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Second Revision of the Former Drilling Pit Delineation and Reclamation Plan in Association With Release NAPP2221331648

ConocoPhillips
Federal 29 Z 002H
Eddy County, New Mexico
Unit Letter "L", Section 29, Township 20 South, Range 27 East
Latitude 32.5425° North, Longitude 104.3108° West
NMOCD Reference No. NAPP2221331648

Prepared For:

ConocoPhillips
600 W Illinois Avenue
Midland, Texas 79701

Prepared By:

TRC Environmental Corporation
10 Desta Drive, Suite 130E
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September 2025

Jared E. Stoffel, PG
Senior Project Manager

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INTRODUCTION & BACKGROUND INFORMATION

TRC Environmental Corporation (TRC), on behalf of ConocoPhillips, has prepared this *Revised Former Drilling Pit Delineation and Reclamation Plan* for the Release Site known as the Federal 29 Z 002H (the Site). The legal description of the Site is Unit Letter "L", Section 29, Township 20 South, Range 27 East, in Eddy County, New Mexico. The subject property is owned by the State of New Mexico and administered by New Mexico State Land Office (NMSLO). The GPS coordinates for the Site are N 32.5425°, W 104.3108°. A topographic map is provided as **Figure 1**.

On July 16, 2022, ConocoPhillips (COP) discovered a crude oil release had occurred at the Site. The Release was attributed to a packing blowout. On the discovery date, COP notified the New Mexico Oil Conservation Division (NMOCD) and New Mexico State Land Office (NMSLO) of the Release. The Release was assigned an NMOCD Reference number of NAPP2221331648. On August 01, 2022, the initial Release Notification and Corrective Action (Form C-141) was submitted to the NMOCD. The Form C-141 indicated 1.5 barrels (bbls) of crude oil was released and zero (0) bbls of crude oil was recovered. The crude oil was oversprayed primarily to the west with a minor component to the north and east. The Release affected an area measuring approximately 10,800 square feet (sq. ft.). The C-141 indicated the impacted area was located on and off the location pad. The Site location is depicted in **Figure 1. Figure 2** and **Figure 3** reflect the characterization parameters of the Site. The affected area is depicted in **Figure 4**.

Based on a review of the New Mexico Office of State Engineers and United States Geological Survey (USGS) databases, there is no known water source within a 0.50-mile radius of the location. The nearest identified well is located approximately 0.68 miles east of the site in S29, T20S, R27E and was drilled in 2023. The well has a reported depth to groundwater of 132 feet below ground surface (ft bgs). The screened interval is between 139 and 159 feet bgs. A copy of the associated Point of Diversion Summary report is attached in **Appendix A**. Additionally, multiple soil borings onsite have been advanced to approximately 80 feet bgs, confirming depth to water is greater than fifty (50) feet bgs.

Based on the inferred depth to groundwater at the Federal 29 Z 002H Release Site, the NMOCD *Closure Criteria for Soils Impacted by a Release* does not warrant the most stringent closure criteria listed based on depth to groundwater. The Federal 29 Z 002H is within 300 feet of a significant watercourse and/or wetland denoted as a riverine on **Figure 2**. NMOCD's most recent workplan denial requested a Professional Wetland Scientist (PWS) conduct a wetland delineation survey to overturn a riverine designation. **Appendix B** includes the negative wetland delineation findings report signed by a PWS. Additionally, the Federal 29 Z 002H is located in the 'high karst' area as outlined in Bureau of Land Management (BLM) publicly available Karst Potential Map and is provided as **Figure 3**. In an effort to determine if karst features exist at the Site that may require more stringent guidelines than inferred groundwater requires (greater than 100 feet bgs based on nearest well in NMOSE database; greater than 50 feet based on onsite drill borings), a karst survey was requested to be conducted by a BLM approved karst surveying firm. Southwest Geophysical Consulting, LLC has indicated that no karst features are within 200 feet of the spill delineation boundary, the site is on stable ground, the strata underlying the site are flat lying and subsurface air or water filled voids were not observed. The karst findings report is provided as **Appendix C**. Based on depth to groundwater, lack of water in the nearby water feature, and lack

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of karst features (and associated stable ground underlying the site), the remediation standard for the site are as follows:

- Benzene – 10 mg/kg
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) – 50 mg/kg
- Total Petroleum Hydrocarbons (TPH) –2,500 mg/kg
- TPH Gasoline Range Organics (GRO) + Diesel Range Organics (DRO) – 1,000 mg/kg
- Chloride – 10,000 mg/kg

The upper four (4) feet of soil is subject to the more stringent reclamation standards as follows:

- Benzene – 10 mg/kg
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) – 50 mg/kg
- Total Petroleum Hydrocarbons (TPH) – 100 mg/kg
- Chloride – 600 mg/kg

CHRONOLOGY AND DISCUSSIONS WITH THE NMOCD

July 16, 2022 – The release occurs and is incorrectly reported to NMOCD due to volume (1.5 barrels of crude oil; no produced water).

December 15, 2022 – The Initial Remediation Workplan is submitted to the NMOCD by Carmona Resources. The workplan is provided as **Attachment D**.

March 17, 2023 – The initial Remediation Workplan is approved by the NMOCD.

June 21, 2023 – An extension request is submitted by TRC prior to remediation enactment. The extension request is approved by the NMOCD.

July 13, 2023 – TRC provides a notification to NMOCD that workplan enactment will begin the following week to comply with the required 48-hour confirmation sampling notice.

July 17, 2023 – TRC is onsite for preparation of site remediation and notes ubiquitous elevated chloride concentrations in the former drilling pit area. The area to be remediated appears to be contained within the former drilling pit footprint. TRC is unable to differentiate between elevated chloride concentrations related to the former drilling pit and those caused by the release. Remediation activities are not initiated pending discussion with the NMOCD.

July 25, 2023 – TRC provides a notification to NMOCD via email of comingled former drilling pit footprint and release area footprint. TRC also notes the release was of a non-reportable volume (1.5 bbl crude oil and no produced water) and no TPH or BTEX concentrations exceeded NMOCD standards. TRC requests a meeting with the NMOCD to discuss path forward.

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August 2, 2023 – NMOCD, COP, and TRC virtually meet to discuss comingled areas. The NMOCD indicates a variance request will be considered to avoid excavating the entirety of the former drilling pit, but the C-141 cannot be retracted despite the non-reportable release volume as a workplan has already been generated and approved.

August 20, 2023 – A second Remediation Workplan And Variance Request is submitted to NMOCD by TRC. The proposed workplan is to excavate the footprint of the release to four (4) feet bgs. The requested variance is to omit confirmation soil samples to avoid chloride concentrations sourced from the former drilling pit driving excavation extents beyond the spill footprint and previously delineated depths. The second workplan is provided as **Appendix E**.

March 5, 2024 – The NMOCD approves Remediation Workplan conditionally but denies variance request to omit confirmation sampling. The denial of the variance request would result in the excavation of elevated chloride concentrations in the full former drilling pit footprint.

March 7, 2024 - TRC requests a smaller sampling variance in which confirmation soil samples would be collected but only run for TPH and BTEX. No response from the NMOCD.

April 8, 2024 – TRC re-submits the March 7, 2024 request for a smaller sampling variance. No response from the NMOCD.

April 25, 2024 – TRC requests a meeting to discuss the smaller sampling variance submitted on March 7 and April 8. The NMOCD proposes a virtual meeting on May 21, 2024 meeting based on their availability.

May 21, 2024 – The NMOCD, COP and TRC meet virtually to discuss the denial of the variance requests and potential alternative options to avoid excavating the full extent of the former drilling pit, which is unrelated to the surface release of hydrocarbons. The NMOCD indicates that no variance requests or alternative options will be approved for the site and all chlorides above 600 mg/kg will require removal regardless of source. COP indicates delineation will be required internally to begin an excavation of this scale outside the scope of remediation related to the small overspray release. NMOCD and COP agree that a workplan documenting the delineation of elevated chloride concentrations in the former drilling pit area was an acceptable path forward.

July 6, 2024 – TRC attempts delineation of former drilling pit chlorides with backhoe. Vertical delineation is not achieved in all locations to below 600 mg/kg. In response, TRC begins the NMOSE drilling permit process as required by the NMOSE in borings deeper than 30 feet bgs. Additionally, BLM concurrence for the borings is required.

October 4, 2024 – The NMOSE issues the executed drilling permits.

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October 8, 2024 – TRC attempts delineation of former drilling pit chlorides with air rotary rig. Vertical delineation is not achieved in all locations to below 600 mg/kg.

October 22, 2024 – TRC requests an extension to further investigate former drilling pit chlorides as the 2 delineation events had not yet resulted in full vertical delineation in each sampled location. The NMOCD denies the extension request despite an explanation that COP continues to comply with the NMOCD requests. Email communications between the NMOCD and TRC/COP is documented as **Appendix F**.

October 25, 2024 – A Former Drilling Pit Delineation and Reclamation Plan is submitted to the NMOCD by TRC. The plan documents the chloride delineation to below the most stringent standards and proposes reclamation of the upper four (4) feet for vegetative regrowth. The third workplan is provided as **Appendix G**.

November 6, 2025 – TRC attempts delineation of former drilling pit chlorides with air rotary rig at the three locations that previously were not defined. Vertical delineation is achieved in all locations to below 600 mg/kg.

January 27, 2025 – The Former Drilling Pit Delineation and Reclamation plan is conditionally approved without approval of any variances, effectively denying the October 25, 2024 proposed work.

April 21, 2025 – A Revised Former Drilling Pit Delineation and Reclamation plan is submitted to the NMOCD documenting the negative karst survey and requesting reconsideration of the reclamation of the former drilling pit area. The fourth workplan is provided as **Appendix H**.

August 8, 2025 – The Revised Former Drilling Pit Delineation and Reclamation plan is denied by the NMOCD. The close proximity to a designated riverine can only be overturned by a Professional Wetland Scientist.

FORMER DRILLING PIT ASSESSMENT ACTIVITIES

Backhoe Delineation – Field Work

On July 6, 2024, TRC initiated a former drilling pit chloride delineation event utilizing a backhoe.

During the event, five (5) vertical trenches (Pit Trench NW, Pit Trench SW, Pit Trench Center, Pit Trench NE, and Pit Trench SE) were advanced within the former drilling pit footprint to the maximum extent of the backhoe. Soil samples were collected every two (2) feet. Each soil sample was analyzed for chloride concentrations, and surface samples were additionally analyzed for TPH and BTEX concentrations to confirm the surface soils were not affected by hydrocarbons from the release.

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Additionally, four (4) lateral soil samples (Lateral-West, Lateral-East, Lateral-North, and Lateral-South) were collected from the 0-1' interval to confirm the lateral extent of the former drilling pit.

Soil sample locations are documented in **Figure 4**.

Backhoe Delineation – Results

One (1) surface soil sample, Pit Trench SW @ 0-1', exhibited a TPH concentration of 118 mg/kg, slightly above the NMOCD standard. The soil sample underlying this soil sample, Pit Trench SW @ 2', was also run for TPH and BTEX to confirm the hydrocarbon exceedances was vertically delineated. Pit Trench SW @ 2' did not exhibit TPH or BTEX concentrations above the laboratory detection limit (RL). Only one of the backhoe trenches, Pit Trench SW, exhibited vertical delineation below 600 mg/kg for chlorides in the deepest sample (12').

Each lateral soil sample exhibited TPH, BTEX, and chloride concentrations below the NMOCD regulatory standard. Lateral delineation of the former drilling pit was achieved to below 600 mg/kg.

Soil sample analytical results are summarized in **Table 1**.

Air Rotary Drilling Rig Delineation – Field Work

Following the July 6, 2024 backhoe delineation event, COP elected to re-attempt to vertically define the extent of elevated chloride concentrations in the former drilling pit utilizing a drilling rig. The potential depth of borings necessitated NMOSE permits, which took time to procure as discussed above.

On October 8, 2024, TRC initiated a former drilling pit chloride delineation event utilizing an air rotary rig. Immediately adjacent to the five (5) trenches within the former drilling pit footprint but outside the backfilled trenches themselves, five (5) soil borings (SB-NW, SB-SW, SB-Center, SB-NE, and SB-SE) were advanced to a total depth of thirty (30) feet bgs. Soil samples were collected from the surface, 1-3, 5', 10', 15', 20', 25', and 30' intervals utilizing a 'pig's foot' sampler. Soil samples were analyzed for chloride concentrations only.

Additionally, two (2) background soil borings were advanced between 50 and 100 feet from the former drilling pit to confirm the Site is not affected by elevated background chloride concentrations. Sampled intervals in the background borings matched the vertical delineation borings.

On November 6, 2024, TRC remobilized to advance the soil borings that did not achieve vertical delineation of chloride concentrations to below 600 mg/kg. Each soil boring (SB-Center, SB-SE, and SB-NE) was advanced immediately adjacent to the respective previous boring location.

Soil sample locations are documented in **Figure 4**. Field boring logs are provided as **Appendix I**. The general lithology at the site is silty sand which transitions to a sandy clay, underlain by a red clay rich soils starting between 15 and 20 feet bgs.

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Air Rotary Drilling Rig Delineation – Results

Vertical delineation was confirmed in SB-SW in soil samples from 15' to 30' bgs, which corroborated the data collected from the adjacent trench Pit Trench SW during the backhoe delineation event. Additionally, vertical delineation to below 600 mg/kg was achieved at SB-NW in the 30-foot soil sample. Vertical delineation was achieved in SB-Center, SB-SE, and SB-NE at 35 feet, 60 feet, and 60 feet, respectively, during the remobilization event.

No background soil samples exhibited chloride concentrations above 600 mg/kg, indicating elevated chloride concentrations are unlikely to be a naturally occurring phenomenon at the site.

PROPOSED RECLAMATION OF THE FORMER DRILLING PIT AND REQUESTED SAMPLING VARIANCE

Groundwater onsite has been shown to be deeper than 80 feet bgs based on onsite borings. A BLM karst surveyor has determined that the site does not exhibit karst features and is on stable ground. A Professional Wetland Scientist conducted a Wetland Delineation Survey following the Corps of Engineers Wetlands Delineation Manual and utilizing the Army Corps of Engineers Wetland Determination Data Sheets, Arid West Region. The results of the wetland survey indicated there is not a riverine feature within 300 feet of the Site. Based on the depth to groundwater, lack of karst features, and lack of riverine features within 300 feet of the Site, COP asserts the remediation standard for the site are not the most stringent. However, each soil boring location has been delineated to below the most stringent regulatory guidelines. Each submitted soil sample exhibited concentrations of BTEX constituents, TPH, and chlorides below the remediation standards of the Site. The upper four feet of the former pit area did exceed reclamation standards.

COP proposes to excavate the footprint of the former drilling pit to four (4) feet bgs and will reclaim the pit to the NMOCD reclamation standard. The excavation would also remove the single TPH exceedance at the surface from Pit Trench SW, which potentially is related to the overspray release. COP will collect confirmation soil samples from the base of the excavation to confirm the soils above remediation standards have been removed. COP will collect confirmation soil samples from the sidewalls of the excavation to confirm the soils above reclamation standards in the upper four feet of soil column have been removed. COP proposes collection of floor and sidewall samples on a 400 square foot basis as a variance from the 200 square feet outlined in NMAC 19.15.29. The estimated volume of soil removed will be approximately 5,500 cubic yards, which will be transported to an NMOCD approved disposal facility. The Site will then be backfilled with locally sourced 'like' material to near original grade and reseeded in accordance with BLM requirements.

COP is prepared to begin the activities outlined in this *Second Revision of the Former Drilling Pit Delineation and Reclamation Plan* following NMOCD and BLM approval. On completion of reclamation activities, a Reclamation Summary and Closure Report will be prepared detailing field activities.

If you have any questions, or need any additional information, please feel free to contact myself or Ike Tavarez by phone or email.

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LIMITATION

TRC has prepared this Former Drilling Pit Delineation and Reclamation Plan to the best of its ability. No other warranty, expressed or implied, is made or intended.

TRC has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. TRC has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. TRC has prepared this report, in a professional manner, using the degree of skill and care exercised by similar environmental consultants. TRC also 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 ConocoPhillips. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of TRC and/or ConocoPhillips.

DISTRIBUTION

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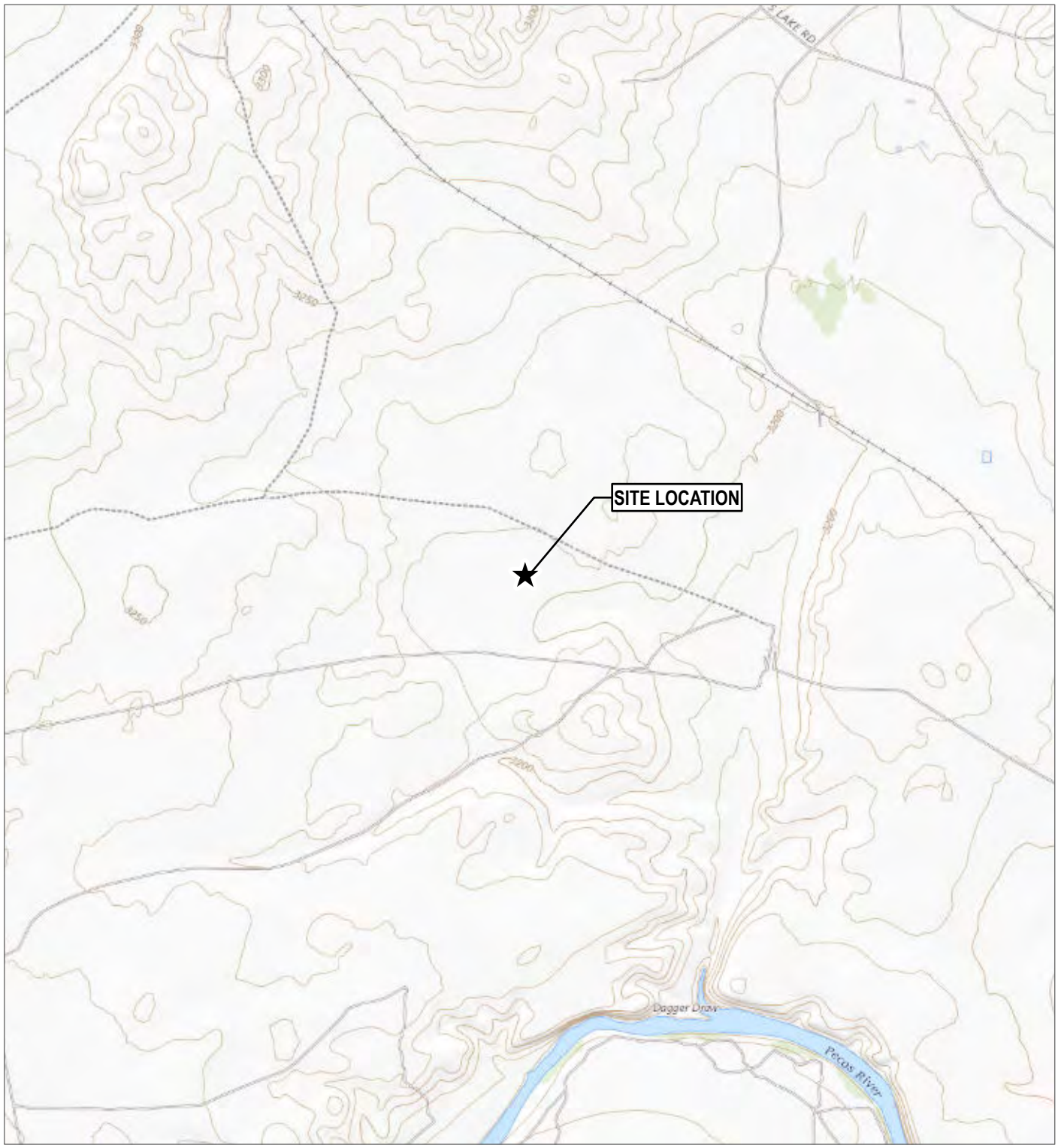
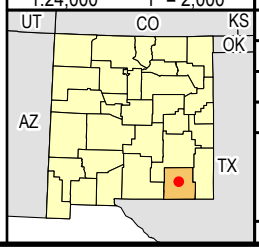


0 1,000 2,000

FEET

1:24,000 1" = 2,000'



PROJECT:

CONOCOPHILLIPS
FEDERAL 29 Z 002H
EDDY COUNTY, NEW MEXICO

TITLE:

TOPOGRAPHIC MAP

DRAWN BY:	S. RAY	PROJ. NO.:	544675.0000.0000
CHECKED BY:	M. BRYANT		
APPROVED BY:	M. BRYANT		**FIGURE 1**
DATE:	AUGUST 2023		

TRC
1180 NW MAPLE STREET, SUITE 310
ISSAQUAH, WA 98027
PHONE: 425.395.0010

FILE: FEDERAL 29 Z 002H

BASE MAP: USGS COLOR ORTHO IMAGERY
DATA SOURCES: TRC

COORDINATE SYSTEM: NAD 1983 STATEPLANE NEW MEXICO EAST FIPS 3001 FEET; MAP ROTATION: 0
-- SAVED BY: SRAY ON 8/16/2023 14:58:35 PM -- FILE PATH: T:\CONOCOPHILLIPS\544675_FEDERAL 29 Z 002H APRX\FEDERAL 29 Z 002H APRX -- LAYOUT NAME: FIG 1 - GVM

HALF-MILE RADIUS

SITE LOCATION

AREA INSIDE OF 100-YEAR FLOODPLAIN

RIVERINE

BASE MAP: GOOGLE EARTH PRO AND THEIR DATA PARTNERS (12/21/2019).
DATA SOURCES: TRC, FEMA, NWI.

1:12,000
1" = 1,000'

0 500 1,000 FEET

PROJECT:	CONOCOPHILLIPS FEDERAL 29 Z 002H EDDY COUNTY, NEW MEXICO
TITLE:	AERIAL MAP

DRAWN BY:	S. RAY	PROJ. NO.:	544675.0000.0000
CHECKED BY:	M. BRYANT		FIGURE 2
APPROVED BY:	M. BRYANT		
DATE:	AUGUST 2023		

TRC
1180 NW MAPLE STREET, SUITE 310
ISSAQUAH, WA 98027
PHONE: 425.395.0010

FILE: Federal 29 Z 002H.aprx

Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet - Map Rotation: 0
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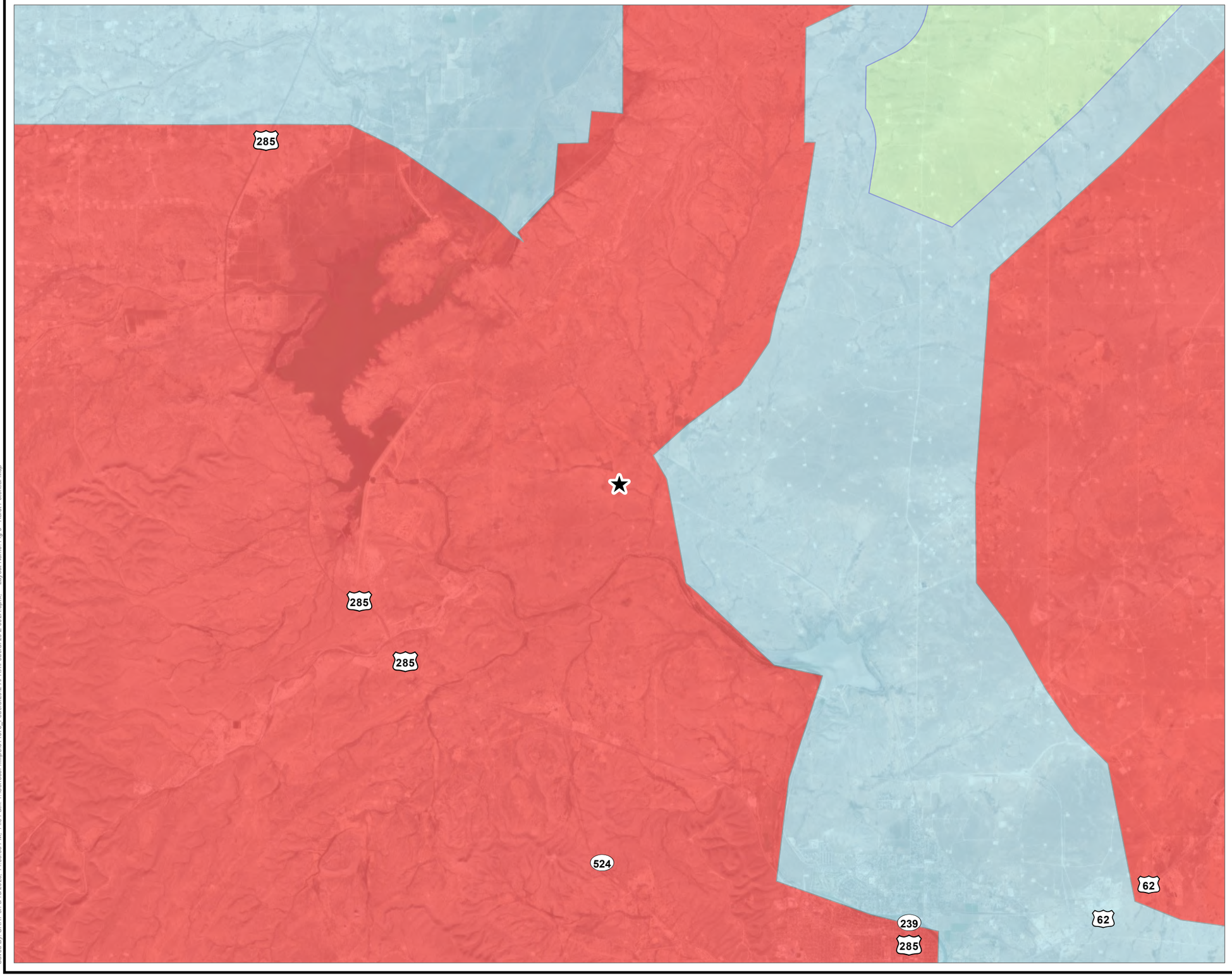

★ SITE LOCATION

LOW KARST POTENTIAL

MEDIUM KARST POTENTIAL

HIGH KARST POTENTIAL

BASE MAP: GOOGLE EARTH PRO AND THEIR DATA PARTNERS (12/21/2019).
DATA SOURCES: TRC.

1:100,000
1" = 2 MILES

0 1 2 MILES

PROJECT:	CONOCOPHILLIPS FEDERAL 29 Z 002H EDDY COUNTY, NEW MEXICO
TITLE:	KARST POTENTIAL MAP
DRAWN BY: S. RAY	PROJ. NO.: 544675.0000.0000
CHECKED BY: M. BRYANT	FIGURE 3
APPROVED BY: M. BRYANT	
DATE: AUGUST 2023	

TRC
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ISSAQUAH, WA 98027
PHONE: 425.395.0010

FILE: Federal 29 Z 002H.aprx

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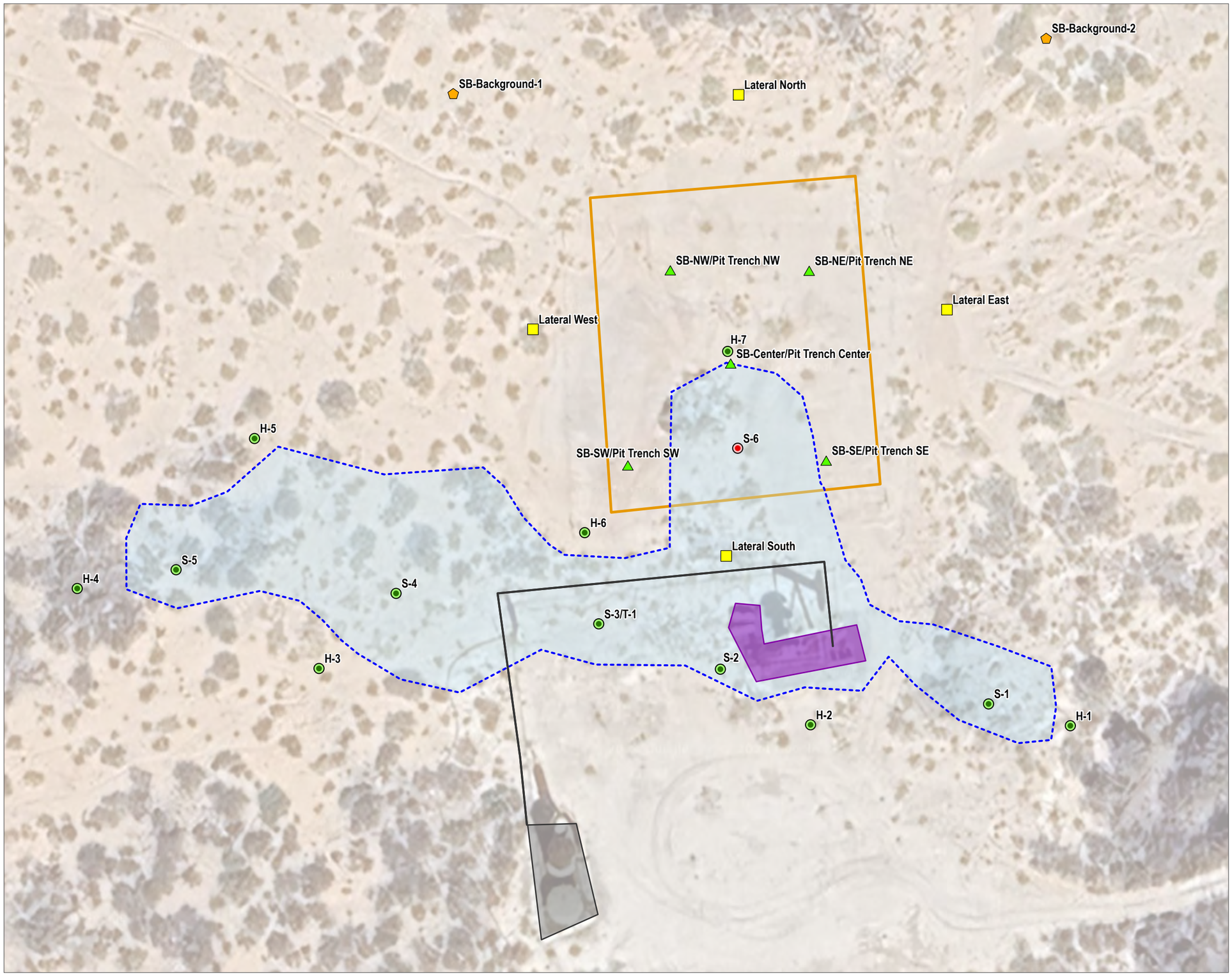
Saved By: SRAY on 8/16/2023 - 11:45:35 PM; File Path: T:\ConocoPhillips\544675_Federal\29\2-APRX\Federal 29 Z 002H.aprx; Layout Name: Fig 3 - Karst Potential Map



PREVIOUS DELINEATION SAMPLE LOCATION BELOW NMOCD STANDARDS

PREVIOUS DELINEATION SAMPLE LOCATION EXCEEDING NMOCD STANDARDS

BACKGROUND SAMPLE LOCATION

HORIZONTAL PIT DELINEATION SAMPLE LOCATION

VERTICAL PIT DELINEATION SAMPLE LOCATION

SURFACE STEEL LINE

TANK BATTERY

WELLHEAD AND ASSOCIATED INFRASTRUCTURE

APPROXIMATE PIT LOCATION

RELEASE AREA (OVERSPRAY FOOTPRINT)

BASE MAP: GOOGLE EARTH PRO AND THEIR DATA PARTNERS (12/21/2019).
DATA SOURCES: TRC.

NOTES
SAMPLE LOCATIONS AND ANALYTICAL DATA FROM CARMONA RESOURCES WORKPLAN

1:500
1" = 42'

0 25 50 FEET

PROJECT:	CONOCOPHILLIPS FEDERAL 29 Z 002H EDDY COUNTY, NEW MEXICO
TITLE:	DRILLING PIT ASSESSMENT - SAMPLE LOCATION MAP
DRAWN BY: A. CLINE	PROJ. NO.: 544675.0000.0000
CHECKED BY: B. TRACY	FIGURE 4
APPROVED BY: M. BRYANT	
DATE: OCTOBER 2024	
FILE:	Federal 29 Z 002H.aprx

TRC

Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet; Map Rotation: 0
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TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	OIl Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Lateral Delineation											
Lateral-East @ 0-1'	6/6/2024	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	63.0
Lateral-North @ 0-1'	6/6/2024	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<50.0	<50.0	<50.0	<50.0	72.6
Lateral-South @ 0-1'	6/6/2024	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	108
Lateral-West @ 0-1'	6/6/2024	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	67.6
Veritcal Delineation											
Pit Trench Center @ 0-1'	6/6/2024	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	**1,340**
Pit Trench Center @ 2'	6/6/2024	-	-	-	-	-	-	-	-	-	**1,520**
Pit Trench Center @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**848**
Pit Trench Center @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	1,020
Pit Trench Center @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	2,450
Pit Trench Center @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	3,590
Pit Trench Center @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	2,970
SB-Center @ Surface	10/8/2024	-	-	-	-	-	-	-	-	-	**847**
SB-Center @ 1-3'	10/8/2024	-	-	-	-	-	-	-	-	-	**1,110**
SB-Center @ 5'	10/8/2024	-	-	-	-	-	-	-	-	-	466
SB-Center @ 10'	10/8/2024	-	-	-	-	-	-	-	-	-	1,570
SB-Center @ 15'	10/8/2024	-	-	-	-	-	-	-	-	-	1,040
SB-Center @ 20'	10/8/2024	-	-	-	-	-	-	-	-	-	883
SB-Center @ 25'	10/8/2024	-	-	-	-	-	-	-	-	-	997
SB-Center @ 30'	10/8/2024	-	-	-	-	-	-	-	-	-	678
SB-Center @ 35'	11/6/2024	-	-	-	-	-	-	-	-	-	305

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	OIl Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Pit Trench NE @ 0-1'	6/6/2024	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	<49.9	<49.9	<49.9	<49.9	**7,870**
Pit Trench NE @ 2'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,440**
Pit Trench NE @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,600**
Pit Trench NE @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	2,580
Pit Trench NE @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	2,910
Pit Trench NE @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	3,930
Pit Trench NE @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	1,200
SB-NE @ Surface	10/9/2024	-	-	-	-	-	-	-	-	-	**7,440**
SB-NE @ 1-3'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,580**
SB-NE @ 5'	10/9/2024	-	-	-	-	-	-	-	-	-	1,620
SB-NE @ 10'	10/9/2024	-	-	-	-	-	-	-	-	-	1,280
SB-NE @ 15'	10/9/2024	-	-	-	-	-	-	-	-	-	965
SB-NE @ 20'	10/9/2024	-	-	-	-	-	-	-	-	-	538
SB-NE @ 25'	10/9/2024	-	-	-	-	-	-	-	-	-	1,160
SB-NE @ 30'	10/9/2024	-	-	-	-	-	-	-	-	-	1,480
SB-NE @ 35'	11/6/2024	-	-	-	-	-	-	-	-	-	3,040
SB-NE @ 40'	11/6/2024	-	-	-	-	-	-	-	-	-	2,120
SB-NE @ 45'	11/6/2024	-	-	-	-	-	-	-	-	-	1,870
SB-NE @ 50'	11/6/2024	-	-	-	-	-	-	-	-	-	734
SB-NE @ 60'	11/6/2024	-	-	-	-	-	-	-	-	-	114

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	OIl Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Pit Trench NW @ 0-1'	6/6/2024	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	**10,300**
Pit Trench NW @ 2'	6/6/2024	-	-	-	-	-	-	-	-	-	**4,570**
Pit Trench NW @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**4,110**
Pit Trench NW @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	5,530
Pit Trench NW @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	4,740
Pit Trench NW @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	7,850
Pit Trench NW @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	4,080
SB-NW @ Surface	10/9/2024	-	-	-	-	-	-	-	-	-	**1,870**
SB-NW @ 1-3'	10/9/2024	-	-	-	-	-	-	-	-	-	**3,700**
SB-NW @ 5'	10/9/2024	-	-	-	-	-	-	-	-	-	2,000
SB-NW @ 10'	10/9/2024	-	-	-	-	-	-	-	-	-	4,000
SB-NW @ 15'	10/9/2024	-	-	-	-	-	-	-	-	-	5,060
SB-NW @ 20'	10/9/2024	-	-	-	-	-	-	-	-	-	1,360
SB-NW @ 25'	10/9/2024	-	-	-	-	-	-	-	-	-	1,540
SB-NW @ 30'	10/9/2024	-	-	-	-	-	-	-	-	-	571

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	OIl Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Pit Trench SE @ 0-1'	6/6/2024	<0.00202	<0.00202	<0.00202	<0.00403	<0.00403	<49.9	<49.9	<49.9	<49.9	**1,730**
Pit Trench SE @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,140**
Pit Trench SE @ 2'	6/6/2024	-	-	-	-	-	-	-	-	-	**5,980**
Pit Trench SE @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**10,100**
Pit Trench SE @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	1,250
Pit Trench SE @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	1,210
Pit Trench SE @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	2,140
Pit Trench SE @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	2,580
SB-SE @ Surface	10/9/2024	-	-	-	-	-	-	-	-	-	**7,230**
SB-SE @ 1-3'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,950**
SB-SE @ 5'	10/9/2024	-	-	-	-	-	-	-	-	-	1,760
SB-SE @ 10'	10/9/2024	-	-	-	-	-	-	-	-	-	1,820
SB-SE @ 15'	10/9/2024	-	-	-	-	-	-	-	-	-	1,540
SB-SE @ 20'	10/9/2024	-	-	-	-	-	-	-	-	-	796
SB-SE @ 25'	10/9/2024	-	-	-	-	-	-	-	-	-	613
SB-SE @ 30'	10/9/2024	-	-	-	-	-	-	-	-	-	1,480
SB-SE @ 35'	11/6/2024	-	-	-	-	-	-	-	-	-	2,740
SB-SE @ 40'	11/6/2024	-	-	-	-	-	-	-	-	-	2,430
SB-SE @ 45'	11/6/2024	-	-	-	-	-	-	-	-	-	2,070
SB-SE @ 50'	11/6/2024	-	-	-	-	-	-	-	-	-	1,130
SB-SE @ 60'	11/6/2024	-	-	-	-	-	-	-	-	-	429

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	OIl Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Pit Trench SW @ 0-1'	6/6/2024	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<50.0	118	<50.0	**118**	**3,650**
Pit Trench SW @ 2'	6/6/2024	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<50.0	<50.0	<50.0	<50.0	**2,550**
Pit Trench SW @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,170**
Pit Trench SW @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	1,660
Pit Trench SW @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	1,150
Pit Trench SW @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	1,230
Pit Trench SW @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	437
SB-SW @ Surface	10/9/2024	-	-	-	-	-	-	-	-	-	**7,170**
SB-SW @ 1-3'	10/9/2024	-	-	-	-	-	-	-	-	-	**2,440**
SB-SW @ 5'	10/9/2024	-	-	-	-	-	-	-	-	-	2,240
SB-SW @ 10'	10/9/2024	-	-	-	-	-	-	-	-	-	1,020
SB-SW @ 15'	10/9/2024	-	-	-	-	-	-	-	-	-	215
SB-SW @ 20'	10/9/2024	-	-	-	-	-	-	-	-	-	79.2
SB-SW @ 25'	10/9/2024	-	-	-	-	-	-	-	-	-	78.3
SB-SW @ 30'	10/9/2024	-	-	-	-	-	-	-	-	-	128

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	OIl Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Background Borings											
Background-1 @ Surface	10/10/2024	-	-	-	-	-	-	-	-	-	<10.0
Background-1 @ 1-3'	10/10/2024	-	-	-	-	-	-	-	-	-	31.3
Background-1 @ 5'	10/10/2024	-	-	-	-	-	-	-	-	-	25.4
Background-1 @ 10'	10/10/2024	-	-	-	-	-	-	-	-	-	<9.90
Background-1 @ 15'	10/10/2024	-	-	-	-	-	-	-	-	-	<10.0
Background-1 @ 20'	10/10/2024	-	-	-	-	-	-	-	-	-	46.2
Background-1 @ 25'	10/10/2024	-	-	-	-	-	-	-	-	-	164
Background-1 @ 30'	10/10/2024	-	-	-	-	-	-	-	-	-	141
Background-1 @ 35'	11/7/2024	-	-	-	-	-	-	-	-	-	94.2
Background-1 @ 40'	11/7/2024	-	-	-	-	-	-	-	-	-	30.7
Background-1 @ 45'	11/7/2024	-	-	-	-	-	-	-	-	-	89.4
Background-1 @ 50'	11/7/2024	-	-	-	-	-	-	-	-	-	185
Background-1 @ 60'	11/7/2024	-	-	-	-	-	-	-	-	-	68.1
Background-1 @ 70'	11/7/2024	-	-	-	-	-	-	-	-	-	<10.0
Background-1 @ 80'	11/7/2024	-	-	-	-	-	-	-	-	-	88.1

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	OIl Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Background-2 @ Surface	10/8/2024	-	-	-	-	-	-	-	-	-	334
Background-2 @ 1-3'	10/8/2024	-	-	-	-	-	-	-	-	-	241
Background-2 @ 5'	10/8/2024	-	-	-	-	-	-	-	-	-	271
Background-2 @ 10'	10/8/2024	-	-	-	-	-	-	-	-	-	172
Background-2 @ 15'	10/8/2024	-	-	-	-	-	-	-	-	-	50.7
Background-2 @ 20'	10/8/2024	-	-	-	-	-	-	-	-	-	13.4
Background-2 @ 25'	10/8/2024	-	-	-	-	-	-	-	-	-	14.1
Background-2 @ 30'	10/8/2024	-	-	-	-	-	-	-	-	-	7.48

Exceeds NMOCD Standard

505 East Huntland Dr.
Suite 250
Austin, TX 78752

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Appendix A – Groundwater Database Results

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
2124F	C 04728 POD1	NE	SW	SE	29	20S	27E	565794.4	3600565.0	

*** UTM location was derived from PLSS - see Help**

Driller License:	1348	**Driller Company:**	TAYLOR WATER WELL SERVICE		
Driller Name:	CLINTON E TAYLOR				
Drill Start Date:	2023-09-11	**Drill Finish Date:**	2023-10-10	**Plug Date:**	
Log File Date:	2023-10-25	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	100
Casing Size:		**Depth Well:**	159	**Depth Water:**	132

Water Bearing Stratifications:

Top	Bottom	Description
132	142	Limestone/Dolomite/Chalk
142	159	Limestone/Dolomite/Chalk

Casing Perforations:

Top	Bottom
139	159

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Appendix B – Negative Wetland Delineation Survey; TRC

Wetland and Waterbody Delineation Report

Federal 29 Z 002H Release Site Project, Eddy County, New Mexico

Project Number: 544765.0000.0000

September 2025

Prepared For:

ConocoPhillips Risk Management & Remediation
600 W. Illinois Ave
Midland, TX 79701

Prepared By:

TRC Environmental Corporation
11767 Katy Freeway
Suite 850
Houston, Texas 77079

Prepared by: Rachel Rouwenhorst

Reviewed and Approved by: Melissa Cross, PWS, CWB®

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Tables

Appendices

1. Introduction

ConocoPhillips Risk Management and Remediation (ConocoPhillips) and is proposing soil remediation within a 300-foot (ft) buffer (Survey Area) of a well pad at the Federal 29 Z 002H Release Site (Project). The Project is located in Section 29, Township 20 South (S), Range 27 East (E) in Eddy County, New Mexico (Latitude 32.5426941889°N, Longitude -104.310383711°W) (**Appendix A, Figure 1**). The Survey Area comprises of the proposed remediation site surrounded by a 300 ft buffer to accommodate temporary workspace areas. The Survey Area totals approximately 6.5 acres.

This Wetland and Waterbody Delineation Report is in response to the August 8, 2025, New Mexico Oil Conservation Division (NMOCD) denial of the "Revised Former Drilling Pit Delineation and Reclamation Plan" for incident nAPP2221331648. The NMOCD specified in the denial letter that the riverine habitat present in the publicly available dataset could only be overturned by a Professional Wetland Scientist (PWS) in a Wetland Delineation Report. The presence or absence of the riverine habitat will determine the applicable closure criteria for the Site.

The purpose of this wetland and waterbody delineation was to determine the extent of potential jurisdictional wetlands and waterbodies within the designated Survey Area. The wetland and waterbody delineation field investigation was conducted by TRC Environmental Corporation (TRC) on August 19, 2025, and the production of this report and delineation methods was overseen by TRC Natural Resources Project Manager, Melissa Cross, PWS #3628.

2. Methods

This wetland and waterbody delineation was conducted in accordance with the guidelines of the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region (Version 2.0, 2008). National Wetland Indicator status and taxonomic nomenclature is referenced from the 2022 Corps of Engineers National Wetland Plant List. Indicators of hydric soil are based on the Field Indicators of Hydric Soils in the United States Guide Version 8.2 (U.S. Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS], 2018).

Due to recent changes to the federal definition of the Waters of the United States (WOTUS), TRC classified wetlands and waterbodies based on the pre-2015 regulatory regime consistent with the Supreme Court's decision in Sackett, as the August 29, 2023, final rule is not currently operative in New Mexico due to ongoing litigation. Because USACE guidance had not yet been issued on the ruling, TRC recorded information on all features so that the jurisdictional status can be defined appropriately based on the USACE's interpretation. Additionally, TRC's field staff noted any potential WOTUS that may require additional discussions during USACE coordination and/or permitting.

2.1. Desktop Review

Prior to conducting fieldwork, TRC scientists reviewed several sources to identify areas likely to contain aquatic features including, but not limited to:

- United States Geological Survey (USGS) 7.5-minute Quadrangle maps;
- Historic topographic maps;
- NRCS Web Soil Survey;
- Federal Emergency Management Agency floodplain maps;
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps;
- National Hydrography Dataset (NHD) maps; and

- Current and historical aerial photographs.

2.2. On-Site Field Investigation

TRC qualified wetland scientist Jesse Young conducted a wetland and waterbody field delineation of the Survey Area on August 19, 2025. Sample points were collected in areas exhibiting wetland and upland characteristics to document the presence and/or absence of wetlands and to provide support for the delineated wetland boundaries. Information collected at each data point consisted of dominant vegetation, hydrophytic vegetation indicators, soil profiles, hydric soil indicators, and wetland hydrology indicators.

Plant species were identified at each sample point and their wetland indicator status: obligate wetland (OBL); facultative wetland (FACW); facultative (FAC); facultative upland (FACU); or upland (UPL) was determined by referencing the 2022 Corps of Engineers National Wetland Plant List; Arid West Region. Soil pits were dug to the depth necessary to document a field indicator of hydric soils or confirm the absence of indicators. Soil color was determined using a Munsell soil color chart (Munsell Color/X-Rite 2009). The sample points and soil pits were evaluated for presence of wetland hydrology indicators.

The Project is located within the USACE Albuquerque District; therefore, final concurrence is determined by the USACE Albuquerque District.

3. Results

3.1. Desktop Review

The USGS Eddy County, New Mexico 7.5-minute quadrangle maps showed elevations ranging from 3,208 to 3,200 feet above mean sea level. USGS and NHD maps depict an unnamed intermittent streamline intersecting the Survey Area. This stream is also depicted as a riverine wetland by NWI maps. The Survey Area is located within a FEMA Zone X area of minimal flood hazard.

The land within the Survey Area is mostly flat, and a review of Google Earth aerial imagery shows the majority of the Survey Area is desert scrub intermixed with oil and gas infrastructure. A review of Google Earth historical imagery determined that the majority of the Survey Area has been used for oil and gas production since at least 1985. The construction of well pads and dirt roads has increased within the vicinity of the Survey Area since the 1985 imagery, potentially contributing to changes in hydrology within the vicinity of the Survey Area.

3.1.1. Soils

The NRCS maps the Survey Area as underlain by two soil series (**Appendix A, Figure 2**). The soils mapped in the NRCS Web Soil Survey website (NRCS 2025) are provided in **Table 1** below.

Table 1. NRCS Soils within the Survey Area

Map Symbol	Soil Map Unit Name	Drainage Classification	Hydric?
RA	Reagan loam, 0 to 3 percent slopes	Well drained	No
SM	Simona-Bippus complex, 0 to 5 percent slopes	Well drained	No

3.1.2. Hydrology

The overall hydrology of the Survey Area flows from northwest to southeast and is influenced by the general slope of the land. The USGS identified one intermittent stream within the Survey Area (**Appendix A, Figure 3**)

In order to evaluate hydrologic conditions during the field investigation, evaluations of precipitation were conducted to determine conditions within the region using the Antecedent Precipitation Tool (APT). The APT was developed to facilitate comparison of precipitation conditions at a given location to the range of normal precipitation conditions that occurred during the preceding 30 years. In addition to providing a standardized method to evaluate normal precipitation conditions, the APT can assess the presence of drought conditions and the approximate dates of the wet and dry season for a given location. Based on the APT (**Appendix B**), on the day of the field investigation, August 19, 2025, the site was experiencing normal climactic conditions during a mild drought in the dry season.

3.2. On-Site Field Investigation

3.2.1. Vegetation

The Survey Area is primarily used for oil and gas production. Based on review of aerial imagery, the area surrounding the Project has been used for oil and gas production since at least 1985 (Google Earth Pro, 2025).

Table 2 contains a list of plant species observed to be the dominant species within the Survey Area, along with the indicator classifications for each in the Arid West Region. The Survey Area consists of desert scrub/shrub habitat.

Table 2. Dominant Vegetation Species within Survey Area

Common Name	Scientific Name	Wetland Indicator Status[1]
Sapling/Shrub Stratum (Mid- and understory)		
Honey mesquite	*Prosopis glandulosa*	FACU
Herbaceous Stratum (Groundcover)		
Purple three-awn	*Aristida purpurea*	UPL
Blue grama	*Bouteloua gracilis*	UPL
James' galleta	*Hilaria jamesii*	UPL

[1] OBL = Obligate; FAC = Facultative; FACU = Facultative Upland; UPL = Upland. Indicator status from USDA National Wetland Plant List (USACE 2022).

3.2.2. Wetlands and Waterbodies

No wetlands or waterbodies were identified within the Survey Area**.** The NWI mapped riverine wetland was found to not exist within the Survey Area. The field results are shown in **Figure 4** of **Appendix A** and all collected data forms are provided in **Appendices C and D**.

3.2.3. Rivers, Streams, and Drainages

No streams or rivers were identified within the Survey Area. The USGS and NHD mapped intermittent stream that was supposed to intersect the Survey Area was found to not exist within the Survey Area. The field results are shown in **Figure 4** of **Appendix A** and all collected data forms are provided in **Appendices C and D**.

4. Conclusions

Based on the wetland and waterbody delineation completed by TRC August 19, 2025, no wetlands, waterbodies, or streams were identified within the Survey Area. The intermittent stream and associated riverine wetland feature that was mapped within the Survey Area by NHD and NWI databases were found to not exist within the Survey Area.

The results of this field study are based on site conditions at the time of the field study, which was conducted in accordance with current regulatory policy and methods. Unknown and future conditions that affect observations of field indicators or change in interpretation of regulatory policy or methods may modify future findings.

While this report has been reviewed and approved by a PWS, the ultimate authority to determine the location of the wetland boundary and jurisdictional authority over the wetlands and other aquatic resources identified in this report resides with the USACE Albuquerque District. Decisions made by staff of these regulatory agencies may result in modifications to the location of the wetland or other aquatic resource boundaries shown in this report. Furthermore, state, municipalities, townships and counties may have local zoning authority over certain areas or types of wetlands and waterbodies.

5. References

Environmental Laboratory. (1987). Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Munsell Color/X-Rite. (2009). Munsell Soil Color Charts. Grand Rapids, Michigan.

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Appendix A.
Figures

LEGEND

SITE LOCATION

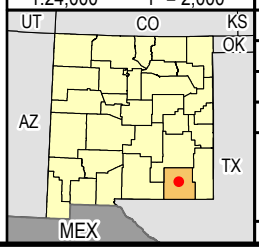
BASE MAP: GOOGLR EARTH AERIAL IMAGERY SERICE LAYER
AERIAL DATE: 12/2023
DATA SOURCES: TRC

N

0 1,000 2,000

FEET

1:24,000 1" = 2,000'



PROJECT: CONOCOPHILLIPS
FEDERAL 29 Z 002H SITE PROJECT
EDDY COUNTY, NEW MEXICO

TITLE: PROJECT OVERVIEW MAP

DRAWN BY:	A. CLINE	PROJ. NO.:	544675.0000.0000
CHECKED BY:	A. GIBSON		
APPROVED BY:	M. CROSS		FIGURE 1
DATE:	SEPTEMBER 2025		

TRC
11767 KATY FREEWAY
SUITE 850
HOUSTON, TX 77079
PHONE: 713.244.1000

FILE: 544675_WDR

COORDINATE SYSTEM: NAD 1983 STATEPLANE NEW MEXICO EAST FIPS 3001 FEET; MAP ROTATION: 0
-- SAVED BY: ACLINE ON 9/3/2025, 16:28:29 PM; FILE PATH: T:\1-PROJECTS\CONOCOPHILLIPS\544675_FEDERAL 29\2-APRX\544675_WDR APRX; LAYOUT NAME: FIGURE 1 PROJECT LOCATION MAP

LEGEND

- PIPELINE
- SITE INFRASTRUCTURE
- 300-FT BUFFER

SOIL TYPE

- RA, REAGAN LOAM, 0 TO 3 PERCENT SLOPES
- SM, SIMONA-BIPPUS COMPLEX, 0 TO 5 PERCENT SLOPES
- UG, UPTON GRAVELLY LOAM, 0 TO 9 PERCENT SLOPES

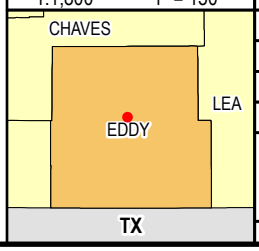
BASE MAP: GOOGLR EARTH AERIAL IMAGERY SERICE LAYER
AERIAL DATE: 12/2023
DATA SOURCES: TRC, NRCS

N

0 75 150

FEET

1:1,800 1" = 150'



PROJECT: CONOCOPHILLIPS
FEDERAL 29 Z 002H SITE PROJECT
EDDY COUNTY, NEW MEXICO

TITLE: NRCS SOILS

DRAWN BY:	A. CLINE	PROJ. NO.:	544675.0000.0000
CHECKED BY:	A. GIBSON		
APPROVED BY:	M. CROSS		FIGURE 2
DATE:	SEPTEMBER 2025		

TRC
11767 KATY FREEWAY
SUITE 850
HOUSTON, TX 77079
PHONE: 713.244.1000

FILE: 544675_WDR

LEGEND

- PIPELINE
- SITE INFRASTRUCTURE
- 300-FT BUFFER
- NHD RIVER/ STREAM
- NWI RIVERINE

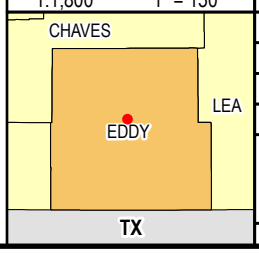
BASE MAP: GOOGLR EARTH AERIAL IMAGERY SERICE LAYER
AERIAL DATE: 12/2023
DATA SOURCES: TRC, NWI, NHD

N

0 75 150

FEET

1:1,800 1" = 150'



PROJECT: CONOCOPHILLIPS
FEDERAL 29 Z 002H SITE PROJECT
EDDY COUNTY, NEW MEXICO

TITLE: HYDROLOGY

DRAWN BY:	A. CLINE	PROJ. NO.:	544675.0000.0000
CHECKED BY:	A. GIBSON		
APPROVED BY:	M. CROSS		FIGURE 3
DATE:	SEPTEMBER 2025		

TRC
11767 KATY FREEWAY
SUITE 850
HOUSTON, TX 77079
PHONE: 713.244.1000

FILE: 544675_WDR

LEGEND

- OBSERVATION POINT
- UPLAND POINT
- PIPELINE
- SITE INFRASTRUCTURE
- 300-FT BUFFER

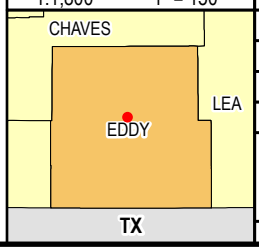
BASE MAP: GOOGLR EARTH AERIAL IMAGERY SERICE LAYER
AERIAL DATE: 12/2023
DATA SOURCES: TRC

N

0 75 150

FEET

1:1,800 1" = 150'



PROJECT: CONOCOPHILLIPS
FEDERAL 29 Z 002H SITE PROJECT
EDDY COUNTY, NEW MEXICO

TITLE: FIELD RESULTS

DRAWN BY:	A. CLINE	PROJ. NO.:	544675.0000.0000
CHECKED BY:	A. GIBSON		
APPROVED BY:	M. CROSS		FIGURE 4
DATE:	SEPTEMBER 2025		

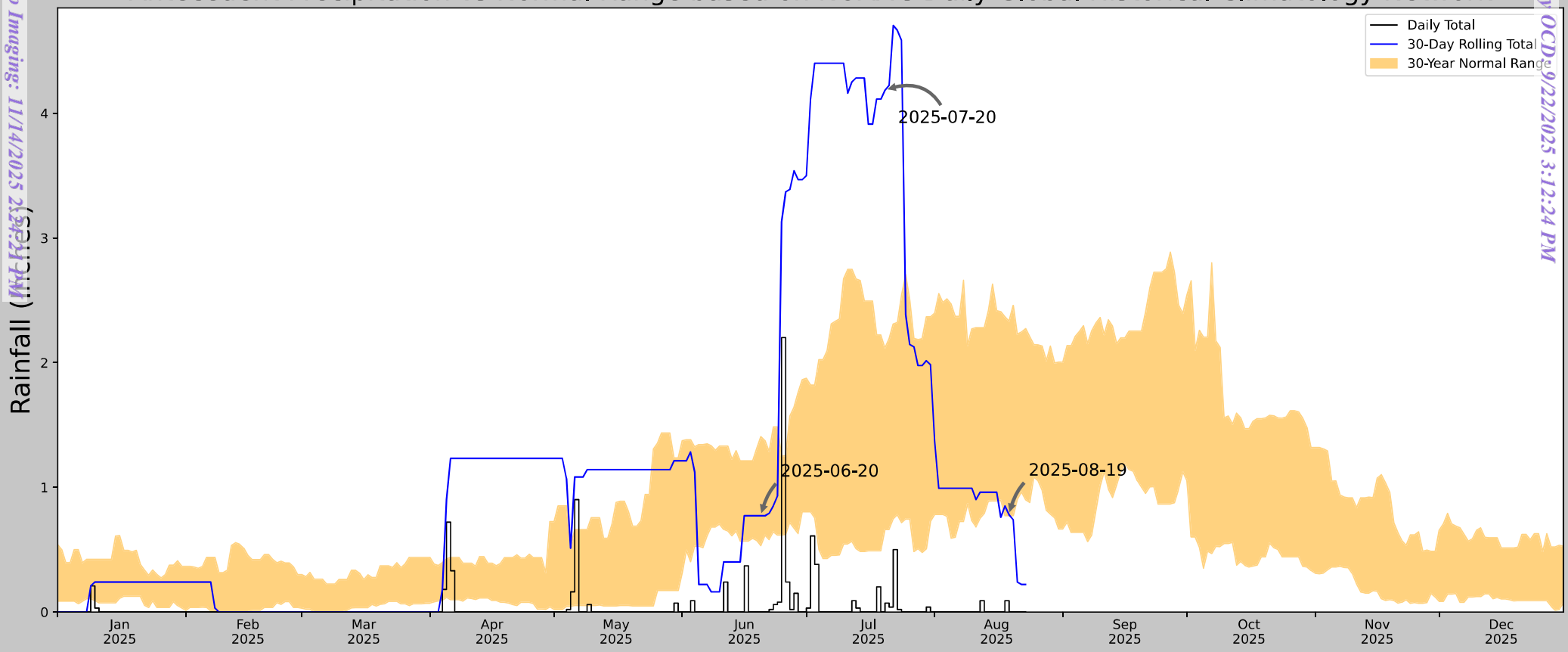
TRC
11767 KATY FREEWAY
SUITE 850
HOUSTON, TX 77079
PHONE: 713.244.1000

FILE: 544675_WDR

COORDINATE SYSTEM: NAD 1983 STATEPLANE NEW MEXICO EAST FIPS 3001 FEET; MAP ROTATION: 0
-- SAVED BY: ACLINE ON 9/3/2025, 16:28:29 PM; FILE PATH: T:\1-PROJECTS\CONOCOPHILLIPS\544675_FEDERAL 29\2-APRX\544675_WDR APRX; LAYOUT NAME: FIGURE 4 FIELD RESULTS

Appendix B.
Antecedent Precipitation Tool

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	32.54269, -104.31038
Observation Date	2025-08-19
Elevation (ft)	3203.112
Drought Index (PDSI)	Mild drought (2025-07)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-08-19	0.772047	2.332677	0.779528	Normal	2	3	6
2025-07-20	0.662598	2.11811	4.18504	Wet	3	2	6
2025-06-20	0.532283	1.405906	0.771654	Normal	2	1	2
Result							Normal Conditions - 14

Figures and tables made by the Antecedent Precipitation Tool Version 3.0

US Army Corps of Engineers. ERDC

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BRANTLEY DAM	32.5158, -104.3828	3212.927	4.61	9.815	2.12	9996	90
CARLSBAD 6.8 NW	32.4816, -104.3084	3286.089	4.938	73.162	2.583	55	0
CARLSBAD NORTH 15.5 NW	32.5979, -104.4195	3316.929	6.062	104.002	3.358	1169	0
CARLSBAD 17.1 NW (PRICE)	32.5786, -104.4461	3366.142	5.694	153.215	3.435	2	0
ARTESIA 15.5 S (LEWIS)	32.627, -104.3833	3304.134	7.683	91.207	4.158	3	0
CARLSBAD 1.9 NW	32.4216, -104.2629	3210.958	9.551	1.969	4.317	22	0
CARLSBAD 2.6 NNW	32.436, -104.261	3175.853	8.989	37.074	4.378	4	0
CARLSBAD 2.1 NNW	32.4309, -104.254	3158.137	9.528	54.79	4.81	10	0
CARLSBAD 3.4 N	32.4539, -104.2378	3136.155	9.472	76.772	4.99	61	0
CARLSBAD 2.1 NE	32.4279, -104.2141	3126.969	11.558	85.958	6.195	23	0
CAVERN CITY AP	32.3336, -104.2583	3250.0	14.533	37.073	7.079	8	0

Appendix C.
Wetland Determination Data Forms

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-08-28; the proponent agency is CECW-COR

OMB Control #: 0710-0024, Exp: 09/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Federal 29 Z 002H Release Site City/County: --, Eddy County Sampling Date: 2025-8-19
Applicant/Owner: ConocoPhillips State: NM Sampling Point: UPL-01
Investigator(s): JJY Section, Township, Range: 29 20S 27E
Landform (hillslope, terrace, etc): Plain Local relief (concave, convex, none): Concave Slope (%): 0 to 1
Subregion (LRR): LRR D Lat: 32.5422713441 Long: -104.309626573 Datum: WGS84
Soil Map Unit Name: Reagan loam, 0 to 3 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✘ (If no, explain in Remarks.)
Are Vegetation ____ , Soil ____ , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✘ No ____
Are Vegetation ____ , Soil ____ , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✘	**Is the Sampled Area within a Wetland?** Yes ____ No ✘
Hydric Soil Present?	Yes ____	No ✘	
Wetland Hydrology Present?	Yes ____	No ✘	

Remarks:
Covertype is UPL. According to USACE APT, hydrologic conditions are normal during a mild drought in the dry season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1. *Prosopis glandulosa*	20	Yes	FACU
2.			
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Hilaria jamesii*	50	Yes	UPL
2. *Bouteloua gracilis*	20	Yes	UPL
3. *Aristida purpurea*	20	Yes	UPL
4.			
5.			
6.			
7.			
8.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	90	x 5 =	450
Column Totals:	110 (A)		530 (B)

Prevalence Index = B/A = 4.8

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✘

Remarks:
No vegetation comments.

SOIL

Sampling Point: UPL-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 to 16	7.5YR 3/3	100					Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5) **(LRR C)**
- __ 1 cm Muck (A9) **(LRR D)**
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Iron Monosulfide (A18)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 1 cm Muck (A9) **(LRR C)**
- __ 2 cm Muck (A10) **(LRR B)**
- __ Iron-Manganese Masses (F12) **(LRR D)**
- __ Reduced Vertic (F18)
- __ Red Parent Material (F21)
- __ Very Shallow Dark Surface (F22)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Not present
Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✘

Remarks:
No soil comments.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1) **(Nonriverine)**
- __ Sediment Deposits (B2) **(Nonriverine)**
- __ Drift Deposits (B3) **(Nonriverine)**
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Water-Stained Leaves (B9)
- __ Salt Crust (B11)
- __ Biotic Crust (B12)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres on Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Thin Muck Surface (C7)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water Marks (B1) **(Riverine)**
- __ Sediment Deposits (B2) **(Riverine)**
- __ Drift Deposits (B3) **(Riverine)**
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Crayfish Burrows (C8)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✘	Depth (inches): _____
Water Table Present?	Yes _____	No ✘	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✘	Depth (inches): _____

Wetland Hydrology Present? Yes _____ **No** ✘

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology comments.

SAMPLE PLOT PHOTOS

Plot Photo(s) - N :

Plot Photo(s) - E:

Plot Photo(s) - S:

Plot Photo(s) - W:

Plot Photo(s) - Hydrology:

Plot Photo(s) - Vegetation:

Plot Photo(s) - Soil:

Appendix D.
Observation Data Sheets and Photographs

ENVIRONMENTAL SURVEY PLOT REPORT

CLIENT: CONOCOPHILLIPS
PROJECT: FEDERAL 29 Z 002H RELEASE SITE PROJECT

O-01

PLOT OVERVIEW

32.54371355182125, -104.31180958491679

ID	O-01-1	**Plot Type**	Observation
Date/Time	2025-08-19 13:18:03	**Parcel**	
Evaluator(s)	Antonio Molina		
Feature Detail	Photo Point		
Comments			

PLOT PHOTOS

Photo ID	O-JJY-100-1-PIC1	**Photo Type**	Site Overview
Direction	N	**Comment**	

Photo ID	O-JJY-100-1-PIC2	Photo Type	Site Overview
Direction	E	Comment	

Photo ID	O-JJY-100-1-PIC3	Photo Type	Site Overview
Direction	S	Comment	

Photo ID	O-JJY-100-1-PIC4	Photo Type	Site Overview
Direction	W	Comment	

Photo ID	O-JJY-100-1-PIC5	Photo Type	Site Overview
Direction	SE	Comment	

ENVIRONMENTAL SURVEY PLOT REPORT

CLIENT: CONOCOPHILLIPS
PROJECT: FEDERAL 29 Z 002H RELEASE SITE PROJECT

O-02

PLOT OVERVIEW			32.543296428391585, -104.31111155616114
ID	O-02-1	**Plot Type**	Observation
Date/Time	2025-08-19 13:24:38	**Parcel**	
Evaluator(s)	Antonio Molina		
Feature Detail	Photo Point		
Comments			

PLOT PHOTOS			
Photo ID	O-JJY-101-1-PIC1	**Photo Type**	Site Overview
Direction	N	**Comment**	

Photo ID	O-JJY-101-1-PIC2	Photo Type	Site Overview
Direction	E	Comment	

Photo ID	O-JJY-101-1-PIC3	Photo Type	Site Overview
Direction	S	Comment	

Photo ID	O-JJY-101-1-PIC4	Photo Type	Site Overview
Direction	W	Comment	

Photo ID	O-JJY-101-1-PIC5	Photo Type	Site Overview
Direction	SE	Comment	

Photo ID	O-JJY-101-1-PIC6	Photo Type	Site Overview
Direction	NW	Comment	

ENVIRONMENTAL SURVEY PLOT REPORT

CLIENT: CONOCOPHILLIPS
PROJECT: FEDERAL 29 Z 002H RELEASE SITE PROJECT

O-03

PLOT OVERVIEW

32.54269418888888, -104.31038371111111

ID	O-03-1	**Plot Type**	Observation
Date/Time	2025-08-19 13:47:28	**Parcel**	
Evaluator(s)	Antonio Molina		
Feature Detail	Photo Point		
Comments			

PLOT PHOTOS

Photo ID	O-JJY-104-1-PIC1	**Photo Type**	Site Overview
Direction	N	**Comment**	

Photo ID	O-JJY-104-1-PIC2	Photo Type	Site Overview
Direction	E	Comment	

Photo ID	O-JJY-104-1-PIC3	Photo Type	Site Overview
Direction	S	Comment	

Photo ID	O-JJY-104-1-PIC4	Photo Type	Site Overview
Direction	W	Comment	

ENVIRONMENTAL SURVEY PLOT REPORT

CLIENT: CONOCOPHILLIPS
PROJECT: FEDERAL 29 Z 002H RELEASE SITE PROJECT

O-04

PLOT OVERVIEW			32.54233792917343, -104.30961671899593
ID	O-04-1	**Plot Type**	Observation
Date/Time	2025-08-19 13:30:32	**Parcel**	
Evaluator(s)	Antonio Molina		
Feature Detail	Photo Point		
Comments			

PLOT PHOTOS

Photo ID	O-JJY-102-1-PIC1	**Photo Type**	Site Overview
Direction	N	**Comment**	

Photo ID	O-JJY-102-1-PIC2	Photo Type	Site Overview
Direction	E	Comment	

Photo ID	O-JJY-102-1-PIC3	Photo Type	Site Overview
Direction	S	Comment	

Photo ID	O-JJY-102-1-PIC4	Photo Type	Site Overview
Direction	W	Comment	

Photo ID	O-JJY-102-1-PIC5	Photo Type	Site Overview
Direction	NW	Comment	

Photo ID	O-JJY-102-1-PIC6	Photo Type	Site Overview
Direction	SE	Comment	

ENVIRONMENTAL SURVEY PLOT REPORT

CLIENT: CONOCOPHILLIPS
PROJECT: FEDERAL 29 Z 002H RELEASE SITE PROJECT

O-05

PLOT OVERVIEW			32.54150650740616, -104.30876429517191
ID	O-05-1	**Plot Type**	Observation
Date/Time	2025-08-19 13:38:15	**Parcel**	
Evaluator(s)	Antonio Molina		
Feature Detail	Photo Point		
Comments			

PLOT PHOTOS

Photo ID	O-JJY-103-1-PIC1	**Photo Type**	Site Overview
Direction	N	**Comment**	

Photo ID	O-JJY-103-1-PIC2	Photo Type	Site Overview
Direction	E	Comment	

Photo ID	O-JJY-103-1-PIC3	Photo Type	Site Overview
Direction	S	Comment	

Photo ID	O-JJY-103-1-PIC4	Photo Type	Site Overview
Direction	W	Comment	

Photo ID	O-JJY-103-1-PIC5	Photo Type	Site Overview
Direction	SW	Comment	

Photo ID	O-JJY-103-1-PIC6	Photo Type	Site Overview
Direction	NW	Comment	

Appendix E.
Melissa Cross CV, PWS #3628

Melissa Cross
Natural Resources Project Manager

RELEVANT TRAININGS

40-Hr Wetland Delineation Training
Advanced Hydric Soils
Plants of the Wetland Boundary-Southeast US
Problem Soils of the Columbia Bottomlands
Advanced Wetland Hydrology

MEMBERSHIPS

The Wildlife Society
Society of Wetland Scientists

Melissa Cross has ten years of experience in environmental consulting, specializing in planning and permitting. She has experience collecting remote biological data, with an emphasis on wildlife and habitat assessments and waters of the US delineations. She has prepared dozens of water feature delineation reports, USACE Section 404/10 permits, and USFWS biological evaluations/assessments for various clients such as TxDOT, ODOT, numerous municipalities, county governments, and private sector clients. She has also helped contractors maintain regulatory compliance with federal agencies at various stages of project development. Melissa's experience further includes preparing documentation for various other due diligence and NEPA project needs including Phase I Environmental Site Assessments (ESA), hazardous materials technical reports, public meeting planning and documentation, Environmental Information Documents, Categorical Exclusions, and Environmental Assessments.

CREDENTIALS

Education:

- M.S., Forestry - Stephen F. Austin State University
- B.S., Forest Wildlife Management, Minor in Animal Science - Stephen F. Austin State University

Professional Registrations/Certifications:

- Professional Wetland Scientist (#3628)
- Certified Wildlife Biologist®
- Protected Species Observer

EXPERIENCE

Professional Summary:

- Over 10 years' experience on broad range of projects
- Experience with both public and private sector clients
- Experience across numerous ecoregions
- Primary field investigator for over 200 individual waters features delineation efforts
- Contributed to hundreds of NEPA-cleared Projects
- Authored dozens of Section 404/10 USACE Permits
- Authored numerous USFWS Biological Assessments and Evaluations
- Performed various plant and terrestrial species presence/absence surveys
- Experience identifying and implementing mitigation measures for waters of the US and species

PROJECT EXPERIENCE

Wellborn SUD Improvements, City of Wellborn, Brazos and Robertson Counties, Texas | Lead Biologist & Deputy PM (2021-2024)
The project is intended to construct a new well site, plant site, and additional water lines for a total of approximately 15 miles across Brazos and Robertson Counties. Melissa led the field investigations and document preparation for a Waters of the US Delineation Report, USACE NWP 58 with PCN, and an Environmental Information Document (EID) with associated attachments (TWDB-funded project). The project was determined to have potential habitat for the Navasota Ladies-tresses. Melissa performed a desktop habitat delineation to guide field survey efforts. The species was not detected during presence/absence surveys, but a Biological Evaluation for the project was prepared for Section 7 consultation as only one year of surveys could be performed due to the project timeline. The USFWS issued Concurrence for the project in January 2024, and the USACE issued a NWP 58 with PCN the same month. The EID was approved by the TWDB in May 2024.

San Felipe Creek Bridge/Embankment Improvements, City of Del Rio (Sub to Bain Medina Bain as Prime), Val Verde County, Texas | Field investigator and Biological Document Reviewer (2018-2022)
Melissa led the Waters of the US delineation and threatened and endangered species habitat assessment for a bridge replacement in a public park. The project included sensitive ecosystems and critical habitat for the federally threatened Devil's River Minnow. Documents produced included a preliminary jurisdiction Waters of the US report and a Biological Assessment for the Devil's River Minnow and its associated critical habitat. A Biological Opinion was received for the project through Section 7 Consultation.

11767 Katy Freeway, Suite 850, Houston, TX, USA, 77079
Tel: 361.278.3850 Email: MCross@trccompanies.com

FM 1764 Improvements, TxDOT Houston District, Galveston County, Texas City, TX | Deputy Project Manager
The project included improvements along approximately 4.8miles of FM 1764 in Texas City, Texas. Minor concrete repairs under the FM 1764 bridge between 34th St and 33rd St were proposed; thereby requiring temporary dewatering of a Section 10 stream. Melissa served as the deputy project manager for the project and QC'ed all tech reports associated with the project. A PCN was not initially identified by TxDOT as a requirement on the project, but Melissa identified the concern early due to RC 10 for the Galveston District and immediately notified the TxDOT PM. To avoid scheduling delays and coordination with NMFS/USFWS, Melissa prepared a NWP 33 w/PCN instead of an NWP 14 due to the strictly temporary impacts. Melissa worked directly with TxDOT engineers to draft a dewatering and restoration plan for the tidal stream. USACE issued a jurisdiction concurrence and permit with minimal comment.

SL 288 – IH 35 to IH 35W, TxDOT Dallas District, Denton County, Texas | Lead Biologist/Wetland Delineator
Environmental Assessment of a nine-mile S&E project for the extension of SL 288 west of Denton, Texas consisting of an ultimate 4-lane freeway section, two-lane frontage roads, and interchanges with multiple direct connectors at the IH 35 and IH 35W termini. Lead field investigator for extensive Waters of the U.S. delineation that originally included the project area for the full build out of grading and drainage work. The original design would have resulted in a Standard Permit from USACE. TxRAM was completed for anticipated compensatory mitigation for Waters of the U.S. impacts. The environmental team worked extensively with the drainage design team to reduce impacts and modify the drainage design to only accommodate frontage roads, and to reduce water impacts to allow project authorization under a PCN. Melissa served as the primary preparer of the NWP 14 with PCN.

Ocean Drive Bridge Replacement, TxDOT Corpus District, Nueces County, Texas | Project Manager and Biologist
The proposed project involves replacing the bridge and approaches of the existing Ocean Drive Bridge over Cayo Del Oso Bay/Corpus Christi Bay. Melissa led the field investigations and document preparation of the Species Analysis Spreadsheet, National Marine Fisheries Service (NMFS) Essential Fish Habitat memo, United States Coast Guard Exemption Letter, and NMFS Expedited Consultation Letter for impacts to the Green Sea Turtle, Giant Manta Ray, and proposed critical habitat, and USFWS Biological Evaluation for the Piping Plover, Red Knot, West Indian manatee, and critical habitat. Melissa oversaw the preparation and completed technical reviews of all documents including, but not limited to, wetland delineation report, hazardous materials ISA, and Archeological Background Study. Melissa also prepared a NWP 14 with PCN for the project due to a regional condition on tidal water impacts. NMFS concurred with project findings in October 2024. The USACE permit was received in April 2025. USFWS concurrence and environmental clearance are anticipated summer 2025.

Solar Field Development, 5 Solar Sites Private Client, Columbia, Dutchess, and Orange Counties, New York | Biologist (2022-2023)
Melissa was the lead biologist on the project that involved traversing undeveloped tracts located in Columbia County (103.7 acres), Dutchess County (110.4 acres; 60.1acres; & 102.5 acres), and Orange County (87.3 acres), New York to delineate for any potential waters of the U.S. and identify potential habitat for state and federally listed species. Melissa prepared both Phase I ESAs and an Environmental Due Diligence letter for each of the sites summarizing the findings and recommending any necessary federal and state agency coordination actions. For one property (110.4 acres), following completion of the Due Diligence investigations, Melissa completed additional species coordination documents for three endangered bat species that included a desktop analysis of forest cover within a 2.5-mile radius, encompassing approximately 12,566 acres. The analysis also included specifying the cover-type of the forestland on the project Site (hardwood versus conifer-dominated). The findings of this analysis were coordinated with both USFWS and the New York State Department of Environmental Conservation. Minimization measures were recommended to the client, and the project proceeded with concurrence from both regulating agencies of no take permits necessary.

FM 1488, TxDOT Houston District, Montgomery County, Texas | Lead Biologist/Wetland Scientist (2021-2022)
Lead field investigator for the waters delineation and primary preparer of the Waters Delineation Report and USACE permit application. The project involved the delineation and GPS data collection of numerous intermittent streams, ephemeral drainages, and over two dozen herbaceous wetlands. Unavoidable impacts to wetlands required iHGM calculations to determine the ecological health and function of the existing wetlands. Coordinated with a mitigation bank to form a mitigation plan for the NWP 14 with PCN. The delineation for the project was verified by USACE through the review of the prepared NWP 14 with PCN application. The PJD for the project was approved with no comments or clarifications requested from USACE and issued in June 2022. Melissa also prepared a Habitat Assessment Technical Report for the Red-cockaded Woodpecker that was determined to have habitat immediately adjacent to the project. Coordination with the Texas Forest Service was completed to help evaluate RCW impacts. The project was determined to meet the requirements of the established Programmatic Agreement (PA) for the RCW after further evaluation. The PA was used to complete informal consultation with USFWS.

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Loop 360 General Engineering Consultant (GEC) W1 2018 at Spicewood/Lakewood Drive, TxDOT (Sub to HDR Engineering, Inc. as Prime), Austin, Texas | Lead Field Investigator & Biological Document Preparer
The project included Waters of the US delineation and associated impact calculations and a biological review that focused on sensitive ecosystems and threatened and endangered species. Melissa lead the Waters of the US delineation and habitat assessments. Documents produced included a Surface Waters Analysis Form, Tier I with associated documentation, and a Biological Assessment (BA) for Section 7 consultation on impacts to the federally endangered Golden-cheeked Warbler, threatened Jollyville Plateau Salamander, and two listed karst invertebrates. Melissa attended a site visit to the project with USFWS biologists to evaluate the available habitat and project methods prior to drafting the BA. Mussel surveys for state and federally listed species was required, as were two years of vegetation surveys for plant SGCN species that could potentially occur within the study area. The Biological Opinion for the project was issued by USFWS in August 2023.

Northside Collection System Improvements, City of Del Rio, Val Verde County, Texas | Lead Environmental Specialist
The proposed project is intended to construct an approximate 36,000 linear feet of 18- to 33-inch wastewater line that will connect Silver Lake WWTP to Edwards Lift Station and provide service for future development and areas currently underserviced. The project will also consist of the decommissioning and elimination of the lift station at the northern end of the project. Melissa led the field investigations and preparation of the Environmental Information Documents (EID) and associated attachments since the project was being funded by TWDB. The EID was submitted to TWDB in March 2022 and was approved in October 2022.

IH 10 Navigational System Replacement at San Jacinto River, TxDOT, Harris County, Texas | Lead Field Investigator and Primary Preparer
Lead field investigator and primary preparer of the Waters Delineation Report with associated maps and documents. The field investigations involved the delineation and GPS data collection of tidal wetlands and the MHW of the San Jacinto River within the project area. Soil sample pits could not be taken due to the proximity of a Superfund Site with known soil contamination. Hydric soils were determined from a review of soil series maps and presence of other wetland indicators. Melissa also prepared a large portion of the USACE Standard Permit. The delineation for the project was verified by USACE through the review of the prepared SP application. USACE approved the PJD for the project and issued a SP in November 2020.

FM 989 Improvements, TxDOT Atlanta District, Bowie County, Texas | Lead Field Investigator and Primary Preparer
Lead field investigator and primary preparer of the Wetland Delineation Report with associated maps and documentation. The project involved the delineation of a large, forested wetland, herbaceous wetlands and an intermittent creek. Also prepared the NWP 14 with PCN and all associated attachments. Compensatory mitigation was originally going to be required due to high construction impacts, but STV was able to work with the engineers to minimize impacts and avoid mitigation. The delineation for the project was verified by USACE through the review of the prepared NWP 14 with PCN application. The project was approved with a PJD and permit issued in July 2019.

Kenney Fort Boulevard Segments 2 & 3, City of Round Rock, Williamson County | Lead Biologist/Wetland Scientist
Responsible for the preparation of biological, hazardous material and Waters of the US technical documents. The project involved field reconnaissance to evaluate potential hazardous materials, jurisdictional water determinations and species habitat determinations. Delineations of ephemeral and intermittent streams, freshwater ponds, and emergent wetlands were required. Technical reports were produced for water resources, threatened and endangered species (T&E), species habitat and hazardous materials. A Section 404 Permit was prepared for unavoidable impacts to wetlands. The delineation for the project was verified by USACE through the review of the prepared NWP 14 with PCN application and a site visit. The permit was issued in May 2021.

SH 146 EA Re-Evaluations, TxDOT Houston District, Texas | Biologist/Wetland Scientist
Prepared a biological review focused on sensitive ecosystems and T&E species for two portions of this roadway. No USFWS formal consultation was determined to be necessary, but TPWD was coordinated with to minimize impacts to state-listed threatened species and SGCNs. The field investigations results in the delineation of more than two dozen herbaceous wetlands. Assisted with the waters field delineations, preparation of associated documentation and QC review for the proposed project. Both sections of the project have been approved and environmentally cleared through the TxDOT Houston District, and the delineation for one portion of the project was verified by USACE through the review of the prepared NWP 14 with PCN application. The PCN was approved and has been issued, but the project design changes have resulted in additional unanticipated impacts and necessary compensatory mitigation and the need for a Standard Permit. Melissa prepared the functional assessments to evaluate wetland ecological functions and health and coordinated with mitigation banks in the area to complete a mitigation plan. The Standard Permit was issued by USACE in August 2023. Melissa also prepared a Standard Permit for the second section of roadway that was signed in Fall 2023.

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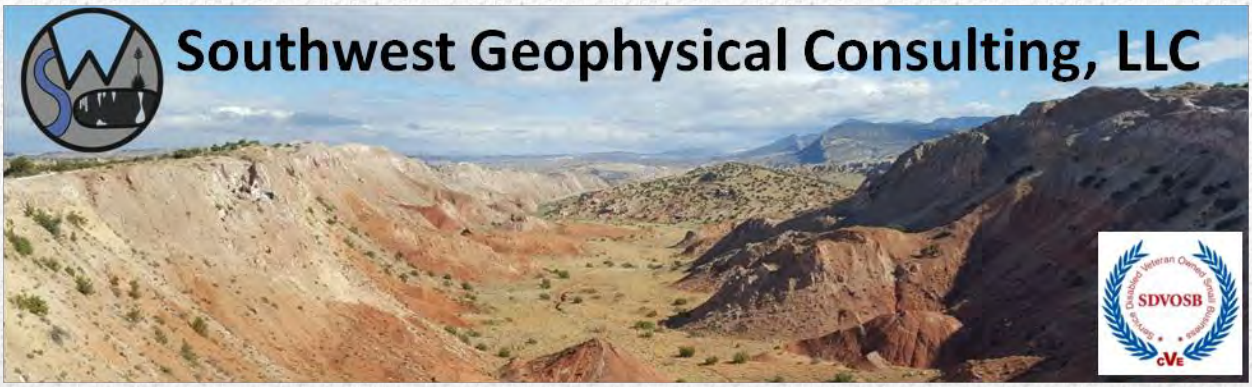
Appendix C – Negative Karst Determination Report; Southwest Geophysical Consulting, LLC



Environmental Karst Study Report
Federal 29 Z #002
Eddy County, New Mexico

Prepared For:

TRC Companies, Inc.

505 E. Huntland Dr. STE 250

Austin, TX 78752

☐ **Positive within 200 feet of spill delineation boundary**

☑ **Negative within 200 feet of spill delineation boundary**

☑ **Stable** ☐ **Unstable Ground**

☐ **Karst Monitor Recommended**

March 28, 2025

TRCC-002-20250203

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1.0 INTRODUCTION

This report was commissioned by TRC Companies, Inc. (hereinafter referred to as "the client"), on February 3, 2025, for the purpose of conducting an environmental karst study within an area encompassing the Federal 29 Z #002 release site (hereinafter termed “F29Z2”) centered at N 32.542619° W 104.310847°

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[1]) and to determine whether stable ground exists (as defined by 19.15.2 NMAC Definitions[2]) within the spill boundary of the F29Z2 release using electrical resistivity imaging[3].

1.2 Summary of Findings

- **No surface karst features exist within the 200-foot (61-meter) perimeter of the spill delineation boundary.**
- One recognized karst feature exists within the 200-meter surface karst survey boundary.
- **No anomalies consistent with subsurface air- or water-filled voids were found within the F29Z2 resistivity survey area, indicating the zone beneath the geophysical survey is not subject to collapse.**
- **Flat-lying stratigraphy is interpreted to exist beneath the area where the geophysical survey was conducted, indicating stable ground.**

1.3 Affected Environment

The F29Z2 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[4]. These designations are also recognized by the New Mexico State Land Office (NMSLO). This project occurs within a **HIGH** karst occurrence zone (HKOZ)[5] (**Figure 1**).

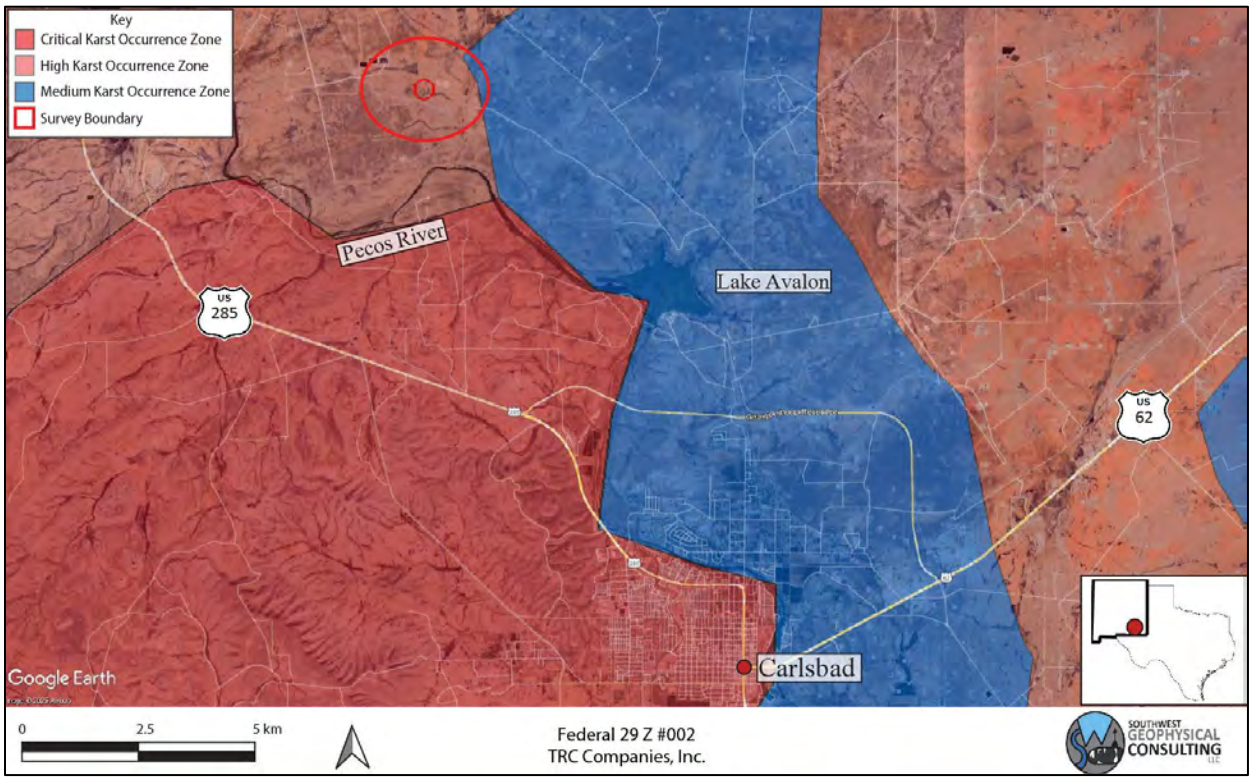

Figure 1: Karst occurrence zone overview. Background image credit: Google Earth. Image date: December 5, 2023. Image datum: WGS-84.

A high karst occurrence zone is defined as an area in known soluble rock types that contains a high frequency of significant caves and karst features such as sinkholes, bedrock fractures that provide rapid recharge of karst aquifers, and springs that provide riparian habitat[4].

Due to the rapidity with which evaporite karst develops, each location within a CKOZ or HKOZ 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 TRC Companies, 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 three years past the dates 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 16.0 kilometers (9.9 miles) northwest of Carlsbad, New Mexico, south of South Lake Road and north of the Pecos River within the SW ¼ section of section 29, NM T20S R27E[6] (**Figure 1** and **Figure 2**). The region has rolling terrain with karstification occurring in the gypsite soils and underlying gypsum and dolomite bedrock[7] (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[8]. This area is within the Chihuahuan Desert Thornscrub as defined by the Southwestern Regional ReGAP Vegetation map[9] 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 HKOZ[5] (**Figure 1**) and within BLM-CFO managed land[10] (**Figure 2**).

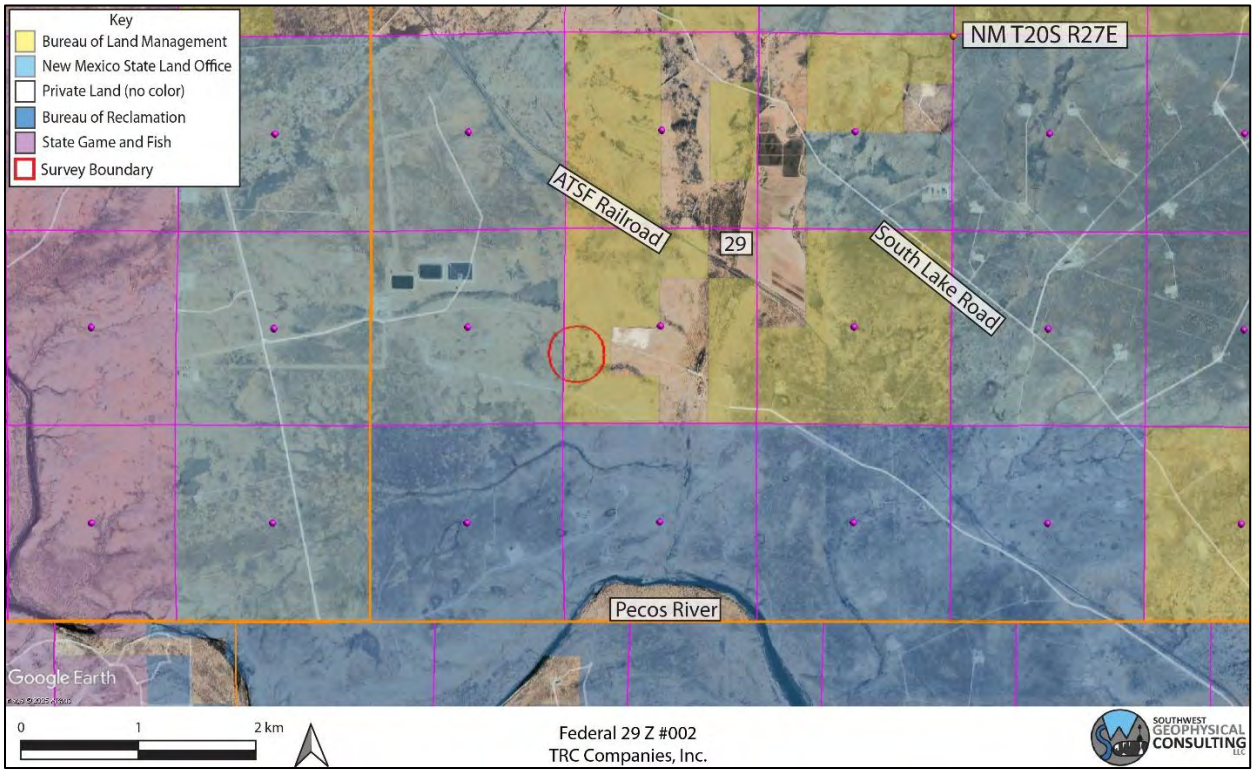

Figure 2: Land ownership and PLSS overview. Background image credit: Google Earth. Image date: December 5, 2023. Image datum: WGS-84.

2.2 Local Geology Summary

The site for the F29Z2 survey is located at an elevation of 977 meters (3,205 feet), ± 1 meter (3.3 feet), and is located within a region entirely underlain by the undivided Permian Yates and Tansill Formations (Pty). The area is mantled by thin calcareous soils (caliche) and Quaternary alluvium (Qal)[11] up to 5 meters in depth (**Figure 3**).

The Tansill Formation is mostly carbonate with minor siltstone and anhydrite. East of Highway 285 and along the Pecos River, the Tansill is predominantly dolomite. In places where the dolomitic beds are exposed, the contact with the overlying Salado gypsum and siltstone can also be seen. Both of the dolomitic and gypsiferous facies in the Tansill are prone to karst development[12].

The Yates Formation is dominated by a quartz-rich, frosted-sandstone facies with minor carbonate, anhydrite, and siltstone. Northwest of Carlsbad, there is a near-reef facies with inter-tongued carbonates and evaporites. The lower section of the Yates transitions with the upper portion of the Seven Rivers Formation. This area consists of dolomite interbedded with siltstone, fine-grained sandstone, and minor gypsiferous siltstone beds that are prone to karst development[12].

The survey area is covered by the easily accessible Geologic Map of New Mexico (2003) at 1:500,000 scale[13] and the Digital Geologic Map of New Mexico in ARC/INFO Format[11].

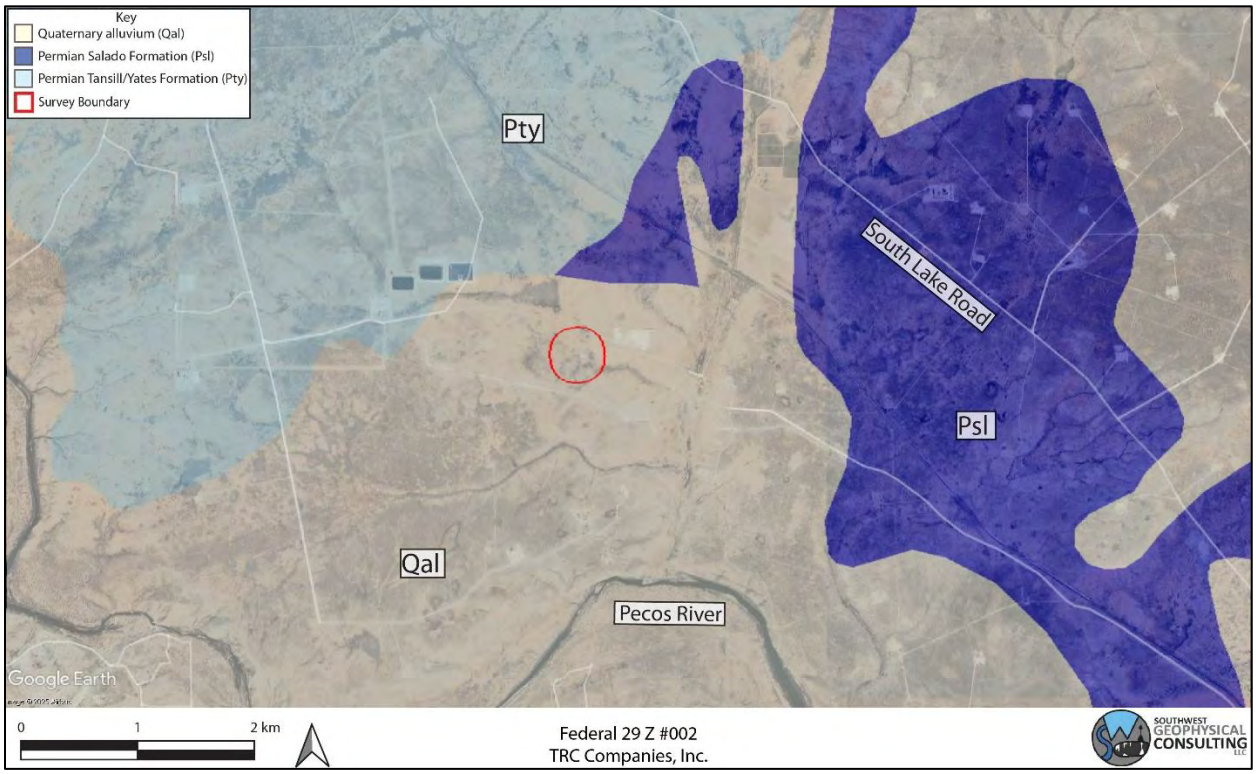

Figure 3: Geology overview. Geology map credit: The Digital Geologic Map of New Mexico in ARC/INFO Format. Background image credit: Google Earth. Image date: December 5, 2023. Image datum: WGS-84.

2.3 Description of Survey

2.3.1 Surface Karst Inventory

Southwest Geophysical Consulting, in partnership with SWCA Environmental Consultants, provides aerial 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 aerial karst survey includes a surface karst 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[1] (**Figure 4**). The study was performed using satellite and aerial imagery from Google Earth Pro dated December 5, 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 December 23, 2024[14]; the Lake McMillan South, NM, 1:24,000 quad, 1955, 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.

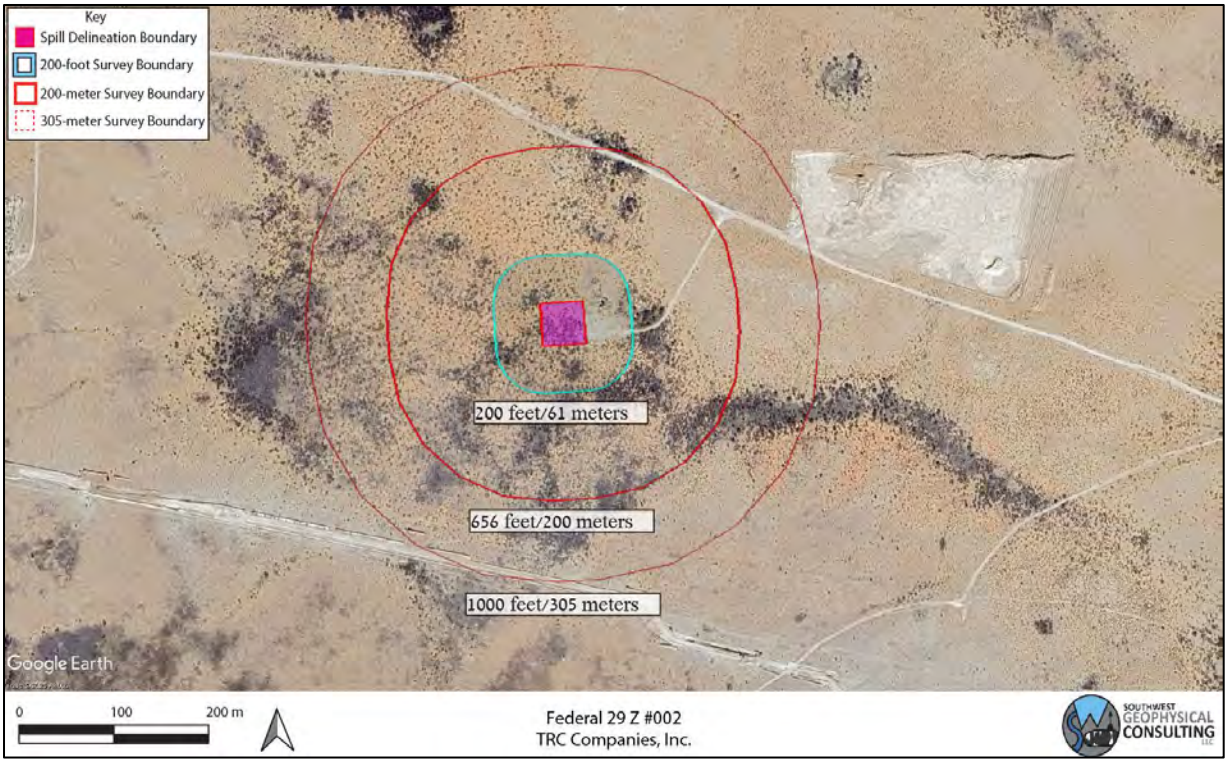

Figure 4: Surface survey overview. Background image credit: Google Earth. Image date: December 5, 2023. Datum: WGS-84.

Aerial karst surveys are conducted at low elevation within 200 meters of the spill delineation boundary[4] (**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[15].

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 March 5, 2025. Surface karst features may have developed after this date and will not be noted in this report. Imagery analysis was completed by David Decker of Southwest Geophysical Consulting on March 6, 2025.

2.3.2 Geophysical Survey

For this survey, an Advanced Geosciences Inc. (AGI) SuperSting™ Wifi R8 with a multi-electrode switchbox, a 28-electrode array of 40-centimeter-long electrodes, and a tablet controller were used to image the subsurface. This survey consisted of two orthogonal resistivity lines in a dipole-dipole strong-gradient configuration; F29Z201 is laid out south to north and F29Z202 is laid out west to east. Both lines consisted of 28 electrodes at 6-meter spacing, resulting in 162-meter-long arrays (**Figure 5**, **Table 1**). A preconfigured command file was used to run the data collection (DDSG28). This electrode configuration provided a depth of investigation of 32 meters (105 feet) and a resolution of 3.0 to 3.5 meters (9.8 to 11.5 feet) within the first 8 to 10 meters (26 to 33 feet) from the surface. A Leica GS18 GPS was used to record electrode locations and elevations.

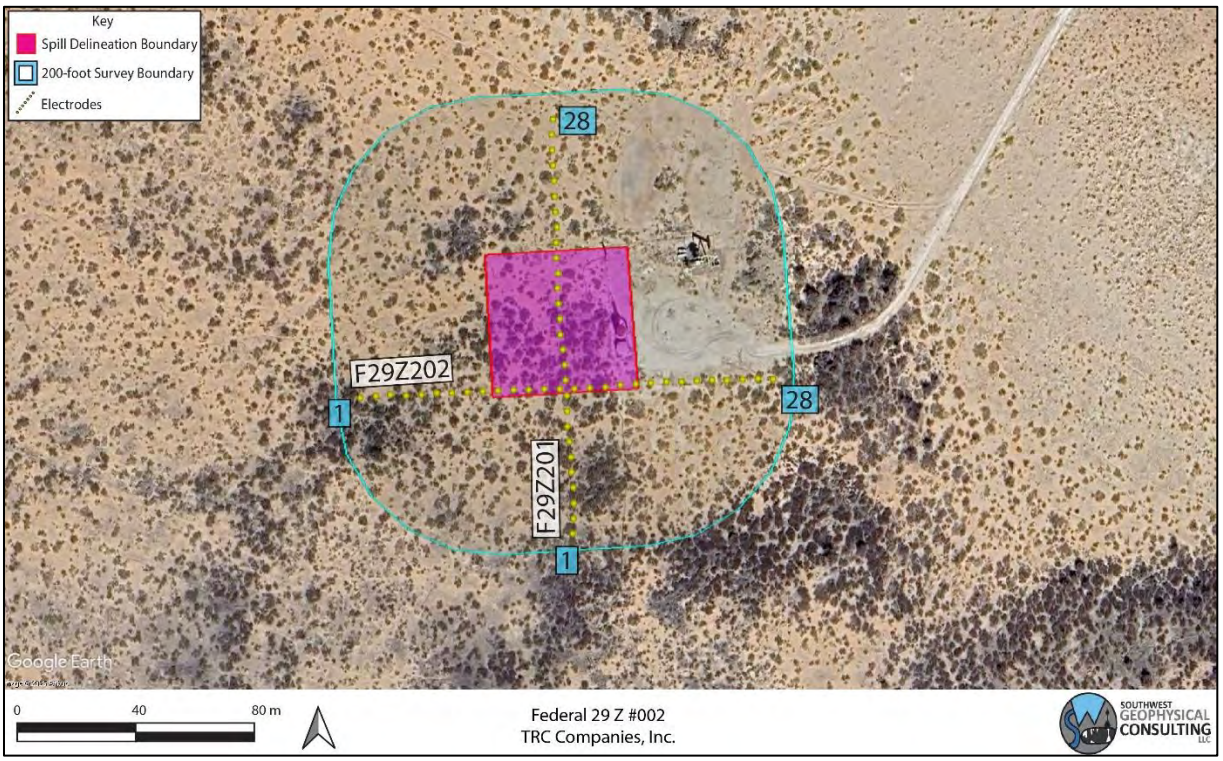

Figure 5: Geophysical survey overview. Two survey lines were conducted with 28 electrodes each at 6-meter spacing (yellow dots denoted with blue numbers). Background image credit: Google Earth. Image date: December 5, 2023. Image datum: WGS-84.

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 .kmz file contains all the points for the survey line listed in the file name. These data are available in the accompanying files F29Z2 _ERI_Points.xlsx and TRCC-002-20250203_F29Z2_Data_Files.kmz.

File Name:	Completed By:	Date:
F29Z201.kmz	Garrett Jorgensen Olague – Senior Field Geologist Britt Bommer – Field Geologist Steven Kesler – Field Geologist	03/6/2025
F29Z202.kmz		

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 Ω-m) and a max apparent resistivity set to 100,000 Ω-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 kΩ-m Min Apparent Resistivity = 0.1 Ω-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 Garrett Jorgensen Olague, Britt Bommer, and Steven Kesler on March 6, 2025.

3.0 RESULTS

3.1 Surface Karst Survey

The desk study and surface karst survey showed no surface karst features within the 200-foot (61-meter)[1] karst survey boundary.

One recognized surface karst feature is located within the 200-meter survey boundary (**Figure 6**, **Table 3**). Recognized surface karst features are features that are positively identified in either satellite or aerial imagery as karst features and the features have been visited by a qualified karst professional in the field and fully identified. Feature 250305-D01 is a suffosion sinkhole cluster and is associated with groundwater recharge. Images for the features are available on request.

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

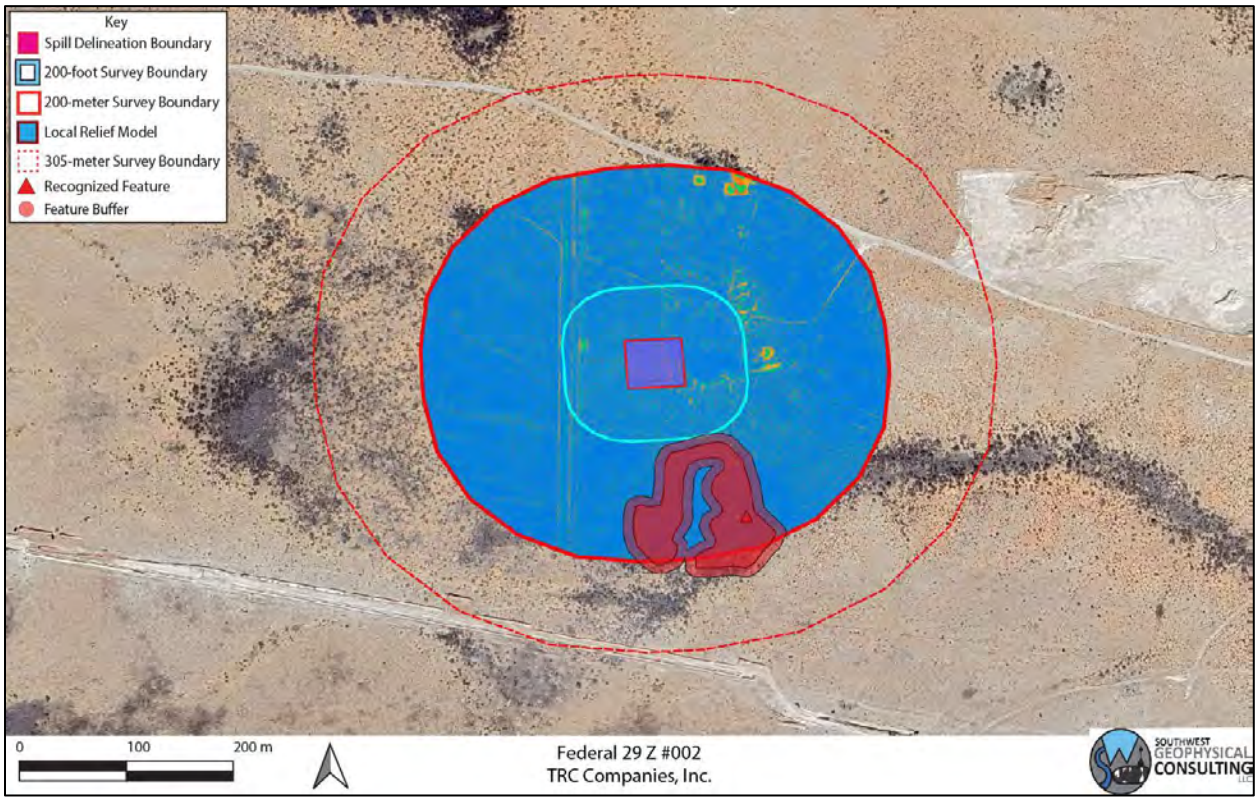

Figure 6: Aerial karst survey results. Background image credit: Google Earth. Image date: December 5, 2023. Image datum: WGS-84.

Caution should be exercised while operating in or around all karst-related features due to the possibility of near-surface voids. Employing a BLM-CFO approved karst monitor on site during these activities should be considered .

Table 3 contains a list of features identified during the aerial karst survey and subsequent imagery analysis. Each feature is identified with a feature identification number (Feature ID), the type of feature, estimated size (in meters), recommended buffer (in meters), the likelihood of this feature being a surface karst feature (modifiers H/M for high or medium likelihood, V for field verified), and its location in WGS-84/UTM-13 (EPSG: 32613).

Table 3: Surface Karst Feature Data Table

KF Status	Feature ID	Type	Size (m)	Buffer (m)	Mod	Easting	Northing
RKF	250305-D01	Suffosion sinkhole cluster	150	10	V	564799.873	3600615.505

NOTE: Location data provided in WGS-84/UTM 13N. RKF – recognized karst feature.

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.

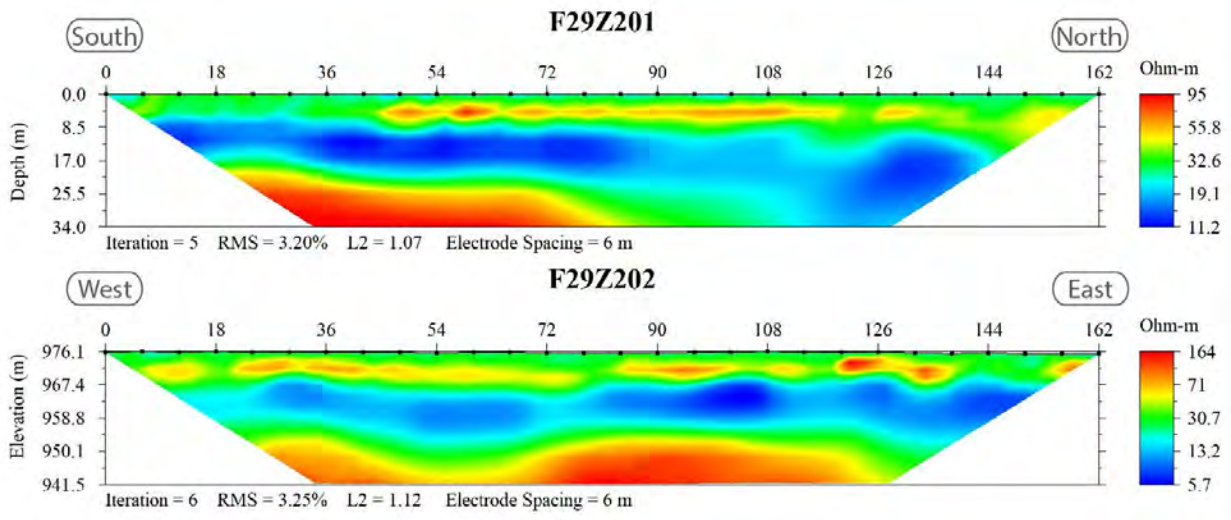

Figure 7: 2D inverted resistivity sections. Reds and oranges indicate higher resistivity values. Yellows and greens are medium-resistivity values. Blues are low-resistivity values. Please note that the color scale is relative.

The results of this study indicate a well-layered geologic system with resistivities between 5.7 and 164 Ohm-m (**Figure 7**). There are no indications of subsurface karst development along the survey lines. 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.

4.0 DISCUSSION

No anomalies consistent with air-filled subsurface voids are found within the F29Z2 survey area. However, small solutionally enlarged voids or fractures at or near the resolution limit of the survey (3.0 – 3.5 meters) may be present. Slightly higher-than-average resistivity areas less than 10 meters beneath the surface are interpreted as sand, caliche, or gypsite soils. Due to their much lower resistivity values when compared with significant subsurface voids, these features should not be a concern during remediation efforts. Areas of moderate resistivity (yellows, and greens) near the surface are interpreted as sand, caliche, or dolomite of the Tansil or Yates Formations[16] (**Figure 7** and **Figure 8**).

Very low-resistivity areas between 5.7 – 15 Ohm-m may be a layer of clay or saturated layers within the Tansil or Yates Formations (perched aquifer) (**Figure 7**).

Please remember that these are interpretations made from knowledge of the local subsurface materials and experience. **They remain interpretations until verified by geotechnical methods.** Employing a BLM-CFO approved karst monitor on site during any drilling and/or remediation activities that require excavation below four feet in depth 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.

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 (3.0– 3.5 meters) may exist; these may be encountered during excavation, and if so, should be evaluated by a karst specialist prior to continued work.

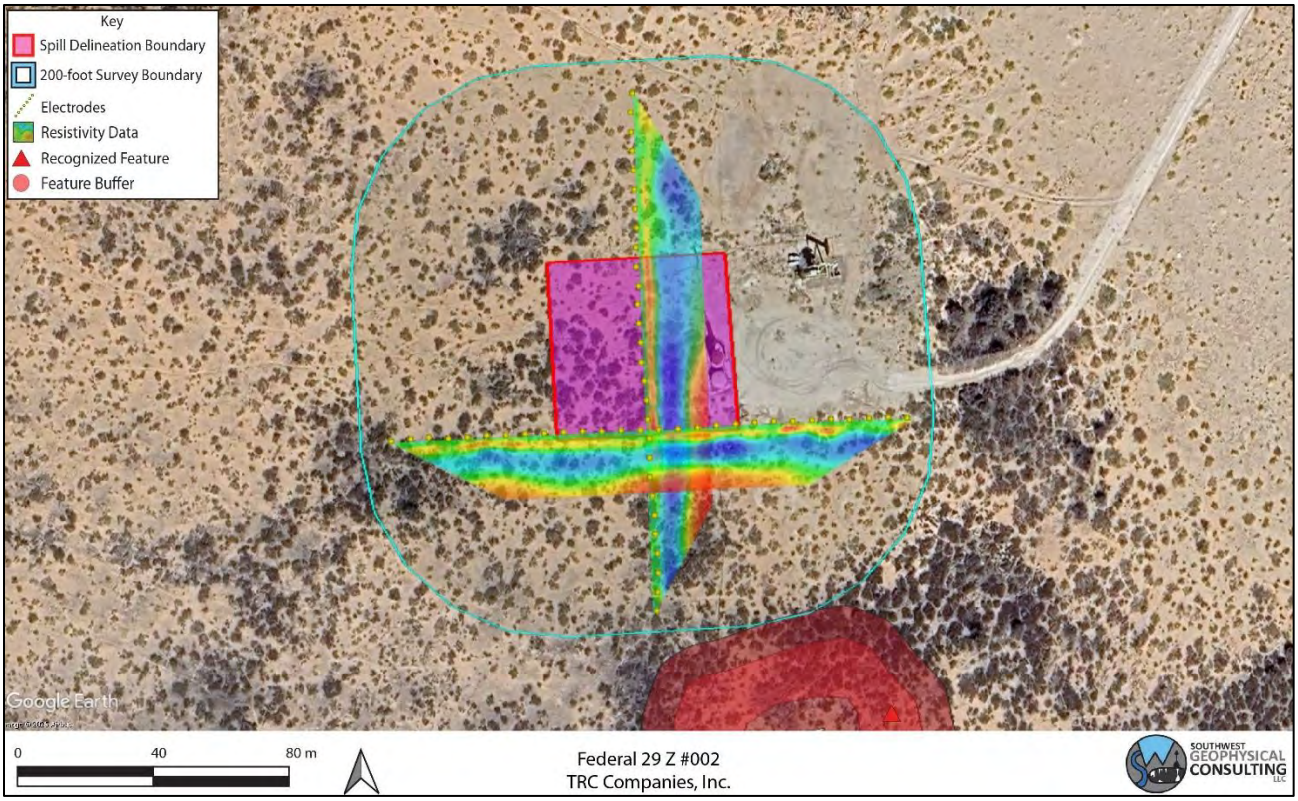

Figure 8: Data overlay. Colored trapezoids are 2D inverted resistivity lines. Background image credit: Google Earth. Image date: December 5, 2023.

5.0 SUMMARY

- **The F29Z2 survey contains no surface karst features within 200 feet (61 meters) of the spill delineation boundary.**
- **No shallow anomalies interpreted as large voids or related karst features that would present a danger to equipment operators are located within the survey area.**
- Intercepting a void during remediation is unlikely, but still possible. Small voids or solutionally enlarged fractures below the resolution limit of the survey may be encountered.
- **Well-layered stratigraphy is interpreted to exist beneath the area where the geophysical survey was conducted, indicating stable ground.**
- When conducting any remediation activities in this area, employing a BLM-CFO approved karst monitor on site should be considered.

6.0 DISCLOSURE STATEMENT

High 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 commissioned at the request of the land manager should be submitted to:

BLM-CFO: blm_nm_karst@blm.gov

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

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).

3 Decker, D. & Jorgensen, G. L. *Environmental Karst Surveys White Paper* (Southwest Geophysical Consulting, LLC, 2024).

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8 W.R.C.C. *National Climate Data Center 1981-2010 Normal Climate Summary for Carlsbad, New Mexico (291469)*, 2010).

9 Whitehead, W. & Flynn, C. *Plant Utilization in Southeastern New Mexico: Botany, Ethnobotany, and Archaeology*. (Bureau of Land Management, Carlsbad Field Office, 2017).

10 NMSLO. Digital overlay (KML) of the surface land ownership in New Mexico (New Mexico State Land Office, Santa Fe, NM, 2024).

11 Green, G. N. & Jones, G. E. *The Digital Geologic Map of New Mexico in ARC/INFO Format*, <https://mrdata.usgs.gov/geology/state/state.php?state=NM> (1997).

12 Silver, B. A. & Todd, R. G. Permian Cyclic Strata, Northern Midland and Delaware Basins, West Texas and Southeastern New Mexico. *The American Association of Petroleum Geologists Bulletin* **53**, 2223 - 2251 (1969).

13 Scholle, P. A. Geologic Map of New Mexico. (2003).

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15 Whitehead, W., Bandy, M. & Decker, D. Protocol for Using UAV Photography for Rapid Assessment of Karst Features in Southeast New Mexico. *Proceedings of the 2022 Cave and Karst Management Symposium* (2022).

16 Hill, C. A. *Geology of the Delaware Basin, Guadalupe, Apache and Glass Mountains, New Mexico and West Texas*. Vol. 96-39 (Permian Basin Section - SEPM, 1996).

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 Ω-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

Pdl	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
(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 TRCC-002-20250203 entitled, “Environmental Karst Study Report, Federal 29 Z #002, Eddy 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, March 30, 2025.

David D. Decker
PhD, CPG-12123

505 East Huntland Dr.
Suite 250
Austin, TX 78752

T 512.329.6080
TRCcompanies.com

Appendix D – Previously Submitted and Conditionally Approved Workplan; Carmona Resources

CARMONA RESOURCES

SITE INFORMATION

Work Plan
Federal 29 Z 002H (07.16.22)
Incident # NAPP2221331648
Eddy County, New Mexico
Unit L Sec 29 T20S R27E
32.5425°, -104.3108°

Crude Oil Release
Point of Release: Packing blowout
Release Date: 07.16.22
Volume Released: 1.5 barrels of Crude Oil
Volume Recovered: 0 barrels of Crude Oil

CARMONA RESOURCES

Prepared for:
Concho Operating, LLC
15 West London Road
Loving, New Mexico 88256

Prepared by:
Carmona Resources, LLC
310 West Wall Street
Suite 415
Midland, Texas 79701

310 West Wall Street, Suite 415
Midland TX, 79701
432.813.1992

CARMONA RESOURCES

TABLE OF CONTENTS

310 West Wall Street, Suite 415
Midland TX, 79701
432.813.1992

CARMONA RESOURCES

December 15, 2022

Mike Bratcher
District Supervisor
Oil Conservation Division, District 2
811 S. First Street
Artesia, New Mexico 88210

Re: Work Plan
Federal 29 Z 002H (07.16.22)
Concho Operating, LLC
Incident # NAPP2221331648
Site Location: Unit L, S29, T20S, R27E
(Lat 32.5425°, Long -104.3108°)
Eddy County, New Mexico

Mr. Bratcher:

On behalf of Concho Operating, LLC (COG), Carmona Resources, LLC has prepared this letter to document site activities for the Federal 29 Z 002H (07.16.22). The site is located at 32.5425°, -104.3108 º within Unit L, S29, T20S, R27E, in Eddy County, New Mexico (Figures 1 and 2).

1.0 Site information and Background

Based on the initial C-141 obtained from the New Mexico Oil Conservation Division (NMOCD), the release was discovered on July 16, 2022, from a packing blowout. It resulted in the release of approximately one point five (1.5) barrels of crude oil, and zero (0) barrels were recovered. Refer to Figure 3. The initial C-141 form is attached in Appendix C.

2.0 Site Characterization and Groundwater

The site is located within a high karst area. Based on a review of the New Mexico Office of State Engineers and USGS databases, there is no known water source within a 0.50-mile radius of the location. The nearest identified well is located approximately 0.70 miles Southeast of the site in S29, T20S, R27E and was drilled in 1957. The well has a reported depth to groundwater of 83.75' below ground surface (ft bgs). A copy of the associated Point of Diversion Summary report is attached in Appendix D.

3.0 NMAC Regulatory Criteria

Per the NMOCD regulatory criteria established in 19.15.29.12 NMAC, the following criteria were utilized in assessing the site.

- Benzene: 10 milligrams per kilogram (mg/kg).
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg.
- TPH: 100 mg/kg (GRO + DRO + MRO).
- Chloride: 600 mg/kg.

310 West Wall Street, Suite 415
Midland, Texas 79701
432.813.1992

CARMONA RESOURCES

4.0 Site Assessment Activities

Initial Assessment

On September 20, 2022, Carmona Resources, LLC performed site assessment activities to evaluate soil impacts stemming from the release. A total of six (6) sample points and seven (7) horizontal samples were advanced to depths ranging from the surface to 4.5' bgs inside and surrounding the release area to evaluate the vertical and horizontal extent. See Figure 3 for the soil sample locations. For chemical analysis, the soil samples were collected and placed directly into laboratory-provided sample containers, stored on ice, and transported under the proper chain-of-custody protocol to Eurofins Laboratories in Midland, Texas. The samples were analyzed for total petroleum hydrocarbons (TPH) by EPA method 8015, modified benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B, and chloride by EPA method 300.0. The laboratory reports, including analytical methods, results, and chain-of-custody documents, are attached in Appendix E.

Vertical delineation was not achieved due to the dense layer encountered. Refer to Table 1.

Horizontal Delineation

The areas of H-1 through H-7 were below the regulatory limits for benzene, total BTEX, TPH, and chloride concentrations. Refer to Table 1.

Trenching

Based on the area having heavy rainfall events, Carmona Resources returned to the location on December 9, 2022, to vertically delineate the area of S-3 and evaluate soil impacts stemming from the release. A total of one (1) trench (T-1) was installed to a total depth from surface to 6.0 ft below the surface. Soil samples were collected and submitted to the laboratory for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B, and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are includedin Appendix E. The sample locations are shown in Figure 3.

The area of Trench-1 showed no chloride impact from surface to 6.0 ft below the surface. The rain has significantly helped dilute or migrate the chloride concentrations during the rainfall events. Vertical delineation was achieved. Refer to Table 1.

5.0 Proposed Work Plan

Based on the analytical data and the detected chloride concentrations, Concho proposes to remediate the areas shown in Figure 4 and highlighted (blue) in Table 1.

- The area of S-6 will be excavated to a depth of 4.0' below the surface and backfilled with clean material to grade. Which is on the edge of the reserve pit.
- COG requests to collect composite sidewall samples from the surface to 1' to mitigate digging into and sampling the possible impact from the reserve pit at 4.0'.
- An estimated 875 cubic yards will be removed and hauled to the nearest disposal based on the maximum depth.
- A variance is requested per 19.15.29.14. A NMAC, Five-point composite bottom floor hole, and sidewall samples will be collected every 400 square feet to represent the release area.
- Once the site activities and excavation are complete, the areas will be backfilled with clean material to surface grade. The remediation will be implemented 90 days after the work plan is approved.

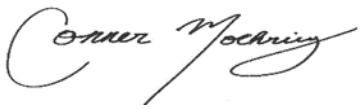
- Impacted soil around the reserve pit, oil and gas equipment, structures, or lines may not be removed during remediation activities due to safety concerns for the onsite personnel. However, COG will excavate the impacted soils to the maximum extent possible.

6.0 Conclusions

Upon completion, a final closure report describing the remediation activities will be presented to the New Mexico Oil Conservation Division (NMOCD). If you have any questions regarding this report or need additional information, don't hesitate to contact us at 432-813-1992.

Sincerely,
Carmona Resources, LLC

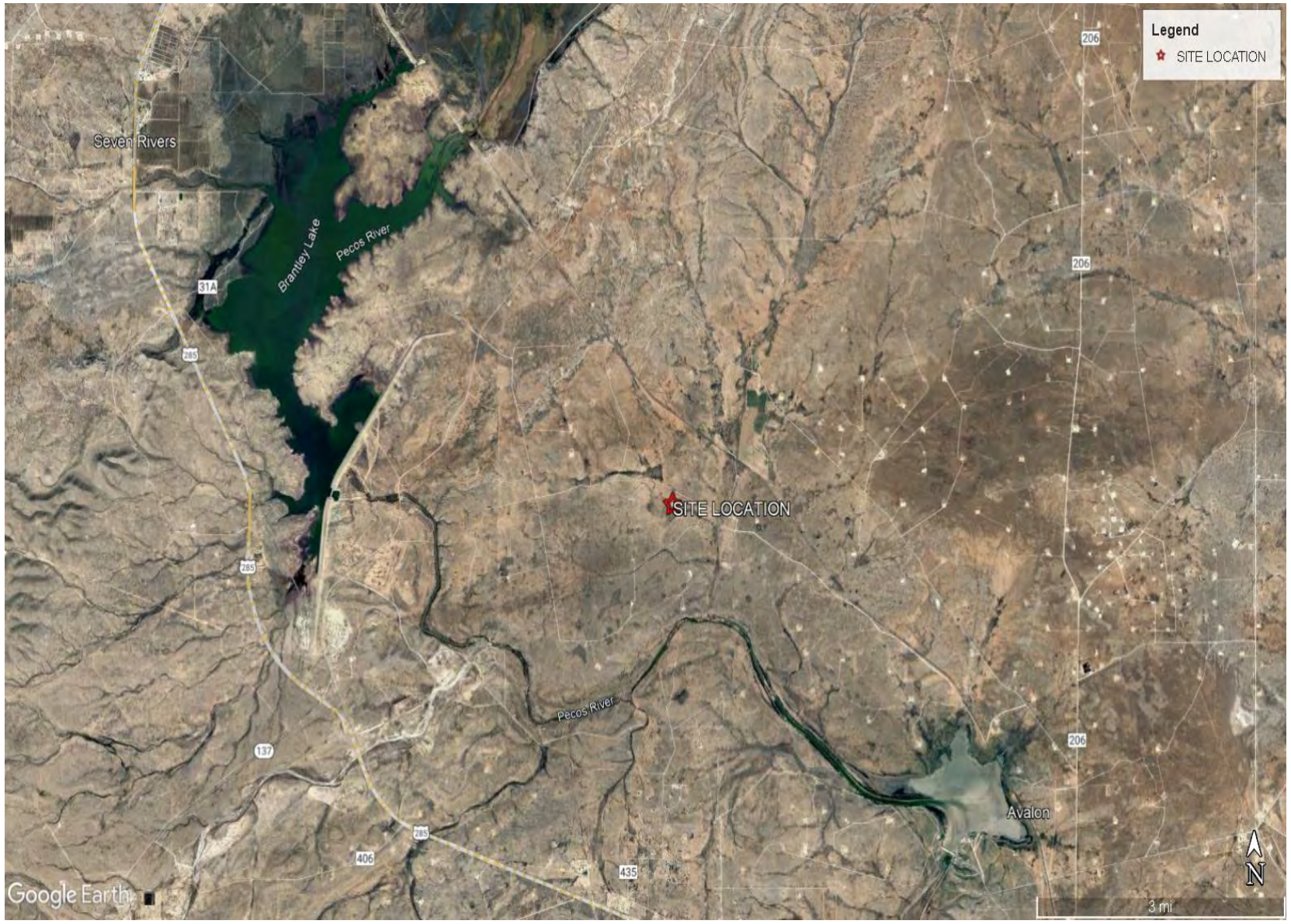
Mike Carmona
Environmental Manager



Conner Moehring
Sr. Project Manager

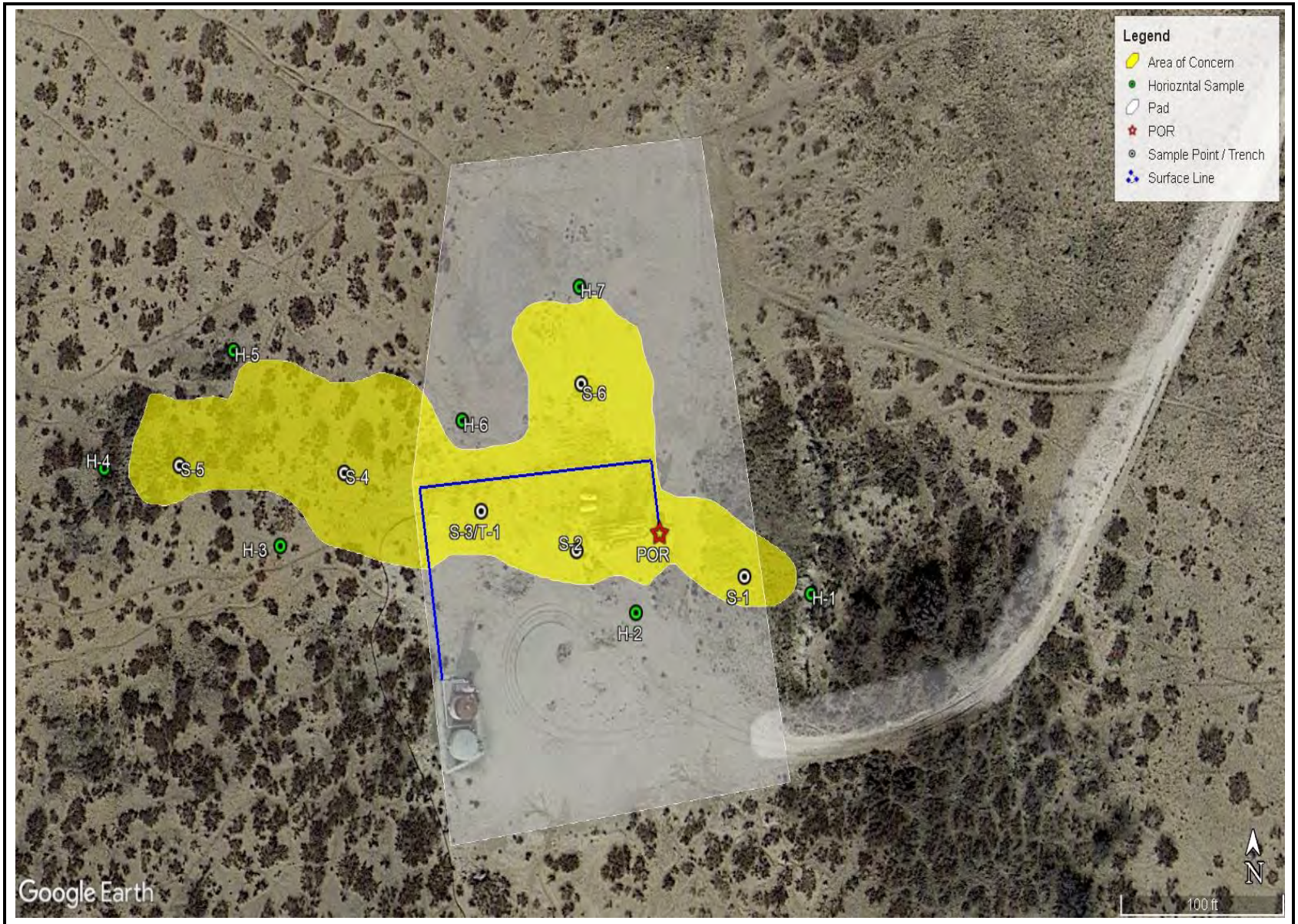
FIGURES

CARMONA RESOURCES

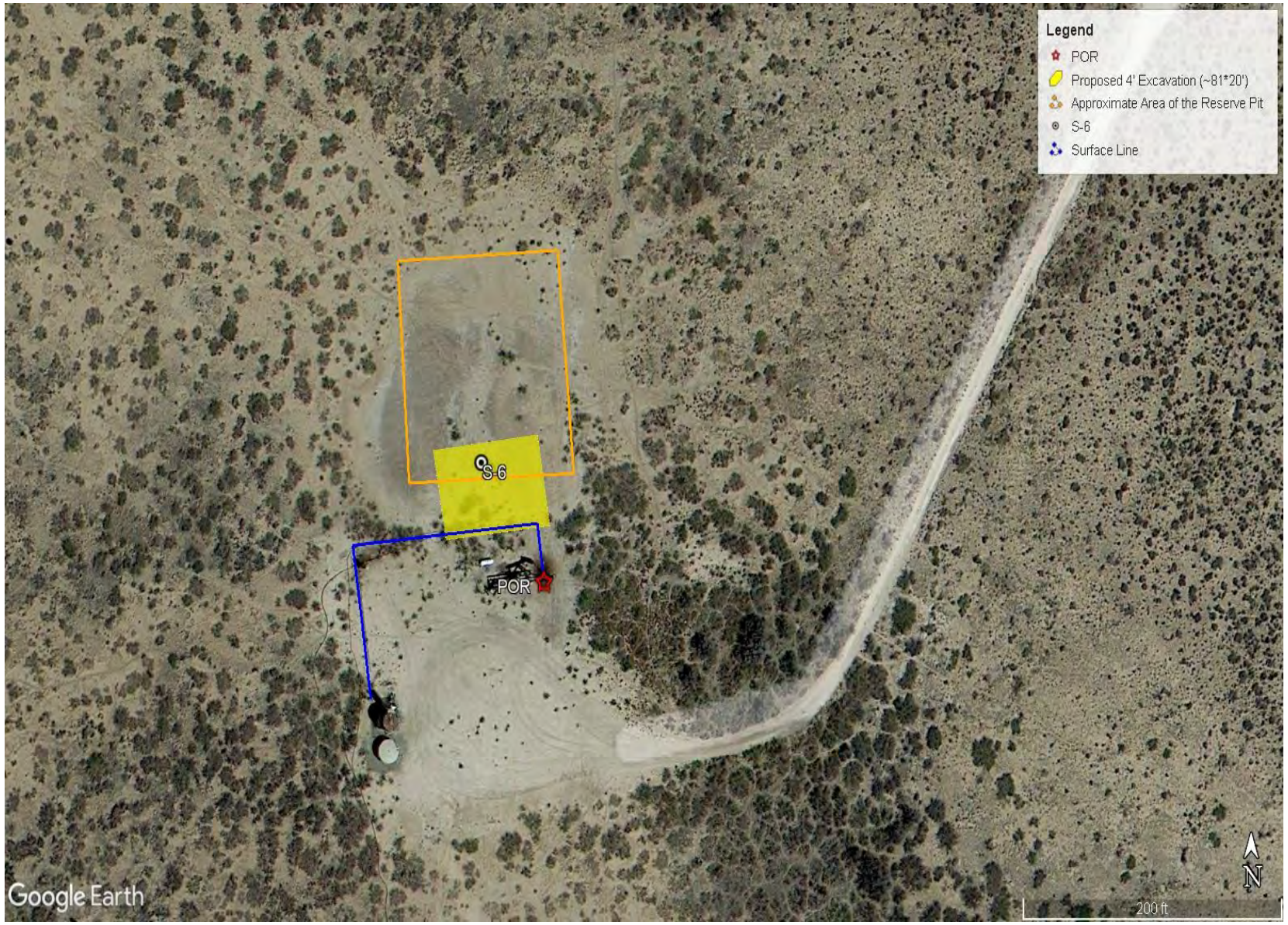


OVERVIEW MAP COG OPERATING FEDERAL 29 Z 002 (07.16.22) EDDY COUNTY, NEW MEXICO 32.5425, -104.3108	CARMONA RESOURCES	FIGURE 1

TOPOGRAPHIC MAP COG OPERATING FEDERAL 29 Z 002 (07.16.22) EDDY COUNTY, NEW MEXICO 32.5425, -104.3108	CARMONA RESOURCES	FIGURE 2



SAMPLE LOCATION MAP COG OPERATING FEDERAL 29 Z 002 (07.16.22) EDDY COUNTY, NEW MEXICO 32.5425, -104.3108	CARMONA RESOURCES	FIGURE 3



PROPOSED EXCAVATION DEPTH MAP COG OPERATING FEDERAL 29 Z 002 (07.16.22) EDDY COUNTY, NEW MEXICO 32.5425, -104.3108	CARMONA RESOURCES	FIGURE 4

APPENDIX A

CARMONA RESOURCES

Table 1
COG
Federal 29 Z #2 (07.16.22)
Eddy County, New Mexico

Sample ID	Date	Depth (ft)	TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			GRO	DRO	MRO	Total						
S-1	9/20/2022	0-1	<49.9	<49.9	<49.9	<49.9	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	12.0
	"	1.5	<49.9	<49.9	<49.9	<49.9	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	33.0
	"	2.0	<50.0	<50.0	<50.0	<50.0	<0.00198	<0.00198	<0.00198	<0.00396	<0.00396	60.2
S-2	9/20/2022	0-1	<49.9	<49.9	<49.9	<49.9	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	12.3
	"	1.5	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	14.7
	"	2.0	<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	18.6
	"	2.5	<49.8	<49.8	<49.8	<49.8	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	14.0
S-3	9/20/2022	0-1	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	18.3
	"	1.5	<49.9	<49.9	<49.9	<49.9	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	19.6
	"	2.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	16.6
	"	2.5	<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	815
	"	3.0	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	161
	"	3.5	<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	1,090
	"	4.0	<50.0	<50.0	<50.0	<50.0	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	1,560
T-1	12/9/2022	0-1	<49.9	<49.9	<49.9	<49.9	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	34.0
	"	1.5	<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	63.9
	"	2.0	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	344
	"	3.0	<49.9	<49.9	<49.9	<49.9	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	492
	"	4.0	<49.8	<49.8	<49.8	<49.8	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	228
	"	5.0	<50.0	<50.0	<50.0	<50.0	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	85.6
	"	6.0	<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	177
S-4	9/20/2022	0-1	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	18.3
	"	1.5	<49.9	<49.9	<49.9	<49.9	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	19.6
	"	2.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	16.6
S-5	9/20/2022	0-1	<49.9	<49.9	<49.9	<49.9	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	19.1
	"	1.5	<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	12.6
	"	2.0	<49.9	<49.9	<49.9	<49.9	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	16.0
S-6	9/20/2022	0-1	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	**3,860**
	"	1.5	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	**2,320**
	"	2.0	<50.0	79.1	<50.0	79.1	<0.00198	<0.00198	<0.00198	<0.00396	<0.00396	**773**
	"	2.5	<49.9	<49.9	<49.9	<49.9	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	**1,630**
	"	3.0	<50.0	<50.0	<50.0	<50.0	<0.00202	<0.00202	<0.00202	<0.00404	<0.00404	**1,540**
	"	3.5	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	**1,170**
	"	4.0	<49.8	<49.8	<49.8	<49.8	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	291
	"	4.5	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	293
Regulatory Criteria [A]						100 mg/kg	10 mg/kg	-	-	-	50 mg/kg	600 mg/kg

(-) Not Analyzed
[A] – Table 1 - 19.15.29 NMAC
mg/kg - milligram per kilogram
TPH- Total Petroleum Hydrocarbons
ft-feet
(S) Sample Point
(T) Trench
Proposed Excavation

Table 1
COG
Federal 29 Z #2 (07.16.22)
Eddy County, New Mexico

Sample ID	Date	Depth (ft)	TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			GRO	DRO	MRO	Total						
H-1	9/20/2022	0-0.5	<50.0	76.7	<50.0	76.7	<0.00202	<0.00202	<0.00202	<0.00403	<0.00403	15.3
H-2	9/20/2022	0-0.5	<49.9	<49.9	<49.9	<49.9	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	220
H-3	9/20/2022	0-0.5	<50.0	<50.0	<50.0	<50.0	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	8.83
H-4	9/20/2022	0-0.5	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	11.3
H-5	9/20/2022	0-0.5	<49.8	<49.8	<49.8	<49.8	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	9.39
H-6	9/20/2022	0-0.5	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	8.84
H-7	9/20/2022	0-0.5	<49.8	99.5	<49.8	99.5	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	103
Regulatory Criteria [A]						**100 mg/kg**	**10 mg/kg**	**-**	**-**	**-**	**50 mg/kg**	**600 mg/kg**

(-) Not Analyzed

[A] – Table 1 - 19.15.29 NMAC

mg/kg - milligram per kilogram

TPH- Total Petroleum Hydrocarbons

ft-feet

(H) Horizontal

APPENDIX B

CARMONA RESOURCES

PHOTOGRAPHIC LOG

Concho Operating, LLC

Photograph No. 1

Facility: Federal 29 Z 002H (07.16.22)

County: Eddy County, New Mexico

Description:
View South, area of sample point S-1.

Photograph No. 2

Facility: Federal 29 Z 002H (07.16.22)

County: Eddy County, New Mexico

Description:
View West, areas of sample points S-2 and S-3.

Photograph No. 3

Facility: Federal 29 Z 002H (07.16.22)

County: Eddy County, New Mexico

Description:
View West, areas of sample points S-4 and S-5.

CARMONA RESOURCES

PHOTOGRAPHIC LOG

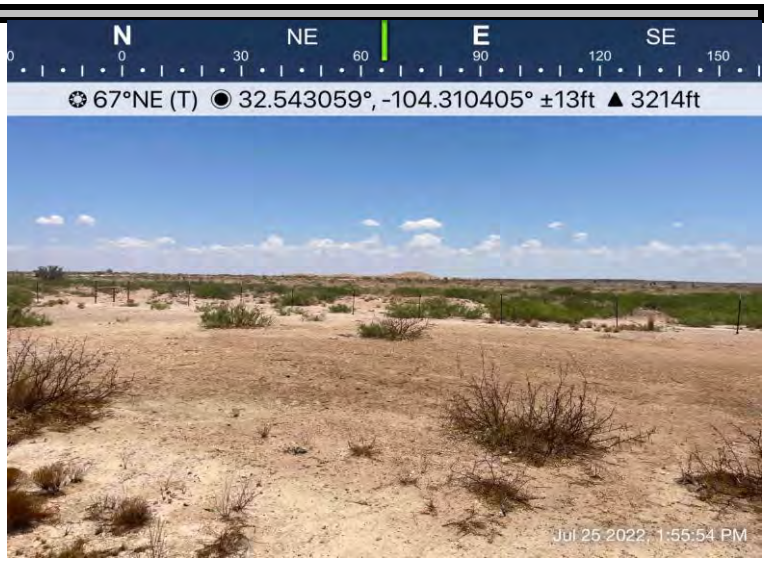
Concho Operating, LLC

Photograph No. 4

Facility: Federal 29 Z 002H (07.16.22)

County: Eddy County, New Mexico

Description:
View Northeast, area of sample point S-6.



Photograph No. 5

Facility: Federal 29 Z 002H (07.16.22)

County: Eddy County, New Mexico

Description:
View East, area of S-3 (Trench-1).

CARMONA RESOURCES

505 East Huntland Dr.
Suite 250
Austin, TX 78752

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Appendix E - Previously Submitted and Conditionally Approved Workplan; TRC

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PROPOSED VARIANCE REQUEST

ConocoPhillips
Federal 29 Z 002H
Eddy County, New Mexico
Unit Letter "L", Section 29, Township 20 South, Range 27 East
Latitude 32.5425° North, Longitude 104.3108° West
NMOCD Reference No. NAPP2221331648

Prepared For:

ConocoPhillips
600 W Illinois Avenue
Midland, Texas 79701

Prepared By:

TRC Environmental Corporation
10 Desta Drive, Suite 130E
Midland, Texas 79705

September 2023

Misti Bryant
Staff Geologist

Jared E. Stoffel, PG
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INTRODUCTION & SITE BACKGROUND

TRC Environmental Corporation (TRC), on behalf of ConocoPhillips, has prepared this *Proposed Variance Request* for the Release Site known as the Federal 29 Z 002H (the Site). The legal description of the Site is Unit Letter "L", Section 29, Township 20 South, Range 27 East, in Eddy County, New Mexico. The subject property is owned by the State of New Mexico and administered by New Mexico State Land Office (NMSLO). The GPS coordinates for the Site are N 32.5425°, W 104.3108°. **Figure 1** is a topographic map of the Site.

SITE BACKGROUND

On July 16, 2022, ConocoPhillips (COP) discovered a crude oil release had occurred at the Site. The Release was attributed to a packing blowout. On the discovery date, COP notified the New Mexico Oil Conservation Division (NMOCD) and New Mexico State Land Office (NMSLO) of the Release. The Release was assigned an NMOCD Reference number of NAPP2221331648. On August 01, 2022, the initial Release Notification and Corrective Action (Form C-141) was submitted to the NMOCD. The Form C-141 indicated 1.5 barrels (bbls) of crude oil was released and zero (0) bbls of crude oil was recovered. The Release affected an area measuring approximately 10,800 square feet (sq. ft.). The C-141 indicated the impacted area was located on and off the location pad. A copy of the submitted Form C-141 for the Release is provided in **Appendix A**. The Site location is depicted in **Figure 1. Appendix B** document the characterization parameters of the Site. The affected area is depicted in **Figure 2**.

REGULATORY FRAMEWORK

Based on a review of the New Mexico Office of State Engineers and United States Geological Survey (USGS) databases, there is no known water source within a 0.50-mile radius of the location. The nearest identified well is located approximately 0.70 miles Southeast of the site in S29, T20S, R27E and was drilled in 1957. The well has a reported depth to groundwater of 83.75 feet below ground surface (ft bgs). A copy of the associated Point of Diversion Summary report is attached in **Appendix B**.

Based on the inferred depth to groundwater at the Federal 29 Z 002H Release Site, the NMOCD *Closure Criteria for Soils Impacted by a Release* may not warrant the most stringent closure criteria listed, due to the lack of definitive depth to groundwater data. However, the Federal 29 Z 002H is within 300 feet of a significant watercourse and/or wetland denoted as a riverine in **Appendix B**. Additionally, the Federal 29 Z 002H is located in the 'high karst' area as outlined in Bureau of Land Management (BLM) publicly available Karst Potential Map and is provided in **Appendix B**. The NMOCD stance on the regulation of releases at Sites adjacent to flowing or significant watercourses, wetlands, and 'high karst' areas requires that COP utilize the most stringent NMOCD Closure Criteria for Soils Impacted by a Release for the Federal 29 Z 002H as follows:

- Benzene – 10 mg/kg
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) – 50 mg/kg
- Total Petroleum Hydrocarbons (TPH) –100 mg/kg
- Chloride – 600 mg/kg

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SOIL INVESTIGATION SUMMARY AND PREVIOUSLY SUBMITTED AND APPROVED WORKPLAN

On September 20, 2022, Carmona Resources, LLC (Carmona Resources) performed site assessment activities to evaluate soil impacts stemming from the release. A total of six (6) sample points and seven (7) horizontal samples were advanced to depths ranging from the surface to 4.5 ft bgs inside and surrounding the release area to evaluate the vertical and horizontal extent. See **Figure 2** for the soil sample locations. For chemical analysis, the soil samples were collected and placed directly into laboratory-provided sample containers, stored on ice, and transported under the proper chain-of-custody protocol to Eurofins Laboratories in Midland, Texas. The samples were analyzed for total petroleum hydrocarbons (TPH) by EPA method 8015, modified benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B, and chloride by EPA method 300.0. Vertical delineation was not achieved due to the dense layer encountered. Horizontal delineation was achieved. Soil sample locations H-1 through H-7 exhibited concentrations below the regulatory limits for benzene, total BTEX, TPH, and chloride. **Table 1** includes the tabulated data provided by Carmona Resources for convenience.

Due to the heavy rainfall events and lack of complete vertical delineation, Carmona Resources returned to the Site on December 9, 2022, to vertically delineate the area of S-3 and evaluate soil impacts stemming from the release. One (1) trench (T-1) was installed to a total depth from surface to 6.0 ft below ground surface. Soil samples were collected and submitted to the laboratory for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B, and chloride by EPA method 300.0. The area of Trench-1 showed no chloride concentrations above NMOCD guidelines from surface to 6.0 ft below ground surface. The rain appears to have diluted or migrated the elevated chloride concentrations during the rainfall events.

Based on delineation data, the previously submitted and approved workplan proposed excavating the area represented by sample location S-6 to a depth of approximately 4 ft bgs, with confirmation samples on a 400 sq. ft. basis to confirm removal. The previously submitted and approved workplan is included as **Appendix C**.

The workplan was submitted to the NMOCD on December 15, 2022. The NMOCD approved the workplan on March 17, 2023 with the following conditional response:

> The Remediation Plan is Conditionally Approved. This release is in a high karst area and will need to be remediated to the strictest closure criteria of <50' depth to groundwater from Table 1 of the spill rule. Samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. The variance for 400 ft^2 confirmation samples is approved. 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. All off pad areas must contain a minimum of 4 feet non-waste containing uncontaminated, earthen material with chloride concentrations less than 600 mg/kg and less than 100 mg/kg for TPH. Any contaminants left in place will need to be fully delineated and require a facility deconstruction to qualify for a deferral. Please remove contaminants with alternative methods around oil/gas equipment. The work will need to occur in 90 days after the work plan has been approved.

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PROPOSED VARIANCE REQUEST FOR APPROVED REMEDIATION WORKPLAN

On June 21, 2023, TRC requested an extension on the behalf of COP to confirm Site conditions prior to initiating remediation activities. The NMOCD granted the extension to September 21, 2023.

On July 13, 2023, TRC notified the NMOCD of the intent to begin remediation on July 17th. TRC completed the pre-remediation Site kickoff on July 17th, at which time no hydrocarbon surface staining was noted in the area to be remediated – soil sample location S-6. The initial workplan assumed S-6 was at the edge of the former reserve pit footprint, but an attempt to confirm prior to initiating remediation indicated S-6 was within the former reserve pit footprint. TRC attempted to determine the lateral extents of chloride concentrations associated with soil sample location S-6, and initial field screen data showed elevated chloride concentrations across the former reserve pit area. Elevated chloride concentrations in this area appear to be related to the former reserve pit rather than the Release. Photographic documentation is provided as **Appendix D**.

TRC did not begin the remediation due to the former reserve pit findings. COP and TRC reviewed all the data and noted the Release was a non-reportable (less than 5 bbl of fluid) overspray release of crude oil only. The overspray mechanism typically limits soil impacts to surface only and there were no produced water fluids reported. The elevated chloride concentrations to approximately 3.5 ft bgs are unlikely to be resultant of this non-reportable volume overspray crude oil release. Additionally, no soil samples submitted were affected above NMOCD guidelines for benzene, BTEX, or TPH. The lack of elevated hydrocarbon concentrations across the Site corroborates this interpretation. Prior to initiating remediation according to the approved workplan, COP requested a meeting with the NMOCD with the findings of non-reportable status and elevated chloride concentrations associated with the former reserve pit to clarify the path forward.

COP, TRC, and the NMOCD met virtually on August 2, 2023 to discuss the findings at the Site. During the meeting, the NMOCD indicated that despite the release volume of less than 5 bbls, the C-141 could not be retracted. Additionally, despite the lack of produced water from the Release, the elevated chloride concentrations associated with soil sample location S-6 must be addressed. However, a variance may be requested to the sampling requirements to avoid excavating the entirety of the former reserve pit area.

In response to the meeting on August 2, 2023, COP proposes to excavate the footprint of the overspray release in the area represented by soil sample S-6 to a depth of four (4) ft bgs, which based on the delineation data provided in the formerly approved workplan will remove the documented elevated chloride concentrations above NMOCD guidelines associated with soil sample location S-6. COP would like to respectfully request a variance under NMAC 19.15.29 to the requirement for confirmation sampling for the Release site and will limit the excavation to the indicated footprint and the prescribed four (4) foot depth. COP requests that no floor or sidewall samples be required, as the indicated footprint and four (4) foot depth will remove far more soil than was affected by an overspray release of crude oil only. The estimated volume of soil removed will be approximately 1,050 cubic yards, which will be transported to an NMOCD approved disposal facility. The Site will then be backfilled with locally sourced ‘like’ material to near original grade.

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COP is prepared to begin the activities outlined in this *Proposed Variance Request* following NMOCD and BLM approval. On completion of remediation activities, a Remediation Summary and Closure Report will be prepared detailing field activities.

If you have any questions, or need any additional information, please feel free to contact myself or Ike Tavarez by phone or email.

LIMITATION

TRC has prepared this Proposed Variance Request to the best of its ability. No other warranty, expressed or implied, is made or intended.

TRC has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. TRC has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. TRC has prepared this report, in a professional manner, using the degree of skill and care exercised by similar environmental consultants. TRC also 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 ConocoPhillips. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of TRC and/or ConocoPhillips.

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DISTRIBUTION

Copy 1: Mike Bratcher
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Oil Conservation Division, District 2
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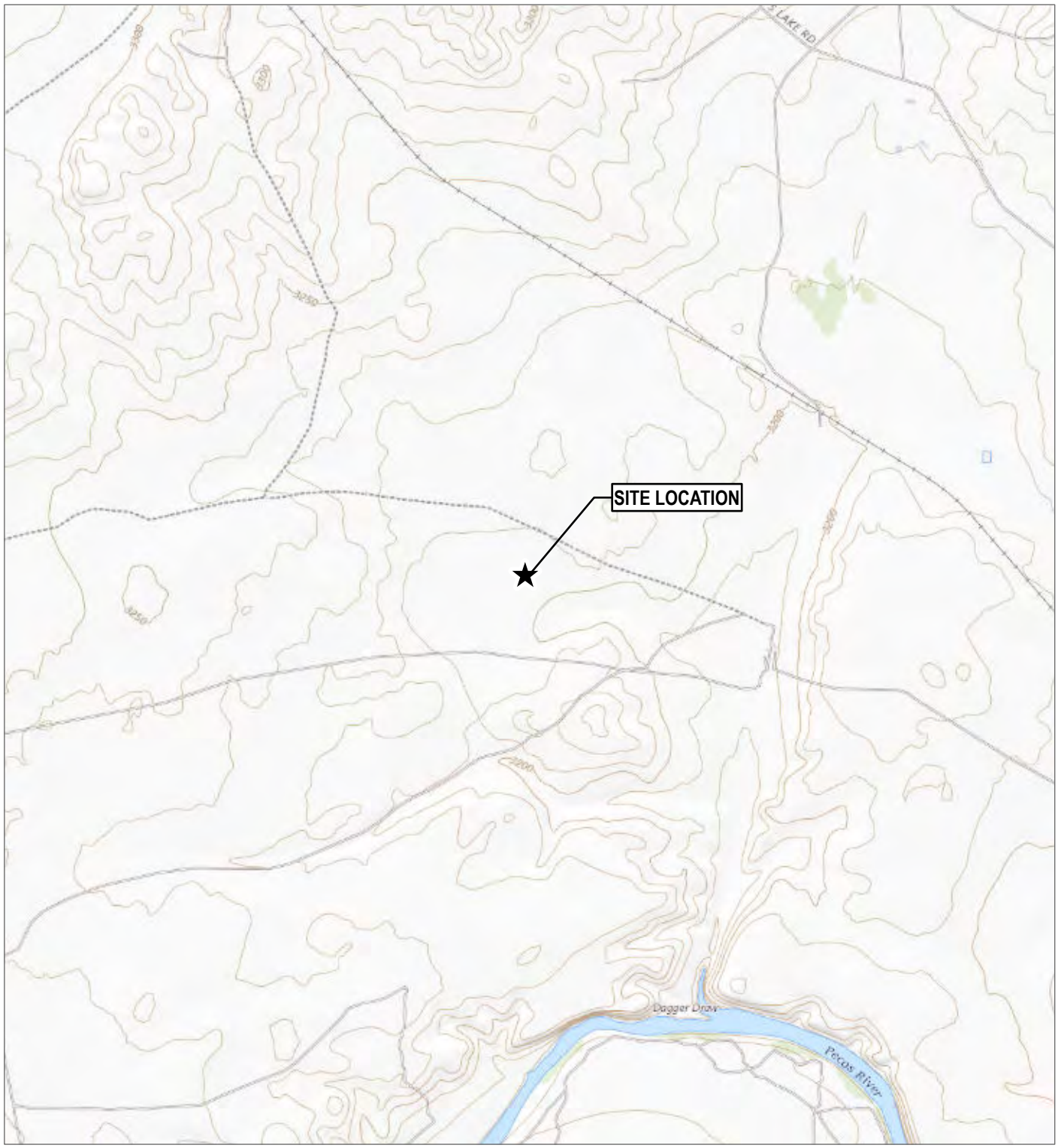
Artesia, NM 88210

Copy 2: Jim Amos
Bureau of Land Management (BLM) Carlsbad Field Office
620 E. Greene Street
Carlsbad, NM 88220

Copy 3: Ike Tavarez
ConocoPhillips
600 W. Illinois Avenue
Midland, Texas 79701

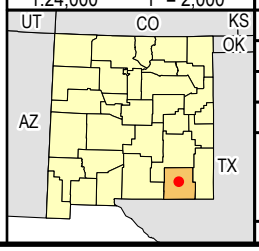
Copy4: TRC Environmental Corporation
10 Desta Dr STE 130E
Midland, TX 79705



0 1,000 2,000

FEET

1:24,000 1" = 2,000'



PROJECT:

CONOCOPHILLIPS
FEDERAL 29 Z 002H
EDDY COUNTY, NEW MEXICO

TITLE:

TOPOGRAPHIC MAP

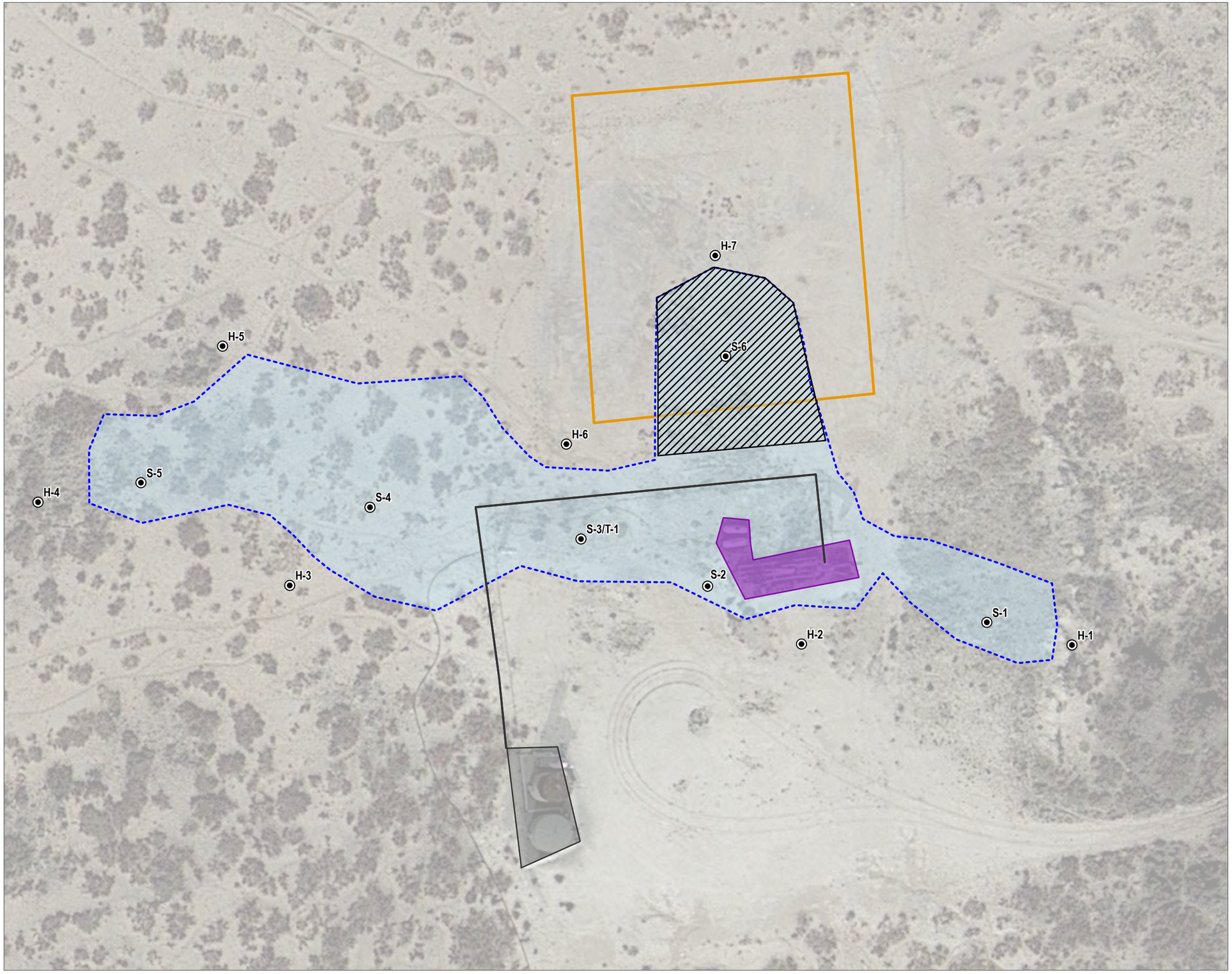
DRAWN BY:	S. RAY	PROJ. NO.:	544675.0000.0000
CHECKED BY:	M. BRYANT		
APPROVED BY:	M. BRYANT		**FIGURE 1**
DATE:	AUGUST 2023		

TRC
1180 NW MAPLE STREET, SUITE 310
ISSAQUAH, WA 98027
PHONE: 425.395.0010

FILE: FEDERAL 29 Z 002H

BASE MAP: USGS COLOR ORTHO IMAGERY
DATA SOURCES: TRC

COORDINATE SYSTEM: NAD 1983 STATEPLANE NEW MEXICO EAST FIPS 3001 FEET; MAP ROTATION: 0
-- SAVED BY: SRAY ON 8/16/2023 14:58:35 PM -- FILE PATH: T:\CONOCOPHILLIPS\544675_FEDERAL 29 Z 002H APRX\FEDERAL 29 Z 002H APRX -- LAYOUT NAME: FIG 1 - GVM



DELINEATION SAMPLE LOCATION
SURFACE STEEL LINE
PIT LOCATION
PROPOSED 4' EXCAVATION
RELEASE AREA
TANK BATTERY
WELLHEAD AND ASSOCIATED INFRASTRUCTURE

BASE MAP: GOOGLE EARTH PRO AND THEIR DATA PARTNERS (12/21/2019).
DATA SOURCES: TRC.

NOTES
SAMPLE LOCATIONS AND ANALYTICAL DATA FROM CARMONA RESOURCES WORKPLAN

1:480
1" = 40'

0 25 50 FEET

PROJECT:	CONOCOPHILLIPS FEDERAL 29 Z 002H EDDY COUNTY, NEW MEXICO
TITLE:	SAMPLE LOCATIONS AND PROPOSED EXCAVATION MAP
DRAWN BY:	A. CLINE
CHECKED BY:	B. TRACY
APPROVED BY:	M. BRYANT
DATE:	AUGUST 2023
PROJ. NO.:	544675.0000.0000
	FIGURE 2
FILE:	Federal 29 Z 002H.aprx

TRC

Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet; Map Rotation: 0
Saved By: ACLINE on 8/24/2023 08:15:40 AM; File Path: T:\1-PROJECTS\ConocoPhillips\544675_Federal29\2-APRX\Federal 29 Z 002H.aprx; Layout Name: Fig 4 - Sample Location Map

Federal 29 Z 002H

Table 1 - Summary of Carmona Resources Analytical Data

SAMPLE ID	SAMPLE DEPTH (FT)	SAMPLE DATE	Proposed Soil Status	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl-benzene (mg/Kg)	Xylenes, Total (mg/Kg)	Total BTEX (mg/Kg)	Gasoline Range Organics (GRO)-C6-C10 (mg/Kg)	Diesel Range Organics (Over C10-C28) (mg/Kg)	Oil Range Organics (Over C28-C36) (mg/Kg)	Total TPH (mg/Kg)	Chloride (mg/Kg)
NMOCD Standards	-	-		**5**	-	-	-	**50**	-	-	-	**100**	**600**
Veritcal Delineation													
S-1 (0-1')	1'	9/20/22	In-Situ	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<49.9	<49.9	<49.9	<49.9	12.0
S-1 (1.5')	1.5	9/20/22	In-Situ	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<49.9	<49.9	<49.9	<49.9	33.0
S-1 (2')	2'	9/20/22	In-Situ	<0.00198	<0.00198	<0.00198	<0.00396	<0.00396	<50.0	<50.0	<50.0	<50.0	60.2
S-2 (0-1')	1'	9/20/22	In-Situ	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<49.9	<49.9	<49.9	<49.9	12.3
S-2 (1.5')	1.5'	9/20/22	In-Situ	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<50.0	<50.0	<50.0	<50.0	14.7
S-2 (2')	2'	9/20/22	In-Situ	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	18.6
S-2 (2.5')	2.5'	9/20/22	In-Situ	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	<49.8	<49.8	<49.8	<49.8	14.0
S-3 (0-1')	1'	9/20/22	In-Situ	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	43.1
S-3 (1.5')	1.5'	9/20/22	In-Situ	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<49.9	<49.9	<49.9	<49.9	59.7
S-3 (2')	2'	9/20/22	In-Situ	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	<49.9	<49.9	<49.9	<49.9	170
S-3 (2.5')	2.5'	9/20/22	In-Situ	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	**815**
S-3 (3')	3'	9/20/22	In-Situ	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	161
S-3 (3.5')	3.5'	9/20/22	In-Situ	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	**1,090**
S-3 (4')	4'	9/20/22	In-Situ	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<50.0	<50.0	<50.0	<50.0	**1,560**
S-4 (0-1')	1'	9/20/22	In-Situ	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	<49.9	<49.9	<49.9	<49.9	18.3
S-4 (1.5')	1.5'	9/20/22	In-Situ	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<49.9	<49.9	<49.9	<49.9	19.6
S-4 (2')	2'	9/20/22	In-Situ	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<50.0	<50.0	<50.0	<50.0	16.6
S-5 (0-1')	1'	9/20/22	In-Situ	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<49.9	<49.9	<49.9	<49.9	19.1
S-5 (1.5')	1.5'	9/20/22	In-Situ	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	12.6
S-5 (2')	2'	9/20/22	In-Situ	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<49.9	<49.9	<49.9	<49.9	16.0
S-6 (0-1')	1'	9/20/22	Excavate	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	<49.9	<49.9	<49.9	<49.9	**3,860**
S-6 (1.5')	1.5'	9/20/22	Excavate	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	**2,320**
S-6 (2')	2'	9/20/22	Excavate	<0.00198	<0.00198	<0.00198	<0.00396	<0.00396	<50.0	<50.0	<50.0	<50.0	**773**
S-6 (2.5')	2.5'	9/20/22	Excavate	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<49.9	<49.9	<49.9	<49.9	**1,630**

Federal 29 Z 002H

Table 1 - Summary of Carmona Resources Analytical Data

SAMPLE ID	SAMPLE DEPTH (FT)	SAMPLE DATE	Proposed Soil Status	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl-benzene (mg/Kg)	Xylenes, Total (mg/Kg)	Total BTEX (mg/Kg)	Gasoline Range Organics (GRO)-C6-C10 (mg/Kg)	Diesel Range Organics (Over C10-C28) (mg/Kg)	Oil Range Organics (Over C28-C36) (mg/Kg)	Total TPH (mg/Kg)	Chloride (mg/Kg)
NMOCD Standards	-	-		**5**	-	-	-	**50**	-	-	-	**100**	**600**
S-6 (3')	3'	9/20/22	Excavate	<0.00202	<0.00202	<0.00202	<0.00404	<0.00404	<50.0	<50.0	<50.0	<50.0	**1,540**
S-6 (3.5')	3.5'	9/20/22	Excavate	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<50.0	<50.0	<50.0	<50.0	**1,170**
S-6 (4')	4'	9/20/22	In-Situ	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<49.8	<49.8	<49.8	<49.8	291
S-6 (4.5)	4.5	9/20/22	In-Situ	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	293
T-1 (0-1')	1'	12/9/22	In-Situ	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<49.9	<49.9	<49.9	<49.9	34.0
T-1 (1.5')	1.5'	12/9/22	In-Situ	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	63.9
T-1 (2')	2'	12/9/22	In-Situ	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	344
T-1 (3')	3'	12/9/22	In-Situ	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<49.9	<49.9	<49.9	<49.9	492
T-1 (4')	4'	12/9/22	In-Situ	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<49.8	<49.8	<49.8	<49.8	228
T-1 (5')	5'	12/9/22	In-Situ	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<50.0	<50.0	<50.0	<50.0	85.6
T-1 (6')	6'	12/9/22	In-Situ	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	177
Horizontal Delineation													
H-1 (0-0.5')	0.5'	9/20/22	In-Situ	<0.00202	<0.00202	<0.00202	<0.00403	<0.00403	<50.0	<50.0	<50.0	<50.0	15.3
H-2 (0-0.5')	0.5'	9/20/22	In-Situ	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<49.9	<49.9	<49.9	<49.9	220
H-3 (0-0.5')	0.5'	9/20/22	In-Situ	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<50.0	<50.0	<50.0	<50.0	8.83
H-4 (0-0.5')	0.5'	9/20/22	In-Situ	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	11.3
H-5 (0-0.5')	0.5'	9/20/22	In-Situ	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<49.8	<49.8	<49.8	<49.8	9.39
H-6 (0-0.5')	0.5'	9/20/22	In-Situ	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<50.0	<50.0	<50.0	<50.0	8.84
H-7 (0-0.5')	0.5'	9/20/22	In-Situ	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<49.8	99.5	<49.8	99.5	103

Definitions

X	Analyte analytical result exceeds NMOCD regulatory guideline.
X	Analyte detected above the detection limit at a concentration equal to X.
<x	Analyte not detected at detection limit equal to x.
--	

Abbreviations

mg/Kg	Milligrams per Kilogram
TPH	Total Petroleum Hydrocarbon
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
NMOCD	New Mexico Oil Conservation District

Federal 29 Z 002H

Photographic Documentation

Photograph No. 1 **Date:** **7/25/2022** **Direction:** **South** **Description:** **Relase area.**	
Photograph No. 2 **Date:** **7/25/2022** **Direction:** **West** **Description:** **Release area.**	

Federal 29 Z 002H

Photographic Documentation

Photograph No. 3 **Date:** **6/5/2023** **Direction:** **Northwest** **Description:** **Release area.**	
Photograph No. 4 **Date:** **6/14/2023** **Direction:** **Northeast** **Description:** **Release area.**	

505 East Huntland Dr.
Suite 250
Austin, TX 78752

T 512.329.6080
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Appendix F – NMOCD Correspondence Log

Outlook

[EXTERNAL] The Oil Conservation Division (OCD) has rejected the application, Application ID: 455741

From OCDOnline@state.nm.us <OCDOnline@state.nm.us>
Date Fri 8/8/2025 12:05 PM
To Stoffel, Jared <JStoffel@trccompanies.com>

To whom it may concern (c/o Jared Stoffel for COG OPERATING LLC),

The OCD has rejected the submitted *Application for administrative approval of a release notification and corrective action* (C-141), for incident ID (n#) nAPP2221331648,
for the following reasons:

- **The remediation plan is denied. The site is located in close proximity to a designated riverine. To overturn a wetland/riverine designation, the responsible party must utilize a Professional Wetland Scientist (PWS) to conduct a Wetland Delineation Survey following the Corps of Engineers Wetlands Delineation Manual. The PWS is required to perform the review and sign off on all conducted surveys, using the Army Corps of Engineers Wetland Determination Data Sheets, Arid West Region. All parts of the wetland/riverine within 300 feet of any part of the release must be evaluated in the survey. A Wetland Delineation report is required to be included which should contain an executive summary of the survey including a description of the site location, sampling points, a scaled sampling diagram, captioned photographs of each sample point, completed Wetland Determination Data Sheets, conclusions/findings and a Curriculum Vitae from the PWS, to include their PWS Certificate Number.**

The rejected C-141 can be found in the OCD Online: Permitting - Action Status, under the Application ID: 455741.
Please review and make the required correction(s) prior to resubmitting.
If you have any questions why this application was rejected or believe it was rejected in error, please contact me prior to submitting an additional C-141.

Thank you,
Scott Rodgers
Environmental Specialist - A
505-469-1830
scott.rodgers@emnrd.nm.gov

New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive

Santa Fe, NM 87505

From: Bratcher, Michael, EMNRD
To: Stoffel, Jared; Rodgers, Scott, EMNRD; Hamlet, Robert, EMNRD
Cc: Tavarez, Ike
Subject: RE: [EXTERNAL] Extension Request for Federal 29 Z 002H - nAPP2221331648
Date: Tuesday, October 22, 2024 4:26:44 PM
Attachments: image001.png

Jared et al.,

Due to the site being in a sensitive area, the release is over two years old with only one extension request during that time period, we are obligated, for consistency, to not approve an extension at this time. OCD appreciates the cooperation COP has shown on this one and would ask for that cooperation to continue. If this one got approved, someone down the line would point it out to us when we deny their request. That is where the consistency comes in to play. Hope you understand.

Thank you,

Mike Bratcher
Incident Supervisor
Environmental Bureau
EMNRD - Oil Conservation Division
506 W. Texas Ave | Artesia, NM 88210
(575) 626-0857 |
mike.bratcher@emnrd.nm.gov
http://www.emnrd.nm.gov/ocd

From: Stoffel, Jared <JStoffel@trccompanies.com>
Sent: Tuesday, October 22, 2024 11:07 AM
To: Rodgers, Scott, EMNRD <Scott.Rodgers@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>
Cc: Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Subject: RE: [EXTERNAL] Extension Request for Federal 29 Z 002H - nAPP2221331648

Scott –
Thank you for taking my phone call this morning. As discussed, we met with you, Mike and Robert regarding this incident on May 21, 2024 to determine a path forward, as this was a non-reportable volume overspray release on top of a historical drilling pit. The conclusion of that meeting was that the OCD will require COP to address the chlorides in the pit area. Following the meeting, a path forward was determined internally and because our borings were going to be advanced beyond 30 feet bgs, we had to submit permits through the NMOSE. As this is on

Federal land, we had to get landowner approval through the sundry notice. After all of the proper approvals and permits were in place, we received our permits on October 4, 2024. We have actively been pushing this project forward since our meeting. Would you please reconsider our extension, as we are assessing the pit as requested in the meeting and have been held up by the front side paperwork between the BLM and NMOSE? I am available at your convenience to discuss – thank you.

Jared Stoffel, P.G.
Project Manager

505 E Huntland Dr STE 250 Austin, TX 78752
F: 512 329 8750 | **C**: 432 238 3003
LinkedIn | Twitter | Blog | TRCcompanies.com

From: Rodgers, Scott, EMNRD <Scott.Rodgers@emnrd.nm.gov>
Sent: Tuesday, October 22, 2024 11:05 AM
To: Stoffel, Jared <JStoffel@trccompanies.com>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>
Cc: Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Subject: RE: [EXTERNAL] Extension Request for Federal 29 Z 002H - nAPP2221331648

Good Morning Jared,

Date of discovery for this release is listed as 7/16/2022. A 90-day extension was approved 6/21/2023 until 9/21/2023. The last submittal was rejected 3/15/2024. COP to date, has not kept up with extension requests and over two years have passed since the date of discovery. The site is situated in a High Karst area. Your current request for an extension is denied. No extensions will be approved for this incident.

Thank you,
Scott

Scott Rodgers ● Environmental Specialist – Adv.
Environmental Bureau
EMNRD - Oil Conservation Division
8801 Horizon Blvd. NE, Suite 260 | Albuquerque, NM 87113
505.469.1830 | scott.rodgers@emnrd.nm.gov

http://www.emnrd.nm.gov/ocd

From: Stoffel, Jared <JStoffel@trccompanies.com>
Sent: Monday, October 21, 2024 3:05 PM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Rodgers, Scott, EMNRD <Scott.Rodgers@emnrd.nm.gov>
Cc: Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Subject: [EXTERNAL] Extension Request for Federal 29 Z 002H - nAPP2221331648

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

Mike, Robert, and Scott-

I would like to request a 90-day extension for the assessment at the Federal 29 Z 002H site – we are currently conducting further assessment of the Site as discussed in our meeting and were delayed by BLM and OSE approvals. Please let us know if you would approve an extension for us to finish our additional assessment and submit a revised workplan. Thank you.

Jared Stoffel, P.G.
Project Manager

505 E Huntland Dr STE 250 Austin, TX 78752
F: 512 329 8750 | **C**: 432 238 3003
LinkedIn | Twitter | Blog | TRCcompanies.com

From: Stoffel, Jared
To: Rodgers, Scott, EMNRD; Bratcher, Michael, EMNRD; Hamlet, Robert, EMNRD
Cc: Tavarez, Ike
Subject: RE: [EXTERNAL] FW: Follow Up Request for Alternative Sampling Plan - nAPP2221331648
Date: Thursday, May 16, 2024 4:33:00 PM
Attachments: image001.png

Scott – thank you very much. I have sent you all a Teams invite for 1:30 MST (2:30 CST) next Tuesday. Please let me know if anyone didn't receive it. Have a good afternoon!

Jared Stoffel, P.G.
Project Manager

505 E Huntland Dr STE 250 Austin, TX 78752
F: 512 329 8750 | **C**: 432 238 3003
LinkedIn | Twitter | Blog | TRCcompanies.com

From: Rodgers, Scott, EMNRD <Scott.Rodgers@emnrd.nm.gov>
Sent: Thursday, May 16, 2024 4:08 PM
To: Stoffel, Jared <JStoffel@trccompanies.com>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Cc: Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Subject: RE: [EXTERNAL] FW: Follow Up Request for Alternative Sampling Plan - nAPP2221331648

Good Afternoon Jared,
We would like to propose a meeting time for Tuesday 5/21 @ 1:30.

Thank you,
Scott

Scott Rodgers ● Environmental Specialist – Adv.
Environmental Bureau
EMNRD - Oil Conservation Division
8801 Horizon Blvd. NE, Suite 260 | Albuquerque, NM 87113
505.469.1830 | scott.rodgers@emnrd.nm.gov
http://www.emnrd.nm.gov/ocd

From: Stoffel, Jared <JStoffel@trccompanies.com>
Sent: Thursday, April 25, 2024 2:11 PM
To: Rodgers, Scott, EMNRD <Scott.Rodgers@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Cc: Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Subject: [EXTERNAL] FW: Follow Up Request for Alternative Sampling Plan - nAPP2221331648

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

All,

I would like to propose a meeting between the NMOCD (Mike Bratcher, Robert Hamlet, and Scott Rodgers), COP (Ike Tavarez) and TRC (Jared Stoffel) to discuss the Federal 29 Z 002H release site, NMOCD Reference number NAPP2221331648. The items of discussion center around the closed drilling pit adjacent to the release point. A brief summary of the Release is below:

- The release is a non-reportable volume (1.5 barrels of crude oil).
- There was no produced water released, only crude oil.
- The release mechanism was a packing blowout which resulted in an overspray of a large area, approximately 10,800 square feet.
- COP submitted a C-141 to the NMOCD. The site was assessed, and work plan submitted to the NMOCD. Upon further review, the release was noted to be of non-reportable volume, COP attempted to retract C-141 from the system. The NMOCD declined and discussed several options to COP (variances) which would provide a path forward for remediation but prevent additional excavation driven only by chlorides present from the closed reserve pit. The meeting occurred on August 2, 2023 between the OCD (Mike Bratcher and Robert Hamlet), COP (Ike Tavarez), and TRC (Jared Stoffel). The OCD recommended the submission of a workplan with the proposed variance through the NMOCD portal.
- TPH and BTEX constituents were below the most stringent regulatory guidelines in each submitted soil sample.
- Chloride concentrations exceeded only in areas S-3 and S-6 (the pit area). S-3 appeared anomalous, so trench TT-1 was installed in the same location, and the chloride exceedances were not duplicated. S-6 appears in the area of the pit which is not well vegetated. Field screen results indicate elevated chloride concentrations throughout the pit footprint. S-6 was delineated vertically to below 600 mg/kg at 4 feet bgs.

Site characteristics:

- Depth to groundwater is unknown, but the nearest well (approximately 0.70 miles

southeast) indicates groundwater at approximately 83 feet bgs.
- 'High Karst' area
- Within 300 feet of a 'riverine' identified in the national wetlands inventory.

Discussion points:

- While we understand that the closure criteria modifiers of high karst and near a riverine dictate the most stringent regulatory guidelines, the chlorides are not related to the Release as evident by material released (crude oil only), release mechanism (overspray of the surface only), and release volume (1.5 barrels over an area of 10,800 square feet). There are no documented exceedances at the surface or any other interval of TPH or Benzene related to crude oil. Elevated chlorides appear isolated to the approximate drilling pit footprint.
- COP met with OCD in August of 2023, at which time the OCD indicated a variance may be utilized to avoid digging up the entirety of the pit. COP proposed to excavate 1,050 cubic yards (the entire spill footprint in the area represented by sample point S-6 to 4 feet bgs) and omit confirmation sampling which likely will drive excavation laterally beyond the spill footprint to the boundaries of the pit area. The proposed 4 feet greatly exceeded the depth of hydrocarbon impact in this area and will allow for better re-vegetation of this section of the former pit area. The NMOCD approved the excavation but denied the sampling variance which would omit all confirmation samples.
- A follow up email to the NMOCD requesting a smaller variance in which the requisite confirmation samples be collected and analyzed for TPH and BTEX only was verbally denied by the NMOCD.
- COP would like to propose to excavate to 4 feet bgs within the spill footprint, which would remove the chloride concentrations documented in the investigation phase of the project and upon backfill with imported clean fill will provide a good root zone for reclamation. Sidewall samples would be collected and analyzed for TPH and BTEX. Once the analytical results from the sidewalls indicate all hydrocarbon affected soil has been removed, COP proposes installation of a polyvinyl or geosynthetic liner at four feet bgs through the extent of the excavation to prevent rainwater from mobilizing any additional chloride concentrations at depth related to the pit from mobilizing. Floor confirmation samples at the base of the excavation would not be collected due to the installation of the liner.

Please let us know when would be agreeable for a meeting and I would be happy to send out a Teams meeting (unless you have a different preferred format for the meeting). Thank you very much.

Jared Stoffel, P.G.
Project Manager

505 E Huntland Dr STE 250 Austin, TX 78752
F: 512 329 8750 | **C**: 432 238 3003
LinkedIn | Twitter | Blog | TRCcompanies.com

From: Stoffel, Jared
Sent: Monday, April 8, 2024 11:56 AM
To: scott.rodgers@emnrd.nm.gov
Cc: mike.bratcher@state.nm.us; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Subject: FW: Follow Up Request for Alternative Sampling Plan - nAPP2221331648

Scott,

Thank you for discussing the alterative sampling plan with me last week. I wanted to follow up that conversation with a request for a meeting with you, Mike, and Robert to discuss how to move forward with the Site. Our last meeting was with Mike and Robert, and the recommended variance request route did not get approved. We wanted to see what our other options are, as the release footprint overlapped with the adjacent pit. Please let me know what timing would be convenient for you all and I'd like to submit a Teams meeting for us all to discuss, if possible. I appreciate your help on this – thanks!

Jared Stoffel, P.G.
Project Manager

505 E Huntland Dr STE 250 Austin, TX 78752
F: 512 329 8750 | **C**: 432 238 3003
LinkedIn | Twitter | Blog | TRCcompanies.com

From: Stoffel, Jared
Sent: Thursday, March 7, 2024 3:40 PM
To: scott.rodgers@emnrd.nm.gov
Cc: Tavarez, Ike <Ike.Tavarez@conocophillips.com>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Subject: Follow Up Request for Alternative Sampling Plan - nAPP2221331648

Scott,

Thank you for discussing the Site with me again yesterday. I've attached the conditional approval response for project reference. In discussing the next step forward for the Site, we were curious if you would consider a different alternative sampling plan.

COP would like to follow up with a reduced variance request in which confirmation soil samples be collected on the 200 square foot basis outlined in NMAC 19.15.29. However, COP would like to propose that the soil samples be collected and analyzed for TPH and BTEX only for this hydrocarbon only overspray release. As no produced water was released, COP respectfully requests omission of chlorides as a constituent of concern as the elevated chlorides are associated with the adjacent pit and not with the Release. COP will excavate the upper four feet in the footprint as proposed in the workplan to remove all previously documented elevated chloride concentrations above the most stringent NMOCD standard. The confirmation samples analyzed for TPH and BTEX would document the removal of the hydrocarbons associated with the Release to confirm the protection of freshwater, public health, and the environment from the hydrocarbons released.

Please let us know if this route would be acceptable to the NMOCD. I am available at your convenience to discuss if this would be helpful. Thank you very much for your consideration.

Jared Stoffel, P.G.
Project Manager

505 E Huntland Dr STE 250 Austin, TX 78752
F: 512 329 8750 | **C**: 432 238 3003
LinkedIn | Twitter | Blog | TRCcompanies.com

From: OCDOnline@state.nm.us
To: Stoffel, Jared
Subject: [EXTERNAL] The Oil Conservation Division (OCD) has approved the application, Application ID: 298904
Date: Tuesday, March 5, 2024 11:56:04 AM

To whom it may concern (c/o Jared Stoffel for COG OPERATING LLC),

The OCD has approved the submitted *Application for administrative approval of a release notification and corrective action* (C-141), for incident ID (n#) nAPP2221331648, with the following conditions:

- **This remediation plan is conditionally approved. The variance request to forgo confirmation sampling is denied. An alternative sampling plan would require a proposed sampling grid map and sampling statistics showing equal or better protection of fresh water, public health and the environment. The demonstration should show that depth to groundwater and karst are not an issue. Also, that it's not within a 100-year floodplain.**

The signed C-141 can be found in the OCD Online: Imaging under the incident ID (n#).

If you have any questions regarding this application, please contact me.

Thank you,
Scott Rodgers
Environmental Specialist - A
505-469-1830
scott.rodgers@emnrd.nm.gov

New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

From: Stoffel, Jared
To: Hamlet, Robert, EMNRD
Cc: Bratcher, Michael, EMNRD; Tavarez, Ike
Subject: RE: [EXTERNAL] (Extension Approval) - NAPP2221331648 FEDERAL 29 Z 002H
Date: Wednesday, January 3, 2024 8:34:00 AM
Attachments: image001.png

Thank you for the clarification, Robert – we won't resubmit in the future. Have a good morning!

Jared Stoffel, P.G.
Project Manager

505 E Huntland Dr STE 250 Austin, TX 78752
F: 512 329 8750 | **C**: 432 238 3003
LinkedIn | Twitter | Blog | TRCcompanies.com

From: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Sent: Wednesday, January 3, 2024 8:20 AM
To: Stoffel, Jared <JStoffel@trccompanies.com>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Subject: RE: [EXTERNAL] (Extension Approval) - NAPP2221331648 FEDERAL 29 Z 002H

Jared,

The report only needs to be uploaded once. Once the remediation plan is submitted, the report goes into a cue and is assigned and reviewed in the order it is received. I can't give you an exact date on when it will be reviewed. The OCD is reviewing reports as quickly as possible. Once the report is reviewed, you will receive a notification.

Robert Hamlet ● Environmental Specialist - Advanced
Environmental Bureau
EMNRD - Oil Conservation Division
506 W. Texas Ave.| Artesia, NM 88210
575.909.0302 | robert.hamlet@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Stoffel, Jared <JStoffel@trccompanies.com>
Sent: Tuesday, January 2, 2024 1:35 PM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Subject: FW: [EXTERNAL] (Extension Approval) - NAPP2221331648 FEDERAL 29 Z 002H

Robert –
I wanted to follow up with you on the workplan for the Federal 29 Z 002H (NAPP2221331648) and let you know that we re-submitted today through the portal (attached is the PO and receipt). Please let me know if this was the correct way to address a workplan that has been in the portal for longer than 60 days, and/or if you have any questions or concerns. Thank you very much!

Jared Stoffel, P.G.
Project Manager

505 E Huntland Dr STE 250 Austin, TX 78752
F: 512 329 8750 | **C**: 432 238 3003
LinkedIn | Twitter | Blog | TRCcompanies.com

From: Stoffel, Jared <JStoffel@trccompanies.com>
Sent: Tuesday, November 28, 2023 4:36 PM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Subject: RE: [EXTERNAL] (Extension Approval) - NAPP2221331648 FEDERAL 29 Z 002H

Robert -
I wanted to follow up with you on the workplan submitted to the NMOCD portal on 9/20/23 and re-submit to you since it has been more than 60 days since submittal. Please let me know if you have any questions or concerns on this one, and if I need to do anything further on the portal side after 60 days. Thanks!

Jared Stoffel, P.G.
Project Manager

505 E Huntland Dr STE 250 Austin, TX 78752

F: 512 329 8750 | C: 432 238 3003
LinkedIn | Twitter | Blog | TRCcompanies.com

From: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Sent: Wednesday, July 26, 2023 8:25 AM
To: Stoffel, Jared <JStoffel@trccompanies.com>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Subject: RE: [EXTERNAL] (Extension Approval) - NAPP2221331648 FEDERAL 29 Z 002H

Jared,

You might set up a Teams Call for Wednesday August 2nd at 10:00 a.m. Mountain Time if that works for everyone. Invite Mike Bratcher and myself to the meeting and we can have a quick discussion on the site. Thanks

Robert Hamlet ● Environmental Specialist - Advanced
Environmental Bureau
EMNRD - Oil Conservation Division
506 W. Texas Ave.| Artesia, NM 88210
575.909.0302 | robert.hamlet@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Stoffel, Jared <JStoffel@trccompanies.com>
Sent: Tuesday, July 25, 2023 3:42 PM
To: Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@emnrd.nm.gov>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Subject: RE: [EXTERNAL] (Extension Approval) - NAPP2221331648 FEDERAL 29 Z 002H

Robert, Jocelyn, and Mike,

During the set-up to begin the remedial action plan at the site, TRC performed historical review and site reconnaissance. These activities uncovered the elevated chloride concentrations to be addressed in the approved remediation workplan are related to (and seemingly limited to) the former reserve pit at the Site. Additionally, the review indicated that the release was a non-reportable volume of crude oil (1.5 bbls of crude oil – no produced water reported). We would like to discuss the next steps for this remediation, as the plan as proposed will likely result in the excavation of the entirety of a reserve pit rather than as a remedial action to remove soil affected from the release of crude oil. Would you have time to discuss this issue with us? Thank you very much!

Jared Stoffel, P.G.
Project Manager

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From: Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@emnrd.nm.gov>
Sent: Thursday, July 13, 2023 2:27 PM
To: Stoffel, Jared <JStoffel@trccompanies.com>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Subject: RE: [EXTERNAL] (Extension Approval) - NAPP2221331648 FEDERAL 29 Z 002H

Jared,

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

JH

Jocelyn Harimon ● Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1220 South St. Francis Drive | Santa Fe, NM 87505
(505)469-2821 | Jocelyn.Harimon@emnrd.nm.gov

http:// **www.emnrd.nm.gov**

From: Stoffel, Jared <JStoffel@trccompanies.com>
Sent: Thursday, July 13, 2023 9:50 AM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Tavarez, Ike <Ike.Tavarez@conocophillips.com>; Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@emnrd.nm.gov>
Subject: RE: [EXTERNAL] (Extension Approval) - NAPP2221331648 FEDERAL 29 Z 002H

Robert – we will begin remediation at the Federal 29 Z 002H (NAPP2221331648) on Monday, July 17th, 2023. Final confirmation soil samples will be collected as the excavation progresses. The expected duration of the project is 1 week. Please let me know if you have any questions or concerns. Thank you very much!

Jared Stoffel, P.G.
Project Manager

TRC

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From: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Sent: Wednesday, June 21, 2023 2:26 PM
To: Stoffel, Jared <JStoffel@trccompanies.com>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Tavarez, Ike <Ike.Tavarez@conocophillips.com>; Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@emnrd.nm.gov>
Subject: [EXTERNAL] (Extension Approval) - NAPP2221331648 FEDERAL 29 Z 002H

RE: Incident #**NAPP2221331648**

Jared,

Your request for an extension to **September 21st, 2023** is approved. Please include this e-mail correspondence in the remediation and/or closure report.

Robert Hamlet ● Environmental Specialist - Advanced
Environmental Bureau
EMNRD - Oil Conservation Division
506 W. Texas Ave.| Artesia, NM 88210
575.909.0302 | robert.hamlet@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Stoffel, Jared <JStoffel@trccompanies.com>
Sent: Wednesday, June 21, 2023 10:56 AM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Subject: [EXTERNAL] Extension Request - Federal 29 Z 002H

Mr. Hamlet,

TRC, on behalf of COP, would like to request a 90-day extension for the Federal 29 Z 002H remediation project (NAPP2221331648). We are scheduled to start the remedial excavation in early to mid-July, and the 90 days would allow us time following remediation to complete the report prior to the deadline. Please let us know if this is acceptable to you – thank you very much!

Jared Stoffel, P.G.
Project Manager

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Appendix G – Previously Submitted and Conditionally Approved Workplan; TRC

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Former Drilling Pit Delineation and Reclamation Plan

ConocoPhillips
Federal 29 Z 002H
Eddy County, New Mexico
Unit Letter "L", Section 29, Township 20 South, Range 27 East
Latitude 32.5425° North, Longitude 104.3108° West
NMOCD Reference No. NAPP2221331648

Prepared For:

ConocoPhillips
600 W Illinois Avenue
Midland, Texas 79701

Prepared By:

TRC Environmental Corporation
10 Desta Drive, Suite 130E
Midland, Texas 79705

October 25, 2024

Jared E. Stoffel, PG
Project Manager

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FIGURES

APPENDICES

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INTRODUCTION & BACKGROUND INFORMATION

TRC Environmental Corporation (TRC), on behalf of ConocoPhillips, has prepared this *Revised Remediation Work Plan and Proposed Variance Request* for the Release Site known as the Federal 29 Z 002H (the Site). The legal description of the Site is Unit Letter "L", Section 29, Township 20 South, Range 27 East, in Eddy County, New Mexico. The subject property is owned by the State of New Mexico and administered by New Mexico State Land Office (NMSLO). The GPS coordinates for the Site are N 32.5425°, W 104.3108°. A topographic map is provided as **Figure 1**.

On July 16, 2022, ConocoPhillips (COP) discovered a crude oil release had occurred at the Site. The Release was attributed to a packing blowout. On the discovery date, COP notified the New Mexico Oil Conservation Division (NMOCD) and New Mexico State Land Office (NMSLO) of the Release. The Release was assigned an NMOCD Reference number of NAPP2221331648. On August 01, 2022, the initial Release Notification and Corrective Action (Form C-141) was submitted to the NMOCD. The Form C-141 indicated 1.5 barrels (bbls) of crude oil was released and zero (0) bbls of crude oil was recovered. The crude oil was oversprayed primarily to the west with a minor component to the north and east. The Release affected an area measuring approximately 10,800 square feet (sq. ft.). The C-141 indicated the impacted area was located on and off the location pad. The Site location is depicted in **Figure 1. Figure 2** and **Figure 3** reflect the characterization parameters of the Site. The affected area is depicted in **Figure 4**.

Based on a review of the New Mexico Office of State Engineers and United States Geological Survey (USGS) databases, there is no known water source within a 0.50-mile radius of the location. The nearest identified well is located approximately 0.68 miles east of the site in S29, T20S, R27E and was drilled in 2023. The well has a reported depth to groundwater of 132 feet below ground surface (ft bgs). The screened interval is between 139 and 159 feet bgs. A copy of the associated Point of Diversion Summary report is attached in **Appendix A**.

Based on the inferred depth to groundwater at the Federal 29 Z 002H Release Site, the NMOCD *Closure Criteria for Soils Impacted by a Release* does not warrant the most stringent closure criteria listed based on depth to groundwater. However, the Federal 29 Z 002H is within 300 feet of a significant watercourse and/or wetland denoted as a riverine on **Figure 2**. Additionally, the Federal 29 Z 002H is located in the 'high karst' area as outlined in Bureau of Land Management (BLM) publicly available Karst Potential Map and is provided as **Figure 3**. Despite the depth to groundwater greater than 100 feet bgs, the NMOCD stance on the regulation of releases at Sites adjacent to flowing or significant watercourses, wetlands, and 'high karst' areas requires that COP utilize the most stringent NMOCD Closure Criteria for Soils Impacted by a Release for the Federal 29 Z 002H as follows:

- Benzene – 10 mg/kg
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) – 50 mg/kg
- Total Petroleum Hydrocarbons (TPH) –100 mg/kg
- Chloride – 600 mg/kg

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CHRONOLOGY AND DISCUSSIONS WITH THE NMOCD

July 16, 2022 – The release occurs and is incorrectly reported to NMOCD due to volume (1.5 barrels of crude oil; no produced water).

December 15, 2022 – The Initial Remediation Workplan is submitted to the NMOCD by Carmona Resources. The workplan is provided as **Attachment B**.

March 17, 2023 – The initial Remediation Workplan is approved by the NMOCD.

June 21, 2023 – An extension request is submitted by TRC prior to remediation enactment. The extension request is approved by the NMOCD.

July 13, 2023 – TRC provides a notification to NMOCD that workplan enactment will begin the following week to comply with the required 48-hour confirmation sampling notice.

July 17, 2023 – TRC is onsite for preparation of site remediation and notes ubiquitous elevated chloride concentrations in the former drilling pit area. The area to be remediated appears to be contained within the former drilling pit footprint. TRC is unable to differentiate between elevated chloride concentrations related to the former drilling pit and those caused by the release. Remediation activities are not initiated pending discussion with the NMOCD.

July 25, 2023 – TRC provides a notification to NMOCD via email of comingled former drilling pit footprint and release area footprint. TRC also notes the release was of a non-reportable volume (1.5 bbl crude oil and no produced water) and no TPH or BTEX concentrations exceeded NMOCD standards. TRC requests a meeting with the NMOCD to discuss path forward.

August 2, 2023 – NMOCD, COP, and TRC virtually meet to discuss comingled areas. The NMOCD indicates a variance request will be considered to avoid excavating the entirety of the former drilling pit, but the C-141 cannot be retracted despite the non-reportable release volume as a workplan has already been generated and approved.

August 20, 2023 – A second Remediation Workplan And Variance Request is submitted to NMOCD by TRC. The proposed workplan is to excavate the footprint of the release to four (4) feet bgs. The requested variance is to omit confirmation soil samples to avoid chloride concentrations sourced from the former drilling pit driving excavation extents beyond the spill footprint and previously delineated depths. The second workplan is provided as **Appendix C**.

March 5, 2024 – The NMOCD approves Remediation Workplan conditionally but denies variance request to omit confirmation sampling. The denial of the variance

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request would result in the excavation of elevated chloride concentrations in the full former drilling pit footprint.

March 7, 2024 - TRC requests a smaller sampling variance in which confirmation soil samples would be collected but only run for TPH and BTEX. No response from the NMOCD.

April 8, 2024 – TRC re-submits the March 7, 2024 request for a smaller sampling variance. No response from the NMOCD.

April 25, 2024 – TRC requests a meeting to discuss the smaller sampling variance submitted on March 7 and April 8. The NMOCD proposes a virtual meeting on May 21, 2024 meeting based on their availability.

May 21, 2024 – The NMOCD, COP and TRC meet virtually to discuss the denial of the variance requests and potential alternative options to avoid excavating the full extent of the former drilling pit, which is unrelated to the surface release of hydrocarbons. The NMOCD indicates that no variance requests or alternative options will be approved for the site and all chlorides above 600 mg/kg will require removal regardless of source. COP indicates delineation will be required internally to begin an excavation of this scale outside the scope of remediation related to the small overspray release. NMOCD and COP agree that a workplan documenting the delineation of elevated chloride concentrations in the former drilling pit area was an acceptable path forward.

July 6, 2024 – TRC attempts delineation of former drilling pit chlorides with backhoe. Vertical delineation is not achieved in all locations to below 600 mg/kg. In response, TRC begins the NMOSE drilling permit process as required by the NMOSE in borings deeper than 30 feet bgs. Additionally, BLM concurrence for the borings is required.

October 4, 2024 – The NMOSE issues the executed drilling permits.

October 8, 2024 – TRC attempts delineation of former drilling pit chlorides with air rotary rig. Vertical delineation is not achieved in all locations to below 600 mg/kg.

October 22, 2024 – TRC requests an extension to further investigate former drilling pit chlorides as the 2 delineation events had not yet resulted in full vertical delineation in each sampled location. The NMOCD denies the extension request despite an explanation that COP continues to comply with the NMOCD requests. Email communications between the NMOCD and TRC/COP is documented as **Appendix D**.

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FORMER DRILLING PIT ASSESSMENT ACTIVITIS

Backhoe Delineation – Field Work

On July 6, 2024, TRC initiated a former drilling pit chloride delineation event utilizing a backhoe.

During the event, five (5) vertical trenches (Pit Trench NW, Pit Trench SW, Pit Trench Center, Pit Trench NE, and Pit Trench SE) were advanced within the former drilling pit footprint to the maximum extent of the backhoe. Soil samples were collected every two (2) feet. Each soil sample was analyzed for chloride concentrations, and surface samples were additionally analyzed for TPH and BTEX concentrations to confirm the surface soils were not affected by hydrocarbons from the release.

Additionally, four (4) lateral soil samples (Lateral-West, Lateral-East, Lateral-North, and Lateral-South) were collected from the 0-1' interval to confirm the lateral extent of the former drilling pit.

Soil sample locations are documented in **Figure 4**.

Backhoe Delineation – Results

One (1) surface soil sample, Pit Trench SW @ 0-1', exhibited a TPH concentration of 118 mg/kg, slightly above the NMOCD standard. The soil sample underlying this soil sample, Pit Trench SW @ 2', was also run for TPH and BTEX to confirm the hydrocarbon exceedances was vertically delineated. Pit Trench SW @ 2' did not exhibit TPH or BTEX concentrations above the laboratory detection limit (RL). Only one of the backhoe trenches, Pit Trench SW, exhibited vertical delineation below 600 mg/kg for chlorides in the deepest sample (12').

Each lateral soil sample exhibited TPH, BTEX, and chloride concentrations below the NMOCD regulatory standard. Lateral delineation of the former drilling pit was achieved to below 600 mg/kg.

Soil sample analytical results are summarized in **Table 1**.

Air Rotary Drilling Rig Delineation – Field Work

Following the July 6, 2024 backhoe delineation event, COP elected to re-attempt to vertically define the extent of elevated chloride concentrations in the former drilling pit utilizing a drilling rig. The potential depth of borings necessitated NMOSE permits, which took time to procure as discussed above.

On October 8, 2024, TRC initiated a former drilling pit chloride delineation event utilizing an air rotary rig. Immediately adjacent to the five (5) trenches within the former drilling pit footprint but outside the backfilled trenches themselves, five (5) soil borings (SB-NW, SB-SW, SB-Center, SB-NE, and SB-SE) were advanced to a total depth of thirty (30) feet bgs. Soil samples were collected from the surface, 1-3, 5', 10', 15', 20', 25', and 30' intervals utilizing a 'pig's foot' sampler. Soil samples were analyzed for chloride concentrations only.

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Additionally, two (2) background soil borings were advanced between 50 and 100 feet from the former drilling pit to confirm the Site is not affected by elevated background chloride concentrations. Sampled intervals in the background borings matched the vertical delineation borings.

Soil sample locations are documented in **Figure 4**. Field boring logs are provided as **Appendix E**. The general lithology at the site is silty sand which transitions to a sandy clay, underlain by a red clay rich soils starting between 15 and 20 feet bgs.

Air Rotary Drilling Rig Delineation – Results

Vertical delineation was confirmed in SB-SW in soil samples from 15' to 30' bgs, which corroborated the data collected from the adjacent trench Pit Trench SW during the backhoe delineation event. Additionally, vertical delineation to below 600 mg/kg was achieved at SB-NW in the 30-foot soil sample. However, vertical delineation was not achieved in SB-Center, SB-SE, and SB-NE with bottomhole chloride concentrations of 678 mg/kg, 2,580 mg/kg, and 1,480 mg/kg, respectively.

No background soil samples exhibited chloride concentrations above 600 mg/kg, indicating elevated chloride concentrations are unlikely to be a naturally occurring phenomenon at the site.

PROPOSED RECLAMATION OF THE FORMER DRILLING PIT

The depths of the chloride concentrations above 600 mg/kg and lateral delineation of concentrations to below 600 mg/kg outside the former drilling pit margins further indicates that the chlorides are sourced from the former drilling pit and are not related to the 1.5 barrel hydrocarbon overspray release on July 22, 2022. While COP understands the site is in a sensitive area, the small volume, material released, and lack of hydrocarbon impacts indicate the release is not a risk to the sensitive area. Based on the approximate former drilling pit footprint and chloride concentrations above 600 mg/kg to over 30 feet in multiple borings, excavation of the full pit would require removal of approximately 49,000 ex situ cubic yards. Excavations of such depth are intrinsically less safe and impractical.

COP proposes to excavate the footprint of the former drilling pit to four (4) feet bgs and will reclaim the pit to the NMOCD reclamation standard. The excavation would also remove the single TPH exceedance at the surface from Pit Trench SW, which potentially is related to the overspray release. COP proposes collection of a floor sample to document the elevated chloride concentrations at the base of the excavation and proposes installation of a geosynthetic liner to limit rainwater infiltration. COP proposes collection of sidewall samples on a 200 square foot basis (50 linear feet) as outlined in NMAC 19.15.29. The estimated volume of soil removed will be approximately 5,500 cubic yards, which will be transported to an NMOCD approved disposal facility. The Site will then be backfilled with locally sourced 'like' material to near original grade and reseeded in accordance with BLM requirements.

COP is prepared to begin the activities outlined in this *Former Drilling Pit Delineation and Reclamation Plan* following NMOCD and BLM approval. On completion of reclamation activities, a Reclamation Summary and Closure Report will be prepared detailing field activities.

If you have any questions, or need any additional information, please feel free to contact myself or Ike Tavarez by phone or email.

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LIMITATION

TRC has prepared this Former Drilling Pit Delineation and Reclamation Plan to the best of its ability. No other warranty, expressed or implied, is made or intended.

TRC has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. TRC has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. TRC has prepared this report, in a professional manner, using the degree of skill and care exercised by similar environmental consultants. TRC also 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 ConocoPhillips. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of TRC and/or ConocoPhillips.

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DISTRIBUTION

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Artesia, NM 88210

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620 E Greene Street
Carlsbad, NM 88220

Copy 3: Ike Tavarez
ConocoPhillips
600 W. Illinois Avenue
Midland, Texas 79701

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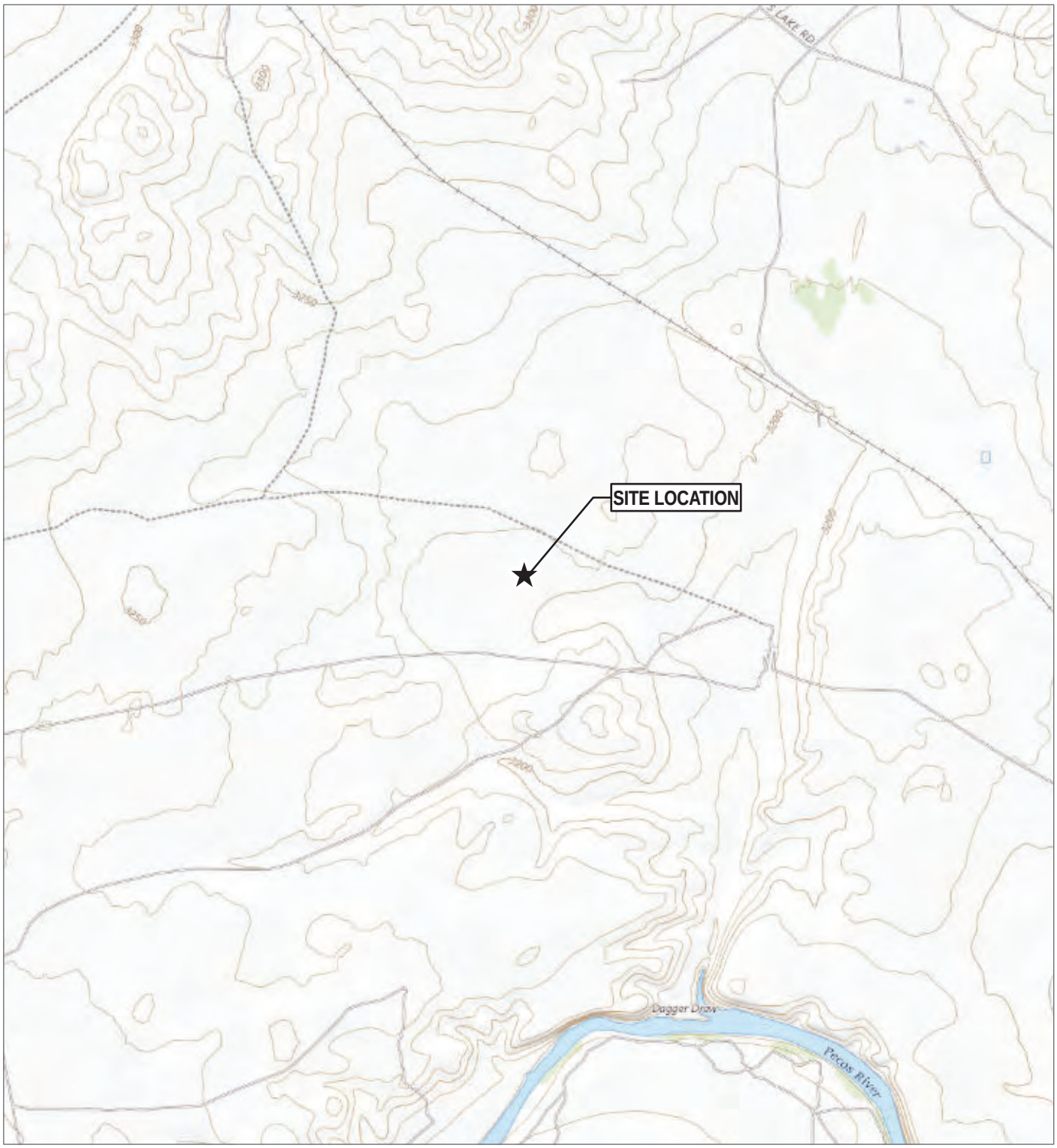
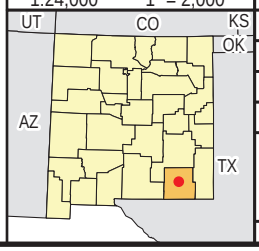


N

0 1,000 2,000

FEET

1:24,000 1" = 2,000'



PROJECT:

CONOCOPHILLIPS
FEDERAL 29 Z 002H
EDDY COUNTY, NEW MEXICO

TITLE:

TOPOGRAPHIC MAP

DRAWN BY:	S. RAY	PROJ. NO.:	544675.0000.0000
CHECKED BY:	M. BRYANT		
APPROVED BY:	M. BRYANT		**FIGURE 1**
DATE:	AUGUST 2023		

TRC
1180 NW MAPLE STREET, SUITE 310
ISSAQUAH, WA 98027
PHONE: 425.395.0010

FILE: FEDERAL 29 Z 002H

BASE MAP: USGS COLOR ORTHO IMAGERY
DATA SOURCES: TRC

COORDINATE SYSTEM: NAD 1983 STATEPLANE NEW MEXICO EAST FIPS 3001 FEET; MAP ROTATION: 0
-- SAVED BY: SRAY ON 8/16/2023 14:58:35 PM -- FILE PATH: T:\CONOCOPHILLIPS\544675_FEDERAL29Z002H_APRX\FEDERAL 29 Z 002H APRX -- LAYOUT NAME: FIG 1 - GVM

HALF-MILE RADIUS

SITE LOCATION

AREA INSIDE OF 100-YEAR FLOODPLAIN

RIVERINE

BASE MAP: GOOGLE EARTH PRO AND THEIR DATA PARTNERS (12/21/2019).
DATA SOURCES: TRC, FEMA, NWI.

1:12,000
1" = 1,000'

0 500 1,000 FEET

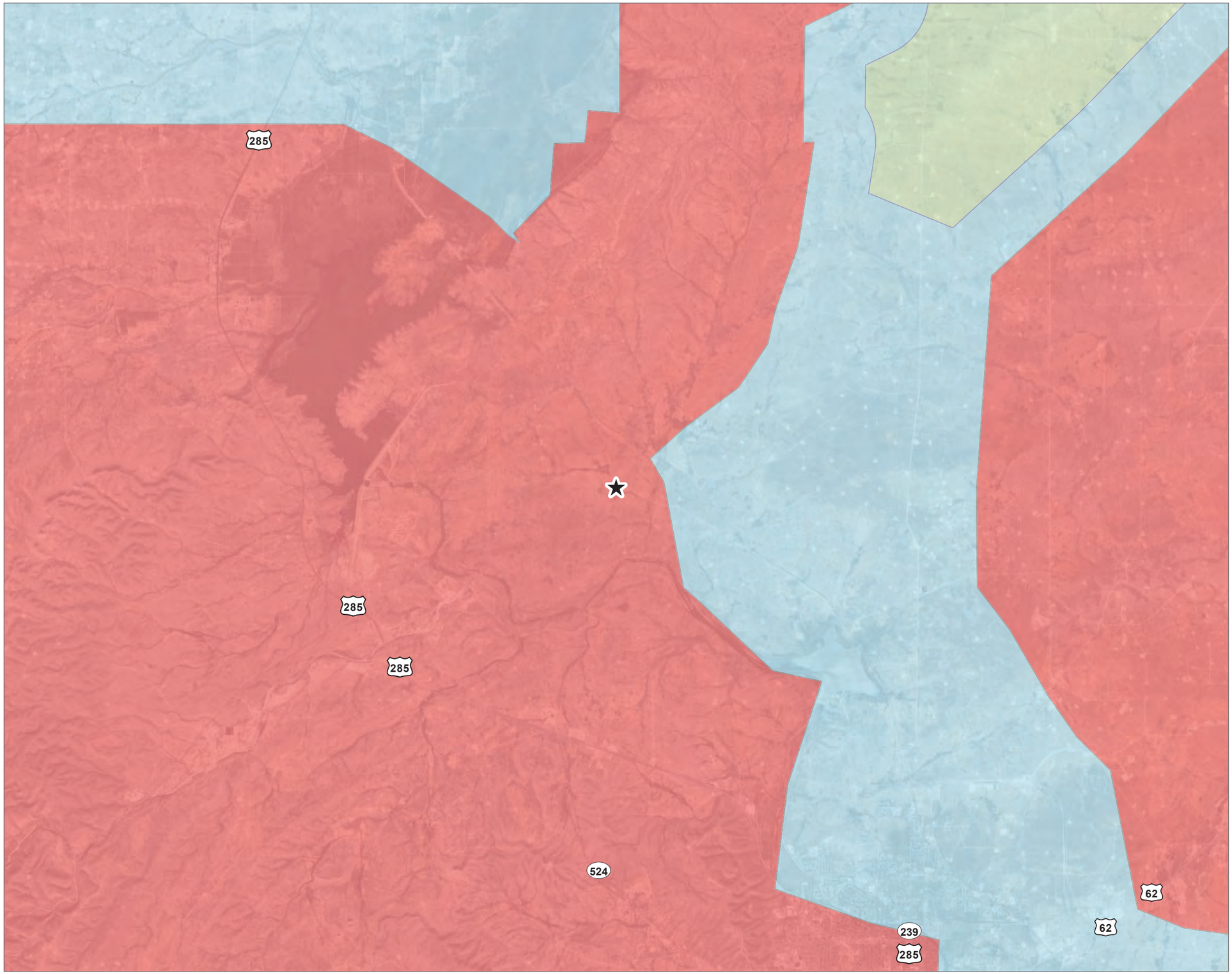
PROJECT:	CONOCOPHILLIPS FEDERAL 29 Z 002H EDDY COUNTY, NEW MEXICO
TITLE:	AERIAL MAP

DRAWN BY:	S. RAY	PROJ. NO.:	544675.0000.0000
CHECKED BY:	M. BRYANT		FIGURE 2
APPROVED BY:	M. BRYANT		
DATE:	AUGUST 2023		

TRC
1180 NW MAPLE STREET, SUITE 310
ISSAQUAH, WA 98027
PHONE: 425.395.0010

FILE: Federal 29 Z 002H.aprx

Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet - Map Rotation: 0
Saved By: SRAY on 8/1/2023 - 1:48:35 PM - File Path: I:\ConocoPhillips\544675_Federal\29\2-APRX\Federal 29 Z 002H.aprx - Layout Name: Fig 2 - Aerial Map



SITE LOCATION

LOW KARST POTENTIAL

MEDIUM KARST POTENTIAL

HIGH KARST POTENTIAL

BASE MAP: GOOGLE EARTH PRO AND THEIR DATA PARTNERS (12/21/2019).
DATA SOURCES: TRC.

1:100,000
1" = 2 MILES

0 1 2 MILES

PROJECT:
CONOCOPHILLIPS
FEDERAL 29 Z 002H
EDDY COUNTY, NEW MEXICO

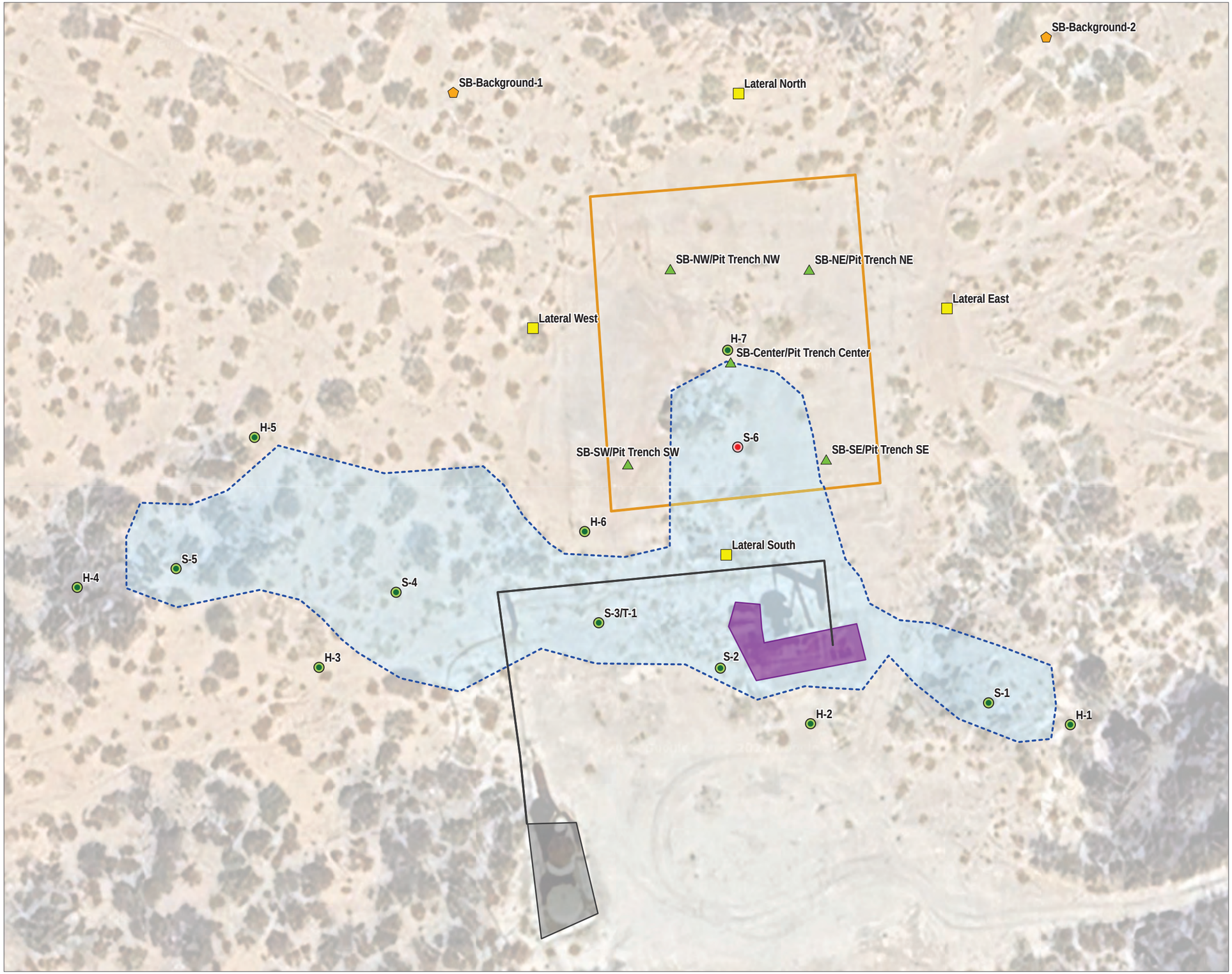
TITLE:
KARST POTENTIAL MAP

DRAWN BY:	S. RAY	PROJ. NO.:	544675.0000.0000
CHECKED BY:	M. BRYANT		
APPROVED BY:	M. BRYANT		**FIGURE 3**
DATE:	AUGUST 2023		

TRC
1180 NW MAPLE STREET, SUITE 310
ISSAQUAH, WA 98027
PHONE: 425.395.0010

FILE: Federal 29 Z 002H.aprx

Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet; Map Rotation: 0
Saved By: SRAY on 8/9/2023 1:45:35 PM; File Path: T:\ConocoPhillips\544675_Federal\29\3-APRX\Federal 29 Z 002H.aprx; Layout Name: Fig 3 - Karst Potential Map



PREVIOUS DELINEATION SAMPLE LOCATION BELOW NMOCD STANDARDS

PREVIOUS DELINEATION SAMPLE LOCATION EXCEEDING NMOCD STANDARDS

BACKGROUND SAMPLE LOCATION

HORIZONTAL PIT DELINEATION SAMPLE LOCATION

VERTICAL PIT DELINEATION SAMPLE LOCATION

SURFACE STEEL LINE

TANK BATTERY

WELLHEAD AND ASSOCIATED INFRASTRUCTURE

APPROXIMATE PIT LOCATION

RELEASE AREA (OVERSPRAY FOOTPRINT)

BASE MAP: GOOGLE EARTH PRO AND THEIR DATA PARTNERS (12/21/2019).
DATA SOURCES: TRC.

NOTES
SAMPLE LOCATIONS AND ANALYTICAL DATA FROM CARMONA RESOURCES WORKPLAN

1:500
1" = 42'

0 25 50 FEET

PROJECT:	CONOCOPHILLIPS FEDERAL 29 Z 002H EDDY COUNTY, NEW MEXICO
TITLE:	DRILLING PIT ASSESSMENT - SAMPLE LOCATION MAP
DRAWN BY: A. CLINE	PROJ. NO.: 544675.0000.0000
CHECKED BY: B. TRACY	FIGURE 4
APPROVED BY: M. BRYANT	
DATE: OCTOBER 2024	
FILE:	Federal 29 Z 002H.aprx

TRC

Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet; Map Rotation: 0
Saved By: BTRACY on 10/22/2024 1:54:25 PM; File Path: T:\1-PROJECTS\ConocoPhillips\544675_Federal\29Z-APRX\Federal 29 Z 002H.aprx; Layout Name: Fig 5 - Drilling Pit Assessment Map

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	Oil Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Guidelines		**10**				**50**				**100**	**600**
Lateral Delineation											
Lateral-East @ 0-1'	6/6/2024	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	63.0
Lateral-North @ 0-1'	6/6/2024	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<50.0	<50.0	<50.0	<50.0	72.6
Lateral-South @ 0-1'	6/6/2024	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	108
Lateral-West @ 0-1'	6/6/2024	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	67.6
Veritcal Delineation											
Pit Trench Center @ 0-1'	6/6/2024	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	**1,340**
Pit Trench Center @ 2'	6/6/2024	-	-	-	-	-	-	-	-	-	**1,520**
Pit Trench Center @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**848**
Pit Trench Center @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	**1,020**
Pit Trench Center @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,450**
Pit Trench Center @ 10	6/6/2024	-	-	-	-	-	-	-	-	-	**3,590**
Pit Trench Center @ 12	6/6/2024	-	-	-	-	-	-	-	-	-	**2,970**
SB-Center @ Surface	10/8/2024	-	-	-	-	-	-	-	-	-	**847**
SB-Center @ 1-3'	10/8/2024	-	-	-	-	-	-	-	-	-	**1,110**
SB-Center @ 5'	10/8/2024	-	-	-	-	-	-	-	-	-	466
SB-Center @ 10'	10/8/2024	-	-	-	-	-	-	-	-	-	**1,570**
SB-Center @ 15'	10/8/2024	-	-	-	-	-	-	-	-	-	**1,040**
SB-Center @ 20'	10/8/2024	-	-	-	-	-	-	-	-	-	**883**
SB-Center @ 25'	10/8/2024	-	-	-	-	-	-	-	-	-	**997**
SB-Center @ 30'	10/8/2024	-	-	-	-	-	-	-	-	-	**678**

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Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	Oil Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Guidelines		**10**				**50**				**100**	**600**
Pit Trench NE @ 0-1'	6/6/2024	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	<49.9	<49.9	<49.9	<49.9	**7,870**
Pit Trench NE @ 2'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,440**
Pit Trench NE @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,600**
Pit Trench NE @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,580**
Pit Trench NE @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,910**
Pit Trench NE @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	**3,930**
Pit Trench NE @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	**1,200**
SB-NE @ Surface	10/9/2024	-	-	-	-	-	-	-	-	-	**7,440**
SB-NE @ 1-3'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,580**
SB-NE @ 5'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,620**
SB-NE @ 10'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,280**
SB-NE @ 15'	10/9/2024	-	-	-	-	-	-	-	-	-	**965**
SB-NE @ 20'	10/9/2024	-	-	-	-	-	-	-	-	-	538
SB-NE @ 25'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,160**
SB-NE @ 30'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,480**

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	Oil Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Guidelines		**10**				**50**				**100**	**600**
Pit Trench NW @ 0-1'	6/6/2024	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	**10,300**
Pit Trench NW @ 2'	6/6/2024	-	-	-	-	-	-	-	-	-	**4,570**
Pit Trench NW @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**4,110**
Pit Trench NW @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	**5,530**
Pit Trench NW @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	**4,740**
Pit Trench NW @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	**7,850**
Pit Trench NW @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	**4,080**
SB-NW @ Surface	10/9/2024	-	-	-	-	-	-	-	-	-	**1,870**
SB-NW @ 1-3'	10/9/2024	-	-	-	-	-	-	-	-	-	**3,700**
SB-NW @ 5'	10/9/2024	-	-	-	-	-	-	-	-	-	**2,000**
SB-NW @ 10'	10/9/2024	-	-	-	-	-	-	-	-	-	**4,000**
SB-NW @ 15'	10/9/2024	-	-	-	-	-	-	-	-	-	**5,060**
SB-NW @ 20'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,360**
SB-NW @ 25'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,540**
SB-NW @ 30'	10/9/2024	-	-	-	-	-	-	-	-	-	571

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	Oil Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Guidelines		**10**				**50**				**100**	**600**
Pit Trench SE @ 0-1'	6/6/2024	<0.00202	<0.00202	<0.00202	<0.00403	<0.00403	<49.9	<49.9	<49.9	<49.9	**1,730**
Pit Trench SE @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,140**
Pit Trench SE @ 2'	6/6/2024	-	-	-	-	-	-	-	-	-	**5,980**
Pit Trench SE @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**10,100**
Pit Trench SE @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	**1,250**
Pit Trench SE @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	**1,210**
Pit Trench SE @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,140**
Pit Trench SE @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,580**
SB-SE @ Surface	10/9/2024	-	-	-	-	-	-	-	-	-	**7,230**
SB-SE @ 1-3'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,950**
SB-SE @ 5'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,760**
SB-SE @ 10'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,820**
SB-SE @ 15'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,540**
SB-SE @ 20'	10/9/2024	-	-	-	-	-	-	-	-	-	**796**
SB-SE @ 25'	10/9/2024	-	-	-	-	-	-	-	-	-	**613**
SB-SE @ 30'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,480**

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	Oil Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Guidelines		**10**				**50**				**100**	**600**
Pit Trench SW @ 0-1'	6/6/2024	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<50.0	118	<50.0	**118**	**3,650**
Pit Trench SW @ 2'	6/6/2024	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<50.0	<50.0	<50.0	<50.0	**2,550**
Pit Trench SW @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,170**
Pit Trench SW @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	**1,660**
Pit Trench SW @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	**1,150**
Pit Trench SW @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	**1,230**
Pit Trench SW @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	437
SB-SW @ Surface	10/9/2024	-	-	-	-	-	-	-	-	-	**7,170**
SB-SW @ 1-3'	10/9/2024	-	-	-	-	-	-	-	-	-	**2,440**
SB-SW @ 5'	10/9/2024	-	-	-	-	-	-	-	-	-	**2,240**
SB-SW @ 10'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,020**
SB-SW @ 15'	10/9/2024	-	-	-	-	-	-	-	-	-	215
SB-SW @ 20'	10/9/2024	-	-	-	-	-	-	-	-	-	79.2
SB-SW @ 25'	10/9/2024	-	-	-	-	-	-	-	-	-	78.3
SB-SW @ 30'	10/9/2024	-	-	-	-	-	-	-	-	-	128

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	Oil Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Guidelines		**10**				**50**				**100**	**600**
Background Borings											
Background-1 @ Surface	10/10/2024	-	-	-	-	-	-	-	-	-	<10.0
Background-1 @ 1-3'	10/10/2024	-	-	-	-	-	-	-	-	-	31.3
Background-1 @ 5'	10/10/2024	-	-	-	-	-	-	-	-	-	25.4
Background-1 @ 10'	10/10/2024	-	-	-	-	-	-	-	-	-	<9.90
Background-1 @ 15'	10/10/2024	-	-	-	-	-	-	-	-	-	<10.0
Background-1 @ 20'	10/10/2024	-	-	-	-	-	-	-	-	-	46.2
Background-1 @ 25'	10/10/2024	-	-	-	-	-	-	-	-	-	164
Background-1 @ 30'	10/10/2024	-	-	-	-	-	-	-	-	-	141
Background-2 @ Surface	10/8/2024	-	-	-	-	-	-	-	-	-	334
Background-2 @ 1-3'	10/8/2024	-	-	-	-	-	-	-	-	-	241
Background-2 @ 5'	10/8/2024	-	-	-	-	-	-	-	-	-	271
Background-2 @ 10'	10/8/2024	-	-	-	-	-	-	-	-	-	172
Background-2 @ 15'	10/8/2024	-	-	-	-	-	-	-	-	-	50.7
Background-2 @ 20'	10/8/2024	-	-	-	-	-	-	-	-	-	13.4
Background-2 @ 25'	10/8/2024	-	-	-	-	-	-	-	-	-	14.1
Background-2 @ 30'	10/8/2024	-	-	-	-	-	-	-	-	-	7.48

Exceeds NMOCD Standard

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Appendix H – Previously Submitted and Denied Workplan; TRC

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Revised Former Drilling Pit Delineation and Reclamation Plan

ConocoPhillips
Federal 29 Z 002H
Eddy County, New Mexico
Unit Letter "L", Section 29, Township 20 South, Range 27 East
Latitude 32.5425° North, Longitude 104.3108° West
NMOCD Reference No. NAPP2221331648

Prepared For:

ConocoPhillips
600 W Illinois Avenue
Midland, Texas 79701

Prepared By:

TRC Environmental Corporation
10 Desta Drive, Suite 130E
Midland, Texas 79705

April 2025

Jared E. Stoffel, PG
Senior Project Manager

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FIGURES

APPENDICES

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INTRODUCTION & BACKGROUND INFORMATION

TRC Environmental Corporation (TRC), on behalf of ConocoPhillips, has prepared this *Revised Former Drilling Pit Delineation and Reclamation Plan* for the Release Site known as the Federal 29 Z 002H (the Site). The legal description of the Site is Unit Letter "L", Section 29, Township 20 South, Range 27 East, in Eddy County, New Mexico. The subject property is owned by the State of New Mexico and administered by New Mexico State Land Office (NMSLO). The GPS coordinates for the Site are N 32.5425°, W 104.3108°. A topographic map is provided as **Figure 1**.

On July 16, 2022, ConocoPhillips (COP) discovered a crude oil release had occurred at the Site. The Release was attributed to a packing blowout. On the discovery date, COP notified the New Mexico Oil Conservation Division (NMOCD) and New Mexico State Land Office (NMSLO) of the Release. The Release was assigned an NMOCD Reference number of NAPP2221331648. On August 01, 2022, the initial Release Notification and Corrective Action (Form C-141) was submitted to the NMOCD. The Form C-141 indicated 1.5 barrels (bbls) of crude oil was released and zero (0) bbls of crude oil was recovered. The crude oil was oversprayed primarily to the west with a minor component to the north and east. The Release affected an area measuring approximately 10,800 square feet (sq. ft.). The C-141 indicated the impacted area was located on and off the location pad. The Site location is depicted in **Figure 1. Figure 2** and **Figure 3** reflect the characterization parameters of the Site. The affected area is depicted in **Figure 4**.

Based on a review of the New Mexico Office of State Engineers and United States Geological Survey (USGS) databases, there is no known water source within a 0.50-mile radius of the location. The nearest identified well is located approximately 0.68 miles east of the site in S29, T20S, R27E and was drilled in 2023. The well has a reported depth to groundwater of 132 feet below ground surface (ft bgs). The screened interval is between 139 and 159 feet bgs. A copy of the associated Point of Diversion Summary report is attached in **Appendix A**. Additionally, multiple soil borings onsite have been advanced to approximately 80 feet bgs, confirming depth to water is greater than fifty (50) feet bgs.

Based on the inferred depth to groundwater at the Federal 29 Z 002H Release Site, the NMOCD *Closure Criteria for Soils Impacted by a Release* does not warrant the most stringent closure criteria listed based on depth to groundwater. The Federal 29 Z 002H is within 300 feet of a significant watercourse and/or wetland denoted as a riverine on **Figure 2**. Of note, the riverine has been dry during each of the site visits. Additionally, the Federal 29 Z 002H is located in the 'high karst' area as outlined in Bureau of Land Management (BLM) publicly available Karst Potential Map and is provided as **Figure 3**. In an effort to determine if karst features exist at the Site that may require more stringent guidelines than inferred groundwater requires (greater than 100 feet bgs based on nearest well in NMOSE database; greater than 50 feet based on onsite drill borings), a karst survey was requested to be conducted by a BLM approved karst surveying firm. Southwest Geophysical Consulting, LLC has indicated that no karst features are within 200 feet of the spill delineation boundary, the site is on stable ground, the strata underlying the site are flat lying and subsurface air or water filled voids were not observed. The karst findings report is provided as **Appendix B**. Based on depth to groundwater, lack of water in the nearby water feature, and lack of karst features (and associated stable ground underlying the site), the remediation standard for the site are as follows:

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- Benzene – 10 mg/kg
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) – 50 mg/kg
- Total Petroleum Hydrocarbons (TPH) –2,500 mg/kg
- TPH Gasoline Range Organics (GRO) + Diesel Range Organics (DRO) – 1,000 mg/kg
- Chloride – 10,000 mg/kg

The upper four (4) feet of soil is subject to the more stringent reclamation standards as follows:

- Benzene – 10 mg/kg
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) – 50 mg/kg
- Total Petroleum Hydrocarbons (TPH) – 100 mg/kg
- Chloride – 600 mg/kg

CHRONOLOGY AND DISCUSSIONS WITH THE NMOCD

July 16, 2022 – The release occurs and is incorrectly reported to NMOCD due to volume (1.5 barrels of crude oil; no produced water).

December 15, 2022 – The Initial Remediation Workplan is submitted to the NMOCD by Carmona Resources. The workplan is provided as **Attachment C**.

March 17, 2023 – The initial Remediation Workplan is approved by the NMOCD.

June 21, 2023 – An extension request is submitted by TRC prior to remediation enactment. The extension request is approved by the NMOCD.

July 13, 2023 – TRC provides a notification to NMOCD that workplan enactment will begin the following week to comply with the required 48-hour confirmation sampling notice.

July 17, 2023 – TRC is onsite for preparation of site remediation and notes ubiquitous elevated chloride concentrations in the former drilling pit area. The area to be remediated appears to be contained within the former drilling pit footprint. TRC is unable to differentiate between elevated chloride concentrations related to the former drilling pit and those caused by the release. Remediation activities are not initiated pending discussion with the NMOCD.

July 25, 2023 – TRC provides a notification to NMOCD via email of comingled former drilling pit footprint and release area footprint. TRC also notes the release was of a non-reportable volume (1.5 bbl crude oil and no produced water) and no TPH or BTEX concentrations exceeded NMOCD standards. TRC requests a meeting with the NMOCD to discuss path forward.

August 2, 2023 – NMOCD, COP, and TRC virtually meet to discuss comingled areas. The NMOCD indicates a variance request will be considered to avoid excavating the entirety of the former drilling pit, but the C-141 cannot be retracted despite

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the non-reportable release volume as a workplan has already been generated and approved.

August 20, 2023 – A second Remediation Workplan And Variance Request is submitted to NMOCD by TRC. The proposed workplan is to excavate the footprint of the release to four (4) feet bgs. The requested variance is to omit confirmation soil samples to avoid chloride concentrations sourced from the former drilling pit driving excavation extents beyond the spill footprint and previously delineated depths. The second workplan is provided as **Appendix D**.

March 5, 2024 – The NMOCD approves Remediation Workplan conditionally but denies variance request to omit confirmation sampling. The denial of the variance request would result in the excavation of elevated chloride concentrations in the full former drilling pit footprint.

March 7, 2024 - TRC requests a smaller sampling variance in which confirmation soil samples would be collected but only run for TPH and BTEX. No response from the NMOCD.

April 8, 2024 – TRC re-submits the March 7, 2024 request for a smaller sampling variance. No response from the NMOCD.

April 25, 2024 – TRC requests a meeting to discuss the smaller sampling variance submitted on March 7 and April 8. The NMOCD proposes a virtual meeting on May 21, 2024 meeting based on their availability.

May 21, 2024 – The NMOCD, COP and TRC meet virtually to discuss the denial of the variance requests and potential alternative options to avoid excavating the full extent of the former drilling pit, which is unrelated to the surface release of hydrocarbons. The NMOCD indicates that no variance requests or alternative options will be approved for the site and all chlorides above 600 mg/kg will require removal regardless of source. COP indicates delineation will be required internally to begin an excavation of this scale outside the scope of remediation related to the small overspray release. NMOCD and COP agree that a workplan documenting the delineation of elevated chloride concentrations in the former drilling pit area was an acceptable path forward.

July 6, 2024 – TRC attempts delineation of former drilling pit chlorides with backhoe. Vertical delineation is not achieved in all locations to below 600 mg/kg. In response, TRC begins the NMOSE drilling permit process as required by the NMOSE in borings deeper than 30 feet bgs. Additionally, BLM concurrence for the borings is required.

October 4, 2024 – The NMOSE issues the executed drilling permits.

October 8, 2024 – TRC attempts delineation of former drilling pit chlorides with air rotary rig. Vertical delineation is not achieved in all locations to below 600 mg/kg.

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October 22, 2024 – TRC requests an extension to further investigate former drilling pit chlorides as the 2 delineation events had not yet resulted in full vertical delineation in each sampled location. The NMOCD denies the extension request despite an explanation that COP continues to comply with the NMOCD requests. Email communications between the NMOCD and TRC/COP is documented as **Appendix E**.

October 25, 2024 – A Former Drilling Pit Delineation and Reclamation Plan is submitted to the NMOCD by TRC. The plan documents the chloride delineation to below the most stringent standards and proposes reclamation of the upper four (4) feet for vegetative regrowth. The third workplan is provided as **Appendix F**.

November 6, 2025 – TRC attempts delineation of former drilling pit chlorides with air rotary rig at the three locations that previously were not defined. Vertical delineation is achieved in all locations to below 600 mg/kg.

January 27, 2025 – The Former Drilling Pit Delineation and Reclamation plan is conditionally approved without approval of any variances, effectively denying the October 25, 2024 proposed work.

FORMER DRILLING PIT ASSESSMENT ACTIVITIS

Backhoe Delineation – Field Work

On July 6, 2024, TRC initiated a former drilling pit chloride delineation event utilizing a backhoe.

During the event, five (5) vertical trenches (Pit Trench NW, Pit Trench SW, Pit Trench Center, Pit Trench NE, and Pit Trench SE) were advanced within the former drilling pit footprint to the maximum extent of the backhoe. Soil samples were collected every two (2) feet. Each soil sample was analyzed for chloride concentrations, and surface samples were additionally analyzed for TPH and BTEX concentrations to confirm the surface soils were not affected by hydrocarbons from the release.

Additionally, four (4) lateral soil samples (Lateral-West, Lateral-East, Lateral-North, and Lateral-South) were collected from the 0-1' interval to confirm the lateral extent of the former drilling pit.

Soil sample locations are documented in **Figure 4**.

Backhoe Delineation – Results

One (1) surface soil sample, Pit Trench SW @ 0-1', exhibited a TPH concentration of 118 mg/kg, slightly above the NMOCD standard. The soil sample underlying this soil sample, Pit Trench SW @ 2', was also run for TPH and BTEX to confirm the hydrocarbon exceedances was vertically delineated. Pit Trench SW @ 2' did not exhibit TPH or BTEX concentrations above the laboratory detection limit (RL). Only one of the backhoe trenches, Pit Trench SW, exhibited vertical delineation below 600 mg/kg for chlorides in the deepest sample (12').

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Each lateral soil sample exhibited TPH, BTEX, and chloride concentrations below the NMOCD regulatory standard. Lateral delineation of the former drilling pit was achieved to below 600 mg/kg.

Soil sample analytical results are summarized in **Table 1**.

Air Rotary Drilling Rig Delineation – Field Work

Following the July 6, 2024 backhoe delineation event, COP elected to re-attempt to vertically define the extent of elevated chloride concentrations in the former drilling pit utilizing a drilling rig. The potential depth of borings necessitated NMOSE permits, which took time to procure as discussed above.

On October 8, 2024, TRC initiated a former drilling pit chloride delineation event utilizing an air rotary rig. Immediately adjacent to the five (5) trenches within the former drilling pit footprint but outside the backfilled trenches themselves, five (5) soil borings (SB-NW, SB-SW, SB-Center, SB-NE, and SB-SE) were advanced to a total depth of thirty (30) feet bgs. Soil samples were collected from the surface, 1-3, 5', 10', 15', 20', 25', and 30' intervals utilizing a 'pig's foot' sampler. Soil samples were analyzed for chloride concentrations only.

Additionally, two (2) background soil borings were advanced between 50 and 100 feet from the former drilling pit to confirm the Site is not affected by elevated background chloride concentrations. Sampled intervals in the background borings matched the vertical delineation borings.

On November 6, 2024, TRC remobilized to advance the soil borings that did not achieve vertical delineation of chloride concentrations to below 600 mg/kg. Each soil boring (SB-Center, SB-SE, and SB-NE) was advanced immediately adjacent to the respective previous boring location.

Soil sample locations are documented in **Figure 4**. Field boring logs are provided as **Appendix G**. The general lithology at the site is silty sand which transitions to a sandy clay, underlain by a red clay rich soils starting between 15 and 20 feet bgs.

Air Rotary Drilling Rig Delineation – Results

Vertical delineation was confirmed in SB-SW in soil samples from 15' to 30' bgs, which corroborated the data collected from the adjacent trench Pit Trench SW during the backhoe delineation event. Additionally, vertical delineation to below 600 mg/kg was achieved at SB-NW in the 30-foot soil sample. Vertical delineation was achieved in SB-Center, SB-SE, and SB-NE at 35 feet, 60 feet, and 60 feet, respectively, during the remobilization event.

No background soil samples exhibited chloride concentrations above 600 mg/kg, indicating elevated chloride concentrations are unlikely to be a naturally occurring phenomenon at the site.

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PROPOSED RECLAMATION OF THE FORMER DRILLING PIT AND REQUESTED SAMPLING VARIANCE

Groundwater onsite has been shown to be deeper than 80 feet bgs based on onsite borings. A BLM karst surveyor has determined that the site does not exhibit karst features and is on stable ground. The adjacent riverine has not been observed to have water in it at any visit. Based on the depth to groundwater, lack of karst features, and lack of water in the adjacent riverine COP asserts the remediation standard for the site are not the most stringent. However, each soil boring location has been delineated to below the most stringent regulatory guidelines. Each submitted soil sample exhibited concentrations of BTEX constituents, TPH, and chlorides below the remediation standards of the Site. The upper four feet of the former pit area did exceed reclamation standards.

COP proposes to excavate the footprint of the former drilling pit to four (4) feet bgs and will reclaim the pit to the NMOCD reclamation standard. The excavation would also remove the single TPH exceedance at the surface from Pit Trench SW, which potentially is related to the overspray release. COP will collect confirmation soil samples from the base of the excavation to confirm the soils above remediation standards have been removed. COP will collect confirmation soil samples from the sidewalls of the excavation to confirm the soils above reclamation standards in the upper four feet of soil column have been removed. COP proposes collection of floor and sidewall samples on a 400 square foot basis as a variance from the 200 square feet outlined in NMAC 19.15.29. The estimated volume of soil removed will be approximately 5,500 cubic yards, which will be transported to an NMOCD approved disposal facility. The Site will then be backfilled with locally sourced 'like' material to near original grade and reseeded in accordance with BLM requirements.

COP is prepared to begin the activities outlined in this **Revised** *Former Drilling Pit Delineation and Reclamation Plan* following NMOCD and BLM approval. On completion of reclamation activities, a Reclamation Summary and Closure Report will be prepared detailing field activities.

If you have any questions, or need any additional information, please feel free to contact myself or Ike Tavarez by phone or email.

LIMITATION

TRC has prepared this Former Drilling Pit Delineation and Reclamation Plan to the best of its ability. No other warranty, expressed or implied, is made or intended.

TRC has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. TRC has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. TRC has prepared this report, in a professional manner, using the degree of skill and care exercised by similar environmental consultants. TRC also 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.

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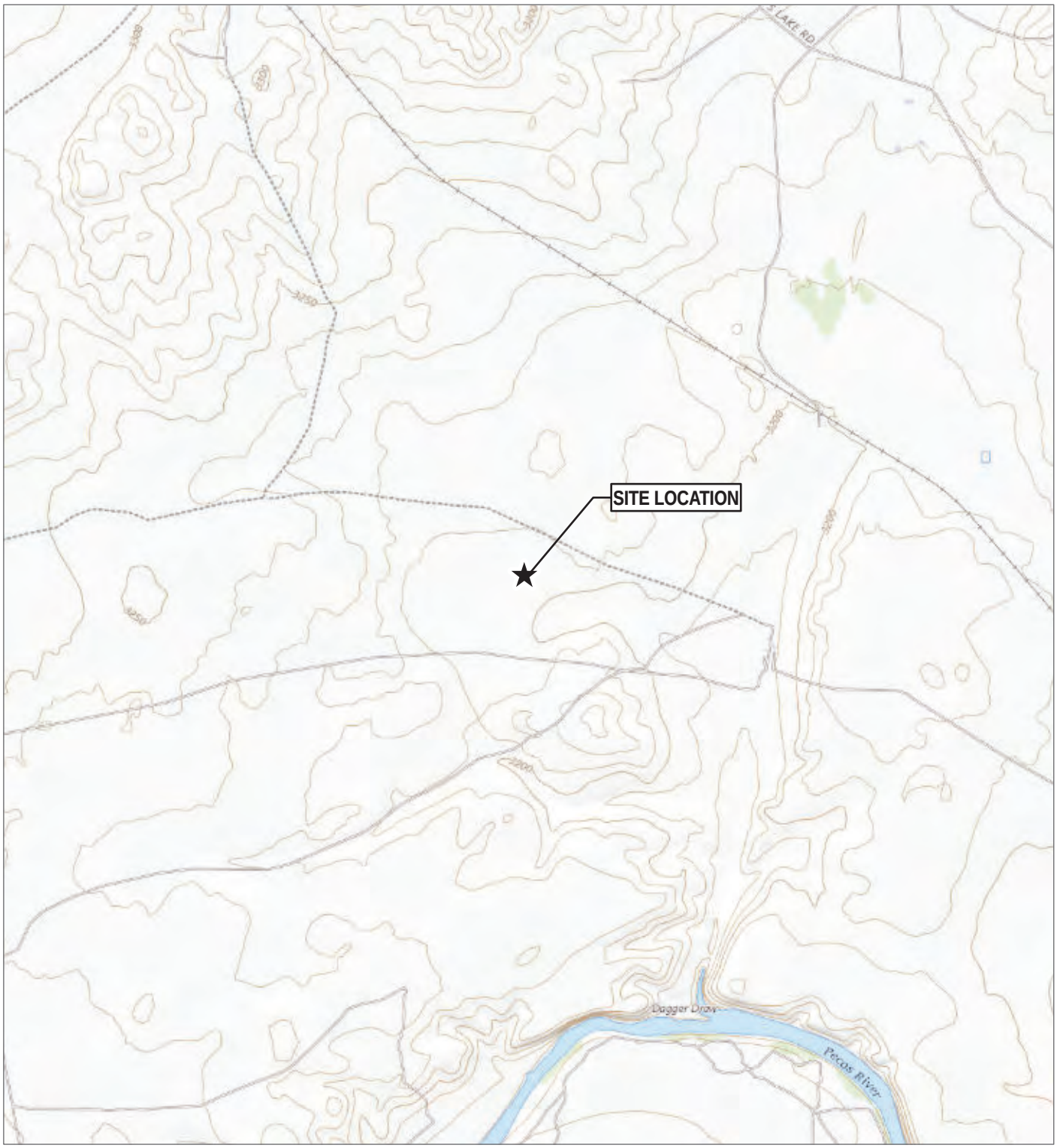


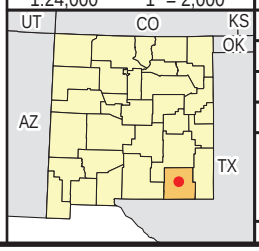
BASE MAP: USGS COLOR ORTHO IMAGERY
DATA SOURCES: TRC

N

0 1,000 2,000

FEET

1:24,000 1" = 2,000'



PROJECT:
CONOCOPHILLIPS
FEDERAL 29 Z 002H
EDDY COUNTY, NEW MEXICO

TITLE:
TOPOGRAPHIC MAP

DRAWN BY:	S. RAY	PROJ. NO.:	544675.0000.0000
CHECKED BY:	M. BRYANT		
APPROVED BY:	M. BRYANT		**FIGURE 1**
DATE:	AUGUST 2023		

TRC
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ISSAQUAH, WA 98027
PHONE: 425.395.0010

FILE: FEDERAL 29 Z 002H

HALF-MILE RADIUS
SITE LOCATION
AREA INSIDE OF 100-YEAR FLOODPLAIN
RIVERINE

BASE MAP: GOOGLE EARTH PRO AND THEIR DATA PARTNERS (12/21/2019).
DATA SOURCES: TRC, FEMA, NWI.

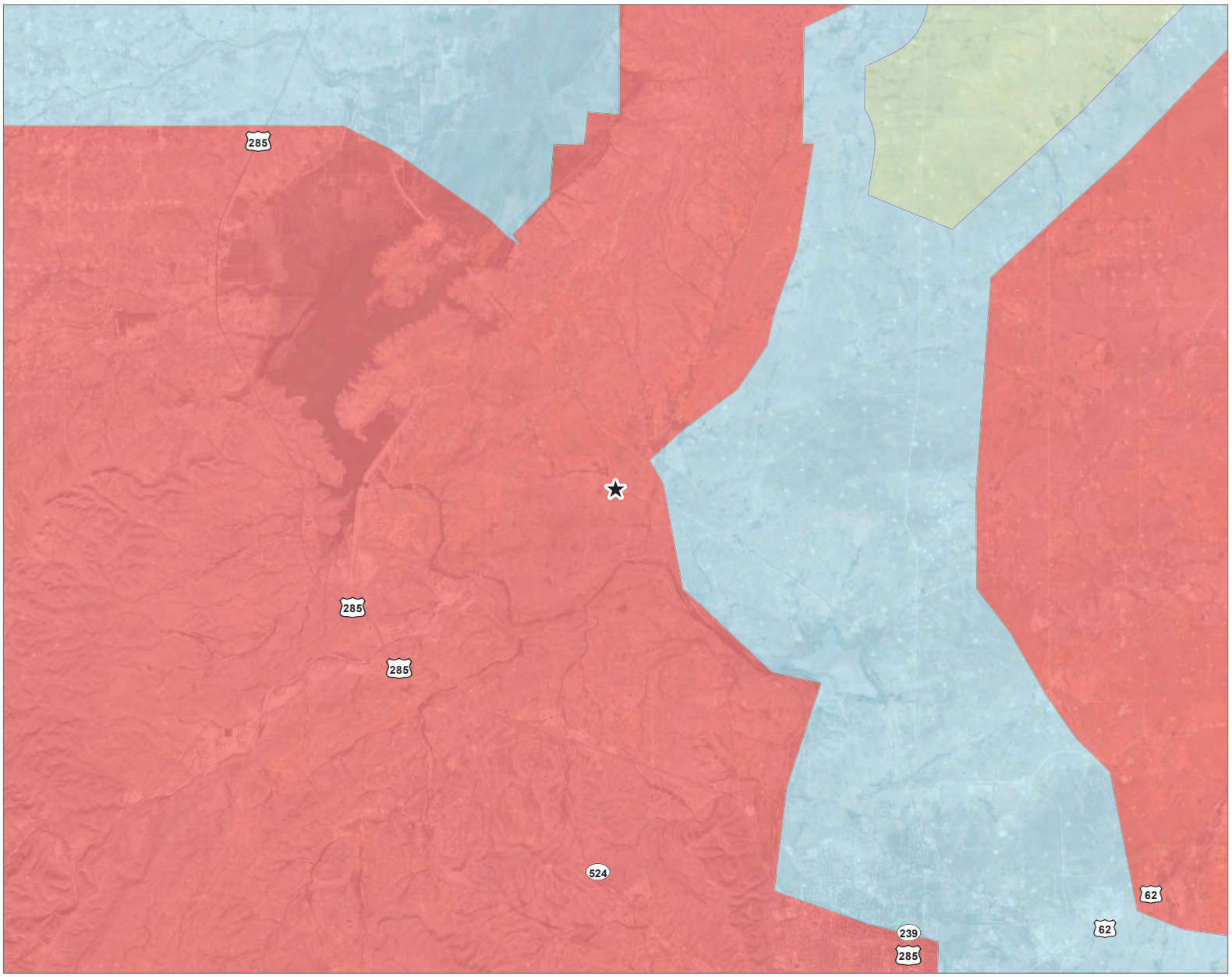
1:12,000
1" = 1,000'
0 500 1,000 FEET

PROJECT:	CONOCOPHILLIPS FEDERAL 29 Z 002H EDDY COUNTY, NEW MEXICO
TITLE:	AERIAL MAP
DRAWN BY: S. RAY	PROJ. NO.: 544675.0000.0000
CHECKED BY: M. BRYANT	FIGURE 2
APPROVED BY: M. BRYANT	
DATE: AUGUST 2023	

TRC
1180 NW MAPLE STREET, SUITE 310
ISSAQUAH, WA 98027
PHONE: 425.395.0010

FILE: Federal 29 Z 002H.aprx

Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet Map Rotation: 0
Saved By: SRAY on 8/16/2023, 1:45:35 PM File Path: T:\ConocoPhillips\544675_Federal\29\2-APRX\Federal 29 Z 002H.aprx Layout Name: Fig 2 - Aerial Map



★ SITE LOCATION

LOW KARST POTENTIAL

MEDIUM KARST POTENTIAL

HIGH KARST POTENTIAL

BASE MAP: GOOGLE EARTH PRO AND THEIR DATA PARTNERS (12/21/2019).
DATA SOURCES: TRC.

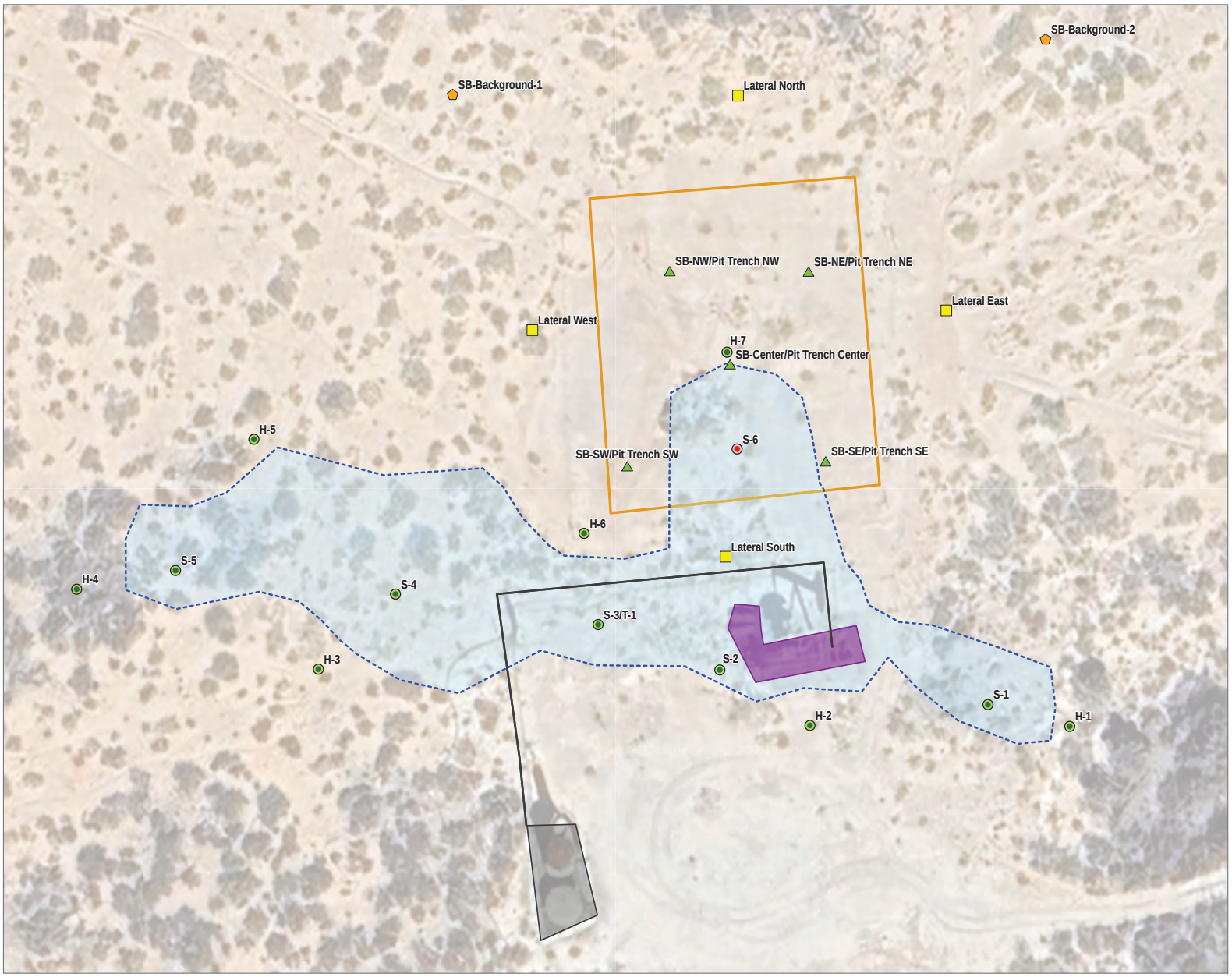
1:100,000
1" = 2 MILES
0 1 2 MILES

PROJECT:	CONOCOPHILLIPS FEDERAL 29 Z 002H EDDY COUNTY, NEW MEXICO
TITLE:	KARST POTENTIAL MAP
DRAWN BY: S. RAY	PROJ. NO.: 544675.0000.0000
CHECKED BY: M. BRYANT	FIGURE 3
APPROVED BY: M. BRYANT	
DATE: AUGUST 2023	

TRC
1180 NW MAPLE STREET, SUITE 310
ISSAQUAH, WA 98027
PHONE: 425.395.0010

FILE: Federal 29 Z 002H.aprx

Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet Map Rotation: 0
Saved By: SRAY on 8/16/2023, 1:45:38 PM File Path: T:\ConocoPhillips\544675_Federal\29\2-APRX\Federal 29 Z 002H.aprx Layout Name: Fig 3 - Karst Potential Map



PREVIOUS DELINEATION SAMPLE LOCATION BELOW NMOCD STANDARDS

PREVIOUS DELINEATION SAMPLE LOCATION EXCEEDING NMOCD STANDARDS

BACKGROUND SAMPLE LOCATION

HORIZONTAL PIT DELINEATION SAMPLE LOCATION

VERTICAL PIT DELINEATION SAMPLE LOCATION

SURFACE STEEL LINE

TANK BATTERY

WELLHEAD AND ASSOCIATED INFRASTRUCTURE

APPROXIMATE PIT LOCATION

RELEASE AREA (OVERSPRAY FOOTPRINT)

BASE MAP: GOOGLE EARTH PRO AND THEIR DATA PARTNERS (12/21/2019). DATA SOURCES: TRC.

NOTES
SAMPLE LOCATIONS AND ANALYTICAL DATA FROM CARMONA RESOURCES WORKPLAN

1:500
1" = 42'
0 25 50 FEET

PROJECT:	CONOCOPHILLIPS FEDERAL 29 Z 002H EDDY COUNTY, NEW MEXICO
TITLE:	DRILLING PIT ASSESSMENT - SAMPLE LOCATION MAP
DRAWN BY: A. CLINE	PROJ. NO.: 544675.0000.0000
CHECKED BY: B. TRACY	FIGURE 4
APPROVED BY: M. BRYANT	
DATE: OCTOBER 2024	
FILE: Federal 29 Z 002H.aprx	

TRC

Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet Map Rotation: 0
Saved By: BTRACY on 10/22/2024, 16:41:24 PM File Path: T:\1-PROJECT S\ConocoPhillips\544675_Federal\29\2-APRX\Federal 29 Z 002H.aprx Layout Name: Fig 5 - Drilling Pit Assessment Map

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	OIl Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Lateral Delineation											
Lateral-East @ 0-1'	6/6/2024	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	63.0
Lateral-North @ 0-1'	6/6/2024	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<50.0	<50.0	<50.0	<50.0	72.6
Lateral-South @ 0-1'	6/6/2024	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	108
Lateral-West @ 0-1'	6/6/2024	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	67.6
Veritcal Delineation											
Pit Trench Center @ 0-1'	6/6/2024	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	**1,340**
Pit Trench Center @ 2'	6/6/2024	-	-	-	-	-	-	-	-	-	**1,520**
Pit Trench Center @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**848**
Pit Trench Center @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	1,020
Pit Trench Center @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	2,450
Pit Trench Center @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	3,590
Pit Trench Center @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	2,970
SB-Center @ Surface	10/8/2024	-	-	-	-	-	-	-	-	-	**847**
SB-Center @ 1-3'	10/8/2024	-	-	-	-	-	-	-	-	-	**1,110**
SB-Center @ 5'	10/8/2024	-	-	-	-	-	-	-	-	-	466
SB-Center @ 10'	10/8/2024	-	-	-	-	-	-	-	-	-	1,570
SB-Center @ 15'	10/8/2024	-	-	-	-	-	-	-	-	-	1,040
SB-Center @ 20'	10/8/2024	-	-	-	-	-	-	-	-	-	883
SB-Center @ 25'	10/8/2024	-	-	-	-	-	-	-	-	-	997
SB-Center @ 30'	10/8/2024	-	-	-	-	-	-	-	-	-	678
SB-Center @ 35'	11/6/2024	-	-	-	-	-	-	-	-	-	305

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	Oil Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Pit Trench NE @ 0-1'	6/6/2024	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	<49.9	<49.9	<49.9	<49.9	**7,870**
Pit Trench NE @ 2'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,440**
Pit Trench NE @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,600**
Pit Trench NE @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	2,580
Pit Trench NE @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	2,910
Pit Trench NE @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	3,930
Pit Trench NE @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	1,200
SB-NE @ Surface	10/9/2024	-	-	-	-	-	-	-	-	-	**7,440**
SB-NE @ 1-3'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,580**
SB-NE @ 5'	10/9/2024	-	-	-	-	-	-	-	-	-	1,620
SB-NE @ 10'	10/9/2024	-	-	-	-	-	-	-	-	-	1,280
SB-NE @ 15'	10/9/2024	-	-	-	-	-	-	-	-	-	965
SB-NE @ 20'	10/9/2024	-	-	-	-	-	-	-	-	-	538
SB-NE @ 25'	10/9/2024	-	-	-	-	-	-	-	-	-	1,160
SB-NE @ 30'	10/9/2024	-	-	-	-	-	-	-	-	-	1,480
SB-NE @ 35'	11/6/2024	-	-	-	-	-	-	-	-	-	3,040
SB-NE @ 40'	11/6/2024	-	-	-	-	-	-	-	-	-	2,120
SB-NE @ 45'	11/6/2024	-	-	-	-	-	-	-	-	-	1,870
SB-NE @ 50'	11/6/2024	-	-	-	-	-	-	-	-	-	734
SB-NE @ 60'	11/6/2024	-	-	-	-	-	-	-	-	-	114

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	OIl Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Pit Trench NW @ 0-1'	6/6/2024	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	**10,300**
Pit Trench NW @ 2'	6/6/2024	-	-	-	-	-	-	-	-	-	**4,570**
Pit Trench NW @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**4,110**
Pit Trench NW @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	5,530
Pit Trench NW @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	4,740
Pit Trench NW @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	7,850
Pit Trench NW @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	4,080
SB-NW @ Surface	10/9/2024	-	-	-	-	-	-	-	-	-	**1,870**
SB-NW @ 1-3'	10/9/2024	-	-	-	-	-	-	-	-	-	**3,700**
SB-NW @ 5'	10/9/2024	-	-	-	-	-	-	-	-	-	2,000
SB-NW @ 10'	10/9/2024	-	-	-	-	-	-	-	-	-	4,000
SB-NW @ 15'	10/9/2024	-	-	-	-	-	-	-	-	-	5,060
SB-NW @ 20'	10/9/2024	-	-	-	-	-	-	-	-	-	1,360
SB-NW @ 25'	10/9/2024	-	-	-	-	-	-	-	-	-	1,540
SB-NW @ 30'	10/9/2024	-	-	-	-	-	-	-	-	-	571

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	Oil Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Pit Trench SE @ 0-1'	6/6/2024	<0.00202	<0.00202	<0.00202	<0.00403	<0.00403	<49.9	<49.9	<49.9	<49.9	**1,730**
Pit Trench SE @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,140**
Pit Trench SE @ 2'	6/6/2024	-	-	-	-	-	-	-	-	-	**5,980**
Pit Trench SE @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**10,100**
Pit Trench SE @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	1,250
Pit Trench SE @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	1,210
Pit Trench SE @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	2,140
Pit Trench SE @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	2,580
SB-SE @ Surface	10/9/2024	-	-	-	-	-	-	-	-	-	**7,230**
SB-SE @ 1-3'	10/9/2024	-	-	-	-	-	-	-	-	-	**1,950**
SB-SE @ 5'	10/9/2024	-	-	-	-	-	-	-	-	-	1,760
SB-SE @ 10'	10/9/2024	-	-	-	-	-	-	-	-	-	1,820
SB-SE @ 15'	10/9/2024	-	-	-	-	-	-	-	-	-	1,540
SB-SE @ 20'	10/9/2024	-	-	-	-	-	-	-	-	-	796
SB-SE @ 25'	10/9/2024	-	-	-	-	-	-	-	-	-	613
SB-SE @ 30'	10/9/2024	-	-	-	-	-	-	-	-	-	1,480
SB-SE @ 35'	11/6/2024	-	-	-	-	-	-	-	-	-	2,740
SB-SE @ 40'	11/6/2024	-	-	-	-	-	-	-	-	-	2,430
SB-SE @ 45'	11/6/2024	-	-	-	-	-	-	-	-	-	2,070
SB-SE @ 50'	11/6/2024	-	-	-	-	-	-	-	-	-	1,130
SB-SE @ 60'	11/6/2024	-	-	-	-	-	-	-	-	-	429

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	OIl Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Pit Trench SW @ 0-1'	6/6/2024	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<50.0	118	<50.0	**118**	**3,650**
Pit Trench SW @ 2'	6/6/2024	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<50.0	<50.0	<50.0	<50.0	**2,550**
Pit Trench SW @ 4'	6/6/2024	-	-	-	-	-	-	-	-	-	**2,170**
Pit Trench SW @ 6'	6/6/2024	-	-	-	-	-	-	-	-	-	1,660
Pit Trench SW @ 8'	6/6/2024	-	-	-	-	-	-	-	-	-	1,150
Pit Trench SW @ 10'	6/6/2024	-	-	-	-	-	-	-	-	-	1,230
Pit Trench SW @ 12'	6/6/2024	-	-	-	-	-	-	-	-	-	437
SB-SW @ Surface	10/9/2024	-	-	-	-	-	-	-	-	-	**7,170**
SB-SW @ 1-3'	10/9/2024	-	-	-	-	-	-	-	-	-	**2,440**
SB-SW @ 5'	10/9/2024	-	-	-	-	-	-	-	-	-	2,240
SB-SW @ 10'	10/9/2024	-	-	-	-	-	-	-	-	-	1,020
SB-SW @ 15'	10/9/2024	-	-	-	-	-	-	-	-	-	215
SB-SW @ 20'	10/9/2024	-	-	-	-	-	-	-	-	-	79.2
SB-SW @ 25'	10/9/2024	-	-	-	-	-	-	-	-	-	78.3
SB-SW @ 30'	10/9/2024	-	-	-	-	-	-	-	-	-	128

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	OIl Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Background Borings											
Background-1 @ Surface	10/10/2024	-	-	-	-	-	-	-	-	-	<10.0
Background-1 @ 1-3'	10/10/2024	-	-	-	-	-	-	-	-	-	31.3
Background-1 @ 5'	10/10/2024	-	-	-	-	-	-	-	-	-	25.4
Background-1 @ 10'	10/10/2024	-	-	-	-	-	-	-	-	-	<9.90
Background-1 @ 15'	10/10/2024	-	-	-	-	-	-	-	-	-	<10.0
Background-1 @ 20'	10/10/2024	-	-	-	-	-	-	-	-	-	46.2
Background-1 @ 25'	10/10/2024	-	-	-	-	-	-	-	-	-	164
Background-1 @ 30'	10/10/2024	-	-	-	-	-	-	-	-	-	141
Background-1 @ 35'	11/7/2024	-	-	-	-	-	-	-	-	-	94.2
Background-1 @ 40'	11/7/2024	-	-	-	-	-	-	-	-	-	30.7
Background-1 @ 45'	11/7/2024	-	-	-	-	-	-	-	-	-	89.4
Background-1 @ 50'	11/7/2024	-	-	-	-	-	-	-	-	-	185
Background-1 @ 60'	11/7/2024	-	-	-	-	-	-	-	-	-	68.1
Background-1 @ 70'	11/7/2024	-	-	-	-	-	-	-	-	-	<10.0
Background-1 @ 80'	11/7/2024	-	-	-	-	-	-	-	-	-	88.1

TABLE 1
COP, Federal 29 Z
Summary of Delineation Sampling Analytical Results

SAMPLE ID	DATE	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Gasoline Range Organics (GRO) C6-C10 (mg/kg)	Diesel Range Organics (DRO) C11-C28 (mg/kg)	Oil Range Organics (ORO) (C29-C36) (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
Reclamation Standard - <4' bgs		**10**				**50**				**100**	**600**
Remediation Standard - >4' bgs		**10**				**50**	**1,000**			**2,500**	**10,000**
Background-2 @ Surface	10/8/2024	-	-	-	-	-	-	-	-	-	334
Background-2 @ 1-3'	10/8/2024	-	-	-	-	-	-	-	-	-	241
Background-2 @ 5'	10/8/2024	-	-	-	-	-	-	-	-	-	271
Background-2 @ 10'	10/8/2024	-	-	-	-	-	-	-	-	-	172
Background-2 @ 15'	10/8/2024	-	-	-	-	-	-	-	-	-	50.7
Background-2 @ 20'	10/8/2024	-	-	-	-	-	-	-	-	-	13.4
Background-2 @ 25'	10/8/2024	-	-	-	-	-	-	-	-	-	14.1
Background-2 @ 30'	10/8/2024	-	-	-	-	-	-	-	-	-	7.48

Exceeds NMOCD Standard

505 East Huntland Dr.
Suite 250
Austin, TX 78752
T 512.329.6080
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Appendix I – Soil Boring Logs

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TRC

LOG OF SOIL BORING

PROJECT NAME: Federal Z Delineation		SOIL BORING ID: SB-NW	
PROJECT NUMBER: 544675		LOCATION:	SHEET 1 OF 1
LOGGED BY: Rebecca Pons		32.54324, -104.31055	SURFACE ELEV.:
PROJECT LOCATION: Eddy County, NM		N: E:	DATE STARTED: 10-09-24
DRILLED BY: Scarborough	DRILLER NAME: Lane		DATE COMPLETED: 10-09-24

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		80/5	1/5		Surface	Silty, Sand, Poor grade gravel Loam	Gm
		85/5			2.5	Silt Caliche, Sandy, Poor grade gravel	Gm
		75/5			5.0	Sandy, Clay, Poor Grade Gravel	Red/Brn, CL
		95/5			10.0	Clay, Sand, Course Clay,	ML Red
		90/10			15	Clay, Sand, Poor grade gravel	CL Red
					1 .0		
					1 .5		
		90/10			20.0	-30ft Red Sand - fine-medium	Red - ML

DRILLING METHOD	
DRILL RIG	
BORING DIAMETER	

WATER LEVEL OBSERVATIONS

FIRST OCCURRENCE:

DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

Rebecca Pons 10/14/24
SIGNED DATE

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TRC

LOG OF SOIL BORING

PROJECT NAME: Federal Z Delineation		SOIL BORING ID: SB-NE	
PROJECT NUMBER: 544675		LOCATION:	SHEET 1 OF 1
LOGGED BY: Rebecca Pons		32.54323, -104.31024	SURFACE ELEV.:
PROJECT LOCATION: Eddy County, NM		N: E:	DATE STARTED: 10-09-24
DRILLED BY: Scarborough	DRILLER NAME: Lane		DATE COMPLETED: 10-09-24

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		40/10			Surface	Silty Loam w/ Poorly Graded Gravel	BROWN-GRey GW/GP
		50/50			2.5 2'	Sandy fine grain w/Silt	Red.
		45/10/45			5.0	Poorly graded gravel w/Sand / Silty	San GC
		25/25			7.5 10.0	Poorly grade gravel, Clay, Course	ML/CL
		100			15	Red Sand	M2
		40/10/50			1 .0 1 .5 20.0	30 ft Poor Grade gravel-Clay-Red sand	CL

DRILLING METHOD	
DRILL RIG	
BORING DIAMETER	

WATER LEVEL OBSERVATIONS			
FIRST OCCURRENCE:			
DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

Rebecca Pons 10/14/24
SIGNED DATE

CHECKED DATE

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TRC

LOG OF SOIL BORING

PROJECT NAME: Federal Z Delineation		SOIL BORING ID: SB-SE	
PROJECT NUMBER: 544675		LOCATION:	SHEET 1 OF 1
LOGGED BY: Rebecca Pons		32.54308, -104.31029	SURFACE ELEV.:
PROJECT LOCATION: Eddy County, NM		N: E:	DATE STARTED: 10-09-24
DRILLED BY: Scarborough	DRILLER NAME: Lane		DATE COMPLETED: 10-09-24

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		40/60			Surface	Gravel - Poor Grade Caliche Sandy Silt Loam	GW/GP Tan
		40/60			2.5 2.0	Sandy - Poor Grade Gravel Silt	GW/GP Tan
					5.0	Sandy - Poor Grade Gravel	Red
					7.5		
		40/50			10.0	Poorly Graded gravel - Sandy Silt	Tan - CL
		20/30			15	Red Clay - Sand - Gravelly	CL - Red
					1 .0		
					1 .5		
		100			20.0	- 30 ft Red Clay - Sand	ML

DRILLING METHOD	
DRILL RIG	
BORING DIAMETER	

WATER LEVEL OBSERVATIONS

FIRST OCCURRENCE:

DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

Rebecca Pons 10/24/24
SIGNED DATE

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TRC

LOG OF SOIL BORING

PROJECT NAME: Federal Z Delineation		SOIL BORING ID: SB-SW	
PROJECT NUMBER: 544675		LOCATION:	SHEET 1 OF 1
LOGGED BY: Rebecca Pons		32.54310, -104.31053	SURFACE ELEV.:
PROJECT LOCATION: Eddy County, NM		N: E:	DATE STARTED: 10-09-24
DRILLED BY: Scarborough	DRILLER NAME: Lane		DATE COMPLETED: 10-09-24

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		30/10/0			Surface	Loamy - Poor Grade Gravel w/ Sand	GW/GP Dark Gray
					2.5		
		90/10			5.0	Sandy w/ Poor grade Gravel	Red SM/SC
						Poorly Graded Gravel w/ Sand	
					7.5		
		90/10			10.0	Clay - Sand - Gravelly	Red CL
		90/10			15	Gravelly Clay - Poor Grade	Red
					1 .0		
					1 .5		
		100			20.0	Sandy - fine grade / 30ft Clay	Red ML

DRILLING METHOD	
DRILL RIG	
BORING DIAMETER	

WATER LEVEL OBSERVATIONS

FIRST OCCURRENCE:

DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

Rebecca Pons 10-14-24
SIGNED DATE

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TRC

LOG OF SOIL BORING

PROJECT NAME: Federal Z Delineation		SOIL BORING ID: SB-S-Lateral	
PROJECT NUMBER: 544675		LOCATION:	SHEET 1 OF 1
LOGGED BY: Rebecca Pons		32.54299, -104.31033	SURFACE ELEV.:
PROJECT LOCATION: Eddy County, NM		N: E:	DATE STARTED: 10-09-24
DRILLED BY: Scarborough	DRILLER NAME: Lane		DATE COMPLETED: 10-09-24

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		30/40			Surface	Gravelly Loam Poorly Graded Gravel W/ Silty Loam	GM/GC Tan
					2.5		
					3ft	Sandy - Poorly Graded Gravel Silty Loam	GM/Gm Tan-Red
					5.0	"	"
					7.5		
		100	~~100~~		10.0	Gravelly Clay	ML
					15	"	
					1 .0		
					1 .5		
					20.0		

DRILLING METHOD
DRILL RIG
BORING DIAMETER

WATER LEVEL OBSERVATIONS			
FIRST OCCURRENCE:			
DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

Rebecca Pons 10/14/24
SIGNED DATE

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TRC

LOG OF SOIL BORING

PROJECT NAME: Federal Z Delineation		SOIL BORING ID: SB-E-Lateral	
PROJECT NUMBER: 544675		LOCATION:	SHEET 1 OF 1
LOGGED BY: Rebecca Pons		32.54311, -104.31007	SURFACE ELEV.:
PROJECT LOCATION: Eddy County, NM		N: E:	DATE STARTED: 10-10-24
DRILLED BY: Scarborough	DRILLER NAME: Lane		DATE COMPLETED: 10-10-24

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		95/5			Surface	Silty Sandy	Tan - very fine
					2.5		
					5.0	Sandy - Poorly graded gravel	GC
					7.5		
		95/5			10.0	Clay, Sand, Poorly Graded Gravel	Red - CL
		95/5			15	Sand - Silt	Red - ML
					17.5		
					20.0		

DRILLING METHOD
DRILL RIG
BORING DIAMETER

WATER LEVEL OBSERVATIONS			
FIRST OCCURRENCE:			
DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

Rebecca Pons 10/14/24

SIGNED DATE

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TRC

LOG OF SOIL BORING

PROJECT NAME: Federal Z Delineation		SOIL BORING ID: SB-N-Lateral	
PROJECT NUMBER: 544675		LOCATION:	SHEET 1 OF 1
LOGGED BY: Rebecca Pons		32.54352, -104.31027	SURFACE ELEV.:
PROJECT LOCATION: Eddy County, NM		N: E:	DATE STARTED: 10-10-24
DRILLED BY: Scarborough	DRILLER NAME: Lane		DATE COMPLETED: 10-10-24

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		95/5			Surface	Silty Sand - Rough Gravel Gravel	Tan Dry
					2.5		
		95/5			5.0	Silty Sand - Rough Gravel	Tan Dry
					7.5		
					10.0	Sandy Silt - Fine grain	ML Tan Red
		29/80			15	Gravelly Clay	Red
					1 .0		
					1 .5		
					20.0		

DRILLING METHOD
DRILL RIG
BORING DIAMETER

WATER LEVEL OBSERVATIONS			
FIRST OCCURRENCE:			
DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

Rebecca Pons 10/21/24
SIGNED DATE

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TRC

LOG OF SOIL BORING

PROJECT NAME: Federal Z Delineation	SOIL BORING ID: SB-Background 1		
PROJECT NUMBER: 544675	LOCATION:	SHEET 1 OF 1	
LOGGED BY: Rebecca Pons	32.54324, -104.31069	SURFACE ELEV.:	
PROJECT LOCATION: Eddy County, NM	N: E:	DATE STARTED: 10-10-24	
DRILLED BY: Scarborough	DRILLER NAME: Lane	DATE COMPLETED: 10-10-24	

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		95/5			Surface	Silty Sand - Poor grade Gravel	Tan
		95/5			2.5 2.5	Silty Sand - Poor grade Gravel fine grain	GW/GP
					5.0	fine grain Sand - Silt Caliche Poor grade Gravel	GW-GP Tan.
					7.5		
		95/5			10.0	Silt - Sand Poor grade Gravel	
		100			15	Red Silty Sand	
		100			20	"	
		95/5			22.5	Poor Grade Gravel clay Silty Sand	Red
					30.0	"	Red

DRILLING METHOD
DRILL RIG
BORING DIAMETER

WATER LEVEL OBSERVATIONS			
FIRST OCCURRENCE:			
DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

Rebecca Pons 10/14/24
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TRC

LOG OF SOIL BORING

PROJECT NAME: Federal Z Delineation	SOIL BORING ID: SBW-Lateral		
PROJECT NUMBER: 544675	LOCATION:	SHEET 1 OF 1	
LOGGED BY: Rebecca Pons	32.54324, -104.31069	SURFACE ELEV.:	
PROJECT LOCATION: Eddy County, NM	N: E:	DATE STARTED: 10-10-24	
DRILLED BY: Scarborough	DRILLER NAME: Lane	DATE COMPLETED: 10-10-24	

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		3/5			Surface	GW Poorly Graded Gravel w/ Silt Sandy	Tan
		100			2'	Silt Sand	
		5/5			5.0	GW Poorly Graded Gravel w/ fine Sand	Tan/Red
		4/5			10.0	Clayey Gravel w/ Sand	Red/Brown
		4/5			15	Sandy Silt w/ clay	Red

DRILLING METHOD	
DRILL RIG	
BORING DIAMETER	

WATER LEVEL OBSERVATIONS			
FIRST OCCURRENCE:			
DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

Rebecca Pons 10/14/24
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LOG OF SOIL BORING

PROJECT NAME: Federal Z Delineation		SOIL BORING ID: SB-Background 2	
PROJECT NUMBER: 544675		LOCATION:	SHEET 1 OF 1
LOGGED BY: Rebecca Pons		32.54343, -104.30981	SURFACE ELEV.:
PROJECT LOCATION: Eddy County, NM		N: E:	DATE STARTED: 10-9-24
DRILLED BY: Scarborough	DRILLER NAME: Lane		DATE COMPLETED: 10-9-24

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		35/10/5			Surface	GM-GC Poorly Graded Gravel with Silt/Clay & Sand	Reddish-Tan
					2.5		
		95/5/10			1-3ft	Silty Sand Poorly Graded Gravel Caliche	
					5.0	"	
					7.5		
		35/10/5			10.0	Silty Sand Poorly Graded Gravel	"
		90/5/5			15	Poorly Graded GRavel w/ Silty-Sand	
		35/5/60			20	Silty Clay w/ Poorly Graded gravel	Red-Brown
		40/5/5			25	Poorly Graded Gravel with Sand Silt, Clay	
					30.0	Silty Sand	"

DRILLING METHOD	
DRILL RIG	
BORING DIAMETER	

WATER LEVEL OBSERVATIONS			
FIRST OCCURRENCE:			
DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

Rebecca Pons 10/14/24
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LOG OF SOIL BORING

PROJECT NAME: Fed 7 Delineation	SOIL BORING ID: SB-Center		
PROJECT NUMBER: 544675	LOCATION:	SHEET 1 OF 2	
LOGGED BY: Rebecca Pons	32.54319, -104.31031	SURFACE ELEV.:	
PROJECT LOCATION: Eddy County, NM	N: E:	DATE STARTED: 10-9-24	
DRILLED BY: Lane	DRILLER NAME: Scarborough	DATE COMPLETED: 10-9-24	

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		75			0-	Well Poorly Graded Gravel w/ Sand	Tan Silty
		90			2.5 1-3ft	Well Poorly Graded Gravel and Sand	
					5.0		
					7.5		
		23/30			10 10.0	Silty or Clay w/ Gravel	Red Clay
					12.5		
					15.0		
					17.5		
		10/30			20.0	ML Sandy Silt w/ Gravely Clay	Reddish Brown

DRILLING METHOD	WATER LEVEL OBSERVATIONS			
Split Spoon	FIRST OCCURRENCE: N-A			
DRILL RIG	DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM
BORING DIAMETER				

R Pons 10-14-24
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TRC

LOG OF SOIL BORING

PROJECT NAME: Reed E Delineation	SOIL BORING ID:		
PROJECT NUMBER: 544475	LOCATION:	SHEET 1 OF 2	
LOGGED BY: Dakota Ponds		SURFACE ELEV.:	
PROJECT LOCATION: Eddy County	N: E:	DATE STARTED: 10-9-24	
DRILLED BY: Lane	DRILLER NAME: W/ Stakebourough	DATE COMPLETED: 10-9-24	

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		90			25	Gravelly Clay - with Fines	Red-Brown
		100			30	Clay.	
					7.5		
					10.0		
					12.5		
					15.0		
					17.5		
					20.0		

DRILLING METHOD
DRILL RIG
BORING DIAMETER

WATER LEVEL OBSERVATIONS

FIRST OCCURRENCE:

DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

P Ponds 10-14-24
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Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 508102
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nAPP2221331648**
Incident Name	**NAPP2221331648 FEDERAL 29 Z 002H @ FAPP2203544127**
Incident Type	**Oil Release**
Incident Status	**Remediation Plan Approved**
Incident Facility	**[fAPP2203544127] Federal Z RB**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	FEDERAL 29 Z 002H
Date Release Discovered	07/16/2022
Surface Owner	Federal

Incident Details	
Please answer all the questions in this group.	
Incident Type	Oil 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	Cause: Equipment Failure | Other (Specify) | Crude Oil | Released: 2 BBL | Recovered: 0 BBL | Lost: 2 BBL.
Produced Water Released (bbls) Details	*Not answered.*
Is the concentration of chloride in the produced water >10,000 mg/l	No
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.*

Sante Fe Main Office
Phone: (505) 476-3441

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

QUESTIONS (continued)

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 508102
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**More info needed to determine if this will be treated as a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	*Unavailable.*
Reasons why this would be considered a submission for a notification of a major release	*Unavailable.*
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	packing blow out - release on and off pad
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: Jared Stoffel Title: Scientist Email: jstoffel@trccompanies.com Date: 09/22/2025

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

QUESTIONS (continued)

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 508102
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Site Characterization	
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.	
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
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 ½ and 1 (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	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between ½ and 1 (mi.)
Any other fresh water well or spring	Between ½ and 1 (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	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	None
A 100-year floodplain	Between 1 and 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	Yes

Remediation Plan	
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.	
Requesting a remediation plan approval with this submission	Yes
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.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	10300
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	118
GRO+DRO (EPA SW-846 Method 8015M)	118
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
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.	
On what estimated date will the remediation commence	12/01/2025
On what date will (or did) the final sampling or liner inspection occur	12/04/2025
On what date will (or was) the remediation complete(d)	12/20/2025
What is the estimated surface area (in square feet) that will be reclaimed	37500
What is the estimated volume (in cubic yards) that will be reclaimed	5500
What is the estimated surface area (in square feet) that will be remediated	37500
What is the estimated volume (in cubic yards) that will be remediated	5500
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.	
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.	

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QUESTIONS (continued)

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 508102
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Remediation Plan (continued)	
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.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	fEEM0112334510 HALFWAY DISPOSAL AND LANDFILL
OR which OCD approved well (API) will be used for **off-site** disposal	*Not answered.*
OR is the **off-site** disposal site, to be used, out-of-state	No
OR is the **off-site** disposal site, to be used, an NMED facility	No
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	No
(In Situ) Soil Vapor Extraction	No
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	No
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	No
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	No
Ground Water Abatement pursuant to 19.15.30 NMAC	No
OTHER (Non-listed remedial process)	No
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 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: Jared Stoffel Title: Scientist Email: jstoffel@trccompanies.com Date: 09/22/2025
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.	

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QUESTIONS (continued)

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 508102
	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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QUESTIONS (continued)

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 508102
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	*{Unavailable.}*

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

Operator:	OGRID:
COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	229137
	Action Number: 508102
	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. Sidewall/Edge samples should be delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. All sidewall samples should be taken from the sidewall of the excavation. Please make sure that the edge of the release extent is accurately defined. The variance request to collect confirmation samples that represent no more than 400' is approved. The work will need to occur in 90 days after the report has been reviewed.	11/14/2025