

# **Devon Energy Production Co LP**

Todd 22B Fed 2

## **Delineation Report and Work Plan**

**Unit Letter B, Section 22, T23S, R31E  
Eddy County, New Mexico**

**30-015-32203**

**April 22, 2016**



**Prepared for:**

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

**By:**

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

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**I. Company Contacts**

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

**II. Background**

Safety and Environmental Solutions, Inc., hereinafter referred to as (SESI) was engaged by Devon Energy to perform site delineation on the Todd 22B Fed 2 Battery, concerning a Fifty (50) bbl. release comprising of produced water and crude. This site is situated in Eddy County, Section 22, Township 23S, and Range 31E.

According to the C-141: A manway gasket located on the horizontal heater failed. This resulted in a release of fluid to the interior of the bermed area with some escaping the bermed containment. There was a small amount of overspray onto vegetation on the Southwest side of the pad area. The line was isolated from production in order to prevent further release. The equipment was tagged and locked until repairs could be made. A vacuum truck was dispatched and recovered approximately 45 Bbl. of the fluid. The NMOCD and BLM were notified on April 06, 2016 respectively. The C-141 filed and stamped by the same on April 07, 2016 assigning this event number **2RP-3640** (Appendix A).

**III. Surface and Ground Water**

There is no record of groundwater in the immediate vicinity of this site location. According to the topography map for Eddy County the depth to ground water for Section 22, Township 23S, Range 31E is approximately 180' bgs. Further research of the New Mexico Office of the State Engineer records indicate the average depth to groundwater for the area to be 232' 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.

<b>Depth to Ground Water:</b>			
(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>
<b>Wellhead Protection Area:</b>			
(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>
<b>Distance to Surface Water:</b>			

(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 April 14, 2016 SESI was onsite to photograph, assess and map the spill area

On April 18, 2016 SESI personnel returned to the site, in order to complete the vertical delineation of the impacted area. Whereby, it was determined that two (2) auger holes would be advanced inside the bermed area, and a single auger hole would be advanced in the pad area where it appeared the fluid had “pooled” indicating possibly the most dense impact. Representative soil samples were properly packaged, preserved and transported to Cardinal Laboratories, Hobbs New Mexico and analyzed for Chloride (Cl<sup>-</sup>) (Method SM 4500Cl-B). The results of the analysis are presented in the table below:

Sample Date 04/18/16	Depth	Chloride (mg/kg)	BTEX	TPH	
				GRO	DRO
Sample ID					
AH-1	Surface	848	<0.300	<10.0	67.6
AH-1	1ft.	160	<0.300	<10.0	<10.0
AH-2	Surface	1010	<0.300	<50.0	2360
AH-2	1ft.	416	<0.300	<50.0	294
AH-2	2ft.	96.0	<0.300	<10.0	<10.0
AH-3	Surface	5760	<0.300	<10.0	<10.0
AH-3	1ft.	3760	<0.300	<10.0	<10.0
AH-3	2ft.	<16.0	<0.300	<10.0	<10.0

**VI. Action Plan**

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

The interior of the bermed area is to be “hand” dug to a depth of 6” bgs. The pad area contains electrical lines beneath the ground surface. Excluding these areas a depth of 18” bgs., or until Cl<sup>-</sup> are <1000 mg/kg would be excavated in the impacted area of the pad. All contaminated soil is to be disposed of at an NMOCD approved facility. The overspray on the large vegetation will be treated with a single application of Micro blaze.

Upon completion of all approved remediation activity: SESI will submit complete final closure documentation regarding this incident, on behalf of Devon Energy to all parties of concern.

**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**

Todd 22B Fed 2

2BBLS Oil & 48 BBLS PW



This map is for illustrative purposes only and is neither a legally recorded map nor survey and is not intended to be used as one. Devon makes no warranty, representation, or guarantee of any kind regarding this map.

WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere  
Prepared by: Dana DeLaRosa  
Map is current as of: 06-Apr-2016



Miles

0 0.00 0.01 0.02 1:889

S22,T23S,R31E

2BBLS Oil & 48BBLS PW



**Figure 2  
Site Plan**

Devon  
Todd 22B Fed1



AH2 @ 2'

AH1 @ 1.5'

AH3 @ 2.5'

Survey

Google earth

© 2016 Google

1996

Imagery Date: 2/13/2014 32°17'46.11" N 103°45'49.24" W elev 3426 ft eye alt 3767 ft

**Appendix A**  
**C-141**

**NM OIL CONSERVATION**

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

ARTESIA DISTRICT

APR 07 2016

RECEIVED

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** DAB11609941598 Devon Energy Production Company 6137 **Contact** Enrique Campos, Production Foreman

**Address** 6488 Seven Rivers Hwy Artesia, NM 88210 **Telephone No.** 575.513.1933

**Facility Name** Todd 22B Fed 2 **Facility Type** Gas

**Surface Owner** Federal **Mineral Owner** Federal **API No** 30-015-32203

**LOCATION OF RELEASE**

Unit Letter B	Section 22	Township 23S	Range 31E	Feet from the 510	North/South Line FNL	Feet from the 1980	East/West Line FEL	County Eddy
------------------	---------------	-----------------	--------------	----------------------	-------------------------	-----------------------	-----------------------	----------------

Latitude: 32.29576

Longitude: 103.76357

**NATURE OF RELEASE**

<b>Type of Release</b> Oil & Produced Water	<b>Volume of Release</b> 2BBLS Oil & 48BBLS PW	<b>Volume Recovered</b> 1BBL Oil & 44BBLS PW
<b>Source of Release</b> Manway gasket on horizontal separator	<b>Date and Hour of Occurrence</b> 4/5/2016 @ 1:52pm	<b>Date and Hour of Discovery</b> 4/5/2016 @ 1:52pm
<b>Was Immediate Notice Given?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	<b>If YES, To Whom?</b> OCD-Shelly Tucker BLM-Mike Bratcher	
<b>By Whom?</b> Jeremy Porras, Assistant Production Foreman	<b>Date and Hour</b> OCD-4/6/2016 @ 3:10pm BLM-4/6/2016 @ 3:05pm	
<b>Was a Watercourse Reached?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>If YES, Volume Impacting the Watercourse</b> N/A	

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

**Describe Cause of Problem and Remedial Action Taken.\***  
The manway gasket located on the horizontal heater gave out causing 2 BBLS oil and 48 BBLS produced water to be released. The line was isolated from production to prevent further release. The equipment was tagged and locked until repairs are made.

**Describe Area Affected and Cleanup Action Taken.\***  
2BBLS oil and 48BBLS of produced water was released and 1BBL oil and 44BBLS produced water was recovered via vacuum truck. The release originated from the manway gasket on the horizontal heater on the Southwest side of pad. Oil and produced water was released into the bermed containment surrounding the equipment. Approximately 3 gallons of oil and 2BBLS of PW escaped the bermed containment. Approximately 2 gallons of oil and produced water mix sprayed in a fine mist onto the vegetation on the Southwest side of the pad. The approximate total size of the affected area was 30' x 30' on pad. An 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: <u>Dana DeLaRosa</u>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Dana DeLaRosa	Signed By: <u>[Signature]</u> Approved by Environmental Specialist:	
Title: <b>Field Admin Support</b>	Approval Date: <u>4/7/16</u>	Expiration Date: <u>NIA</u>
E-mail Address: <u>dana.delarosa@dvn.com</u>	Conditions of Approval: <b>Remediation per O.C.D. Rules &amp; Guidelines</b> checked <input type="checkbox"/> <b>SUBMIT REMEDIATION PROPOSAL NO</b>	
Date: 4-7-2016 Phone: 575.746.5594	<b>LATER THAN:</b> <u>5/1/16</u>	

\* Attach Additional Sheets If Necessary

2RP-3640

**Bratcher, Mike, EMNRD**

---

**From:** DeLaRosa, Dana <Dana.DeLaRosa@dvn.com>  
**Sent:** Thursday, April 07, 2016 2:35 PM  
**To:** stucker@blm.gov; jamos@blm.gov; Bratcher, Mike, EMNRD  
**Subject:** Todd 22B Fed 2\_2BBLS Oil 48BBLS PW\_4.4.16  
**Attachments:** Todd 22B Fed 2\_2BBLS Oil & 48BBLS PW\_4.4.16\_GIS Image.pdf; Todd 22B Fed 2\_2BBLS Oil & 48BBLS PW\_4.4.16\_Initial C141.doc; Todd 22B Fed 2\_2BBLS Oil & 48BBLS PW\_4.4.16\_Pic 1 of 5.JPG; Todd 22B Fed 2\_2BBLS Oil & 48BBLS PW\_4.4.16\_Pic 2 of 5.JPG; Todd 22B Fed 2\_2BBLS Oil & 48BBLS PW\_4.4.16\_Pic 3 of 5.JPG; Todd 22B Fed 2\_2BBLS Oil & 48BBLS PW\_4.4.16\_Pic 4 of 5.JPG; Todd 22B Fed 2\_2BBLS Oil & 48BBLS PW\_4.4.16\_Pic 5 of 5.JPG

Hello,

I was informed this email did not go through earlier. I resized the images to see if this would work.

Attached is the Initial C141, GIS Image and photos for the 2BBL oil and 48BBL produced water release that occurred on 4.4.2016 at the Todd 22B Fed 2. The red dot on the GIS Image represents the approximate origin of release.

Thank you,

Thank you,

*Dana DeLaRosa*

Field Admin Support  
Production  
B-Schedule



Devon Energy Corporation  
PO Box 250  
Artesia, NM 88211  
575-746-5594

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# **Appendix B**

## **Groundwater**



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

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

(R=POD has been replaced, O=orphaned, C=the file is closed) (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
<a href="#">C 02258</a>	C	ED		3	2	26	23S	31E		618055	3571853*	662		
<a href="#">C 02348</a>	C	ED		1	4	3	26	23S	31E	617648	3571068	700	430	270
<a href="#">C 02492</a>		ED		4	4	4	06	23S	31E	612056	3577320*	135	85	50
<a href="#">C 02492 POD2</a>	C	ED		3	2	2	07	23S	31E	611767	3576996	400	125	275
<a href="#">C 02664</a>		ED		3	3	2	05	23S	31E	613049	3578138*	4291	354	3937
<a href="#">C 02725</a>		ED		1	1	1	05	23S	31E	612240	3578731*	532		
<a href="#">C 02773</a>		ED		4	1	3	03	23S	31E	615668	3577762*	880		
<a href="#">C 02774</a>		ED		3	1	3	04	23S	31E	613857	3577745*	1660		
<a href="#">C 02775</a>		ED		1	1	1	05	23S	31E	612240	3578731*	529		
<a href="#">C 02776</a>		ED		2	1	1	05	23S	31E	612440	3578731*	661		
<a href="#">C 02777</a>	CUB	ED		4	4	4	10	23S	31E	616974	3575662	890		
<a href="#">C 02865</a>		ED		4	4	4	06	23S	31E	612056	3577320*	174		
<a href="#">C 02954 EXPL</a>		ED		3	1	4	20	23S	31E	613114	3572906*	905		
<a href="#">C 03140</a>		ED		4	2	4	04	23S	31E	615266	3577758*	684		
<a href="#">C 03351</a>	C	ED		4	1	4	04	23S	31E	614917	3577861	320	168	152
<a href="#">C 03520 POD1</a>	C	ED		3	1	1	07	23S	31E	610733	3576905	500		

Average Depth to Water: **232 feet**  
 Minimum Depth: **85 feet**  
 Maximum Depth: **430 feet**

Record Count: 16

PLSS Search:

Township: 23S      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**



April 21, 2016

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: DEV-16-003

Enclosed are the results of analyses for samples received by the laboratory on 04/19/16 14:20.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-15-7. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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: 04/19/2016  
 Reported: 04/21/2016  
 Project Name: DEV-16-003  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: AH-1 SURFACE (H600842-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	04/20/2016	ND	2.10	105	2.00	2.15		
Toluene*	<0.050	0.050	04/20/2016	ND	2.01	100	2.00	2.78		
Ethylbenzene*	<0.050	0.050	04/20/2016	ND	1.82	91.1	2.00	2.81		
Total Xylenes*	<0.150	0.150	04/20/2016	ND	5.67	94.5	6.00	2.65		
Total BTEX	<0.300	0.300	04/20/2016	ND						

*Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.6-140*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>848</b>	16.0	04/20/2016	ND	384	96.0	400	4.08		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	04/19/2016	ND	203	102	200	5.81		
<b>DRO &gt;C10-C28</b>	<b>67.6</b>	10.0	04/19/2016	ND	231	116	200	6.11		

*Surrogate: 1-Chlorooctane 134 % 35-147*
*Surrogate: 1-Chlorooctadecane 161 % 28-171*

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:	04/19/2016	Sampling Date:	04/18/2016
Reported:	04/21/2016	Sampling Type:	Soil
Project Name:	DEV-16-003	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: AH-1 1' (H600842-02)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	04/20/2016	ND	2.10	105	2.00	2.15		
Toluene*	<0.050	0.050	04/20/2016	ND	2.01	100	2.00	2.78		
Ethylbenzene*	<0.050	0.050	04/20/2016	ND	1.82	91.1	2.00	2.81		
Total Xylenes*	<0.150	0.150	04/20/2016	ND	5.67	94.5	6.00	2.65		
Total BTEX	<0.300	0.300	04/20/2016	ND						

*Surrogate: 4-Bromofluorobenzene (PID) 107 % 73.6-140*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>160</b>	16.0	04/20/2016	ND	384	96.0	400	4.08		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	04/19/2016	ND	203	102	200	5.81		
DRO >C10-C28	<10.0	10.0	04/19/2016	ND	231	116	200	6.11		

*Surrogate: 1-Chlorooctane 138 % 35-147*
*Surrogate: 1-Chlorooctadecane 158 % 28-171*

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:	04/19/2016	Sampling Date:	04/18/2016
Reported:	04/21/2016	Sampling Type:	Soil
Project Name:	DEV-16-003	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: AH-2 SURFACE (H600842-03)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	04/20/2016	ND	2.10	105	2.00	2.15		
Toluene*	<0.050	0.050	04/20/2016	ND	2.01	100	2.00	2.78		
Ethylbenzene*	<0.050	0.050	04/20/2016	ND	1.82	91.1	2.00	2.81		
Total Xylenes*	<0.150	0.150	04/20/2016	ND	5.67	94.5	6.00	2.65		
Total BTEX	<0.300	0.300	04/20/2016	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1010</b>	16.0	04/20/2016	ND	384	96.0	400	4.08		

TPH 8015M		mg/kg		Analyzed By: MS							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	<50.0	50.0	04/19/2016	ND	203	102	200	5.81			
<b>DRO &gt;C10-C28</b>	<b>2360</b>	50.0	04/19/2016	ND	231	116	200	6.11			

Surrogate: 1-Chlorooctane 133 % 35-147

Surrogate: 1-Chlorooctadecane 228 % 28-171

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: 04/19/2016  
 Reported: 04/21/2016  
 Project Name: DEV-16-003  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: AH-2 1' (H600842-04)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	04/20/2016	ND	2.10	105	2.00	2.15		
Toluene*	<0.050	0.050	04/20/2016	ND	2.01	100	2.00	2.78		
Ethylbenzene*	<0.050	0.050	04/20/2016	ND	1.82	91.1	2.00	2.81		
Total Xylenes*	<0.150	0.150	04/20/2016	ND	5.67	94.5	6.00	2.65		
Total BTEX	<0.300	0.300	04/20/2016	ND						

Surrogate: 4-Bromofluorobenzene (PID) 110 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>416</b>	16.0	04/20/2016	ND	384	96.0	400	4.08		

TPH 8015M		mg/kg		Analyzed By: MS							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	<50.0	50.0	04/19/2016	ND	203	102	200	5.81			
<b>DRO &gt;C10-C28</b>	<b>294</b>	50.0	04/19/2016	ND	231	116	200	6.11			

Surrogate: 1-Chlorooctane 136 % 35-147

Surrogate: 1-Chlorooctadecane 188 % 28-171

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 Hobbs NM, 88240  
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 Received: 04/19/2016  
 Reported: 04/21/2016  
 Project Name: DEV-16-003  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: AH-2 2' (H600842-05)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	04/20/2016	ND	2.10	105	2.00	2.15		
Toluene*	<0.050	0.050	04/20/2016	ND	2.01	100	2.00	2.78		
Ethylbenzene*	<0.050	0.050	04/20/2016	ND	1.82	91.1	2.00	2.81		
Total Xylenes*	<0.150	0.150	04/20/2016	ND	5.67	94.5	6.00	2.65		
Total BTEX	<0.300	0.300	04/20/2016	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>96.0</b>	16.0	04/20/2016	ND	384	96.0	400	4.08		

TPH 8015M		mg/kg		Analyzed By: MS							S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	<10.0	10.0	04/19/2016	ND	203	102	200	5.81			
DRO >C10-C28	<10.0	10.0	04/19/2016	ND	231	116	200	6.11			

Surrogate: 1-Chlorooctane 149 % 35-147

Surrogate: 1-Chlorooctadecane 172 % 28-171

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

 Received: 04/19/2016  
 Reported: 04/21/2016  
 Project Name: DEV-16-003  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: AH-3 SURFACE (H600842-06)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	04/20/2016	ND	2.10	105	2.00	2.15		
Toluene*	<0.050	0.050	04/20/2016	ND	2.01	100	2.00	2.78		
Ethylbenzene*	<0.050	0.050	04/20/2016	ND	1.82	91.1	2.00	2.81		
Total Xylenes*	<0.150	0.150	04/20/2016	ND	5.67	94.5	6.00	2.65		
Total BTEX	<0.300	0.300	04/20/2016	ND						

Surrogate: 4-Bromofluorobenzene (PID) 107 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5760	16.0	04/20/2016	ND	384	96.0	400	4.08		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	04/19/2016	ND	203	102	200	5.81		
DRO >C10-C28	<10.0	10.0	04/19/2016	ND	231	116	200	6.11		

Surrogate: 1-Chlorooctane 141 % 35-147

Surrogate: 1-Chlorooctadecane 163 % 28-171

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 703 East Clinton  
 Hobbs NM, 88240  
 Fax To: (575) 393-4388

 Received: 04/19/2016  
 Reported: 04/21/2016  
 Project Name: DEV-16-003  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: AH-3 1' (H600842-07)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	04/20/2016	ND	2.10	105	2.00	2.15		
Toluene*	<0.050	0.050	04/20/2016	ND	2.01	100	2.00	2.78		
Ethylbenzene*	<0.050	0.050	04/20/2016	ND	1.82	91.1	2.00	2.81		
Total Xylenes*	<0.150	0.150	04/20/2016	ND	5.67	94.5	6.00	2.65		
Total BTEX	<0.300	0.300	04/20/2016	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3760	16.0	04/20/2016	ND	384	96.0	400	4.08		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	04/19/2016	ND	203	102	200	5.81		
DRO >C10-C28	<10.0	10.0	04/19/2016	ND	231	116	200	6.11		

Surrogate: 1-Chlorooctane 141 % 35-147

Surrogate: 1-Chlorooctadecane 163 % 28-171

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 Received: 04/19/2016  
 Reported: 04/21/2016  
 Project Name: DEV-16-003  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 04/18/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: AH-3 2' (H600842-08)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	04/20/2016	ND	2.10	105	2.00	2.15		
Toluene*	<0.050	0.050	04/20/2016	ND	2.01	100	2.00	2.78		
Ethylbenzene*	<0.050	0.050	04/20/2016	ND	1.82	91.1	2.00	2.81		
Total Xylenes*	<0.150	0.150	04/20/2016	ND	5.67	94.5	6.00	2.65		
Total BTEX	<0.300	0.300	04/20/2016	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.6-140

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	04/20/2016	ND	384	96.0	400	4.08		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	04/19/2016	ND	203	102	200	5.81		
DRO >C10-C28	<10.0	10.0	04/19/2016	ND	231	116	200	6.11		

Surrogate: 1-Chlorooctane 145 % 35-147

Surrogate: 1-Chlorooctadecane 164 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

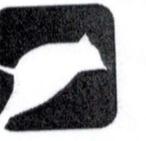
**Notes and Definitions**

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- 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



# CARDINAL Laboratories

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

### BILL TO

### ANALYSIS REQUEST

Company Name: Safety and Environmental Solutions  
Project Manager: Bob Allen

Address: 703 East Clinton, PO Box 1613  
City: Hobbs State: NM zip: 88240

Phone #: 575 397-0510 Fax #: 575 393-4388  
Project #: Dev-16-003 Project Owner:

Project Name:  
Project Location:

Sampler Name:  
FOR LAB USE ONLY

Lab I.D. Sample I.D.

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX							DATE	TIME	ANALYSIS
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:			
<u>H000842</u>	<u>Att-1 Surface</u>		1								<u>04/18</u>	<u>0910</u>	<u>Chlorides</u>
	<u>Att-1 1st</u>		1									<u>0930</u>	<u>TPH (8015)</u>
	<u>Att-1 1st</u>		1									<u>0945</u>	<u>BTEX</u>
	<u>Att-2 Surfaces</u>		1									<u>1020</u>	
	<u>Att-2 1st</u>		1									<u>1045</u>	
	<u>Att-2 2nd</u>		1									<u>1100</u>	
	<u>Att-3 Surface</u>		1									<u>1300</u>	
	<u>Att-3 1st</u>		1									<u>1320</u>	
	<u>Att-3 2nd</u>		1									<u>1340</u>	

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Relinquished By: [Signature] Date: 04/19/16 Time: 1:00

Received By: [Signature] Date: 4:20 Time: 4:20

Delivered By: (Circle One) UPS 4.80  
Sampler - UPS - Bus - Other: None

Sample Condition: Cool  Intact   
Checked By: [Signature]

REMARKS:  Yes  No  Yes  No  
Add'l Phone #:   
Add'l Fax #:   
Phone Result:   
Fax Result:

# **Appendix D**

## **Site Photographs**

Devon Energy  
Todd 22B Fed 2



Looking North at impacted pad area



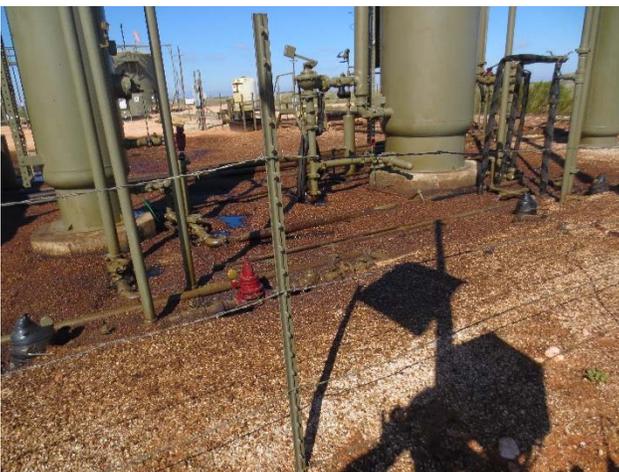
Standing fluid inside berm from SE corner



Standing Fluid inside berm SW corner



Impacted area inside berm NE Corner



Looking SW from center NE corner of bermed area



Looking SW from NE corner of bermed area

Devon Energy  
Todd 22B Fed 2



Over-spray area looking West



Sprayed area looking Northwest



Sprayed area looking North



Spray area looking Southwest



Spray are looking West



Looking SE at impacted area inside berm

Devon Energy  
Todd 22B Fed 2



Area of Auger hole 1



Auger hole 2



Auger hole 3 verification of depth



Indicating pooling area of Auger Hole 3