the water trunk line caused a release of 40 barrels of produced water east of the facility in the right of way measuring 15 x 20 feet. A vac truck was immediately called and 38 barrels of water was recovered. The line was isolated to prevent anything further from being released and repaired. See site plan in [Appendix I](#).

Actions Taken

On December 15, 2015 Talon personnel returned to the site to obtain soil samples. Grab soil samples were collected utilizing a hand auger from the top of the water line approximately 4-feet deep to a depth of 7-foot below ground surface. Refusal was encountered at a depth of 7-foot deep due to a rock layer. See [Table 1](#) (for field titration screening results for chlorides.)

On December 18, 2015 Talon personnel returned to the site to obtain deeper vertical delineation samples which were required by NMOCD with a drill rig to a total depth of 40-feet below ground surface for the construction of a thorough work plan. The summarized laboratory results are presented in [Table 2](#).

All soil samples were collected by Talon personnel wearing clean nitrile gloves. The soil samples were placed in laboratory provided sample containers, iced and transported to Cardinal Laboratories in Hobbs, New Mexico for analysis. The samples were tested for TPH (Total Petroleum Hydrocarbons) using EPA Method 8015M, and volatile organics (BTEX) using EPA Method 8021B. The chloride samples were analyzed per Method SM4500Cl-B.

Field Titration Screening Results for Chlorides

December 18, 2015

[Table 1](#)

Sample ID	Depth (feet)	BTEX (mg/kg)	Chlorides (mg/kg)	TPH (mg/kg) GRO	TPH (mg/kg) DRO
S-1	4'	--	10989	--	--
	5'	--	11556	--	-
	6'	--	12194	--	--
	7'	--	13541	--	--

--Analyte Not Tested

Laboratory Results

See [Appendix III](#) for complete report of laboratory results.

December 22, 2015

Table 2

Sample ID	Depth (feet)	BTEX (mg/kg)	Chlorides (mg/kg)	TPH (mg/kg) GRO	TPH (mg/kg) DRO
B-1	10'	--	<16	--	--
	15'	--	<16	--	--
	20'	--	64	--	--
	25'	--	1070	--	--
	30'	--	80	--	--
	40'	--	96	--	--

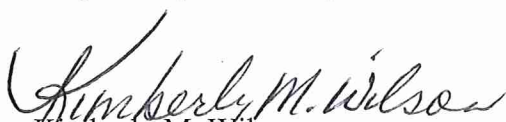
--Analyte Not Tested


Based upon the site ranking of **0**, NMOCD Recommended Remedial Action Levels (RRAL) are 50 mg/kg for BTEX, 10 mg/kg for Benzene, 5,000 mg/kg for TPH.

Proposed Remedial Actions

- Due to the rock shelf encountered at the depth of 7-feet deep (refusal), the produced water impacts may not have migrated beyond 7-feet deep.
- Based on the depth to groundwater, it is unlikely that the impacts identified from this release will pose a threat to groundwater.
- A rock layer was encountered during drilling from approximately 7-10 feet deep. No sample return was able to be obtained from the air rotary rig.
- A liner installed below several lines in the area would potentially be compromised during facility repairs.
- Therefore Devon Energy would like to request deferral of clean up in the right away until facility closure.
- Should you have any questions or if further information is required, please do not hesitate to contact our office at (575)-746-8768

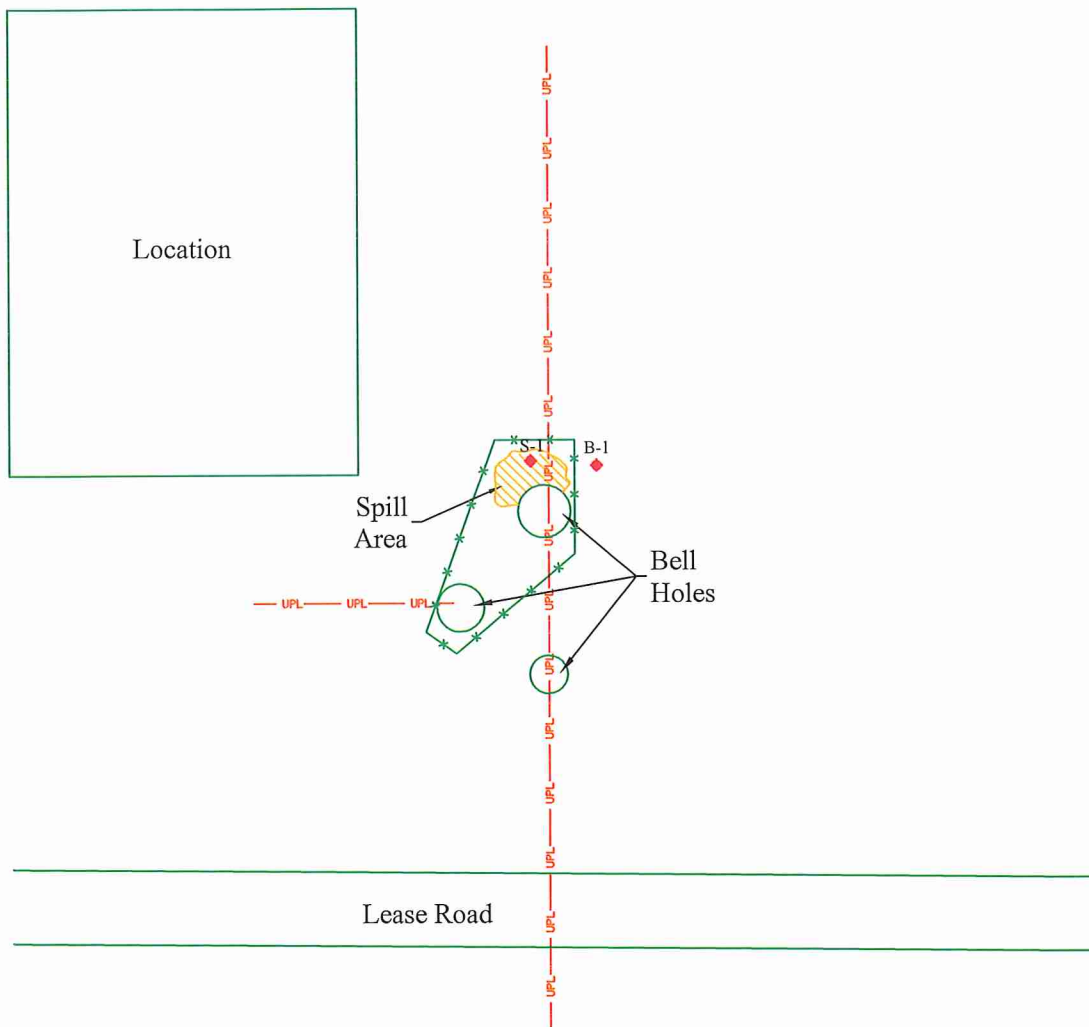
Respectfully submitted,


Kimberly M. Wilson
Project Manager


David J. Adkins
District Manager

APPENDIX I

SITE MAP



0 10 20
Scale in Feet

Legend	
	- Sample Location
	- Underground Pipeline
	- Fence Line

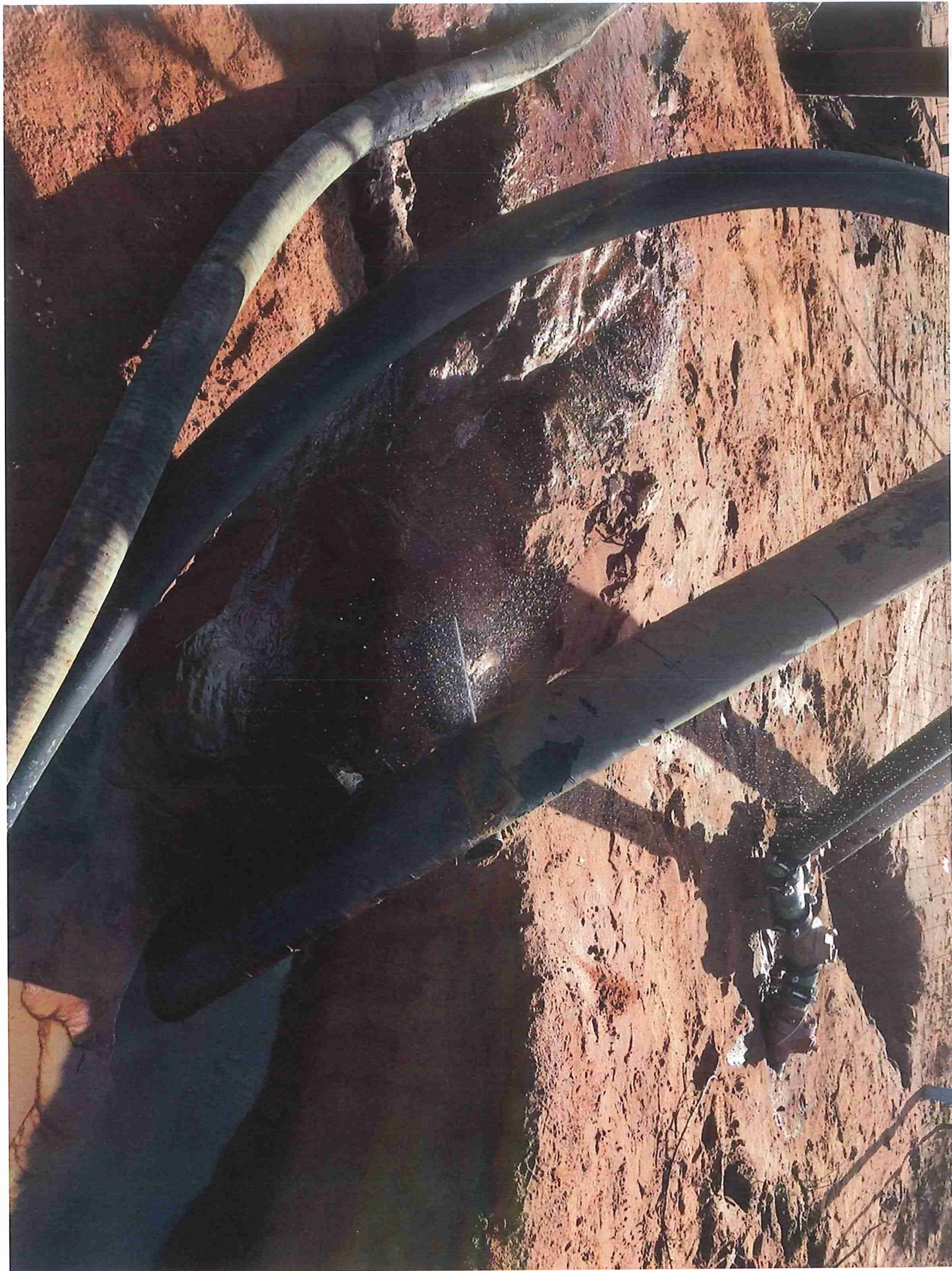


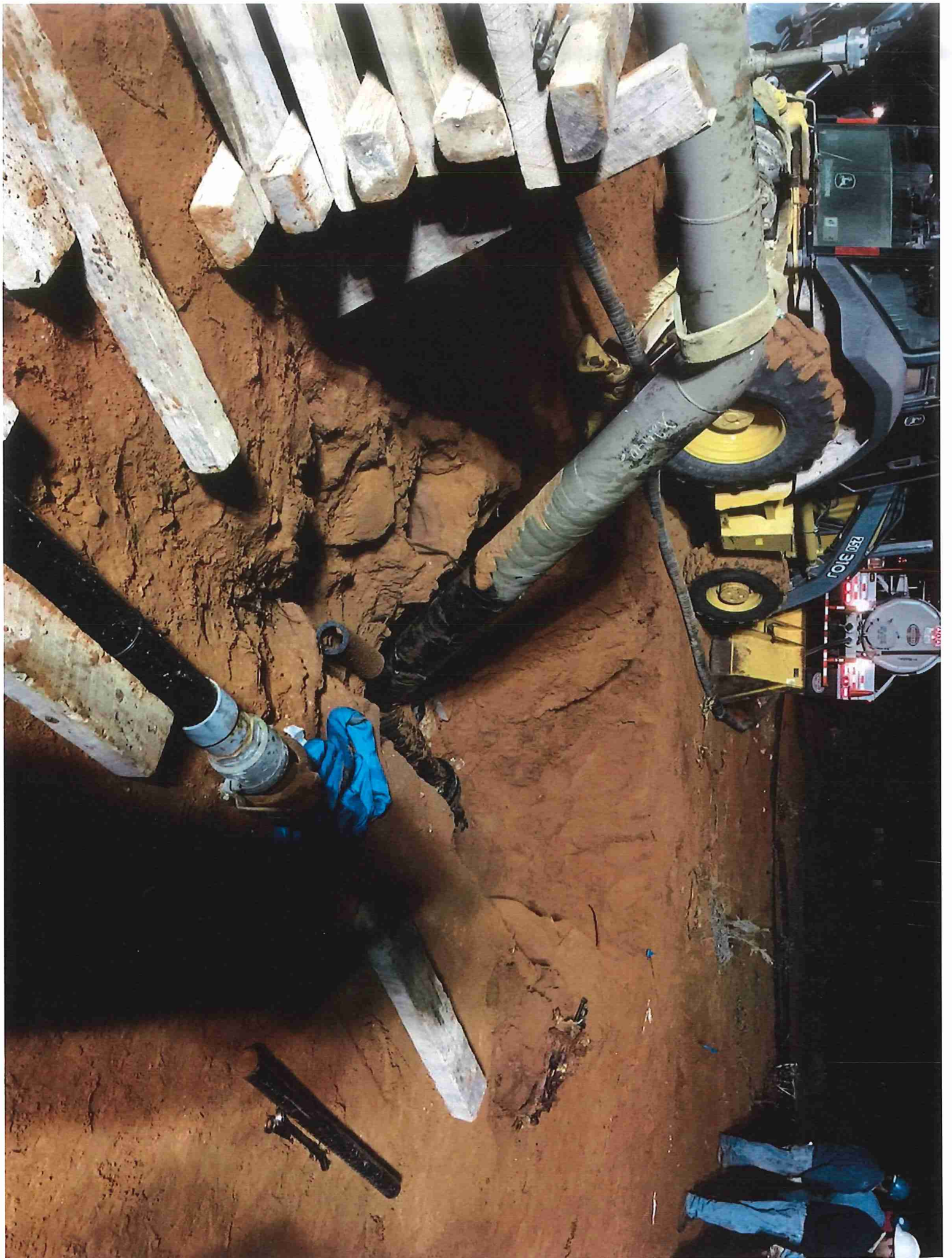
Date: 02/10/2016

Scale: 1" = 20'

Drawn By: TJS

Cotton Draw #167
Devon Energy Corporation
Eddy County, New Mexico
Figure 1 - Site Plan





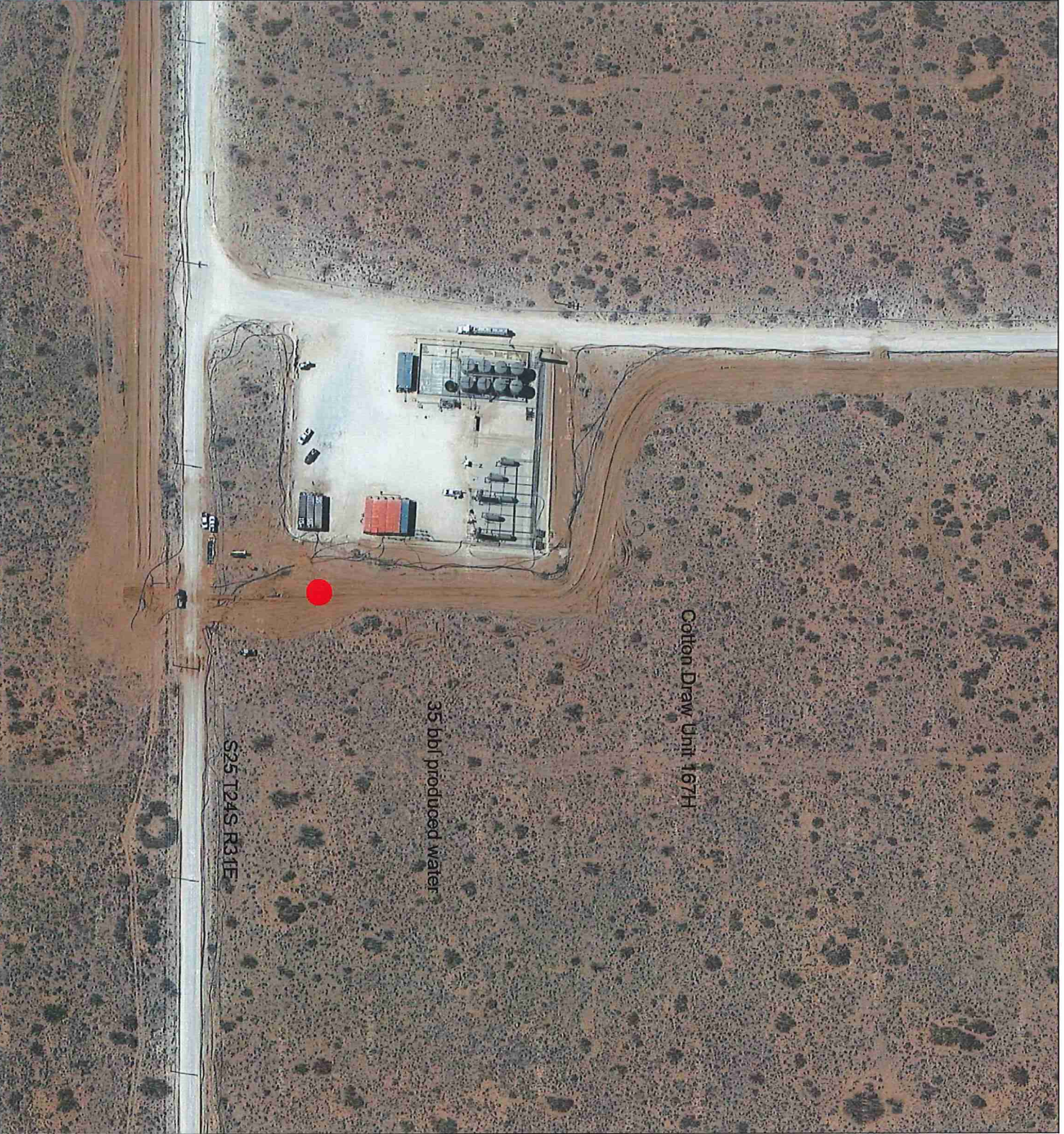
Cotton Draw Unit 167H

35 bbl produced water spill



This map is for illustrative purposes only and is not intended to be used as evidence. Devon makes no warranty, expressed or implied, regarding the map.

WGS_1984, Web_Mercator_Auxiliary_Sphere
Prepared by: corhamova
Map is current as of: 01-Dec-2015



APPENDIX II
GROUNDWATER DATA
INITIAL C-141



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	Distance	Depth Well	Depth Water	Water Column
C 02572			ED	4	2	2	02	25S	31E	618695	3559294*	569	852		
C 02568			ED	4	3	1	01	25S	31E	619103	3558892*	809	1025		
C 02573			ED	1	4	2	02	25S	31E	618499	3559091*	852			
C 02571			ED	4	1	2	02	25S	31E	618292	3559294*	899	860		
C 02569			ED	4	4	2	02	25S	31E	618699	3558891*	901	1016		
C 02574			ED	1	1	2	02	25S	31E	618092	3559494*	1023			
C 02570			ED	4	2	4	02	25S	31E	618704	3558489*	1273	895		
C 03830 POD1	CUB		ED	4	2	4	02	25S	31E	618632	3558432	1349	450		

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 8

UTMNAD83 Radius Search (in meters):

Easting (X): 619094

Northing (Y): 3559701

Radius: 3000

*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.

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

Form C-141
Revised August 8, 2011

DEC 02 2015

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

RECEIVED

Release Notification and Corrective Action

10137

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Devon Energy Production Company	Contact	Garry Michael Production Foreman
Address	6488 Seven Rivers Hwy Artesia, NM 88210	Telephone No.	575-513-4895
Facility Name	Cotton Draw Unit 167H	Facility Type	Oil

Surface Owner	State	Mineral Owner	State	API No	30-015-41385
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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
N	36	24S	31E	2310	South	2200	West	Eddy

Latitude: N 32°16'71.55"

Longitude: W -103°73'23.14"

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 40bbls	Volume Recovered 38bbls
Source of Release 8 inch water trunk line split	Date and Hour of Occurrence November 30, 2015 1:00 PM	Date and Hour of Discovery November 30, 2015 1:00 PM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Kellie Jones, OCD	
By Whom? Matt Nettles, Assistant Production Foreman	Date and Hour December 1, 2015 10:15 AM	
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.*

The water trunk line had an 8" split causing a 40bbls produced water release. The line going to the water trunk was closed, isolated and locked out to prevent further release and repairs have been made to the trunk line.

Describe Area Affected and Cleanup Action Taken.*

The affected area is a 20' x 15' area on the East side of the facility on a Devon right of way. The total release was 40bbls produced water with 38bbls recovered via vacuum truck. Environmental agency will be contacted for remediation.

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	Signed By <i>[Signature]</i> Approved by Environmental Specialist:	
Title: Field Admin Support	Approval Date: 12/3/15	Expiration Date: N/A
E-mail Address: Sheila.Fisher@dvn.com	Conditions of Approval: Remediation per O.C.D. Rules & Guidelines SUBMIT REMEDIATION PROPOSAL NO	
Date: 12.2.2015 Phone: 575.748.1829	Attached <input type="checkbox"/>	

* Attach Additional Sheets If Necessary

LATER THAN: 11/3/10

220 3422

APPENDIX III
LABORATORY RESULTS

December 22, 2015

KIMBERLY WILSON

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: COTTON DRAW #167

Enclosed are the results of analyses for samples received by the laboratory on 12/21/15 11:45.

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,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

TALON LPE
KIMBERLY WILSON
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received: 12/21/2015
Reported: 12/22/2015
Project Name: COTTON DRAW #167
Project Number: 700794.166.01
Project Location: EDDY COUNTY, NM

Sampling Date: 12/18/2015
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: B-1 10' (H503304-01)

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	12/22/2015	ND	416	104	400	7.41			

Sample ID: B-1 15' (H503304-02)

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	12/22/2015	ND	416	104	400	7.41			

Sample ID: B-1 20' (H503304-03)

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	12/22/2015	ND	416	104	400	7.41			

Sample ID: B-1 25' (H503304-04)

Chloride, SM4500Cl-B			mg/kg							Analyzed By: AP	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
Chloride	1070	16.0	12/22/2015	ND	416	104	400	7.41			

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

TALON LPE
KIMBERLY WILSON
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received: 12/21/2015
Reported: 12/22/2015
Project Name: COTTON DRAW #167
Project Number: 700794.166.01
Project Location: EDDY COUNTY, NM

Sampling Date: 12/18/2015
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: B-1 30' (H503304-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	12/22/2015	ND	416	104	400	7.41	

Sample ID: B-1 40' (H503304-06)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	12/22/2015	ND	416	104	400	7.41	

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* = 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

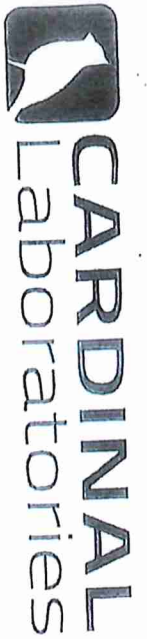
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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Talon/PE

Project Manager: Kimberly Wilson

Address: 408 W. Texas Ave.

City: Artesia

Phone #: 575-746-8768

Project #: 700744/166.01

Project Name: Cotton Draw #167

Project Location: Eddy Cty

Sampler Name: Kim Wilson

FOR LAB USE ONLY

Lab I.D.

Sample I.D.

11503304

B-1 10'

2 B-1 15'

3 B-1 20'

4 B-1 25'

5 B-1 30'

6 B-1 40'

(G)RAB OR (C)OMP.

CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

Chlorides

ANALYSIS REQUEST

P.O. #:

Company: Talon/PE

Attn:

Address:

City:

State:

Zip:

Phone #:

Fax #:

MATRIX

PRESERV

SAMPLING

PLEASE NOTE: Liability and Damage: Cardinal's liability and damage recovery for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analysis. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable analysis. 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.

Relinquished By:

Kim Wilson

Date: 12/21/15

Time:

Received By:

Kim Wilson

REMARKS:

RUSH

Phone Result: ☐ Yes ☐ No

Fax Result: ☐ Yes ☐ No

Add'l Phone #:

Add'l Fax #:

Delivered By: (Circle One)

Sampler - UPS - Bus - Other:

17:40

12/21/15

11:45

Good Hunter

* Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326