



November 8, 2023

District Supervisor  
Oil Conservation Division, District 2  
506 W. Texas Ave.  
Artesia, New Mexico 88210

**Re: REVISED Release Characterization and Remediation Work Plan  
ConocoPhillips (Heritage COG Operating LLC)  
GJ West Coop Unit South Tank Battery Release  
Unit Letter B, Section 28, Township 17 South, Range 29 East  
Eddy County, New Mexico  
2RP-4923  
Incident ID nMAP1822950996**

Dear Sir or Madam:

Tetra Tech, Inc. (Tetra Tech) was contacted by ConocoPhillips Company (COPC) to assess a historical release that occurred from the GJ West Coop Unit South Tank Battery. The approximate release site coordinates are 32.811015°, -104.075707°, located in the Public Land Survey System (PLSS) Unit Letter B, Section 28, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The Site location is shown on Figures 1 and 2. The site is located on State Trust Lands.

## BACKGROUND

According to the State of New Mexico Oil Conservation Division (NMOCD) C-141 Initial Report (Appendix A), the release was discovered on August 10, 2018. The release was caused by Lact Services leaving the proving valves on the LACT unit open. The release consisted of approximately 34 barrels (bbls) of crude oil, of which 5 bbls were recovered during the initial response activities via vacuum truck. The release occurred on the lease pad as well as in the adjacent pasture. The NMOCD received the C-141 on August 10, 2028 and, subsequently, assigned the release the Incident ID nMAP1822950996 and the remediation permit (RP) number 2RP-4923.

GJ West Coop South TB Release (2RP-4923/nMAP1822950996) is included in an Agreed Compliance Order ("ACO") with the NMOCD, related to unresolved releases from COPC's predecessor-in-interest ("COG"). The ACO required COPC to submit characterization and/or remediation plans with proposed timeframes for the ongoing corrective actions or remediations identified to the NMOCD no later than March 31, 2022.

As of March 11, 2022, COPC has submitted characterization and remediation plans for all of the properties identified and owned. All documentation was submitted in accordance with ACO terms. These documents have been submitted to the NMOCD via CentreStack, a Secure Access & File Sharing platform, at the direction of Mr. Bradford Billings, NMOCD. The Remediation Plan previously completed by White Buffalo Environmental Inc. (WBE) was included as a portion of the ACO.

## LAND OWNERSHIP

According to the NMOCD Oil and Gas Map, the site is located on State Trust Lands managed by the NMSLO. A review of the New Mexico State Land Office (NMSLO) Land Status Map was completed, and the site is within active oil and gas lease B005140012. The active lease is under Concho Oil & Gas LLC/COG Operations LLC. Based on guidance provided by the NMSLO, as the release footprint is located

Tetra Tech

901 West Wall St., Suite 100, Midland, TX 79701

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com

on an active oil and gas lease and the footprint is wholly located within the boundaries of the active oil and gas lease, no Remediation Right of Entry (ROE) is required at the Site.

## REGULATORY COMPLIANCE

On May 10, 2023, Tetra Tech requested a 60-day extension from the NMOCD to complete additional assessment activities. The extension was approved on May 11, 2023 via email, making the new deadline July 10, 2023.

To comply with the requirements set by the New Mexico State Land Environmental Compliance Office (ECO), on May 18, 2023, Tetra Tech requested permission to install additional soil borings to complete delineation of the release area. Permission was approved by Tami Knight on September 11, 2023 via email. A copy of the regulatory correspondence is included in Appendix B.

## CULTURAL PROPERTIES PROTECTION

As of December 1, 2022, the NMSLO Cultural Properties Protection (CPP) Rule is in effect. In tandem with this CPP rule, the NMSLO has begun enforcing application and permitting requirements per Rule 12 (19.2.12 NMAC) for Water/Soil Boring Exploration Permits. Any intrusive activities must be permitted through the Water Bureau, Oil, Gas, and Minerals Division, NMSLO.

To comply with the NMSLO CPP Rule, Tetra Tech, on behalf of COP, contracted SWCA Environmental Consultants (SWCA) to conduct an intensive pedestrian survey for the GJ West Coop South TB release covering 8.81 acres (3.56 ha) on the SLO-managed land Eddy County, New Mexico. On June 7, 2023, SWCA surveyed a 100-foot buffer from the inadvertent release location footprint, located entirely on SLO-managed land.

No archaeological sites or historic properties were observed during the investigation. Two isolated occurrences (IO) were discovered. IO 1 consisted of three quartzite pieces of lithic debitage and six coke bottle glass pieces. IO 2 consisted of a chert tested cobble and lithic debitage piece of quartzite with a cortical platform that measured 3-4 cm. No additional investigation or treatment was recommended regarding the current undertaking. A copy of the NMCRIS Activity No. 153146 is included in Appendix B, Regulatory Correspondence.

## SITE CHARACTERIZATION

A site characterization was performed and no watercourses, sinkholes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, playa lakes, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the distances specified in 19.15.29 NMAC. The Site is within a New Mexico oil and gas production area. The Site is in an area of medium karst potential.

There are no water wells listed in the New Mexico Office of the State Engineer (NMOSE) database located within approximately 0.5 miles (800 meters) of the Site. The nearest well with recent groundwater data is located approximately 0.63 miles from the Site with a depth to water of 76 feet below ground surface (bgs). Based on recent conversations with NMOCD representatives concerning other incidents, this 0.63-mile distance is with the discretionary limit for use as groundwater depth determination. The site characterization data are presented in Appendix C.

## REGULATORY FRAMEWORK

Based upon the release footprint and in accordance with Subsection E of 19.15.29.12 NMAC, per 19.15.29.11 NMAC, the site characterization data was used to determine recommended remedial action levels (RRALs) for benzene, toluene, ethylbenzene, and xylene (collectively referred to as BTEX), total petroleum hydrocarbons (TPH), and chlorides in soil.

Based on the site characterization and in accordance with Table I of 19.15.29.12 NMAC, the RRALs for the Site are as follows:

Constituent	Site RRAL
Chloride	10,000 mg/kg
TPH (GRO+DRO+ORO)	2,500 mg/kg
TPH (GRO+DRO)	1,000 mg/kg
BTEX	50 mg/kg

Additionally, in accordance with the NMOCD guidance Procedures for Implementation of the Spill Rule (19.15.29 NMAC) (September 6, 2019), the following reclamation requirements for surface soils (0-4 ft bgs) outside of active oil and gas operations are as follows:

Constituent	Site RRAL
Chloride	600 mg/kg
TPH (GRO+DRO+MRO)	100 mg/kg
BTEX	50 mg/kg
Benzene	10 mg/kg

### WBE ASSESSMENT AND REMEDIAL ACTION

Based on available documentation, White Buffalo Environmental, Inc. (WBE) was contracted by Lact Services to assess the nMAP1822950996 release. Beginning on August 11, 2018, WBE conducted site assessment activities based on visual observations and information included on the Form C-141. A total of twenty-three (23) locations (SP1 through SP23) within the release extent were field tested/screened for chloride, TPH and benzene at multiple depths. A total of 23 soil samples were submitted to Cardinal Laboratory for analysis of chloride via Standard Method SM4500Cl-B, TPH via EPA Method 8015M, and BTEX via EPA Method 8021B. Analytical results for SP1 through SP23 are summarized in Table 1.

To enable access to the facility, WBE excavated the on-pad release footprint to 6 inches bgs to remove saturated soils. Approximately 40 cubic yards of impacted soil was removed and disposed of at Lea Land Disposal. The excavated area was backfilled with non-impacted, like material.

Additionally, WBE field tested/screened and collected a total forty-four (44) surface soil samples (SW1 through SW44) around the release extent in an attempt to laterally bound the impacted area. The soil samples were submitted to Cardinal Laboratory for analysis of chloride via Standard Method SM4500Cl-B, TPH via EPA Method 8015M, and BTEX via EPA Method 8021B. Analytical results for SW1 through SW44 are summarized in Table 2.

Of the sixty-seven (67) analyzed soil samples, analytical results associated with SP16, SW-24, SW-30 and SW43 were above the reclamation requirements for TPH. There was no other reclamation requirement or RRAL exceedances from the 2018 assessment activities. The approximate release extent and assessment sample locations are shown on Figure 3. The extent of remedial action performed by WBE is shown in Figure 4.

### WHITE BUFFALO ENVIRONMENTAL REMEDIATION WORK PLAN

Based on the results of the 2018 assessment activities and remedial action, WBE prepared a Remediation Work Plan Request to address the nMAP1822950996 release area. It is unclear when the Remediation Work Plan Request, dated October 25, 2018, was initially submitted to NMOCD by COG Operating, LLC (COG). There is no documentation available indicating the Remediation Work Plan Request was initially approved or rejected.

As previously mentioned, the WBE Remediation Work Plan Request was resubmitted to the NMOCD by Tetra Tech in March 2022 as part of the ACO submittals. The work plan was rejected on December 9, 2022 via email from Brittany Hall of the NMOCD with the following reasoning:

- *"The depth to groundwater has not been adequately determined. When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided in the submission. The responsible party may choose to remediate to the most stringent levels listed in Table 1 of 19.15.29 NMAC in lieu of drilling to determine the depth to groundwater.*
- *Horizontal delineation submitted was incomplete and did not meet the requirements of 19.15.29.11 NMAC. The values for determination of horizontal impact are derived by either approved "background" values or Table I Closure Criteria for releases where groundwater is at a depth of 50 feet or less. This is especially important for "on-pad" releases to ensure the release did not extend to the "off-pad"/pasture area. A visual footprint on the surface is not sufficient to assess the horizontal extent of the release. Laboratory data must be provided as evidence of delineation efforts. Any sample exceeding approved "background" values or Table I Closure Criteria for releases where groundwater is at a depth of 50 feet or less requires additional samples for horizontal delineation.*
- *In the report it states "Pad Area - WBE excavated the top 6" bgs of saturated soil, loaded into dump truck and hauled to Lea Landfill. The pad area was backfilled with non-impacted like material imported to the site and that no further actions will be conducted on the pad with the sample results indicating the pad area is under the Site Closure Criteria." The field screening results show TPH levels below the TPH closure standard at 1' bgs. There is no analytical data that shows TPH is below closure standards. The field results also do not show if GRO+DRO is under the 1,000 mg/kg closure standard.*
- *2RP-4923 closed. Refer to incident #nMAP1822950996 in all future communication.*
- *Please submit a complete report through the OCD Permitting website by 03/10/2023."*

A copy of the NMOCD email correspondence is included in Appendix B.

## ADDITIONAL ASSESSMENT AND SAMPLING RESULTS

On behalf of COP, Tetra Tech conducted a visual Site inspection on September 21, 2022 to assess current Site conditions, document the observed impact, and photograph the area. Tetra Tech observed no obvious signs of staining and/or residual impact at the Site. Additionally, the pasture portions of the WBE-reported release footprint exhibited vegetation growth. Photographic documentation of current site conditions during the 2022 site visit is included as Appendix D.

### 2022 Assessment Activities

Based on the findings of the visual inspection and the WBE analytical data, additional soil sampling was conducted in select locations to assess the current soil contaminant concentrations within the reported release footprint. On November 8, 2022, Tetra Tech installed eleven (11) hand auger borings (SP 2-22, SP 4-22, SP 7-22, SP 11-22, SP 13-22, SP 16-22, SP 17-22, SP 18-22, SP 21-22, SW 26-22 and SW 32-22) at locations previously sampled by WBE. A total of sixteen (16) soil samples were submitted to Cardinal Laboratories in Hobbs, New Mexico for analysis of chloride via Standard Method SM4500Cl-B, TPH via EPA Method 8015M, and BTEX via EPA Method 8021B.

Analytical results from the 2022 additional assessment sampling activities are summarized in Table 3. Analytical results associated with sample location SP 17-22 exceeded the TPH reclamation requirements for soils above 4 feet bgs outside of oil gas operations of 100 mg/kg. All other analytical results were below the reclamation requirements and Site RRALs for all constituents.

### 2023 Assessment Activities

On behalf of COP, Tetra Tech conducted additional soil sampling at the Site to complete delineation at hand auger location SP-17-22. On September 11, 2023, Tetra Tech installed five (5) borings (SP-17-22 and AH-23-1 through AH-23-4) around the previously sampled SP-17-22 hand auger location. AH-23-1 through A-23-4 were installed to 1 feet bgs around SP-17-22 to complete horizontal delineation. SP-17-22 was installed from 1 to 6 feet bgs to complete vertical delineation.



A total of ten (10) soil samples were submitted to Cardinal Laboratories in Hobbs, New Mexico for analysis of chloride via Standard Method SM4500Cl-B, TPH via EPA Method 8015M, and BTEX via EPA Method 8021B.

Analytical results from the 2023 additional assessment activities are summarized in Table 4. Analytical results associated with sample location SP 17-22 exceeded reclamation requirements for TPH of 100 mg/kg from 2-3 feet. All other analytical results were below the reclamation requirements and Site RRALs for all constituents.

Results from the additional assessment activities from November 2022 and September 2023 indicate that the release footprint provided by WBE no longer appears to be accurate to field. This discrepancy, given the age of the release, may be due to the previous remedial activities conducted on-pad, rain, sheet flow, and/or natural attenuation of hydrocarbon which have modified the release footprint over time. Based on the results of the 2022 and 2023 analytical results, it appears that the soil contaminant concentrations are no longer above cleanup levels with the exception of the area near sample location SP17/SP17-22. The November 2022 and September 2023 hand auger locations, as well as the release extent observed by Tetra Tech, are presented in Figure 5. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix E.

### REVISED REMEDIATION WORK PLAN

Based on the analytical results, COP proposes to remove the remaining impacted material as shown on Figure 6. Impacted soils will be excavated using heavy equipment (backhoes, hoe rams, and track hoes) to a maximum depth of 3 feet bgs or until a representative sample from the walls and bottom of the excavation is below the applicable RRALs. Tetra Tech personnel will collect confirmation floor samples to be evaluated for chloride, TPH and BTEX. If concentrations exceed the site RRALs, the defined areas will be further excavated until a representative sample from the bottom of the excavation is below the applicable RRALs. Any area containing pressurized lines will be hand-dug to the proposed depth or the maximum extent practicable; heavy equipment will come no more than 4 feet from any pressurized lines. Impacted soils within the vicinity of the surface and subsurface lines will be removed to the maximum extent practicable using non-aggressive excavation methods.

Due to safety concerns related to an active subsurface Plains pipeline running adjacent to, on the south side of, the release extent, the impacted soils in the vicinity of the pipeline may not be feasible or practicable to be wholly removed to 3' bgs. COP will coordinate with the pipeline owners prior to remedial action. Prior to beginning remedial activities, the NMSLO office will be notified via email in accordance with NMSLO guidelines, and the Work Plan will be provided to the Environmental Compliance Office (ECO).

Excavated soils will be transported offsite and disposed of at an NMOCD-approved or permitted facility. Prior to confirmation sampling the NMOCD district office will be notified via email in accordance with Subsection D of 19.15.29.12 NMAC. Confirmation floor and sidewall samples will be collected for verification of remedial activities and analyzed for TPH, BTEX, and chloride. The estimated total volume of material to be remediated is approximately 48 cubic yards.

### CONFIRMATION SAMPLING PLAN

In accordance with 19.15.29.12(D)(1)(c) NMAC, confirmation samples will be collected to adhere with NMOCD requirements. One (1) confirmation floor sample and four (4) confirmation sidewall samples will be collected for verification of remedial activities. The proposed excavation encompasses a surface area of approximately 326 square feet.

These confirmation sidewall and floor samples will be representative of no more than approximately 200 square feet of excavated area. Confirmation samples will be sent to an accredited analytical laboratory for analysis of chloride, TPH, and BTEX. Once acceptable results are received, the excavation will then be backfilled with clean material to surface grade.

## SITE RECLAMATION PLAN

Based on 19.15.29.13 NMAC, all areas disturbed by the remediation and closure will be reclaimed once confirmation sampling results below the reclamation requirements for soils above four feet bgs are received. Once acceptable confirmation sample results are received, the excavation will be backfilled with clean material to pre-release grade. The soil cover will include a top layer consisting of one foot of suitable material to establish vegetation at the site.

The backfilled areas in the pasture will be seeded following backfilling, to aid in revegetation. Based on the soils of the site, the NMSLO Sandy Loam (SL) Sites Seed Mixture will be used for seeding and will be planted in the amount specified in the pounds pure live seed (PLS) per acre. The seed mixture will be spread by a drill equip with a depth regulator or a hand-held broadcaster and raked. If a hand-held broadcaster is used for dispersal, the pounds pure live seed per acre will be doubled.

Site inspections will be performed annually to assess the revegetation progress and evaluate the site for the presence of primary or secondary noxious weeds. If noxious weeds are identified, the NMSLO will be contacted to determine an effective method for eradication. If the site does not show revegetation after one growing season, the area will be reseeded as appropriate. The NMSLO seed mixture details in corresponding pounds per live seed per acre are included in Appendix F.

Reclamation activities will be implemented in consultation with the State Land Office in accordance with 19.2.100.67 NMAC for surface reclamations on State Oil and Gas Leases. COP will notify the NMSLO when reclamation and revegetation are complete.

## CONCLUSION

ConocoPhillips proposes to begin remediation activities at the Site within 120 days of NMOCD and NMSLO plan approval. Upon completion of the proposed work, a final closure report detailing the remediation activities and the results of the confirmation sampling will be submitted to both NMOCD and NMSLO. If you have any questions concerning the soil assessment or the proposed remedial activities for the Site, please call me at (512) 560-9064 or Christian at (512) 338-2861.

Sincerely,  
**Tetra Tech, Inc.**



Nicholas M. Poole  
Project Lead



Christian M. Llull, P.G.  
Program Manager

cc:  
Mr. Ike Tavarez, RMR – ConocoPhillips

## LIST OF ATTACHMENTS

### Figures:

- Figure 1 – Overview Map
- Figure 2 – Site Location/Topographic Map
- Figure 3 – Approximate Release Extent and Site Assessment (WBE)
- Figure 4 – Initial Response by WBE
- Figure 5 – Additional Site Assessment (Tetra Tech)
- Figure 6 – Proposed Remediation Extent

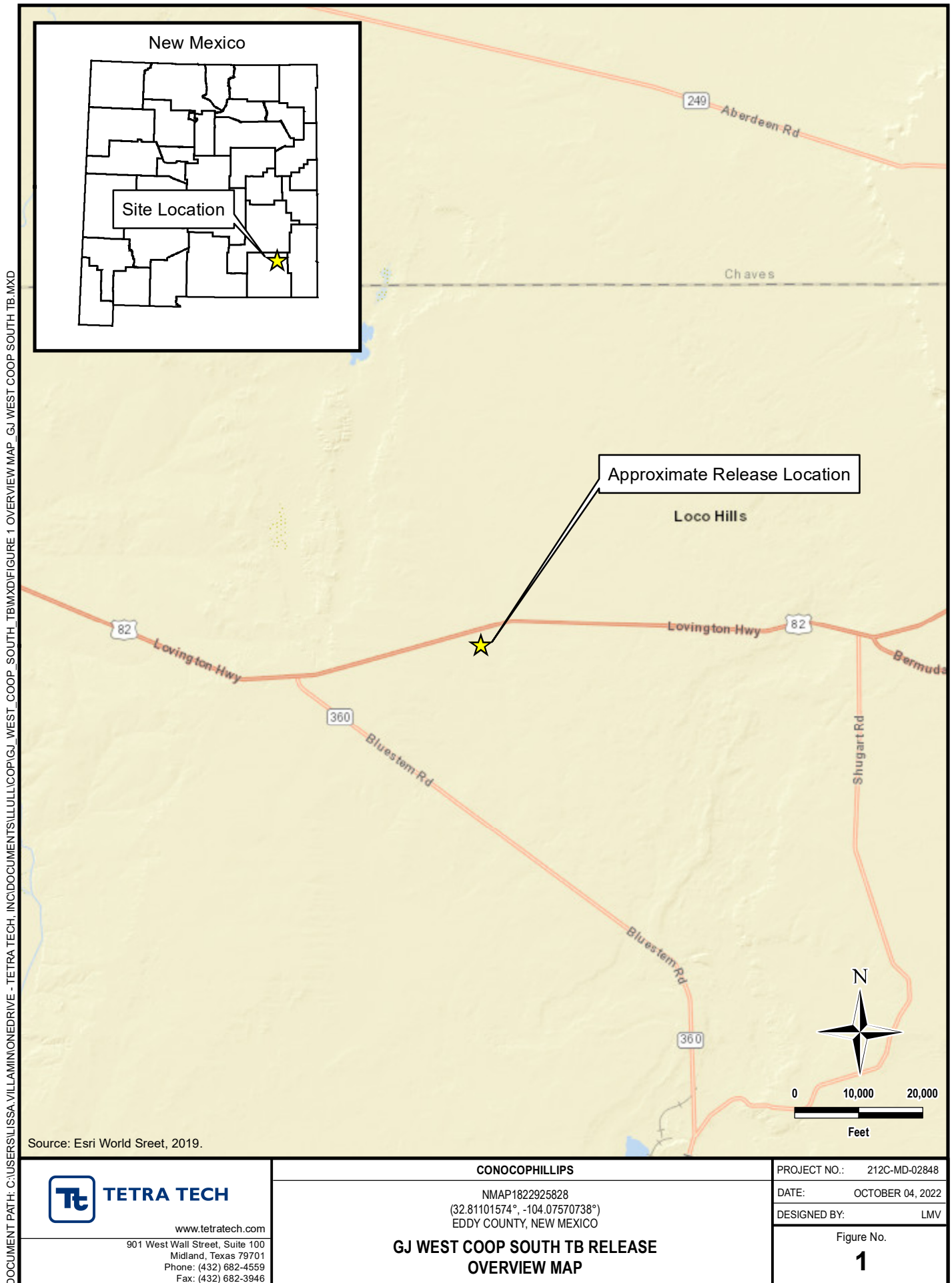
### Tables:

- Table 1 – Summary of Analytical Results – WBE Vertical Assessment
- Table 2 – Summary of Analytical Results – WBE Horizontal Assessment
- Table 3 – Summary of Analytical Results – 2022 Additional Site Assessment
- Table 4 – Summary of Analytical Results – 2023 Additional Site Assessment

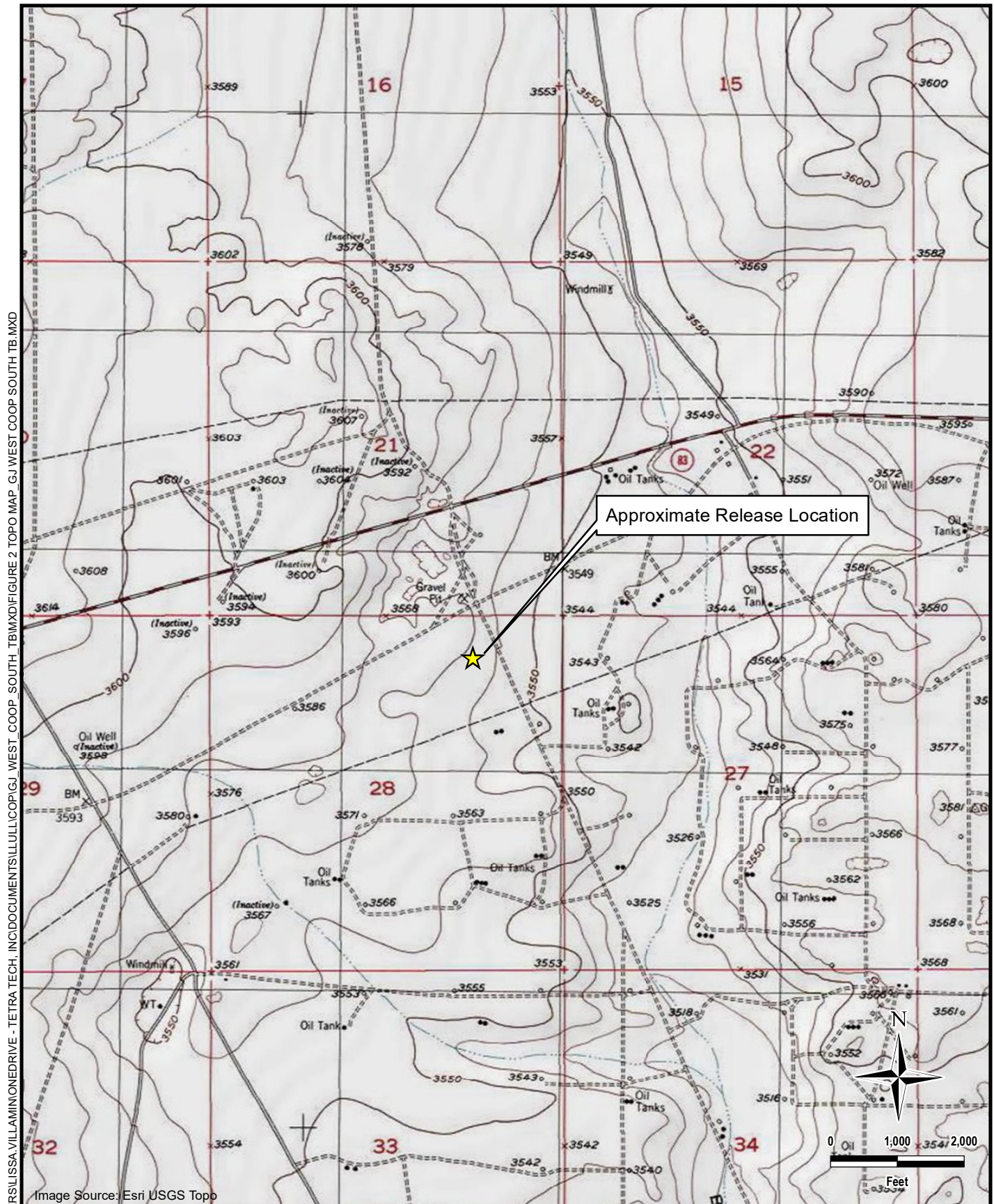
### Appendices:

- Appendix A – C-141 Forms
- Appendix B – Regulatory Correspondence
- Appendix C – Site Characterization Data
- Appendix D – Photographic Documentation
- Appendix E – Laboratory Analytical Data
- Appendix F – NMSLO Seed Mix

## **FIGURES**







**TETRA TECH**

www.tetrattech.com

901 West Wall Street, Suite 100  
Midland, Texas 79701  
Phone: (432) 682-4559  
Fax: (432) 682-3946

CONOCOPHILLIPS

NMAP1822925828  
(32.81101574°, -104.07570738°)  
EDDY COUNTY, NEW MEXICO

**GJ WEST COOP SOUTH TB RELEASE  
TOPOGRAPHIC MAP**

PROJECT NO.: 212C-MD-02848

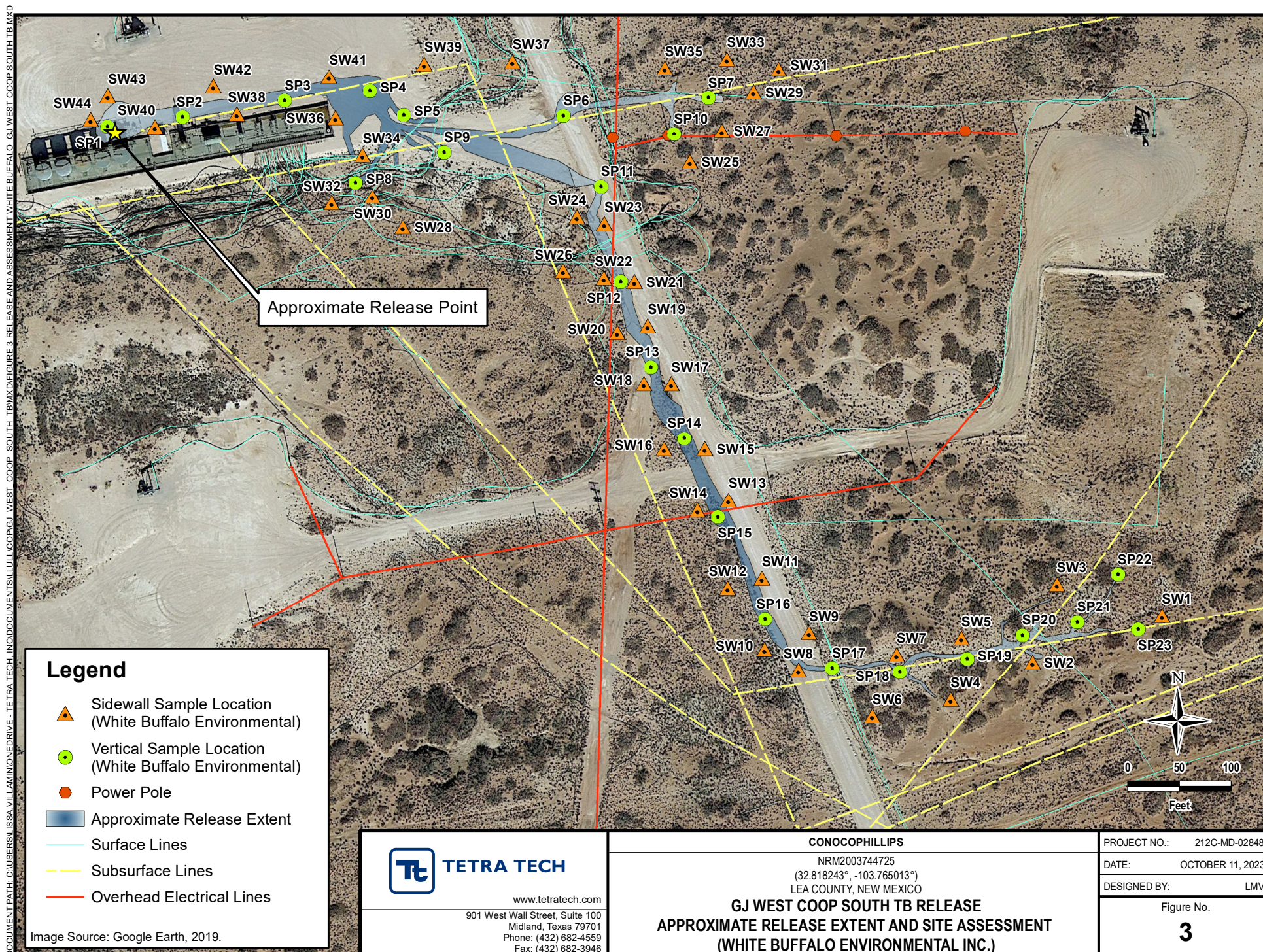
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DESIGNED BY: LMV

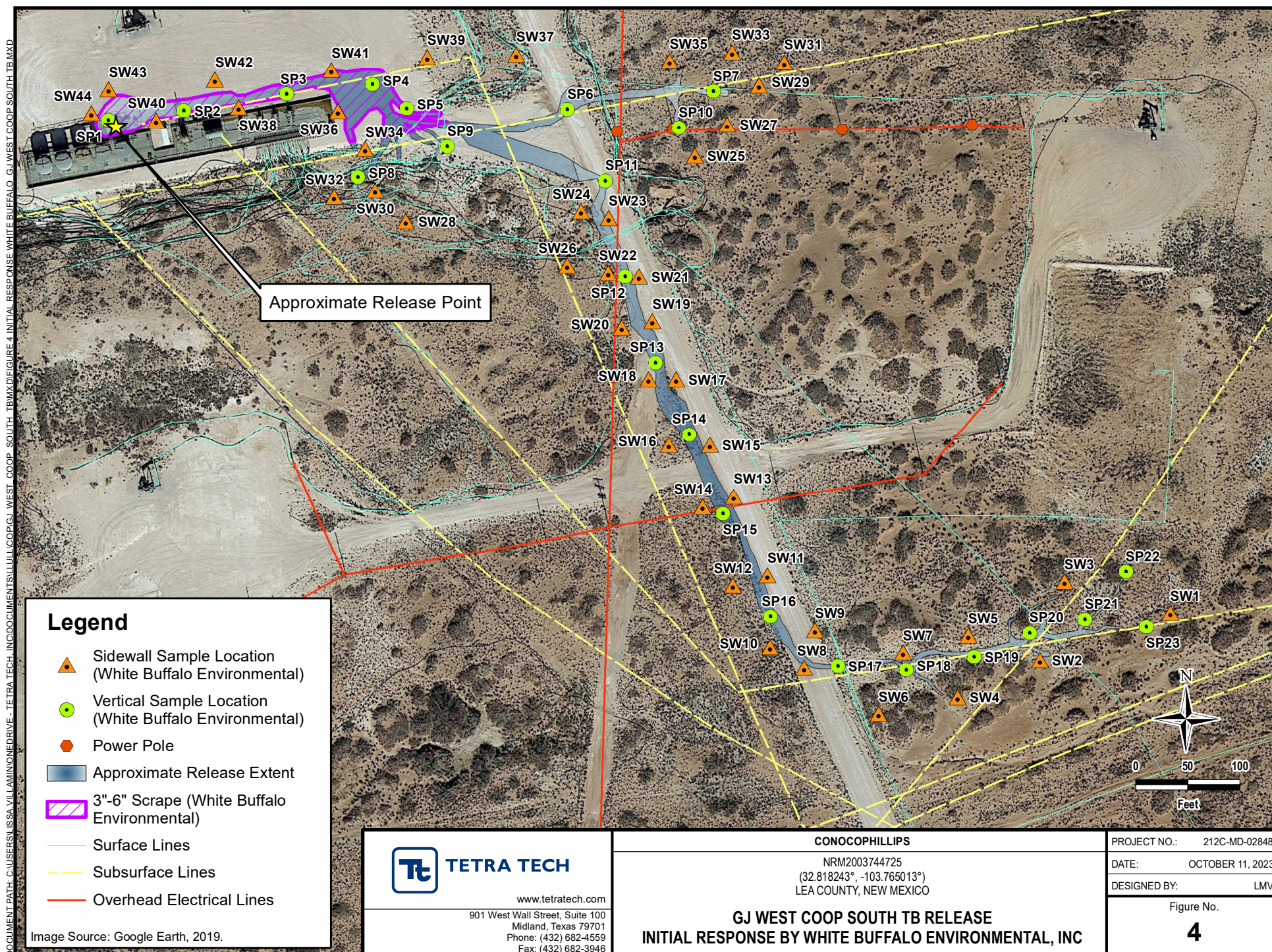
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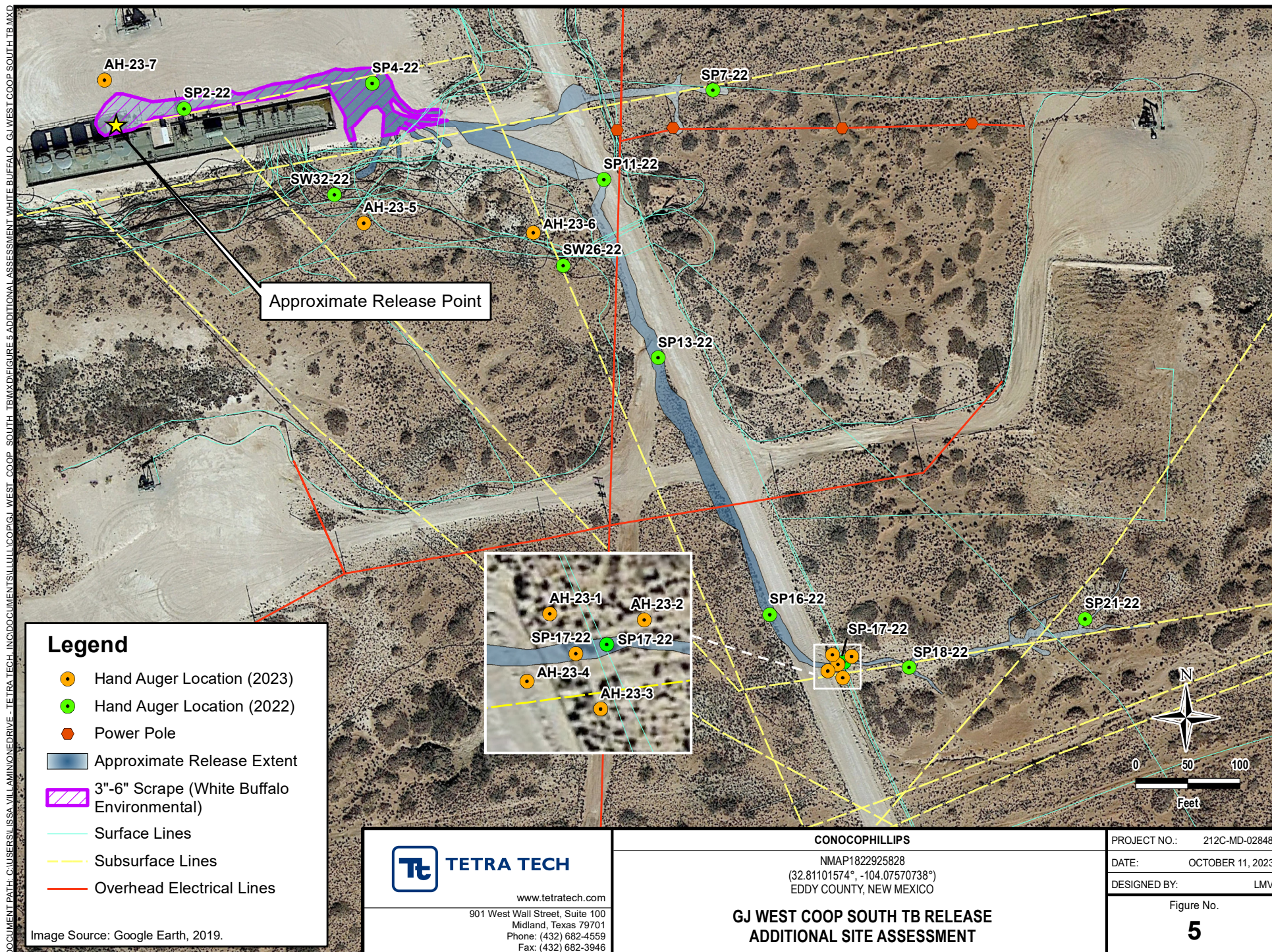




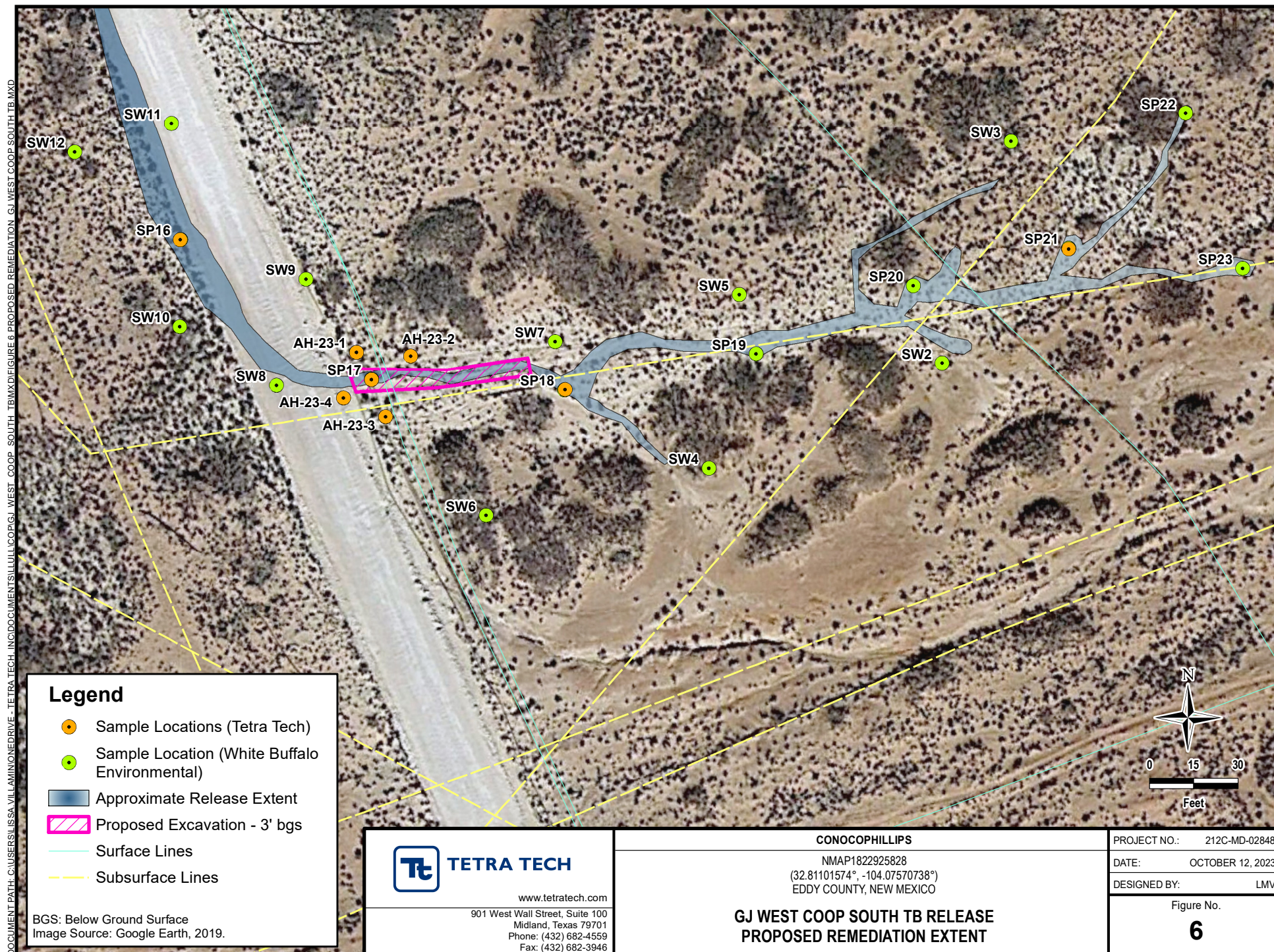














## **TABLES**

TABLE 1  
SUMMARY OF ANALYTICAL RESULTS  
2018 SAMPLE POINT SOIL ASSESSMENT- 2RP-4923 / nMAP1822925828  
CONOCOPHILLIPS  
GJ WEST COOP SOUTH TB RELEASE  
EDDY COUNTY, NM

Sample ID	Sample Date	Sample Depth	Field Screening Results		Chloride <sup>1</sup>		BTEX <sup>2</sup>										TPH <sup>3</sup>						
							Benzene		Toluene		Ethylbenzene		Total Xylenes		Total BTEX		GRO		DRO		EXT DRO		Total TPH (GRO+DRO+EXT DRO)
			Chloride	PID	C <sub>6</sub> - C <sub>10</sub>												> C <sub>10</sub> - C <sub>28</sub>		> C <sub>28</sub> - C <sub>36</sub>				
			ft. bgs	ppm	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg
SP1	8/23/2018	3	< 30	35	48.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP2	8/23/2018	3	< 30	19	64.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP3	8/23/2018	3	< 30	40	48.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP4	8/23/2018	3	< 30	48	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP5	8/23/2018	3	68	112	80.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP6	8/23/2018	3	< 30	80	48.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP7	8/23/2018	3	< 30	92	64.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP8	8/23/2018	3	< 30	52	96.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		29.2		< 10.0		29.2
SP9	8/23/2018	2	< 30	12	80.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP10	8/23/2018	2	< 30	51	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP11	8/23/2018	4	278	12	640		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP12	8/23/2018	6	278	12	656		< 0.050	QM-07	< 0.050	QM-07	< 0.050	QM-07	< 0.150	QM-07	< 0.300	QM-07	< 10.0		< 10.0		< 10.0		-
SP13	8/23/2018	2	147	18	128		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP14	8/23/2018	2	87	15	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP15	8/23/2018	2	157	19	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP16	9/14/2018	10	304	298	304		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		191		29.3		220
SP17	8/23/2018	3	< 30	72	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		58.1		11.7		69.8
SP18	8/23/2018	3	112	22	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		18.7		< 10.0		18.7
SP19	8/23/2018	2	40	6	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP20	8/23/2018	2	95	4	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP21	9/7/2018	2	42	9	<16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP22	8/23/2018	2	52	2	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SP23	9/7/2018	2	45	15	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-

## NOTES:

ft. Feet

bgs Below ground surface

mg/kg Milligrams per kilogram

TPH Total Petroleum Hydrocarbons

GRO Gasoline range organics

DRO Diesel range organics

1 Method SM4500Cl-B

2 Method 8021B

3 Method 8015M

## QUALIFIERS:

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

TABLE 2  
SUMMARY OF ANALYTICAL RESULTS  
2018 SIDEWALL SOIL ASSESSMENT- 2RP-4923 / nMAP1822925828  
CONOCOPHILLIPS  
GJ WEST COOP SOUTH TB RELEASE  
EDDY COUNTY, NM

Sample ID	Sample Date	Sample Depth	Field Screening Results		Chloride <sup>1</sup>		BTEX <sup>2</sup>										TPH <sup>3</sup>						
			Chloride	PID			Benzene		Toluene		Ethylbenzene		Total Xylenes		Total BTEX		GRO C <sub>6</sub> - C <sub>10</sub>		DRO > C <sub>10</sub> - C <sub>28</sub>		EXT DRO > C <sub>28</sub> - C <sub>36</sub>		Total TPH (GRO+DRO+EXT DRO)
			ft. bgs	ppm	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg		
SW1	9/11/2018	1	20	8	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW2	9/11/2018	1	56	45	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW3	9/11/2018	1	28	21	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW4	9/11/2018	1	70	62	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		42.8		< 10.0		42.8
SW5	9/11/2018	1	80	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW6	9/11/2018	1	52	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW7	9/11/2018	1	70	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW8	9/11/2018	1	84	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW9	9/11/2018	1	42	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW10	9/11/2018	1	70	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW11	9/11/2018	1	46	9	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW12	9/11/2018	1	70	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW13	9/11/2018	1	74	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW14	9/11/2018	1	52	19	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW15	9/11/2018	1	60	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW16	9/11/2018	1	52	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW17	9/11/2018	1	54	4	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW18	9/11/2018	1	40	2	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW19	9/11/2018	1	68	12	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW20	9/11/2018	1	92	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW21	9/11/2018	1	58	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW22	9/11/2018	1	71	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW23	9/11/2018	1	58	0	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		28.7		< 10.0		28.7
SW24	9/11/2018	1	70	0	224		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		869		180		1,049
SW25	9/11/2018	1	65	3	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW26	9/14/2018	6	70	68	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW27	9/13/2018	1	50	5	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW28	9/14/2018	5	320	104	464		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW29	9/13/2018	1	< 30	4	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW30	9/13/2018	1	68	605	112		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		515		77.9		593
SW31	9/14/2018	3	394	10	384		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW32	9/14/2018	8	46	4	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW33	9/13/2018	1	52	4	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW34	9/13/2018	1	52	10	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW35	9/13/2018	1	62	0	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW36	9/13/2018	1	70	2	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW37	9/14/2018	1	60	0	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW38	9/14/2018	1	45	0	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW39	9/14/2018	1	20	4	< 16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW40	9/14/2018	1	68	31	64.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		21.8		< 10.0		21.8
SW41	9/14/2018	1	189	0	208		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW42	9/14/2018	1	169	7	192		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-
SW43	9/14/2018	1	62	301	48.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		261		30.9		292
SW44	9/14/2018	1	< 30	2	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		-

## NOTES:

ft. Feet

bgs Below ground surface

mg/kg Milligrams per kilogram

TPH Total Petroleum Hydrocarbons

GRO Gasoline range organics

DRO Diesel range organics

1 Method SM4500C1-B

2 Method 8021B

3 Method 8015M

## QUALIFIERS:

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

TABLE 3  
SUMMARY OF ANALYTICAL RESULTS  
2022 ADDITIONAL SOIL ASSESSMENT- nMAP1822925828/2RP-4923  
CONOCOPHILLIPS  
GJ WEST KOOP SOUTH TB RELEASE  
EDDY COUNTY, NM

Sample ID	Sample Date	Sample Depth	Chloride <sup>1</sup>		BTEX <sup>2</sup>										TPH <sup>3</sup>							
					Benzene		Toluene		Ethylbenzene		Total Xylenes		Total BTEX		GRO		DRO		EXT DRO		Total TPH (GRO+DRO+EXT DRO)	
		ft. bgs	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	C <sub>6</sub> - C <sub>10</sub>	Q	mg/kg	Q	mg/kg	Q		
		Closure Criteria for Pasture / Off-Pad Soils 0-4' bgs:	600 mg/kg		< 10 mg/kg		-		-		< 50 mg/kg		-		-		-		-		100 mg/kg	
		Closure Criteria for Soils >4' bgs (GW >100 ft):	10,000 mg/kg		< 10 mg/kg		-		-		< 50 mg/kg		-		-		-		-		2,500 mg/kg	
SP 2 - 22	11/8/2022	0-1	128		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
SP 4 - 22	11/8/2022	1-2	96.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
SP 7 - 22	11/8/2022	0-1	64.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
SP 11 - 22	11/8/2022	0-1	64.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
		2-3	48.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
SP 13 - 22	11/8/2022	1-2	64.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
SP 16 - 22	11/8/2022	0-1	48.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
		2-3	48.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
		5-6	80.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
SP 17 - 22	11/8/2022	0-1	64.0	S-04	<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		771		177		948	
SP 18 - 22	11/8/2022	0-1	48.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
SP 21 - 22	11/8/2022	1-2	48.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
SW 26 - 22	11/8/2022	1-2	64.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
		4-5	64.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
SW 32 - 22	11/8/2022	0-1	48.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
		2-3	32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	

## NOTES:

ft. Feet

bgs Below ground surface

mg/kg Milligrams per kilogram

TPH Total Petroleum Hydrocarbons

GRO Gasoline range organics

DRO Diesel range organics

1 Method SM4500Cl-B

2 Method 8021B

3 Method 8015M

**Bold and italicized values indicate exceedance of proposed Remediation RRALs and/or Reclamation Requirements.**

Shaded rows indicate intervals proposed for excavation.

## QUALIFIERS:

S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

TABLE 4  
SUMMARY OF ANALYTICAL RESULTS  
2023 ADDITIONAL SOIL ASSESSMENT- nMAP1822925828/2RP-4923  
CONOCOPHILLIPS  
GJ WEST KOOP SOUTH TB RELEASE  
EDDY COUNTY, NM

Sample ID	Sample Date	Sample Depth	Chloride <sup>1</sup>		BTEX <sup>2</sup>										TPH <sup>3</sup>							
					Benzene		Toluene		Ethylbenzene		Total Xylenes		Total BTEX		GRO		DRO		EXT DRO		Total TPH	
					mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		C <sub>6</sub> - C <sub>10</sub>		> C <sub>10</sub> - C <sub>28</sub>		> C <sub>28</sub> - C <sub>36</sub>		(GRO+DRO+EXT DRO)	
					Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
		ft. bgs	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q
		Closure Criteria for Pasture / Off-Pad Soils 0-4' bgs:	600 mg/kg		< 10 mg/kg		-		-		-		< 50 mg/kg		-		-		-		100 mg/kg	
		Closure Criteria for Soils >4' bgs (GW >100 ft):	10,000 mg/kg		< 10 mg/kg		-		-		-		< 50 mg/kg		-		-		-		2,500 mg/kg	
SP-17-22	9/13/2023	1-2	16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
		2-3	16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		108		30.4		138.4	
		5-6	16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
AH-23-1	9/13/2023	0-1	16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
AH-23-2	9/13/2023	0-1	16.0		<0.050	QM-07	<0.050	QM-07	<0.050	QM-07	<0.150		<0.300		<10.0		<10.0		<10.0		-	
AH-23-3	9/13/2023	0-1	<16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
AH-23-4	9/13/2023	0-1	<16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
AH-23-5	9/13/2023	0-1	<16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
AH-23-6	9/13/2023	0-1	<16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
AH-23-7	9/13/2023	0-1	32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	

## NOTES:

ft. Feet

bgs Below ground surface

mg/kg Milligrams per kilogram

TPH Total Petroleum Hydrocarbons

GRO Gasoline range organics

DRO Diesel range organics

1 Method SM4500Cl-B

2 Method 8021B

3 Method 8015M

**Bold and italicized values indicate exceedance of proposed Remediation RRALs and/or Reclamation Requirements.**

Shaded rows indicate intervals proposed for excavation.

## QUALIFIERS:

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.



## **APPENDIX A C-141 Forms**

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

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

Form C-141  
Revised April 3, 2017  
Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

## Release Notification and Corrective Action

### OPERATOR

☒ Initial Report ☐ Final Report


Name of Company: COG Operating, LLC (229137)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland, TX 79701	Telephone No. 432-683-7443
Facility Name: G J West Coop Unit South	Facility Type: Tank Battery
Surface Owner: State	Mineral Owner: State
API No.	

### LOCATION OF RELEASE

Unit Letter B	Section 28	Township 17S	Range 29E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
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Latitude 32.81101574 Longitude -104.07570738 NAD83

### NATURE OF RELEASE

Type of Release Oil	Volume of Release 34 bbl.	Volume Recovered 5 bbl.
Source of Release Open Valve	Date and Hour of Occurrence August 10, 2018 12:00am	Date and Hour of Discovery August 10, 2018 12:00am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Bratcher – NMOCD Maria Pruett – NMOCD Ryan Mann – SLO	
By Whom? Dakota Neel	Date and Hour August 10, 2018 5:05pm	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.*		
Describe Cause of Problem and Remedial Action Taken.*		
The release was caused by a 3 <sup>rd</sup> party leaving the proving valves open. The valves were closed.		
Describe Area Affected and Cleanup Action Taken.*		
The release was in the pasture. A vacuum truck was dispatched to remove all freestanding fluids. Concho will have the spill area sampled to delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		
Signature: 	OIL CONSERVATION DIVISION	
Printed Name: DeAnn Grant		
Title: HSE Administrative Assistant	Approval Date:	Expiration Date:
E-mail Address: agrant@concho.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: August 13, 2018 Phone: (432) 253-4513		

\* Attach Additional Sheets If Necessary



Incident ID	
District RP	
Facility ID	
Application ID	

## Site Assessment/Characterization

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

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

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

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

- ☐ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☐ Data table of soil contaminant concentration data
- ☐ Depth to water determination
- ☐ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☐ Topographic/Aerial maps
- ☐ Laboratory data including chain of custody

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

State of New Mexico  
Oil Conservation Division

Page 4

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_  \_\_\_\_\_ Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

Received by: Shelly Wells \_\_\_\_\_ Date: 11/9/2023 \_\_\_\_\_



Incident ID	
District RP	
Facility ID	
Application ID	

## Remediation Plan


**Remediation Plan Checklist:** *Each of the following items must be included in the plan.*

- ☐ Detailed description of proposed remediation technique
- ☐ Scaled sitemap with GPS coordinates showing delineation points
- ☐ Estimated volume of material to be remediated
- ☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only:** *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_  
Signature: \_\_\_\_\_  Date: \_\_\_\_\_  
email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

Received by: Shelly Wells Date: 11/9/2023

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **APPENDIX B**

### **Regulatory Correspondence**



## NMCRIS Investigation Abstract Form (NIAF)

**NMCRIS Activity No. 1 5 3 1 4 6**

### Registration

**Lead Agency:** New Mexico State Land Office**Performing Agency:** SWCA Environmental Consultants**Activity ID:** 80926**Performing Agency Report No:** 23-374**Report Recipient (Your Client):** Tetra Tech, Inc.

**Activity Types:** ☐ Research Design    ☒ Archaeological Survey/Inventory  
☐ Architectural Survey/Inventory    ☐ Test Excavation    ☐ Monitoring  
☐ Collections/Non-Field Study    ☐ Compliance Decision  
☐ Literature Review Overview    ☐ Excavation    ☐ Ethnographic Study  
☐ Resource/Property Visit    ☐ Historic Structures Report  
☐ Other:

**Total Survey Acreage:** 8.81**Total Tribal Acreage:** 0.00**Total Resources Visited:** 0

NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 1 5 3 1 4 6

Associate/Register Resources

Prefix	Number	Field Site/Other Number	In GIS	Resource Type	Collections Made?	Revisit
			<input type="checkbox"/>		<input type="checkbox"/>	



## NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 1 5 3 1 4 6

## Report Details

Lead Agency

Lead Agency: New Mexico State Land Office

Lead Agency Report No.

Report Number: \_\_\_\_\_

Title of Report

Title of Report: A Class III Cultural Resources Inventory of the COG-GJ West Coop South TB Inadvertent Release in Eddy County, NM

Authors: Lawrence Walker

Type of Report

Publication Type: Report, Monograph, or Book Negative

Description of Undertaking (what does the project entail?)

**Description:** Tetra Tech, Inc. is proposing a remediation project for an inadvertent pipeline release from the COG-GJ West Coop South TB located approximately 20 miles (32 kilometers [km]) east of Artesia, NM in Eddy County, NM. The inadvertent release extent is 0.48 acres (0.19 hectares [ha]) of New Mexico State Land Office (SLO) lands and the remediation efforts will require removing impacted sediments from the contaminated area and replacing them with clean soil.

Dates of Investigation

From: 07-JUN-2023 To: 07-JUN-2023

Report Date

Report Date: 16-JUN-2023

Performing Agency/Consultant

Name: SWCA Environmental Consultants

Principal Investigator: Meaghan Trowbridge

Field Supervisor: Thea Stehlik-Barry

**NMCRIS Investigation Abstract Form (NIAF)****NMCRIS Activity No. 1 5 3 1 4 6****Field Personnel Names:** Elizabeth Lemus**Historian/Other:** PM: Amber Murray**Report Details**

Performing Agency Report Number

**Report Number:** 23-374

Client/Customer (project proponent)

**Name:** Jayce Parkey**Contact:** Tetra Tech, Inc.**Address:** 8911 North Capital of Texas Highway, Bldg 2, Suite 2310;  
Austin, TX 78759**Phone:** 512-338-1667

Client/Customer Project Number

**Project Number:** SWCA 80926



## NMCRIS Investigation Abstract Form (NIAF)

**NMCRIS Activity No. 1 5 3 1 4 6**

### Ownership & Location

Land Ownership Status (Must be indicated on Project Map)

**Land Ownership:**

Land Owner/Manager	Protocol	Acres Surveyed	Acres in APE
NM SLO	Class III	8.81	0.48

**Total Survey Acreage:** 8.81

**Total Tribal Acreage:** 0.00

Record Search(es)

**Date of HPD/ARMS File Review:** 30-MAR-2023

**Date of Other Agency File Review:** 30-MAR-2023

Survey Data

**Source Graphics:** NAD 83

☒ USGS 7.5' (1:24,000) topo map ☐ Other Topo Map Scale:

☒ GPS Unit

☐ Aerial Photos

☐ Other Source Graphic(s):

**The following tables (b,c,& e) are calculated by the NMCRIS Map Service**

USGS 7.5' Topographic Map(s)

Map Name	USGS Quad Code
Red Lake	32104-G1

County(ies)

County	FIPS
Eddy County	

Legal Description

Unplatted	Township (N/S)	Range (E/W)	Section
	17S	29E	28

Projected Legal Description

**Nearest City or Town:** Artesia, NM

## NMCRIS Investigation Abstract Form (NIAF)

**NMCRIS Activity No. 1 5 3 1 4 6**

**GIS**

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## NMCRIS Investigation Abstract Form (NIAF)

**NMCRIS Activity No. 1 5 3 1 4 6**

### Methodology

#### Survey Field Methods

**Intensity:** 100% coverage

**Configuration:** ☒ Block Survey Units ☐ Linear Survey Units (l x y)

#### Other Survey Units

**Scope:** Non-Selective

**Coverage Method:** ☒ Systematic Pedestrian Coverage **Other Method:** \_\_\_\_\_

**Survey Interval (m):** 15 **Crew Size:** 2

**Fieldwork Dates:** **From:** 07-JUN-2023 **To:** 07-JUN-2023

**Survey Person Hours:** 3 **Recording Person Hours:** 0

**Additional Narrative:** SWCA surveyed a 100-foot buffer on all sides of the inadvertent release location.

#### Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.)

#### Environmental Setting:

The project area is in the Chihuahuan Desert Grasslands (24b) (Griffith et al. 2006) that is historically characterized by wide-spread grasslands in areas of higher precipitation such as mountain ranges, benches, and plateaus. Areas of lower precipitation have sparse grasslands with ground cover of 10% or less. This ecoregion has been significantly impacted by grazing in the late 19<sup>th</sup> and 20<sup>th</sup> centuries and is impacted today by erosion, drought, and climate change. The project area's mean elevation is 1,085 meters (m) (3,560 feet) above mean sea level (amsl). Vegetation varies but generally includes black, blue, and sideoats grama, dropseeds, bush muhly, and tobosa. Scattered prickly pear, creosotebush, and cholla cacti are also present. Plants observed during the survey include mesquite, desert sage, and various bunch grasses (Griffith et al. 2006). Wildlife includes mule deer, coyote, bobcat, gopher, jackrabbit, peccary, various species of field mice, striped skunk, pack rat, birds, and reptiles (Biota Information System of New Mexico 2023).

Geology underlying the project area comprises Holocene to middle Pleistocene eolian and piedmont deposits (Qe/Qp) of higher gradient tributaries bordering major stream valleys, piedmont slopes, and alluvial fans. Soils consist of Berino complex and Berino-Dune land complex found on plains and piedmonts that are derived from alluvial and eolian sands.. Neither of these are considered prime farmland (Natural Resource



## NMCRIS Investigation Abstract Form (NIAF)

### NMCRIS Activity No. 1 5 3 1 4 6

Conservation Service 2023). The survey area is located on relatively flat, stabilized dunes.

The climate information for the survey area was compiled using the Artesia 6S, New Mexico (290600), climate station data (period of record January 1, 1905, to June 8, 2016). Rainfall for the general project area is most abundant from May through October, averaging 1.5 centimeters (cm) (0.5 inches), with July having the heaviest average precipitation. Snowfall is heaviest between December and January, with an average of 1.5 cm (0.5 inches); annual snowfall averages 6.3 cm (2.4 inches). Temperatures are coldest in December and January at approximately -4 degrees Celsius (°C) (24 degrees Fahrenheit [°F]) and warmest in July at 34.7°C (94.5°F) (Western Regional Climate Center 2023).

#### References:

Biota Information System of New Mexico

2023 Database Query for Eddy County. Available at: <http://www.bison-m.org/>. Accessed June 2023.

Griffith, G. E., J. M. Omernik, M. M. McGraw, G. Z. Jacobi, C. M. Canavan, T. S. Schrader, D. Mercer, R. Hill, and B. C. Moran

2006 Ecoregions of New Mexico (color poster with map, descriptive text, summary tables, and photographs). Reston, Virginia: U.S. Geological Survey (map scale 1:1,400,000).

Natural Resources Conservation Service

2023 Web Soil Survey. Available at: <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed June 2023.

Western Regional Climate Center

2023 Climate summary for Artesia 6S, New Mexico (290600). Available at: <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?nm0600>. Accessed June 2023.

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## NMCRIS Investigation Abstract Form (NIAF)

**NMCRIS Activity No. 1 5 3 1 4 6**

### Methodology

#### Percent Ground Visibility

**Ground Visibility:** 76-99%

The survey area is within an area of heavy oil and gas exploration, and impacted by multiple access roads, a well pad, surface flow lines, and subsurface gas lines. Disturbances include animal burrows, cattle grazing, water erosion, and wind erosion. The project area is located on a slight southeast-facing slope of stabilized dunes less than one meter high. Natural gravels are present throughout and vegetation obscures ground surface visibility to 76 to 99 percent.

#### Attachments (check all appropriate boxes)

- ✓ USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn (required)
- ✓ Copy of NMCRIS Map Check (required)
- ☐ LA Site Forms – new sites (with sketch map & topographic map) if applicable
- ☐ LA Site Forms (update) – previously recorded & unrelocated sites (first 2 pages minimum)
- ✓ List and Description of Isolates, if applicable
- ☐ List and Description of Collections, if applicable

#### Other Attachments

- ✓ Photographs and Log
- ✓ Other attachments **Describe:** Previous site table, previous survey table, ARMS screenshot

## NMCRIS Investigation Abstract Form (NIAF)

**NMCRIS Activity No. 1 5 3 1 4 6**

### Cultural Resource Findings

#### Investigation Results

**Archaeological Sites Discovered and Registered:** 0

**Archaeological Sites Discovered and NOT Registered:** 0

**Previously Recorded Archaeological Sites Revisited (site update form required):** 0

**Previously Recorded Archaeological Sites Not Relocated (site update form required):** 0

**Total Archaeological Sites (visited & recorded):** 0

**Total Isolates Recorded:** 2

✓ Non-Selective Isolate Recording

**HCPI Properties Discovered and Registered:** 0

**HCPI Properties Discovered And NOT Registered:** 0

**Previously Recorded HCPI Properties Revisited:** 0

**Previously Recorded HCPI Properties NOT Relocated:** 0

**Total HCPI Properties (visited & recorded, including acequias):** 0

**If No Cultural Resources Found, Discuss Why:**

The very small size of the project area, as well as the project location; in an area of intensive oil and gas exploration make the presence of cultural materials unlikely. In addition, bioturbation from native animals and cattle has likely destroyed or displaced previously existing cultural resources.

#### Management Summary

SLO cultural resources preservation efforts requires that an archaeological survey be conducted to current standards for the APE pursuant to and in compliance with New Mexico Administrative Code (NMAC) 4.10.15 and 19.2.24 to ensure that cultural properties are not inadvertently excavated, harmed, or destroyed by any person.

#### Summary:

SWCA conducted an intensive pedestrian survey for the COG-GJ West Coop South TB remediation project, covering 8.81 acres (3.56 ha) on lands managed by the NM SLO in Eddy County 20 miles east of Artesia, New Mexico. No additional investigations or treatments are recommended regarding the current undertaking. If subsurface cultural materials are encountered during remediation, all work should cease, and the NM SLO should be notified immediately.



## NMCRIS Investigation Abstract Form (NIAF)

### NMCRIS Activity No. 1 5 3 1 4 6

No sites were found or recorded within the survey area. Two isolated occurrences (IO) were discovered. IO 1 consists of three quartzite pieces of lithic debitage and six coke bottle glass pieces. IO 2 consists of a chert tested cobble and a lithic debitage piece of quartzite with a cortical platform that measures 3-4 cm.

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NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 1 5 3 1 4 6

Attachments

Documents:

Attachment Type	Description	Name	File Type	Size	Upload Date	Upload By
Report/Manuscript	NIAF for 153146	NMCRIS_153146	PDF	XX	16-JUN-2023	Lawrence Walker

## NMCRIS Investigation Abstract Form (NIAF)

**NMCRIS Activity No. 1 5 3 1 4 6**

**Table 1. Previously Recorded Sites within 500 meters (1,640 feet) of the Survey Area**

LA No.	Site Type	Cultural Affiliation	Eligibility
51835	Artifact scatter with features	Unknown (9500 B.C.—A.D. 1840)	No Determination (SHPO No HPD Log No.)
51836	Artifact scatter with features	Unknown (9500 B.C.—A.D. 1840)	Not Eligible (SHPO 2/21/1996 HPD Log No. 48994)
70109	Hearth	Unknown (9500 B.C.—A.D. 1840)	Eligible (SHPO 9/14/2021 HPD Log No. 115829)
75706	Artifact scatter	Anasazi (A.D. 1—1600)	Not Listed
139876	Artifact scatter with features	Mogollon (A.D 750—1175)	Unevaluated (SHPO No HPD Log No.)
139877	Artifact scatter with features	Unknown Aboriginal (9500 B.C.—A.D.1850)	Eligible, Criterion D (SHPO 9/14/2021 HPD Log No. 115829)
145445	Artifact scatter	Mogollon (A.D 200—1400)	Unevaluated (SHPO 1/11/2005 HPD Log No. 73214)
150947	Artifact scatter	Unknown Aboriginal (9500 B.C.—A.D.1880)	Eligible, Criterion D (SHPO 3/7/2007 HPD Log No. 77249)

**Table 2. Previously Conducted Cultural Resource Investigations within 500 meters (1,640 feet) of the Survey Area**

NMCRIS Activity No.	Performing Agency	Lead Agency	Report Date	No. Cultural Resources Visited
148568	Lone Mountain Archaeological Services	Bureau of Land Management Carlsbad Field Office	8/16/2021	7



**NMCRIS Investigation Abstract Form (NIAF)****NMCRIS Activity No. 1 5 3 1 4 6****Table 3. Isolated Occurrences Observed Within the Survey Area**

IO Number	Description	UTM NAD 1983 Coordinates	
		Easting	Northing
1	Three pieces of quartzite lithic debitage Six glass coke bottle pieces	586798	3630543
2	One broken cortical angular shatter piece of quartzite lithic debitage, 3 to 4 cm Tested chert cobble	586741	3630720

IO = Isolated Occurrence

UTM = Universal Transverse Mercator

# NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 1 5 3 1 4 6

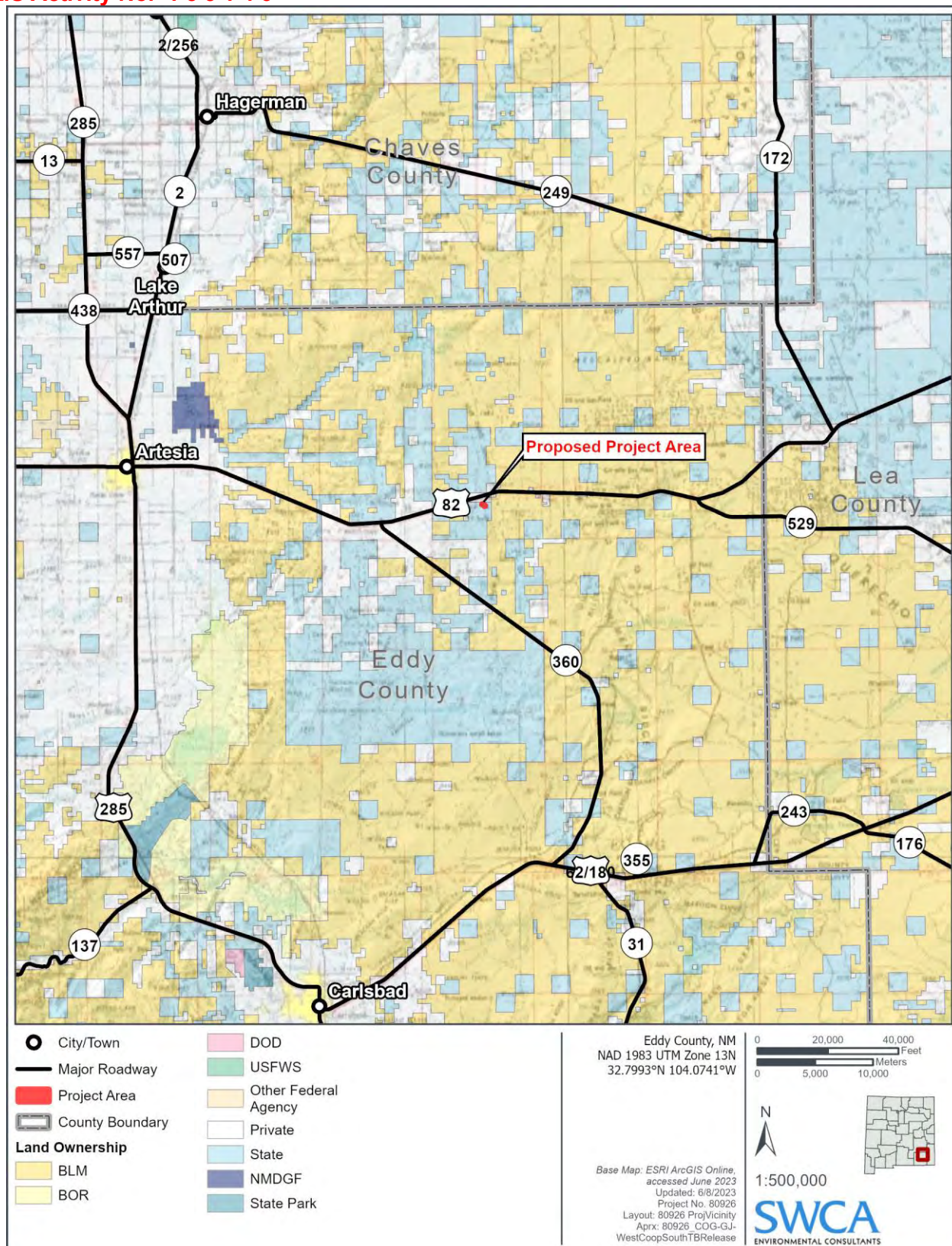


Figure 1. Project vicinity map



# NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 1 5 3 1 4 6

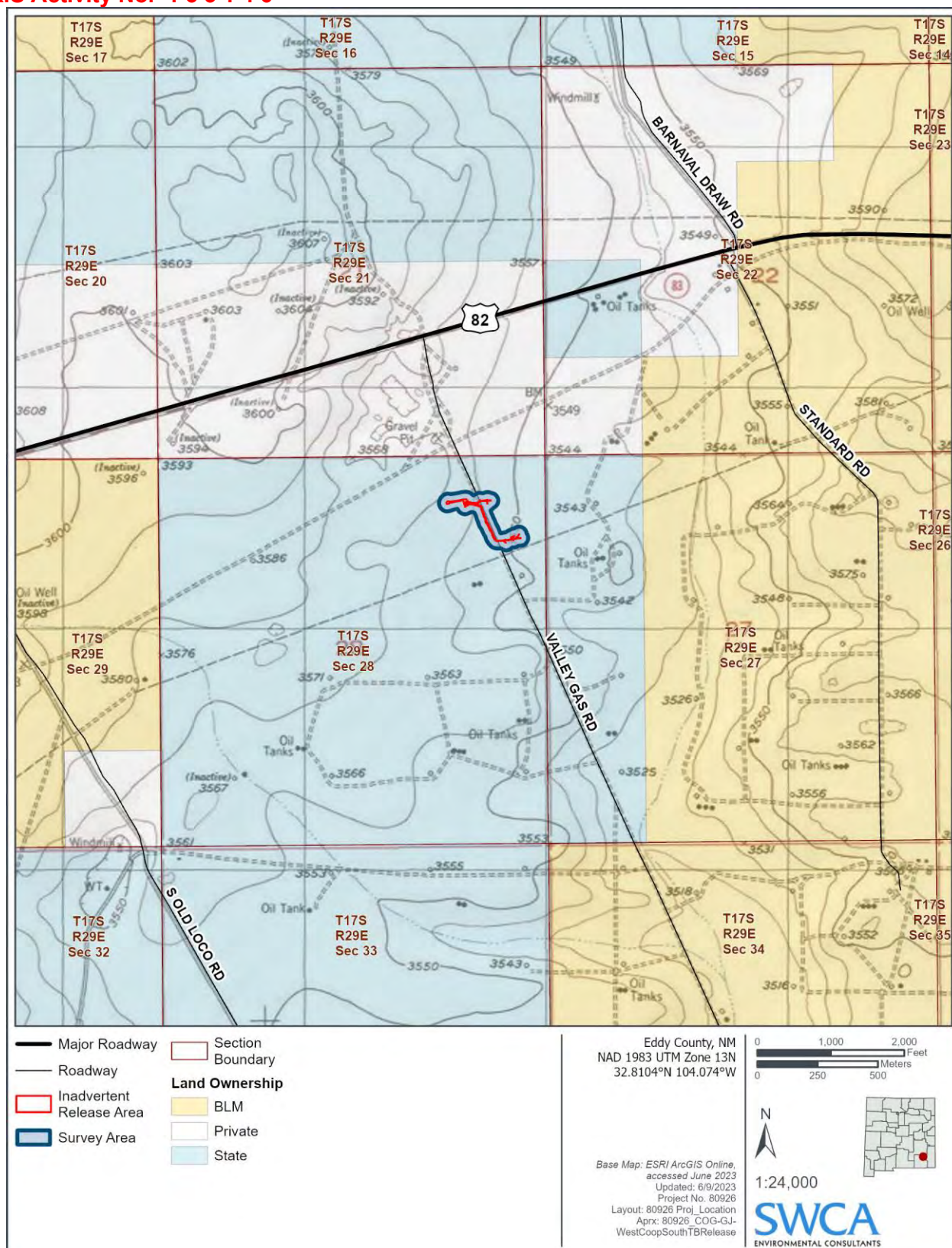


Figure 2. Project location map

Page 16 of 21



# NMCRIS Investigation Abstract Form (NIAF)

NMCRIS Activity No. 1 5 3 1 4 6

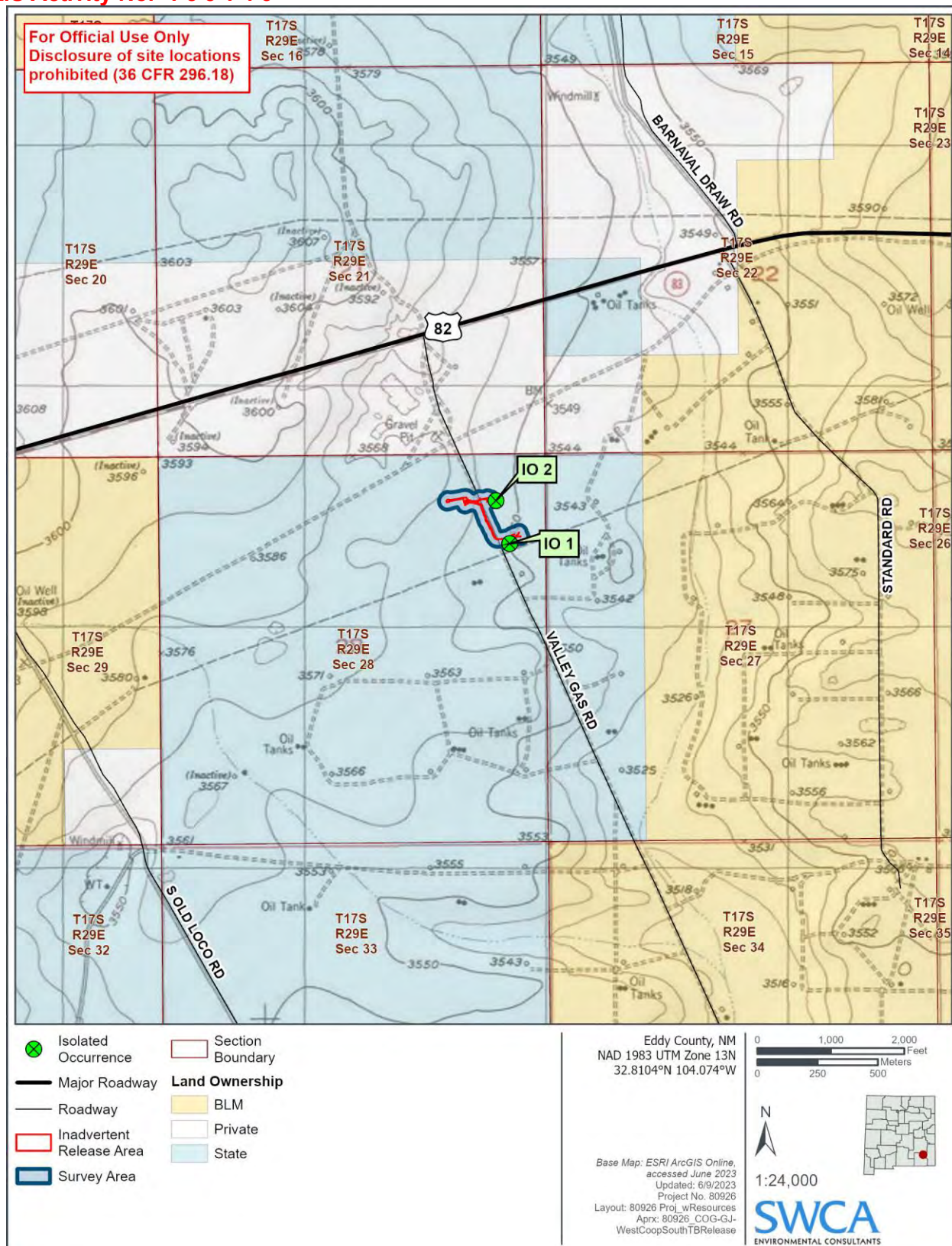


Figure 3. Project location with cultural resources



## NMCRIS Investigation Abstract Form (NIAF)

**NMCRIS Activity No. 1 5 3 1 4 6**



**Figure 4. Project area overview from northwest survey area, facing east (Frame T18-9287).**



**Figure 5. Project area overview from southeast survey area, facing west (Frame T18-8450).**

## NMCRIS Investigation Abstract Form (NIAF)

**NMCRIS Activity No. 1 5 3 1 4 6**



**Figure 6. Overview of location where spill crosses road, facing east (Frame T18-8387).**



**Figure 7. Overview of spill area, facing east (Frame T18-6362).**



## NMCRIS Investigation Abstract Form (NIAF)

**NMCRIS Activity No. 1 5 3 1 4 6**



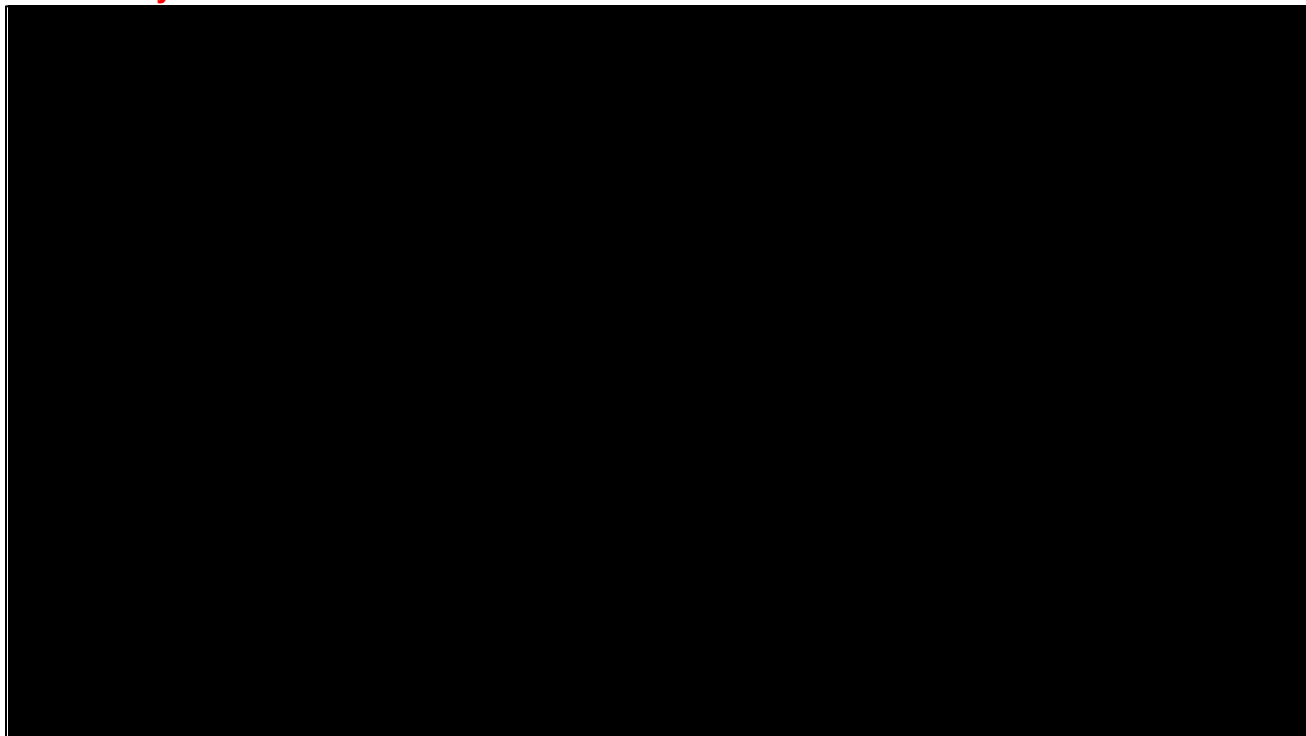
**Figure 8. Project area overview of spill area from southeast end, facing west (Frame T18-5304).**



**Figure 9. Project area overview from northeast survey area, facing west (Frame T18-4401).**

## NMCRIS Investigation Abstract Form (NIAF)

**NMCRIS Activity No. 1 5 3 1 4 6**



**Figure 10. NMCRIS records search results showing more than 500 meters from survey area. Survey area marked by blue filled area. Yellow and brown polygons are previously conducted investigations. Sites are red.**

**Poole, Nicholas**

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**From:** Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>  
**Sent:** Thursday, May 11, 2023 8:05 AM  
**To:** Poole, Nicholas  
**Subject:** RE: [EXTERNAL] Extension Request - Application ID: 165734 (Incident ID nMAP1822950996)

**⚠ CAUTION:** This email originated from an external sender. Verify the source before opening links or attachments. **⚠**

Mr. Poole,  
Your request for an extension for **nMAP1822950996** is approved. The new due date is July 10, 2023.

Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Thank you,  
**Brittany Hall** • Environmental Specialist  
Environmental Bureau Projects Group  
EMNRD - Oil Conservation Division  
1000 Rio Brazos Road | Aztec, NM 87110  
505.517.5333 | [Brittany.Hall@emnrd.nm.gov](mailto:Brittany.Hall@emnrd.nm.gov)  
<http://www.emnrd.nm.gov/ocd/>

---

**From:** Poole, Nicholas <NICHOLAS.POOLE@tetrattech.com>  
**Sent:** Wednesday, May 10, 2023 3:15 PM  
**To:** Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>  
**Subject:** [EXTERNAL] Extension Request - Application ID: 165734 (Incident ID nMAP1822950996)

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

Ms. Hall:

On behalf of ConocoPhillips, Tetra Tech is requesting a 60-day extension (until July 10, 2023) to complete the additional assessment and associated reporting for the GJ West Coop South Tank Battery Release site (nMAP1822950996).

NMOCD rejected the submitted Work Plan for incident ID (n#) nMAP1822950996 for the following reasons:

- **The depth to groundwater has not been adequately determined. When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided in the submission. The responsible party may choose to remediate to the most stringent levels listed in Table 1 of 19.15.29 NMAC in lieu of drilling to determine the depth to groundwater.**
- **Horizontal delineation submitted was incomplete and did not meet the requirements of 19.15.29.11 NMAC. The values for determination of horizontal impact are derived by either approved “background” values or Table I Closure Criteria for releases where groundwater is at a depth of 50 feet or less. This is especially important for “on-pad” releases to ensure the release did not extend to the “off-pad”/pasture area. A visual footprint on the surface is not sufficient to assess the horizontal extent of the release. Laboratory data must be provided as evidence of delineation efforts. Any sample exceeding approved “background” values or Table**

**I Closure Criteria for releases where groundwater is at a depth of 50 feet or less requires additional samples for horizontal delineation.**

- In the report it states "Pad Area - WBE excavated the top 6" bgs of saturated soil, loaded into dump truck and hauled to Lea Landfill. The pad area was backfilled with non-impacted like material imported to the site and that no further actions will be conducted on the pad with the sample results indicating the pad area is under the Site Closure Criteria." The field screening results show TPH levels below the TPH closure standard at 1' bgs. There is no analytical data that shows TPH is below closure standards. The field results also do not show if GRO+DRO is under the 1,000 mg/kg closure standard.**
- 2RP-4923 closed. Refer to incident #nMAP1822950996 in all future communication.**
- Please submit a complete report through the OCD Permitting website by 03/10/2023.**

The release footprint is located on State Trust lands. As of December 1, 2022 New Mexico State Land Office's Cultural Properties Protection (CPP) Rule is in effect. In tandem with this CPP rule, the NMSLO has begun enforcing application and permitting requirements per Rule 12 (19.2.12 NMAC) for Water/Soil Boring Exploration Permits. Any intrusive activities (i.e. # soil borings to be drilled, sampling to be conducted, etc.) must be permitted through the Water Bureau, Oil, Gas, and Minerals Division, New Mexico State Land Office, even though groundwater is not expected to be encountered at this release site.

Tetra Tech is currently in the process of complying with these rules. The allocation of resources required to complete the cultural survey requirements and the Water/Soil Boring Exploration permit process are demanding and require additional time for coordination with not only regulatory personnel but additional archaeological subcontractors and cultural specialists. ConocoPhillips plans to conduct the assessment in the coming month, as soon as the cultural survey is completed, the archaeological report is submitted and approved by State Land Office Cultural Resources, and the permitting process is completed.

Please let me know if you have any questions or concerns.

Thank you in advance.

Nicholas

**Nicholas Poole** | Project Scientist  
Mobile +1 (512) 560-9064 | [nicholas.poole@tetratech.com](mailto:nicholas.poole@tetratech.com)

**Tetra Tech** | *Leading with Science®* | OGA  
8911 N. Capital of Texas Highway | Bldg. 2, Suite 2310 | Austin, TX 78759 | [tetratech.com](https://www.tetratech.com)

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**Poole, Nicholas**

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**From:** OCDOnline@state.nm.us  
**Sent:** Friday, December 9, 2022 10:59 AM  
**To:** Beauvais, Charles R  
**Subject:** [EXTERNAL]The Oil Conservation Division (OCD) has rejected the application, Application ID: 165734

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

To whom it may concern (c/o Charles Beauvais for COG OPERATING LLC),

The OCD has rejected the submitted *Internal Manual Incident File Supporting Documentation (ENV)* (IM-BNF), for incident ID (n#) nMAP1822950996, for the following reasons:

- **The depth to groundwater has not been adequately determined. When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided in the submission. The responsible party may choose to remediate to the most stringent levels listed in Table 1 of 19.15.29 NMAC in lieu of drilling to determine the depth to groundwater.**
- **Horizontal delineation submitted was incomplete and did not meet the requirements of 19.15.29.11 NMAC. The values for determination of horizontal impact are derived by either approved "background" values or Table I Closure Criteria for releases where groundwater is at a depth of 50 feet or less. This is especially important for "on-pad" releases to ensure the release did not extend to the "off-pad"/pasture area. A visual footprint on the surface is not sufficient to assess the horizontal extent of the release. Laboratory data must be provided as evidence of delineation efforts. Any sample exceeding approved "background" values or Table I Closure Criteria for releases where groundwater is at a depth of 50 feet or less requires additional samples for horizontal delineation.**
- **In the report it states "Pad Area - WBE excavated the top 6" bgs of saturated soil, loaded into dump truck and hauled to Lea Landfill. The pad area was backfilled with non-impacted like material imported to the site and that no further actions will be conducted on the pad with the sample results indicating the pad area is under the Site Closure Criteria." The field screening results show TPH levels below the TPH closure standard at 1' bgs. There is no analytical data that shows TPH is below closure standards. The field results also do not show if GRO+DRO is under the 1,000 mg/kg closure standard.**
- **2RP-4923 closed. Refer to incident #nMAP1822950996 in all future communication.**
- **Please submit a complete report through the OCD Permitting website by 03/10/2023.**

The rejected IM-BNF can be found in the OCD Online: Permitting - Action Status, under the Application ID: 165734. 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 IM-BNF.

Thank you,  
Brittany Hall  
Projects Environmental Specialist - A  
505-517-5333  
Brittany.Hall@emnrd.nm.gov

**New Mexico Energy, Minerals and Natural Resources Department**

1220 South St. Francis Drive

Santa Fe, NM 87505

**Poole, Nicholas**

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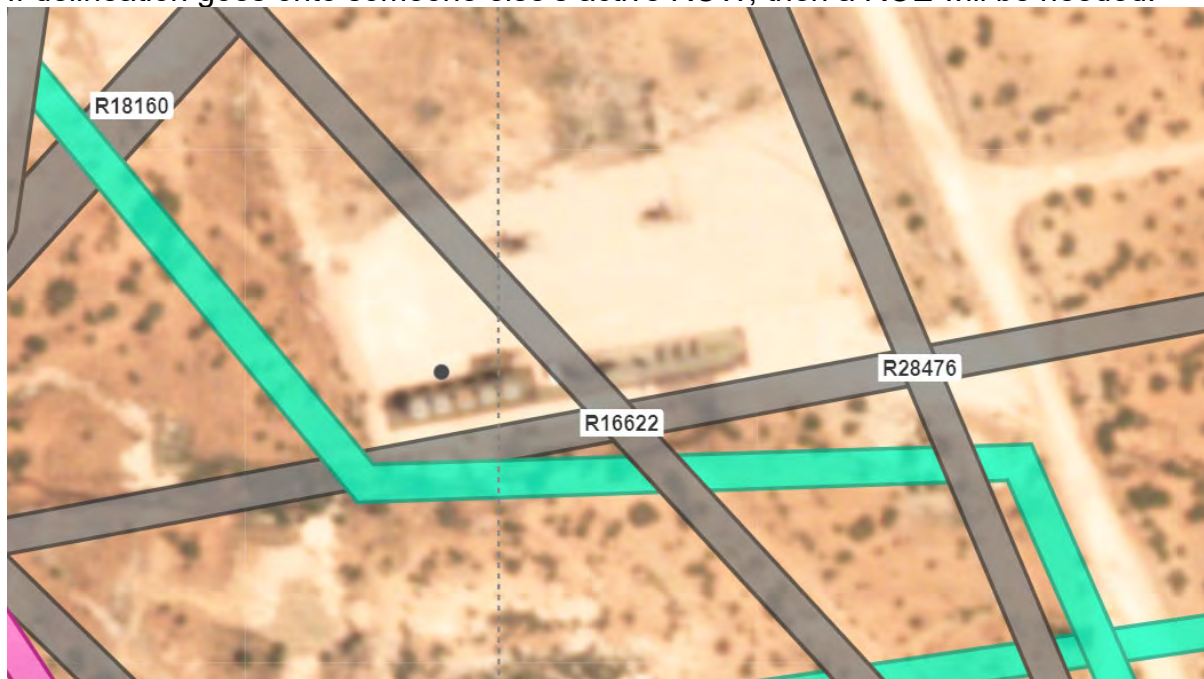
**From:** Knight, Tami C. <tknight@slo.state.nm.us>  
**Sent:** Monday, September 11, 2023 9:31 AM  
**To:** Chama, Sam  
**Subject:** RE: GJ West Coop South Tank Battery - DOR 12/12/2017 - nMAP1822950996

⚠ **CAUTION:** This email originated from an external sender. Verify the source before opening links or attachments. ⚠

Sam

Based on our phone conversation last week, as long as the continued delineation remains within the boundary of COG's active O&G lease, there is no need to request approval from ECO for continued delineation activities. We understand that delineation plans are just plans, and that stepping out will likely occur.

1. Stay within COG's active O&G lease
2. If delineation goes onto someone else's active ROW, then a ROE will be needed.



3. Maintain compliance with CPP Rule and any biological/wildlife restrictions that may be in that area.

Other than 1-3..you are free to delineate to your hearts content, in the upper 30 feet 😊

Tami

---

**From:** Knight, Tami C.  
**Sent:** Monday, August 28, 2023 10:12 AM

To: 'Chama, Sam' <SAM.CHAMA@tetrattech.com>  
Subject: RE: GJ West Coop South Tank Battery - DOR 12/12/2017 - nMAP1822950996

Sam

I am not seeing a revised narrative workplan that was submitted to NMOCD. Is this email the revised workplan?

Tami

---

From: Chama, Sam <[SAM.CHAMA@tetrattech.com](mailto:SAM.CHAMA@tetrattech.com)>  
Sent: Monday, August 21, 2023 4:23 PM  
To: Knight, Tami C. <[tknight@slo.state.nm.us](mailto:tknight@slo.state.nm.us)>; SLO Spills <[spills@slo.state.nm.us](mailto:spills@slo.state.nm.us)>  
Cc: Llull, Christian <[Christian.Llull@tetrattech.com](mailto:Christian.Llull@tetrattech.com)>  
Subject: [EXTERNAL] RE: GJ West Coop South Tank Battery - DOR 12/12/2017 - nMAP1822950996

Apologies, I forgot to attach figures as well as a full set of tables.

Thank you,

**Sam Chama, G.I.T.** | Staff Geologist  
Mobile +1 (509) 768-2191 | Business +1 (512) 338-1667 | Fax +1 (512) 338-1331 | [sam.chama@tetrattech.com](mailto:sam.chama@tetrattech.com)  
**Tetra Tech** | *Leading with Science®* | OGA  
8911 N. Capital of Texas Highway | Bldg. 2, Suite 2310 | Austin, TX 78759 | [tetrattech.com](http://tetrattech.com)

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---

From: Chama, Sam  
Sent: Monday, August 21, 2023 5:01 PM  
To: Knight, Tami C. <[tknight@slo.state.nm.us](mailto:tknight@slo.state.nm.us)>; [eco@slo.state.nm.us](mailto:eco@slo.state.nm.us)  
Cc: Llull, Christian <[Christian.Llull@tetrattech.com](mailto:Christian.Llull@tetrattech.com)>  
Subject: FW: GJ West Coop South Tank Battery - DOR 12/12/2017 - nMAP1822950996

Hi Tami,

Prior to the NMOCD rejection of the previously submitted workplan, COP took a proactive approach to assessment of this legacy release in November of 2022. Samples were obtained from selected intervals throughout the release extent to evaluate the residual contaminants of concern in the footprint. See attached figure and assessment table for details on sample locations, sample depths, and results of analytical lab testing of soil samples.

Since the rejection of the original work plan (White Buffalo Environmental, Inc. 2018), new groundwater data has been located (see attached reference 'GJ West Coop Groundwater Data'). The NMOCD's comments included with the rejection of the work plan reference an inadequate depth to groundwater, inadequate horizontal delineation based on previously established RRALs, and screening values above previously established RRALs. The new groundwater record addresses NMOCD's first comment from the rejected work plan, while also setting RRALs for a depth to groundwater at 51-100 feet.



- 1) Attached is the redacted cultural survey report.
- 2) Tetra Tech, on behalf of ConocoPhillips, now proposes to install:
  - a. One boring with a hand auger (SP-17-22) to a depth of 2 feet below the ground surface, collecting samples on 1-foot centers at 0-1 foot bgs and 1-2 foot bgs, or until vertical delineation has been achieved.
    - i. Four borings with a hand auger (SP-17-22-1 through SP-17-22-4) to a depth of 1 foot below the ground surface, collecting samples at 0-1 foot bgs for horizontal delineation around established SP-17-22 location.
  - b. One boring with a hand auger (SW-30-23) to a depth of 1 foot below the ground surface, collecting samples on a 1-foot center at 0-1 foot bgs to delineate horizontally past sample location SW-30.
  - c. Two borings with a hand auger (SP-11-23 and SP-12-23) to a depth of 1 foot below the ground surface, collecting samples on 1-foot centers at 0-1 foot bgs and 1-2 foot bgs, or until vertical delineation has been achieved. Boring locations will be at previous sample locations SP-11 and SP-12 respectively.
- 3) Screening samples will be collected at proposed sampling depths and tested with an exstik or PID. Collected samples will be sent to an accredited analytical laboratory for to be analyzed for chloride content (Method SM4500CL-B), BTEX (Method 8021B), and TPH (Method 8015M).

As you have previously approved the WBE work plan for further delineation, we assume that we are cleared to move forward with additional assessment, please confirm.

Thank you,

**Sam Chama, G.I.T.** | Staff Geologist

Mobile +1 (509) 768-2191 | Business +1 (512) 338-1667 | Fax +1 (512) 338-1331 | [sam.chama@tetrattech.com](mailto:sam.chama@tetrattech.com)

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**TETRA TECH**

**From:** Knight, Tami C. <[tknight@slo.state.nm.us](mailto:tknight@slo.state.nm.us)>

**Sent:** Monday, June 26, 2023 9:40 AM

**To:** Poole, Nicholas <[NICHOLAS.POOLE@tetrattech.com](mailto:NICHOLAS.POOLE@tetrattech.com)>

**Cc:** Llull, Christian <[Christian.Llull@tetrattech.com](mailto:Christian.Llull@tetrattech.com)>; Dickerson, Ryan <[Ryan.Dickerson@tetrattech.com](mailto:Ryan.Dickerson@tetrattech.com)>; Chama, Sam

<[SAM.CHAMA@tetrattech.com](mailto:SAM.CHAMA@tetrattech.com)>; SLO Surface ECO <[SLOSurfaceECO@slo.state.nm.us](mailto:SLOSurfaceECO@slo.state.nm.us)>

**Subject:** RE: GJ West Coop South Tank Battery - DOR 12/12/2017 - nMAP1822950996

**⚠ CAUTION:** This email originated from an external sender. Verify the source before opening links or attachments. **⚠**

Good Morning,

ECO has reviewed the below highlighted proposed workplan for further delineation of the subject release. ECO approves the project approach; however, please provide the following information before proceeding with any field work:

1. Documentation that compliance with the CPP Rule has been completed.
2. Details on proposed interval sampling (i.e., laboratory samples will be collected at 1 foot intervals in each of the soil borings or what the actual plan will be)

### 3. Analytical methods and any field screening methods being used in the delineation work.

Also, ECO is reminding clients about biological compliance and reporting especially when earth disturbance is occurring in areas not previously disturbed:

*Reportable spills and releases negatively affect biotic communities. Spills and releases should be reported to a biologist for evaluation of potential impacts to threatened, endangered, and sensitive wildlife and plant species, environmentally sensitive areas, surface waters, cave and karst features, and sensitive soils. The NMSLO Surface Resources Division (SRD) has stipulations and best management practices designed for biological resource conservation and mitigation.*

Thank you,

Tami Knight, CHMM  
Environmental Specialist  
SLO Surface ECO  
Mobile: (505) 670-1638  
[tknight@slo.state.nm.us](mailto:tknight@slo.state.nm.us)




---

**From:** Poole, Nicholas <[NICHOLAS.POOLE@tetrattech.com](mailto:NICHOLAS.POOLE@tetrattech.com)>  
**Sent:** Thursday, May 18, 2023 3:24 PM  
**To:** SLO Spills <[spills@slo.state.nm.us](mailto:spills@slo.state.nm.us)>  
**Cc:** Knight, Tami C. <[tknight@slo.state.nm.us](mailto:tknight@slo.state.nm.us)>; Llull, Christian <[Christian.Llull@tetrattech.com](mailto:Christian.Llull@tetrattech.com)>; Dickerson, Ryan <[Ryan.Dickerson@tetrattech.com](mailto:Ryan.Dickerson@tetrattech.com)>; Chama, Sam <[SAM.CHAMA@tetrattech.com](mailto:SAM.CHAMA@tetrattech.com)>  
**Subject:** [EXTERNAL] GJ West Coop South Tank Battery - DOR 12/12/2017 - nMAP1822950996

Tami,

Below are site details associated with Incident ID nMAP1822950996, which is a release associated with the GJ West Coop South Tank Battery.

#### Incident ID nMAP1822950996 Details:

- Site is in Eddy County, NM.
- Release Location: 32.81101574, -104.07570738
- Land Ownership: State
- The Site is in an area of medium karst potential.
- According to the C-141, the release was discovered on 8/10/2018.
  - Tetra Tech conducted soil sampling of the release area on 9/11/2018.
  - A Work Plan was prepared by White Buffalo Environmental on behalf of COG, dated 10/25/2018.
- The Work Plan was rejected by the NMOCD on 12/9/2022 based on the following comments:
  - *The depth to groundwater has not been adequately determined. When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided in the*

submission. The responsible party may choose to remediate to the most stringent levels listed in Table 1 of 19.15.29 NMAC in lieu of drilling to determine the depth to groundwater.

- Horizontal delineation submitted was incomplete and did not meet the requirements of [19.15.29.11](#) NMAC. The values for determination of horizontal impact are derived by either approved "background" values or Table I Closure Criteria for releases where groundwater is at a depth of 50 feet or less. This is especially important for "on-pad" releases to ensure the release did not extend to the "off-pad"/pasture area. A visual footprint on the surface is not sufficient to assess the horizontal extent of the release. Laboratory data must be provided as evidence of delineation efforts. Any sample exceeding approved "background" values or Table I Closure Criteria for releases where groundwater is at a depth of 50 feet or less requires additional samples for horizontal delineation.
- In the report it states "Pad Area - WBE excavated the top 6" bgs of saturated soil, loaded into dump truck and hauled to Lea Landfill. The pad area was backfilled with non-impacted like material imported to the site and that no further actions will be conducted on the pad with the sample results indicating the pad area is under the Site Closure Criteria." The field screening results show TPH levels below the TPH closure standard at 1' bgs. There is no analytical data that shows TPH is below closure standards. The field results also do not show if GRO+DRO is under the 1,000 mg/kg closure standard.
- 2RP-4923 closed. Refer to incident #nMAP1822950996 in all future communication.
- Please submit a complete report through the OCD Permitting website by 03/10/2023.
- A request for extension was approved by NMOCD for a new due date of July 10, 2023

Based on the NMOCD rejection of the Work Plan, Tetra Tech, on behalf of ConocoPhillips, proposes to install soil borings as shown in the attached .kmz file to complete delineation of the release area.

- Tetra Tech proposes 1 boring within the extent to a maximum depth of 8 feet bgs.
- In addition, Tetra Tech proposes the installation of 4 borings within the extent to a maximum depth of 5 feet bgs.
- In addition, Tetra tech proposes the installation of 13 borings within the extent to a maximum depth of 2 feet bgs.

**Based on the above site details and proposed boring locations, is Tetra Tech cleared to move forward with the release assessment?**

Thanks,

**Nicholas Poole** | Project Scientist  
Mobile +1 (512) 560-9064 | [nicholas.poole@tetrattech.com](mailto:nicholas.poole@tetrattech.com)

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## **APPENDIX C**

### **Site Characterization Data**





# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">RA 11807 POD1</a>	RA	ED		1	2	3	22	17S	29E	587360	3631585	1045	131	76	55

Average Depth to Water: **76 feet**

Minimum Depth: **76 feet**

Maximum Depth: **76 feet**

Record Count: 1

### UTM NAD83 Radius Search (in meters):

**Easting (X):** 586743

**Northing (Y):** 3630740.96

**Radius:** 1200

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

10/3/22 11:18 AM

Page 1 of 1

WATER COLUMN/ AVERAGE  
DEPTH TO WATER

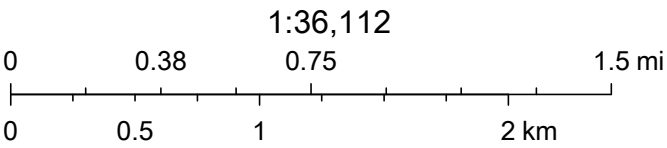
# OCD Karst Potential Map



9/23/2022, 3:46:12 PM

Karst Occurrence Potential

- High
- Medium
- Low



BLM, OCD, New Mexico Tech, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., NGA, USGS



# OCD Mineral & Surface Ownership



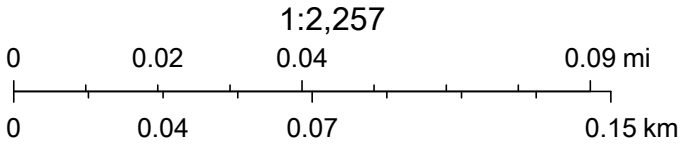
9/26/2023, 10:06:04 AM

Mineral Ownership

N-No minerals are owned by the U.S.

Land Ownership

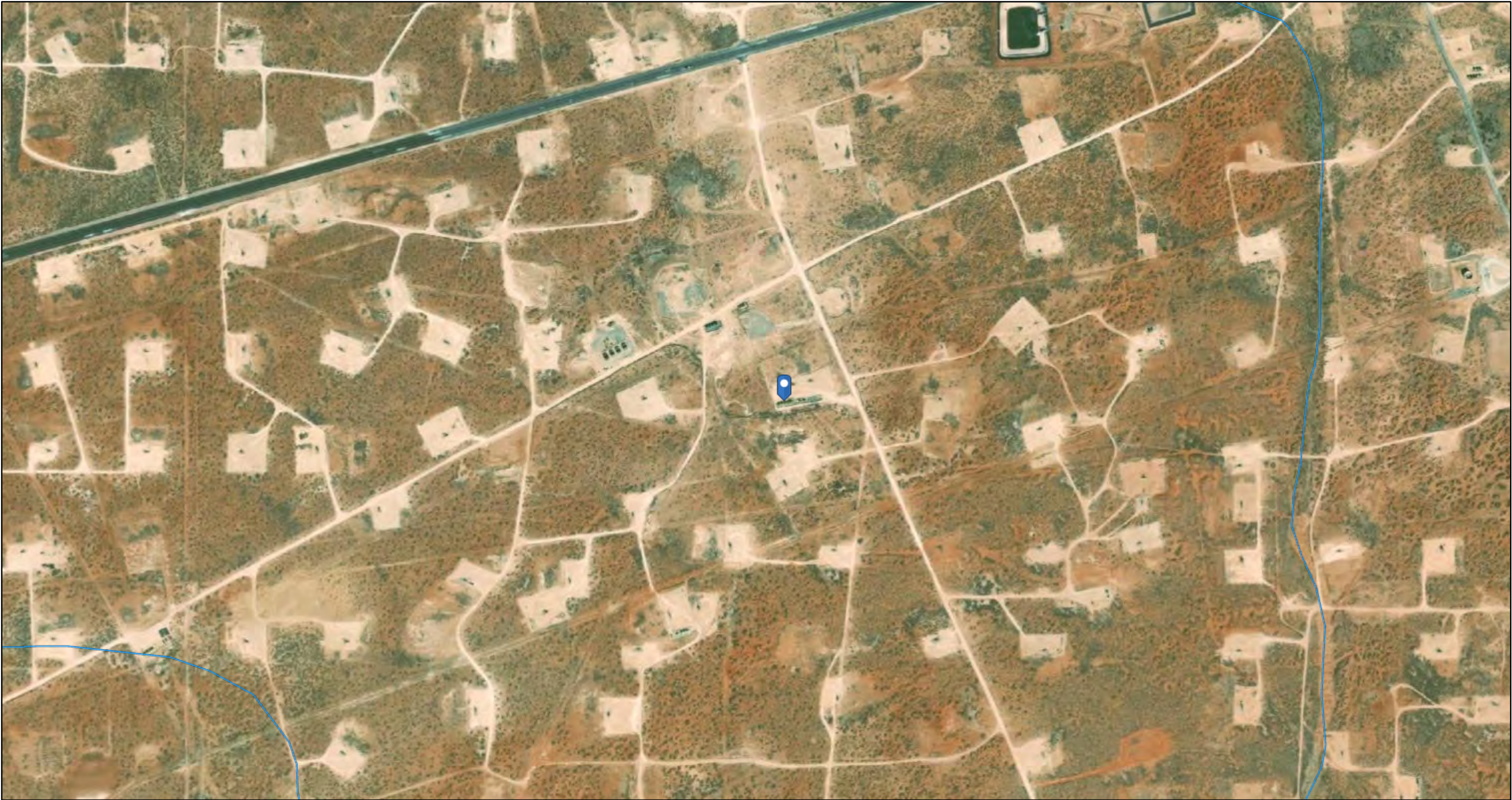
S



U.S. BLM, Maxar, Microsoft, Esri, HERE, Garmin, iPC

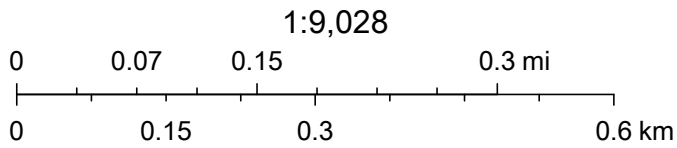


# OCD Waterbodies Map



9/23/2022, 3:49:17 PM

— OSE Streams



Esri, HERE, Garmin, GeoTechnologies, Inc., Maxar, NM  
OSE



## **APPENDIX D**

# **Photographic Documentation**



TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	Site signage, GJ West Coop Unit #153.	1
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	Site signage, GJ West Coop Unit #170.	2
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022





TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View southwest of lease pad, towards tank battery & approximate release point.	3
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022

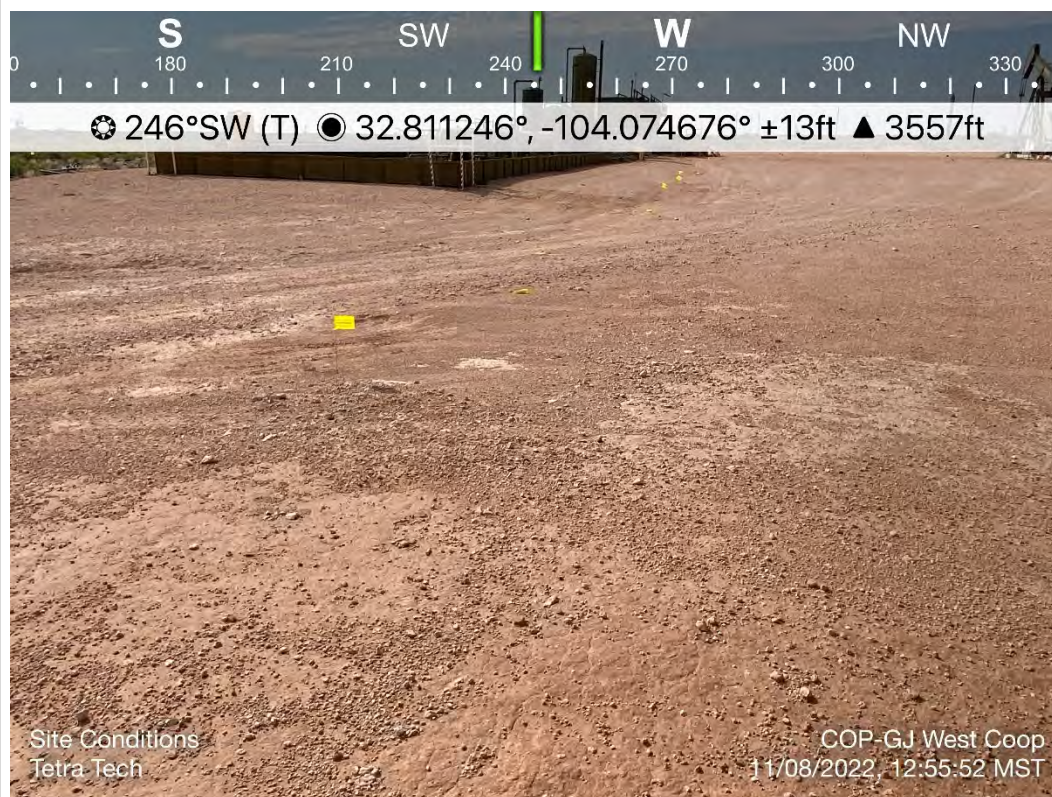


TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View east of the release area & lease pad. Various subsurface utilities present.	4
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022



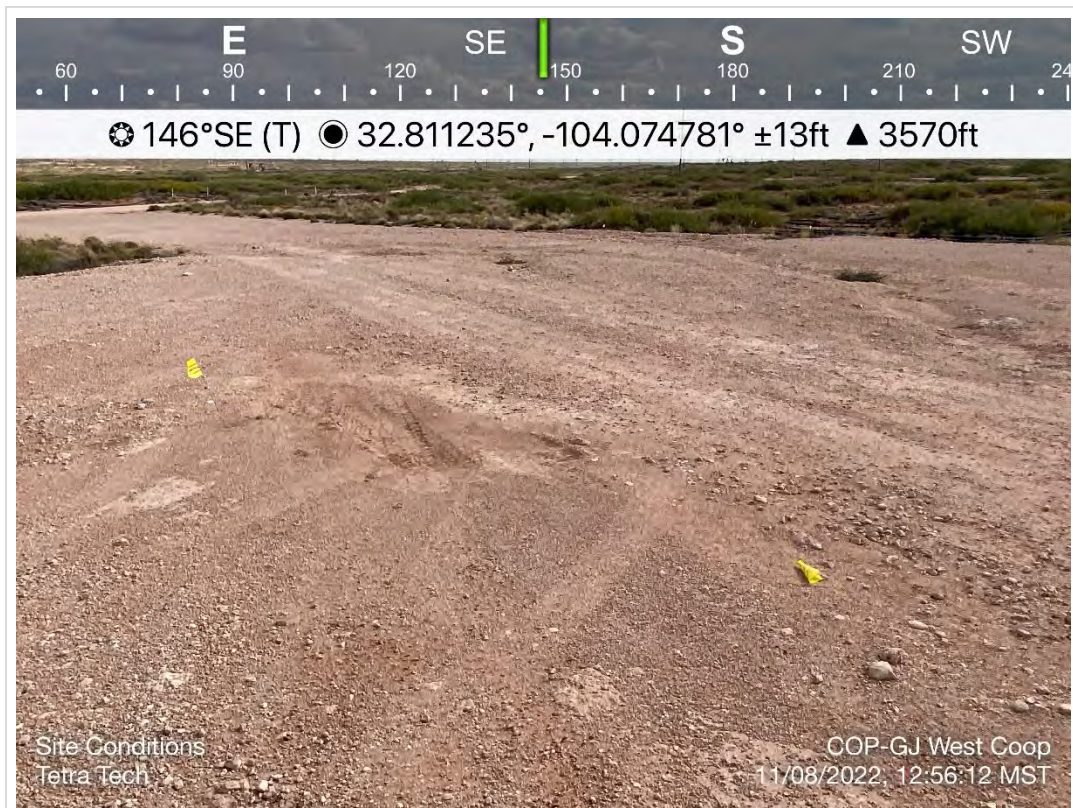


TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View southwest of the release area and lease pad. Subsurface Line present.	5
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View west of the release area and lease pad. Subsurface line present.	6
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022



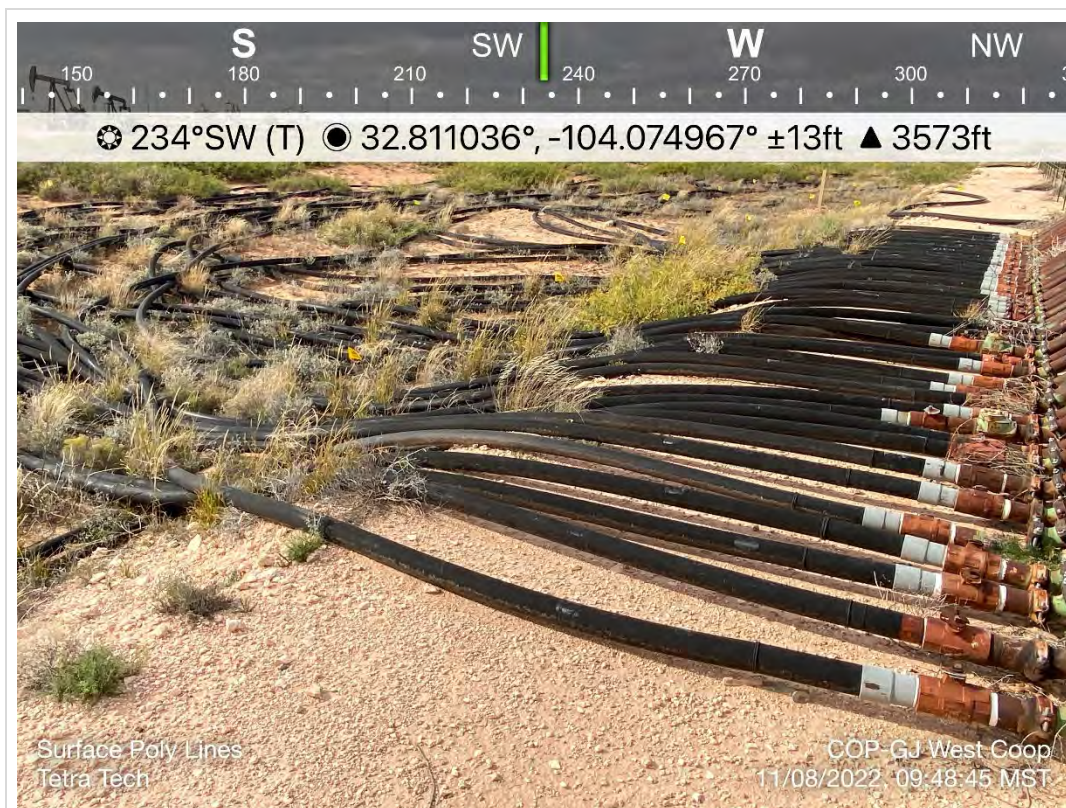


TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View southeast of release area & lease road/site entrance.	7
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022

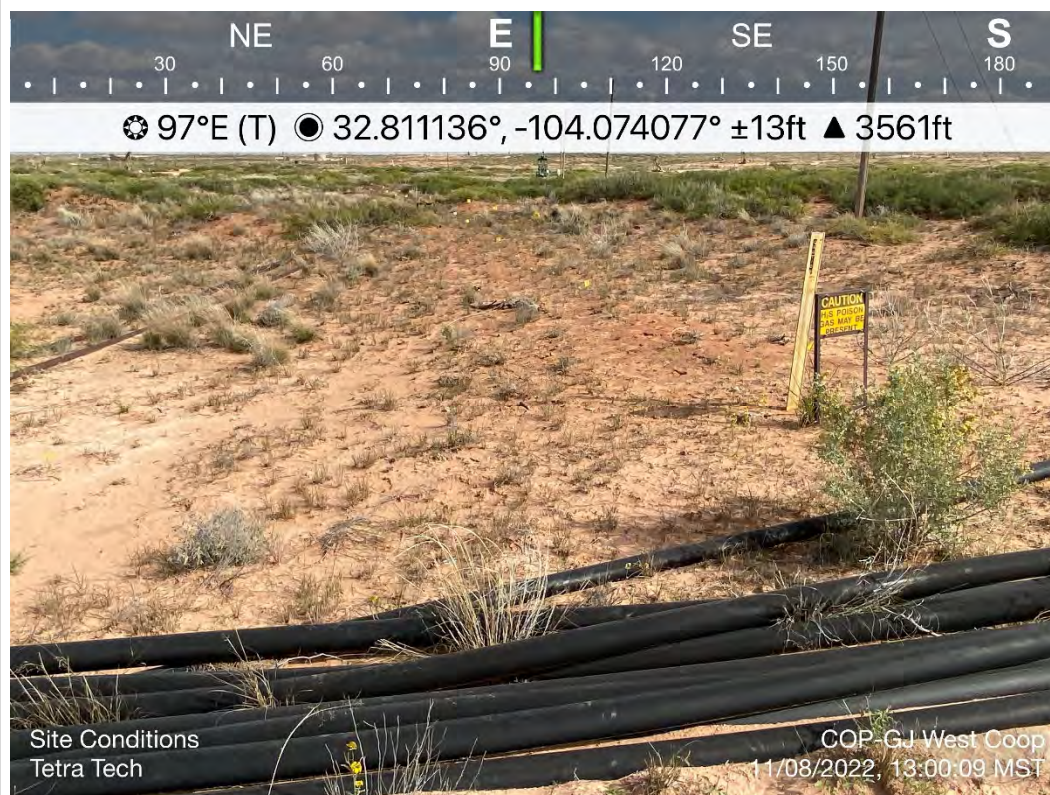


TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View west of release area, lease road/site entrance.	8
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022





TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View southwest from the corner of the lease pad. Poly lines from southern pasture into on-site header.	9
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View east of release area across lease road. Surface lines and subsurface line with vegetation present	10
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022





TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View west of the release area in eastern pasture, across lease road. Subsurface lines & vegetation present.	11
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View south of the release area, along lease road. Vegetation present.	12
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022





TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View southeast of the release area, along lease road. Vegetation present.	13
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View northwest of the release area, along lease road. Vegetation present.	14
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022





TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View east of the southeastern portion of the release area. Surface & subsurface lines present. Sparse vegetation.	15
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022

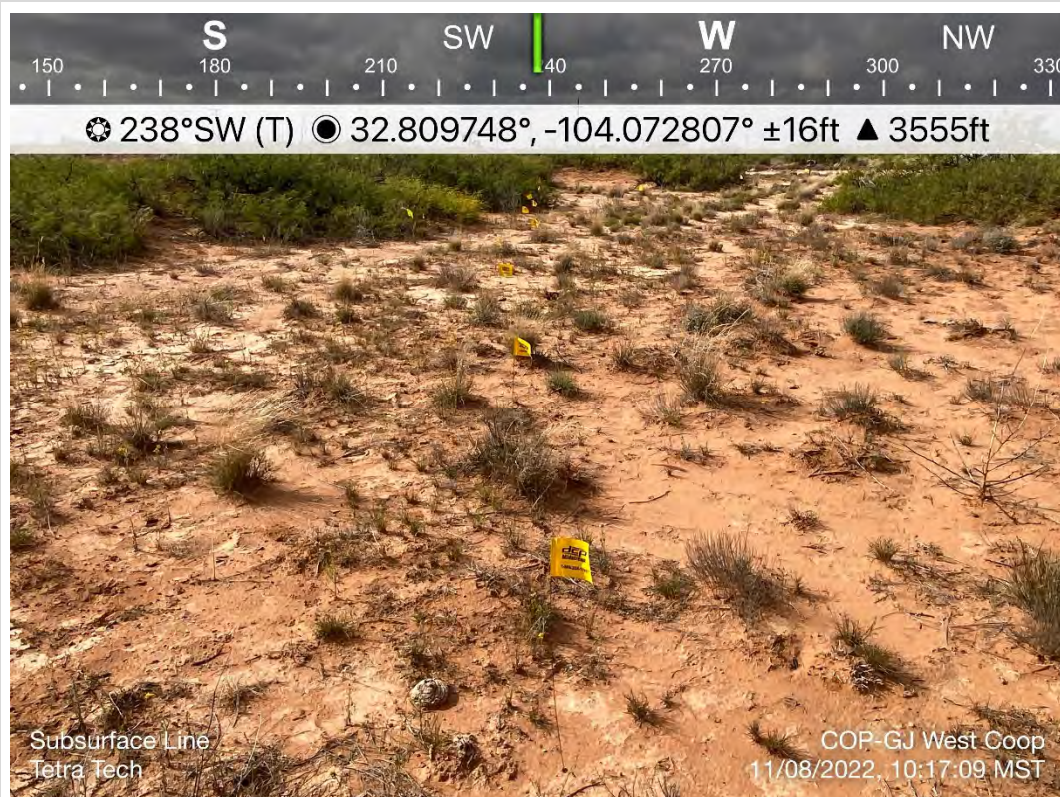


TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View west. Southeastern area of the release extent. Surface TPH staining & sparse vegetation present.	16
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022





TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View west of the southeastern portion of the release area. Sparse vegetation present.	17
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02848	DESCRIPTION	View southwest. Southern area of the release extent; Subsurface Plains Pipeline, vegetated.	18
	SITE NAME	ConocoPhillips GJ West Coop South TB Release	11/08/2022

## **APPENDIX E**

### **Analytical Laboratory Data**



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

November 14, 2022

CHRISTIAN LLULL

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: GJ WEST LOOP SOUTH TB RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 11/08/22 14:38.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager





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

**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SP 2 - 22 ( 0-1' ) (H225272-01)**

BTEX 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/12/2022	ND	1.64	82.2	2.00	14.5		
Toluene*	<0.050	0.050	11/12/2022	ND	1.70	85.1	2.00	14.8		
Ethylbenzene*	<0.050	0.050	11/12/2022	ND	1.72	86.1	2.00	12.3		
Total Xylenes*	<0.150	0.150	11/12/2022	ND	5.27	87.8	6.00	12.9		
Total BTEX	<0.300	0.300	11/12/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.2 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 79.3 % 45.3-161

Surrogate: 1-Chlorooctadecane 88.0 % 46.3-178

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SP 4 - 22 ( 1-2' ) (H225272-02)**

BTX 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/12/2022	ND	1.64	82.2	2.00	14.5		
Toluene*	<0.050	0.050	11/12/2022	ND	1.70	85.1	2.00	14.8		
Ethylbenzene*	<0.050	0.050	11/12/2022	ND	1.72	86.1	2.00	12.3		
Total Xylenes*	<0.150	0.150	11/12/2022	ND	5.27	87.8	6.00	12.9		
Total BTX	<0.300	0.300	11/12/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.2 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	96.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 78.6 % 45.3-161

Surrogate: 1-Chlorooctadecane 88.6 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SP 7 - 22 ( 0-1' ) (H225272-03)**

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/12/2022	ND	1.64	82.2	2.00	14.5		
Toluene*	<0.050	0.050	11/12/2022	ND	1.70	85.1	2.00	14.8		
Ethylbenzene*	<0.050	0.050	11/12/2022	ND	1.72	86.1	2.00	12.3		
Total Xylenes*	<0.150	0.150	11/12/2022	ND	5.27	87.8	6.00	12.9		
Total BTEx	<0.300	0.300	11/12/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.2 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 90.3 % 45.3-161

Surrogate: 1-Chlorooctadecane 101 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SP 11 - 22 ( 0-1' ) (H225272-04)**

BTX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/12/2022	ND	1.64	82.2	2.00	14.5	
Toluene*	<0.050	0.050	11/12/2022	ND	1.70	85.1	2.00	14.8	
Ethylbenzene*	<0.050	0.050	11/12/2022	ND	1.72	86.1	2.00	12.3	
Total Xylenes*	<0.150	0.150	11/12/2022	ND	5.27	87.8	6.00	12.9	
Total BTX	<0.300	0.300	11/12/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 96.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 108 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SP 11 - 22 ( 2-3' ) (H225272-05)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/09/2022	ND	1.96	98.2	2.00	4.35		
Toluene*	<0.050	0.050	11/09/2022	ND	2.19	110	2.00	4.93		
Ethylbenzene*	<0.050	0.050	11/09/2022	ND	2.07	104	2.00	4.31		
Total Xylenes*	<0.150	0.150	11/09/2022	ND	6.27	104	6.00	4.94		
Total BTEx	<0.300	0.300	11/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 85.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 93.7 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SP 13 - 22 ( 1-2' ) (H225272-06)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/09/2022	ND	1.96	98.2	2.00	4.35		
Toluene*	<0.050	0.050	11/09/2022	ND	2.19	110	2.00	4.93		
Ethylbenzene*	<0.050	0.050	11/09/2022	ND	2.07	104	2.00	4.31		
Total Xylenes*	<0.150	0.150	11/09/2022	ND	6.27	104	6.00	4.94		
Total BTEx	<0.300	0.300	11/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 87.0 % 45.3-161

Surrogate: 1-Chlorooctadecane 96.8 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SP 16 - 22 ( 0-1' ) (H225272-07)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/09/2022	ND	1.96	98.2	2.00	4.35		
Toluene*	<0.050	0.050	11/09/2022	ND	2.19	110	2.00	4.93		
Ethylbenzene*	<0.050	0.050	11/09/2022	ND	2.07	104	2.00	4.31		
Total Xylenes*	<0.150	0.150	11/09/2022	ND	6.27	104	6.00	4.94		
Total BTEx	<0.300	0.300	11/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 88.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 99.9 % 46.3-178

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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SP 16 - 22 ( 2-3' ) (H225272-08)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/09/2022	ND	1.96	98.2	2.00	4.35		
Toluene*	<0.050	0.050	11/09/2022	ND	2.19	110	2.00	4.93		
Ethylbenzene*	<0.050	0.050	11/09/2022	ND	2.07	104	2.00	4.31		
Total Xylenes*	<0.150	0.150	11/09/2022	ND	6.27	104	6.00	4.94		
Total BTEX	<0.300	0.300	11/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 86.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 94.8 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SP 16 - 22 ( 5-6' ) (H225272-09)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/09/2022	ND	1.96	98.2	2.00	4.35		
Toluene*	<0.050	0.050	11/09/2022	ND	2.19	110	2.00	4.93		
Ethylbenzene*	<0.050	0.050	11/09/2022	ND	2.07	104	2.00	4.31		
Total Xylenes*	<0.150	0.150	11/09/2022	ND	6.27	104	6.00	4.94		
Total BTEx	<0.300	0.300	11/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 96.1 % 45.3-161

Surrogate: 1-Chlorooctadecane 107 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SP 17 - 22 ( 0-1' ) (H225272-10)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/09/2022	ND	1.96	98.2	2.00	4.35		
Toluene*	<0.050	0.050	11/09/2022	ND	2.19	110	2.00	4.93		
Ethylbenzene*	<0.050	0.050	11/09/2022	ND	2.07	104	2.00	4.31		
Total Xylenes*	<0.150	0.150	11/09/2022	ND	6.27	104	6.00	4.94		
Total BTEx	<0.300	0.300	11/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	771	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	177	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 101 % 45.3-161

Surrogate: 1-Chlorooctadecane 197 % 46.3-178

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SP 18 - 22 ( 0-1' ) (H225272-11)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/09/2022	ND	1.96	98.2	2.00	4.35		
Toluene*	<0.050	0.050	11/09/2022	ND	2.19	110	2.00	4.93		
Ethylbenzene*	<0.050	0.050	11/09/2022	ND	2.07	104	2.00	4.31		
Total Xylenes*	<0.150	0.150	11/09/2022	ND	6.27	104	6.00	4.94		
Total BTEx	<0.300	0.300	11/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/10/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/10/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/10/2022	ND					

Surrogate: 1-Chlorooctane 100 % 45.3-161

Surrogate: 1-Chlorooctadecane 108 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SP 21 - 22 ( 1-2' ) (H225272-12)**

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/09/2022	ND	1.96	98.2	2.00	4.35		
Toluene*	<0.050	0.050	11/09/2022	ND	2.19	110	2.00	4.93		
Ethylbenzene*	<0.050	0.050	11/09/2022	ND	2.07	104	2.00	4.31		
Total Xylenes*	<0.150	0.150	11/09/2022	ND	6.27	104	6.00	4.94		
Total BTEX	<0.300	0.300	11/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 90.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 100 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SW 26 - 22 ( 1-2' ) (H225272-13)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/09/2022	ND	1.96	98.2	2.00	4.35		
Toluene*	<0.050	0.050	11/09/2022	ND	2.19	110	2.00	4.93		
Ethylbenzene*	<0.050	0.050	11/09/2022	ND	2.07	104	2.00	4.31		
Total Xylenes*	<0.150	0.150	11/09/2022	ND	6.27	104	6.00	4.94		
Total BTEx	<0.300	0.300	11/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 84.4 % 45.3-161

Surrogate: 1-Chlorooctadecane 92.1 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SW 26 - 22 ( 4-5' ) (H225272-14)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/09/2022	ND	1.96	98.2	2.00	4.35		
Toluene*	<0.050	0.050	11/09/2022	ND	2.19	110	2.00	4.93		
Ethylbenzene*	<0.050	0.050	11/09/2022	ND	2.07	104	2.00	4.31		
Total Xylenes*	<0.150	0.150	11/09/2022	ND	6.27	104	6.00	4.94		
Total BTEx	<0.300	0.300	11/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 85.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 93.2 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SW 32 - 22 ( 0-1' ) (H225272-15)**

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/09/2022	ND	1.90	95.1	2.00	3.00		
Toluene*	<0.050	0.050	11/09/2022	ND	1.97	98.6	2.00	4.30		
Ethylbenzene*	<0.050	0.050	11/09/2022	ND	1.97	98.5	2.00	2.17		
Total Xylenes*	<0.150	0.150	11/09/2022	ND	6.02	100	6.00	1.91		
Total BTEx	<0.300	0.300	11/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	11/09/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 84.0 % 45.3-161

Surrogate: 1-Chlorooctadecane 91.7 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	11/08/2022	Sampling Date:	11/08/2022
Reported:	11/14/2022	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	** (See Notes)
Project Number:	212C-MD 02848	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO NM		

**Sample ID: SW 32 - 22 ( 2-3' ) (H225272-16)**

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/09/2022	ND	1.90	95.1	2.00	3.00		
Toluene*	<0.050	0.050	11/09/2022	ND	1.97	98.6	2.00	4.30		
Ethylbenzene*	<0.050	0.050	11/09/2022	ND	1.97	98.5	2.00	2.17		
Total Xylenes*	<0.150	0.150	11/09/2022	ND	6.02	100	6.00	1.91		
Total BTEx	<0.300	0.300	11/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	11/09/2022	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	200	100	200	0.699	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	179	89.3	200	0.818	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 78.4 % 45.3-161

Surrogate: 1-Chlorooctadecane 83.9 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager

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### Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-04	The RPD for the BS/BSD was outside of historical limits.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
BS-3	Blank spike recovery outside of lab established statistical limits, but still within method limits. Data is not adversely affected.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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

---

Celey D. Keene, Lab Director/Quality Manager



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

# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

## BILL TO

## ANALYSIS REQUEST

Company Name: <u>ConocoPhillips</u>		P.O. #:	
Project Manager: <u>Christen Lull</u>		Company: <u>Tetra Tech</u>	
Address:		Attn: <u>Christen Lull</u>	
City:		Address: <u>by email</u>	
State:		City:	
Zip:		State:	
Phone #:		Zip:	
Project #: <u>212C-MD-02848</u>		Project Owner:	
Project Name: <u>55 West Loop South TB Release</u>		Phone #:	
Project Location: <u>Eddy County NM</u>		Fax #:	
Sample Name: <u>John Baker</u>		PRESERV	
FOR LAB USE ONLY		SAMPLING	

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	MATRIX							DATE	TIME	ANALYSIS REQUEST					
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:			ICE / COOL	OTHER :	TPH	BTEX	Chlorides	
1035376	SP2-22 (0-1')		1			X												
	SP4-22 (1-2')		1			X												
	SP7-22 (0-1')		1			X												
	SP11-22 (0-1')		1			X												
	SP11-22 (2-3')		1			X												
	SP13-22 (1-2')		1			X												
	SP16-22 (0-1')		1			X												
	SP16-22 (2-3')		1			X												
	SP16-22 (5-6')		1			X												
	SP17-22 (0-1')		1			X												

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Relinquished By: Christen Lull Date: 11/8/22 Time: 1438 Received By: Stodoligues

Relinquished By: John Baker Date: 11/8/22 Time: 1438 Received By: Stodoligues

Delivered By: (Circle One) Observed Temp. °C: 22.8°C Sample Condition: Intact CHECKED BY: (initials)

Corrected Temp. °C: 22.2°C Cool ☐ Yes ☒ No

Sampler - UPS - Bus - Other: UPS

Turnaround Time: 2.2c Standard ☒ Add'l Phone #: Christen Lull @ tetra.tech.com

Thermometer ID #113 RUSH Bacteria (only) Sample Condition: Intact

Correction Factor -0.6°C ☐ Yes ☒ No Corrected Temp. °C: 22.2°C





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

### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

<b>Company Name:</b> <u>Cardinal Labs</u> <b>Project Manager:</b> <u>Chithan Hall</u> <b>Address:</b> _____ <b>City:</b> _____ <b>State:</b> _____ <b>Zip:</b> _____ <b>Phone #:</b> _____ <b>Fax #:</b> _____ <b>Project #:</b> <u>2006-MD-013879 <b>Project Owner:</b> _____  <b>Project Name:</b> <u>55 West Loop South TB Release</u>  <b>Project Location:</b> <u>Edley County, MD</u>  <b>Sampler Name:</b> <u>Chithan B. Hall</u> </u>										<b>BILL TO</b>										<b>ANALYSIS REQUEST</b>																																							
										<b>P.O. #:</b> _____ <b>Company:</b> <u>Tetra Tech</u> <b>Attn:</b> <u>Chithan Hall</u> <b>Address:</b> <u>by email</u> <b>City:</b> _____ <b>State:</b> _____ <b>Zip:</b> _____ <b>Phone #:</b> _____ <b>Fax #:</b> _____																																																	
<b>Lab I.D.</b>										<b>Sample I.D.</b>										<b>FOR LAB USE ONLY</b>																																							
<b>Lab I.D.</b> <u>11822</u> <u>12</u> <u>13</u> <u>14</u> <u>15</u> <u>16</u>										<b>Sample I.D.</b> <u>SP18-22-60-1'</u> <u>SP21-22-41'-2'</u> <u>SW26-22-41'-2'</u> <u>SW26-22-44'-5'</u> <u>SW32-22-60-1'</u> <u>SW32-22-62'-3'</u>										<b>(G)RAB OR (C)OMP.</b> <b># CONTAINERS</b> <b>GROUNDWATER</b> <b>WASTEWATER</b> <b>SOIL</b> <b>OIL</b> <b>SLUDGE</b> <b>OTHER :</b> <b>ACID/BASE:</b> <b>ICE / COOL</b> <b>OTHER :</b>										<b>MATRIX</b> <b>PRESERV.</b> <b>SAMPLING</b>										<b>DATE</b> <b>TIME</b> <u>11/18/22</u> <u>11:00</u>										<u>TPH</u> <u>BTEX</u> <u>Chlorides</u>									
<b>PLEASE NOTE:</b> Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.										<b>Relinquished By:</b> _____ <b>Date:</b> <u>11/18/22</u> <b>Time:</b> <u>1438</u> <b>Received By:</b> <u>Chithan Hall</u> <b>Date:</b> _____ <b>Time:</b> _____										<b>Verbal Result:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>Add Phone #:</b> _____ <b>All Results are emailed. Please provide Email address:</b> <u>Chithan.Hall@tetratech.com</u> <b>REMARKS:</b> _____																																							
<b>Relinquished By:</b> _____ <b>Date:</b> _____ <b>Time:</b> _____										<b>Observed Temp. °C</b> <u>22.8</u> <b>Corrected Temp. °C</b> <u>22.8</u> <b>Sample Condition</b> <b>Cool Intact</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <b>Checked By:</b> _____ <b>Turnaround Time:</b> _____ <b>Thermometer ID #13</b> <u>Rush</u> <b>Correction Factor -0.5°C</b>										<b>Standard</b> <input checked="" type="checkbox"/> <b>Bacteria (only)</b> <input type="checkbox"/> <b>Cool Intact</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <b>Sample Condition</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <b>Observed Temp. °C</b> _____ <b>Corrected Temp. °C</b> _____																																							



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

September 18, 2023

CHRISTIAN LLULL

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: GJ WEST LOOP SOUTH TB RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 09/13/23 14:38.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	09/13/2023	Sampling Date:	09/13/2023
Reported:	09/18/2023	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C-MD 02848	Sample Received By:	Dionica Hinojos
Project Location:	COP - EDDY CO NM		

**Sample ID: SP - 17 - 22 (1'-2') (H234948-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/14/2023	ND	1.95	97.4	2.00	3.05	
Toluene*	<0.050	0.050	09/14/2023	ND	1.98	98.8	2.00	2.82	
Ethylbenzene*	<0.050	0.050	09/14/2023	ND	1.91	95.5	2.00	4.08	
Total Xylenes*	<0.150	0.150	09/14/2023	ND	5.71	95.2	6.00	4.84	
Total BTEX	<0.300	0.300	09/14/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	09/14/2023	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/14/2023	ND	189	94.7	200	1.48	
DRO >C10-C28*	<10.0	10.0	09/14/2023	ND	218	109	200	2.65	
EXT DRO >C28-C36	<10.0	10.0	09/14/2023	ND					

Surrogate: 1-Chlorooctane 106 % 48.2-134

Surrogate: 1-Chlorooctadecane 125 % 49.1-148

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





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

**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	09/13/2023	Sampling Date:	09/13/2023
Reported:	09/18/2023	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C-MD 02848	Sample Received By:	Dionica Hinojos
Project Location:	COP - EDDY CO NM		

**Sample ID: SP - 17 - 22 (2'-3') (H234948-02)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/14/2023	ND	1.95	97.4	2.00	3.05	
Toluene*	<0.050	0.050	09/14/2023	ND	1.98	98.8	2.00	2.82	
Ethylbenzene*	<0.050	0.050	09/14/2023	ND	1.91	95.5	2.00	4.08	
Total Xylenes*	<0.150	0.150	09/14/2023	ND	5.71	95.2	6.00	4.84	
Total BTEx	<0.300	0.300	09/14/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	09/14/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/14/2023	ND	189	94.7	200	1.48	
DRO >C10-C28*	108	10.0	09/14/2023	ND	218	109	200	2.65	
EXT DRO >C28-C36	30.4	10.0	09/14/2023	ND					

Surrogate: 1-Chlorooctane 107 % 48.2-134

Surrogate: 1-Chlorooctadecane 135 % 49.1-148

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	09/13/2023	Sampling Date:	09/13/2023
Reported:	09/18/2023	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C-MD 02848	Sample Received By:	Dionica Hinojos
Project Location:	COP - EDDY CO NM		

**Sample ID: SP - 17 - 22 (3'-4') (H234948-03)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/14/2023	ND	1.95	97.4	2.00	3.05		
Toluene*	<0.050	0.050	09/14/2023	ND	1.98	98.8	2.00	2.82		
Ethylbenzene*	<0.050	0.050	09/14/2023	ND	1.91	95.5	2.00	4.08		
Total Xylenes*	<0.150	0.150	09/14/2023	ND	5.71	95.2	6.00	4.84		
Total BTEx	<0.300	0.300	09/14/2023	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	09/14/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/14/2023	ND	189	94.7	200	1.48	
DRO >C10-C28*	<10.0	10.0	09/14/2023	ND	218	109	200	2.65	
EXT DRO >C28-C36	<10.0	10.0	09/14/2023	ND					

Surrogate: 1-Chlorooctane 103 % 48.2-134

Surrogate: 1-Chlorooctadecane 122 % 49.1-148

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	09/13/2023	Sampling Date:	09/13/2023
Reported:	09/18/2023	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C-MD 02848	Sample Received By:	Dionica Hinojos
Project Location:	COP - EDDY CO NM		

**Sample ID: AH - 23 - 1 (H234948-04)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/14/2023	ND	1.95	97.4	2.00	3.05		
Toluene*	<0.050	0.050	09/14/2023	ND	1.98	98.8	2.00	2.82		
Ethylbenzene*	<0.050	0.050	09/14/2023	ND	1.91	95.5	2.00	4.08		
Total Xylenes*	<0.150	0.150	09/14/2023	ND	5.71	95.2	6.00	4.84		
Total BTEx	<0.300	0.300	09/14/2023	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	09/14/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/14/2023	ND	194	96.9	200	2.42	
DRO >C10-C28*	<10.0	10.0	09/14/2023	ND	193	96.5	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	09/14/2023	ND					

Surrogate: 1-Chlorooctane 105 % 48.2-134

Surrogate: 1-Chlorooctadecane 118 % 49.1-148

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





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

**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	09/13/2023	Sampling Date:	09/13/2023
Reported:	09/18/2023	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C-MD 02848	Sample Received By:	Dionica Hinojos
Project Location:	COP - EDDY CO NM		

**Sample ID: AH - 23 - 2 (H234948-05)**

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/15/2023	ND	1.94	96.8	2.00	0.428	QM-07	
Toluene*	<0.050	0.050	09/15/2023	ND	2.06	103	2.00	0.334	QM-07	
Ethylbenzene*	<0.050	0.050	09/15/2023	ND	2.05	102	2.00	1.29	QM-07	
Total Xylenes*	<0.150	0.150	09/15/2023	ND	6.04	101	6.00	2.07		
Total BTEX	<0.300	0.300	09/15/2023	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	09/14/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/14/2023	ND	194	96.9	200	2.42	
DRO >C10-C28*	<10.0	10.0	09/14/2023	ND	193	96.5	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	09/14/2023	ND					

Surrogate: 1-Chlorooctane 100 % 48.2-134

Surrogate: 1-Chlorooctadecane 111 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	09/13/2023	Sampling Date:	09/13/2023
Reported:	09/18/2023	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C-MD 02848	Sample Received By:	Dionica Hinojos
Project Location:	COP - EDDY CO NM		

**Sample ID: AH - 23 - 3 (H234948-06)**

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/15/2023	ND	1.94	96.8	2.00	0.428		
Toluene*	<0.050	0.050	09/15/2023	ND	2.06	103	2.00	0.334		
Ethylbenzene*	<0.050	0.050	09/15/2023	ND	2.05	102	2.00	1.29		
Total Xylenes*	<0.150	0.150	09/15/2023	ND	6.04	101	6.00	2.07		
Total BTEx	<0.300	0.300	09/15/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 116 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/14/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/14/2023	ND	194	96.9	200	2.42	
DRO >C10-C28*	<10.0	10.0	09/14/2023	ND	193	96.5	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	09/14/2023	ND					

Surrogate: 1-Chlorooctane 105 % 48.2-134

Surrogate: 1-Chlorooctadecane 117 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	09/13/2023	Sampling Date:	09/13/2023
Reported:	09/18/2023	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C-MD 02848	Sample Received By:	Dionica Hinojos
Project Location:	COP - EDDY CO NM		

**Sample ID: AH - 23 - 4 (H234948-07)**

BTEx 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/15/2023	ND	1.94	96.8	2.00	0.428	
Toluene*	<0.050	0.050	09/15/2023	ND	2.06	103	2.00	0.334	
Ethylbenzene*	<0.050	0.050	09/15/2023	ND	2.05	102	2.00	1.29	
Total Xylenes*	<0.150	0.150	09/15/2023	ND	6.04	101	6.00	2.07	
Total BTEx	<0.300	0.300	09/15/2023	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/14/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/14/2023	ND	194	96.9	200	2.42	
DRO >C10-C28*	<10.0	10.0	09/14/2023	ND	193	96.5	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	09/14/2023	ND					

Surrogate: 1-Chlorooctane 103 % 48.2-134

Surrogate: 1-Chlorooctadecane 113 % 49.1-148

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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	09/13/2023	Sampling Date:	09/13/2023
Reported:	09/18/2023	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C-MD 02848	Sample Received By:	Dionica Hinojos
Project Location:	COP - EDDY CO NM		

**Sample ID: AH - 23 - 5 (H234948-08)**

BTX 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/15/2023	ND	1.94	96.8	2.00	0.428		
Toluene*	<0.050	0.050	09/15/2023	ND	2.06	103	2.00	0.334		
Ethylbenzene*	<0.050	0.050	09/15/2023	ND	2.05	102	2.00	1.29		
Total Xylenes*	<0.150	0.150	09/15/2023	ND	6.04	101	6.00	2.07		
Total BTX	<0.300	0.300	09/15/2023	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/14/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/14/2023	ND	194	96.9	200	2.42	
DRO >C10-C28*	<10.0	10.0	09/14/2023	ND	193	96.5	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	09/14/2023	ND					

Surrogate: 1-Chlorooctane 102 % 48.2-134

Surrogate: 1-Chlorooctadecane 111 % 49.1-148

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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	09/13/2023	Sampling Date:	09/13/2023
Reported:	09/18/2023	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C-MD 02848	Sample Received By:	Dionica Hinojos
Project Location:	COP - EDDY CO NM		

**Sample ID: AH - 23 - 6 (H234948-09)**

BTX 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/15/2023	ND	1.94	96.8	2.00	0.428		
Toluene*	<0.050	0.050	09/15/2023	ND	2.06	103	2.00	0.334		
Ethylbenzene*	<0.050	0.050	09/15/2023	ND	2.05	102	2.00	1.29		
Total Xylenes*	<0.150	0.150	09/15/2023	ND	6.04	101	6.00	2.07		
Total BTX	<0.300	0.300	09/15/2023	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/14/2023	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/14/2023	ND	194	96.9	200	2.42	
DRO >C10-C28*	<10.0	10.0	09/14/2023	ND	193	96.5	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	09/14/2023	ND					

Surrogate: 1-Chlorooctane 100 % 48.2-134

Surrogate: 1-Chlorooctadecane 109 % 49.1-148

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**Analytical Results For:**

TETRA TECH  
 CHRISTIAN LLULL  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

Received:	09/13/2023	Sampling Date:	09/13/2023
Reported:	09/18/2023	Sampling Type:	Soil
Project Name:	GJ WEST LOOP SOUTH TB RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C-MD 02848	Sample Received By:	Dionica Hinojos
Project Location:	COP - EDDY CO NM		

**Sample ID: AH - 23 - 7 (H234948-10)**

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/15/2023	ND	1.94	96.8	2.00	0.428		
Toluene*	<0.050	0.050	09/15/2023	ND	2.06	103	2.00	0.334		
Ethylbenzene*	<0.050	0.050	09/15/2023	ND	2.05	102	2.00	1.29		
Total Xylenes*	<0.150	0.150	09/15/2023	ND	6.04	101	6.00	2.07		
Total BTEX	<0.300	0.300	09/15/2023	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	09/14/2023	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/14/2023	ND	194	96.9	200	2.42	
DRO >C10-C28*	<10.0	10.0	09/14/2023	ND	193	96.5	200	5.31	
EXT DRO >C28-C36	<10.0	10.0	09/14/2023	ND					

Surrogate: 1-Chlorooctane 94.1 % 48.2-134

Surrogate: 1-Chlorooctadecane 103 % 49.1-148

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### Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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

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Celey D. Keene, Lab Director/Quality Manager



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

# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

<b>Company Name:</b> Conoco Phillips <b>Project Manager:</b> Christian Llull <b>Address:</b> <b>City:</b> State: Zip: <b>Phone #:</b> Fax #: <b>Project #:</b> 212C-MD-02848 Project Owner: <b>Project Name:</b> G5 West Loop South TB Release <b>Project Location:</b> Edley Co, NM <b>Sampler Name:</b> Andres Garcia <b>FOR LAB USE ONLY</b>		<b>BILL TO</b> <b>P.O. #:</b> <b>Company:</b> Tetra Tech <b>Attn:</b> Christian Llull <b>Address:</b> <b>City:</b> State: Zip: <b>Phone #:</b> Fax #: <b>Matrix:</b> GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER: <b>Preserv:</b> ACID/BASE: ICE / COOL OTHER: <b>Sampling:</b>	
<b>Relinquished By:</b> Andres Garcia <b>Date:</b> 9/13/23 <b>Time:</b> 1438 <b>Received By:</b> [Signature] <b>Date:</b> 9/13/23 <b>Time:</b> 1438		<b>Verbal Result:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Add'l Phone #: <b>All Results are emailed:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Add'l Email address: <b>REMARKS:</b> Sam. Chama etatech.com nicholas.poo@etatech.com Turnaround Time: Standard Rush Thermometer ID #140 Correction Factor 0°C Bacteria (only) Sample Condition Cool Intact Observed Temp. °C Yes Yes No No Corrected Temp. °C	

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX	PRESERV.	SAMPLING	DATE	TIME	TPH	BTEX	Chlorides 4500
1	SP-17-22 (1'-2')	G	1	X			9/13	0600	X	X	X
2	SP-17-22 (2'-3')							0615			
3	SP-17-22 (3'-4')							0630			
4	AH-23-1							0645			
5	AH-23-2							0900			
6	AH-23-3							0915			
7	AH-23-4							0930			
8	AH-23-5							0945			
9	AH-23-6							1000			
10	AH-23-7							1030			

## **APPENDIX F**

### **NMSLO Seed Mixture Info**




# Custom Soil Resource Report Soil Map



## Custom Soil Resource Report


## MAP LEGEND

## Area of Interest (AOI)

 Area of Interest (AOI)

## Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

## Special Point Features

 Blowout

 Borrow Pit


 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

## Water Features

 Streams and Canals

## Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

## Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eddy Area, New Mexico  
Survey Area Data: Version 18, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 27, 2020—Feb 28, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Custom Soil Resource Report

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BD	Berino-Dune land complex, 0 to 3 percent slopes	1.6	100.0%
<b>Totals for Area of Interest</b>		<b>1.6</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.



## Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Custom Soil Resource Report

**Eddy Area, New Mexico****BD—Berino-Dune land complex, 0 to 3 percent slopes****Map Unit Setting***National map unit symbol: 1w44**Elevation: 2,450 to 5,500 feet**Mean annual precipitation: 8 to 15 inches**Mean annual air temperature: 57 to 70 degrees F**Frost-free period: 180 to 230 days**Farmland classification: Not prime farmland***Map Unit Composition***Berino and similar soils: 45 percent**Dune land: 40 percent**Minor components: 15 percent**Estimates are based on observations, descriptions, and transects of the mapunit.***Description of Berino****Setting***Landform: Plains, fan piedmonts**Landform position (three-dimensional): Riser**Down-slope shape: Convex**Across-slope shape: Linear**Parent material: Mixed alluvium and/or eolian sands***Typical profile***H1 - 0 to 17 inches: fine sandy loam**H2 - 17 to 50 inches: sandy clay loam**H3 - 50 to 60 inches: loamy sand***Properties and qualities***Slope: 0 to 3 percent**Depth to restrictive feature: More than 80 inches**Drainage class: Well drained**Runoff class: Low**Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high  
(0.60 to 2.00 in/hr)**Depth to water table: More than 80 inches**Frequency of flooding: None**Frequency of ponding: None**Calcium carbonate, maximum content: 40 percent**Maximum salinity: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)**Sodium adsorption ratio, maximum: 1.0**Available water supply, 0 to 60 inches: Moderate (about 7.7 inches)***Interpretive groups***Land capability classification (irrigated): 3e**Land capability classification (nonirrigated): 7e**Hydrologic Soil Group: B**Ecological site: R070BC007NM - Loamy**Hydric soil rating: No*

## Custom Soil Resource Report

### Description of Dune Land

#### Setting

*Landform:* Dune fields

*Landform position (two-dimensional):* Shoulder, backslope, footslope

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex, linear

*Across-slope shape:* Convex, linear

*Parent material:* Mixed alluvium and/or eolian sands

#### Typical profile

*H1 - 0 to 6 inches:* sandy loam

*H2 - 6 to 60 inches:* sandy loam

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7e

*Hydric soil rating:* No

### Minor Components

#### Cacique

*Percent of map unit:* 5 percent

*Ecological site:* R070BD004NM - Sandy

*Hydric soil rating:* No

#### Kermit

*Percent of map unit:* 5 percent

*Ecological site:* R070BD005NM - Deep Sand

*Hydric soil rating:* No

#### Active dune land

*Percent of map unit:* 5 percent

*Hydric soil rating:* No



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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

## Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)

**NMSLO Seed Mix****Sandy Loam (SL)****SANDY LOAM (SL) SITES SEED MIXTURE:**

COMMON NAME	VARIETY	APPLICATION RATE (PLS/Acre)	DRILL BOX
<b>Grasses:</b>			
Galleta grass	Viva, VNS, So.	2.5	F
Little bluestem	Cimmaron, Pastura	2.5	F
Blue grama	Hachita, Lovington	2.0	D
Sideoats grama	Vaughn, El Reno	2.0	F
Sand dropseed	VNS, Southern	1.0	S
<b>Forbs:</b>			
Indian blanketflower	VNS, Southern	1.0	D
Parry penstemon	VNS, Southern	1.0	D
Blue flax	Appar	1.0	D
Desert globemallow	VNS, Southern	1.0	D
<b>Shrubs:</b>			
Fourwing saltbush	VNS, Southern	2.0	D
Common winterfat	VNS, Southern	1.0	F
Apache plume	VNS, Southern	0.75	F
<b>Total PLS/acre</b>		<b>17.75</b>	

S = Small seed drill box, D = Standard seed drill box, F = Fluffy seed drill box

- VNS, Southern – No Variety Stated, seed should be from a southern latitude collection of this species.
- Double above seed rates for broadcast or hydroseeding.
- If Parry penstemon is not available, substitute firecracker penstemon.
- If desert globemallow is not available, substitute scarlet globemallow or Nelson globemallow.
- If a species is not available, provide a suggested substitute to the New Mexico Land Office for approval. Increasing all other species proportionately may be acceptable.





**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720  
**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS  
  
Action 284157

CONDITIONS

Operator:  COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID:  229137
	Action Number:  284157
	Action Type:  [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	Remediation plan approved. Submit report via the OCD permitting portal by May 14, 2024.	11/30/2023