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*By JKeyes at 9:56 am, Dec 16, 2015*



# Cascade 29 Fed #1 release #2

## CLOSURE REPORT

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Release Date: 6/6/2015

UL/D Sec 29, T25 south, R33 east, Lea County NM

API # 30-025-40346

December 1, 2015

**Prepared by:**

Lance Crenshaw, Project Manager  
Environmental Department  
Diversified Field Service, Inc.  
206 West Snyder  
Hobbs, NM 88240  
Phone: (575)964-8394  
Fax: (575)393-8396

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# Cascade 29 Fed #1

## 1 INTRODUCTION

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Cimarex Energy has retained Diversified Field Service, Inc. (DFSI) to address environmental issues for the site detailed herein.

The site is located south of highway 128 NM and east of County Road 1, in Lea County. The leak occurred on 3/29/2015. The leak site resulted from a rig moving truck striking the line, causing it to rupture. The impacted area is in pasture land and on the lease road. Approximately 300 bbls of produced water was released, and 90 bbls recovered. A C-141 was submitted to the NMOCD on June 26, 2015.

## 2 SITE ACTIVITIES

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On June 9, 2015, DFSI personnel delineated 15 sample points of the leak area. Each sample was tested for chloride levels as well as BTEX. The BTEX samples were performed using a Mini Rae Photoionization Detector (PID). The results are attached.

On November 18, 2015, DFSI personnel returned to the location to begin excavation. The initial work plan had to be altered due to the fact that an unknown company had raised and leveled the lease road, and widened the lease road, covering parts of the spill path.

The area in the pasture was excavated to 1' BGS. All contaminated soil was hauled to an approved NM state disposal. Native topsoil was brought in for backfill, and the area was seeded with 1.5 acres of BLM #2 seed.

Photos can be viewed in Appendix II.

DFSI has conducted a groundwater study of the area and has determined that according to the New Mexico Office of the State Engineer the average depth to groundwater for this area is 260 foot below ground surface. Therefore, no eminent danger of groundwater impact or threat to life is anticipated.

## 3 CONCLUSION

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DFSI, on behalf of Cimarex, respectfully requests the closure of the regulatory file for the site.

# Appendix I

INITIAL FORM C-141

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Diversified Field Service, Inc.  
206 W. Snyder  
Hobbs, NM 88240  
(575) 964-8394

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

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

Form C-141  
Revised August 8, 2011

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

### Release Notification and Corrective Action

#### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Cimarex Energy	Contact	Christine Alderman
Address	600 N Marienfeld Ste 600 Midland TX	Telephone No.	432-853-7059
Facility Name	Cascade 29-1	Facility Type	production
Surface Owner	Federal	Mineral Owner	
		API No.	30-025-40346

#### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	29	25S	33E	330	N	350	W	Lea

Latitude 32.10795 Longitude -103.60165

#### NATURE OF RELEASE

Type of Release	Produced water	Volume of Release	300 bbls	Volume Recovered	90 bbls
Source of Release	poly flowline	Date and Hour of Occurrence	06/06/2015	Date and Hour of Discovery	06/06/2015 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/Jeffery Robertson		
By Whom?	Christine Alderman	Date and Hour	06/07/2015 4:40 pm		
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.\*

Trucking company was moving a rig down the pipeline road near location and part of the derrick sliced the polyline open.

Describe Area Affected and Cleanup Action Taken.\*

fluids ran approximately 140 yards along the lease road (the trucks kept driving through it and got stuck), and then approximately 320 yards down a dry creek bed 15 feet wide at widest point. Diversified assessed the release and sampled. A work plan will developed.

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>Christine Alderman</i>		<u>OIL CONSERVATION DIVISION</u>	
Printed Name: Christine Alderman		Approved by Environmental Specialist:	
Title: ESH Supervisor		Approval Date:	Expiration Date:
E-mail Address: calderman@cimarex.com		Conditions of Approval:	
Date: 6/26/2015 Phone: 432-853-7059		Attached <input type="checkbox"/>	

\* Attach Additional Sheets If Necessary

# Appendix II

## SITE PHOTOS

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# Cascade 29 Fed #1

## PHOTO PAGE

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Initial spill photos around lease road



Initial spill photos around lease road and into arroyo





Initial spill photos into pasture and arroyo area



Initial spill photos into pasture and arroyo area



Initial spill photos into pasture and arroyo area





Photo of raised, leveled and widened lease road



Excavating spill area



Hand digging/excavation around high pressure lines



Seeding backfilled area with BLM #2 seed





Completed, seeded and tilled location

# Appendix III

## SITE MAP

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Diversified Field Service, Inc.  
206 W. Snyder  
Hobbs, NM 88240  
(575) 964-8394

# Site Diagram

**Cimarex, Cascade 29 Fed 1H**  
**UL/D, Sec. 11 T26S R32E**  
**Lea County, NM**  
**Drafted By: Lance Crenshaw, 6-8-15**

0 0.01 0.02 0.04 Miles

## Legend

### Misc\_points

#### Types

- Electrical Box
- Power Pole
- Headers
- Injection
- Pumpjacks
- Tanks
- Valves
- Other
- Soil Bores
- sample\_pts
- Source

### Pipeline

#### Type

- Above Ground Line
- Buried Line

### Spill

- <all other values>

### Spill\_Media

- Oil and Produced H2O
- Oil
- Other
- Produced Water

**Spill Area:**  
**29,353 sq. ft.**

Source: Esri, DigitalGlobe, GeoEye, i-cube  
 swisstopo, and the GIS User Community

**Lance Crenshaw**  
 GIS Technician

Soil Remediation and Ground Water Remediation  
 Environmental Assessments  
 Regulatory Compliance



**Environmental DFSI Services**

Office: 575-964-8394  
 Fax: 575-964-8396

Cell: 575-441-2359  
 Email: lcrenshaw@diversifiedfsi.com

# Appendix IV

## LABORATORY ANALYSES

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Diversified Field Service, Inc.  
206 W. Snyder  
Hobbs, NM 88240  
(575) 964-8394



## Diversified Environmental Services

**Company Name:** cimarex  
**Location Name:** cascade 29 fed 3

SP Date:	6/9/2015	6/10/2015
Rel Date:	6/6/2015	

[illegible]

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples



## Diversified Environmental Services

[illegible]

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples

## Diversified Environmental Services

[illegible]

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples

## 6/9/2015

SP Date: 6/9/2015

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LAB DATA

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	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples

## Diversified Environmental Services

[illegible]

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples

## Diversified Environmental Services

[illegible]

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples

June 15, 2015

CHRISTINE ALDERMAN

CIMAREX ENERGY CO.-MIDLAND

600 N. MARIENFELD ST, SUITE 600

MIDLAND, TX 79701

RE: CASCADE #29-3

Enclosed are the results of analyses for samples received by the laboratory on 06/10/15 14:00.

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,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/09/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 1 @ 2' (H501497-01)**

BTX 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	06/11/2015	ND	2.02	101	2.00	0.107	
Toluene*	<0.050	0.050	06/11/2015	ND	1.99	99.5	2.00	1.64	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.04	102	2.00	3.74	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.60	93.4	6.00	4.04	
Total BTX	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 61-154

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	06/11/2015	ND	416	104	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 106 % 47.2-157

Surrogate: 1-Chlorooctadecane 133 % 52.1-176

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/09/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 2 @ 1' (H501497-02)**

BTX 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	06/11/2015	ND	2.02	101	2.00	0.107	
Toluene*	<0.050	0.050	06/11/2015	ND	1.99	99.5	2.00	1.64	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.04	102	2.00	3.74	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.60	93.4	6.00	4.04	
Total BTX	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	06/11/2015	ND	416	104	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 108 % 47.2-157

Surrogate: 1-Chlorooctadecane 132 % 52.1-176

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/09/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 3 @ 1' (H501497-03)**

BTX 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	06/11/2015	ND	2.02	101	2.00	0.107	
Toluene*	<0.050	0.050	06/11/2015	ND	1.99	99.5	2.00	1.64	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.04	102	2.00	3.74	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.60	93.4	6.00	4.04	
Total BTX	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	06/11/2015	ND	416	104	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 107 % 47.2-157

Surrogate: 1-Chlorooctadecane 133 % 52.1-176

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/09/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 4 @ 1' (H501497-04)**

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	06/11/2015	ND	2.02	101	2.00	0.107	
Toluene*	<0.050	0.050	06/11/2015	ND	1.99	99.5	2.00	1.64	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.04	102	2.00	3.74	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.60	93.4	6.00	4.04	
Total BTEx	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 61-154

Chloride, SM4500CI-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	06/11/2015	ND	416	104	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 104 % 47.2-157

Surrogate: 1-Chlorooctadecane 129 % 52.1-176

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/09/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 5 @ 1' (H501497-05)**

BTX 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	06/11/2015	ND	2.02	101	2.00	0.107	
Toluene*	<0.050	0.050	06/11/2015	ND	1.99	99.5	2.00	1.64	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.04	102	2.00	3.74	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.60	93.4	6.00	4.04	
Total BTX	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	06/11/2015	ND	416	104	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 94.9 % 47.2-157

Surrogate: 1-Chlorooctadecane 122 % 52.1-176

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/09/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 6 @ 1' (H501497-06)**

BTX 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	06/11/2015	ND	2.02	101	2.00	0.107	
Toluene*	<0.050	0.050	06/11/2015	ND	1.99	99.5	2.00	1.64	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.04	102	2.00	3.74	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.60	93.4	6.00	4.04	
Total BTX	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 116 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	06/11/2015	ND	416	104	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	941	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 107 % 47.2-157

Surrogate: 1-Chlorooctadecane 157 % 52.1-176

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/09/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 7 @ 1' (H501497-07)**

BTX 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	06/11/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/11/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.77	96.2	6.00	0.179	
Total BTX	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1090	16.0	06/11/2015	ND	416	104	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 107 % 47.2-157

Surrogate: 1-Chlorooctadecane 131 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/09/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 8 @ 2' (H501497-08)**

BTX 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	06/11/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/11/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.77	96.2	6.00	0.179	
Total BTX	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1620	16.0	06/11/2015	ND	416	104	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 108 % 47.2-157

Surrogate: 1-Chlorooctadecane 133 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

 CIMAREX ENERGY CO.-MIDLAND  
 CHRISTINE ALDERMAN  
 600 N. MARIENFELD ST, SUITE 600  
 MIDLAND TX, 79701  
 Fax To: UNK-NOWN

 Received: 06/10/2015  
 Reported: 06/15/2015  
 Project Name: CASCADE #29-3  
 Project Number: 2ND SPILL  
 Project Location: NOT GIVEN

 Sampling Date: 06/09/2015  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP 9 @ 1' (H501497-09)**

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	06/11/2015	ND	1.99	99.5	2.00	0.229		
Toluene*	<0.050	0.050	06/11/2015	ND	1.98	98.9	2.00	0.356		
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.10	105	2.00	0.167		
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.77	96.2	6.00	0.179		
Total BTEx	<0.300	0.300	06/11/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 115 % 61-154

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	240	16.0	06/11/2015	ND	416	104	400	3.77		

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 109 % 47.2-157

Surrogate: 1-Chlorooctadecane 132 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/09/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 10 @ 1' (H501497-10)**

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	06/11/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/11/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.77	96.2	6.00	0.179	
Total BTEx	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	576	16.0	06/11/2015	ND	416	104	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 106 % 47.2-157

Surrogate: 1-Chlorooctadecane 130 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 CIMAREX ENERGY CO.-MIDLAND  
 CHRISTINE ALDERMAN  
 600 N. MARIENFELD ST, SUITE 600  
 MIDLAND TX, 79701  
 Fax To: UNK-NOWN

 Received: 06/10/2015  
 Reported: 06/15/2015  
 Project Name: CASCADE #29-3  
 Project Number: 2ND SPILL  
 Project Location: NOT GIVEN

 Sampling Date: 06/09/2015  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP 11 @ 1' (H501497-11)**

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	06/11/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/11/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.77	96.2	6.00	0.179	
Total BTEx	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	480	16.0	06/11/2015	ND	416	104	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 108 % 47.2-157

Surrogate: 1-Chlorooctadecane 132 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/09/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 12 @ 1' (H501497-12)**

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	06/11/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/11/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.77	96.2	6.00	0.179	
Total BTEx	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	06/11/2015	ND	416	104	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 106 % 47.2-157

Surrogate: 1-Chlorooctadecane 134 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/09/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 13 @ 1' (H501497-13)**

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	06/11/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/11/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.77	96.2	6.00	0.179	
Total BTEx	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	416	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 105 % 47.2-157

Surrogate: 1-Chlorooctadecane 129 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/09/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 14 @ 1' (H501497-14)**

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	06/11/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/11/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.77	96.2	6.00	0.179	
Total BTEx	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 101 % 47.2-157

Surrogate: 1-Chlorooctadecane 125 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/09/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 15 @ 1' (H501497-15)**

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	06/11/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/11/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/11/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/11/2015	ND	5.77	96.2	6.00	0.179	
Total BTEx	<0.300	0.300	06/11/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	183	91.6	200	0.400	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	194	97.0	200	3.81	

Surrogate: 1-Chlorooctane 103 % 47.2-157

Surrogate: 1-Chlorooctadecane 131 % 52.1-176

Cardinal Laboratories

\*=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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Celey D. Keene, Lab Director/Quality Manager





CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <u>Cardinal</u>		P.O. #:		BILL TO											
Project Manager: <u>Lance Crenshaw</u>		Company: <u>Cardinal</u>		ANALYSIS REQUEST											
Address:		Attn: <u>Christine Alderman</u>													
City:		Address:													
Phone #:		City:													
Fax #:		State:													
Project #:		Zip:													
Project Name: <u>Cascade 2a Fed 3 (2nd soil)</u>		Phone #:													
Project Location:		Fax #:													
Sampler Name: <u>Lance Crenshaw</u>															
FOR LAB USE ONLY															
Lab I.D.		Sample I.D.		(G)RAB OR (C)OMP.		# CONTAINERS		MATRIX		PRESERV		SAMPLING			
				GROUNDWATER				WASTEWATER							
				SOIL				OIL							
				SLUDGE				OTHER :							
				ACID/BASE:				ICE / COOL							
				OTHER :											
				DATE		TIME									
11		SP11E1'		6-9		11:00									
12		SP12E1'		6-9		11:15									
13		SP13E1'		6-9		11:25									
14		SP14E1'		6-9		11:35									
15		SP15E1'		6-9		11:45									
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Relinquished By: <u>Lance Crenshaw</u>		Date: <u>8-10-15</u>		Time: <u>14:00</u>		Received By: <u>Christine Alderman</u>		Date: <u>8-10-15</u>		Time: <u>14:00</u>					
Delivered By: (Circle One)		Sample Condition		Cool Intact		Checked By: (Initials)									
Sampler - UPS - Bus - Other:		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>									
4.602															
#54															
Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Phone #:		Add'l Fax #:									
E-mail Results To: <u>mburton@diversifiedsi.com</u>															



June 15, 2015

CHRISTINE ALDERMAN

CIMAREX ENERGY CO.-MIDLAND

600 N. MARIENFELD ST, SUITE 600

MIDLAND, TX 79701

RE: CASCADE #29-3

Enclosed are the results of analyses for samples received by the laboratory on 06/10/15 14:00.

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,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 1 @ 3' (H501498-01)**

BTX 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	06/12/2015	ND	1.99	99.5	2.00	0.229		
Toluene*	<0.050	0.050	06/12/2015	ND	1.98	98.9	2.00	0.356		
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.10	105	2.00	0.167		
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.77	96.2	6.00	0.179		
Total BTX	<0.300	0.300	06/12/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 61-154

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	656	16.0	06/12/2015	ND	432	108	400	3.77		

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 99.3 % 47.2-157

Surrogate: 1-Chlorooctadecane 124 % 52.1-176

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 2 @ 2' (H501498-02)**

BTX 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	06/12/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/12/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.77	96.2	6.00	0.179	
Total BTX	<0.300	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2200	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 90.8 % 47.2-157

Surrogate: 1-Chlorooctadecane 117 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 3 @ 2' (H501498-03)**

BTX 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	06/12/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/12/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.77	96.2	6.00	0.179	
Total BTX	<0.300	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	544	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 99.9 % 47.2-157

Surrogate: 1-Chlorooctadecane 120 % 52.1-176

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 CIMAREX ENERGY CO.-MIDLAND  
 CHRISTINE ALDERMAN  
 600 N. MARIENFELD ST, SUITE 600  
 MIDLAND TX, 79701  
 Fax To: UNK-NOWN

 Received: 06/10/2015  
 Reported: 06/15/2015  
 Project Name: CASCADE #29-3  
 Project Number: 2ND SPILL  
 Project Location: NOT GIVEN

 Sampling Date: 06/10/2015  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP 4 @ 2' (H501498-04)**

BTX 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	06/12/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/12/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.77	96.2	6.00	0.179	
Total BTX	<0.300	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	784	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 89.0 % 47.2-157

Surrogate: 1-Chlorooctadecane 115 % 52.1-176

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 5 @ 2' (H501498-05)**

BTX 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	06/12/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/12/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.77	96.2	6.00	0.179	
Total BTX	<0.300	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 88.3 % 47.2-157

Surrogate: 1-Chlorooctadecane 106 % 52.1-176

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 6 @ 2' (H501498-06)**

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	06/12/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/12/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	0.614	0.150	06/12/2015	ND	5.77	96.2	6.00	0.179	
Total BTEX	0.614	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 132 % 61-154

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	944	16.0	06/12/2015	ND	432	108	400	3.77	

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	98.2	10.0	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	4070	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 114 % 47.2-157

Surrogate: 1-Chlorooctadecane 186 % 52.1-176

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 7 @ 2' (H501498-07)**

BTX 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	06/12/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/12/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.77	96.2	6.00	0.179	
Total BTX	<0.300	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	10.3	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 90.4 % 47.2-157

Surrogate: 1-Chlorooctadecane 111 % 52.1-176

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 8 @ 3' (H501498-08)**

BTX 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	06/12/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/12/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.77	96.2	6.00	0.179	
Total BTX	<0.300	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1220	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 95.1 % 47.2-157

Surrogate: 1-Chlorooctadecane 119 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 9 @ 2' (H501498-09)**

BTX 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	06/12/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/12/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.77	96.2	6.00	0.179	
Total BTX	<0.300	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 96.8 % 47.2-157

Surrogate: 1-Chlorooctadecane 117 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 10 @ 2' (H501498-10)**

BTX 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	06/12/2015	ND	1.99	99.5	2.00	0.229	
Toluene*	<0.050	0.050	06/12/2015	ND	1.98	98.9	2.00	0.356	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.10	105	2.00	0.167	
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.77	96.2	6.00	0.179	
Total BTX	<0.300	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	816	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 95.7 % 47.2-157

Surrogate: 1-Chlorooctadecane 117 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 11 @ 2' (H501498-11)**

BTX 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	06/12/2015	ND	2.06	103	2.00	1.09	
Toluene*	<0.050	0.050	06/12/2015	ND	2.08	104	2.00	2.48	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.17	108	2.00	2.36	
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.99	99.8	6.00	2.88	
Total BTX	<0.300	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	704	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 91.0 % 47.2-157

Surrogate: 1-Chlorooctadecane 111 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 12 @ 2' (H501498-12)**

BTX 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	06/12/2015	ND	2.06	103	2.00	1.09	
Toluene*	<0.050	0.050	06/12/2015	ND	2.08	104	2.00	2.48	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.17	108	2.00	2.36	
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.99	99.8	6.00	2.88	
Total BTX	<0.300	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 94.2 % 47.2-157

Surrogate: 1-Chlorooctadecane 118 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 13 @ 2' (H501498-13)**

BTX 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	06/12/2015	ND	2.06	103	2.00	1.09	
Toluene*	<0.050	0.050	06/12/2015	ND	2.08	104	2.00	2.48	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.17	108	2.00	2.36	
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.99	99.8	6.00	2.88	
Total BTX	<0.300	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 100 % 47.2-157

Surrogate: 1-Chlorooctadecane 121 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 14 @ 2' (H501498-14)**

BTX 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	06/12/2015	ND	2.06	103	2.00	1.09	
Toluene*	<0.050	0.050	06/12/2015	ND	2.08	104	2.00	2.48	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.17	108	2.00	2.36	
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.99	99.8	6.00	2.88	
Total BTX	<0.300	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 61-154

Chloride, SM4500CI-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	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 89.3 % 47.2-157

Surrogate: 1-Chlorooctadecane 116 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CIMAREX ENERGY CO.-MIDLAND  
CHRISTINE ALDERMAN  
600 N. MARIENFELD ST, SUITE 600  
MIDLAND TX, 79701  
Fax To: UNK-NOWN

Received: 06/10/2015  
Reported: 06/15/2015  
Project Name: CASCADE #29-3  
Project Number: 2ND SPILL  
Project Location: NOT GIVEN

Sampling Date: 06/10/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 15 @ 2' (H501498-15)**

BTX 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	06/12/2015	ND	2.06	103	2.00	1.09	
Toluene*	<0.050	0.050	06/12/2015	ND	2.08	104	2.00	2.48	
Ethylbenzene*	<0.050	0.050	06/12/2015	ND	2.17	108	2.00	2.36	
Total Xylenes*	<0.150	0.150	06/12/2015	ND	5.99	99.8	6.00	2.88	
Total BTX	<0.300	0.300	06/12/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	06/12/2015	ND	432	108	400	3.77	

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	06/11/2015	ND	185	92.3	200	3.51	
DRO >C10-C28	<10.0	10.0	06/11/2015	ND	202	101	200	5.08	

Surrogate: 1-Chlorooctane 86.9 % 47.2-157

Surrogate: 1-Chlorooctadecane 113 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
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



# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 18 of 19





(575) 393-2326 FAX (575) 393-2476

**BILL TO**

## ANALYSIS REQUEST

+ Cardinal cannot prevent verbal change. Disposed by written change in 1575 202.2226



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

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June 22, 2015

MIKE BURTON

DIVERSIFIED FIELD SERVICES, INC.

P. O. BOX 5966

HOBBS, NM 88241

RE: CASCADE 2A FED #3

Enclosed are the results of analyses for samples received by the laboratory on 06/16/15 16:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](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, flowing style.

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

DIVERSIFIED FIELD SERVICES, INC.  
MIKE BURTON  
P. O. BOX 5966  
HOBBS NM, 88241  
Fax To: (575) 393-2981

Received:	06/16/2015	Sampling Date:	06/16/2015
Reported:	06/22/2015	Sampling Type:	Soil
Project Name:	CASCADE 2A FED #3	Sampling Condition:	Cool & Intact
Project Number:	2ND SPILL	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

**Sample ID: SP 2 @ 3' (H501569-01)**

BTX 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	06/19/2015	ND	1.74	86.8	2.00	1.25	
Toluene*	<0.050	0.050	06/19/2015	ND	1.73	86.6	2.00	1.70	
Ethylbenzene*	<0.050	0.050	06/19/2015	ND	1.82	91.2	2.00	2.34	
Total Xylenes*	<0.150	0.150	06/19/2015	ND	5.01	83.5	6.00	2.12	
Total BTX	<0.300	0.300	06/19/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 61-154

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	06/22/2015	ND	432	108	400	3.77	

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	06/18/2015	ND	177	88.7	200	3.58	
DRO >C10-C28	<10.0	10.0	06/18/2015	ND	175	87.6	200	3.54	

Surrogate: 1-Chlorooctane 88.2 % 47.2-157

Surrogate: 1-Chlorooctadecane 93.6 % 52.1-176

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

DIVERSIFIED FIELD SERVICES, INC.  
MIKE BURTON  
P. O. BOX 5966  
HOBBS NM, 88241  
Fax To: (575) 393-2981

Received: 06/16/2015  
Reported: 06/22/2015  
Project Name: CASCADE 2A FED #3  
Project Number: 2ND SPILL  
Project Location: NONE GIVEN

Sampling Date: 06/16/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 6 @ 3' (H501569-02)**

BTX 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	06/19/2015	ND	1.74	86.8	2.00	1.25	
Toluene*	<0.050	0.050	06/19/2015	ND	1.73	86.6	2.00	1.70	
Ethylbenzene*	<0.050	0.050	06/19/2015	ND	1.82	91.2	2.00	2.34	
Total Xylenes*	<0.150	0.150	06/19/2015	ND	5.01	83.5	6.00	2.12	
Total BTX	<0.300	0.300	06/19/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	06/22/2015	ND	432	108	400	3.77	

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	06/18/2015	ND	177	88.7	200	3.58	
DRO >C10-C28	<10.0	10.0	06/18/2015	ND	175	87.6	200	3.54	

Surrogate: 1-Chlorooctane 84.2 % 47.2-157

Surrogate: 1-Chlorooctadecane 90.0 % 52.1-176

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

DIVERSIFIED FIELD SERVICES, INC.  
MIKE BURTON  
P. O. BOX 5966  
HOBBS NM, 88241  
Fax To: (575) 393-2981

Received: 06/16/2015  
Reported: 06/22/2015  
Project Name: CASCADE 2A FED #3  
Project Number: 2ND SPILL  
Project Location: NONE GIVEN

Sampling Date: 06/16/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 8 @ 5' (H501569-03)**

BTX 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	06/19/2015	ND	1.74	86.8	2.00	1.25	
Toluene*	<0.050	0.050	06/19/2015	ND	1.73	86.6	2.00	1.70	
Ethylbenzene*	<0.050	0.050	06/19/2015	ND	1.82	91.2	2.00	2.34	
Total Xylenes*	<0.150	0.150	06/19/2015	ND	5.01	83.5	6.00	2.12	
Total BTX	<0.300	0.300	06/19/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	06/22/2015	ND	432	108	400	3.77	

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	06/18/2015	ND	177	88.7	200	3.58	
DRO >C10-C28	<10.0	10.0	06/18/2015	ND	175	87.6	200	3.54	

Surrogate: 1-Chlorooctane 98.3 % 47.2-157

Surrogate: 1-Chlorooctadecane 103 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

DIVERSIFIED FIELD SERVICES, INC.  
MIKE BURTON  
P. O. BOX 5966  
HOBBS NM, 88241  
Fax To: (575) 393-2981

Received:	06/16/2015	Sampling Date:	06/16/2015
Reported:	06/22/2015	Sampling Type:	Soil
Project Name:	CASCADE 2A FED #3	Sampling Condition:	Cool & Intact
Project Number:	2ND SPILL	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

**Sample ID: SP 2 @ 4' (H501569-04)**

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	06/19/2015	ND	1.74	86.8	2.00	1.25		
Toluene*	<0.050	0.050	06/19/2015	ND	1.73	86.6	2.00	1.70		
Ethylbenzene*	<0.050	0.050	06/19/2015	ND	1.82	91.2	2.00	2.34		
Total Xylenes*	<0.150	0.150	06/19/2015	ND	5.01	83.5	6.00	2.12		
Total BTEx	<0.300	0.300	06/19/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	06/22/2015	ND	432	108	400	3.77	

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	06/18/2015	ND	177	88.7	200	3.58	
DRO >C10-C28	<10.0	10.0	06/18/2015	ND	175	87.6	200	3.54	

Surrogate: 1-Chlorooctane 92.9 % 47.2-157

Surrogate: 1-Chlorooctadecane 98.0 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

DIVERSIFIED FIELD SERVICES, INC.  
MIKE BURTON  
P. O. BOX 5966  
HOBBS NM, 88241  
Fax To: (575) 393-2981

Received: 06/16/2015  
Reported: 06/22/2015  
Project Name: CASCADE 2A FED #3  
Project Number: 2ND SPILL  
Project Location: NONE GIVEN

Sampling Date: 06/16/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 6 @ 4' (H501569-05)**

BTX 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	06/19/2015	ND	1.74	86.8	2.00	1.25	
Toluene*	<0.050	0.050	06/19/2015	ND	1.73	86.6	2.00	1.70	
Ethylbenzene*	<0.050	0.050	06/19/2015	ND	1.82	91.2	2.00	2.34	
Total Xylenes*	<0.150	0.150	06/19/2015	ND	5.01	83.5	6.00	2.12	
Total BTX	<0.300	0.300	06/19/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	06/22/2015	ND	432	108	400	3.77	

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	06/18/2015	ND	177	88.7	200	3.58	
DRO >C10-C28	<10.0	10.0	06/18/2015	ND	175	87.6	200	3.54	

Surrogate: 1-Chlorooctane 90.7 % 47.2-157

Surrogate: 1-Chlorooctadecane 96.5 % 52.1-176

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

DIVERSIFIED FIELD SERVICES, INC.  
MIKE BURTON  
P. O. BOX 5966  
HOBBS NM, 88241  
Fax To: (575) 393-2981

Received: 06/16/2015  
Reported: 06/22/2015  
Project Name: CASCADE 2A FED #3  
Project Number: 2ND SPILL  
Project Location: NONE GIVEN

Sampling Date: 06/16/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 8 @ 6' (H501569-06)**

BTX 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	06/19/2015	ND	1.74	86.8	2.00	1.25	
Toluene*	<0.050	0.050	06/19/2015	ND	1.73	86.6	2.00	1.70	
Ethylbenzene*	<0.050	0.050	06/19/2015	ND	1.82	91.2	2.00	2.34	
Total Xylenes*	<0.150	0.150	06/19/2015	ND	5.01	83.5	6.00	2.12	
Total BTX	<0.300	0.300	06/19/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	512	16.0	06/22/2015	ND	432	108	400	3.77	

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	06/18/2015	ND	177	88.7	200	3.58	
DRO >C10-C28	<10.0	10.0	06/18/2015	ND	175	87.6	200	3.54	

Surrogate: 1-Chlorooctane 87.5 % 47.2-157

Surrogate: 1-Chlorooctadecane 91.7 % 52.1-176

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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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---

Celey D. Keene, Lab Director/Quality Manager







# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

No records found.

**Basin/County Search:**

**County:** Lea

**PLSS Search:**

**Section(s):** 26

**Township:** 26S

**Range:** 32E

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.



# DIVERSIFIED FIELD SERVICES, INC.

Project: Cascade 79 Fed Con

Date Started: 11/24/15

Seed and lbs. used: 1.5 acres of BLM #2

Date Completed: 11/24/15

## Curtis and Curtis, Inc.

4500 North Prince  
Clovis, NM 88130  
Phone: (575) 762-4759  
www.curtisseed.com

Diversified Construction  
1.5 Acre BLM #2, Broadcast Rate  
1 - 1 Acre Bag @ 39.63 Bulk Pounds  
1 - 1/2 Acre Bag @ 19.82 Bulk Pounds

Lot# M-13398

Item	Origin	Purity	Germ	Dormant	Total Germination	Test Date	Total PLS Pounds
Sand Dropseed VNS	New Mexico	10.51%	34.00%	62.00%	96.00%	06/15	6.00
Little Bluestem Aldous	Missouri	15.93%	91.00%	4.00%	95.00%	09/15	9.00
Coreopsis Plains	Colorado	11.22%	84.00%	6.00%	90.00%	09/15	6.00
Plains Bristlegrass VNS	Oklahoma	26.28%	15.00%	81.00%	96.00%	03/15	15.00
Sideoats Grama El Reno	New Mexico	16.46%	35.00%	57.00%	92.00%	06/15	9.00
Other Crop:	0.17%	There Are 2 Bags For This Mix This Bag Weighs 19.82 Bulk Pounds Use This Bag For 1/2 Acres		Total Bulk Pounds:		59	
Weed Seed:	0.08%						
Inert Matter:	19.35%						

## Curtis and Curtis, Inc.

4500 North Prince  
Clovis, NM 88130  
Phone: (575) 762-4759  
www.curtisseed.com

Diversified Construction  
1.5 Acre BLM #2, Broadcast Rate  
1 - 1 Acre Bag @ 39.63 Bulk Pounds  
1 - 1/2 Acre Bag @ 19.82 Bulk Pounds

Lot# M-13398

Item	Origin	Purity	Germ	Dormant	Total Germination	Test Date	Total PLS Pounds
Sand Dropseed VNS	New Mexico	10.51%	34.00%	62.00%	96.00%	06/15	6.00
Little Bluestem Aldous	Missouri	15.93%	91.00%	4.00%	95.00%	09/15	9.00
Coreopsis Plains	Colorado	11.22%	84.00%	6.00%	90.00%	09/15	6.00
Plains Bristlegrass VNS	Oklahoma	26.28%	15.00%	81.00%	96.00%	03/15	15.00
Sideoats Grama El Reno	New Mexico	16.46%	35.00%	57.00%	92.00%	06/15	9.00
Other Crop:	0.17%	There Are 2 Bags For This Mix This Bag Weighs 39.63 Bulk Pounds Use This Bag For 1 Acres		Total Bulk Pounds:		59	
Weed Seed:	0.08%						
Inert Matter:	19.35%						

Supervisor: [Signature]

# Appendix V

FINAL C-141

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Diversified Field Service, Inc.  
206 W. Snyder  
Hobbs, NM 88240  
(575) 964-8394

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised October 10, 2003  
Submit 2 Copies to appropriate  
District Office in accordance  
with Rule 116 on back  
side of form

**Release Notification and Corrective Action**

**OPERATOR**

☐ Initial Report ☒ Final Report

Name of Company	Cimarex Energy	Contact	Christine Alderman
Address	600 N Marienfeld Ste 600 Midland TX	Telephone No.	432-853-7059
Facility Name	Cascade 29-1	Facility Type	Production
Surface Owner	Federal	Mineral Owner	
		Lease No.	30-025-40346

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	29	25S	33E	330	N	350	W	Lea

Latitude 32.10795 Longitude -103.60165

**NATURE OF RELEASE**

Type of Release	Produced Water	Volume of Release	300 bbls	Volume Recovered	90 bbls
Source of Release	Poly Flowline	Date and Hour of Occurrence	6/6/15	Date and Hour of Discovery	6/6/15
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required				
By Whom?	Christine Alderman	If YES, To Whom?	Kellie Jones/Jeffery Robertson		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Date and Hour	6/7/15 4:40 pm	
		If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

Trucking company was moving a rig down the pipeline road near location and part of the derrick sliced the poly line open.

Describe Area Affected and Cleanup Action Taken.\*

Fluids ran approximately 140 yards along lease road, and then approximately 320 yards down a dry creek bed. DCSI samples the spill area and excavated the pasture area to 1' BGS. Native topsoil was brought in and the area was seeded with BLM #2 seed. The location was restored to its previous state.

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>Christine Alderman</i>		<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Christine Alderman		Approved by District Supervisor: <i>Jan Peyer</i>	
Title: ESH Supervisor		Approval Date: 12/16/2015	Expiration Date: ///
E-mail Address: calderman@cimarex.com		Conditions of Approval:	Attached <input type="checkbox"/>
Date: 12/3/2015 Phone: 432-853-7059		///	IRP 3701

\* Attach Additional Sheets If Necessary