

**SPILL VOLUME CALCULATIONS**

INPUT DATA: (click "Reset Page" button to return all values to zero)											
Total Area Calculations					Standing Liquid Calculations (leave blank if 100% of free liquid has been recovered)						
Total Surface Area		saturated soil depth		% oil	Total Surface Area		liquid depth		% oil		
Known Area #1	0 acres	or	60,578 sq. ft.	3 in	0%	Known Area #1	0 acres	or	0 sq. ft.	0 in	0%
Known Area #2	0 acres	or	0 sq. ft.	0 in	0%	Known Area #2	0 acres	or	0 sq. ft.	0 in	0%
Known Area #3	0 acres	or	0 sq. ft.	0 in	0%	Known Area #3	0 acres	or	0 sq. ft.	0 in	0%
Known Area #4	0 acres	or	0 sq. ft.	0 in	0%	Known Area #4	0 acres	or	0 sq. ft.	0 in	0%
width		length				width		length			
Rectangle Area #1	0 ft		0 ft	0 in	0%	Rectangle Area #1	0 ft		0 ft	0 in	0%
Rectangle Area #2	0 ft		0 ft	0 in	0%	Rectangle Area #2	0 ft		0 ft	0 in	0%
Rectangle Area #3	0 ft		0 ft	0 in	0%	Rectangle Area #3	0 ft		0 ft	0 in	0%
Rectangle Area #4	0 ft		0 ft	0 in	0%	Rectangle Area #4	0 ft		0 ft	0 in	0%
diameter		saturated soil depth		% oil		diameter		liquid depth		% oil	
Circle Area #1	0 ft			0 in	0%	Circle Area #1	0 ft			0 in	0%
Circle Area #2	0 ft			0 in	0%	Circle Area #2	0 ft			0 in	0%
Circle Area #3	0 ft			0 in	0%	Circle Area #3	0 ft			0 in	0%
Circle Area #4	0 ft			0 in	0%	Circle Area #4	0 ft			0 in	0%

Amount of Free Liquid Recovered:	bbl	Percentage of Oil in Free Liquid Recovered:	0%
Liquid Holding Factor*:	0.08 gal liquid/gal soil		
(see below)			
Use the following when the spill wets the grains of the soil.		Use the following when the liquid completely fills the pore space of the soil:	
* sand = .08 gallon liquid per gallon volume of soil.		Occurs when the spill soaked soil is contained by barriers, natural (or not).	
* gravelly (caliche) loam = .14 gallon liquid per gallon volume of soil.		* gravelly (caliche) loam = .25 gallon liquid per gallon volume of soil.	
* sandy clay loam soil = .14 gallon liquid per gallon volume of soil.		* sandy loam = .5 gallon liquid per gallon volume of soil.	
* clay loam = .16 gallon liquid per gallon volume of soil.			

OUTPUT DATA:			Free Liquid Volume Calculations		
<b><u>Saturated Soil Volume Calculations</u></b>			<b><u>Water</u></b>		
Total Contaminated Volume:	15,144.5 cu. ft.	560.9 yds.	Total Free Liquid:	0.0 BBL	<b><u>Oil</u></b>
<b><u>Estimated Volumes Spilled</u></b>			<b><u>Estimated Surface Damage</u></b>		
	<b><u>Water</u></b>	<b><u>Oil</u></b>	Surface Area:	60,578.0 sq. ft.	
Liquid in Soil:	215.8 BBL	0.0 BBL	Surface Area:	1.4 acres	
Free Liquid:	0.0 BBL	0.0 BBL			
Free Liquid Recovered:	0.0 BBL	0.0 BBL	<b><u>Recovered Volumes</u></b>		
			Estimated oil recovered:	0.0 BBL	
			Estimated water recovered:	0.0 BBL	
<b>Total Liquid Spilled:</b>	<b>215.8 BBL</b>	<b>0.0 BBL</b>			
	<b>9,062.4 gal</b>	<b>0.0 gal</b>			

# Site Assessment Summary, Proposed Remediation Plan & Alternative Sampling Plan

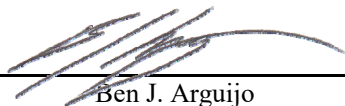

## Mewbourne Oil Company Red Hills West Unit 27 Battery

Lea County, New Mexico  
Unit Letter "O", Section 9, Township 26 South, Range 32 East  
Latitude 32.05274° North, Longitude 103.67691° West  
NMOCD Reference No. nAPP2521353327

Prepared By:

**Etech Environmental & Safety Solutions, Inc.**  
6309 Indiana Ave, Ste. D  
Lubbock, Texas 79413

August 20, 2025

  
Ben J. Arguijo  
Lance Crenshaw

Midland • San Antonio • Lubbock • Hobbs • Lafayette

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## 1.0 PROJECT INFORMATION

Etech Environmental & Safety Solutions, Inc. (Etech), on behalf of Mewbourne Oil Company, has prepared this *Site Assessment Summary, Proposed Remediation Plan & Alternative Sampling Plan* for the release site known as the Red Hills West 27 Battery (henceforth, "Site"). Details of the release are summarized below:

Location of Release Source				
Latitude:	32.05274	Longitude:	-103.67691	
Provided GPS are in WGS84 format.				
Site Name: Red Hills West Unit 27 Battery		Site Type: Pipeline		
Date Release Discovered: 7/19/2025		API # (if applicable): N/A		
Unit Letter	Section	Township	Range	County
"O"	9	26S	32E	Lea
Surface Owner: <input type="checkbox"/> State <input checked="" type="checkbox"/> Federal <input type="checkbox"/> Tribal <input type="checkbox"/> Private            (Name _____)				
Nature and Volume of Release				
<input type="checkbox"/> Crude Oil	Volume Released (bbls)		Volume Recovered (bbls)	
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 215		Volume Recovered (bbls) 165	
	Is the concentration of dissolved chloride in the produced water > 10,000 mg/L?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
<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		Volume/Weight Recovered	
Cause of Release: Equipment Failure - Pipeline				
Initial Response				
<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"/> Release materials have been contained via the use of berms or dikes, absorbent pad, or other containment devices				
<input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.				

Previously submitted portions of the New Mexico Oil Conservation Division (NMOCD) Form C-141 are available in the NMOCD Permitting System.



## 2.0 SITE CHARACTERIZATION

What is the shallowest depth to groundwater (DTW) beneath the area affected by the release in feet below ground surface (bgs)?	Between 100 and 500 (ft.)
What method was used to determine the depth to groundwater?	NM OSE iWaters Database Search
Did the release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
What is the minimum distance between the closest lateral extents of the release and the following surface areas?	
A continuously flowing watercourse or any other significant watercourse?	Between 1 and 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution or church?	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	Between 1 and 5 (mi.)
Any other fresh water well or spring?	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field?	Greater than 5 (mi.)
A wetland?	Between 1 and 5 (mi.)
A subsurface mine?	Greater than 5 (mi.)
A (non-karst) unstable area?	Between 1 and 100 (ft.)
Categorize the risk of this well/site being in a karst geology.	Low
A 100-year floodplain?	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Based on a review of groundwater databases maintained by the New Mexico Office of the State Engineer (NMOSE) and United States Geological Survey (USGS), as well as previous interviews with other operators in the area, the probable depth to groundwater at the Site is estimated to be greater than 100 feet bgs.

On January 8, 2024, in conjunction with an unrelated release (Incident ID #nJXK1608134606), an exploratory soil boring (NMOSE well C-04787-POD1) was drilled approximately 0.4 miles southeast of the Site by a third-party environmental contractor. According to the associated drilling log provided in the *Revised Closure Report* for the release (Submission ID #332958), the soil boring was advanced to a total depth of 57 feet bgs and was noted to be "dry" both while drilling and upon completion. The drilling log and additional depth to groundwater information are provided in Appendix A.

A review of both recent and historical aerial imagery of the Site and the surrounding area identified an ephemeral wash adjacent to a portion of the affected area. However, the wash does not satisfy the criteria for a "significant watercourse," as defined in Subsection P of 19.15.17.7 of the New Mexico Administrative Code (NMAC), as it is neither "named or identified by a dashed blue line on a USGS 7.5 minute quadrangle map or the next lower order tributary with a defined bed and bank of such watercourse." It also does not satisfy the criteria for a "wetland," as defined in Subsection W(9) of 19.15.2.7 NMAC: "'Wetlands' means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions in New Mexico." Furthermore, although the wash may be considered an "unstable area," the affected area is not *within* the wash; therefore, the release does not satisfy the criteria set forth in Subsection C(4)(g) of 19.15.29.12 NMAC.

A karst study of the affected area was conducted by an additional third-party environmental contractor on August 4, 2025. According to the *Environmental Karst Study Report* dated August 13, 2025, "No surface karst features exist within the 200-foot (61-meter) perimeter of the spill delineation boundary. No anomalies consistent with subsurface air- or water-filled voids were found within the RH27 resistivity survey area, indicating the zone beneath the geophysical survey is not subject to

collapse. Well layered stratigraphy is interpreted to exist beneath the area where the geophysical survey was conducted, indicating stable ground." The karst study report is provided as Appendix E.

Additional NMOCD Siting Criteria data was gathered from available resources including Bureau of Land Management (BLM) and Fish and Wildlife Services (FWS) shapefiles; topographic maps; NMOSE and USGS databases; and aerial imagery. The results are depicted in Figures 1, 2A, 2B, and 5.

### 3.0 CLOSURE CRITERIA FOR SOILS IMPACTED BY A RELEASE

Based on the information summarized above, the Site is not subject to remediation to the most stringent Table I Closure Criteria, pursuant to Subsection C(4) of 19.15.29.12 NMAC. However, since the depth to groundwater was not definitively determined in nearby NMOSE well C-04787-POD1 (i.e., >55 feet bgs), Mewbourne Oil Company respectfully requests the Table 1 Closure Criteria for a release where the depth to groundwater is between 51 and 100 feet bgs.

**Closure Criteria for Soils Impacted by a Release**

Probable Depth to Groundwater	Constituent	Laboratory Analytical Method	NMOCD Closure Criteria*†	NMOCD Reclamation Standards*‡
Between 100 and 500 (ft.)	Chloride (Cl <sup>-</sup> )	EPA** 300.0 or SM4500 Cl B	10,000	600
	Total Petroleum Hydrocarbons (TPH)	EPA SW-846 Method 8015M Ext	2,500	100
	Gas Range Organics + Diesel Range Organics (GRO+DRO)	EPA SW-846 Method 8015M	1,000	N/A
	Benzene	EPA SW-846 Methods 8021b or 8260b	10	10
	Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX)	EPA SW-846 Methods 8021b or 8260b	50	50

\* Measured in milligrams per kilogram (mg/kg)

\*\* Environmental Protection Agency

† Table I of Section 19.15.29.12 NMAC

‡ Not applicable. Pursuant to Subsection D(1) of 19.15.29.13 NMAC, NMOCD Reclamation Standards apply only to the top 4' of soil in non-production areas.

### 4.0 INITIAL SITE ASSESSMENT

On June 29, 2025, Etech conducted an initial site assessment. During the site assessment, test trenches and/or hand-augered soil bores (SP 2, SP 4, and SP 6 through SP 16) were advanced within the release margins to determine the vertical extent of impacted soil. In addition, hand-augered soil bores (NH 1, EH 1, SH 1, and WH 1) were advanced at the inferred edges of the affected area to determine the horizontal extent of impacted soil. During the advancement of the soil bores/test trenches, soil samples were collected and field-screened for concentrations of chloride utilizing a Hach Quantab ® chloride test kit and/or the presence of Volatile Organic Compounds (VOCs) utilizing olfactory/visual senses.

Based on field observations and field test data, a total of 34 delineation soil samples (NH 1 @ Sur, NH 1 @ 1', EH 1 @ Sur, EH 1 @ 1', SH 1 @ Sur, SH 1 @ 1', WH 1 @ Sur, WH 1 @ 1', SP 2 @ Sur, SP 2 @ 1', SP 4 @ Sur, SP 4 @ 4', SP 6 @ Sur, SP 6 @ 1', SP 7 @ Sur, SP 7 @ 2', SP 8 @ Sur, SP 8 @ 1', SP 9 @ Sur, SP 9 @ 1', SP 10 @ Sur, SP 10 @ 1', SP 11 @ Sur, SP 11 @ 1', SP 12 @ Sur, SP 12 @ 1', SP 13 @ Sur, SP 13 @ 1', SP 14 @ Sur, SP 14 @ 1', SP 15 @ Sur, SP 15 @ 1', SP 16 @ Sur, and SP 16 @ 1') were submitted to a certified, commercial laboratory (henceforth, "the laboratory") for analysis of BTEX, TPH, and chloride. Laboratory analytical results indicated that the horizontal extent of impacted soil was adequately defined, and the vertical extent of impacted soil ranged from one (1) foot bgs in the areas characterized by sample points SP 2, SP 6, and SP 8 through SP 16 to four (4) feet bgs in the area characterized by sample point SP 4.

On August 5, 2025, Etech returned to the Site to continue delineation of the affected area. Test trenches and/or hand-augered soil bores were advanced within the release margins to further investigate the vertical extent of impacted soil. Based on field test results and field observations, three (3) additional delineation soil samples (SP 1 @ 5', SP 3 @ 3', and SP 5 @ 2') were submitted to the laboratory for analysis of BTEX, TPH, and chloride. Laboratory analytical results indicated that the vertical extent of impacted soil was adequately defined and ranged from two (2) feet bgs in the area characterized by sample point SP 5 to five (5) feet bgs in the area characterized by sample point SP 1.

On August 8, 2025, Etech collected two (2) additional delineation soil samples (SP 1 @ Sur and SP 13 @ 2') from ground surface in the area characterized by sample point SP 1 and at approximately two (2) feet bgs in the area characterized by sample point SP 13. The soil samples were submitted to the laboratory for analysis of BTEX, TPH, and chloride. Laboratory analytical results indicated that the vertical extent of impacted soil was adequately defined in the areas characterized by sample points SP 1 and SP 13.

Summary of Delineation Sampling Events

Constituent	Highest Observed Concentration (mg/kg)	Sample ID	Sample Date	Sample Depth (ft bgs)	Soil Status
Chloride	10,100	SP 13 @ Sur	7/29/2025	0	Excavated
TPH	316	SP 1 @ Sur	8/8/2025	0	Excavated
GRO+DRO	252	SP 1 @ Sur	8/8/2025	0	Excavated
BTEX	<0.300	See Table 1	7/29, 8/5 & 8/8/25	0-5	In-Situ & Excavated
Benzene	<0.050	See Table 1	7/29, 8/5 & 8/8/25	0-5	In-Situ & Excavated

Please reference Table 1 for additional information.

The locations of the test trenches and hand-augered soil bores are depicted in Figure 3, "Sample Location Map".

## 5.0 PROPOSED REMEDIATION PLAN & ALTERNATIVE SAMPLING PLAN

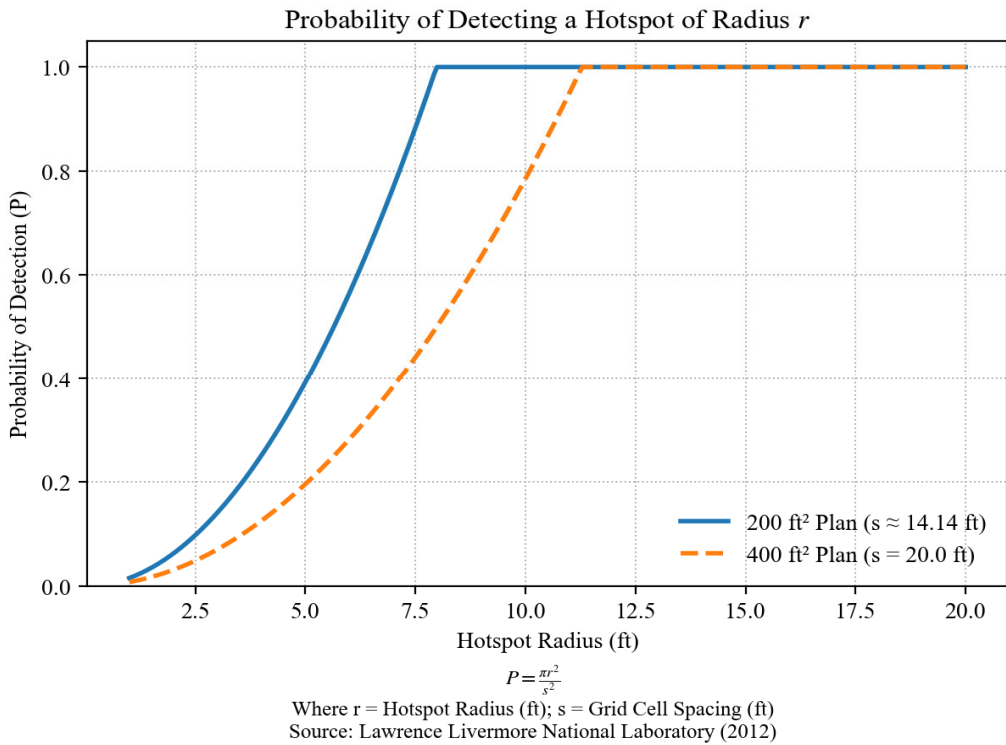
Requesting a remediation plan approval with this submission?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Requesting a deferral of remediation closure due date with the approval of this submission?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Requesting a remediation closure approval with this submission?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Have the lateral and vertical extents of contamination been fully delineated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Was this release entirely contained within a lined containment area?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
On what estimated date will (or did) the remediation commence?	8/8/2025	
On what date will (or did) the final sampling or liner inspection occur?	8/29/2025	
On what date will (or was) the remediation complete(d)?	9/12/2025	
What is the total surface area (sq. ft.) in need of or that will <i>eventually</i> be reclaimed?	59,586	
What is the total volume (cy) in need of or that will <i>eventually</i> be reclaimed?	~3,862	
What was the total surface area (sq. ft.) that has or will be remediated?	59,586	
What was the total volume (cy) that has or will be remediated?	~690	
This remediation utilized the following processes to remediate/reduce contaminants:		
(Ex Situ) Excavation and off-site disposal (i.e. dig and haul, hydrovac, etc.)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
(Ex Situ) Excavation and on-site remediation (i.e. On-Site Land Farms)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
(In Situ) Soil Vapor Extraction	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Ground Water Abatement pursuant to 19.15.30 NMAC	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Other (Non-listed remedial process)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Which OCD approved facility was or will be used for off-site disposal?	R360 Red Bluff Facility	
NMOCD Disposal Facility ID?	Texas	
Summarize any additional remediation activities not included by answers above.	N/A	

Based on laboratory analytical results and field observations, the entire affected area will be excavated in accordance with the requested NMOCD Closure Criteria to a total depth of approximately three (3) to six (6) inches bgs. Mewbourne Oil Company hereby requests an alternative sampling plan comprised of five-point composite confirmation samples collected from the floor

of the excavated area at intervals representing no more than 400 square feet. Mewbourne Oil Company believes that a relaxation of sampling frequency is permissible given the size and nature of the release, the depth to groundwater (>55 feet), and the shallow depths of contaminant intrusion (~6 inches to 4.5 feet).

Based on the size of the affected area (~59,8564 square feet), approximately 149 composite soil samples will be collected from the floor of the excavated area under the proposed alternative sampling plan, as opposed to approximately 298 samples under a standard 200-square-foot plan. Figure 4 provides a side-by-side comparison of the 200-square-foot and 400-square-foot sampling plans. The map illustrates that, while there are fewer total composite samples in the 400-square-foot plan, there is a nominal difference between the spatial coverage of the plans, and both plans are equally representative of the affected area, with minimal gaps between each sampling section/zone.

Since each individual composite sample will incorporate soil from five (5) spots within a 400-square-foot zone, this effectively equates to a total of approximately 745 sample points, which decreases the likelihood that any hotspots will be missed, as illustrated in the graph and table below. Furthermore, discrete soil samples will be collected from wet and/or visibly stained areas, as necessary.



**Detection Probabilities for Selected Hotspot Radii**

Grid Area (ft²)	s	r = 2.5	r = 5	r = 10	r = 15	r = 20
200	14.14	9.82%	39.3%	>99.9%	>99.9%	>99.9%
400	20.0	4.91%	19.6%	78.5%	>99.9%	>99.9%

$r$  = Hotspot Radius (ft);  $s$  = Grid Cell Spacing (ft)

Based on the information summarized above, Mewbourne Oil Company believes that the proposed 400-square-foot sampling plan provides an equal protection of fresh water, public health, and the environment as a standard 200-square-foot plan, pursuant to Subsection A(2) of 19.15.29.14 NMAC.

## 6.0 RESTORATION, RECLAMATION & RE-VEGETATION PLAN

All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the site's existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste containing earthen material with concentrations of less than 600 mg/kg chloride, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg benzene?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Requesting a reclamation approval with this submission?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Requesting a restoration complete approval with this submission?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
What was the total surface area (sq. ft.) reclaimed?	0 (To be completed)	
What was the total volume (cy) reclaimed?	0 (To be completed)	

Upon receipt of all confirmation soil sample results, areas affected by remediation and closure activities will be substantially restored to the condition that existed prior to the release, to the extent practicable. Excavated areas will be backfilled with locally sourced, non-impacted, "like" material placed at or near original relative positions. The affected areas will be compacted and contoured to achieve erosion control, stability, and preservation of surface water flow, to the extent practicable.

Upon completion of remediation activities, a *Remediation Summary & Soil Closure Request* will be prepared detailing field activities and laboratory analytical results from confirmation soil samples.

The release was limited to the production pad of an active tank battery, with no impact to the adjacent pasture. Final restoration, reclamation, and revegetation will be conducted upon decommissioning and abandonment of the facility. The reclaimed area will be revegetated during the first favorable growing season following closure of the location with an agency and/or landowner-approved seed mix that has been certified to be free of noxious weeds. The seed will be installed at the prescribed rate utilizing either a seed drill or a broadcaster and harrow.

## 7.0 LIMITATIONS

Etech Environmental & Safety Solutions, Inc., has prepared this *Site Assessment Summary, Proposed Remediation Plan & Alternative Sampling Plan* 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 Mewbourne Oil Company. Use of the information contained in this report is prohibited without the consent of Etech and/or Mewbourne Oil Company.

## **8.0 DISTRIBUTION**

***Mewbourne Oil Company***  
*4801 Business Park Blvd.*  
*Hobbs, NM 88240*

***New Mexico Energy, Minerals and Natural Resources Department***  
*Oil Conservation Division, District 2*  
*1220 South St. Francis Drive*  
*Santa Fe, NM 87505*

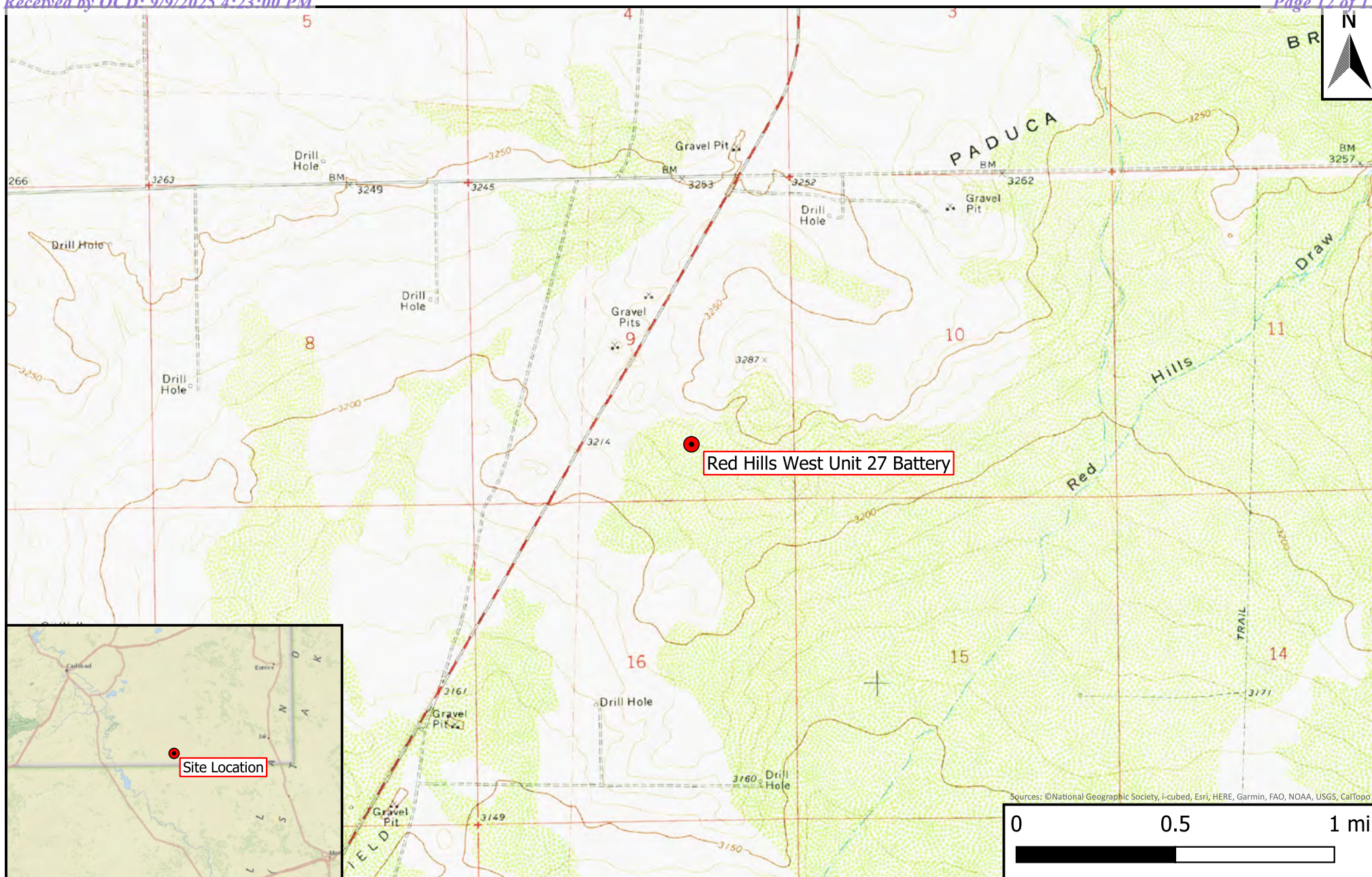
***United States Department of the Interior***  
*Bureau of Land Management*  
*620 E. Greene Street*  
*Carlsbad, NM 88220*

*(Electronic Submission)*

## **Figure 1**

### **Site Location Map**



**Legend**

- Site Location

**Figure 1**  
 Site Location Map  
 Mewbourne Oil Company  
 Red Hills West Unit 27 Battery  
 GPS: 32.05274, -103.67691  
 Lea County, New Mexico



Drafted: bja

Checked: rlc

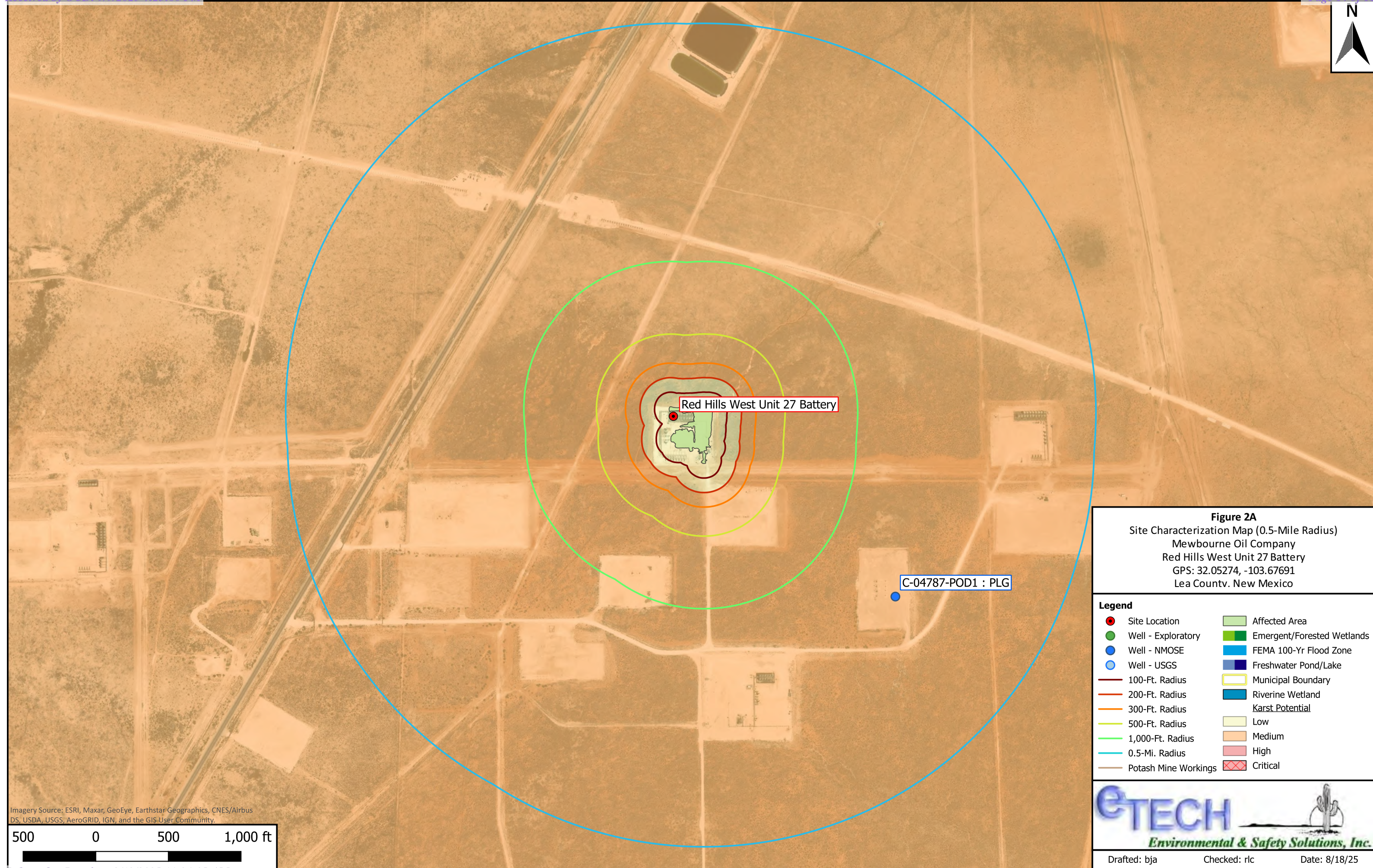
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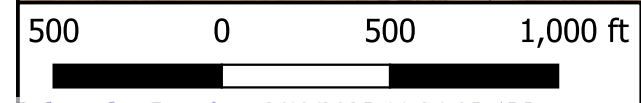
## **Figures 2A & 2B**

### **Site Characterization Maps**





Imagery Source: ESRI, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



**Figure 2A**  
Site Characterization Map (0.5-Mile Radius)  
Mewbourne Oil Company  
Red Hills West Unit 27 Battery  
GPS: 32.05274, -103.67691  
Lea Countv. New Mexico

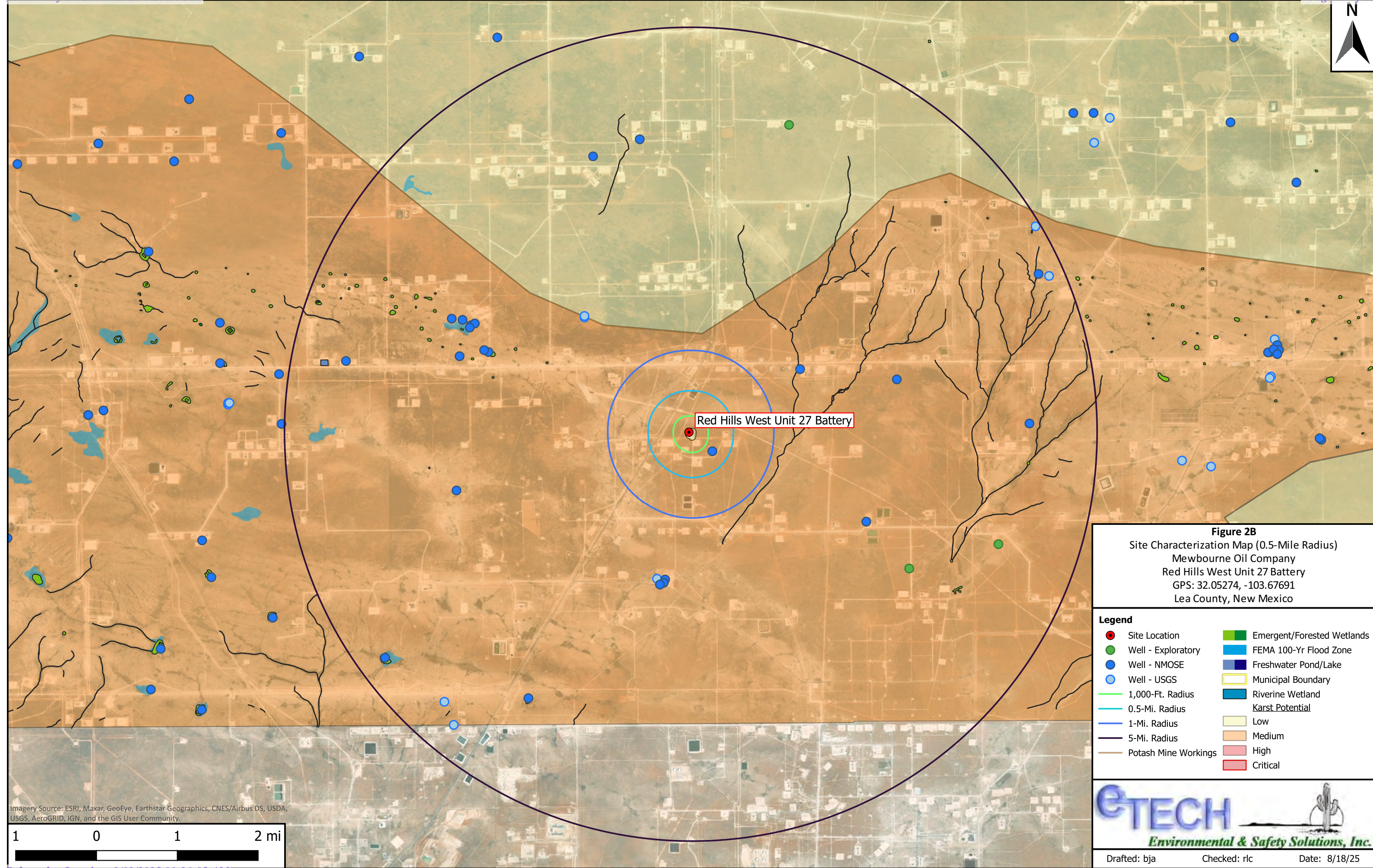
**Legend**

Site Location	Affected Area
Well - Exploratory	Emergent/Forested Wetlands
Well - NMOSE	FEMA 100-Yr Flood Zone
Well - USGS	Freshwater Pond/Lake
100-Ft. Radius	Municipal Boundary
200-Ft. Radius	Riverine Wetland
300-Ft. Radius	Karst Potential
500-Ft. Radius	Low
1,000-Ft. Radius	Medium
0.5-Mi. Radius	High
Potash Mine Workings	Critical

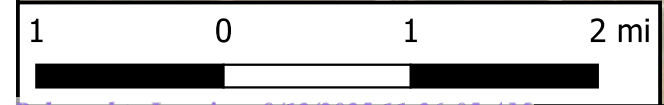
**Environmental & Safety Solutions, Inc.**

Drafted: bja      Checked: rlc      Date: 8/18/25





Imagery Source: ESRI, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



**Figure 2B**  
Site Characterization Map (0.5-Mile Radius)  
Mewbourne Oil Company  
Red Hills West Unit 27 Battery  
GPS: 32.05274, -103.67691  
Lea County, New Mexico

**Legend**

Site Location	Emergent/Forested Wetlands
Well - Exploratory	FEMA 100-Yr Flood Zone
Well - NMOSE	Freshwater Pond/Lake
Well - USGS	Municipal Boundary
1,000-Ft. Radius	Riverine Wetland
0.5-Mi. Radius	Karst Potential
1-Mi. Radius	Low
5-Mi. Radius	Medium
Potash Mine Workings	High
	Critical

**ETECH**  
Environmental & Safety Solutions, Inc.

Drafted: bja      Checked: rlc      Date: 8/18/25



## **Figure 3**

### **Sample Location Map**

**Legend**

- Affected Area (~59,586 ft<sup>2</sup>)
- Delineation Sample Location

**Figure 3**

Sample Location Map  
 Mewbourne Oil Company  
 Red Hills West Unit 27 Battery  
 GPS: 32.05274, -103.67691  
 Lea County, New Mexico



Drafted: bja

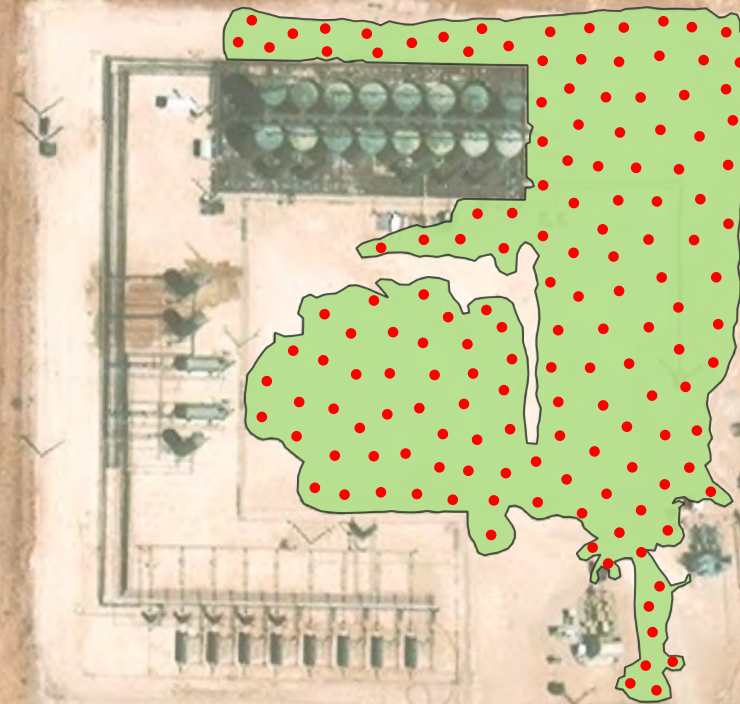
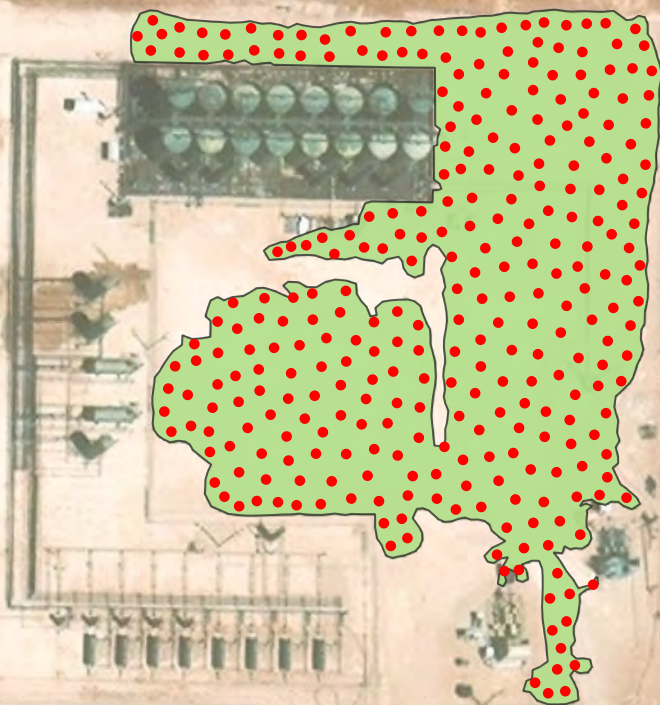
Checked: rlc

Date: 8/19/25

## **Figure 4**

### **Sampling Plan Comparison Map**



200 ft<sup>2</sup> Grid400 ft<sup>2</sup> Grid

0 100 200 ft

Imagery Source: ESRI, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS,  
USDA, USGS, AeroGRID, IGN, and the GIS User Community.

**Legend**

- Affected Area (~59,586 ft<sup>2</sup>)
- Composite Floor Sample Location

**Figure 4**

Sample Plan Comparison Map  
Mewbourne Oil Company  
Red Hills West Unit 27 Battery  
GPS: 32.05274, -103.67691  
Lea County, New Mexico



Drafted: bja

Checked: rlc

Date: 8/19/25

**Table 1**  
**Concentrations of BTEX, TPH & Chloride in Soil**



<b>Table 1</b> <b>Concentrations of BTEX, TPH &amp; Chloride in Soil</b> <b>Mewbourne Oil Company</b> <b>Red Hills West Unit 27 Battery</b> <b>NMOCD Ref. #: nAPP2521353327</b>												
NMOCD Closure Criteria					10	50	N/A	N/A	1,000	N/A	2,500	10,000
NMOCD Reclamation Standard					10	50	N/A	N/A	N/A	N/A	100	600
Sample ID	Date	Depth (Feet)	Type	Soil Status	SW 846 8021B		SW 846 8015M Ext.					4500 Cl
					Benzene (mg/kg)	BTEX (mg/kg)	GRO C <sub>6</sub> -C <sub>10</sub> (mg/kg)	DRO C <sub>10</sub> -C <sub>28</sub> (mg/kg)	GRO + DRO C <sub>6</sub> -C <sub>28</sub> (mg/kg)	ORO C <sub>28</sub> -C <sub>36</sub> (mg/kg)	TPH C <sub>6</sub> -C <sub>36</sub> (mg/kg)	Chloride (mg/kg)
NH 1 @ Sur	7/29/2025	0	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	176
NH 1 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	416
EH 1 @ Sur	7/29/2025	0	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	64.0
EH 1 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	496
SH 1 @ Sur	7/29/2025	0	D	In-Situ	<0.050	<0.300	<10.0	12.1	12.1	<10.0	12.1	224
SH 1 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	80.0
WH 1 @ Sur	7/29/2025	0	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	304
WH 1 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	176
SP 1 @ Sur	8/8/2025	0	D	Excavated	<0.050	<0.300	<10.0	252	252	64.0	316	5,760
SP 1 @ 5'	8/5/2025	5	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	304
SP 2 @ Sur	7/29/2025	0	D	Excavated	<0.050	<0.300	<10.0	16.9	16.9	<10.0	16.9	8,800
SP 2 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	96.0
SP 3 @ 3'	8/5/2025	3	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
SP 4 @ Sur	7/29/2025	0	D	Excavated	<0.050	<0.300	<10.0	26.3	26.3	<10.0	26.3	7,330
SP 4 @ 4'	7/29/2025	4	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	208
SP 5 @ 2'	8/5/2025	2	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	192
SP 6 @ Sur	7/29/2025	0	D	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	8,000
SP 6 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	160
SP 7 @ Sur	7/29/2025	0	D	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	8,930
SP 7 @ 2'	7/29/2025	2	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	272
SP 8 @ Sur	7/29/2025	0	D	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	1,860
SP 8 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
SP 9 @ Sur	7/29/2025	0	D	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	7,680
SP 9 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	64.0
SP 10 @ Sur	7/29/2025	0	D	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	7,920
SP 10 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	64.0
SP 11 @ Sur	7/29/2025	0	D	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	8,320
SP 11 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	160
SP 12 @ Sur	7/29/2025	0	D	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	5,360
SP 12 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	128
SP 13 @ Sur	7/29/2025	0	D	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	10,100
SP 13 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	656
SP 13 @ 2'	8/8/2025	2	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	<16.0
SP 14 @ Sur	7/29/2025	0	D	Excavated	<0.050	<0.300	<10.0	28.6	28.6	<10.0	28.6	6,240
SP 14 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	208
SP 15 @ Sur	7/29/2025	0	D	Excavated	<0.050	<0.300	<10.0	10.4	10.4	<10.0	10.4	6,000
SP 15 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	64.0
SP 16 @ Sur	7/29/2025	0	D	Excavated	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	9,360
SP 16 @ 1'	7/29/2025	1	D	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	256

Dash (-): Sample not analyzed for that constituent.

Bold: NMOCD Closure Criteria exceedance.

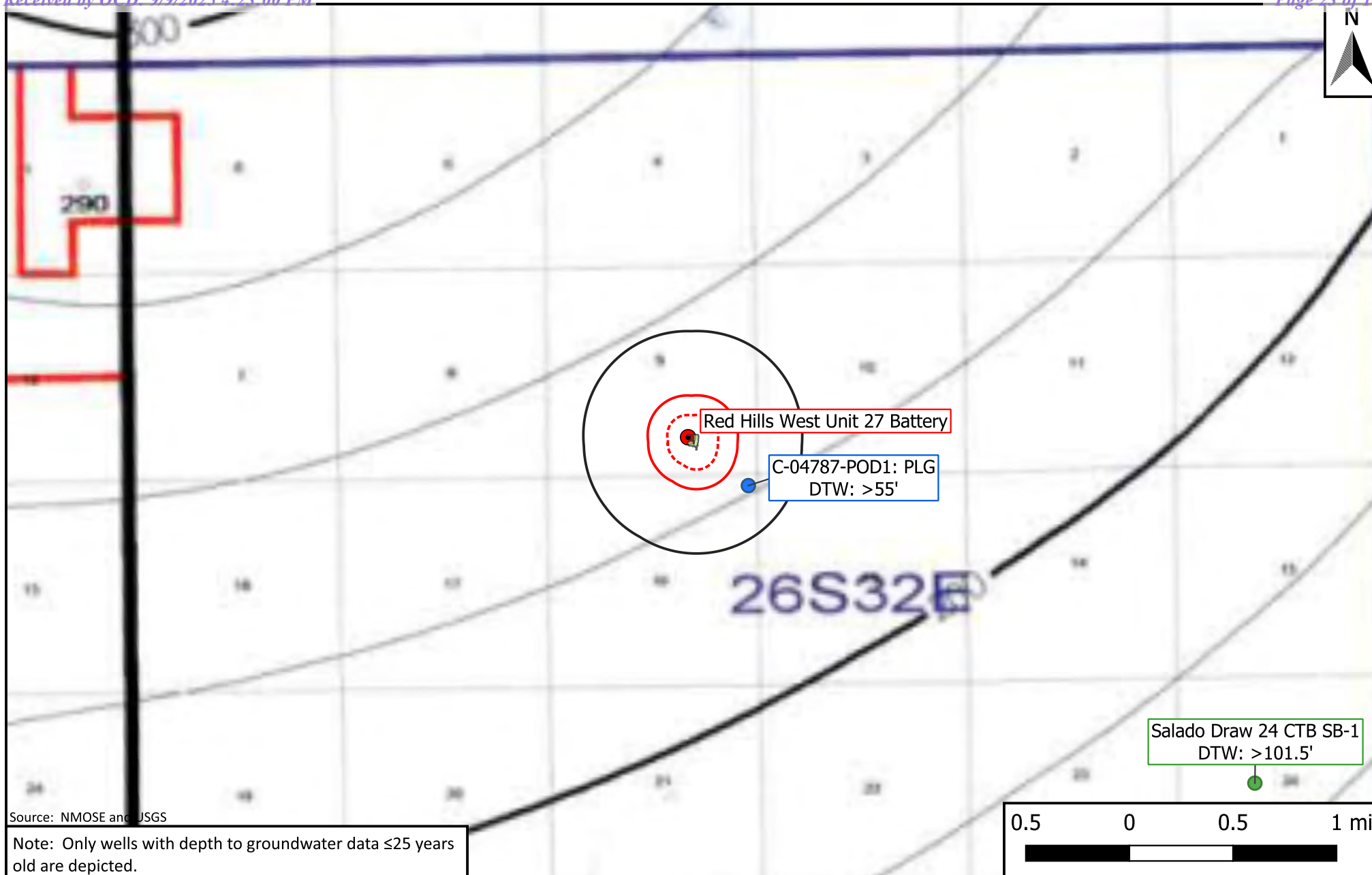
Red: NMOCD Reclamation Standard exceedance.

Red Border with Shading: Highest observed concentration.

A - Assessment F - Backfill  
D - Delineation B - Background  
C - Confirmation O - Other  
R - Deferral

## **Appendix A**

### **Depth to Groundwater Information**

**Legend**

- |                 |                   |
|-----------------|-------------------|
| ● Site Location | ■ Affected Area   |
| ● Well - NMOSE  | ⋯ 500-Ft Radius   |
| ● Well - USGS   | ▭ 1,000-Ft Radius |
| ● Well - Other  | ▭ 0.5-Mi Radius   |

**Figure 5**

Inferred Depth to Groundwater Map  
 Mewbourne Oil Company  
 Red Hills West Unit 27 Battery  
 GPS: 32.05274, -103.67691  
 Lea County, New Mexico



Drafted: bja


Checked: rlc

Date: 8/19/25

# Point of Diversion Summary

quarters are 1=NW 2=NE 3=SW 4=SE  
quarters are smallest to largest

NAD83 UTM in meters

Well Tag	POD Nbr	Q64	Q16	Q4	Sec	TwS	Rng	X	Y	Map
NA	C 04787 POD1	NE	NE	NE	16	26S	32E	625374.5	3546671.4	

\* UTM location was derived from PLSS - see Help

Driller License:	Driller Company:
------------------	------------------

Driller Name:
---------------

Drill Start Date:	Drill Finish Date:	Plug Date:	2024-02-06
-------------------	--------------------	------------	------------

Log File Date:	PCW Rcv Date:	Source:
----------------	---------------	---------

Pump Type:	Pipe Discharge Size:	Estimated Yield:
------------	----------------------	------------------

Casing Size:	Depth Well:	Depth Water:
--------------	-------------	--------------

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.

RED HILLS DTW.GPJ: 1-22-24: TT-AUSTIN GEOTECH NOWELL3: 2015 TT TEMPLATE DECEMBER WELL.GDT

## **Appendix B**

### **Field Data**



## Sample Log

Project:

Date:

Project Number:

Latitude:

Longitude:

Sample ID	PID/Odor	Chloride Conc.	GPS
SP1 @ Sur	2.0	2184	
SP1 @ 1	2.4	2040	
SP1 @ 2	6.2	1372	
SP1 @ 3	4.0	592	
SP1 @ 4	5.6	1116	
SP2 @ Sur	8.0	2516	
SP2 @ 1	3.4	440	
SP2 @ Sur	7.8	2340	
SP2 @ 1	4.6	768	
SP2 @ 2	4.2	648	
SP3 @ 3	Ref	Refusal	
SP4 @ Sur		2516	
SP4 @ 1		2340	
SP4 @ 2		768	
SP4 @ 3		964	
SP4 @ 4		312	
SP5 @ Sur		2516	
SP5 @ 1		2516	
SP5 @ 2	Ref	Ref	
SP6 @ Sur		2516	
SP6 @ 1		312	
SP7 @ Sur		72516	
SP7 @ 1		920	
SP7 @ 2		352	
SP8 @ Sur		2256	
SP8 @ 1		122	
SP9 @ Sur	6.8	1672	
SP9 @ 1	3.0	352	
SP12 @ Sur	28.0	2516	
SP12 @ 1	2.6	276	
SP10 @ Sur	7.8	2340	
SP10 @ 1	3.8	540	
SP11 @ Sur	7.4	2040	
SP11 @ 1	3.8	540	
SP13 @ Sur	8.0	72516	
SP13 @ 1	3.8	540	

Sample Point = SP #1 @ #1 etc

Floor = FL #1 etc

Sidewall = SW #1 etc

Test Trench = TT #1 @ #1

Refusal = SP #1 @ 4' R

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

Resamples = SP #1 @ 5b

Stockpile = Stockpile

GPS Sample Points, Center



### Sample Log

## Abstract

## Conclusions

Project Number:

### Discussion

## Weighted

[illegible]

Test Trench = TT #1. @ 00

### References

100

Received by OGD: 9/9/2025 4:23:00 PM


Example Point = SP #1 @ 00 etc




## **Appendix C**


### **Photographic Log**


Photographic Log

<b>Photo Number:</b> 1	
<b>Photo Direction:</b> Southeast	
<b>Date:</b> 7/19/2025	
<b>Coordinates:</b> 32.052844,-103.676771	
<b>Photo Description:</b>  Release point.	

<b>Photo Number:</b> 2	
<b>Photo Direction:</b> East	
<b>Date:</b> 7/19/2025	
<b>Coordinates:</b> 32.052879,-103.677009	
<b>Photo Description:</b>  View of the affected area.	

## Photographic Log

<b>Photo Number:</b> 3		
<b>Photo Direction:</b> Southeast		
<b>Date:</b> 7/19/2025		
<b>Coordinates:</b> 32.052916,-103.676553		
<b>Photo Description:</b>  View of the affected area.		

<b>Photo Number:</b> 4		
<b>Photo Direction:</b> South		
<b>Date:</b> 7/19/2025		
<b>Coordinates:</b> 32.052925,-103.676276		
<b>Photo Description:</b>  View of the affected area.		

## **Appendix D**

### **Laboratory Analytical Reports**



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

August 05, 2025

LANCE CRENSHAW

Etech Environmental & Safety Solutions

2617 W MARLAND

HOBBS, NM 88240

RE: RED HILLS WEST UNIT 27

Enclosed are the results of analyses for samples received by the laboratory on 07/30/25 14:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C25-00101. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 2 @ SUR (H254635-01)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEx	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.7 % 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	8800	16.0	07/31/2025	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	07/31/2025	ND	201	101	200	2.32	
DRO >C10-C28*	16.9	10.0	07/31/2025	ND	188	94.1	200	1.82	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 100 % 44.4-145

Surrogate: 1-Chlorooctadecane 98.4 % 40.6-153

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:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 2 @ 1' (H254635-02)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEX	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.1 % 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	96.0	16.0	07/31/2025	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	07/31/2025	ND	201	101	200	2.32	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	188	94.1	200	1.82	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 97.2 % 44.4-145

Surrogate: 1-Chlorooctadecane 94.0 % 40.6-153

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:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 4 @ SUR (H254635-03)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEx	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.3 % 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	7330	16.0	07/31/2025	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	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	26.3	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 82.9 % 44.4-145

Surrogate: 1-Chlorooctadecane 88.5 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager





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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 4 @ 4' (H254635-04)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEx	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.4 % 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	208	16.0	07/31/2025	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	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 72.9 % 44.4-145

Surrogate: 1-Chlorooctadecane 73.4 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 6 @ SUR (H254635-05)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22	
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17	
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161	
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127	
Total BTEX	<0.300	0.300	07/31/2025	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.9 % 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	8000	16.0	07/31/2025	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	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 83.1 % 44.4-145

Surrogate: 1-Chlorooctadecane 84.1 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 6 @ 1' (H254635-06)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEX	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.2 % 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	160	16.0	07/31/2025	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	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 81.4 % 44.4-145

Surrogate: 1-Chlorooctadecane 82.4 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 7 @ SUR (H254635-07)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEx	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.8 % 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	8930	16.0	07/31/2025	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	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 85.0 % 44.4-145

Surrogate: 1-Chlorooctadecane 85.9 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 7 @ 2' (H254635-08)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEx	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.4 % 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	272	16.0	07/31/2025	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	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 89.1 % 44.4-145

Surrogate: 1-Chlorooctadecane 90.0 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 8 @ SUR (H254635-09)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEX	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.6 % 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	1860	16.0	07/31/2025	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	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 75.9 % 44.4-145

Surrogate: 1-Chlorooctadecane 75.5 % 40.6-153

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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 8 @ 1' (H254635-10)**

BTX 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	07/31/2025	ND	1.86	93.0	2.00	3.22	
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17	
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161	
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127	
Total BTX	<0.300	0.300	07/31/2025	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.5 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 85.5 % 44.4-145

Surrogate: 1-Chlorooctadecane 86.6 % 40.6-153

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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 9 @ SUR (H254635-11)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEx	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.3 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	7680	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 86.2 % 44.4-145

Surrogate: 1-Chlorooctadecane 87.3 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 9 @ 1' (H254635-12)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEx	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.8 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: KH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	07/31/2025	ND	416	104	400	7.41	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 84.3 % 44.4-145

Surrogate: 1-Chlorooctadecane 84.8 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 10 @ SUR (H254635-13)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEX	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.8 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	7920	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 80.6 % 44.4-145

Surrogate: 1-Chlorooctadecane 81.8 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 10 @ 1' (H254635-14)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEx	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.3 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: KH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	07/31/2025	ND	416	104	400	7.41	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 83.3 % 44.4-145

Surrogate: 1-Chlorooctadecane 83.6 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 11 @ SUR (H254635-15)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEX	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.7 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	8320	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 84.4 % 44.4-145

Surrogate: 1-Chlorooctadecane 85.8 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 11 @ 1' (H254635-16)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEX	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.9 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	07/31/2025	ND	416	104	400	7.41	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 86.0 % 44.4-145

Surrogate: 1-Chlorooctadecane 87.4 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 12 @ SUR (H254635-17)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22		
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127		
Total BTEX	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.1 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5360	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 84.3 % 44.4-145

Surrogate: 1-Chlorooctadecane 84.9 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager





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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 12 @ 1' (H254635-18)**

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	07/31/2025	ND	1.86	93.0	2.00	3.22	
Toluene*	<0.050	0.050	07/31/2025	ND	1.91	95.4	2.00	1.17	
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	1.91	95.5	2.00	0.161	
Total Xylenes*	<0.150	0.150	07/31/2025	ND	5.65	94.2	6.00	0.127	
Total BTEX	<0.300	0.300	07/31/2025	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.4 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 86.6 % 44.4-145

Surrogate: 1-Chlorooctadecane 87.4 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 13 @ SUR (H254635-19)**

BTX 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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTX	<0.300	0.300	07/31/2025	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	10100	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 85.0 % 44.4-145

Surrogate: 1-Chlorooctadecane 85.7 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 13 @ 1' (H254635-20)**

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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTEX	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: KH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	656	16.0	07/31/2025	ND	416	104	400	7.41	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 83.8 % 44.4-145

Surrogate: 1-Chlorooctadecane 84.4 % 40.6-153

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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:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 14 @ SUR (H254635-21)**

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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTEX	<0.300	0.300	07/31/2025	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	6240	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	28.6	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 87.2 % 44.4-145

Surrogate: 1-Chlorooctadecane 89.9 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 14 @ 1' (H254635-22)**

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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTEx	<0.300	0.300	07/31/2025	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	208	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	178	89.0	200	2.55	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	198	98.8	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 85.8 % 44.4-145

Surrogate: 1-Chlorooctadecane 86.4 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 15 @ SUR (H254635-23)**

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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTEX	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 107 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6000	16.0	07/31/2025	ND	416	104	400	7.41	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	182	90.8	200	0.777	
DRO >C10-C28*	10.4	10.0	07/31/2025	ND	180	90.1	200	0.906	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 82.6 % 44.4-145

Surrogate: 1-Chlorooctadecane 80.4 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 15 @ 1' (H254635-24)**

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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTEX	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	182	90.8	200	0.777	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	180	90.1	200	0.906	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 77.5 % 44.4-145

Surrogate: 1-Chlorooctadecane 73.4 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 16 @ SUR (H254635-25)**

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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTEx	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 114 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	9360	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	182	90.8	200	0.777	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	180	90.1	200	0.906	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 79.8 % 44.4-145

Surrogate: 1-Chlorooctadecane 76.4 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 16 @ 1' (H254635-26)**

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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTEX	<0.300	0.300	07/31/2025	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	07/31/2025	ND	416	104	400	7.41	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	182	90.8	200	0.777	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	180	90.1	200	0.906	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 85.8 % 44.4-145

Surrogate: 1-Chlorooctadecane 81.6 % 40.6-153

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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: NH 1 @ SUR (H254635-27)**

BTX 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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTX	<0.300	0.300	07/31/2025	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	176	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	182	90.8	200	0.777	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	180	90.1	200	0.906	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 82.9 % 44.4-145

Surrogate: 1-Chlorooctadecane 79.4 % 40.6-153

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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: NH 1 @ 1' (H254635-28)**

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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTEx	<0.300	0.300	07/31/2025	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	416	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	182	90.8	200	0.777	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	180	90.1	200	0.906	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 78.4 % 44.4-145

Surrogate: 1-Chlorooctadecane 73.5 % 40.6-153

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:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: EH 1 @ SUR (H254635-29)**

BTX 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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTX	<0.300	0.300	07/31/2025	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	07/31/2025	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/31/2025	ND	182	90.8	200	0.777	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	180	90.1	200	0.906	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 76.3 % 44.4-145

Surrogate: 1-Chlorooctadecane 70.9 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: EH 1 @ 1' (H254635-30)**

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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTEX	<0.300	0.300	07/31/2025	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	496	16.0	07/31/2025	ND	448	112	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	07/31/2025	ND	182	90.8	200	0.777	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	180	90.1	200	0.906	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 82.1 % 44.4-145

Surrogate: 1-Chlorooctadecane 77.0 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SH 1 @ SUR (H254635-31)**

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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTEx	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 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	224	16.0	07/31/2025	ND	448	112	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	07/31/2025	ND	182	90.8	200	0.777	
DRO >C10-C28*	12.1	10.0	07/31/2025	ND	180	90.1	200	0.906	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 81.5 % 44.4-145

Surrogate: 1-Chlorooctadecane 77.6 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager





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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SH 1 @ 1' (H254635-32)**

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	07/31/2025	ND	1.95	97.5	2.00	6.08		
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30		
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81		
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97		
Total BTEx	<0.300	0.300	07/31/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 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	80.0	16.0	07/31/2025	ND	448	112	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	07/31/2025	ND	182	90.8	200	0.777	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	180	90.1	200	0.906	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 85.1 % 44.4-145

Surrogate: 1-Chlorooctadecane 80.7 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: WH 1 @ SUR (H254635-33)**

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	07/31/2025	ND	1.95	97.5	2.00	6.08	
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30	
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81	
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97	
Total BTEx	<0.300	0.300	07/31/2025	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 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	304	16.0	07/31/2025	ND	448	112	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	07/31/2025	ND	182	90.8	200	0.777	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	180	90.1	200	0.906	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 79.3 % 44.4-145

Surrogate: 1-Chlorooctadecane 75.8 % 40.6-153

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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 07/30/2025  
 Reported: 08/05/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 07/29/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: WH 1 @ 1' (H254635-34)**

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	07/31/2025	ND	1.95	97.5	2.00	6.08	
Toluene*	<0.050	0.050	07/31/2025	ND	2.01	100	2.00	4.30	
Ethylbenzene*	<0.050	0.050	07/31/2025	ND	2.02	101	2.00	3.81	
Total Xylenes*	<0.150	0.150	07/31/2025	ND	6.05	101	6.00	2.97	
Total BTEX	<0.300	0.300	07/31/2025	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	176	16.0	07/31/2025	ND	448	112	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	07/31/2025	ND	182	90.8	200	0.777	
DRO >C10-C28*	<10.0	10.0	07/31/2025	ND	180	90.1	200	0.906	
EXT DRO >C28-C36	<10.0	10.0	07/31/2025	ND					

Surrogate: 1-Chlorooctane 79.7 % 44.4-145

Surrogate: 1-Chlorooctadecane 74.9 % 40.6-153

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Celey D. Keene, Lab Director/Quality Manager



---

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---

### Notes and Definitions

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

---

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A handwritten signature in black ink, appearing to read "C. D. Keene", is written over a horizontal line.

Celey D. Keene, Lab Director/Quality Manager

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


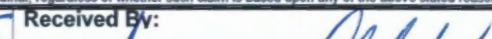

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 4

Page 37 of 40

[illegible]

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Relinquished By: 		Date: 7-30-25		Received By: 		Verbal Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Add'l Phone #:	
		Time: 1450				All Results are emailed. Please provide Email address: <a href="mailto:pm@etechnv.com">pm@etechnv.com</a>	
Relinquished By:		Date:		Received By:		REMARKS:	
		Time:					
Delivered By: (Circle One)		Observed Temp. °C -7.0		Sample Condition		Turnaround Time: Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/>	
Sampler - UPS - Bus - Other:		Corrected Temp. °C -6.7		Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>		Bacteria (only) Sample Condition	
				CHECKED BY: (Initials) 		Cool <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	
						Thermometer ID #140 Correction Factor -0.6 to +0.3	
						Observed Temp. °C Corrected Temp. °C	





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

# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 2 of 4

Page 38 of 40

<b>Company Name:</b> Etech Environmental & Safety Solutions, Inc.				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>																							
<b>Project Manager:</b> Lance Crenshaw				<b>P.O. #:</b>				<div style="display: flex; justify-content: space-around;"> <div>Chloride</div> <div>TPH (8015M)</div> <div>BTEX (8021B)</div> </div>																							
<b>Address:</b> 2617 West Marland				<b>Company:</b> Mewbourne Oil Company																											
<b>City:</b> Hobbs		<b>State:</b> NM		<b>Zip:</b> 88240		<b>Attn:</b> Connor Walker																									
<b>Phone #:</b> (575) 264-9884		<b>Fax #:</b>		<b>Address:</b>		<b>City:</b>																									
<b>Project #:</b> 22714		<b>Project Owner:</b> Mewbourne Oil Company		<b>State:</b>		<b>Zip:</b>																									
<b>Project Name:</b> Red Hills West Unit 27				<b>Phone #:</b>																											
<b>Project Location:</b> 32.052347, -103.676651				<b>Fax #:</b>																											
<b>Sampler Name:</b> Alyxis Sanchez																															
<b>FOR LAB USE ONLY</b>		<b>Lab I.D.</b>		<b>Sample I.D.</b>		<b>(G)RAB OR (C)OMP.</b>		<b># CONTAINERS</b>		<b>MATRIX</b>		<b>PRESERV.</b>		<b>SAMPLING</b>																	
										GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER:		ACID/BASE: ICE / COOL OTHER:		DATE		TIME															
#254035																															
11		SP 9 @ Sur				G 1										7/29/25															
12		SP 9 @ 1'				G 1										7/29/25															
13		SP 10 @ Sur				G 1										7/29/25															
14		SP 10 @ 1'				G 1										7/29/25															
15		SP 11 @ Sur				G 1										7/29/25															
16		SP 11 @ 1'				G 1										7/29/25															
17		SP 12 @ Sur				G 1										7/29/25															
18		SP 12 @ 1'				G 1										7/29/25															
19		SP 13 @ Sur				G 1										7/29/25															
20		SP 13 @ 1'				G 1										7/29/25															

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.

<b>Relinquished By:</b>		<b>Date:</b> 7-30-25		<b>Received By:</b>		<b>Verbal Result:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Add'l Phone #:</b>	
		<b>Time:</b> 1450				All Results are emailed. Please provide Email address:		<a href="mailto:pm@etechenv.com">pm@etechenv.com</a>	
<b>Relinquished By:</b>		<b>Date:</b>		<b>Received By:</b>		<b>REMARKS:</b>			
<b>Time:</b>									
<b>Delivered By: (Circle One)</b>		<b>Observed Temp. °C</b>		<b>Sample Condition</b>		<b>CHECKED BY:</b>		<b>Turnaround Time:</b>	
Sampler - UPS - Bus - Other:		-7.0		Cool Intact		(Initials)		Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/>	
		-6.7		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No				Thermometer ID #140	
								Correction Factor -0.6°C	
								Bacteria (only) Sample Condition Cool Intact Observed Temp. °C <input type="checkbox"/> Yes <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No Corrected Temp. °C	





# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Page 3 of 4

<b>Company Name:</b> Etech Environmental & Safety Solutions, Inc.				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>											
<b>Project Manager:</b> Lance Crenshaw				<b>P.O. #:</b>				<div style="display: flex; justify-content: space-around;"> <div>Chloride</div> <div>TPH (8015M)</div> <div>BTEX (8021B)</div> </div>											
<b>Address:</b> 2617 West Marland				<b>Company:</b> Mewbourne Oil Company															
<b>City:</b> Hobbs <b>State:</b> NM <b>Zip:</b> 88240				<b>Attn:</b> Connor Walker															
<b>Phone #:</b> (575) 264-9884 <b>Fax #:</b>				<b>Address:</b>															
<b>Project #:</b> 22714 <b>Project Owner:</b> Mewbourne Oil Company				<b>City:</b>															
<b>Project Name:</b> Red Hills West Unit 27				<b>State:</b> <b>Zip:</b>															
<b>Project Location:</b> 32.052347, -103.676651				<b>Phone #:</b>															
<b>Sampler Name:</b> Alyxis Sanchez				<b>Fax #:</b>															
<b>FOR LAB USE ONLY</b>		<b>Lab I.D.</b>		<b>Sample I.D.</b>		<b>(G)RAB OR (C)OMP.</b>		<b># CONTAINERS</b>		<b>MATRIX</b>				<b>PRESERV.</b>		<b>SAMPLING</b>			
										GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER:				ACID/BASE: ICE / COOL OTHER:		DATE TIME			
H254035																			
21		SP 14 @ Sur		G		1						X		7/29/25		X			
22		SP 14 @ 1'		G		1						X		7/29/25		X			
23		SP 15 @ Sur		G		1						X		7/29/25		X			
24		SP 15 @ 1'		G		1						X		7/29/25		X			
25		SP 16 @ Sur		G		1						X		7/29/25		X			
26		SP 16 @ 1'		G		1						X		7/29/25		X			
27		NH 1 @ Sur		G		1						X		7/29/25		X			
28		NH 1 @ 1'		G		1						X		7/29/25		X			
29		EH 1 @ Sur		G		1						X		7/29/25		X			
30		EH 1 @ 1'		G		1						X		7/29/25		X			

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.

<b>Relinquished By:</b>		<b>Date:</b> 7-30-25		<b>Received By:</b>		<b>Verbal Result:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <b>Add'l Phone #:</b>	
		<b>Time:</b> 1450				<b>All Results are emailed. Please provide Email address:</b> <a href="mailto:pm@etechenv.com">pm@etechenv.com</a>	
<b>Relinquished By:</b>		<b>Date:</b>		<b>Received By:</b>		<b>REMARKS:</b>	
<b>Time:</b>							
<b>Delivered By: (Circle One)</b>		<b>Observed Temp. °C</b> -7.0		<b>Sample Condition</b>		<b>TURNAROUND TIME:</b> <b>Standard</b> <input checked="" type="checkbox"/> <b>Rush</b> <input type="checkbox"/>	
<b>Sampler - UPS - Bus - Other:</b>		<b>Corrected Temp. °C</b> -6.7		Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Bacteria (only) Sample Condition Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	
				<b>CHECKED BY:</b> (Initials)		Thermometer ID #140 Correction Factor -0.3°C +0.3°C	
						Turnaround Time: <b>Standard</b> <input checked="" type="checkbox"/> <b>Rush</b> <input type="checkbox"/> Thermometer ID #140 Correction Factor -0.3°C +0.3°C	





**CARDINAL**  
Laboratories

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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 4 of 4

Page 40 of 40

[illegible]

**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: <i>Matt Mu</i>		Date: <i>7-30-25</i>	Received By: <i>Jamara Alderson</i>	Verbal Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Add'l Phone #: <i>pm@etechenv.com</i>
		Time: <i>1450</i>		All Results are emailed. Please provide Email address: <a href="mailto:pm@etechenv.com">pm@etechenv.com</a>
Relinquished By:		Date:	Received By:	REMARKS:
		Time:		
Delivered By: (Circle One)	Observed Temp. °C <i>= 7.0</i>	Sample Condition	CHECKED BY: (Initials) <i>JD</i>	Turnaround Time: <b>Standard</b> <input checked="" type="checkbox"/> <b>Rush</b> <input type="checkbox"/>
Sampler - UPS - Bus - Other:	Corrected Temp. °C <i>= 6.7</i>	<input checked="" type="checkbox"/> Cool <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No		Bacteria (only) Sample Condition Cool Intact Observed Temp. °C <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No Thermometer ID #140 Correction Factor <i>-0.3</i> <input checked="" type="checkbox"/> <i>+0.3</i> <input type="checkbox"/>



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

August 11, 2025

LANCE CRENSHAW

Etech Environmental & Safety Solutions

2617 W MARLAND

HOBBS, NM 88240

RE: RED HILLS WEST UNIT 27

Enclosed are the results of analyses for samples received by the laboratory on 08/05/25 14:51.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C25-00101. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 08/05/2025  
 Reported: 08/11/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 08/05/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: SP 1 @ 5' (H254781-01)**

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	08/06/2025	ND	1.95	97.3	2.00	2.79		
Toluene*	<0.050	0.050	08/06/2025	ND	1.96	97.8	2.00	1.92		
Ethylbenzene*	<0.050	0.050	08/06/2025	ND	1.97	98.3	2.00	2.68		
Total Xylenes*	<0.150	0.150	08/06/2025	ND	5.97	99.5	6.00	2.66		
Total BTEx	<0.300	0.300	08/06/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	304	16.0	08/07/2025	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/06/2025	ND	204	102	200	5.43	
DRO >C10-C28*	<10.0	10.0	08/06/2025	ND	199	99.6	200	4.43	
EXT DRO >C28-C36	<10.0	10.0	08/06/2025	ND					

Surrogate: 1-Chlorooctane 102 % 44.4-145

Surrogate: 1-Chlorooctadecane 104 % 40.6-153

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:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 08/05/2025  
 Reported: 08/11/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 08/05/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: SP 3 @ 3' (H254781-02)**

BTX 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	08/06/2025	ND	1.95	97.3	2.00	2.79		
Toluene*	<0.050	0.050	08/06/2025	ND	1.96	97.8	2.00	1.92		
Ethylbenzene*	<0.050	0.050	08/06/2025	ND	1.97	98.3	2.00	2.68		
Total Xylenes*	<0.150	0.150	08/06/2025	ND	5.97	99.5	6.00	2.66		
Total BTX	<0.300	0.300	08/06/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	08/07/2025	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/06/2025	ND	204	102	200	5.43	
DRO >C10-C28*	<10.0	10.0	08/06/2025	ND	199	99.6	200	4.43	
EXT DRO >C28-C36	<10.0	10.0	08/06/2025	ND					

Surrogate: 1-Chlorooctane 100 % 44.4-145

Surrogate: 1-Chlorooctadecane 108 % 40.6-153

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:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 08/05/2025  
 Reported: 08/11/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 08/05/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: SP 5 @ 2' (H254781-03)**

BTX 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	08/06/2025	ND	1.95	97.3	2.00	2.79		
Toluene*	<0.050	0.050	08/06/2025	ND	1.96	97.8	2.00	1.92		
Ethylbenzene*	<0.050	0.050	08/06/2025	ND	1.97	98.3	2.00	2.68		
Total Xylenes*	<0.150	0.150	08/06/2025	ND	5.97	99.5	6.00	2.66		
Total BTX	<0.300	0.300	08/06/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	192	16.0	08/07/2025	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/06/2025	ND	204	102	200	5.43	
DRO >C10-C28*	<10.0	10.0	08/06/2025	ND	199	99.6	200	4.43	
EXT DRO >C28-C36	<10.0	10.0	08/06/2025	ND					

Surrogate: 1-Chlorooctane 109 % 44.4-145

Surrogate: 1-Chlorooctadecane 110 % 40.6-153

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

---

### 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

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A handwritten signature in black ink, appearing to read "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

Page 1 of 1

Page 6 of 6

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Relinquished By: <i>M. M. M.</i>		Date: <i>8-5-25</i>		Received By: <i>S. Rodriguez</i>		Verbal Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #:	
		Time: <i>1451</i>				All Results are emailed. Please provide Email address: <a href="mailto:pm@etechenv.com">pm@etechenv.com</a>	
Relinquished By:		Date:		Received By:		REMARKS:	
		Time:					
Delivered By: (Circle One)		Observed Temp. °C <i>-6.1</i>		Sample Condition		CHECKED BY: (Initials) <i>SR</i>	
Sampler - UPS - Bus - Other:		Corrected Temp. °C <i>-5.8</i>		Cool <input type="checkbox"/> Intact <input type="checkbox"/>		Turnaround Time: Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/>	
				Cool <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>		Bacteria (only) Sample Condition	
						Cool <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Observed Temp. °C	
						Corrected Temp. °C	





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

August 15, 2025

LANCE CRENSHAW

Etech Environmental & Safety Solutions

2617 W MARLAND

HOBBS, NM 88240

RE: RED HILLS WEST UNIT 27

Enclosed are the results of analyses for samples received by the laboratory on 08/11/25 16:34.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C25-00101. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 08/11/2025  
 Reported: 08/15/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 08/08/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Alyssa Parras

**Sample ID: SP 1 @ SUR (H254932-01)**

BTX 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	08/13/2025	ND	1.72	85.9	2.00	5.27		
Toluene*	<0.050	0.050	08/13/2025	ND	1.84	92.0	2.00	5.79		
Ethylbenzene*	<0.050	0.050	08/13/2025	ND	1.89	94.5	2.00	6.04		
Total Xylenes*	<0.150	0.150	08/13/2025	ND	5.86	97.7	6.00	7.14		
Total BTX	<0.300	0.300	08/13/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5760	16.0	08/13/2025	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/13/2025	ND	204	102	200	2.43	
DRO >C10-C28*	252	10.0	08/13/2025	ND	185	92.3	200	1.41	
EXT DRO >C28-C36	64.0	10.0	08/13/2025	ND					

Surrogate: 1-Chlorooctane 76.1 % 44.4-145

Surrogate: 1-Chlorooctadecane 103 % 40.6-153

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\*=Accredited Analyte

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**Analytical Results For:**

Etech Environmental & Safety Solutions  
 LANCE CRENSHAW  
 2617 W MARLAND  
 HOBBS NM, 88240  
 Fax To:

Received: 08/11/2025  
 Reported: 08/15/2025  
 Project Name: RED HILLS WEST UNIT 27  
 Project Number: 22714  
 Project Location: MEWBOURNE 32.052347-103.676651

Sampling Date: 08/08/2025  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Alyssa Parras

**Sample ID: SP 13 @ 2' (H254932-02)**

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	08/13/2025	ND	1.72	85.9	2.00	5.27		
Toluene*	<0.050	0.050	08/13/2025	ND	1.84	92.0	2.00	5.79		
Ethylbenzene*	<0.050	0.050	08/13/2025	ND	1.89	94.5	2.00	6.04		
Total Xylenes*	<0.150	0.150	08/13/2025	ND	5.86	97.7	6.00	7.14		
Total BTEX	<0.300	0.300	08/13/2025	ND						

Surrogate: 4-Bromofluorobenzene (PID) 115 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/13/2025	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/13/2025	ND	204	102	200	2.43	
DRO >C10-C28*	<10.0	10.0	08/13/2025	ND	185	92.3	200	1.41	
EXT DRO >C28-C36	<10.0	10.0	08/13/2025	ND					

Surrogate: 1-Chlorooctane 73.6 % 44.4-145

Surrogate: 1-Chlorooctadecane 73.0 % 40.6-153

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---

### Notes and Definitions

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

---

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

---

Celey D. Keene, Lab Director/Quality Manager



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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

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[illegible]

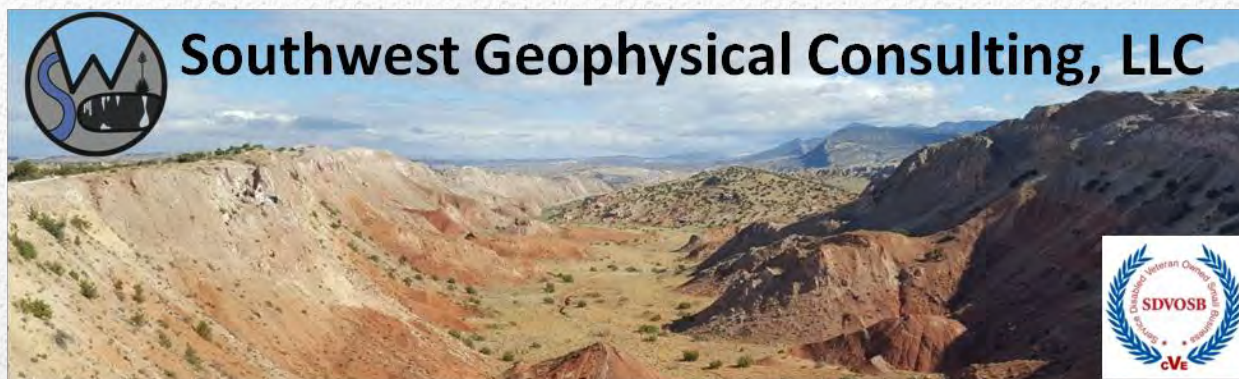
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Relinquished By: <i>Matt</i>		Date: <i>8.11.25</i>	Received By: <i>apans</i>	Verbal Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Add'l Phone #:
		Time: <i>1034</i>		All Results are emailed. Please provide Email address: <a href="mailto:pm@etechenv.com">pm@etechenv.com</a>
Relinquished By:		Date:	Received By:	REMARKS:
		Time:		
Delivered By: (Circle One)	Observed Temp. °C <i>-5.1</i>	Sample Condition	CHECKED BY: (Initials) <i>BP</i>	Turnaround Time: <b>Standard</b> <input checked="" type="checkbox"/> <b>Rush</b> <input type="checkbox"/>
Sampler - UPS - Bus - Other:	Corrected Temp. °C <i>-4.8</i>	<input type="checkbox"/> Cool <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No		Bacteria (only) Sample Condition Cool Intact Observed Temp. °C <input type="checkbox"/> Yes <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No Thermometer ID #140 Correction Factor -0.6°C <i>98.3</i> Corrected Temp. °C



## **Appendix E**

# **Karst Study Report**



# **Environmental Karst Study Report Mewbourne Red Hills West Unit 27 Lea County, New Mexico**

**Prepared For:**  
**eTech Environmental & Safety Solutions, Inc.**  
**6309 Indiana Avenue, Suite D**  
**Lubbock, TX 79413**

- ☐ Positive within 200 feet of spill delineation boundary
- ☒ Negative within 200 feet of spill delineation boundary
- ☒ Stable ☐ Unstable Ground
- ☐ Karst Monitor Recommended

**August 13, 2025**

ETEC-019-20250723

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**MMXXV**

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## 1.0 INTRODUCTION

This report was commissioned by eTech Environmental & Safety Solutions, Inc. (hereinafter referred to as "the client"), on July 23, 2025, for the purpose of conducting an environmental karst study within an area encompassing the Mewbourne Red Hills West Unit 27 release site (hereinafter termed "RH27") centered at N 32.052452° W 103.676397°.

### 1.1 Goals of this Study

The goals of this study are to conduct a surface karst inventory and provide the client with the location and description of any surface karst features located within 200 feet (61 meters) of the spill delineation boundary (as defined by 19.15.29.12 NMAC<sup>[1]</sup>), and to determine whether stable ground exists (as defined by 19.15.2 NMAC Definitions<sup>[2]</sup>) within the spill delineation boundary of the Mewbourne Red Hills West Unit 27 release site as provided by the client via e-mail (1\_GeoMeasure\_2025-07-20-09-36-50\_bmacinfotech.kml) on July 23, 2025, using electrical resistivity imaging<sup>[3]</sup>.

### 1.2 Summary of Findings

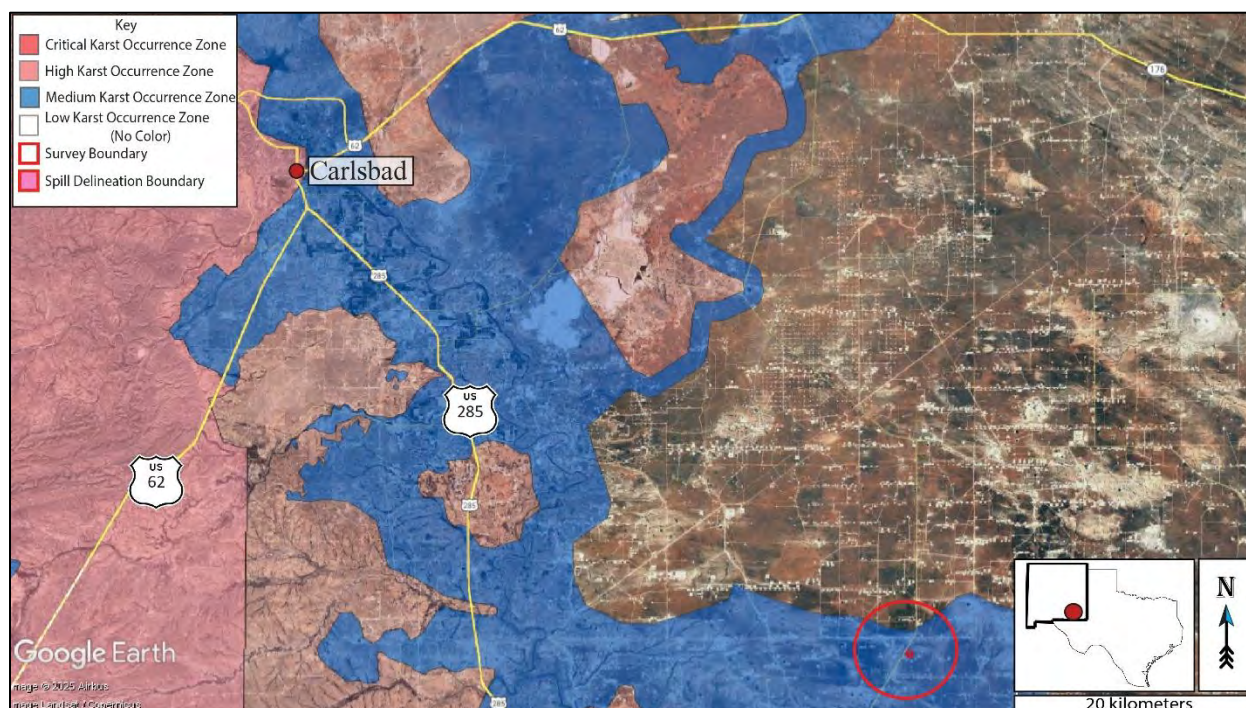
- **No surface karst features exist within the 200-foot (61-meter) perimeter of the spill delineation boundary.**
- **No anomalies consistent with subsurface air- or water-filled voids were found within the RH27 resistivity survey area, indicating the zone beneath the geophysical survey is not subject to collapse.**
- **Well layered stratigraphy is interpreted to exist beneath the area where the geophysical survey was conducted, indicating stable ground.**

### 1.3 Affected Environment

The RH27 project site is located in evaporite karst terrain, a landform that is characterized by underground drainage through solutionally enlarged conduits. Evaporite karst terrain may contain sinkholes, sinking streams, caves, and springs. Sinkholes leading to underground drainages and voids are common. These karst features, as well as occasional fissures and discontinuities in the bedrock, provide the primary sources for rapid recharge of the groundwater aquifers of the region. Additionally, karst may develop by hypogene processes involving dissolution by upwelling fluids from depth independent of recharge from the overlying or immediately adjacent surface. Hypogene karst systems may not be connected to the surface and can remain undiscovered unless encountered during drilling or excavation.

Karst features are delicate resources that are often of geological, hydrological, biological, and archeological importance, and should be protected. The four primary concerns in these types of terrain are environmental issues, worker safety, equipment damage, and infrastructure integrity.

The Bureau of Land Management (BLM) categorizes all areas within the Carlsbad Field Office (CFO) zone of responsibility as having either low, medium, high, or critical cave potential based on geology, occurrence of known caves, density of karst features, and potential impacts to freshwater aquifers<sup>[4]</sup>. These designations are also recognized by the New Mexico State Land Office (NMSLO). This project occurs within a **MEDIUM** karst occurrence zone (MKOZ)<sup>[5]</sup> (**Figure 1**).



**Figure 1: Karst occurrence zone overview.** Background image credit: Google Earth. Image date: December 12, 2023. Image datum: WGS-84.

A medium karst occurrence zone is defined as an area in known soluble rock types that may have a shallow insoluble overburden. These areas may contain isolated karst features such as caves and sinkholes. Groundwater recharge may not be wholly dependent on karst features, but the karst features still provide the most rapid aquifer recharge in response to surface runoff<sup>[4]</sup>.

**Due to the rapidity with which evaporite karst develops, locations within BLM-CFO designated karst occurrence zones must be assessed on an individual basis to determine the existence of surface karst features and the possibility of sub-surface karst development each time a release occurs.**

### **1.4 Limitations of Report**

This report should be read in full. No responsibility is accepted for the use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

This report has been prepared for the use of eTech Environmental & Safety Solutions, Inc., in accordance with generally accepted consulting practices. Every effort has been made to ensure the information in this report is accurate as of the time of its writing. This report has not been prepared for use by parties other than the client, their contracting party, and their respective consulting advisors. It may not contain sufficient information for the purposes of other parties or for other uses.

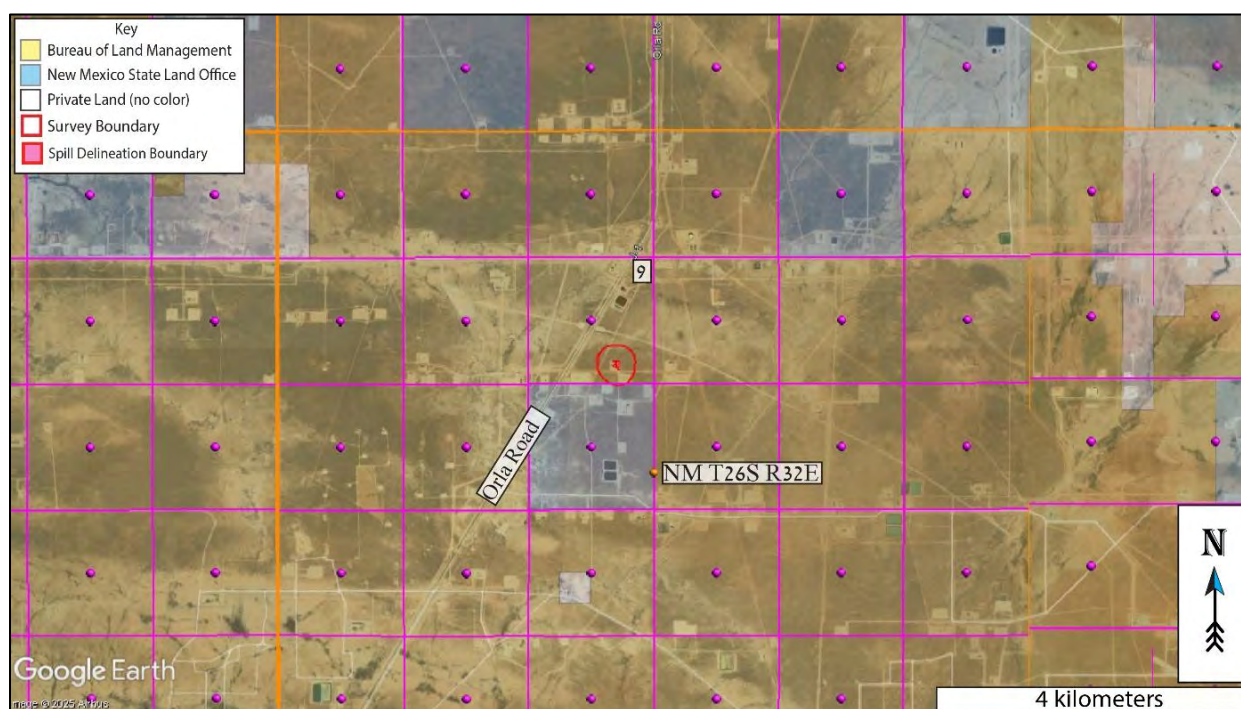
This report was prepared upon completion of the associated fieldwork using a standard template prepared by Southwest Geophysical Consulting and is based on information collected prior to fieldwork, conditions encountered on site, and data collected during the fieldwork and reviewed at the time of preparation. Southwest Geophysical Consulting disclaims responsibility for any changes that might have occurred at the site after this time. The interpreted results, locations, and depths noted in this report (if applicable) should be taken as an interpretation only and no decision should be based solely on this information. Physical verification of aerial imagery analysis results in the field should be conducted prior to using this information for remediation planning. Physical verification of geophysical results using geotechnical methods should be conducted.

To the best of our knowledge, the information contained in this report is accurate at the date of issue. Due to the nature of karst terrain, the information in this report shall not be used beyond two years past the date of the field work provided in section **2.3 Description of Survey**. Large weather events can shorten this time period as areas subject to karst development can rapidly form new features subsequent to these events.

## 2.0 LOCATION AND DESCRIPTION OF STUDY AREA

### 2.1 Description of Site

The site is located 65.8 kilometers (41.1 miles) southeast of Carlsbad, New Mexico, south of Pipeline Road and east of Orla Road. The project site is located within section 9 of NM T26S R32E<sup>[6]</sup> (**Figure 1** and **Figure 2**). The region has flat-lying terrain with karstification occurring in the gypsite soils and underlying gypsum and dolomite bedrock<sup>[7]</sup> (see section **2.2 Local Geology Summary** for further information). The climate in this area of southeast New Mexico is semi-arid with an average annual precipitation of approximately 13 inches, of which about two-thirds falls as rain during summer thunderstorms from June to October. Summers are hot and sunny while winters are generally mild, with an average maximum temperature of 96°F in July and an average minimum temperature of 28°F in January<sup>[8]</sup>. This area is within the Chihuahuan Desert Thornscrub as defined by the Southwestern Regional ReGAP Vegetation map<sup>[9]</sup> and the vegetation consists mostly of areas of blue grama, nine-awned pappus grass, burro grass and low scrub including yucca. The spill delineation boundary is located within an MKOZ<sup>[5]</sup> (**Figure 1**) and within BLM-CFO managed land<sup>[10]</sup> (**Figure 2**).



**Figure 2: Land ownership and PLSS overview.** Background image credit: Google Earth. Image date: December 12, 2023. Image datum: WGS-84.



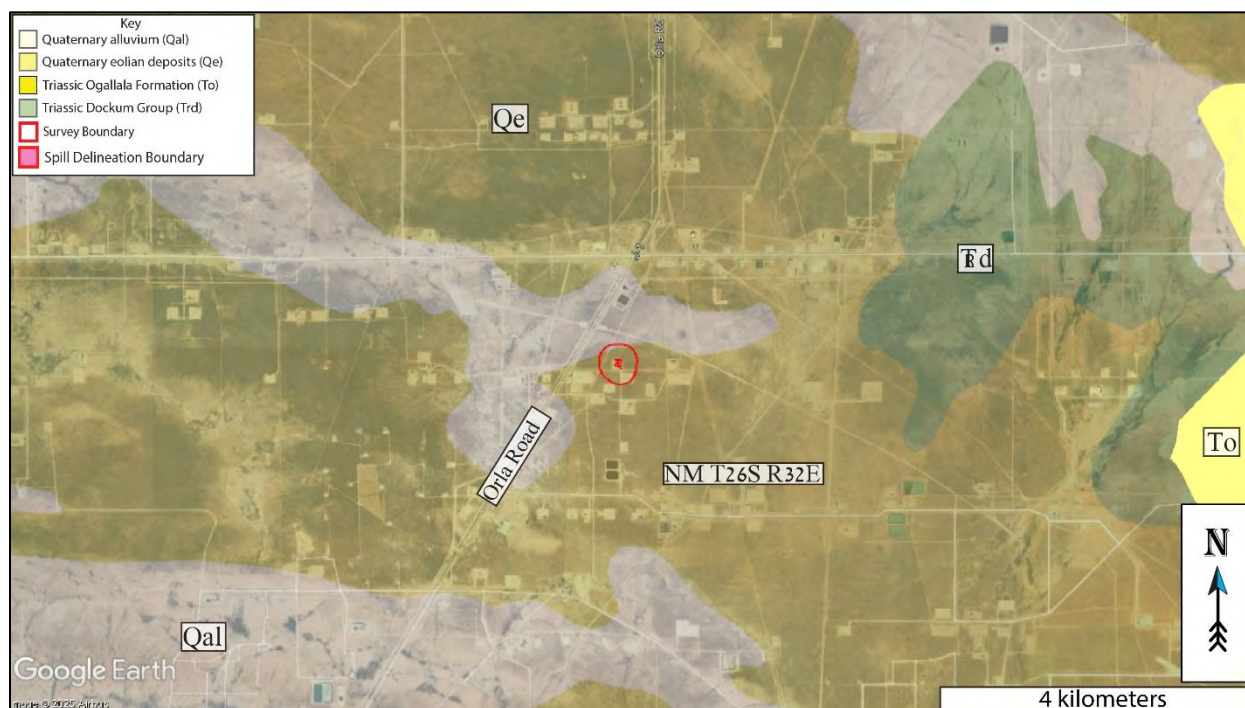
## 2.2 Local Geology Summary

The site for the RH27 survey is located at an elevation of 985 meters (3,231 feet),  $\pm 11$  meters (36 feet), and is located within a region underlain by the Permian Rustler Formation (Pru, not pictured as it does not outcrop in this area). The area is mantled by thin gypsiferous soils (gypsite), Quaternary alluvium (Qal), and eolian deposits (Qe)<sup>[11]</sup> up to 5 meters in depth (**Figure 3**).

The Rustler Formation is an evaporite facies composed mainly of thin siltstones and sandstones interbedded with claystones, dolomite, and gypsum, and contains both karst-forming strata (the Forty-niner and Tamarisk members) and two shallow aquifers (the Magenta and Culebra Dolomite members)<sup>[12]</sup>.

The Pru overlies the Permian Salado Formation (Psl – not shown), a layer of extremely soluble halite which can readily dissolve to create caves, sinkholes, and other karst features; however, due to its extremely soluble nature, only non-soluble silt and sand remain from the dissolution of this layer at the surface<sup>[12]</sup>. The Rustler Formation may be subject to collapse if a void has developed beneath it in the Salado Formation<sup>[13]</sup>.

The survey area is covered by the easily accessible Geologic Map of New Mexico (2003) at 1:500,000 scale<sup>[14]</sup> and the Digital Geologic Map of New Mexico in ARC/INFO Format<sup>[11]</sup>.



**Figure 3: Geology overview.** Geology map credit: The Digital Geologic Map of New Mexico in ARC/INFO Format. Background image credit: Google Earth. Image date: December 12, 2023. Image datum: WGS-84.



## 2.3 Description of Survey

### 2.3.1 Surface Karst Survey

Southwest Geophysical Consulting, in partnership with SWCA Environmental Consultants, provides surface karst surveys using small, uncrewed aerial systems (sUAS) that are flown by qualified, FAA licensed drone pilots and that meet the stringent Bureau of Land Management – Carlsbad Field Office requirements for both pedestrian and aerial karst surveys.

The surface karst survey includes a desk study prior to the flight which allows us to provide client feedback in the event of any previously known karst features in the area. The desk study is performed out to 305 meters (1,000 feet) from the spill delineation boundary per New Mexico Oil Conservation Division guidance<sup>[1]</sup> (**Figure 4**). The study was performed using satellite and aerial imagery from Google Earth Pro dated December 12, 2023 (please note features less than one meter in diameter are generally not visible using this method); the Southwest Geophysical Cave and Karst Database dated August 1, 2025<sup>[15]</sup>; the Puduca Breaks West, 2013, USGS topographic map; and the latest lidar imagery from CalTopo.com. Please note that we use older topographic maps because newer maps have had caves removed from them. These searches and queries returned no results within the survey boundary.

Surface karst surveys are conducted by sUAS at low elevation within 200 meters of the spill delineation boundary<sup>[3]</sup> (**Figure 4**) following a preplanned raster pattern flightpath designed for the purpose of generating at least 75% imagery overlap. The collected high-resolution, georeferenced imagery is stitched together to develop orthomosaic imagery which is further developed into a digital elevation model (DEM); the DEM is then processed into a local relief model (LRM) (**Figure 6**). This LRM is color coded to enhance differences in elevation of as little as five centimeters. The orthoimagery, DEM, and LRM are uploaded to a server where they are analyzed by an experienced karst geologist. Finally, the data is reviewed by a senior karst geologist for quality assurance and downloaded into a table for inclusion in a written report<sup>[16]</sup>.

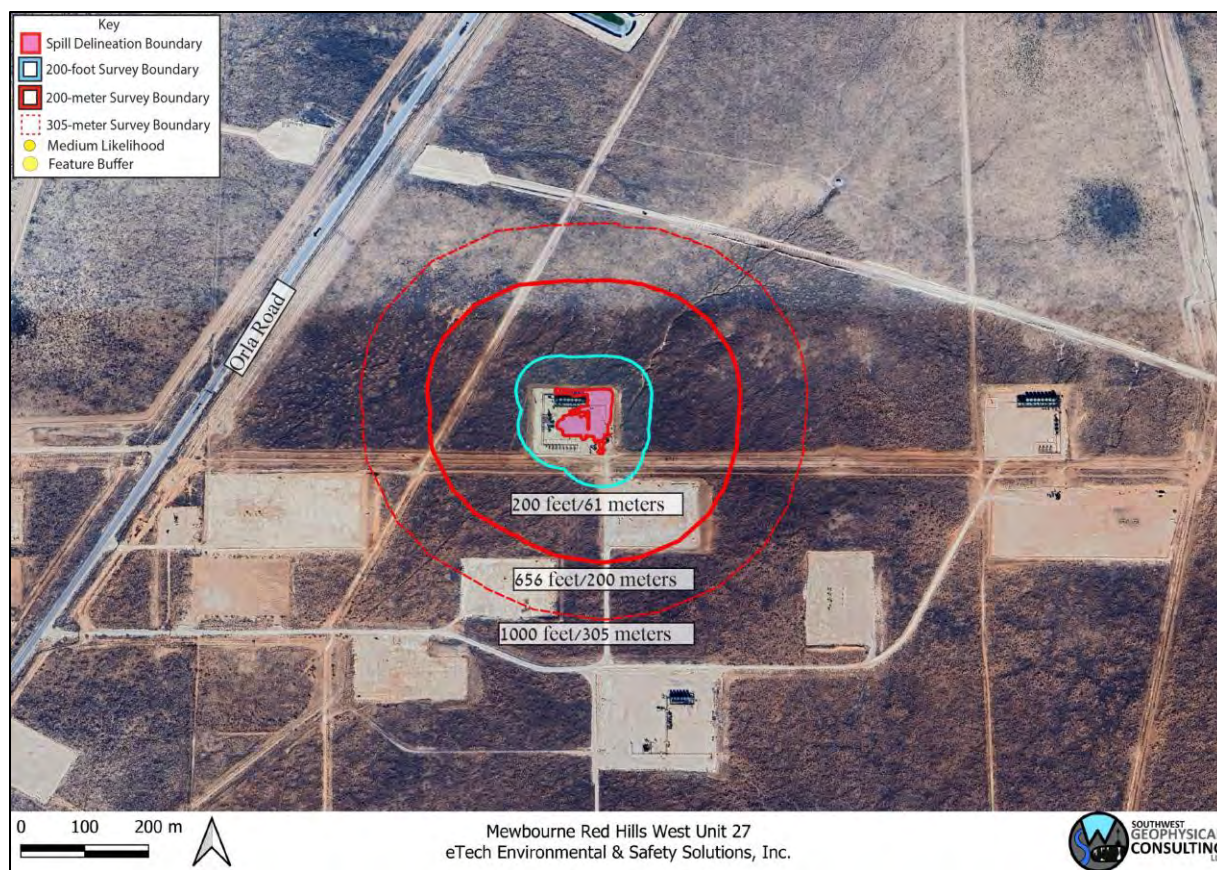


Figure 4: Surface survey overview. Background image credit: Google Earth. Image date: December 12, 2023. Datum: WGS-84.

The resolution of the orthoimagery is clear enough that features as small as 10 centimeters can be positively identified in most circumstances. Occasionally there are ambiguous features identified during an aerial survey that will need to be checked in the field if they are impacted by the proposed remediation efforts. Specifically, it is difficult to tell the difference between solution tubes, abandoned uncased well bores, and some burrows in drone imagery. If an ambiguous feature is located during imagery analysis, it is marked with a yellow dot in **Figure 6**. If a feature of any likelihood is subsequently verified in the field prior to publication of the report, the dot will be changed to a red triangle if confirmed as a karst feature or deleted if not.

The imagery for this study was collected via aerial survey by Pat Lagodney of SWCA on August 4, 2025. Surface karst features may have developed after this date and will not be noted in this report. Imagery analysis was completed by Dave Decker of Southwest Geophysical Consulting on August 5, 2025.



### 2.3.2 Geophysical Survey

For this survey, a Guideline Geo Inc. ABEM Terrameter LS 2, a 28-electrode array of 40-centimeter-long electrodes, and a tablet controller were used to image the subsurface. This survey consisted of two resistivity lines in a dipole-dipole configuration: line RH2701 was laid out south to north, while line RH2702 was laid out east to west. Both RH2701 and RH2702 consisted of 28 electrodes, at 5-meter spacing, resulting in 135-meter-long arrays (**Figure 5, Table 1**). One preconfigured command file was used to run the data collection (DiDi28). The 28-electrode configuration provided a depth of investigation of 27 meters (89 feet), all with a resolution of 2.5 to 3.0 meters (8.2 to 9.8 feet) within the first 5 to 8 meters (16 to 26 feet) from the surface. A Leica GS18 GPS was used to record electrode locations and elevations.



**Figure 5: Geophysical survey overview.** Both RH2701 and RH2702 were conducted with 28 electrodes each: all at 5-meter spacing (yellow dots denoted with blue numbers). Background image credit: Google Earth. Image date: December 12, 2023. Image datum: WGS-84.

**Table 1** provides basic line data. Detailed information for each line including electrode number, location in latitude/longitude (decimal degree format), and elevation in meters can be found in the accompanying data files.

**Table 1: Survey Line Data Table.** The RH27\_ERI\_Points.kmz file contains all the points for the survey line listed in the file name. These data are available in the accompanying file ETEC-019-20250723\_RH27\_Data\_Files.kmz.

File Name:	Completed By:	Date:
RH2701.kmz	Steven Kesler – Senior Field Geologist Kat Knight – Field Geologist	8/4/2025
RH2702.kmz	Michael Jones – Field Geologist Aaron Beirl – Field Geologist	

EarthImager™ 2D software was used to download and process the data and to provide the model used to make our interpretations. The design of the survey and the orientation of each of the lines provides the information necessary to make the determination of “stable” or “unstable” ground at this site.

A typical starting model was used for the data processing due to the two-layer model of the geology in the area; specifically, generally high-resistivity gypsum and dolomite at the surface and low-resistivity saturated gypsum and dolomite bedrock at depth. The starting model used was “average apparent resistivity” and a default inversion setting of “surface,” with a minimum apparent resistivity set to 0.1 Ohm-meters (Ohm-m or  $\Omega$ -m) and a max apparent resistivity set to 100,000  $\Omega$ -m (**Table 2**).

**Table 2: Software Information and Settings**

Software Name:	EarthImager™ 2D
Version:	2.4.4.649
Starting Model:	Average Apparent Resistivity
Default Inversion Settings:	Surface
Changes to Default Inversion Settings:	Max Apparent Resistivity = 100 k $\Omega$ -m Min Apparent Resistivity = 0.1 $\Omega$ -m

**Note:** Raw data files (.stg files for EarthImager™ 2D) and processed data (.trn files, terrain files for surface correction in EarthImager™ 2D and .out files, the processed .stg files) are available upon request.

All field work, including setup, stow, and travel, was completed by Steven Kessler, Kat Knight, Michael Jones, and Aaron Beirl on August 4, 2025.



### 3.0 RESULTS

#### 3.1 Surface Karst Survey

No surface karst features were located within the 200-foot (61-meter)<sup>[1]</sup> survey boundary during the desk study or surface karst survey.

No springs exist within the 1,000-foot (305-meter)<sup>[1]</sup> survey boundary.

The lack of surface karst features does not mean the area is not karstified and the survey area may still contain buried karst features. Caution should be exercised while clearing brush and during any excavation, trenching, or construction operations. Employing a BLM-CFO approved karst monitor on site during these operations should be considered.

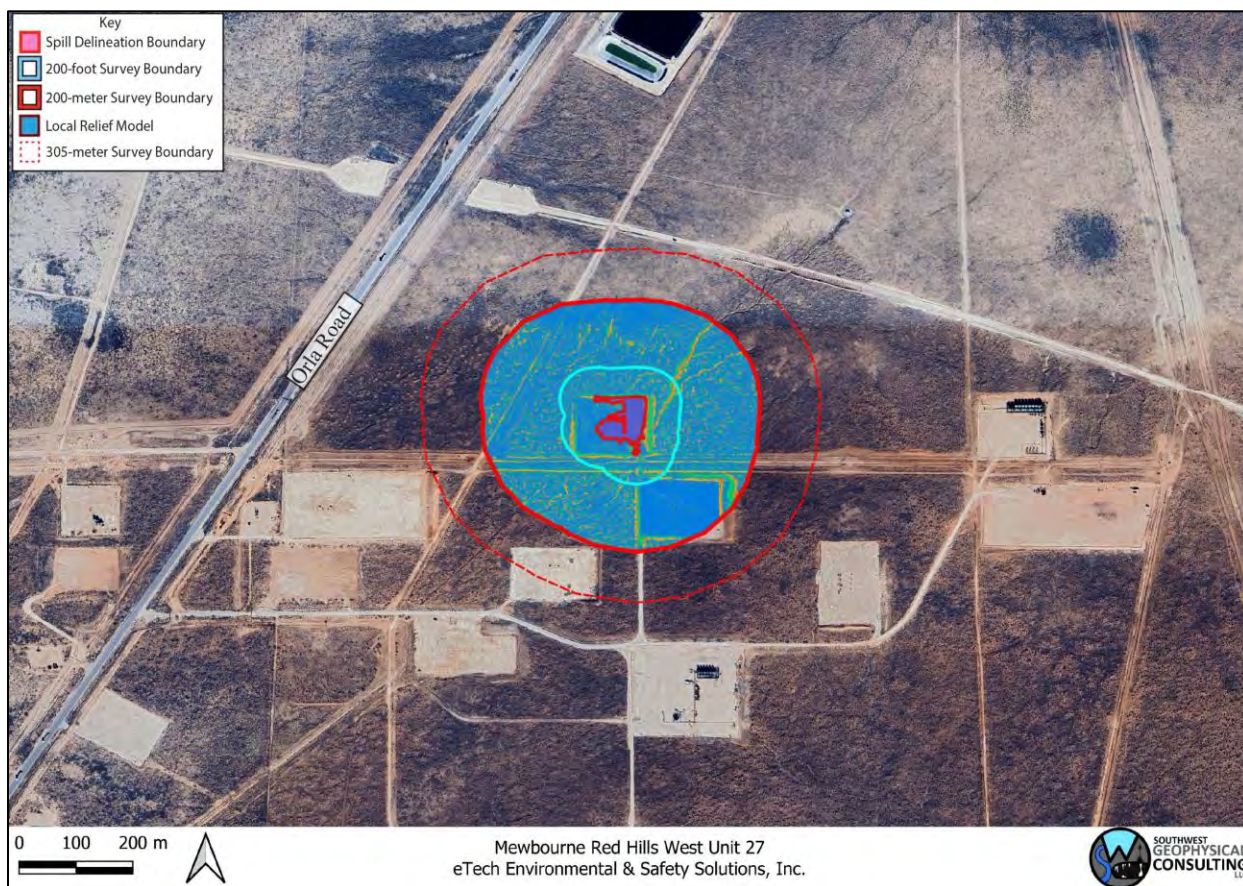


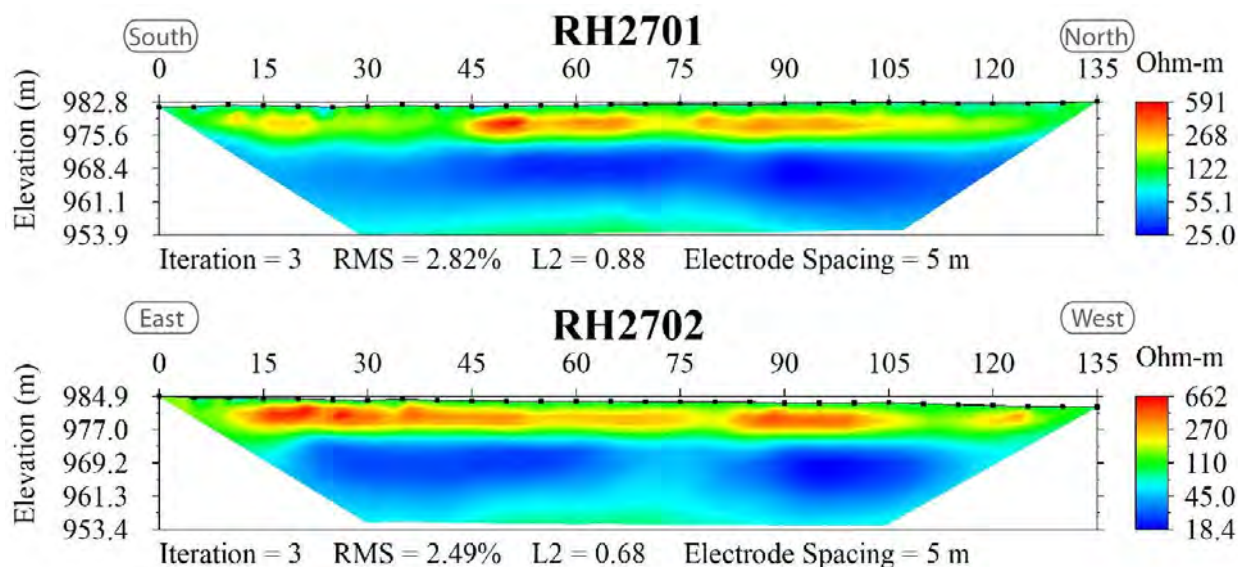
Figure 6: Surface karst survey results. Background image credit: Google Earth. Image date: July 14, 2024. Image datum: WGS-84.



### 3.2 Geophysical Survey

Electrical resistivity tomography forms images of the subsurface by causing a current to flow through the rock and soil and then measuring the resistance of these materials as the current flows through them. This measurement is taken many times and the resulting data, once processed, is used to produce a model of the subsurface (**Figure 7**). This model is produced using "non-unique" solutions, which means that there are many models and interpretations which will satisfy the data. Using experience and knowledge of the local geology, a high-confidence model can be established and used to develop an accurate understanding of what lies below the surface. This survey was conducted with the express purpose of locating subsurface voids and does not purport to find paleokarst (old, non-active karst features that have been filled in with sand and sediment) or nascent karst features below the resolution limit of the survey.

The results of this study indicate a moderately well-layered geologic system with resistivities between 18.4 and 662 Ohm-m (**Figure 7**). Please keep in mind when viewing the 2D inverted resistivity sections that color maps can be widely different for each view. Always check the color map located on the right side of the image when viewing the 2D images to ensure you understand the range of resistivities presented. Distances along the top and depths along the left side are in meters. The color map along the right side is in Ohm-m. Due to the nature of the survey, shallower zones have higher resolution between electrodes than deeper zones; therefore, small features at depth will not be visible.



**Figure 7: 2D inverted resistivity sections.** Reds and oranges indicate higher resistivity values. Yellows and greens are medium-resistivity values. Blues are low-resistivity values. Please note that the color scale is relative.

## 4.0 DISCUSSION

No surface karst features were located within the survey area.

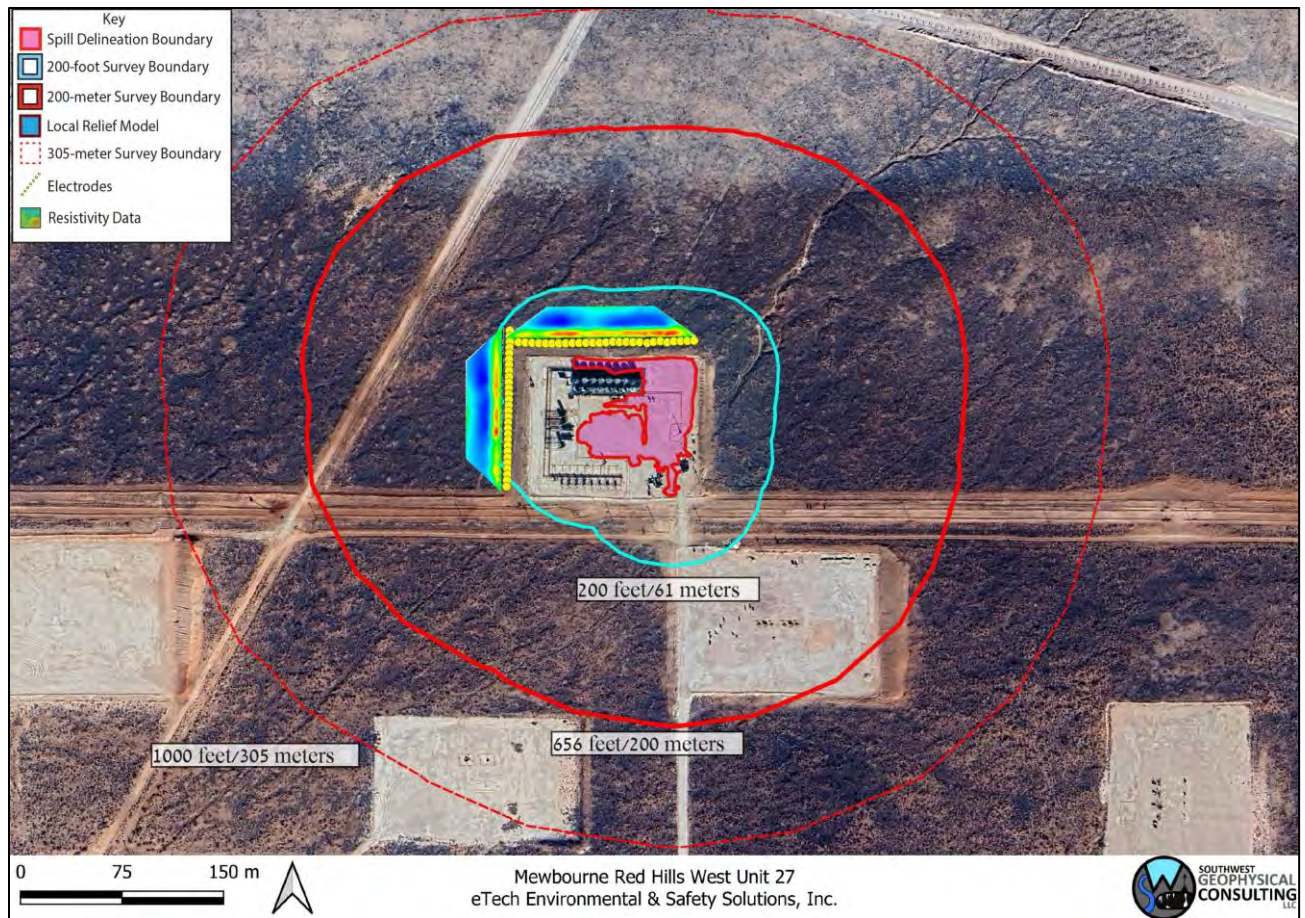
No high-resistivity anomalies consistent with air-filled subsurface voids are located within the survey boundary. However, due to the resolution limit of the survey, other small voids at or near the resolution limit (2.5 – 3.0 meters) cannot be ruled out (these are not common in this area). Higher-than-average resistivity areas located less than 10 meters beneath the surface are interpreted as dry caliche or gypsite soils; due to their low resistivity values when compared with significant subsurface voids, these features should not be a concern for remediation activities. Areas of moderate resistivity (yellows and greens) near the surface are interpreted as dry caliche soils and gypsum or dolomite bedrock of the Rustler Formation (**Figure 7** and **Figure 8**).

Resistivity of the survey area drops below 55  $\Omega$ -m at approximately 10 meters (33 feet) depth in the survey area, indicating a change to clay-rich soils or possibly moist to saturated caliche/gypsite soils or gypsum/dolomite bedrock.

Please remember that these are interpretations made from knowledge of the local subsurface materials and experience. **They remain interpretations until verified by geotechnical methods.**

Within karst terrains like the project site, small air- or sediment-filled voids and/or brecciated zones and solutionally enlarged fractures that are below the resolution limit of the survey may exist; these may be encountered during excavation and if so, should be evaluated by a karst specialist prior to continuation of the excavation. Employing a BLM-CFO approved karst monitor on site during excavation in this area should be considered.

Fracture sets within the subsurface can act as hydrologic pathways to the water table. Rapid dissolution of gypsum can occur along these pathways creating solution-enlarged fractures, and in some cases, voids within months to years. For this reason, this survey is valid only for this remediation event.



**Figure 8: Data overlay. Colored trapezoids are 2D inverted resistivity lines. Background image credit: Google Earth. Image date: July 14, 2024.**



## 5.0 SUMMARY

- The RH27 survey contains no surface karst features within 200 feet (61 meters) of the spill delineation boundary.
- The RH27 survey contains no high-resistivity anomalies which we interpret as subsurface voids.
- A well-layered stratigraphy is interpreted to exist beneath the area where the geophysical survey was conducted, indicating stable ground.
- Geophysical interpretations should be field verified by geotechnical methods prior to using this information for remediation planning.

## 6.0 DISCLOSURE STATEMENT

Karst occurrence zones are prone to rapid karst formation and warrant careful planning and engineering to mitigate karst-forming processes that could be accelerated by removal of surface cover or the vibrations associated with heavy equipment used in the remediation process.

Mitigation measures for any karst features revealed during excavation shall be approved by the Bureau of Land Management – Carlsbad Field Office and follow the Natural Resources Conservation Service Conservation Practice Standard for Karst Sinkhole Treatment, Code 527, or the Bureau of Land Management Cave and Karst Management Handbook, H-8380-1.

Vigilance during remediation activities is paramount. If voids are encountered during excavation, contact the Bureau of Land Management Karst Division at (575) 234-5972, the New Mexico State Land Office Surface Resources Division at (505) 827-5768, or a BLM-CFO approved karst contractor and request an on-site investigation from a karst expert if one is not already on site. A karst consultant can generally be available in Eddy County within five hours.

Approved karst monitors should have karst feature identification training, at least two years of supervised experience identifying karst features, wilderness first aid training, SRT training, confined space training, gas monitor training, and a minimum of SPAR cave rescue training through NCRC. They should have with them the proper gear and be prepared both physically and mentally to enter a collapse feature within minutes to perform a rescue if needed.

Monitoring services with qualified karst monitors, as well as cave surveys and geophysical surveys, are available from Southwest Geophysical Consulting.

Under no circumstances should an untrained, inexperienced person enter a cave, pit, sinkhole, or collapse feature. All field employees of Southwest Geophysical Consulting have extensive caving experience and the ability to determine whether entry into a karst feature is safe or presents a hazard. In the event it is necessary to enter a karst feature, Southwest Geophysical Consulting can provide these services on request.

Cave and karst resource inventory reports, karst feature investigations, and geophysical reports (along with the associated data files) commissioned at the request of the land manager should be submitted to BLM-CFO at [blm\\_nm\\_karst@blm.gov](mailto:blm_nm_karst@blm.gov).

Cave and karst resource inventory reports for the NMSLO should be submitted to the respective project manager.

Environmental karst reports should be submitted to the appropriate project manager at the New Mexico Oil Conservation Division.



## 7.0 REFERENCES

- 1 Division, O. C. *Title 19, Chapter 15, Part 29* (Oil Conservation Division, 2018).
- 2 NMSLO.(ed Oil Conservation Division) (New Mexico State Land Office, Santa Fe, NM, 2018).
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- 5 Decker, D., Trautner, E. & Palmer, R. (Bureau of Land Management - Carlsbad Field Office, 2025).
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- 8 W.R.C.C. *National Climate Data Center 1981-2010 Normal Climate Summary for Carlsbad, New Mexico (291469)*, 2010).
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- 11 Green, G. N. & Jones, G. E. *The Digital Geologic Map of New Mexico in ARC/INFO Format*,  
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- 13 Johnson, K. S. Evaporite Karst in the United States. *Carbonates and Evaporites* **12**, 2-14 (1997).
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**8.0 GLOSSARY OF TERMS**

AGI	Advanced Geosciences Inc.
BLM-CFO	Bureau of Land Management - Carlsbad Field Office
brecciated	Fractured rock caused by faulting or collapse.
caprock-collapse sinkhole	Collapse of roof-spanning rock into a cave or void.
cave	Natural opening at the surface large enough for a person to enter.
cover-collapse sinkhole	Collapse of roof-spanning soil or clay ground cover into a subsurface void.
ERI	Electrical Resistivity Imaging
GPS	Global Positioning System
grike	A solutionally enlarged, vertical, or sub-vertical joint or fracture.
(H)	High confidence modifier for a PKF. This is typically reserved for a feature that is definitely karst but has not been confirmed in the field.
HKOZ	High Karst Occurrence Zone
karst	A landscape containing solutional features such as caves, sinkholes, swallets, and springs.
(L)	Low confidence modifier for a PKF. This is typically a feature that cannot be ruled out as karst but is most likely NOT karst related. This modifier may also be used for pseudokarst features.
(M)	Medium confidence modifier for PKF. This is an ambiguous feature that can't be positively identified as karst without a field visit (e.g., burrows, abandoned unlined wells, solution tubes, pseudokarst).
MKOZ	Medium Karst Occurrence Zone
NCRC	National Cave Rescue Commission
NKF	Non-karst feature. Used for features originally identified as PKF that have been subsequently identified in the field as non-karst related. This term may also be used for pseudokarst features.
NMSLO	New Mexico State Land Office
Ohm-m	Ohm-meter, a unit of measurement for resistivity. Sometimes abbreviated $\Omega$ -m.
paleokarst	Previously formed karst features that have been filled in by erosion and/or deposition of minerals.
Pat	Permian Artesia Group
Pc	Permian Capitan Formation
Pcs	Permian Castile Formation

PdI	Permian Dewey Lake Formation
PKF	Possible karst feature. This term is reserved for features identified in satellite or aerial imagery that have NOT been visited in the field. Further modifiers include (H) for high confidence, (M) for medium confidence, and (L) for low confidence. These confidence levels are based on field experience.
PLSS	Public Land Survey System
Pqg	Permian Queen/Greyburg Formation
Pru	Permian Rustler Formation
pseudokarst	Karst-like features (sinkholes, conduits, voids etc.) that are not formed by dissolution. These types of features include soil piping, lava tubes, and some cover-collapse and suffosion sinkholes.
Psl	Permian Salado Formation
Psr	Permian Seven Rivers Formation
Pt	Permian Tansill Formation
Py	Permian Yates Formation
Qal	Quaternary alluvium
Qe	Quaternary eolian deposits
Qp	Quaternary piedmont deposits
Qpl	Quaternary playa lake deposits
RKF	Recognized karst feature. This term is reserved for karst features that have been physically verified in the field.
SPAR	Small Party Assisted Rescue
sUAS	Small, uncrewed aerial system
suffosion sinkhole	Raveling of soil into a pre-existing void or fracture.
swallet	A natural opening in the surface, too small for a person, that drains water to an aquifer. Some are "open," meaning a void can be seen below; some are "closed," meaning they are full of sediment.
SWG	Southwest Geophysical Consulting, LLC
UTM	Universal Transverse Mercator (projected coordinates)
(V)	Field verified modifier for a RKF. This indicates that the feature has been visited by a qualified karst professional in the field and fully identified
WGS	World Geodetic System (geographic coordinates)

## 9.0 ATTESTATION

### David D. Decker, PhD, PG, CPG

Chief Executive Officer, Principal Geologist

Southwest Geophysical Consulting, LLC

5117 Fairfax Dr. NW

Albuquerque, NM 87114

[dave@swgeophys.com](mailto:dave@swgeophys.com)

(505) 585-2550

## CERTIFICATE OF AUTHOR

I, David D. Decker, a Licensed Professional Geologist and a Certified Professional Geologist, do certify that:

- I am currently employed as a consulting geologist in the specialty of caves and karst with an office address of 5117 Fairfax Dr. NW, Albuquerque, NM, USA, 87114.
- I graduated with a Master of Science in Applied Physics with a specialization in Sensor Systems from the Naval Post Graduate School in Monterey, California, in 2003, and a Doctor of Philosophy in Earth and Planetary Sciences from the University of New Mexico, Albuquerque, New Mexico, in 2018.
- I am a Licensed Professional Geologist in the State of Texas, USA (PG-15242) and have been since 2021. I am a Certified Professional Geologist through the American Institute of Professional Geologists (CPG-12123) and have been since 2021.
- I have been employed as a geologist continuously since 2016. I was previously employed as a Fire Controlman, Naval Flight Officer, and Aerospace Engineering Duty Officer in the U.S. Navy and operated, maintained, and installed various sensor systems including magnetic, electromagnetic, radar, communications, and acoustic systems in various capacities from 1986 through 2010.
- I have been involved in various aspects of cave and karst studies continuously since 1985, including exploration, mapping, and scientific studies.
- I have read the definition of “qualified karst professional” set out in the ASTM Standard Practice for Preliminary Karst Terrain Assessment for Site Development (ASTM E-1527). I meet the definition of “qualified professional” for the purposes of this standard.
- I am responsible for the content, compilation, and editing of all sections of report number ETEC-019-20250723 entitled, “Environmental Karst Study Report, Mewbourne Red Hills West Unit 27, Lea County, New Mexico.” I or a duly authorized and qualified representative of Southwest Geophysical Consulting, LLC, have personally visited this site and/or reviewed the aerial imagery on the date or dates mentioned in section **2.3 Description of Survey**.



- I have no prior involvement nor monetary interest in the described property or project, save for my fee for conducting this investigation and providing the report.

Dated in Albuquerque, New Mexico, August 15, 2025.



David D. Decker  
PhD, CPG-12123



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

QUESTIONS

Action 504556

**QUESTIONS**

Operator: MEWBOURNE OIL CO P.O. Box 5270 Hobbs, NM 88241	OGRID: 14744
	Action Number: 504556
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

**QUESTIONS**

<b>Prerequisites</b>	
Incident ID (n#)	nAPP2521353327
Incident Name	NAPP2521353327 RED HILLS WEST UNIT 27 BATTERY @ FAPP2200557162
Incident Type	Produced Water Release
Incident Status	Remediation Plan Received
Incident Facility	[fAPP2200557162] RED HILLS WEST UNIT #27H BATTERY

**Location of Release Source***Please answer all the questions in this group.*

Site Name	RED HILLS WEST UNIT 27 BATTERY
Date Release Discovered	07/19/2025
Surface Owner	Federal

**Incident Details***Please answer all the questions in this group.*

Incident Type	Produced Water Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

**Nature and Volume of Release***Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.*

Crude Oil Released (bbls) Details	Not answered.
Produced Water Released (bbls) Details	Cause: Equipment Failure   Pipeline (Any)   Produced Water   Released: 215 BBL   Recovered: 50 BBL   Lost: 165 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Not answered.

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QUESTIONS, Page 2

Action 504556

**QUESTIONS (continued)**

Operator: MEWBOURNE OIL CO P.O. Box 5270 Hobbs, NM 88241	OGRID: 14744
	Action Number: 504556
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

**QUESTIONS**

<b>Nature and Volume of Release (continued)</b>	
Is this a gas only submission (i.e. only significant Mcf values reported)	No, according to supplied volumes this does not appear to be a "gas only" report.
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	Yes
Reasons why this would be considered a submission for a notification of a major release	From paragraph A. "Major release" determine using: (1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

**Initial Response**

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

The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	Not answered.

Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.

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.

I hereby agree and sign off to the above statement	Name: Connor Walker Title: Senior Engineer Email: cwalker@mewbourne.com Date: 09/09/2025
--	---

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Action 504556

**QUESTIONS (continued)**

Operator: MEWBOURNE OIL CO P.O. Box 5270 Hobbs, NM 88241	OGRID: 14744
	Action Number: 504556
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

**QUESTIONS**

<b>Site Characterization</b>	
<i>Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 100 and 500 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
<b>What is the minimum distance, between the closest lateral extents of the release and the following surface areas:</b>	
A continuously flowing watercourse or any other significant watercourse	Between 1 and 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Between 1 and 100 (ft.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

<b>Remediation Plan</b>	
<i>Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
Requesting a remediation plan approval with this submission	Yes
<i>Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.</i>	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
<b>Soil Contamination Sampling:</b> (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	10100
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	316
GRO+DRO (EPA SW-846 Method 8015M)	252
BTEX (EPA SW-846 Method 8021B or 8260B)	0.3
Benzene (EPA SW-846 Method 8021B or 8260B)	0
<i>Per Subsection B of 19.15.29.11 NMAC 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.</i>	
On what estimated date will the remediation commence	08/08/2025
On what date will (or did) the final sampling or liner inspection occur	08/29/2025
On what date will (or was) the remediation complete(d)	09/12/2025
What is the estimated surface area (in square feet) that will be reclaimed	59586
What is the estimated volume (in cubic yards) that will be reclaimed	3862
What is the estimated surface area (in square feet) that will be remediated	59586
What is the estimated volume (in cubic yards) that will be remediated	690
<i>These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.</i>	
<i>The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.</i>	



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QUESTIONS, Page 4

Action 504556

**QUESTIONS (continued)**

Operator: MEWBOURNE OIL CO P.O. Box 5270 Hobbs, NM 88241	OGRID: 14744
	Action Number: 504556
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

**QUESTIONS**

<b>Remediation Plan (continued)</b>	
<i>Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
<b>This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:</b>	
<i>(Select all answers below that apply.)</i>	
(Ex Situ) Excavation and <b>off-site</b> disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for <b>off-site</b> disposal	Not answered.
<b>OR</b> which OCD approved well (API) will be used for <b>off-site</b> disposal	Not answered.
<b>OR</b> is the <b>off-site</b> disposal site, to be used, out-of-state	Yes
In which state is the disposal taking place	R360 Red Bluff Facility
What is the name of the out-of-state facility	TX
<b>OR</b> is the <b>off-site</b> disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and <b>on-site</b> remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.
<i>Per Subsection B of 19.15.29.11 NMAC 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.</i>	
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.	
I hereby agree and sign off to the above statement	Name: Connor Walker Title: Senior Engineer Email: cwalker@mewbourne.com Date: 09/09/2025
<i>The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.</i>	

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Action 504556

QUESTIONS (continued)

Operator:  MEWBOURNE OIL CO P.O. Box 5270 Hobbs, NM 88241	OGRID:  14744
	Action Number:  504556
	Action Type:  [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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Action 504556

**QUESTIONS (continued)**

Operator: MEWBOURNE OIL CO P.O. Box 5270 Hobbs, NM 88241	OGRID: 14744
	Action Number: 504556
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

**QUESTIONS**

Sampling Event Information	
Last sampling notification (C-141N) recorded	492990
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	08/21/2025
What was the (estimated) number of samples that were to be gathered	303
What was the sampling surface area in square feet	60579

**Remediation Closure Request**

Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.

Requesting a remediation closure approval with this submission	No
--	----

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CONDITIONS

Action 504556

## CONDITIONS

Operator: MEWBOURNE OIL CO P.O. Box 5270 Hobbs, NM 88241	OGRID: 14744
	Action Number: 504556
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

## CONDITIONS

Created By	Condition	Condition Date
scott.rodgers	The Remediation Plan is Conditionally Approved. All samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. Floor confirmation samples should be delineated/excavated to meet closure criteria standards for site assessment/characterization/proven depth to water determination. Sidewall samples should be delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. The variance request for 400' sampling is approved. Confirmation samples should be collected every 400 ft2. The work will need to occur in 90 days after the work plan has been reviewed.	9/12/2025