



July 16, 2015

Mr. Mike Bratcher  
**NMOCD District 2**  
811 S. 1<sup>st</sup> Street  
Artesia, NM 88210

AMARILLO  
921 North Bivins  
Amarillo, Texas 79107  
Phone 806.467.0607  
Fax 806.467.0622

ARTESIA  
408 West Texas Ave.  
Artesia, New Mexico 88210  
Phone 575.746.8768  
Fax 575.746.8905

HOBBS  
318 East Taylor Street  
Hobbs, New Mexico 88240  
Phone 575.393.4261  
Fax 575.393.4658

MIDLAND  
2901 State Hwy 349  
Midland, Texas 79706  
Phone 432.522.2133  
Fax 432.522.2180

OKLAHOMA CITY  
7700 North Hudson Avenue  
Suite 10  
Oklahoma City, Oklahoma 73116  
Phone 405.486.7030  
Fax 806.467.0622

SAN ANTONIO  
13111 Lookout Way  
San Antonio, Texas 78233  
Phone 210.265.8025  
Fax 210.568.2191

Subject: **Soil Assessment and Remediation Work Plan**  
Cimarex Energy  
Cave Lake 24 Fed Com 3H  
30-015-36144 (2RP-2295)

Dear Mr. Bratcher

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

### **Background Information**

The Cave Lake 24 Fed 3H is located approximately 22 miles East of Artesia, New Mexico. The legal location for this site is Section 24, Township 16 South, and Range 28 East. More specifically the latitude and longitude for this release are 32.910007 North and -104.137236 West. A site plan is presented in [Appendix I](#).

According to the soil survey provided by the United States Department of Agriculture Natural Resources Conservation Service, the soil in this area is made up of the Pajarito Dune land complex with 0 to 3 percent slopes. Drainage courses in this area are normally dry. Groundwater in the project vicinity is approximately 110-feet below ground surface (bgs) according to the New Mexico Office of the State Engineer. See [Appendix II](#) for the referenced groundwater data.

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

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

ENVIRONMENTAL CONSULTING  
ENGINEERING  
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CONSTRUCTION  
SPILL MANAGEMENT  
GENERAL CONTRACTING

Toll Free: 866.742.0742  
[www.talonlpe.com](http://www.talonlpe.com)

## Incident Description

A hole in the fire tube on the heater treater caused a release of 20bbls of oil and 11bbls of produced water. The fluid was contained within the berms of the battery, 19bbls of oil and 10bbls of produced water were recovered. Talon mobilized personnel to conduct a site assessment and soil sampling activities. Upon receipt of laboratory results from the initial sampling event it was evident that further vertical delineation of the impacted area would be necessary. In order to meet NMOCD requirements of 250mg/kg for site assessment Talon mobilized an air rotary drilling rig to conduct the further delineation within the battery. The results of our initial and confirmation soil sampling activities are summarized in the table below.

## Laboratory Results

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

Sample ID	Depth (feet)	BTEX (mg/kg)	Chlorides (mg/kg)	TPH (mg/kg) GRO	TPH (mg/kg) DRO
S-1	0	26.3	22400	675	48500
S-1	0.5	215	7200	3220	14100
S-2	0	41.5	6500	791	30000
S-2	0.5	479	6080	5590	16800
S-3	0	392	10100	5600	29700
S-3	0.5	412	10700	3000	9520
BH-1	5	ND	272	ND	124
BH-1	10	ND	48	ND	ND
BH-1	15	--	32	--	--
BH-1	20	--	80	--	--
S-1	1	--	16	38.5	1140
S-2	1	ND	1010	120	2590
S-3	1	ND	512	13.5	549

(--) Analyte Not Tested

(ND) Analyte Not Detected

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

## Remedial Actions


- An air rotary drilling rig was utilized to vertically delineate the site.
- The impacted area was excavated to a depth of 1-foot bgs.
- Confirmation soil samples were taken at the bottom of the excavation. Laboratory results from this sampling event are summarized in the table above.
- All of the excavated material (40 yards) was hauled to an NMOCD approved solid waste disposal facility.
- The excavation was backfilled with caliche and contoured to match the surrounding location.

On behalf of Cimarex Energy we respectfully request that no further actions be required and that closure with regard to this release be granted.

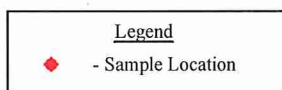
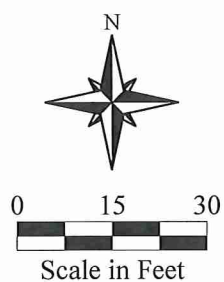
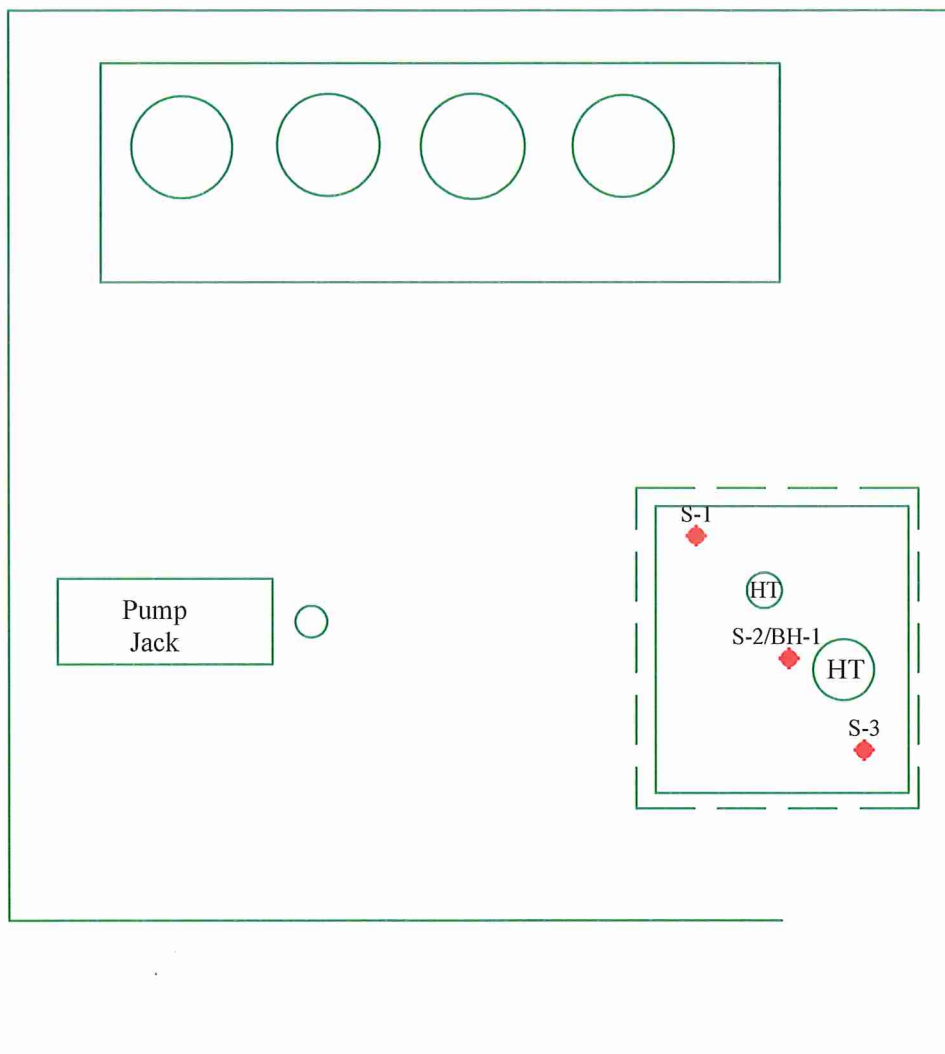
If we can provide additional information or be of further assistance, please contact our office at (575)-746-8768.

Respectfully submitted,  
TALON/LPE

  
Sheldon Hitchcock  
Project Manager

  
David J. Adkins  
District Manager

# SITE PLAN



Date: 08/11/2014

Scale: 1" = 30'

Drawn By: TJS

Cave Lake 24 Fed Com 3H  
Cimarex Energy  
Eddy County, New Mexico  
Figure 1 - Site Plan

**GROUNDWATER DATA**

**INITIAL C-141**

**&**

**FINIAL C-141**



# New Mexico Office of the State Engineer Water Column/Average Depth to Water

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

(R=POD has  
been replaced,  
O=orphaned,  
C=the file is  
closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">RA 09342</a>			ED	4	4	3	19	16S	29E	582737	3640640*	1601	220	110	110

Average Depth to Water: 110 feet

Minimum Depth: 110 feet

Maximum Depth: 110 feet

Record Count: 1

Basin/County Search:

County: Eddy

UTMNAD83 Radius Search (in meters):

Easting (X): 581387

Northing (Y): 3641501

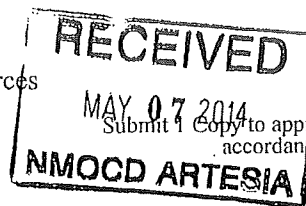
Radius: 5000

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

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

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



Form C-141  
Revised August 8, 2011

Release Notification and Corrective Action

nHMP14/3239479

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: CIMAREX ENERGY 162683	Contact: James Tinney
Address : 600 N Marienfeld Ste 600, Midland TX 79701	Telephone No. (575) 706-0095
Facility Name: CAVE LAKE 24 FED COM 3H	Facility Type: production battery

Surface Owner	Mineral Owner	API No: 30-015-36144
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LOCATION OF RELEASE

Unit Letter	Section 24	Township 016-S	Range 028-E	Feet from the 2260	North/South Line North	Feet from the 330	East/West Line West	County: Eddy
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Latitude: 32.925130 Longitude: -104.121760

NATURE OF RELEASE

Type of Release: crude oil / produce water	Volume of Release: 20 oil / 11 pw	Volume Recovered: 30 bbls
Source of Release	Date and Hour of Occurrence: 05/04/2014 @ 1035 hrs	Date and Hour of Discovery: 05/04/2014 @ 1035 hrs
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Jennifer Van Curan	
By Whom? James Tinney	Date and Hour: 05/05/2014 @ 0655 hrs	
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.\*

Hole in fire tube on heater, picked up standing oil and produce water. Release was in an unlined berm.

Describe Area Affected and Cleanup Action Taken.\*

Area affected 48' x 30' contained inside dirt berm (unlined). Called vac truck picked up standing oil and emptied heater. Work plan: repair equipment, pick up contaminated soil.

*Delineation Samples Required*

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: James Tinney	OIL CONSERVATION DIVISION	
Printed Name: James Tinney	Approved by Environmental Specialist: <i>[Signature]</i>	
Title: Production Foreman	Approval Date: 5/12/14	Expiration Date: NA
E-mail Address: jtinney@cimarex.com	Conditions of Approval: Remediation per OCD Rule & Guidelines, & like approval by BLM. SUBMIT REMEDIATION	Attached <input type="checkbox"/>
Date: 05/05/2014	Phone: (575) 706-0095	

PROPOSAL NO LATER THAN:

6/12/14

228-2295



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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 James Tinney	
Address 600 N Marienfield Ste 600, Midland Tx 79701	Telephone No. 575-706-0095	
Facility Name Cave Lake 24 Fed Com 3H	Facility Type Production Battery	
Surface Owner State	Mineral Owner Federal	API No. 30-015-36144

LOCATION OF RELEASE

Unit Letter E	Section 24	Township 16S	Range 28E	Feet from the 2260	North/South Line North	Feet from the 330	East/West Line West	County Eddy
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Latitude 32.925130 Longitude -104.121760

NATURE OF RELEASE

Type of Release Oil and Produced Water	Volume of Release 20bbls Oil & 11bbls PW	Volume Recovered 19bbls Oil & 10bbls PW
Source of Release Heater Treater	Date and Hour of Occurrence 5/4/14 @ 10:35	Date and Hour of Discovery 5/4/14 @ 10:35
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Jennifer Van Curan & Mike Bratcher	
By Whom? James Tinney	Date and Hour 5/5/14 @ 0655hrs	
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.* A hole in the fire tube on heater treater caused a release of 20bbls of oil and 11bbls of produced water. A vacuum truck was dispatched to recover all of the standing fluids. The vacuum truck was able to successfully recover 19bbls of oil and 10bbls of produced water.		
Describe Area Affected and Cleanup Action Taken.* The affected area was contained within the bermed heater treater battery and measured approximately 48' X 30'. Talon/LPE mobilized personnel to conduct an initial site assessment and perform soil sampling within the impacted area. After laboratory results were received from the initial sampling activities it was determined that further vertical delineation would be required within the battery. A air-rotary drill rig was utilized to vertically delineate the site. Upon receipt of analytical results from the drilling activities and work plan was generated and subsequently approved by the OCD and BLM. The remediation was conducted to the specifications laid out in the work plan.		
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>James Tinney</i>		OIL CONSERVATION DIVISION
Printed Name: James Tinney		Approved by Environmental Specialist:
Title: Production Foreman		Approval Date: Expiration Date:
E-mail Address: jtinney@cimarex.com		Conditions of Approval: Attached <input type="checkbox"/>
Date: 1-19-2015 Phone: 575-706-0095		

\* Attach Additional Sheets If Necessary

2 RP-2295

# LABORATORY RESULTS



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

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May 16, 2014

DAVID ADKINS

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: CAVE LAKE 24 FED COM #3

Enclosed are the results of analyses for samples received by the laboratory on 05/09/14 12:25.

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:

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

Received:	05/09/2014	Sampling Date:	05/07/2014
Reported:	05/16/2014	Sampling Type:	Soil
Project Name:	CAVE LAKE 24 FED COM #3	Sampling Condition:	Cool & Intact
Project Number:	70116805701	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

### Sample ID: S-1 0' (H401409-01)

BTEX 8260B		mg/kg	Analyzed By: ms					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.500	0.500	05/14/2014	ND	2.23	111	2.00	3.76	
Toluene*	2.24	0.500	05/14/2014	ND	2.04	102	2.00	0.367	
Ethylbenzene*	7.38	0.500	05/14/2014	ND	2.04	102	2.00	2.82	
Total Xylenes*	16.7	1.50	05/14/2014	ND	5.95	99.2	6.00	2.15	
Total BTEX	26.3	3.00	05/14/2014	ND					

Surrogate: Dibromofluoromethane 101 % 61.3-142

Surrogate: Toluene-d8 98.7 % 71.3-129

Surrogate: 4-Bromofluorobenzene 148 % 65.7-141

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AP					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	22400	16.0	05/13/2014	ND	400	100	400	0.00	

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	675	200	05/13/2014	ND	189	94.6	200	3.60	
DRO >C10-C28	48500	200	05/13/2014	ND	205	103	200	3.63	

Surrogate: 1-Chlorooctane 195 % 65.2-140

Surrogate: 1-Chlorooctadecane 1510 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

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

Received:	05/09/2014	Sampling Date:	05/07/2014
Reported:	05/16/2014	Sampling Type:	Soil
Project Name:	CAVE LAKE 24 FED COM #3	Sampling Condition:	Cool & Intact
Project Number:	70116805701	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

### Sample ID: S-1 .5' (H401409-02)

BTEx 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	2.17	2.00	05/14/2014	ND	2.23	111	2.00	3.76	
Toluene*	40.6	2.00	05/14/2014	ND	2.04	102	2.00	0.367	
Ethylbenzene*	61.2	2.00	05/14/2014	ND	2.04	102	2.00	2.82	
Total Xylenes*	111	6.00	05/14/2014	ND	5.95	99.2	6.00	2.15	
Total BTEX	215	12.0	05/14/2014	ND					

Surrogate: Dibromofluoromethane 98.6 % 61.3-142

Surrogate: Toluene-d8 97.8 % 71.3-129

Surrogate: 4-Bromofluorobenzene 126 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	7200	16.0	05/13/2014	ND	400	100	400	0.00	
TPH 8015M									S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	3220	100	05/13/2014	ND	189	94.6	200	3.60	
DRO >C10-C28	14100	100	05/13/2014	ND	205	103	200	3.63	

Surrogate: 1-Chlorooctane 269 % 65.2-140

Surrogate: 1-Chlorooctadecane 322 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

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

Received:	05/09/2014	Sampling Date:	05/07/2014
Reported:	05/16/2014	Sampling Type:	Soil
Project Name:	CAVE LAKE 24 FED COM #3	Sampling Condition:	Cool & Intact
Project Number:	70116805701	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

### Sample ID: S-2 0' (H401409-03)

BTEx 8260B		mg/kg		Analyzed By: ms				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.500	0.500	05/14/2014	ND	2.57	128	2.00	1.88	
Toluene*	5.01	0.500	05/14/2014	ND	2.46	123	2.00	0.702	
Ethylbenzene*	11.8	0.500	05/14/2014	ND	2.31	115	2.00	1.10	
Total Xylenes*	24.7	1.50	05/14/2014	ND	7.02	117	6.00	0.363	
Total BTEX	41.5	3.00	05/14/2014	ND					

Surrogate: Dibromofluoromethane 97.3 % 61.3-142

Surrogate: Toluene-d8 98.4 % 71.3-129

Surrogate: 4-Bromofluorobenzene 158 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6500	16.0	05/13/2014	ND	400	100	400	0.00	

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	791	200	05/13/2014	ND	189	94.6	200	3.60	
DRO >C10-C28	30000	200	05/13/2014	ND	205	103	200	3.63	

Surrogate: 1-Chlorooctane 203 % 65.2-140

Surrogate: 1-Chlorooctadecane 843 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

Received:	05/09/2014	Sampling Date:	05/07/2014
Reported:	05/16/2014	Sampling Type:	Soil
Project Name:	CAVE LAKE 24 FED COM #3	Sampling Condition:	Cool & Intact
Project Number:	70116805701	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

**Sample ID: S-2 .5' (H401409-04)**

BTEX 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>15.5</b>	5.00	05/14/2014	ND	2.57	128	2.00	1.88	
<b>Toluene*</b>	<b>124</b>	5.00	05/14/2014	ND	2.46	123	2.00	0.702	
<b>Ethylbenzene*</b>	<b>126</b>	5.00	05/14/2014	ND	2.31	115	2.00	1.10	
<b>Total Xylenes*</b>	<b>214</b>	15.0	05/14/2014	ND	7.02	117	6.00	0.363	
<b>Total BTEX</b>	<b>479</b>	30.0	05/14/2014	ND					

Surrogate: Dibromofluoromethane 98.9 % 61.3-142

Surrogate: Toluene-d8 98.8 % 71.3-129

Surrogate: 4-Bromofluorobenzene 112 % 65.7-141

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>6080</b>	16.0	05/13/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10</b>	<b>5590</b>	200	05/13/2014	ND	189	94.6	200	3.60		
<b>DRO &gt;C10-C28</b>	<b>16800</b>	200	05/13/2014	ND	205	103	200	3.63		

Surrogate: 1-Chlorooctane 326 % 65.2-140

Surrogate: 1-Chlorooctadecane 389 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	05/09/2014	Sampling Date:	05/07/2014
Reported:	05/16/2014	Sampling Type:	Soil
Project Name:	CAVE LAKE 24 FED COM #3	Sampling Condition:	Cool & Intact
Project Number:	70116805701	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

**Sample ID: S-3 0' (H401409-05)**

BTEX 8260B		mg/kg	Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<5.00	5.00	05/14/2014	ND	2.57	128	2.00	1.88	
Toluene*	71.8	5.00	05/14/2014	ND	2.46	123	2.00	0.702	
Ethylbenzene*	115	5.00	05/14/2014	ND	2.31	115	2.00	1.10	
Total Xylenes*	205	15.0	05/14/2014	ND	7.02	117	6.00	0.363	
Total BTEX	392	30.0	05/14/2014	ND					

Surrogate: Dibromofluoromethane 101 % 61.3-142

Surrogate: Toluene-d8 100 % 71.3-129

Surrogate: 4-Bromofluorobenzene 118 % 65.7-141

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10100	16.0	05/13/2014	ND	400	100	400	0.00	

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	5600	200	05/13/2014	ND	189	94.6	200	3.60		
DRO >C10-C28	29700	200	05/13/2014	ND	205	103	200	3.63		

Surrogate: 1-Chlorooctane 444 % 65.2-140

Surrogate: 1-Chlorooctadecane 714 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

Received:	05/09/2014	Sampling Date:	05/07/2014
Reported:	05/16/2014	Sampling Type:	Soil
Project Name:	CAVE LAKE 24 FED COM #3	Sampling Condition:	Cool & Intact
Project Number:	70116805701	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

**Sample ID: S-3 .5' (H401409-06)**

BTEX 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	3.42	2.00	05/14/2014	ND	2.57	128	2.00	1.88	
Toluene*	93.4	2.00	05/14/2014	ND	2.46	123	2.00	0.702	
Ethylbenzene*	117	2.00	05/14/2014	ND	2.31	115	2.00	1.10	
Total Xylenes*	198	6.00	05/14/2014	ND	7.02	117	6.00	0.363	
Total BTEX	412	12.0	05/14/2014	ND					

Surrogate: Dibromofluoromethane 101 % 61.3-142

Surrogate: Toluene-d8 103 % 71.3-129

Surrogate: 4-Bromofluorobenzene 118 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10700	16.0	05/13/2014	ND	400	100	400	0.00	

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	3000	200	05/13/2014	ND	189	94.6	200	3.60		
DRO >C10-C28	9520	200	05/13/2014	ND	205	103	200	3.63		

Surrogate: 1-Chlorooctane 219 % 65.2-140

Surrogate: 1-Chlorooctadecane 237 % 63.6-154

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\*=Accredited Analyte

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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.
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



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

[illegible]



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

---

July 08, 2014

DAVID ADKINS

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: CAVE LAKE 24 FED COM #3

Enclosed are the results of analyses for samples received by the laboratory on 07/01/14 15:40.

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:**

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

Received: 07/01/2014  
Reported: 07/08/2014  
Project Name: CAVE LAKE 24 FED COM #3  
Project Number: 70116805701  
Project Location: EDDY COUNTY, NM

Sampling Date: 06/26/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: BH 5' (H402005-01)**

BTX 8260B		mg/kg		Analyzed By: ms/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/07/2014	ND	2.18	109	2.00	9.71	
Toluene*	<0.050	0.050	07/07/2014	ND	1.84	92.2	2.00	9.99	
Ethylbenzene*	<0.050	0.050	07/07/2014	ND	1.75	87.3	2.00	10.4	
Total Xylenes*	<0.150	0.150	07/07/2014	ND	5.43	90.6	6.00	11.5	
Total BTX	<0.300	0.300	07/07/2014	ND					

Surrogate: Dibromofluoromethane 101 % 61.3-142

Surrogate: Toluene-d8 99.4 % 71.3-129

Surrogate: 4-Bromofluorobenzene 98.3 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	07/08/2014	ND	416	104	400	3.92	

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	07/03/2014	ND	184	91.8	200	0.423	
DRO >C10-C28	124	10.0	07/03/2014	ND	195	97.5	200	0.786	

Surrogate: 1-Chlorooctane 114 % 65.2-140

Surrogate: 1-Chlorooctadecane 120 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 07/01/2014  
 Reported: 07/08/2014  
 Project Name: CAVE LAKE 24 FED COM #3  
 Project Number: 70116805701  
 Project Location: EDDY COUNTY, NM

 Sampling Date: 06/26/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: BH 10' (H402005-02)**

BTX 8260B		mg/kg		Analyzed By: ms/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/07/2014	ND	2.18	109	2.00	9.71	
Toluene*	<0.050	0.050	07/07/2014	ND	1.84	92.2	2.00	9.99	
Ethylbenzene*	<0.050	0.050	07/07/2014	ND	1.75	87.3	2.00	10.4	
Total Xylenes*	<0.150	0.150	07/07/2014	ND	5.43	90.6	6.00	11.5	
Total BTX	<0.300	0.300	07/07/2014	ND					

Surrogate: Dibromofluoromethane 103 % 61.3-142

Surrogate: Toluene-d8 103 % 71.3-129

Surrogate: 4-Bromofluorobenzene 102 % 65.7-141

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	07/08/2014	ND	416	104	400	3.92	

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	07/04/2014	ND	180	90.2	200	1.72	
DRO >C10-C28	<10.0	10.0	07/04/2014	ND	193	96.4	200	0.0794	

Surrogate: 1-Chlorooctane 112 % 65.2-140

Surrogate: 1-Chlorooctadecane 123 % 63.6-154

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 07/01/2014  
Reported: 07/08/2014  
Project Name: CAVE LAKE 24 FED COM #3  
Project Number: 70116805701  
Project Location: EDDY COUNTY, NM

Sampling Date: 06/26/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: BH 15' (H402005-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	07/08/2014	ND	416	104	400	3.92	

**Sample ID: BH 20' (H402005-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	07/08/2014	ND	416	104	400	3.92	

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

### ANALYSIS REQUEST

Company Name: Talon/LPE		P.O. #:		
Project Manager: Kelly's		Company: Talon/LPE		
Address: 408 W. Texas Ave.		Attn:		
City: Artesia		Address:		
Phone #: 575-746-8768		State: NM Zip: 88210		
Fax #: 575-746-8905		City:		
Project #: 7016205701		State:		
Project Name: Carr Lake 24 Fed Contam		Zip:		
Project Location: Kelly G. B. 25		Phone #:		
Sample Name:		Fax #:		
FOR LAB USE ONLY		MATRIX	PRESERV.	SAMPLING
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	
		GROUNDWATER		
		WASTEWATER		
		SOIL		
		OIL		
		SLUDGE		
		OTHER :		
		ACID/BASE:		
		ICE / COOL		
		OTHER :		
		DATE	TIME	
PH070005	BH 5'	1	6:30	10PH
	BH 10'	1		BTEX
	BH 15'	1		Total Chlorides
	BH 20'	1		
	BH 25'	1		
	BH 30'	1		
	BH 35'	1		
	BH 40'	1		
	BH 45'	1		
	BH 50'	1		
	BH 55'	1		
	BH 60'	1		
	BH 65'	1		
	BH 70'	1		
	BH 75'	1		
	BH 80'	1		
	BH 85'	1		
	BH 90'	1		
	BH 95'	1		
	BH 100'	1		
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	BH 120'	1		
	BH 125'	1		
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	BH 670'	1		
	BH 675'	1		
	BH 680'	1		
	BH 685'	1		
	BH 690'	1		
	BH 695'	1		
	BH 700'	1		
	BH 705'	1		
	BH 710'	1		
	BH 715'	1		
	BH 720'	1		
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	BH 745'	1		
	BH 750'	1		
	BH 755'	1		
	BH 760'	1		
	BH 765'	1		
	BH 770'	1		
	BH 775'	1		
	BH 780'	1		
	BH 785'	1		
	BH 790'	1		
	BH 795'	1		
	BH 800'	1		
	BH 805'	1		
	BH 810'	1		
	BH 815'	1		
	BH 820'	1		
	BH 825'	1		
	BH 830'	1		
	BH 835'	1		
	BH 840'	1		
	BH 845'	1		
	BH 850'	1		
	BH 855'	1		
	BH 860'	1		
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	BH 870'	1		
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	BH 940'	1		
	BH 945'	1		
	BH 950'	1		
	BH 955'	1		
	BH 960'	1		
	BH 965'	1		
	BH 970'	1		
	BH 975'	1		
	BH 980'	1		
	BH 985'	1		
	BH 990'	1		
	BH 995'	1		
	BH 1000'	1		



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

---

November 11, 2014

DAVID ADKINS

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: CAVE LAKE 24 FED COM #3

Enclosed are the results of analyses for samples received by the laboratory on 11/05/14 12:00.

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:**

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

Received:	11/05/2014	Sampling Date:	11/04/2014
Reported:	11/11/2014	Sampling Type:	Soil
Project Name:	CAVE LAKE 24 FED COM #3	Sampling Condition:	Cool & Intact
Project Number:	70116805701	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

**Sample ID: S-1 1' (H403410-01)**

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	11/06/2014	ND	400	100	400	0.00	
TPH 8015M		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	38.5	10.0	11/06/2014	ND	211	105	200	1.29	
DRO >C10-C28	1140	10.0	11/06/2014	ND	215	107	200	4.71	
Surrogate: 1-Chlorooctane	104 %	47.2-157							
Surrogate: 1-Chlorooctadecane	112 %	52.1-176							

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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Reported:	11/11/2014	Sampling Type:	Soil
Project Name:	CAVE LAKE 24 FED COM #3	Sampling Condition:	Cool & Intact
Project Number:	70116805701	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

**Sample ID: S-2 1' (H403410-02)**

BTX 8021B		mg/kg	Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.100	0.100	11/10/2014	ND	1.84	91.9	2.00	4.93	
Toluene*	<0.100	0.100	11/10/2014	ND	1.79	89.5	2.00	1.72	
Ethylbenzene*	<0.100	0.100	11/10/2014	ND	1.72	86.0	2.00	2.09	
Total Xylenes*	<0.300	0.300	11/10/2014	ND	5.10	84.9	6.00	3.06	
Total BTX	<0.600	0.600	11/10/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.2 % 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	1010	16.0	11/06/2014	ND	400	100	400	0.00	

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	120	50.0	11/06/2014	ND	211	105	200	1.29		
DRO >C10-C28	2590	50.0	11/06/2014	ND	215	107	200	4.71		

Surrogate: 1-Chlorooctane 115 % 47.2-157

Surrogate: 1-Chlorooctadecane 223 % 52.1-176

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Received:	11/05/2014	Sampling Date:	11/04/2014
Reported:	11/11/2014	Sampling Type:	Soil
Project Name:	CAVE LAKE 24 FED COM #3	Sampling Condition:	Cool & Intact
Project Number:	70116805701	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

**Sample ID: S-3 1' (H403410-03)**

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	11/10/2014	ND	1.84	91.9	2.00	4.93	
Toluene*	<0.050	0.050	11/10/2014	ND	1.79	89.5	2.00	1.72	
Ethylbenzene*	<0.050	0.050	11/10/2014	ND	1.72	86.0	2.00	2.09	
Total Xylenes*	<0.150	0.150	11/10/2014	ND	5.10	84.9	6.00	3.06	
Total BTEX	<0.300	0.300	11/10/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 96.9 % 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	512	16.0	11/06/2014	ND	400	100	400	0.00	

TPH 8015M			mg/kg						
			Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	13.5	10.0	11/06/2014	ND	211	105	200	1.29	
DRO >C10-C28	549	10.0	11/06/2014	ND	215	107	200	4.71	

Surrogate: 1-Chlorooctane 101 % 47.2-157

Surrogate: 1-Chlorooctadecane 128 % 52.1-176

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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.
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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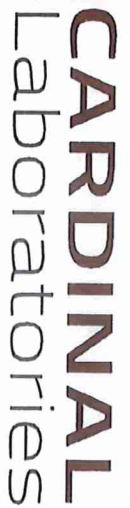
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Celey D. Keene, Lab Director/Quality Manager



## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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