Form C-141
Page 3

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2227232562
District RP	
Facility ID	
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?	~180 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☑ 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)?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☑ 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?	☐ Yes ☑ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☑ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☑ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☑ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☑ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☑ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☑ 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 ½-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.

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Page 4

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2227232562
District RP	
Facility ID	
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: Bailey Aguilar Title: Production Supervisor

Signature: Bailey Aguilar Date: 1-3-23

email: Baguilar@HLBoperating.com Telephone: 432-688-3722

OCD Only

Received by: Jocelyn Harimon Date: 01/03/2023

Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2227232562
District RP	
Facility ID	
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: Bailey Aguilar Title: Production Supervisor

Signature: Bailey Aguilar Date: 1-3-23

email: Baguilar@HLBoperating.com Telephone: 432-688-3722

OCD Only

Received by: Jocelyn Harimon Date: 01/03/2023

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: Jennifer Nobui Date: 01/26/2023

Printed Name: Jennifer Nobui Title: Environmental Specialist A

Remediation Summary and Soil Closure Request

H. L. Brown Operating LLC
Federal C 001
Roosevelt County, New Mexico
Unit Letter Crude Oil, Section 4, Township 8 South, Range 37 East
Latitude 33.654847 North, Longitude 103.161435 West
NMOCD Reference No. nAPP2227232562

Prepared By:

Etech Environmental & Safety Solutions, Inc.
2617 W. Marland
Hobbs, New Mexico 88240

Zach Conder

Joel W. Lowry

ETECH Environmental & Safety Solutions, Inc.

Midland • San Antonio • Lubbock • Hobbs • Lafayette

TABLE OF CONTENTS

1.0 PROJECT INFORMATION

Etech Environmental & Safety Solutions, Inc. (Etech), on behalf of H. L. Brown Operating LLC, has prepared this Remediation Summary and Soil Closure Request for the release site known as the Federal C 001 (henceforth, "Site"). Details of the release are summarized below:

Location of Release Source

Latitude: 33.654847 Longitude: -103.161435

Provided GPS are in WGS84 format.

Site Name:	Federal C 001	Site Type:	Well Head
Date Release Discovered:	9/7/2022	API # (if applicable):	30-041-20402

Unit Letter	Section	Township	Range	County
Crude Oil	4	8S	37E	Roosevelt

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (Name Kizer Mack Life Estate)

Nature and Volume of Release

☒ Crude Oil	Volume Released (bbls) 5	Volume Recovered (bbls) 0
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) in the produced water > 10,000 mg/L?	☐ Yes ☐ No ☒ N/A
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released	Volume/Weight Recovered

Cause of Release:
Unknown historical release found during site inspection.

Initial Response

- ☒ The source of the release has been stopped.
- ☒ The impacted area has been secured to protect human health and the environment.
- ☒ Release materials have been contained via the use of berms or dikes, absorbent pad, or other containment devices
- ☒ All free liquids and recoverable materials have been removed and managed appropriately.

Previously submitted portions of the NMOCD Form C-141 are available on the NMOCD Imaging System.

2.0 SITE CHARACTERIZATION

A search of groundwater databases maintained by the New Mexico Office of the State Engineer (NMOSE) and United States Geological Survey (USGS) was conducted in an effort to determine the horizontal distance to known water sources within a half-mile radius of the Site. Probable groundwater depth was determined using data generated by numeric models based on available water well data and published information. Depth to groundwater information is provided as Appendix A.

What is the shallowest depth to groundwater beneath the area affected by the release?	~180 Feet
Did the release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ 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?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of any occupied permanent residence, school, hospital, institution or church?	☐ Yes ☒ 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?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within the incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas not on an exploration, development, production or storage site?	☐ Yes ☒ No

NMOCD Siting Criteria data was gathered from available resources including Bureau of Land Management (BLM) shapefiles; topographic maps; NMOSE and USGS databases; and aerial imagery. The results are depicted on Figures 1, 2, 4, and 5.

3.0 CLOSURE CRITERIA FOR SOILS IMPACTED BY A RELEASE

Based on the volume and nature of the release, inferred depth to groundwater, and NMOCD Siting Criteria, the NMOCD Closure Criteria and NMOCD Reclamation Standard for the Site are as follows:

Probable Depth to Groundwater	Constituent	Method	Closure Criteria	Reclamation Standard*
~180	Chloride	EPA 300.0 or SM4500 Cl B	20,000 mg/kg	600 mg/kg
	TPH (GRO + DRO + MRO)	EPA SW-846 Method 8015M Ext	2,500 mg/kg	100 mg/kg
	DRO + GRO	EPA SW-846 Method 8015M	1,000 mg/kg	-
	BTEX	EPA SW-846 Methods 8021b or 8260b	50 mg/kg	50 mg/kg
	Benzene	EPA SW-846 Methods 8021b or 8260b	10 mg/kg	10 mg/kg

* The NMOCD Reclamation Standard applies only to the top 4' of soil in non-production areas.

4.0 REMEDIATION ACTIVITIES SUMMARY

On November 1, 2022, remediation activities commenced at the Site. In accordance with the NMOCD, impacted soil affected above the NMOCD Closure Criteria and/or NMOCD Reclamation Standards was excavated and stockpiled on-site, pending transfer to an NMOCD-approved surface waste facility for disposal. The floor and sidewalls of the excavation were advanced until field observations and test results suggested BTEX, TPH, and chloride concentrations were below the NMOCD Closure Criteria and/or NMOCD Reclamation Standard.

Upon excavating impacted soil affected above the NMOCD Closure Criteria, Etech collected eight (8) confirmation soil samples. The collected soil samples were submitted to a certified, commercial laboratory for analysis of BTEX, TPH, and chloride. Laboratory analytical results indicated BTEX, TPH, and chloride concentrations were below the NMOCD Closure Criteria in each of the submitted soil samples.

A site and sample location map is provided as Figure 3. A soil chemistry table is provided as Table 1. Field data and soil profile logs are provided as Appendix B. Laboratory analytical reports are provided as Appendix C.

The final dimensions of the excavated area were approximately 40 feet in length, 20 feet in width, and two (2) feet in depth. During the course of remediation activities, approximately 60 cubic yards of impacted soil were transported to an NMOCD-approved surface waste facility for disposal.

5.0 RESTORATION, RECLAMATION, AND RE-VEGETATION PLAN

Upon receiving laboratory analytical results from confirmation soil samples, excavated areas were backfilled with locally sourced, non-impacted "like" material placed at or near original relative positions. The affected area was compacted and contoured to achieve erosion control, stability, and preservation of surface water flow, to the extent practicable. The release was limited to an active production pad, therefore reseeding is not required at this time.

6.0 SOIL CLOSURE REQUEST

Remediation activities were conducted in accordance with applicable NMOCD Regulations. Impacted soil affected above the NMOCD Closure Criteria and/or NMOCD Reclamation Standards was excavated and transported to an NMOCD-approved disposal facility. Laboratory analytical results from confirmation soil samples indicate concentrations of BTEX, TPH, and chloride are below the NMOCD Closure Criteria and/or NMOCD Reclamation Standards.

Based on laboratory analytical results and field activities conducted to date, Etech recommends H. L. Brown Operating LLC, provide copies of this Remediation Summary and Soil Closure Request to the appropriate agencies and request closure be granted to the Federal C 001 Site.

7.0 LIMITATIONS

Etech Environmental & Safety Solutions, Inc., has prepared this Remediation Summary and Soil Closure Request to the best of its ability. No other warranty, expressed or implied, is made or intended. Etech has examined and relied upon documents referenced in the report and on oral statements made by certain individuals. Etech has not conducted an independent examination of the facts contained in referenced materials and statements. Etech has presumed the genuineness of these documents and statements and that the information provided therein is true and accurate. Etech has prepared the report in a professional manner, using the degree of skill and care exercised by similar environmental consultants. Etech notes that the facts and conditions referenced in this report may change over time, and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

This report has been prepared for the benefit of H. L. Brown Operating LLC. Use of the information contained in this report is prohibited without the consent of Etech and/or H. L. Brown Operating LLC.

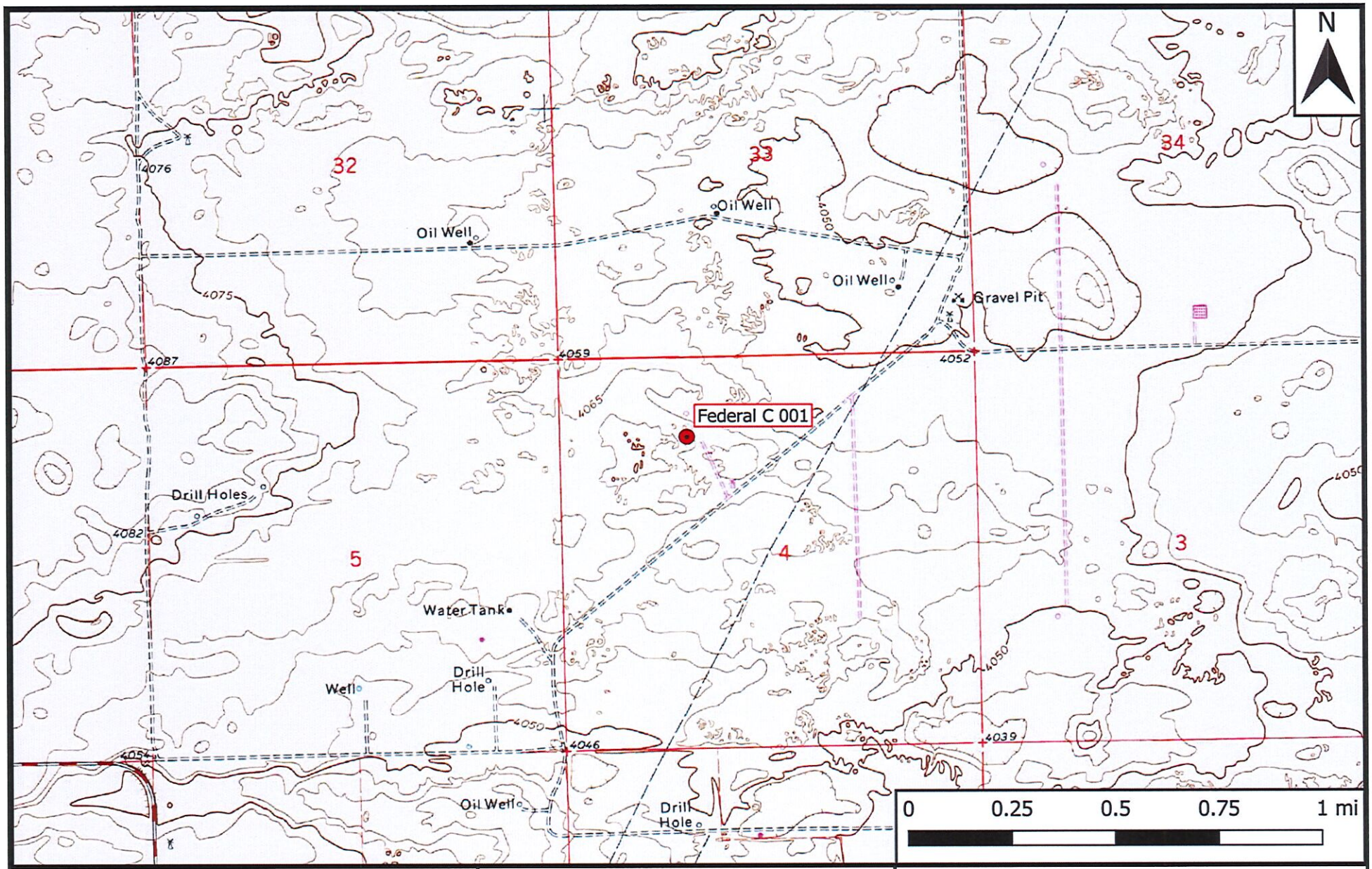
8.0 DISTRIBUTION

H. L. Brown Operating LLC
300 West Louisiana
Midland, TX 79702-2237

New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division, District 2
811 S. First Street
Artesia, NM 88210

(Electronic Submission)

Figure 1
Topographic Map



Legend

- Site Location

Figure 1

Topographic Map

H. L. Brown Operating LLC

Federal C 001

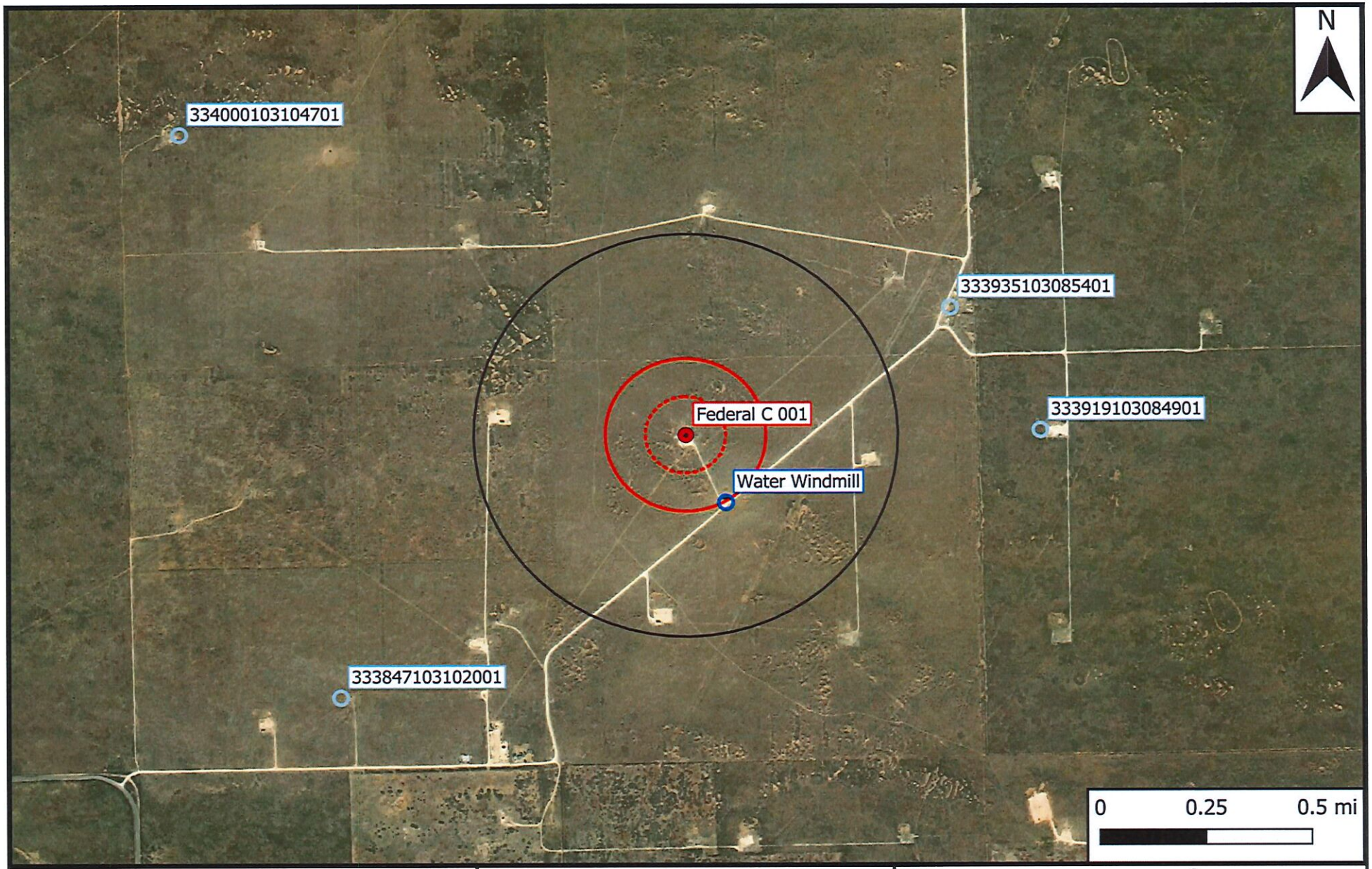
GPS: 33.654847, -103.161435

Roosevelt County

eTECH Environmental & Safety Solutions, Inc.

Drafted: mag Checked: jk Date: 10/21/22

Figure 2
Aerial Proximity Map



Legend

- Site Location
- Well - NMOSE
- Well - USGS
- Potash Mine Workings
- Medium/High Karst
- 500 Ft Radius
- 1000 Ft Radius
- 0.5 Mi Radius
- 1% Annual Flood Chance
- Lake/Freshwater Pond
- Emergent/Forested Wetlands
- Riverine

Figure 2

Aerial Proximity Map

H. L. Brown Operating LLC

Federal C 001

GPS: 33.654847, -103.161435

Roosevelt County

eTECH Environmental & Safety Solutions, Inc.

Drafted: mag Checked: jk Date: 10/21/22

Figure 3
Site and Sample Location Map

Legend:

WW 1 Composite Sample Location

Excavated Area

Figure 3

Site and Sample Location Map

H. L. Brown Operating LLC

Federal C 001

GPS: 33.654847, -103.161435

Roosevelt County

eTECH Environmental & Safety Solutions, inc.

Drafted: zpc Checked: jwl Date: 12/9/22

Table 1
Concentrations of BTEX, TPH, and Chloride in Soil

Table 1
Concentrations of BTEX, TPH, and Chloride in Soil
H. L. Brown Operating LLC
Federal C 001
NMOCD Ref. #: 0

NMOCD Closure Criteria				10	50	-	-	1,000	-	2,500	20,000
NMOCD Reclamation Standard				10	50	-	-	-	-	100	600
				SW 846 8021B		SW 846 8015M Ext.					4500 Cl
Sample ID	Date	Depth (Feet)	Soil Status	Benzene (mg/kg)	BTEX (mg/kg)	GRO C_6-C_{10} (mg/kg)	DRO C_{10}-C_{28} (mg/kg)	GRO + DRO C_6-C_{28} (mg/kg)	ORO C_{28}-C_{36} (mg/kg)	TPH C_6-C_{36} (mg/kg)	Chloride (mg/kg)
FL 1 @ 2	11/1/2022	2	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	224
FL 2 @ 2	11/1/2022	2	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	320
FL 3 @ 2	11/1/2022	2	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	512
FL 4 @ 2	11/1/2022	2	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	1,570
EW 1	11/1/2022	0-2	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	160
NW 1	11/1/2022	0-2	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	80.0
SW 1	11/1/2022	0-2	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	384
WW 1	11/1/2022	0-2	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	464

Dash (-): Sample not analyzed for that constituent.
Bold: NMOCD Closure Criteria exceedance.
Red: NMOCD Reclamation Standard exceedance.

Appendix A
Depth to Groundwater Information

New Mexico Office of the State Engineer

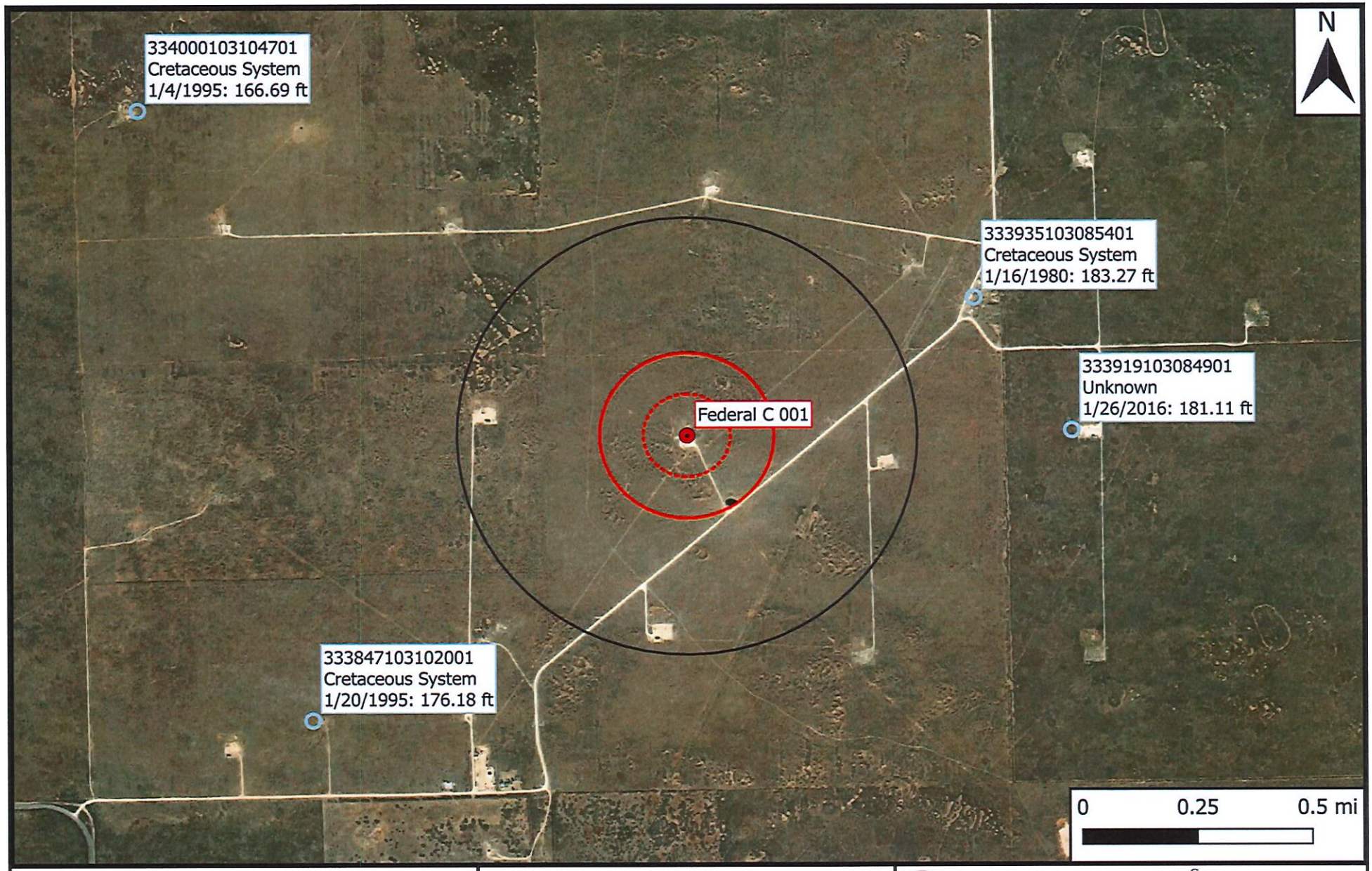
Water Column/Average Depth to Water

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

No records found.

UTMNAD83 Radius Search (in meters):

Easting (X): 670476.41 **Northing (Y):** 3725375.3 **Radius:** 3220



Legend
- Site Location
- Well - USGS
- 500 Ft Radius
- 1000 Ft Radius
- 0.5 Mi Radius

Figure 4
USGS Well Proximity Map
H. L. Brown Operating LLC
Federal C 001
GPS: 33.654847, -103.161435
Roosevelt County

eTECH Environmental & Safety Solutions, Inc.

Drafted: mag Checked: jk Date: 10/21/22

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

Click forNews Bulletins

Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 333847103102001

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

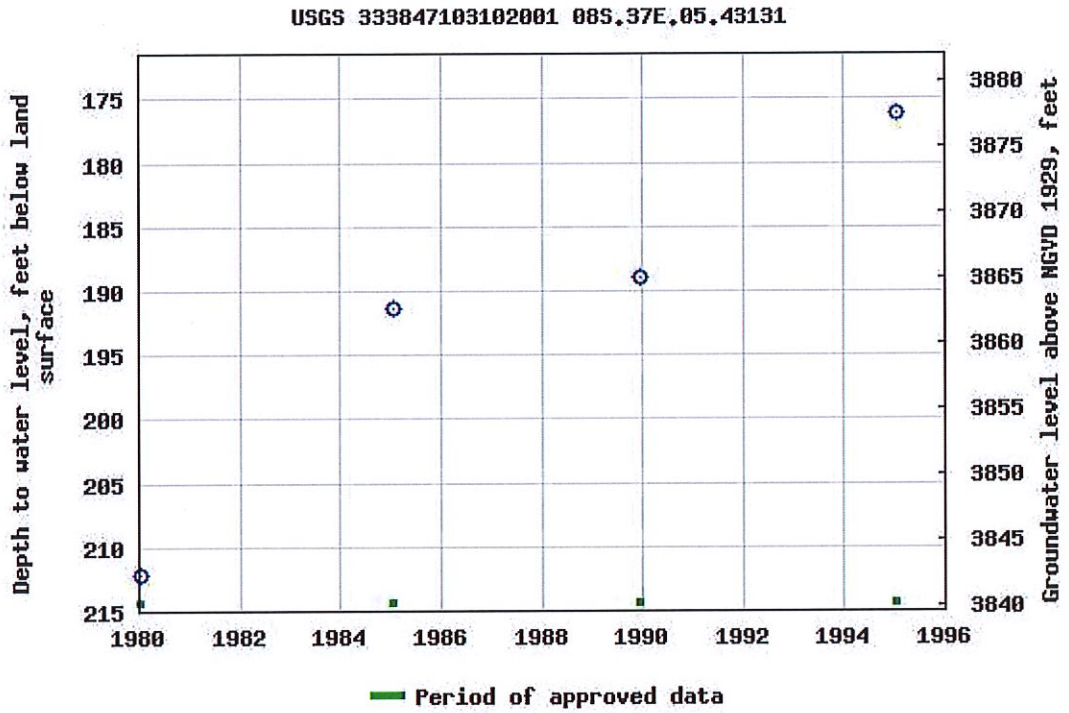
USGS 333847103102001 08S.37E.05.43131

Available data for this site | Groundwater: Field measurements | GO

Roosevelt County, New Mexico
Hydrologic Unit Code 12080001
Latitude 33°38'44", Longitude 103°10'31" NAD27
Land-surface elevation 4,054.00 feet above NGVD29
The depth of the well is 219 feet below land surface.
This well is completed in the High Plains aquifer (N100HGHPLN) national aquifer.
This well is completed in the Cretaceous System (210CRCS) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
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Data Category: Groundwater | Geographic Area: United States | GO

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Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 333919103084901

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

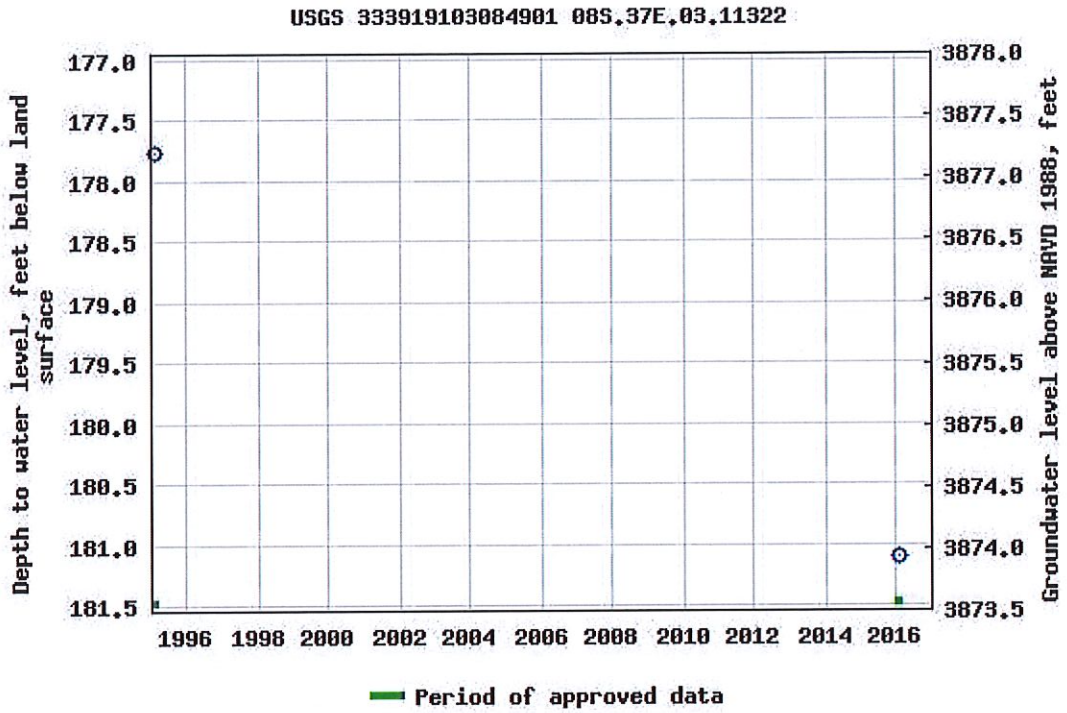
USGS 333919103084901 08S.37E.03.11322

Available data for this site | Groundwater: Field measurements | GO

Roosevelt County, New Mexico
Hydrologic Unit Code 12050001
Latitude 33°39'17.3", Longitude 103°08'48.9" NAD83
Land-surface elevation 4,055 feet above NAVD88
The depth of the well is 184 feet below land surface.
This well is completed in the High Plains aquifer (N100HGHPLN) national aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
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Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2022-10-13 09:50:36 EDT
0.61 0.5 nadww01

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

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Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

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- 333935103085401

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

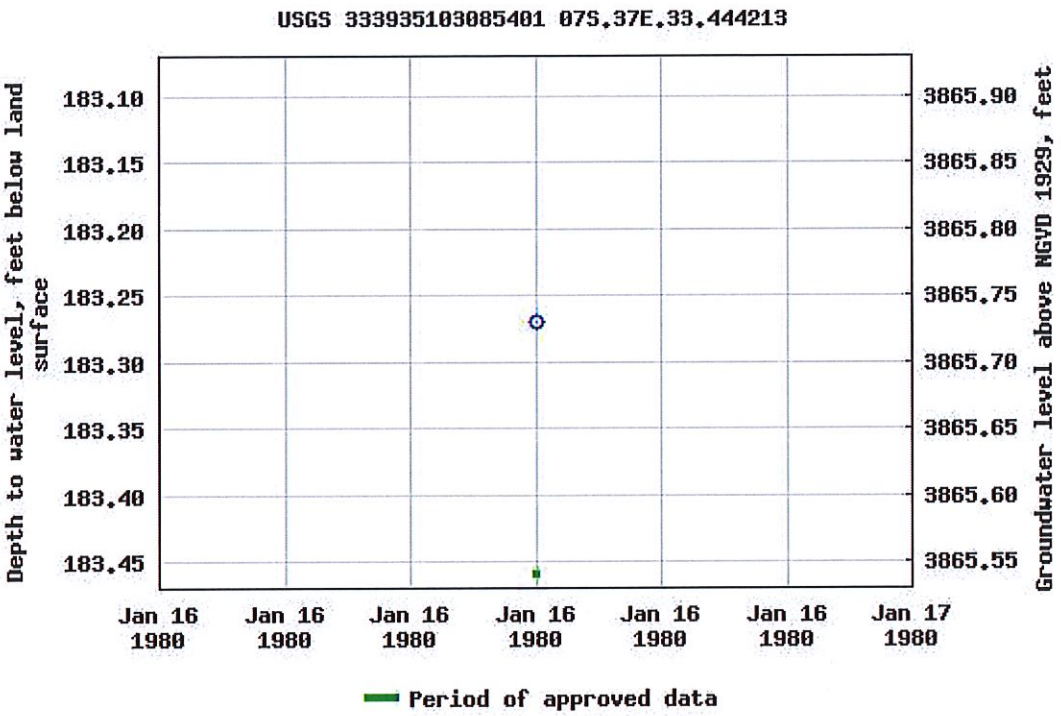
USGS 333935103085401 07S.37E.33.444213

Available data for this site | Groundwater: Field measurements | GO

Roosevelt County, New Mexico
Hydrologic Unit Code 12050001
Latitude 33°39'33", Longitude 103°09'00" NAD27
Land-surface elevation 4,049.00 feet above NGVD29
The depth of the well is 208 feet below land surface.
This well is completed in the High Plains aquifer (N100HGHPLN) national aquifer.
This well is completed in the Cretaceous System (210CRCS) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
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USGS science for a changing world

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USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

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Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 334000103104701

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

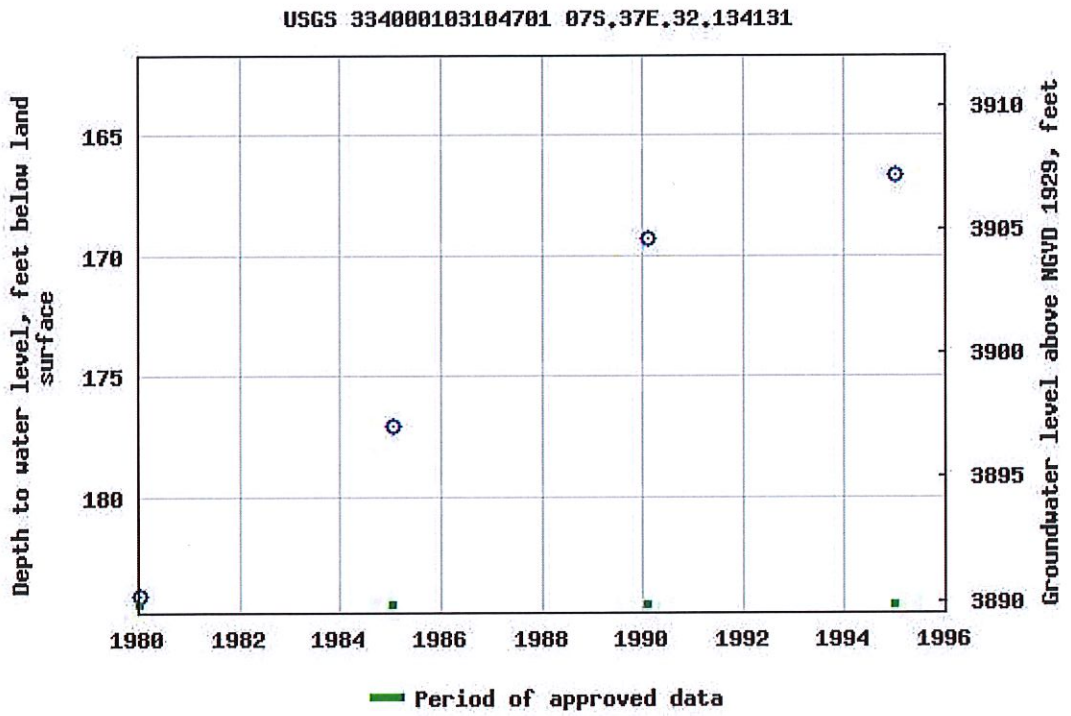
USGS 334000103104701 07S.37E.32.134131

Available data for this site | Groundwater: Field measurements | GO

Roosevelt County, New Mexico
Hydrologic Unit Code 12050001
Latitude 33°39'57", Longitude 103°10'53" NAD27
Land-surface elevation 4,074.00 feet above NGVD29
This well is completed in the High Plains aquifer (N100HGHPLN) national aquifer.
This well is completed in the Cretaceous System (210CRCS) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
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Appendix B
Field Data and Soil Profile Logs

eTECH Environmental & Safety Solutions, Inc.

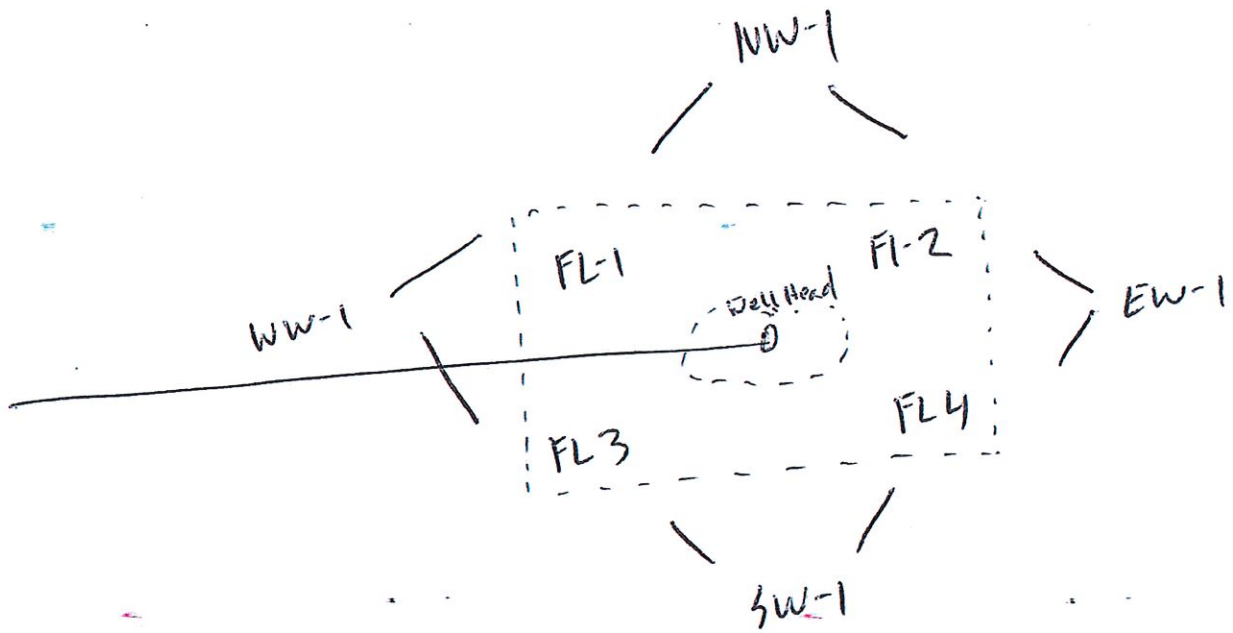
Initial Release Assessment Form

Date: 11/1/2022

Project: Federal C 001 Clean Up Level: 20,000 mg/kg Cl^-, 2,500 mg/kg TPH

Project Number: 16852 Latitude: 33.654847 Longitude: -103.161435

Site Diagram



Notes: - Excavate impacted soil around well Head
- Field Screen
- Collect Confirmation Samples

~Length: 40 ~Width: 20 ~Area: 800 ~Depth: 2

	Yes	No
3-4 Representative Pictures of the Affected Area including sample locations?	☑	☐
Necessary Samples Field Screened and on Ice?	☑	☐
Sample and Field Screen Data Entered on Sample Log?	☑	☐
Was horizontal and vertical delineation achieved?	☑	☐

eTECH Environmental & Safety Solutions, Inc.

Sample Log

Date: 4/1/2022

Project: Federal C 001

Project Number: 16852 Latitude: 33.654595 Longitude: -103.161506

Sample ID	PID/Odor	Chloride Conc.	GPS
FL-1 @ 2'	None	<228	
FL-2 @ 2'	None	<228	
FL-3 @ 2'	None	—	
FL-4 @ 2'	None	—	
EW-1	None	—	
SW-1	None	—	
NW-1	—	—	
WW-1	—	—	

Sample Point = SP #1 @ ## etc

Floor = FL #1 etc

Sidewall = SW #1 etc

Test Trench = TT #1 @ ##

Refusal = SP #1 @ 4'-R

Soil Intended to be Deferred = SP #1 @ 4' In-Situ

Resamples= SP #1 @ 5b or SW #1b

Stockpile = Stockpile #1

GPS Sample Points, Center of Comp Areas

eTECH Environmental & Safety Solutions, Inc.

Soil Profile

Date: 11/18/2022

Project: Federal C 001

Project Number: 16852 Latitude: 33.654595 Longitude: -103.161506

Depth (ft. bgs)	Description
1	Imported Fill / Caliche Pad
2 TD	Brown Top Soil
3–40	

Appendix C
Laboratory Analytical Reports

CARDINAL Laboratories

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

November 07, 2022

JOEL LOWRY

Etech Environmental & Safety Solutions

2617 W MARLAND

HOBBS, NM 88240

RE: HL BROWN OPERATIONS LLC FED C #1

Enclosed are the results of analyses for samples received by the laboratory on 11/01/22 16:01.

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 accreditated through the State of Colorado Department of Public Health and Environment for:

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

Etech Environmental & Safety Solutions
JOEL LOWRY
2617 W MARLAND
HOBBS NM, 88240
Fax To:

Received:	11/01/2022	Sampling Date:	11/01/2022
Reported:	11/07/2022	Sampling Type:	Soil
Project Name:	HL BROWN OPERATIONS LLC FED C #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	HL BROWN - ROOSEVELT CO NM		

Sample ID: SW 1 (H225140-01)

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	11/06/2022	ND	2.01	100	2.00	0.379	
Toluene*	<0.050	0.050	11/06/2022	ND	2.06	103	2.00	0.402	
Ethylbenzene*	<0.050	0.050	11/06/2022	ND	2.05	102	2.00	1.21	
Total Xylenes*	<0.150	0.150	11/06/2022	ND	6.20	103	6.00	0.906	
Total BTEX	<0.300	0.300	11/06/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIL *93.6 %* *69.9-140*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**384**	16.0	11/02/2022	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	11/03/2022	ND	213	106	200	7.59	
DRO >C10-C28*	<10.0	10.0	11/03/2022	ND	240	120	200	18.0	
EXT DRO >C28-C36	<10.0	10.0	11/03/2022	ND					

Surrogate: 1-Chlorooctane *92.9 %* *45.3-161*

Surrogate: 1-Chlorooctadecane *109 %* *46.3-178*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

Etech Environmental & Safety Solutions
JOEL LOWRY
2617 W MARLAND
HOBBS NM, 88240
Fax To:

Received:	11/01/2022	Sampling Date:	11/01/2022
Reported:	11/07/2022	Sampling Type:	Soil
Project Name:	HL BROWN OPERATIONS LLC FED C #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	HL BROWN - ROOSEVELT CO NM		

Sample ID: NW 1 (H225140-02)

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	11/06/2022	ND	1.96	98.0	2.00	4.27	
Toluene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.57	
Ethylbenzene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.89	
Total Xylenes*	<0.150	0.150	11/06/2022	ND	6.08	101	6.00	5.03	
Total BTEX	<0.300	0.300	11/06/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIL *97.3 %* *69.9-140*

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	11/02/2022	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	11/03/2022	ND	213	106	200	7.59	
DRO >C10-C28*	<10.0	10.0	11/03/2022	ND	240	120	200	18.0	
EXT DRO >C28-C36	<10.0	10.0	11/03/2022	ND					

Surrogate: 1-Chlorooctane *81.2 %* *45.3-161*

Surrogate: 1-Chlorooctadecane *96.8 %* *46.3-178*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

Etech Environmental & Safety Solutions
JOEL LOWRY
2617 W MARLAND
HOBBS NM, 88240
Fax To:

Received:	11/01/2022	Sampling Date:	11/01/2022
Reported:	11/07/2022	Sampling Type:	Soil
Project Name:	HL BROWN OPERATIONS LLC FED C #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	HL BROWN - ROOSEVELT CO NM		

Sample ID: EW 1 (H225140-03)

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	11/06/2022	ND	1.96	98.0	2.00	4.27	
Toluene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.57	
Ethylbenzene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.89	
Total Xylenes*	<0.150	0.150	11/06/2022	ND	6.08	101	6.00	5.03	
Total BTEX	<0.300	0.300	11/06/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIL *95.8 %* *69.9-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**160**	16.0	11/02/2022	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	11/03/2022	ND	213	106	200	7.59	
DRO >C10-C28*	<10.0	10.0	11/03/2022	ND	240	120	200	18.0	
EXT DRO >C28-C36	<10.0	10.0	11/03/2022	ND					

Surrogate: 1-Chlorooctane *71.6 %* *45.3-161*

Surrogate: 1-Chlorooctadecane *84.6 %* *46.3-178*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

Etech Environmental & Safety Solutions
JOEL LOWRY
2617 W MARLAND
HOBBS NM, 88240
Fax To:

Received:	11/01/2022	Sampling Date:	11/01/2022
Reported:	11/07/2022	Sampling Type:	Soil
Project Name:	HL BROWN OPERATIONS LLC FED C #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	HL BROWN - ROOSEVELT CO NM		

Sample ID: WW 1 (H225140-04)

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	11/06/2022	ND	1.96	98.0	2.00	4.27	
Toluene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.57	
Ethylbenzene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.89	
Total Xylenes*	<0.150	0.150	11/06/2022	ND	6.08	101	6.00	5.03	
Total BTEX	<0.300	0.300	11/06/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.1 %* *69.9-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**464**	16.0	11/02/2022	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	11/03/2022	ND	213	106	200	7.59	
DRO >C10-C28*	<10.0	10.0	11/03/2022	ND	240	120	200	18.0	
EXT DRO >C28-C36	<10.0	10.0	11/03/2022	ND					

Surrogate: 1-Chlorooctane *76.4 %* *45.3-161*

Surrogate: 1-Chlorooctadecane *89.3 %* *46.3-178*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

Etech Environmental & Safety Solutions
JOEL LOWRY
2617 W MARLAND
HOBBS NM, 88240
Fax To:

Received:	11/01/2022	Sampling Date:	11/01/2022
Reported:	11/07/2022	Sampling Type:	Soil
Project Name:	HL BROWN OPERATIONS LLC FED C #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	HL BROWN - ROOSEVELT CO NM		

Sample ID: FL 1 @ 2 (H225140-05)

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	11/06/2022	ND	1.96	98.0	2.00	4.27	
Toluene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.57	
Ethylbenzene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.89	
Total Xylenes*	<0.150	0.150	11/06/2022	ND	6.08	101	6.00	5.03	
Total BTEX	<0.300	0.300	11/06/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIL *98.4 %* *69.9-140*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**224**	16.0	11/02/2022	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	11/03/2022	ND	213	106	200	7.59	
DRO >C10-C28*	<10.0	10.0	11/03/2022	ND	240	120	200	18.0	
EXT DRO >C28-C36	<10.0	10.0	11/03/2022	ND					

Surrogate: 1-Chlorooctane *76.0 %* *45.3-161*

Surrogate: 1-Chlorooctadecane *89.3 %* *46.3-178*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

Etech Environmental & Safety Solutions
JOEL LOWRY
2617 W MARLAND
HOBBS NM, 88240
Fax To:

Received:	11/01/2022	Sampling Date:	11/01/2022
Reported:	11/07/2022	Sampling Type:	Soil
Project Name:	HL BROWN OPERATIONS LLC FED C #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	HL BROWN - ROOSEVELT CO NM		

Sample ID: FL 2 @ 2 (H225140-06)

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	11/06/2022	ND	1.96	98.0	2.00	4.27	
Toluene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.57	
Ethylbenzene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.89	
Total Xylenes*	<0.150	0.150	11/06/2022	ND	6.08	101	6.00	5.03	
Total BTEX	<0.300	0.300	11/06/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIL *98.4 %* *69.9-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**320**	16.0	11/02/2022	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	11/03/2022	ND	213	106	200	7.59	
DRO >C10-C28*	<10.0	10.0	11/03/2022	ND	240	120	200	18.0	
EXT DRO >C28-C36	<10.0	10.0	11/03/2022	ND					

Surrogate: 1-Chlorooctane *68.0 %* *45.3-161*

Surrogate: 1-Chlorooctadecane *79.7 %* *46.3-178*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

Etech Environmental & Safety Solutions
JOEL LOWRY
2617 W MARLAND
HOBBS NM, 88240
Fax To:

Received:	11/01/2022	Sampling Date:	11/01/2022
Reported:	11/07/2022	Sampling Type:	Soil
Project Name:	HL BROWN OPERATIONS LLC FED C #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	HL BROWN - ROOSEVELT CO NM		

Sample ID: FL 3 @ 2 (H225140-07)

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	11/06/2022	ND	1.96	98.0	2.00	4.27	
Toluene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.57	
Ethylbenzene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.89	
Total Xylenes*	<0.150	0.150	11/06/2022	ND	6.08	101	6.00	5.03	
Total BTEX	<0.300	0.300	11/06/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIL *96.5 %* *69.9-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**512**	16.0	11/02/2022	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	11/03/2022	ND	213	106	200	7.59	
DRO >C10-C28*	<10.0	10.0	11/03/2022	ND	240	120	200	18.0	
EXT DRO >C28-C36	<10.0	10.0	11/03/2022	ND					

Surrogate: 1-Chlorooctane *71.3 %* *45.3-161*

Surrogate: 1-Chlorooctadecane *83.3 %* *46.3-178*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

Etech Environmental & Safety Solutions
JOEL LOWRY
2617 W MARLAND
HOBBS NM, 88240
Fax To:

Received:	11/01/2022	Sampling Date:	11/01/2022
Reported:	11/07/2022	Sampling Type:	Soil
Project Name:	HL BROWN OPERATIONS LLC FED C #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	HL BROWN - ROOSEVELT CO NM		

Sample ID: FL 4 @ 2 (H225140-08)

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	11/06/2022	ND	1.96	98.0	2.00	4.27	
Toluene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.57	
Ethylbenzene*	<0.050	0.050	11/06/2022	ND	1.99	99.5	2.00	4.89	
Total Xylenes*	<0.150	0.150	11/06/2022	ND	6.08	101	6.00	5.03	
Total BTEX	<0.300	0.300	11/06/2022	ND					

Surrogate: 4-Bromofluorobenzene (PIL *97.3 %* *69.9-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1570**	16.0	11/02/2022	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	11/03/2022	ND	213	106	200	7.59	
DRO >C10-C28*	<10.0	10.0	11/03/2022	ND	240	120	200	18.0	
EXT DRO >C28-C36	<10.0	10.0	11/03/2022	ND					

Surrogate: 1-Chlorooctane *74.2 %* *45.3-161*

Surrogate: 1-Chlorooctadecane *86.2 %* *46.3-178*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Etech Environmental & Safety Solutions
Project Manager: Joel Lowry
Address: 2617 West Marland
City: Hobbs State: NM Zip: 88240
Phone #: (575) 264-9884 Fax #:
Project #: Project Owner:
Project Name: HL Brown Operations LLC Fed C #1
Project Location: Rural Roosevelt Co., NM
Sampler Name: Dominic Casaver

BILL TO
P.O. #:
Company: HL Brown
Attn:
Address:
City:
State: Zip:
Phone #:
Fax #:

ANALYSIS REQUEST

FOR LAB USE ONLY

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	Chloride	TPH (8015M)	BTEX (8021B)
H225140																	
DC 1	SW 1					✓							11-1	4:01	✓	✓	✓
2	NW 1																
3	EW 1																
4	WW 1																
5	FL 1 @ 2																
6	FL 2 @ 2																
7	FL 3 @ 2																
8	FL 4 @ 2																

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date: 11-1	Received By:	
	Time: 4:01		
Relinquished By:	Date:	Received By:	
	Time:		

Delivered By: (Circle One) Sampler - UPS - Bus - Other: 24.3°C - 0.4° 23.7°C #113

Sample Condition: Cool ☐ Yes ☐ No Intact ☐ Yes ☐ No

CHECKED BY: (Initials)

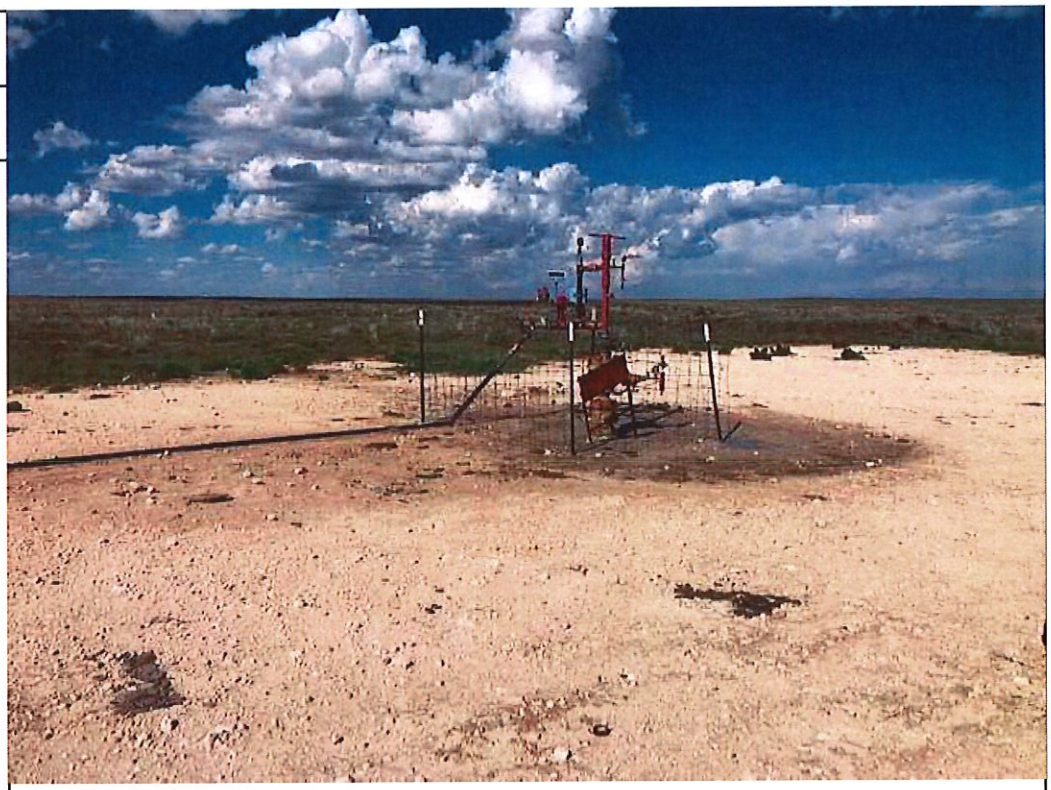
Phone Result: ☐ Yes ☑ No Add'l Phone #:
Fax Result: ☐ Yes ☑ No Add'l Fax #:
REMARKS: email results

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

Appendix D
Photographic Log

Photographic Log

Photo Number: 1 **Photo Direction:** North **Photo Description:** View of the affected area before remediation activities.	

Photo Number: 2 **Photo Direction:** Northeast **Photo Description:** View of the affected area before remediation activities.	

Photographic Log

Photo Number: 3 **Photo Direction:** Northwest **Photo Description:** View of the excavated area.	

Photo Number: 4 **Photo Direction:** Northwest **Photo Description:** View of the excavated area.	

Photographic Log

Photo Number: 5	
Photo Direction: North	
Photo Description: View of the affected area after remediation activities.	

TITLE 19 NATURAL RESOURCES AND WILDLIFE
CHAPTER 15 OIL AND GAS
PART 29 RELEASES

19.15.29.1 ISSUING AGENCY: Oil Conservation Commission.
[19.15.29.1 NMAC - Rp, 19.15.29.1 NMAC, 8/14/2018]

19.15.29.2 SCOPE: 19.15.29 NMAC applies to persons engaged in oil and gas development and production within New Mexico.
[19.15.29.2 NMAC - Rp, 19.15.29.2 NMAC, 8/14/2018]

19.15.29.3 STATUTORY AUTHORITY: 19.15.29 NMAC is adopted pursuant to the Oil and Gas Act, Section 70-2-11 NMSA 1978 (1977) and Section 70-2-12 NMSA 1978 (2004).
[19.15.29.3 NMAC - Rp, 19.15.29.3 NMAC, 8/14/2018]

19.15.29.4 DURATION: Permanent.
[19.15.29.4 NMAC - Rp, 19.15.29.4 NMAC, 8/14/2018]

19.15.29.5 EFFECTIVE DATE: August 14, 2018, unless a later date is cited at the end of a section.
[19.15.29.5 NMAC - Rp, 19.15.29.5 NMAC, 8/14/2018]

19.15.29.6 OBJECTIVE: To require persons who operate or control the release or the location of the release to report the unauthorized release of oil, gases, produced water, condensate or oil field waste including regulated NORM or other oil field related chemicals, contaminants or mixtures of those chemicals or contaminants that occur during drilling, producing, storing, disposing, injecting, transporting, servicing or processing and to establish reporting, site assessment, remediation, closure, variance and enforcement procedures.
[19.15.29.6 NMAC - Rp, 19.15.29.6 NMAC, 8/14/2018]

19.15.29.7 DEFINITIONS:

A. **"Major release"** means:

(1) an unauthorized release of a volume, excluding gases, of 25 barrels or more;

(2) an unauthorized release of a volume that:

(a) results in a fire or is the result of a fire;

(b) may with reasonable probability reach a watercourse;

(c) may with reasonable probability endanger public health; or

(d) substantially damages property or the environment;

(3) an unauthorized release of gases exceeding 500 MCF; or

(4) a release of a volume that may with reasonable probability be detrimental to fresh water.

B. **"Minor release"** means an unauthorized release, which is not a major release and is a volume greater than five barrels but less than 25 barrels; or for gases, greater than 50 MCF but less than 500 MCF.

C. **"Responsible party"** means the operator, as defined in 19.15.2 NMAC. Notwithstanding the foregoing, the division, in its sole discretion, may also consider a person causing the release, or controlling the location of the release as the responsible party.

D. **"Wellstream"** means the gas, oil, water, suspended constituents, or any combination thereof, which comes from the wellbore.
[19.15.29.7 NMAC - Rp, 19.15.29.7 NMAC, 8/14/2018]

19.15.29.8 RELEASES:

A. **Requirements.** For all releases regardless of volume, the responsible party shall comply with 19.15.29.8 NMAC and shall remediate the release. For major and minor releases, the responsible party shall also comply with 19.15.29.9, 19.15.29.10, 19.15.29.11, 19.15.29.12 and 19.15.29.13 NMAC.

B. **Initial response.** The responsible party must take the following immediate actions unless the actions could create a safety hazard that would result in injury.

(1) **Source elimination and site security.** The responsible party must take appropriate measures to stop the source of the release and limit access to the site as necessary to protect human health and the environment.

(2) **Containment.** Once the site is secure, the responsible party must contain the materials released by construction of berms or dikes, the use of absorbent pads or other containment actions to limit the area affected by the release and prevent potential fresh water contaminants from migrating to watercourses or areas that could pose a threat to public health and environment. The responsible party must monitor the containment to ensure that it is effectively containing the material and not being degraded by weather or onsite activity.

(3) **Site stabilization.** After containment, the responsible party must recover any free liquids and recoverable materials that can be physically removed from the surface within the containment area. The responsible party must deliver material removed from the site to a division-approved facility.

(4) **Remediation.** The responsible party may commence remediation immediately.

[19.15.29.8 NMAC - Rp, 19.15.29.8 NMAC, 8/14/2018]

19.15.29.9 RELEASE NOTIFICATION:

A. The responsible party must notify the division on form C-141 of a major or minor release occurring during the drilling, producing, storing, disposing, injecting, transporting, servicing or processing of oil, gases, produced water, condensate or oil field waste including regulated NORM, or other oil field related chemicals, contaminants or mixture of the chemicals or contaminants, in accordance with the requirements of 19.15.29 NMAC.

B. If state, federal or tribal lands are involved, the responsible party must send a copy of the form C-141 to the appropriate land managing agency including the state land office, the BLM or tribal authority, as applicable.

[19.15.29.9 NMAC - Rp, 19.15.29.9 NMAC, 8/14/2018]

19.15.29.10 RELEASE NOTIFICATION REPORTING REQUIREMENTS: The responsible party must notify the division of releases in 19.15.29.9 NMAC as follows.

A. Reporting a major release.

(1) The responsible party must notify the division's environmental bureau chief and the appropriate division district office verbally or by e-mail within 24 hours of discovery of the release. The notification must provide the information required on form C-141.

(2) The responsible party must also notify the appropriate division district office in writing within 15 days of discovering the release by completing and filing form C-141. The written notification must verify the prior verbal or e-mail notification and include additions or corrections to the information contained in the prior verbal or e-mail notification.

B. Reporting a minor release. The responsible party must notify the appropriate division district office in writing within 15 days of discovery of the release by completing and filing form C-141.

[19.15.29.10 NMAC - Rp, 19.15.29.10 NMAC, 8/14/2018]

19.15.29.11 SITE ASSESSMENT/CHARACTERIZATION: After the responsible party has removed all free liquids and recoverable materials, the responsible party must assess soils both vertically and horizontally for potential environmental impacts from any major or minor release containing liquids.

A. Characterization requirements. The responsible party must submit information characterizing the release to the appropriate division district office within 90 days of discovery of the release or characterize the release by submitting a final closure report within 90 days of discovery of the release in accordance with Subsection E of 19.15.29.12 NMAC. The responsible party may seek an extension of time to submit characterization information for good cause as determined by the division. The responsible party must submit the following information to the division.

(1) **Site map.** The responsible party must provide a scaled diagram that shows the potentially impacted area, significant surface features including roads and site infrastructure, location of borings, sample points, monitoring wells and subsurface features such as known pipelines to the extent known at the time of submittal including the source of information regarding subsurface features.

(2) **Depth to ground water.** The responsible party must determine the depth to ground water where the release occurred. If the exact depth to ground water is unknown, the responsible party must provide a reasonable determination of probable ground water depth using data generated by numeric models, cathodic well lithology, water well data, published information or other tools as approved by the appropriate division district office. If the responsible party uses water well data, the responsible party must provide all pertinent well information.

(3) **Wellhead protection area.** The responsible party must determine the horizontal distance from all known water sources within a half mile of the release including private and domestic water sources. Water

sources are wells, springs or other sources of fresh water extraction. Private and domestic water sources are those water sources used by less than five households for domestic or stock purposes.

(4) **Distance to nearest significant watercourse.** The responsible party must determine the horizontal distance to the nearest significant watercourse as defined in Subsection P of 19.15.17.7 NMAC within a half mile of any horizontal boundary of the release.

(5) **Soil/waste characteristics.** The responsible party must determine the lateral and vertical extents of soil contamination, as follows.

(a) If the release occurred within a lined containment area, the responsible party must demonstrate liner integrity after affected material is removed and the affected area of the liner is exposed and provide:

(i) certification on form C-141 that the responsible party has visually inspected the liner where the release occurred and the liner remains intact and had the ability to contain the leak in question; and

(ii) at least two business days' notice to the appropriate division district office before conducting the liner inspection.

(b) If the responsible party is unable to demonstrate liner integrity or the release occurred outside of a lined containment area, the responsible party must delineate the release horizontally and vertically using Table I of 19.15.29.12 NMAC constituents or as required by Subparagraph (e) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC based on the type of release. The responsible party shall use one or more of the following soil sampling methods for characterization:

(i) NRCS Field Guide;
(ii) EPA SW-846;
(iii) ASTM Method 4547;
(iv) EPA 600; or
(v) or other division-approved methods.

(c) In addition to Subparagraph (b) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC, if the release occurred outside of a lined containment area and is in an area where depth to ground water is greater than 50 feet and less than or equal to 100 feet, the responsible party must delineate the vertical extent of the release to the greater of 600 mg/kg chloride or background chloride level, if:

(i) the release contains produced water that exceeds 10,000 mg/l of chloride (if the responsible party contends the fluid is less than 10,000 mg/l, the responsible party must provide current sample results to the division); and

(ii) the release is of an unknown quantity or results in greater than 200 barrels of unrecovered produced water.

(d) If the conditions are met in Subparagraph (c) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC, the responsible party must submit at least two soil samples for laboratory analysis from each borehole or sample point (highest observed contamination and deepest depth investigated). Field screening and assessment techniques are acceptable (headspace, titration, electrical conductivity [include algorithm for validation purposes], electromagnetics, etc.), but the sampling procedures must be clearly defined. The responsible party must submit copies of field notes attributable to field sampling and provide copies of the actual laboratory results including chain of custody documentation.

(e) If a known release of other oil field related chemicals occurs that is not included in Table I of 19.15.29.12 NMAC, and does not include oil, gas, produced water or other fluids from the wellstream, the standards for remediation shall be as follows:

(i) if the constituent appears on Table 1 of 40 C.F.R. 261.24(b), then that constituent shall be remediated according to 40 C.F.R. 261.24;

(ii) if the constituent is not identified in Table 1 of 40 C.F.R. 261.24(b), but is identified in the New Mexico environment department's Risk Assessment Guidance for Site Investigations and Remediation Volumes I and II (assessment), the division will determine the appropriate Assessment Volume and remediation shall occur pursuant to the assessment;

(iii) if the constituent is not identified in Items (i) or (ii) of Subparagraph (e) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC, the division shall consult with the responsible party to determine appropriate remediation of the release.

B. Unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.

C. If the division determines that more information is needed to understand the character of the release and its potential impact on fresh water, public health and the environment, the division may request the responsible party submit additional information. Should the division request additional information, it must do so in writing to the responsible party within 30 days from receipt of the characterization report or remediation plan with what specific information the division is requesting and reasons why the additional information is needed. The responsible party has 14 days to respond to a written request for additional information. If the responsible party disagrees with the request for additional information, it may consult with the division, or file an application for hearing pursuant to 19.15.4 NMAC within 30 days of the issuance of the request for additional information. [19.15.29.11 NMAC - Rp, 19.15.29.11 NMAC, 8/14/2018]

19.15.29.12 REMEDIATION AND CLOSURE:

A. The responsible party must remediate all releases regardless of volume.

B. Remediation requirements.

(1) Unless remediation is completed, and a final closure report submitted, within 90 days of discovery of the release, the responsible party must complete division-approved remediation for releases either pursuant to a remediation plan approved pursuant to 19.15.29.12 NMAC or pursuant to an abatement plan in accordance with 19.15.30 NMAC. If the director determines that the release has caused water pollution in excess of the standards and requirements of 19.15.30 NMAC, the director may notify the responsible party that an abatement plan may be required pursuant to 19.15.30 NMAC.

(2) Any remediation under 19.15.29 NMAC should be completed as soon as practicable. Any remediation that exceeds 90 days must follow the division-approved timeline in the remediation plan. The responsible party may request an extension of time to remediate upon a showing of good cause as determined by the division.

C. Remediation plan requirements. The responsible party must take the following action for any major or minor release containing liquids.

(1) The responsible party must submit a detailed description of proposed remediation measures in accordance with the findings of the site assessment/characterization plan that includes:

(a) delineation results, including laboratory analysis;

(b) a scaled sitemap showing release area with horizontal and vertical delineation points;

(c) estimated volume of impacted material to be remediated;

(d) proposed remediation technique; and

(e) proposed timeline for remediation activities.

(2) The responsible party shall restore the impacted surface area of a release occurring on a developed well pad, central tank battery, drilling site, compressor site or other exploration, development, production or storage sites to meet the standards of Table I of 19.15.29.12 NMAC or other applicable remediation standards and restore and reclaim the area pursuant to 19.15.29.13 NMAC. If contamination is located in areas immediately under or around production equipment such as production tanks, wellheads and pipelines where remediation could cause a major facility deconstruction, the remediation, restoration and reclamation may be deferred with division written approval until the equipment is removed during other operations, or when the well or facility is plugged or abandoned, whichever comes first. The deferral may be granted so long as the contamination is fully delineated and does not cause an imminent risk to human health, the environment, or ground water. Final remediation and reclamation shall take place in accordance with 19.15.29.12 and 19.15.29.13 NMAC once the site is no longer being used for oil and gas operations.

(3) The responsible party shall remediate the impacted surface area of a release not occurring on a lined, bermed or otherwise contained exploration, development, production or storage site to meet the standards of Table I of 19.15.29.12 NMAC or other applicable remediation standards and restore and reclaim the area pursuant to 19.15.29.13 NMAC.

(4) If a release occurs within the following areas, the responsible party must treat the release as if it occurred less than 50 feet to ground water in Table I of 19.15.29.12 NMAC:

(a) within

(i) 300 feet of any continuously flowing watercourse or any other significant watercourse, or

(ii) 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark);

(b) within 300 feet from an occupied permanent residence, school, hospital, institution or church;

(c) within

(i) 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or

(ii) 1000 feet of any fresh water well or spring; [sic]

(d) within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves;

(e) within 300 feet of a wetland;

(f) within the area overlying a subsurface mine;

(g) within an unstable area; or

(h) within a 100-year floodplain.

(5) The division has 60 days from receipt of the proposed remediation plan to review and approve, approve with conditions or deny the remediation plan. If 60 days have lapsed without response from the division, then the plan is deemed denied. If the plan is approved with conditions or affirmatively denied, the division shall provide a written summary of deficiencies on which the decision is based. If the responsible party disagrees with any conditions of approval or denial of the plan, it shall consult with the division or file an application for hearing pursuant to 19.15.4 NMAC within 30 days of the denial or issuance of the conditions.

D. **Closure requirements.** The responsible party must take the following action for any major or minor release containing liquids.

(1) The responsible party must test the remediated areas for contamination with representative five-point composite samples from the walls and base, and individual grab samples from any wet or discolored areas. The samples must be analyzed for the constituents listed in Table I of 19.15.29.12 NMAC or constituents from other applicable remediation standards.

(a) The responsible party must verbally notify the appropriate division district office two business days prior to conducting final sampling. If the division district office does not respond to the notice within the two business days, the responsible party may proceed with final sampling. The responsible party may request a variance from this requirement upon a showing of good cause as determined by the division.

(b) The responsible party may submit a composite and grab sample plan for the division's review and approval separately or with the remediation plan.

(c) Alternately, without division approval, the responsible party may elect to perform a composite and grab sample plan of the remediated area where each composite sample is not representative of more than 200 square feet.

(2) If all composite and grab sample concentrations are less than or equal to the parameters listed in Table I of 19.15.29.12 NMAC or any conditions of approval, then the responsible party may proceed to backfill any excavated areas.

E. **Closure reporting.** The responsible party must take the following action for any major or minor release containing liquids.

(1) The responsible party must submit to the division a closure report on form C-141, including required attachments, to document all closure activities including sampling results and the details on any backfilling, capping or covering, where applicable. The responsible party must certify that all information in the closure report and attachments is correct and that the responsible party has complied with all applicable closure requirements and conditions specified in division rules or directives. The responsible party must submit closure report along with form C-141 to the division within 90 days of the remediation plan approval. The responsible party may apply for additional time to submit the final closure report upon a showing of good cause as determined by the division. The final report must include:

(a) a scaled site and sampling diagram;

(b) photographs of the remediated site prior to backfill;

(c) laboratory analyses of final sampling; and

(d) a description of all remedial activities.

(2) The division district office has 60 days to review and approve or deny the closure report. If 60 days have lapsed without response from the division, then the report is deemed denied. If the report is affirmatively denied, the division shall provide a written summary of deficiencies on which the decision is based. If the responsible party disagrees with denial of the closure report, it may consult with the division or file an application for hearing pursuant to 19.15.4 NMAC within 30 days of the denial.

Table I Closure Criteria for Soils Impacted by a Release			
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 feet	Chloride***	EPA 300.0 or SM4500 Cl B	600 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015M	100 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg
51 feet-100 feet	Chloride***	EPA 300.0 or SM4500 Cl B	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
>100 feet	Chloride***	EPA 300.0 or SM4500 Cl B	20,000 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

*Or other test methods approved by the division.
**Numerical limits or natural background level, whichever is greater.
***This applies to releases of produced water or other fluids, which may contain chloride.
[19.15.29.12 NMAC - N, 8/14/2018]

19.15.29.13 RESTORATION, RECLAMATION AND RE-VEGETATION:

A. The responsible party must substantially restore the impacted surface areas to the condition that existed prior to the release or their final land use. Restoration of the site must include the replacement of removed material and must be replaced to the near original relative positions and contoured to achieve erosion control, long-term stability and preservation of surface water flow patterns.

B. Areas reasonably needed for production operations or for subsequent drilling operations must be compacted, covered, paved or otherwise stabilized and maintained in such a way as to minimize dust and erosion to the extent practical.

C. The responsible party must construct the soil cover to the site's existing grade and prevent ponding of water and erosion of the cover material.

D. Reclamation of areas no longer in use. The responsible party shall reclaim all areas disturbed by the remediation and closure, except areas reasonably needed for production operations or for subsequent drilling

operations, as early and as nearly as practical to their original condition or their final land use and maintain those areas to control dust and minimize erosion to the extent practical.

(1) The reclamation must contain a minimum of four feet of non-waste containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0, or other test methods approved by the division. The soil cover must include a top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater.

Major Hangup, compare to clarification document

(2) The responsible party must reseed disturbed area in the first favorable gro following closure of the site.

(3) The division will consider reclamation of all disturbed areas complete wh vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent of p levels and a total percent plant cover of at least seventy percent of pre-disturbance levels, excluding noxious weeds.

(4) For any major or minor release containing liquids, the responsible party must notify the division when reclamation and re-vegetation are complete.

E. The surface restoration, reclamation and re-vegetation obligations imposed by federal or state agencies or tribes on lands managed or owned by those agencies supersede these provisions and govern the obligations of any responsible party subject to those provisions, provided that the other requirements provide equal or better protection of fresh water, human health and the environment.

[19.15.29.13 NMAC - N, 8/14/2018]

19.15.29.14 VARIANCES:

A. A responsible party may file a written request for a variance from any requirement of 19.15.29 NMAC with the appropriate division district office. The variance request must include:

(1) a detailed statement explaining the need for a variance; and

(2) a detailed written demonstration that the variance will provide equal or better protection of fresh water, public health and the environment.

B. The division district office must approve or deny the variance in writing within 60 days of receipt. If the division district office denies the variance, it must provide the responsible party with the reasons for denial.

C. If the division district office does not approve or deny a request for variance from the requirements of 19.15.29 NMAC within 60 days of the date the request for variance is received by the division district office, then the request for variance is deemed denied and the responsible party may file an application for a hearing pursuant to 19.15.4 NMAC within 30 days of the denial.

D. If the responsible party requests a hearing pursuant to 19.15.4 NMAC within 30 days after receipt of notice, the division must set the matter for hearing with notice to the responsible party and appropriate division district office.

E. In addition to the notice provisions in 19.15.4 NMAC, the responsible party must provide notice of the hearing on the request for variance to the surface owner of the site by certified mail, return receipt requested, at least 20 days prior to the date of the hearing.

F. Variances must receive division approval prior to implementation.

[19.15.29.14 NMAC - N, 8/14/2018]

19.15.29.15 ENFORCEMENT:

A. The responsible party must comply with all the requirements of 19.15.29 NMAC. The division may take enforcement action against any responsible party who does not comply with 19.15.29 NMAC pursuant to 19.15.5.10 NMAC.

B. A responsible party may enter an agreed compliance order with the division for any violation of 19.15.29 NMAC, except for 19.15.29.9 NMAC. An agreed compliance order may be entered prior to or after the filing of an application by the division or any other party for an administrative compliance proceeding. Any administrative compliance order will have the same force and effect as a compliance order issued after an adjudicatory hearing.

C. The director or the director's designee may deny any application or permit, including but not limited to, a permit to drill, deepen or plug back a well if the responsible party is not in compliance with a court order, agreed compliance order or administrative compliance order arising from 19.15.29 NMAC.

D. If the division or other party files an administrative enforcement application, the provisions of 19.15.4 NMAC apply to the enforcement proceeding, unless altered or amended by 19.15.5.10 NMAC or 19.15.29 NMAC.

[19.15.29.15 NMAC - N, 8/14/2018]

19.15.29.16 TRANSITIONAL PROVISIONS:

A. Responsible parties with current ongoing corrective actions/remediation with approved plans and timelines as of August 14, 2018 do not have to submit revised plans.

B. Responsible parties with ongoing corrective actions/remediation without approved timelines or plans as of August 14, 2018 must submit a characterization plan or corrective action/remediation plan with proposed timeframes within 90 days of August 14, 2018.

[19.15.29.16 NMAC - N, 8/14/2018]

HISTORY of 19.15.29 NMAC:

History of Repealed Material:

19.15.3 NMAC, Drilling (filed 10/29/2001) repealed 12/1/2008.

19.15.29 NMAC, Release Notification (filed 12/1/2008) was repealed effective 8/14/2018.

NMAC History:

That applicable portion of 19.15.3 NMAC, Drilling (Section 116) (filed 10/29/2001) was replaced by 19.15.29 NMAC, Release Notification, effective 12/1/2008.

19.15.29 NMAC, Release Notification (filed 12/1/2008) was repealed and replaced by 19.15.29, Releases, effective 8/14/2018.

State of New Mexico
Energy, Minerals and Natural Resources Department

Procedures for Implementation of the Spill Rule (19.15.29 NMAC)

September 6, 2019

A number of issues have arisen since the effective date of the rule replacement in August 2018. This document is intended to provide direction to OCD staff on implementation of the rule. This should lead to consistent responses and actions by each of our district offices. As additional issues are identified, they can also be addressed.

I. REMEDIATION/RECLAMATION/RESTORATION ARE DISTINCT PROCESSES:

It is important to understand that remediation, reclamation, and restoration do not all mean the same thing. Remediation means cleaning up or removing contaminated soils. Reclamation and/or restoration mean replacing removed material, including topsoil, along with contouring of the surface to replicate the original surface drainage, and getting vegetation to grow once again.

II. RECLAMATION OF TOP FOUR FEET:

a. 19.15.29.13(D)(1) NMAC says *"The reclamation must contain a minimum of four feet of non-waste containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0, or other test methods approved by the division."*

b. This language mirrors that associated with reclamation under the Pit Rule (19.15.17.13(H)(3) NMAC), for purposes of complying with the Spill Rule (19.15.29 NMAC). The word "uncontaminated" means soils not only with a chloride concentration of less than 600 mg/kg, but also a TPH concentration of no more than 100 mg/kg, a total BTEX concentration of no more than 50 mg/kg, and a benzene concentration of no more than 10 mg/kg. These are the most protective concentrations contained in Table I of 19.15.29.12 NMAC.

As is also noted in Table I, we allow the closure criteria to be the natural background level of chloride, if it is greater. There is no natural background level for TPH, BTEX, or benzene

c. The phrase "non-waste containing" for the backfill of the top 4-feet can be either unaffected soils or soils which after treatment contain concentrations of chloride of less than 600 mg/kg, a TPH concentration of no more than 100 mg/kg, a total BTEX concentration of no more than 50 mg/kg, and a benzene concentration of no more than 10 mg/kg, as stated above.

d. Soils which have been treated, remediated, or landfarmed are acceptable for closure, but the simple blending or mixing of contaminated soils with cleaner soils for purposes of reducing the chloride and/or hydrocarbon concentrations is not acceptable.

III. PURPOSE OF RECLAMATION:

a. 19.15.29.13(D) NMAC states *"The responsible party shall reclaim all areas disturbed by the remediation and closure."*

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b. The primary purpose here is to re-establish vegetative growth. The root zone for most native plants is in the uppermost four feet. If an area was impacted by a release but the concentration in the uppermost four feet of soil with chloride is less than 600 mg/kg., TPH less than 100 mg/kg, total BTEX less than 50 mg/kg, and benzene less than 10 mg/kg the OCD does not require those soils to be remediated.
c. The surface owner (BLM, SLO, or private) may impose more stringent requirements, but those conditions are theirs to enforce.
d. If the responsible party can demonstrate that a natural background level of chloride exists which is greater than 600 mg/kg, then that concentration will be the OCD's remediation standard for that area affected by the release. Again, there is no natural background level for TPH, BTEX, or benzene.

IV. RECLAMATION AND TABLE I:

a. Imagine a spill occurs in an area where the depth to groundwater is 75 feet and the soil data indicates the highest observed chloride concentration is 9,000 mg/kg. The chloride closure criteria in Table I is 10,000 mg/kg. You might think that no further action is required. However, the reclamation requirement in 19.15.29.13(D)(1) NMAC for chloride is less than 600 mg/kg and uncontaminated soils showing TPH less than 100 mg/kg, total BTEX less than 50 mg/kg, and benzene less than 10 mg/kg in the top four feet. So, the upper layers of soil still need to be cleaned up. For areas deferred under 19.15.29.12(C)(2) this reclamation may happen at a later date, but it is still required when the area is no longer in use.

V. LINERS REQUIRE A VARIANCE:

a. If after characterization of a release, the responsible party proposes in its remediation plan (19.15.29.11(B) and 19.15.29.12(C) NMAC) to leave contamination in place with concentrations greater than those specified in Table I, such a plan is a clear variance request to the rule.
Example: After removal of contaminated soils from the uppermost four feet in an area where the depth to groundwater is between 51 and 100 feet the responsible party wishes to install a synthetic liner atop soils with a chloride concentration greater than 10,000 mg/kg and then backfill.
b. Under 19.15.29.14(A) NMAC each variance request must include "a detailed statement *explaining the need for a variance"* along with *"a detailed written demonstration that the variance will provide equal or better protection of fresh water, public health and the environment."* A possible way of making such a demonstration for the example above is to provide soil concentration data showing adequate separation from the bottom of vadose zone contamination and groundwater.
c. Variance requests are to be submitted to the appropriate district office, not to Santa Fe. However, OCD district staff should consider consulting the Environmental Bureau in Santa Fe regarding approval or denial of any variance as we strive toward consistency across the state. If a responsible party does not agree with the denial of a variance request, the party can file for a hearing in accordance with 19.15.29.14(D) NMAC.

VI. ON-SITE vs. OFF-SITE REMEDIATION:

a. The remediation requirements in Table 1 19.15.29.12 NMAC are the same for all releases, whether they occur on an active production site or not (19.15.29.12(C)(2) and (3) NMAC). Remediation on an active site can be deferred in areas immediately under or around production equipment such as production tanks, wellheads, and pipelines where remediation could cause a major facility deconstruction. A major facility deconstruction is determined by the OCD on a case by case basis. The remediation, restoration, and reclamation may be deferred with OCD's written

approval until the equipment is removed during other operations, or when the well or facility is plugged or abandoned, whichever comes first. For the deferral request the contamination must be fully delineated. In addition, the contamination must not pose an imminent risk to human health, the environment, or groundwater. Deferrals are not forever and remediation must be completed in a timely fashion once the equipment is out of use for oil and gas operations.

b. Cleanup of off-site impacts cannot be deferred as they would not meet the deferral requirements of 19.15.29.12(C)(2) NMAC.
c. The difference between on- and off-site releases is when the reclamation and restoration must occur. Off-site releases must be reclaimed and restored immediately. On-site reclamation and restoration can wait until operations have ceased, but still must be done.

VII. CLOSURE SAMPLING PLANS:

If a responsible party wishes to remediate a spill within 90 days of its discovery without submitting a remediation plan, the closure samples must reflect the gathering of composites representative of no more than 200 square feet per composite sample per 19.15.29.12(D)(1)(c) NMAC. Alternative sampling plans will only be allowed with written permission from the OCD. In accordance with 19.15.29.12(D)(1)(b) NMAC, there are no listed standards as to what a responsible party can base an alternative sampling plan upon. Therefore, the OCD may request justifications or methods used in constructing the plan such that an appropriate decision can be made. OCD staff can provide verbal approval, but it must be followed up in writing such as an email.

VIII. VOLUME CALCULATIONS:

a. Responsible parties have asked why the new form C-141 requires volume calculations and why there is a question on the release notification form regarding the concentration of chloride in the produced water. Under 19.15.29.11(A)(5)(c) NMAC, the vertical extent of chloride contamination must be delineated to less than 600 mg/kg even when the depth to groundwater is between 50 and 100 feet if any produced water released contains more than 10,000 mg/kg of chloride and the volume released is either unknown or more than 200 barrels of unrecovered water. The volume released can be accomplished in any number of ways, but it must be reasonable. Otherwise, the OCD will consider the volume as unknown and the responsible party must delineate accordingly.
b. It is important to note that this does not affect the remediation requirements under Table I, only the characterization limits which may impact the cleanup.

IX. DETERMINING DEPTH TO GROUNDWATER:

a. The remediation levels provided in Table I are largely dependent upon depth to groundwater. As such, the OCD focuses upon depth to water estimation. 19.15.11(A)(2) NMAC allows for various means of determining depth to groundwater. If nearby wells are used, it is preferable if they are situated within ½-mile of the release, the water level information is no more than 25 years old, and well construction information is provided. If the water level information does not meet these criteria, the OCD may require boring to a limited depth for verification. If the operator has applicable information which does not meet the above preference, we will review it on a case by case basis to determine if it is acceptable.
b. If the water well information is representative of a confined aquifer (often described as "artesian"), the depth to water in the well will be considered the depth to the bottom of the upper confining layer, not the observed water level in the well.

c. It is important to note that wells installed for water supply purposes may not be screened across shallower, less-productive zones. Those less-productive zones might contain protectable water.

X. 2-DAY NOTICE REQUIREMENT DURING SITE ASSESSMENT AND CHARACTERIZATION:

a. The requirement of the responsible party to give two business days prior notice pursuant to 19.15.29.11?(5)(a)(ii) is limited to liner inspections of contained releases and for closure sampling.
b. If a responsible party determines the release site may meet closure standards and the characterization samples may be used as closure samples, they may want to give the OCD notice of the sampling and inform the OCD it may be used for closure. This may reduce the chances the site would have to be resampled for closure.

XI. CLOSURE WHEN RE-CONTOURING COMPLETED:

With respect to the revegetation requirements under 19.15.29.13(D)(3) NMAC, OCD will typically "close" a release case within its database once the area has been recontoured. If it is later determined that a uniform vegetative cover has not been established within a reasonable time, OCD will enforce the requirements of the rule accordingly.

XII. OBTAINING BACKGROUND DATA:

The rule speaks of "background" chloride concentrations in three places: 19.15.29.11(A)(5)(c) NMAC regarding unknown or large volume releases, as a footnote to Table I, and in 19.15.29.13(D)(1) NMAC regarding reclamation. How would a responsible party obtain information to determine background? A grab, not composite, sample(s) should be gathered in areas undisturbed by oil and gas activities, nominally uphill from the release area, and no closer than 50 feet but no farther than 100 feet from the lateral and horizontal extents of a release's impact. The background sampling should be representative of the entire horizontal and vertical extent of the release. Other means may be acceptable to OCD, but only after review and a written determination.

XIII. PHOTOS:

Unless the OCD specifically determines in writing and with an explanation on a case-by-case basis that photo documentation is needed to understand the character and impact of a release, photos are only required for remediated sites prior to backfilling as part of a closure report. The entire remediated area must be accurately represented by the photos provided for closure. Date, time, and geo-referencing of photos is strongly encouraged, but it is not required under the rule.

XIV. 60 DAY EXPIRATION OF REMEDIATION OR CLOSURE SUBMITTAL:

19.15.29.12(C)(5) and (E)(2) NMAC state that if a remediation plan or closure report is submitted and 60 days later the OCD has not responded, then the report is deemed denied. If this occurs, the responsible party can resubmit the closure report, noting the lack of action by the OCD, or file for hearing.

XV. IF WATER IMPACTED THEN RULE 30:

a. The regulatory oversight of all spills is initially covered under 19.15.29 NMAC. However, once a determination is made that groundwater or surface water has been impacted, corrective action is carried out under the provisions of 19.15.30 NMAC requiring the development of Stage 1 (investigation) and Stage 2 (remediation) abatement plans. There are also requirements for public notice.

b. Furthermore, 19.15.30 NMAC does not have numeric cleanup levels for contaminated soils. Instead it says:

"The responsible person shall abate the vadose zone so that water contaminants in the vadose zone will not with reasonable probability contaminate groundwater or surface water in excess of the standards in Subsections B and C of 19.15.30.9 NMAC, through leaching, percolating or other transport mechanisms, or as the water table elevation fluctuates." (19.15.30.9(A) NMAC).

c. 19.15.30.9(B) and (C) NMAC refer to standards found in the Water Quality Control Commission regulations; 20.6.2 and 20.6.4 NMAC.

XVI. **FEES:**

The new fees legislation took effect July 1, 2019 and requires a $150 filing fee to accompany each C-141 submission. This includes any submittal on a C-141, including but not limited to, initial C-141s, characterization reports with remediation plans, and closure reports. Requests and notifications made separate from the C-141 do not require a fee, this includes but is not limited to; separate alternative sampling plans and verbal notifications.

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

CONDITIONS

Action 166738

CONDITIONS

Operator: H L BROWN OPERATING, LLC P.O. Box 2237 Midland, TX 79702	OGRID: 213179
	Action Number: 166738
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jnobui	Closure Report Approved. Please implement 19.15.29.13 NMAC when completing P&A.	1/26/2023