



MCollier@H-R_Enterprises.com 575-909-0326

Remediation and Closure Report

Cascade 29 Federal 3, 4, 7H Battery
Incident# nAPP2307273821
Lea County, New Mexico

Prepared For:

Cimarex Energy Co.
600 Marienfeld St.
Midland, TX 79701

Prepared By:

H&R Enterprises, LLC
5120 W. Kansas St.
Hobbs, New Mexico 88242

May 16, 2023

Mrs. Jennifer Nobui
NMOCD
1220 S. St. Francis Dr.
Santa Fe, NM 87505

Subject: **Remediation and Closure Report**
Cascade 29 Federal 3, 4, 7H Battery
Lea County, NM

Dear Mrs. Nobui,

Cimarex Energy Co. has contracted H&R Enterprises (H&R) to perform site assessment and remediation services at the above-referenced location. The results of our site assessment and remediation activities are contained herein.

Site Information

The Cascade 29 Federal 3, 4, 7H Battery is located approximately 32.8 miles West of Jal, New Mexico. The legal location for this release is Unit Letter B, Section 29, Township 25 South and Range 33 East in Lea County, New Mexico. More specifically the latitude and longitude for the release are 32.10791 North and -103.59319 West. Site plans are 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 Berino-Cacique association hummocky, 0 to 3 percent slopes. The referenced soil data is attached in [Appendix II](#). Drainage courses in this area are typically dry. The project site is not located in a high Karst potential area (Karst Map, [Appendix I](#)).

Groundwater and Site Characterization

The New Mexico Office of the State Engineer web site indicates that the nearest reported depth to groundwater is 195-feet below ground surface (BGS). See [Appendix II](#) for the referenced groundwater data.

If a release occurs within the following areas, the responsible party must treat the release as if it occurred less than 50 feet to the groundwater in Table I, New Mexico Oil Conservation Division (NMOCD) Rule 19.15.29, NMAC.

Approximate Depth to Groundwater **195 Feet/BGS**

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Within 300 feet of any continuously flowing watercourse or any other significant watercourse
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Within 200 feet of any lakebed, sinkhole, or a playa lake
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Within 300 feet from an occupied permanent residence, school, hospital, institution, or church
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Within 1000 feet of any freshwater well or spring
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Within incorporated municipal boundaries or within a defined municipal freshwater well field covered under a municipal ordinance adopted pursuant to Section 3-2703 NMSA 1978
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Within 300 feet of a wetland
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Within the area overlying a subsurface mine
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Within an unstable area
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Within a 100-year floodplain

Due to groundwater data not being current, an exploratory water bore was drilled on the Vaca Draw 20-17 Federal #012H well pad 0.11-miles to the Northwest to a depth of 55-feet BGS. No groundwater was encountered on the day of drilling nor 5-days later following drilling. See Exploratory Water Bore Map in [Appendix II](#). Since no groundwater was encountered, the closure criteria for this site are as follows:

Minimum depth below any point within the horizontal boundary of the release to ground water less than 10,000 mg/l TDS	Constituent	Method*	Limit**
50-100 feet	Chloride **	EPA 300.0 or SM4500 CIB	10,000 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015M	2,500 mg/kg
	GRO+DRO	EPA SW-846 Method 8015M	1,000 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg

Incident Description

While draining the heater treater for the Cascade 29 Federal #007H utilizing a vac truck, the driver was attempting to remove a plug but instead unscrewed the body of the valve. Due to the vessel still being pressurized, this caused the bull plug and part of the valve to give way and resulted a loss of 28 barrels (bbls) of fluid being released into the lined containment and onto the well pad. Of the 28 bbls released, 25 bbls stayed inside the lined containment and 3 bbls were released onto the well pad. 28 bbls of crude oil were recovered.

Site Assessment and Remediation Activities

H&R mobilized personnel to begin site assessment, sampling, and remediation activities of the location. Grab samples were obtained by way of air rotary drill from within the release area. Samples collected were transported to Cardinal Laboratory for analysis. The results of that analysis are presented in Table 1 below. Initial site assessment sampling locations are illustrated on Site Assessment Map, [Appendix I](#). Before, during, and after photographs of the location are attached in [Appendix IV](#). Complete laboratory reports can be found in [Appendix V](#).

Table 1: Initial Soil Samples Analysis

Sample ID	Sample Date	Depth (BGS)	BTEX mg/kg	Benzene mg/kg	GRO mg/kg	DRO mg/kg	MRO mg/kg	Total TPH mg/kg	Cl mg/kg
NMOCD Table 1 Closure Criteria 19.15.29 NMAC			50 mg/kg	10 mg/kg	1000 mg/kg		2500 mg/kg	2500 mg/kg	10000 mg/kg
S-1	4/5/2023	0-1'	10	ND	155	5230	1230	6615	320
		2'	ND	ND	10.5	132	10.7	153.2	16
		3'	ND	ND	ND	ND	ND	0	16
S-2	4/5/2023	0-1'	5.4	ND	137	4710	948	5795	480
		2'	ND	ND	ND	101	ND	101	16
		3'	ND	ND	ND	14.9	ND	14.9	16
		4'	ND	ND	ND	16.6	ND	16.6	16
S-3	4/5/2023	0-1'	1.92	ND	73.9	1820	334	2227.9	208
		2'	0.861	ND	14.3	211	23.7	249	32
		3'	1.11	ND	25.7	380	5.6	411.3	48
		4'	1.57	ND	19.3	330	49.5	398.8	48
		6'	ND	ND	ND	141	19.8	160.8	32
		8'	ND	ND	ND	51.5	ND	51.5	32
H-1	4/5/2023	0-1'	ND	ND	ND	ND	ND	0	ND
H-2	4/5/2023	0-1'	ND	ND	ND	ND	ND	0	16
H-3	4/5/2023	0-1'	ND	ND	ND	ND	ND	0	ND
H-4	4/5/2023	0-1'	ND	ND	ND	ND	ND	0	ND
H-5	4/5/2023	0-1'	ND	ND	ND	ND	ND	0	ND

ND = Analyte Not Detected S = Vertical Sample H = Horizontal Sample

Based on the results of our site assessment and upon client authorization, excavation activities of the release area began. Confirmation composite samples were collected from the bottom and sidewalls of the excavations to confirm that NMOCD closure criteria had been met, the results of which can be found in the following data table. Confirmation composite sample locations and excavation dimensions can be found on Confirmation Sample Map in [Appendix I](#). Complete laboratory reports are attached in [Appendix V](#).

Table 2: Confirmation Soil Sample Analysis

Sample ID	Sample Date	Depth (BGS)	BTEX mg/kg	Benzene mg/kg	GRO mg/kg	DRO mg/kg	MRO mg/kg	Total TPH mg/kg	Cl mg/kg
NMOCD Table 1 Closure Criteria 19.15.29 NMAC			50 mg/kg	10 mg/kg	1000 mg/kg		2500 mg/kg	2500 mg/kg	mg/kg
S-1	5/9/2023	1.5'	ND	ND	ND	173	26.1	199.1	80
S-2	5/9/2023	1.5'	ND	ND	ND	155	26.1	181.1	32
S-3	5/9/2023	1.5'	ND	ND	ND	45.2	ND	45.2	32
S-4	5/9/2023	1.5'	ND	ND	ND	272	49	321	64
S-5	5/9/2023	1.5'	ND	ND	ND	296	48.3	344.3	64
SW-1	5/9/2023	1.5'	ND	ND	ND	ND	ND	0	32
SW-2	5/9/2023	1.5'	ND	ND	ND	ND	ND	0	16
SW-3	5/9/2023	1.5'	ND	ND	ND	ND	ND	0	32
SW-4	5/9/2023	1.5'	ND	ND	ND	ND	ND	0	16

ND = Analyte Not Detected S = Bottom Composite Sample SW = Sidewall Composite Sample

Remedial Actions

- The impacted areas in the vicinity of sample points S-1 through S-5 were excavated to a total depth of 1.5-feet BGS.
- Composite confirmation samples were obtained from the sidewalls and bottom of the excavated area to verify that all contaminants above closure criteria had been removed.
- All the excavated material was hauled to NGL's North Ranch Landfill, a NMOCD approved solid waste disposal facility.
- The excavated areas on the well pad were backfilled with new caliche at depth and brought to grade, machine compacted and contoured to match the surrounding location.
- The Final C-141 formally documenting the remedial actions is attached in [Appendix III](#).

Closure

Based on the site assessment, remedial actions, and confirmation sampling results completed for this project, on behalf of Cimarex Energy Co. we request that no further actions be required, and that closure of this incident be granted.

Should you have any questions or if further information is required, please do not hesitate to contact our office at 575-909-0326.

Respectfully submitted,

H&R Enterprises, LLC

Michael Collier

Michael Collier
Environmental Project Manager

Attachments:

- Appendix I Site Maps
- Appendix II Soil Survey, Groundwater Data
- Appendix III Initial and Final C-141
- Appendix IV Photographic Documentation
- Appendix V Laboratory Reports

APPENDIX I

SITE MAPS

KARST MAP

TOPOGRAPHIC MAP

LOCATOR MAP

Cascade 29 Federal #3,4,7H Battery

Cimarex Energy Co.
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Lea County, NM
Site Assessment Map

Legend

- Horizontal Sample Point
- Initial Release
- Vertical Bore Hole Sample Point



Cascade 29 Federal #3,4,7H Battery

Cimarex Energy Co.
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Lea County, NM
Confirmation Sample Map

Legend

-  1.5ft Excavation
-  Bottom Composite Sample
-  Sidewall Composite Sample



Cascade 29 Federal #3,4,7H Battery

Cimarex Energy Co.
Incident# nAPP2307273821
Lea County, NM
Karst Map

Legend

-  Cascade 29 Federal #3,4,7H Battery
-  High
-  Low
-  Medium

 Cascade 29 Federal #3,4,7H Battery

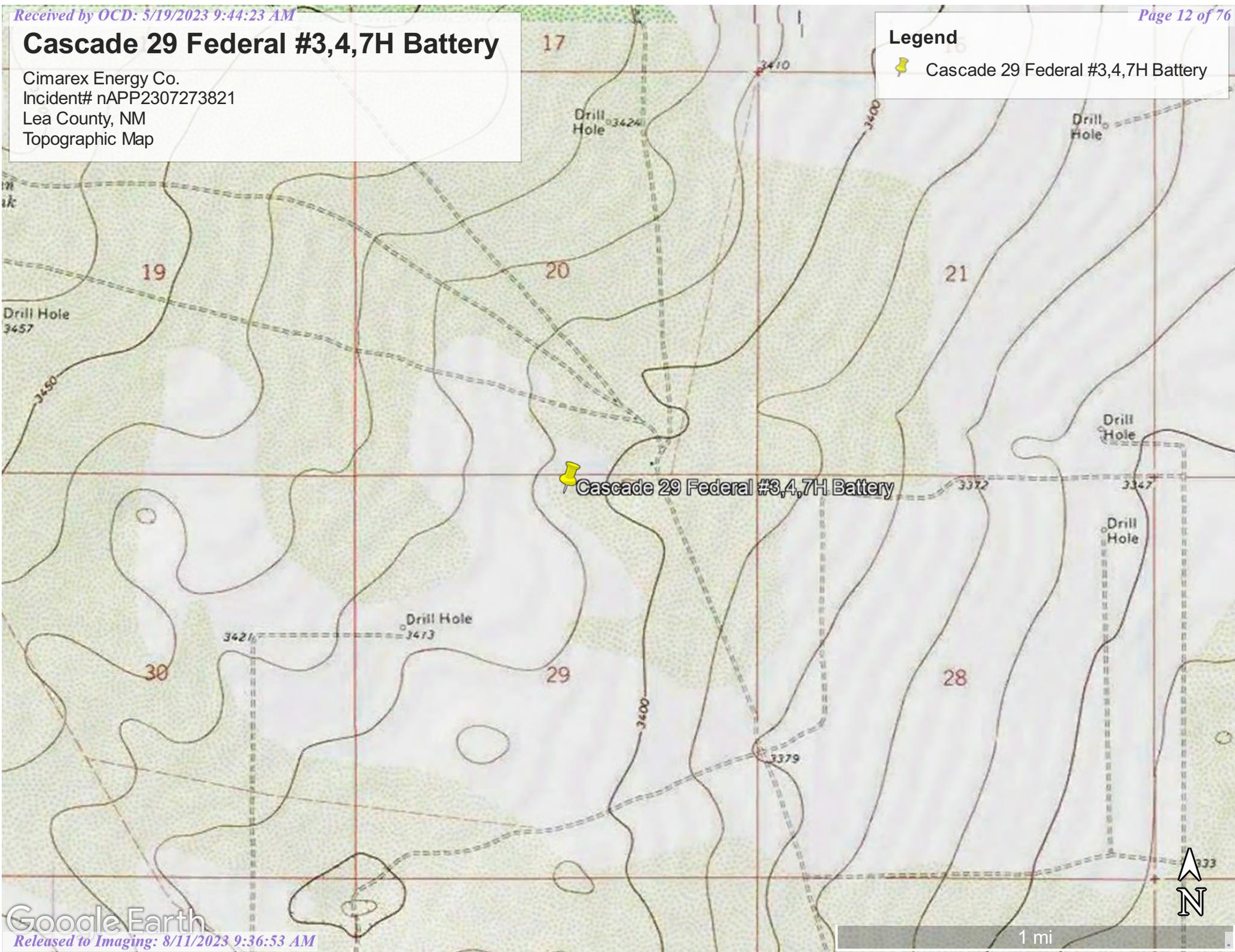


Cascade 29 Federal #3,4,7H Battery

Cimarex Energy Co.
Incident# nAPP2307273821
Lea County, NM
Topographic Map

Legend

 Cascade 29 Federal #3,4,7H Battery

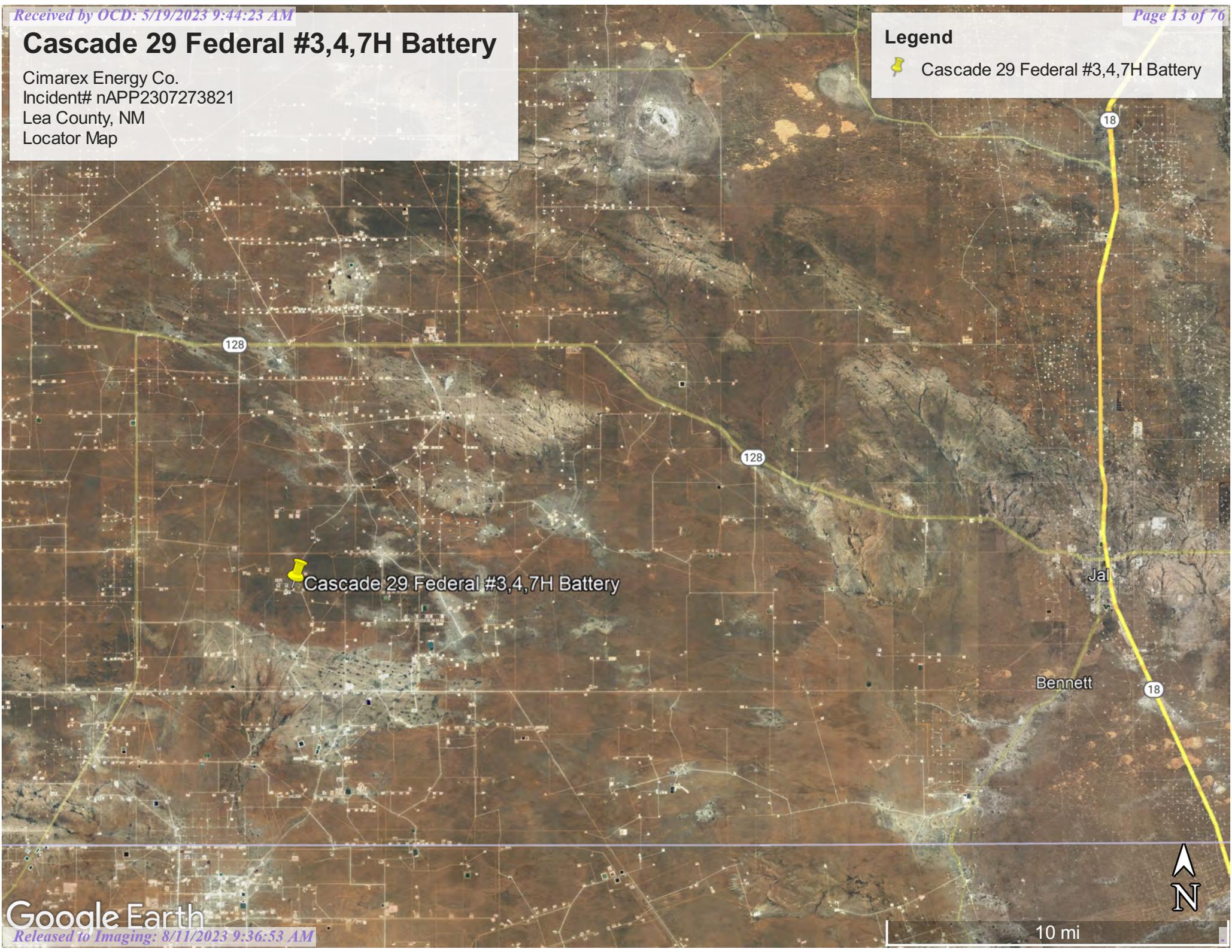


Cascade 29 Federal #3,4,7H Battery

Cimarex Energy Co.
Incident# nAPP2307273821
Lea County, NM
Locator Map

Legend

-  Cascade 29 Federal #3,4,7H Battery



 Cascade 29 Federal #3,4,7H Battery

128

128

18

18

Jal

Bennett



APPENDIX II

GROUNDWATER DATA

SOIL SURVEY

FEMA FLOOD ZONE

WATER BORE MAP

SOIL BORE LOG



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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
C_04537 POD1		C	LE	4	4	4	31	25S	33E	631847	3550243	<input type="checkbox"/>	3130	500	280 220
C_04627 POD1		CUB	LE	3	3	4	08	25S	33E	632665	3556725	<input type="checkbox"/>	3462		
C_02313		CUB	LE	2	3	3	26	25S	33E	636971	3552098*	<input type="checkbox"/>	4452	150	110 40

Average Depth to Water: **195 feet**

Minimum Depth: **110 feet**

Maximum Depth: **280 feet**

Record Count: 3

Basin/County Search:

County: Lea

UTMNAD83 Radius Search (in meters):

Easting (X): 632673.7

Northing (Y): 3553262.81

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.

5/15/23 8:49 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Map Unit Description: Berino-Cacique association, hummocky---Lea County, New Mexico

Lea County, New Mexico

BH—Berino-Cacique association, hummocky

Map Unit Setting

National map unit symbol: dmpg
Elevation: 3,000 to 4,400 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Berino and similar soils: 50 percent
Cacique and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berino

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits derived from sedimentary rock over calcareous sandy alluvium derived from sedimentary rock

Typical profile

A - 0 to 10 inches: fine sand
Btk - 10 to 60 inches: sandy clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Map Unit Description: Berino-Cacique association, hummocky---Lea County, New Mexico

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7c

Hydrologic Soil Group: B

Ecological site: R070BD003NM - Loamy Sand

Hydric soil rating: No

Description of Cacique

Setting

Landform: Plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Calcareous eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 7 inches: fine sand

Bt - 7 to 28 inches: sandy clay loam

Bkm - 28 to 38 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 20 to 40 inches to petrocalcic

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 40 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 2.0

Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7c

Hydrologic Soil Group: C

Ecological site: R070BD004NM - Sandy

Hydric soil rating: No

Minor Components

Kermit

Percent of map unit: 4 percent

Ecological site: R070BD005NM - Deep Sand

Hydric soil rating: No

Maljamar

Percent of map unit: 3 percent

Map Unit Description: Berino-Cacique association, hummocky---Lea County, New Mexico

Ecological site: R077CY028TX - Limy Upland 16-21" PZ

Hydric soil rating: No

Palomas

Percent of map unit: 2 percent

Ecological site: R070BD003NM - Loamy Sand

Hydric soil rating: No

Dune land

Percent of map unit: 1 percent

Hydric soil rating: No

Data Source Information

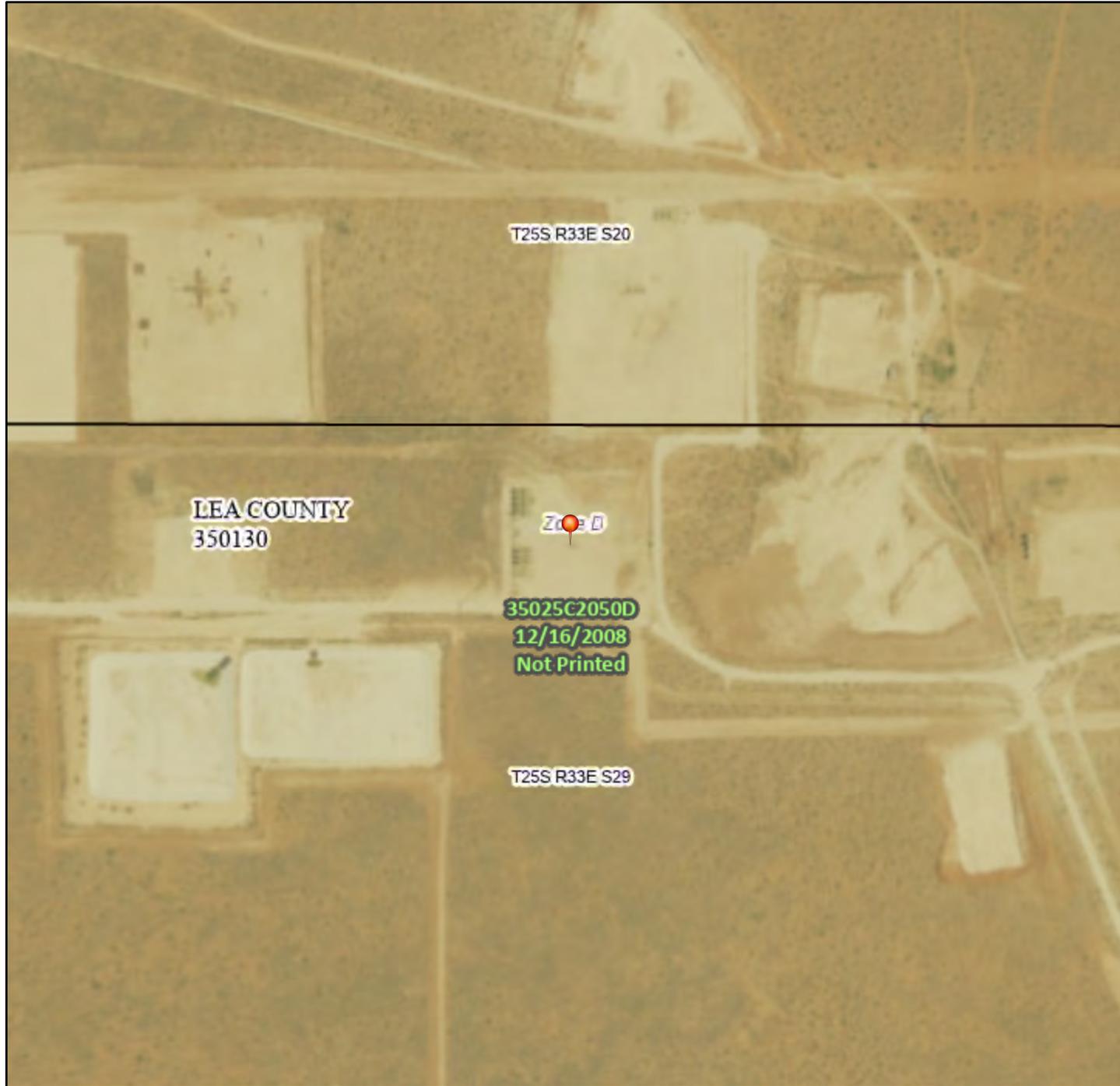
Soil Survey Area: Lea County, New Mexico

Survey Area Data: Version 19, Sep 8, 2022

National Flood Hazard Layer FIRMette



103°35'54"W 32°6'44"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>

OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
		Area of Undetermined Flood Hazard <i>Zone D</i>

GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature

MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/15/2023 at 10:53 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

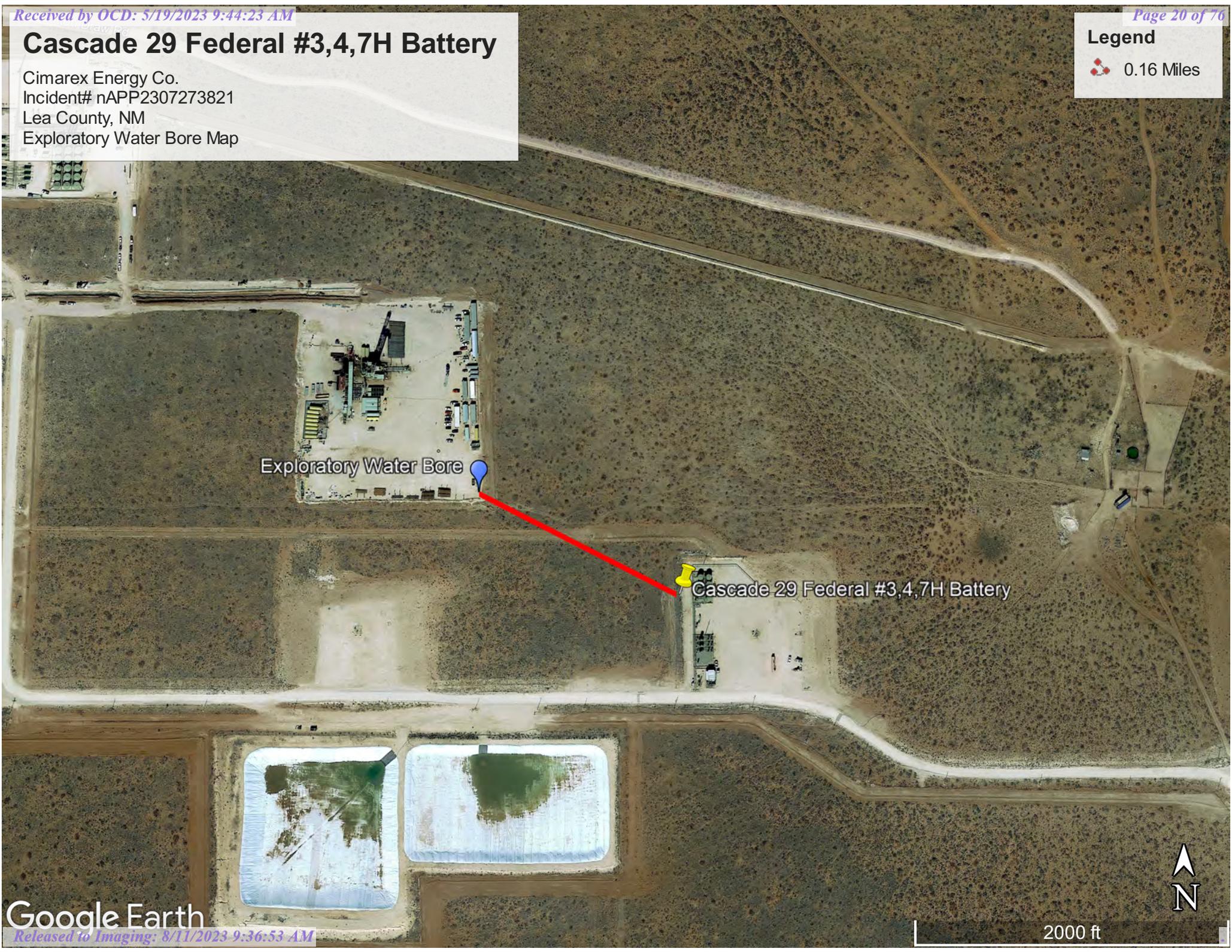
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Cascade 29 Federal #3,4,7H Battery

Cimarex Energy Co.
Incident# nAPP2307273821
Lea County, NM
Exploratory Water Bore Map

Legend

0.16 Miles



Exploratory Water Bore

Cascade 29 Federal #3,4,7H Battery



SOIL BORE LOG

Project:	Vaca Draw 20-17 Federal #012 H	Date:	September 21, 2022
Type:	Exploratory Water Bore	Location:	Vaca Draw 20-17 Fed #12H

Depth	Soil Type	Classification	Comments
0-5'	Caliche	N/A	
5-10'	Fine Red Sand	N/A	
10-15'	Fine Red Sand	N/A	
15-20'	Fine Red Sand	N/A	
20-25'	Caliche	N/A	
25-30'	Caliche	N/A	
30-35'	Caliche	N/A	
35-40'	Caliche	N/A	
40-45'	Caliche	N/A	
45-50'	Caliche	N/A	
50-55'	Caliche	N/A	
Total Depth 55'			No groundwater 9/21/2022 No groundwater 9/26/2022
			GPS: 32.10898,-103.59566

APPENDIX III

INITIAL C-141

FINAL C-141

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

State of New Mexico
Energy Minerals and Natural
Resources Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	nAPP2307273821
District RP	
Facility ID	fAPP2123928540
Application ID	

Release Notification

Responsible Party

Responsible Party: Cimarex Energy Co.	OGRID: 215099
Contact Name: Laci Luig	Contact Telephone: (432) 571-7800
Contact email: laci.luig@coterra.com	Incident # (assigned by OCD) nAPP2307273821
Contact mailing address: 600 N Marienfeld Street, Ste. 600 Midland, TX 79701	

Location of Release Source

Latitude 32.10791 _____ Longitude -103.59319 _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Cascade 29 Federal 3,4,7H	Site Type: Battery
Date Release Discovered: 3/13/2023	API# (if applicable)

Unit Letter	Section	Township	Range	County
B	29	25S	33E	Lea

Surface Owner: State Federal Tribal Private (Name: Deep River Resources)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 28	Volume Recovered (bbls) 28
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release: Human Error

While draining the heater treater for the Cascade 29 Federal 7H utilizing a vac truck, the driver was attempting to remove a plug but instead unscrewed the body of the valve. Due to the vessel still being pressurized, this caused the bull plug and part of the valve to give way and resulted in the heater treater draining 28 barrels oil inside lined containment and onto the well pad. The vac truck immediately recovered all fluid from the pad and from inside the containment. Impacted soils are scheduled to be scraped up. The containment is scheduled to be washed and a liner inspection will be scheduled. Spilled: 28 barrels oil (25 barrels inside lined containment + 3 barrels onto well pad) Recovered: 28 barrels oil.

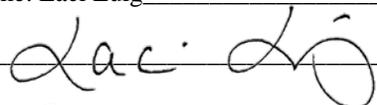
State of New Mexico
Oil Conservation Division

Incident ID	nAPP2307273821
District RP	
Facility ID	fAPP2123928540
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? Total amount released greater than 25 barrels.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? By: Laci Luig To: OCD Enviro By: Email	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.
If all the actions described above have <u>not</u> been undertaken, explain why:
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.
Printed Name: Laci Luig _____ Title: ESH Specialist _____ Signature:  _____ Date: 3/13/2023 _____ email: laci.luig@coterra.com _____ Telephone: (432) 208-3035 _____
<u>OCD Only</u> Received by: <u>Jocelyn Harimon</u> _____ Date: <u>05/19/2023</u> _____

Incident ID	nAPP2307273821
District RP	
Facility ID	fAPP2123928540
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	>55 (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: *Each of the following items must be included in the report.*

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- Depth to water determination
- Determination of water sources and significant watercourses within 1/2-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

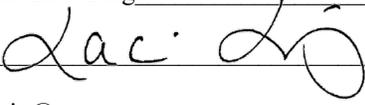
State of New Mexico
Oil Conservation Division

Page 4

Incident ID	nAPP2307273821
District RP	
Facility ID	fAPP2123928540
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: Laci Luig _____ Title: ESH Specialist _____

Signature:  _____ Date: 5/19/2023 _____

email: laci.luig@coterra.com _____ Telephone: (432) 208-3035 _____

OCD Only

Received by: Jocelyn Harimon _____ Date: 05/19/2023 _____

Incident ID	nAPP2307273821
District RP	
Facility ID	fAPP2123928540
Application ID	

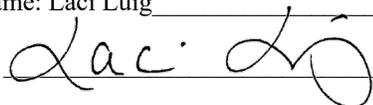
Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Laci Luig _____ Title: ESH Specialist _____
 Signature:  _____ Date: 5/19/2023 _____
 email: laci.luig@coterra.com _____ Telephone: (432) 208-3035 _____

OCD Only

Received by: Jocelyn Harimon _____ Date: 05/19/2023 _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

From: [Laci Luig](#)
To: [Michael Collier](#)
Subject: FW: [EXTERNAL] nAPP2307273821 Cascade 29 Federal 3,4,7H sample notification
Date: Wednesday, May 3, 2023 5:52:45 AM

Good morning!

For the Closure Report.

Laci Luig
(432) 208-3035

From: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Sent: Tuesday, May 2, 2023 5:10 PM
To: Laci Luig <Laci.Luig@coterra.com>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov>
Subject: RE: [EXTERNAL] nAPP2307273821 Cascade 29 Federal 3,4,7H sample notification

WARNING: This email originated from outside of Coterra Energy. Do not click links or open attachments unless you recognize the sender, are expecting the content and know it is safe.

Laci,

Please be aware that notification requirements are **two business days**, per rule. You may proceed on your schedule. This, and all correspondence, should be included in the closure report to insure inclusion in the project file.

JH

Jocelyn Harimon • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1220 South St. Francis Drive | Santa Fe, NM 87505
(505)469-2821 | Jocelyn.Harimon@emnrd.nm.gov
<http://www.emnrd.nm.gov>



From: Laci Luig <Laci.Luig@coterra.com>
Sent: Tuesday, May 2, 2023 9:39 AM

To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Cc: Michael Collier <mcollier@h-r-enterprises.com>; Jim Hawley <JHawley@H-R-Enterprises.com>
Subject: [EXTERNAL] nAPP2307273821 Cascade 29 Federal 3,4,7H sample notification

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Good morning,

This email serves as notification for confirmation sampling on the Cascade 29 Federal 3,4,7H battery. Sampling is scheduled to begin Thursday, May 4th after 12pm, weather and soil conditions permitting. H&R Enterprises will be onsite to collect the confirmation samples.

Thank you,



Laci Luig | Environmental, Health & Safety Specialist
T: 432.571.7810 | M: 432.208.3035 | laci.luig@coterra.com | www.coterra.com
Coterra Energy Inc. | 600 N. Marienfeld Street, Suite 600 | Midland, TX 79701

Coterra Energy Inc. is the result of the merger of Cimarex Energy Co. and Cabot Oil & Gas Corporation on October 1, 2021.

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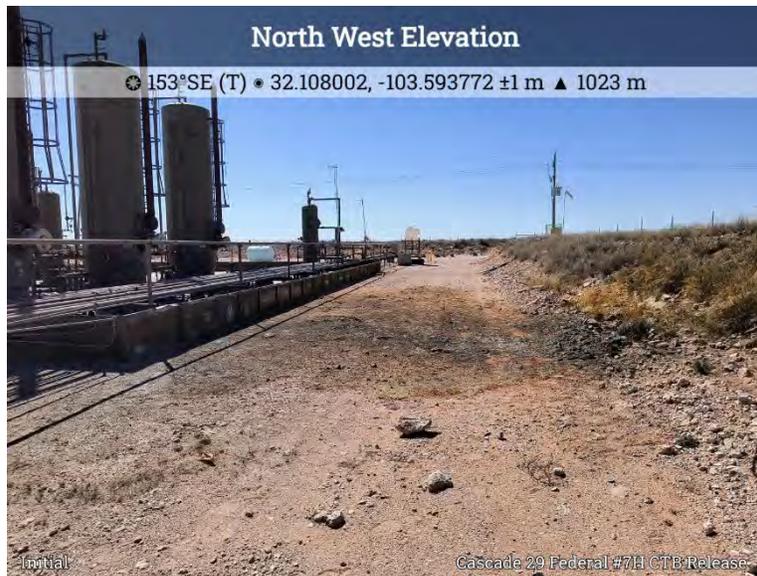
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APPENDIX IV

PHOTOGRAPHIC DOCUMENTATION

PHOTOGRAPHIC DOCUMENTATION

INITIAL PHOTOGRAPHS



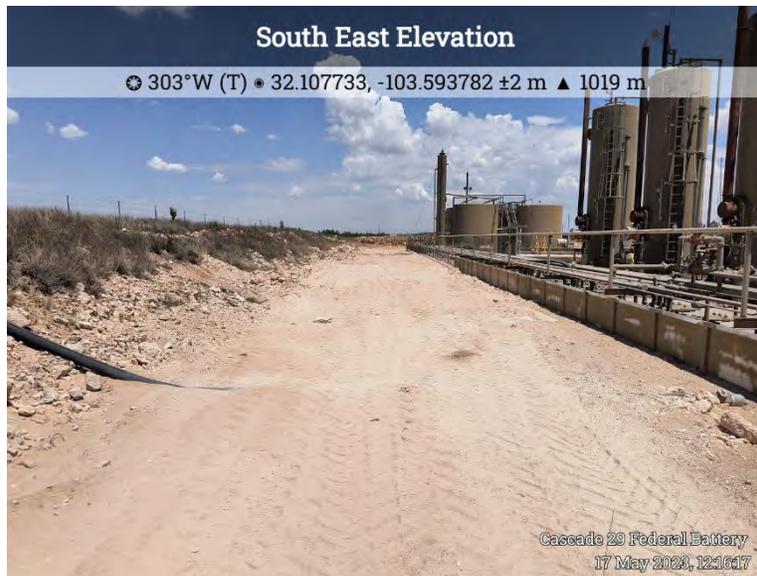
PHOTOGRAPHIC DOCUMENTATION

EXCAVATION PHOTOGRAPHS



PHOTOGRAPHIC DOCUMENTATION

FINAL PHOTOGRAPHS



PHOTOGRAPHIC DOCUMENTATION

WATER BORE PHOTOGRAPHS



APPENDIX V

LABORATORY REPORTS



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

April 14, 2023

MICHAEL COLLIER
H & R ENTERPRISES
1010 GAMBLIN ROAD
HOBBS, NM 88240

RE: CASCADE 28 FEDERAL 3, 4, 7H CTB (CASCADE)

Enclosed are the results of analyses for samples received by the laboratory on 04/05/23 16:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. 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/ga/lab_accred_certif.html.

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

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2 Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2 Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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



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

Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S - 1 0-1'	H231598-01	Soil	05-Apr-23 00:00	05-Apr-23 16:45
S - 1 2'	H231598-02	Soil	05-Apr-23 00:00	05-Apr-23 16:45
S - 1 3'	H231598-03	Soil	05-Apr-23 00:00	05-Apr-23 16:45
S - 2 0-1'	H231598-05	Soil	05-Apr-23 00:00	05-Apr-23 16:45
S - 2 2'	H231598-06	Soil	05-Apr-23 00:00	05-Apr-23 16:45
S - 2 3'	H231598-07	Soil	05-Apr-23 00:00	05-Apr-23 16:45
S - 2 4'	H231598-08	Soil	05-Apr-23 00:00	05-Apr-23 16:45
S - 3 0-1'	H231598-10	Soil	05-Apr-23 00:00	05-Apr-23 16:45
S - 3 2'	H231598-11	Soil	05-Apr-23 00:00	05-Apr-23 16:45
S - 3 3'	H231598-12	Soil	05-Apr-23 00:00	05-Apr-23 16:45
S - 3 4'	H231598-13	Soil	05-Apr-23 00:00	05-Apr-23 16:45
S - 3 6'	H231598-14	Soil	05-Apr-23 00:00	05-Apr-23 16:45
S - 3 8'	H231598-15	Soil	05-Apr-23 00:00	05-Apr-23 16:45
H - 1 0-1'	H231598-16	Soil	05-Apr-23 00:00	05-Apr-23 16:45
H - 2 0-1'	H231598-17	Soil	05-Apr-23 00:00	05-Apr-23 16:45
H - 3 0-1'	H231598-18	Soil	05-Apr-23 00:00	05-Apr-23 16:45
H - 4 0-1'	H231598-19	Soil	05-Apr-23 00:00	05-Apr-23 16:45

04/14/23 - Client added analysis to sample -15 (see COC). This is the revised report and will replace the one sent on 04/12/23.

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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S - 1 0-1'
H231598-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	320		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

S-04

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	1.83		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	1.26		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	6.91		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	10.0		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			177 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

S-04

GRO C6-C10*	155		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	
DRO >C10-C28*	5230		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	1230		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	

Surrogate: 1-Chlorooctane			120 %	48.2-134		3040622	MS	10-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			171 %	49.1-148		3040622	MS	10-Apr-23	8015B	
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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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S - 1 2'

H231598-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	16.0		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-CI-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	0.274		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			113 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	10.5		10.0	mg/kg	1	3040622	MS	11-Apr-23	8015B	
DRO >C10-C28*	132		10.0	mg/kg	1	3040622	MS	11-Apr-23	8015B	
EXT DRO >C28-C36	10.7		10.0	mg/kg	1	3040622	MS	11-Apr-23	8015B	

Surrogate: 1-Chlorooctane			97.9 %	48.2-134		3040622	MS	11-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			102 %	49.1-148		3040622	MS	11-Apr-23	8015B	
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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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S - 1 3'

H231598-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	16.0		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-CI-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			106 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	

<i>Surrogate: 1-Chlorooctane</i>			103 %	48.2-134		3040622	MS	10-Apr-23	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			104 %	49.1-148		3040622	MS	10-Apr-23	8015B	
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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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S - 2 0-1'

H231598-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	480		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	0.466		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	0.668		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	4.26		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	5.40		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			118 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

S-04

GRO C6-C10*	137		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	
DRO >C10-C28*	4710		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	948		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	

Surrogate: 1-Chlorooctane			122 %	48.2-134		3040622	MS	10-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			154 %	49.1-148		3040622	MS	10-Apr-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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S - 2 2'

H231598-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	16.0		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			112 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3040622	MS	11-Apr-23	8015B	
DRO >C10-C28*	101		10.0	mg/kg	1	3040622	MS	11-Apr-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3040622	MS	11-Apr-23	8015B	

Surrogate: 1-Chlorooctane			107 %	48.2-134		3040622	MS	11-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			110 %	49.1-148		3040622	MS	11-Apr-23	8015B	
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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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S - 2 3'

H231598-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	16.0		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			106 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	
DRO >C10-C28*	14.9		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	

Surrogate: 1-Chlorooctane			98.0 %	48.2-134		3040622	MS	10-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			98.6 %	49.1-148		3040622	MS	10-Apr-23	8015B	
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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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S - 2 4'

H231598-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	16.0		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-CI-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			107 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	
DRO >C10-C28*	16.6		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	

Surrogate: 1-Chlorooctane			95.9 %	48.2-134		3040622	MS	10-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			94.6 %	49.1-148		3040622	MS	10-Apr-23	8015B	
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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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S - 3 0-1'
H231598-10 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	208		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	0.155		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	0.229		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	1.53		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	1.92		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			124 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	73.9		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	
DRO >C10-C28*	1820		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	334		10.0	mg/kg	1	3040622	MS	10-Apr-23	8015B	

Surrogate: 1-Chlorooctane			107 %	48.2-134		3040622	MS	10-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			108 %	49.1-148		3040622	MS	10-Apr-23	8015B	
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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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S - 3 2'
H231598-11 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	32.0		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-CI-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	0.052		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	0.100		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	0.710		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	0.861		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			116 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	14.3		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
DRO >C10-C28*	211		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	23.7		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	

Surrogate: 1-Chlorooctane			82.8 %	48.2-134		3040623	MS	10-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			91.0 %	49.1-148		3040623	MS	10-Apr-23	8015B	
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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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S - 3 3'

H231598-12 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	48.0		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	0.065		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	0.129		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	0.918		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	1.11		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			124 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	25.7		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
DRO >C10-C28*	380		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	50.6		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	

Surrogate: 1-Chlorooctane			95.5 %	48.2-134		3040623	MS	10-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			109 %	49.1-148		3040623	MS	10-Apr-23	8015B	
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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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S - 3 4'

H231598-13 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	48.0		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-CI-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	0.078		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	0.186		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	1.31		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	1.57		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			132 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	19.3		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
DRO >C10-C28*	330		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	49.5		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	

Surrogate: 1-Chlorooctane			87.0 %	48.2-134		3040623	MS	10-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			99.5 %	49.1-148		3040623	MS	10-Apr-23	8015B	
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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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S - 3 6'

H231598-14 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	32.0		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	0.173		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			105 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
DRO >C10-C28*	141		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	19.8		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	

<i>Surrogate: 1-Chlorooctane</i>			88.0 %	48.2-134		3040623	MS	10-Apr-23	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			97.6 %	49.1-148		3040623	MS	10-Apr-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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S - 3 8'

H231598-15 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	32.0		16.0	mg/kg	4	3041325	GM	13-Apr-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3041253	JH	13-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3041253	JH	13-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3041253	JH	13-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3041253	JH	13-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3041253	JH	13-Apr-23	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			105 %	71.5-134		3041253	JH	13-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3041252	MS	13-Apr-23	8015B	
DRO >C10-C28*	51.5		10.0	mg/kg	1	3041252	MS	13-Apr-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3041252	MS	13-Apr-23	8015B	

<i>Surrogate: 1-Chlorooctane</i>			83.7 %	48.2-134		3041252	MS	13-Apr-23	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			92.8 %	49.1-148		3041252	MS	13-Apr-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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H - 1 0-1'
H231598-16 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	<16.0		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			106 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	

Surrogate: 1-Chlorooctane			88.8 %	48.2-134		3040623	MS	10-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			94.2 %	49.1-148		3040623	MS	10-Apr-23	8015B	
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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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H - 2 0-1'
H231598-17 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	16.0		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			109 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	

<i>Surrogate: 1-Chlorooctane</i>			88.2 %	48.2-134		3040623	MS	10-Apr-23	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			94.0 %	49.1-148		3040623	MS	10-Apr-23	8015B	
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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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**H - 3 0-1'
H231598-18 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	<16.0		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-CI-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			106 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	

Surrogate: 1-Chlorooctane			89.2 %	48.2-134		3040623	MS	10-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			95.3 %	49.1-148		3040623	MS	10-Apr-23	8015B	
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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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H - 4 0-1'
H231598-19 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories

Inorganic Compounds

Chloride	<16.0		16.0	mg/kg	4	3041026	AC	10-Apr-23	4500-CI-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3040636	JH	10-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3040636	JH	10-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			107 %	71.5-134		3040636	JH	10-Apr-23	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3040623	MS	10-Apr-23	8015B	

Surrogate: 1-Chlorooctane			85.8 %	48.2-134		3040623	MS	10-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			91.3 %	49.1-148		3040623	MS	10-Apr-23	8015B	
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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3041026 - 1:4 DI Water

Blank (3041026-BLK1)				Prepared & Analyzed: 10-Apr-23						
Chloride	ND	16.0	mg/kg							
LCS (3041026-BS1)				Prepared & Analyzed: 10-Apr-23						
Chloride	416	16.0	mg/kg	400		104	80-120			
LCS Dup (3041026-BSD1)				Prepared & Analyzed: 10-Apr-23						
Chloride	432	16.0	mg/kg	400		108	80-120	3.77	20	

Batch 3041325 - 1:4 DI Water

Blank (3041325-BLK1)				Prepared & Analyzed: 13-Apr-23						
Chloride	ND	16.0	mg/kg							
LCS (3041325-BS1)				Prepared & Analyzed: 13-Apr-23						
Chloride	416	16.0	mg/kg	400		104	80-120			
LCS Dup (3041325-BSD1)				Prepared & Analyzed: 13-Apr-23						
Chloride	448	16.0	mg/kg	400		112	80-120	7.41	20	

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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3040636 - Volatiles

Blank (3040636-BLK1)

Prepared: 06-Apr-23 Analyzed: 10-Apr-23

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0551		mg/kg	0.0500		110	71.5-134			

LCS (3040636-BS1)

Prepared: 06-Apr-23 Analyzed: 10-Apr-23

Benzene	1.93	0.050	mg/kg	2.00		96.3	81.4-118			
Toluene	2.05	0.050	mg/kg	2.00		102	88.7-121			
Ethylbenzene	2.18	0.050	mg/kg	2.00		109	86.1-120			
m,p-Xylene	4.39	0.100	mg/kg	4.00		110	88.2-124			
o-Xylene	2.21	0.050	mg/kg	2.00		110	84.9-118			
Total Xylenes	6.60	0.150	mg/kg	6.00		110	87.3-122			
Surrogate: 4-Bromofluorobenzene (PID)	0.0567		mg/kg	0.0500		113	71.5-134			

LCS Dup (3040636-BSD1)

Prepared: 06-Apr-23 Analyzed: 10-Apr-23

Benzene	1.93	0.050	mg/kg	2.00		96.6	81.4-118	0.244	15.8	
Toluene	1.99	0.050	mg/kg	2.00		99.5	88.7-121	2.87	15.9	
Ethylbenzene	2.09	0.050	mg/kg	2.00		105	86.1-120	4.20	16	
m,p-Xylene	4.18	0.100	mg/kg	4.00		105	88.2-124	4.90	16.2	
o-Xylene	2.10	0.050	mg/kg	2.00		105	84.9-118	4.87	16.7	
Total Xylenes	6.29	0.150	mg/kg	6.00		105	87.3-122	4.89	16.3	
Surrogate: 4-Bromofluorobenzene (PID)	0.0552		mg/kg	0.0500		110	71.5-134			

Batch 3041253 - Volatiles

Blank (3041253-BLK1)

Prepared & Analyzed: 12-Apr-23

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							

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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3041253 - Volatiles

Blank (3041253-BLK1)

Prepared & Analyzed: 12-Apr-23

Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0522		mg/kg	0.0500		104	71.5-134			

LCS (3041253-BS1)

Prepared & Analyzed: 12-Apr-23

Benzene	1.93	0.050	mg/kg	2.00		96.3	81.4-118			
Toluene	2.04	0.050	mg/kg	2.00		102	88.7-121			
Ethylbenzene	2.14	0.050	mg/kg	2.00		107	86.1-120			
m,p-Xylene	4.43	0.100	mg/kg	4.00		111	88.2-124			
o-Xylene	2.12	0.050	mg/kg	2.00		106	84.9-118			
Total Xylenes	6.55	0.150	mg/kg	6.00		109	87.3-122			
Surrogate: 4-Bromofluorobenzene (PID)	0.0495		mg/kg	0.0500		99.0	71.5-134			

LCS Dup (3041253-BSD1)

Prepared & Analyzed: 12-Apr-23

Benzene	1.76	0.050	mg/kg	2.00		87.8	81.4-118	9.25	15.8	
Toluene	1.87	0.050	mg/kg	2.00		93.4	88.7-121	8.99	15.9	
Ethylbenzene	1.95	0.050	mg/kg	2.00		97.7	86.1-120	8.82	16	
m,p-Xylene	4.06	0.100	mg/kg	4.00		102	88.2-124	8.61	16.2	
o-Xylene	1.99	0.050	mg/kg	2.00		99.7	84.9-118	6.19	16.7	
Total Xylenes	6.06	0.150	mg/kg	6.00		101	87.3-122	7.82	16.3	
Surrogate: 4-Bromofluorobenzene (PID)	0.0508		mg/kg	0.0500		102	71.5-134			

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3040622 - General Prep - Organics

Blank (3040622-BLK1)		Prepared: 06-Apr-23 Analyzed: 10-Apr-23								
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	43.8		mg/kg	50.0		87.7	48.2-134			
Surrogate: 1-Chlorooctadecane	44.5		mg/kg	50.0		89.0	49.1-148			

LCS (3040622-BS1)		Prepared: 06-Apr-23 Analyzed: 10-Apr-23								
GRO C6-C10	194	10.0	mg/kg	200		97.0	78.5-124			
DRO >C10-C28	192	10.0	mg/kg	200		95.9	72.5-126			
Total TPH C6-C28	386	10.0	mg/kg	400		96.5	77.6-123			
Surrogate: 1-Chlorooctane	49.7		mg/kg	50.0		99.4	48.2-134			
Surrogate: 1-Chlorooctadecane	48.0		mg/kg	50.0		96.0	49.1-148			

LCS Dup (3040622-BSD1)		Prepared: 06-Apr-23 Analyzed: 10-Apr-23								
GRO C6-C10	184	10.0	mg/kg	200		91.9	78.5-124	5.45	17.7	
DRO >C10-C28	179	10.0	mg/kg	200		89.4	72.5-126	7.06	21	
Total TPH C6-C28	363	10.0	mg/kg	400		90.6	77.6-123	6.24	18.5	
Surrogate: 1-Chlorooctane	47.0		mg/kg	50.0		93.9	48.2-134			
Surrogate: 1-Chlorooctadecane	44.6		mg/kg	50.0		89.3	49.1-148			

Batch 3040623 - General Prep - Organics

Blank (3040623-BLK1)		Prepared: 06-Apr-23 Analyzed: 10-Apr-23								
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	40.5		mg/kg	50.0		80.9	48.2-134			
Surrogate: 1-Chlorooctadecane	43.7		mg/kg	50.0		87.4	49.1-148			

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3040623 - General Prep - Organics

LCS (3040623-BS1)		Prepared: 06-Apr-23 Analyzed: 10-Apr-23								
GRO C6-C10	204	10.0	mg/kg	200		102	78.5-124			
DRO >C10-C28	205	10.0	mg/kg	200		103	72.5-126			
Total TPH C6-C28	410	10.0	mg/kg	400		102	77.6-123			
Surrogate: 1-Chlorooctane	47.6		mg/kg	50.0		95.2	48.2-134			
Surrogate: 1-Chlorooctadecane	54.7		mg/kg	50.0		109	49.1-148			

LCS Dup (3040623-BSD1)		Prepared: 06-Apr-23 Analyzed: 10-Apr-23								
GRO C6-C10	196	10.0	mg/kg	200		98.1	78.5-124	3.94	17.7	
DRO >C10-C28	200	10.0	mg/kg	200		100	72.5-126	2.66	21	
Total TPH C6-C28	396	10.0	mg/kg	400		99.1	77.6-123	3.29	18.5	
Surrogate: 1-Chlorooctane	45.1		mg/kg	50.0		90.2	48.2-134			
Surrogate: 1-Chlorooctadecane	51.5		mg/kg	50.0		103	49.1-148			

Batch 3041252 - General Prep - Organics

Blank (3041252-BLK1)		Prepared: 12-Apr-23 Analyzed: 13-Apr-23								
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	46.7		mg/kg	49.6		94.2	48.2-134			
Surrogate: 1-Chlorooctadecane	49.0		mg/kg	50.0		97.9	49.1-148			

LCS (3041252-BS1)		Prepared: 12-Apr-23 Analyzed: 13-Apr-23								
GRO C6-C10	202	10.0	mg/kg	200		101	78.5-124			
DRO >C10-C28	200	10.0	mg/kg	200		100	72.5-126			
Total TPH C6-C28	402	10.0	mg/kg	400		100	77.6-123			
Surrogate: 1-Chlorooctane	50.9		mg/kg	49.6		103	48.2-134			
Surrogate: 1-Chlorooctadecane	50.1		mg/kg	50.0		100	49.1-148			

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

H & R ENTERPRISES 1010 GAMBLIN ROAD HOBBS NM, 88240	Project: CASCADE 28 FEDERAL 3, 4, 7H CTI Project Number: NOT GIVEN Project Manager: MICHAEL COLLIER Fax To: NONE	Reported: 14-Apr-23 09:07
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Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3041252 - General Prep - Organics

LCS Dup (3041252-BSD1)		Prepared: 12-Apr-23 Analyzed: 13-Apr-23								
GRO C6-C10	209	10.0	mg/kg	200		105	78.5-124	3.53	17.7	
DRO >C10-C28	206	10.0	mg/kg	200		103	72.5-126	3.10	21	
Total TPH C6-C28	416	10.0	mg/kg	400		104	77.6-123	3.32	18.5	
Surrogate: 1-Chlorooctane	48.4		mg/kg	49.6		97.7	48.2-134			
Surrogate: 1-Chlorooctadecane	46.4		mg/kg	50.0		92.8	49.1-148			

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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

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: H&R Enterprises
 Project Manager: Michael Collier
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone #: _____ Fax #: _____
 Project #: _____ Project Owner: Cimarex Energy
 Project Name: Cascade 28 Federal 3, 4, 7th CTB (Cascade)
 Project Location: Lea County, NM
 City: _____ State: _____ Zip: _____
 Phone #: _____
 Sampler Name: M. Collier
 Fax #: _____

BILL TO P.O. #: _____
 Company: Cimarex Energy
 Attn: Lael Lullig
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone #: _____
 Fax #: _____

ANALYSIS REQUEST

FOR LAB USE ONLY

Lab I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX							PRESERV.	SAMPLING	DATE	TIME	BTEX	TPH	Chlorides	HOLD
			GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER : ACID/BASE:	ICE / COOL								
HR3598		1										4-5-23		X	X	X	HR
13	S-3 2'	G 1												X	X	X	HR
13	S-3 3'													X	X	X	HR
13	S-3 4'													X	X	X	HR
14	S-3 6'													X	X	X	HR
15	S-3 8'													X	X	X	HR
16	H-1 0-1'													X	X	X	HR
17	H-2 0-1'													X	X	X	HR
18	H-3 0-1'													X	X	X	HR
19	H-4 0-1'													X	X	X	HR

PLEASE NOTE: Quality and Quantity. Check to verify and clearly indicate reasons for any data being marked as uncorrected or not. All data including those for negative and any other cause unknown shall be deemed correct unless made in writing and received by Cardinal within 30 days after completion of the applicable service. If no event notes are provided for individual or multiple samples, including without limitation, business transactions, sales or use, or loss of profits incurred by client, the substitution of materials or accessories arising out of or related to the performance of services provided by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: MJD/ELC Date: 4/6/23 Received By: Shirley White Date: 4/6/23

Delivered By: (Circle One) UPS Observed Temp. °C 36 Corrected Temp. °C 30 Sample Condition: Cool Yes No

Sampler - UPS - Bus - Other: _____

Checked By: YO (Initials)

Remarks: Stop testing depths when at or under 600 in Chlorides, 100 TPH, 50 BTEX, and 10 Benzene

Thermometer ID #113 Cool Bacteria (only) Sample Condition

Correction Factor -2.9°C Yes No Yes No No No No No No No

† Cardinal cannot accept verbal changes. Please email changes to caley.keene@cardinalabnm.com

FORM-008 R.3.2 10/07/21



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

May 12, 2023

MICHAEL COLLIER
H & R ENTERPRISES
1010 GAMBLIN ROAD
HOBBS, NM 88240

RE: CASCADE 29 FED #007H BATTERY (CAS)

Enclosed are the results of analyses for samples received by the laboratory on 05/09/23 12:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style.

Celey D. Keene
Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	05/09/2023	Sampling Date:	05/09/2023
Reported:	05/12/2023	Sampling Type:	Soil
Project Name:	CASCADE 29 FED #007H BATTERY (CAS)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CIMAREX - LEA CO NM		

Sample ID: S - 1 1.5' (H232287-01)

BTEX 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/09/2023	ND	2.03	102	2.00	12.5	QR-03	
Toluene*	<0.050	0.050	05/09/2023	ND	2.09	105	2.00	11.6		
Ethylbenzene*	<0.050	0.050	05/09/2023	ND	2.16	108	2.00	11.4		
Total Xylenes*	<0.150	0.150	05/09/2023	ND	6.40	107	6.00	10.9		
Total BTEX	<0.300	0.300	05/09/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	05/10/2023	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	05/09/2023	ND	166	82.9	200	1.12		
DRO >C10-C28*	173	10.0	05/09/2023	ND	173	86.3	200	4.50		
EXT DRO >C28-C36	26.1	10.0	05/09/2023	ND						

Surrogate: 1-Chlorooctane 82.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 102 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	05/09/2023	Sampling Date:	05/09/2023
Reported:	05/12/2023	Sampling Type:	Soil
Project Name:	CASCADE 29 FED #007H BATTERY (CAS)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CIMAREX - LEA CO NM		

Sample ID: S - 2 1.5' (H232287-02)

BTEX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/09/2023	ND	2.03	102	2.00	12.5	
Toluene*	<0.050	0.050	05/09/2023	ND	2.09	105	2.00	11.6	
Ethylbenzene*	<0.050	0.050	05/09/2023	ND	2.16	108	2.00	11.4	
Total Xylenes*	<0.150	0.150	05/09/2023	ND	6.40	107	6.00	10.9	
Total BTEX	<0.300	0.300	05/09/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	05/10/2023	ND	432	108	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*	<10.0	10.0	05/09/2023	ND	166	82.9	200	1.12	
DRO >C10-C28*	155	10.0	05/09/2023	ND	173	86.3	200	4.50	
EXT DRO >C28-C36	26.1	10.0	05/09/2023	ND					

Surrogate: 1-Chlorooctane 84.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 113 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	05/09/2023	Sampling Date:	05/09/2023
Reported:	05/12/2023	Sampling Type:	Soil
Project Name:	CASCADE 29 FED #007H BATTERY (CAS)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CIMAREX - LEA CO NM		

Sample ID: S - 3 1.5' (H232287-03)

BTEX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/09/2023	ND	2.03	102	2.00	12.5	
Toluene*	<0.050	0.050	05/09/2023	ND	2.09	105	2.00	11.6	
Ethylbenzene*	<0.050	0.050	05/09/2023	ND	2.16	108	2.00	11.4	
Total Xylenes*	<0.150	0.150	05/09/2023	ND	6.40	107	6.00	10.9	
Total BTEX	<0.300	0.300	05/09/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	05/10/2023	ND	432	108	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*	<10.0	10.0	05/09/2023	ND	166	82.9	200	1.12	
DRO >C10-C28*	45.2	10.0	05/09/2023	ND	173	86.3	200	4.50	
EXT DRO >C28-C36	<10.0	10.0	05/09/2023	ND					

Surrogate: 1-Chlorooctane 80.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 95.3 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	05/09/2023	Sampling Date:	05/09/2023
Reported:	05/12/2023	Sampling Type:	Soil
Project Name:	CASCADE 29 FED #007H BATTERY (CAS)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CIMAREX - LEA CO NM		

Sample ID: S - 4 1.5' (H232287-04)

BTEX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/09/2023	ND	2.03	102	2.00	12.5	
Toluene*	<0.050	0.050	05/09/2023	ND	2.09	105	2.00	11.6	
Ethylbenzene*	<0.050	0.050	05/09/2023	ND	2.16	108	2.00	11.4	
Total Xylenes*	<0.150	0.150	05/09/2023	ND	6.40	107	6.00	10.9	
Total BTEX	<0.300	0.300	05/09/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	05/10/2023	ND	432	108	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*	<10.0	10.0	05/09/2023	ND	166	82.9	200	1.12	
DRO >C10-C28*	272	10.0	05/09/2023	ND	173	86.3	200	4.50	
EXT DRO >C28-C36	49.0	10.0	05/09/2023	ND					

Surrogate: 1-Chlorooctane 82.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 104 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	05/09/2023	Sampling Date:	05/09/2023
Reported:	05/12/2023	Sampling Type:	Soil
Project Name:	CASCADE 29 FED #007H BATTERY (CAS)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CIMAREX - LEA CO NM		

Sample ID: S - 5 1.5' (H232287-05)

BTEX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/09/2023	ND	2.03	102	2.00	12.5	
Toluene*	<0.050	0.050	05/09/2023	ND	2.09	105	2.00	11.6	
Ethylbenzene*	<0.050	0.050	05/09/2023	ND	2.16	108	2.00	11.4	
Total Xylenes*	<0.150	0.150	05/09/2023	ND	6.40	107	6.00	10.9	
Total BTEX	<0.300	0.300	05/09/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	05/10/2023	ND	432	108	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*	<10.0	10.0	05/09/2023	ND	166	82.9	200	1.12	
DRO >C10-C28*	296	10.0	05/09/2023	ND	173	86.3	200	4.50	
EXT DRO >C28-C36	48.3	10.0	05/09/2023	ND					

Surrogate: 1-Chlorooctane 82.1 % 48.2-134

Surrogate: 1-Chlorooctadecane 103 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	05/09/2023	Sampling Date:	05/09/2023
Reported:	05/12/2023	Sampling Type:	Soil
Project Name:	CASCADE 29 FED #007H BATTERY (CAS)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CIMAREX - LEA CO NM		

Sample ID: SW - 1 1.5' (H232287-06)

BTEX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/09/2023	ND	2.03	102	2.00	12.5	
Toluene*	<0.050	0.050	05/09/2023	ND	2.09	105	2.00	11.6	
Ethylbenzene*	<0.050	0.050	05/09/2023	ND	2.16	108	2.00	11.4	
Total Xylenes*	<0.150	0.150	05/09/2023	ND	6.40	107	6.00	10.9	
Total BTEX	<0.300	0.300	05/09/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	05/10/2023	ND	432	108	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*	<10.0	10.0	05/09/2023	ND	166	82.9	200	1.12	
DRO >C10-C28*	<10.0	10.0	05/09/2023	ND	173	86.3	200	4.50	
EXT DRO >C28-C36	<10.0	10.0	05/09/2023	ND					

Surrogate: 1-Chlorooctane 82.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 95.5 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	05/09/2023	Sampling Date:	05/09/2023
Reported:	05/12/2023	Sampling Type:	Soil
Project Name:	CASCADE 29 FED #007H BATTERY (CAS)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CIMAREX - LEA CO NM		

Sample ID: SW - 2 1.5' (H232287-07)

BTEX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/09/2023	ND	2.03	102	2.00	12.5	
Toluene*	<0.050	0.050	05/09/2023	ND	2.09	105	2.00	11.6	
Ethylbenzene*	<0.050	0.050	05/09/2023	ND	2.16	108	2.00	11.4	
Total Xylenes*	<0.150	0.150	05/09/2023	ND	6.40	107	6.00	10.9	
Total BTEX	<0.300	0.300	05/09/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	05/10/2023	ND	432	108	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*	<10.0	10.0	05/09/2023	ND	166	82.9	200	1.12	
DRO >C10-C28*	<10.0	10.0	05/09/2023	ND	173	86.3	200	4.50	
EXT DRO >C28-C36	<10.0	10.0	05/09/2023	ND					

Surrogate: 1-Chlorooctane 80.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 93.6 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	05/09/2023	Sampling Date:	05/09/2023
Reported:	05/12/2023	Sampling Type:	Soil
Project Name:	CASCADE 29 FED #007H BATTERY (CAS)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CIMAREX - LEA CO NM		

Sample ID: SW - 3 1.5' (H232287-08)

BTEX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/09/2023	ND	2.03	102	2.00	12.5	
Toluene*	<0.050	0.050	05/09/2023	ND	2.09	105	2.00	11.6	
Ethylbenzene*	<0.050	0.050	05/09/2023	ND	2.16	108	2.00	11.4	
Total Xylenes*	<0.150	0.150	05/09/2023	ND	6.40	107	6.00	10.9	
Total BTEX	<0.300	0.300	05/09/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	05/10/2023	ND	432	108	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*	<10.0	10.0	05/09/2023	ND	166	82.9	200	1.12	
DRO >C10-C28*	<10.0	10.0	05/09/2023	ND	173	86.3	200	4.50	
EXT DRO >C28-C36	<10.0	10.0	05/09/2023	ND					

Surrogate: 1-Chlorooctane 84.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 99.5 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

H & R ENTERPRISES
 MICHAEL COLLIER
 1010 GAMBLIN ROAD
 HOBBS NM, 88240
 Fax To: NONE

Received:	05/09/2023	Sampling Date:	05/09/2023
Reported:	05/12/2023	Sampling Type:	Soil
Project Name:	CASCADE 29 FED #007H BATTERY (CAS)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CIMAREX - LEA CO NM		

Sample ID: SW - 4 1.5' (H232287-09)

BTEX 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/09/2023	ND	2.03	102	2.00	12.5		
Toluene*	<0.050	0.050	05/09/2023	ND	2.09	105	2.00	11.6		
Ethylbenzene*	<0.050	0.050	05/09/2023	ND	2.16	108	2.00	11.4		
Total Xylenes*	<0.150	0.150	05/09/2023	ND	6.40	107	6.00	10.9		
Total BTEX	<0.300	0.300	05/09/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	05/10/2023	ND	432	108	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*	<10.0	10.0	05/09/2023	ND	166	82.9	200	1.12		
DRO >C10-C28*	<10.0	10.0	05/09/2023	ND	173	86.3	200	4.50		
EXT DRO >C28-C36	<10.0	10.0	05/09/2023	ND						

Surrogate: 1-Chlorooctane 86.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 99.7 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCS/D recovery and/or RPD values.
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

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: H+R ENTERPRISES		P.O. #:	
Project Manager: M. COLLIER		Company: CIMAREX	
Address:	State:	Zip:	Attn: CACI CURT
City:	State:	Zip:	Address:
Phone #:	Fax #:	City:	State:
Project #:	Project Owner: CIMAREX	State:	Zip:
Project Name: CASCADENE 29 FED # 74 BATTERY (CAS)	Project Location: LEA COUNTY, NM	Phone #:	Fax #:
Sampler Name: M. COLLIER			

Lab I.D.	Sample I.D.	FOR LAB USE ONLY		MATRIX		PRESERV		DATE	TIME	ANALYSIS REQUEST						
		(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL			SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	TPH	BTEX
HA33387	S-1 1.5'	C	1			X		5-9-23		X	X	X				
	S-2 1.5'															
	S-3 1.5'															
	S-4 1.5'															
	S-5 1.5'															
	SW-1 1.5'															
	SW-2 1.5'															
	SW-3 1.5'															
	SW-4 1.5'															

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Relinquished By: **M. COLLIER** Date: **5/18/23** Received By: **Stodrigney**

Relinquished By: **M. COLLIER** Date: **5/18/23** Received By: **Stodrigney**

Delivered By: (Circle One) UPS - Bus - Other: Observed Temp. °C: **4.3** Sample Condition: Cool Intact Yes No

Sampler - UPS - Bus - Other: Corrected Temp. °C: **3.72** Checked BY: **SK**

Turnaround Time: **72 HR RUSH** Standard Bacteria (only) Sample Condition: Cool Intact Yes No

Thermometer ID #113 Correction Factor -0.5°C Observed Temp. °C: Corrected Temp. °C:

† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com

District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 218493

CONDITIONS

Operator: CIMAREX ENERGY CO. 6001 Deauville Blvd Midland, TX 79706	OGRID: 215099
	Action Number: 218493
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	None	8/11/2023