



December 14, 2023

Ms. Brittany Hall  
Projects Environmental Specialist  
Oil Conservation Division  
New Mexico Energy, Minerals and Natural Resources Department  
1220 South St. Francis Drive  
Santa Fe, NM 87505

**Re: Release Characterization and Remediation Work Plan – Revision 2  
ConocoPhillips (Heritage COG Operating LLC)  
Louise Fee #002 Battery Release  
Unit Letter E, Section 10, Township 22 South, Range 27 East  
Eddy County, New Mexico  
Incident ID# nAB1819154956**

Ms. Hall,

Tetra Tech, Inc. (Tetra Tech) was contacted by ConocoPhillips Company (ConocoPhillips) to assess a historic release and subsequent assessment completed at the Louise Fee #002 (API No. 30-015-20264) Battery. The release footprint is located in Public Land Survey System (PLSS) Unit Letter E, Section 10, Township 22 South, Range 27 East, in Eddy County, New Mexico (Site). The approximate release point occurred at coordinates 32.4090958°, -104.1837769°, as shown on Figures 1 and 2.

## BACKGROUND

According to the State of New Mexico Oil Conservation Division (NMOCD) C-141 Initial Report, the release was discovered on July 7, 2018. The release consisted of 6 barrels (bbls) of oil and 6 bbls of produced water, of which 2 bbls of oil and 2 bbls of produced water were recovered. The release was caused by a hole in the fire tube. During initial response activities, free standing fluids were recovered utilizing a vacuum truck. The NMOCD approved the initial C-141 on July 9, 2018, and subsequently assigned the release the Incident ID nAB1819154956. The initial C-141 form is included in Appendix A.

This incident is included in an Agreed Compliance Order-Releases (ACO-R) between COG Operating LLC (Concho) and the NMOCD signed on November 20 and 26, 2018, respectively.

## SITE CHARACTERIZATION

A site characterization was performed and no sinkholes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, playa lakes, wetlands, incorporated municipal boundaries, or subsurface mines are located within the distances specified in 19.15.29 New Mexico Administrative Code (NMAC). The site is located approximately 250 feet north of the Pecos River. The Site is located within a FEMA Zone A floodplain. The Site is in an area of medium karst potential.

There are no water wells with groundwater data less than 25 years old listed in the New Mexico Office of the State Engineer (NMOSE) database located within approximately ½ mile (800 meters) of the site. According to data from one (1) water well listed in the NMOSE database within approximately 0.73 miles (1,177 meters) of the site, the minimum depth to groundwater is 18 feet bgs. The site characterization data is presented in Appendix B.

Tetra Tech

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## REGULATORY FRAMEWORK

Based upon the release footprint, location within a floodplain and relative proximity to the Pecos River, 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 conducted by Tetra Tech and in accordance with Table I of 19.15.29.12 NMAC, the RRALs for the Site 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

## INITIAL SITE ASSESSMENT SUMMARY

BBC International (BBC) conducted the initial site assessment on July 7, 2018, on behalf of COG Operating LLC (Concho). Three (3) soil borings (SP1 through SP3) were installed to depths of 6 feet bgs within the release extent to achieve vertical delineation. Four (4) sample borings (North, East, South, and West) were installed along the perimeter of the release to achieve horizontal delineation. Figure 3 shows the approximate release extent and sample locations from the initial assessment. The results of the initial soil assessment are summarized in Table 1.

BBC submitted a Delineation Work Plan (Work Plan) dated April 9, 2019, which described the initial site assessment activities and a remediation plan. The Work Plan requested a deferment of full remediation activities until the decommissioning of this facility due to the existing production equipment and piping preventing full access. However, the Work Plan proposed performing a partial remediation to excavate the entire leak area to a depth of 1 foot bgs. The estimated volume of material proposed for removal was 30 cubic yards.

The Delineation Work Plan Report was rejected by NMOCD on November 30, 2022, with the following comments:

- *“Workplan and deferral request denied. Due to the shallow depth of groundwater, the site being located in a floodplain, and it's close proximity to the Pecos River: a deferral of the release could cause an imminent risk to human health, the environment, or ground water.*
- *2RP-4847 closed. Please refer to incident #NAB1819154956 for all future communication.*
- *Please submit a complete report through the OCD Permitting website by 3/3/2023.”*

An extension request for a due date of June 1, 2023, was approved via email on Tuesday, February 28, 2023. A copy of the extension request can be found in the regulatory correspondence included in Appendix C.

## ADDITIONAL SITE ASSESSMENT

In March and April 2023 Tetra Tech completed additional site assessment activities at the Louise Fee #002 Release Site. Assessment activities consisted of advancing nine (9) soil borings (AH-23-1 through AH-23-9) via hand auger to better discern the footprint of the release and evaluate current concentrations of TPH, BTEX, and chloride. Borings AH-23-1 through AH-23-3 were installed to depths of 5 feet bgs, and boring AH-23-4 was installed to a depth of 6 feet bgs in an attempt to obtain vertical delineation. Borings AH-23-5 through AH-23-9 were installed to depths of 1-foot bgs to further delineate the release horizontally.

A total of twenty-two (22) samples were submitted to Cardinal Laboratories in Hobbs, New Mexico (Cardinal) to be analyzed for TPH by EPA Method 8015 modified, BTEX by EPA Method 8021B, and chloride by Standard Method SM4500Cl-B. The analytical results associated with boring locations AH-23-1, AH-23-2, AH-23-3, and AH-23-8 were above the TPH RRAL of 100 mg/kg in the 0-1 foot sample interval. The analytical results associated with boring location AH-23-4 exceeded the TPH RRAL in all sampling intervals to the total depth of 6 feet bgs.

A second 90-day extension was requested via email on June 6, 2023, and was approved by NMOCD for a due date of August 30, 2023. A copy of the extension request can be found in the Regulatory correspondence included in Appendix C.

### ADDITIONAL DELINEATION

On June 21, 2023, Tetra Tech re-mobilized to the site with a truck-mounted air rotary drilling rig to attempt to vertically define the location of AH-23-4. Due to the presence of numerous lines and active production equipment on-site, the drilling rig access was limited. One boring (BH-1) was installed approximately 13 feet northeast of the previously sampled AH-23-4 location. Boring BH-1 was installed to an approximate depth of 6 feet bgs. Four (4) soil samples were collected from the boring and submitted to Cardinal for analysis. Analytical results associated with the 0-1 foot bgs sampling interval at BH-1 were above the TPH RRAL. The remainder of the analytical samples from the boring were below the proposed RRALs.

As the larger truck-mounted drilling had difficulty accessing the area of AH-23-4, Tetra Tech personnel returned to the site on September 14, 2023 with a smaller direct push Geoprobe unit to install an additional boring (BH-2) and three (3) additional hand auger borings (AH-23-10 through AH-23-12). The purpose of the additional assessment was to further define the vertical extent of soil impacts. Boring BH-2 was installed to a total depth of 17 feet bgs in the area of AH-23-4. Hand auger borings AH-23-10 through AH-23-12 were installed to depths of 3 feet bgs to further define the release extent. The boring log for BH-2 is included as Appendix D.

A total of twelve (12) samples were collected from the four (4) additional assessment borings and submitted to Cardinal for analysis. Analytical results associated with the 0-1 foot sample at AH-23-10 exceeded the chloride RRAL of 600 mg/kg. Analytical results associated with the 2-3 foot sample interval at AH-23-12 and in samples collected from the top 10 feet of boring BH-2 exceeded the TPH RRAL of 100 mg/kg. Vertical delineation of TPH impacts above the RRAL (100 mg/kg) was achieved in boring BH-2 at 11 feet bgs. The release footprint is now both horizontally and vertically delineated.

All sample locations are shown on Figure 4. The results of the 2023 soil assessment activities are summarized in Table 2. Photographic documentation of the 2023 soil assessment is presented in Appendix E. Copies of the laboratory analysis and chain-of-custody documentation are included in Appendix F.

A third 90-day extension was requested via email on September 28, 2023, which was approved by NMOCD for November 28, 2023. A copy of the extension request can be found in the Regulatory Correspondence included in Appendix B.

### VARIANCE REQUEST AND NMOCD REJECTION

In a Revised Release Characterization and Remediation Work Plan dated November 17, 2023, ConocoPhillips proposed to remediate the release extent to the maximum extent practicable. The revised plan included a variance request to leave impacted soils (with concentrations greater than those specified in Table I) located below 6 feet bgs in place out of safety concerns and to place a liner throughout the base of the excavation at 4 feet bgs. The reasons for the variance request included the following:

- The release impact is fully delineated, and the release footprint is located in areas immediate around active tank battery production equipment where any further excavation could cause a major facility deconstruction, and/or additional unwanted impact to the environment.

- Soils at the site are primarily sands and sandy clays, and deepening the excavation immediately around the in-place production equipment compromises the equipment foundations and poses a significant safety hazard.
- The proposed remediation extents will remove all soils impacted above the Site RRALs with one exception; the 9-10 foot interval in boring BH-2 had a TPH result of 142.9 mg/kg, slightly exceeding the RRAL of 100 mg/kg.
- The sampling intervals both above (7-8 feet bgs) and below (11-12 feet bgs) this interval had TPH results which were below the reporting limit of 10 mg/kg for each of the TPH fractions.

The NMOCD rejected the variance request via email on November 20, 2023 for the following reasons:

- *“Variance request denied. Due to the shallow depth of groundwater, the site being located in a floodplain, and it's close proximity to the Pecos River; a variance proposed to leave contaminants in place could cause an imminent risk to human health, the environment, or groundwater. Downward migration of remaining contaminants due to infiltration of surface water is not the only mechanism that can lead to impacts to freshwater.*
- *OCD is requesting a soil boring be drilled as close as possible to the release area in order to determine an accurate depth to groundwater. If groundwater is encountered in the boring, a sample will need to be collected and analyzed. In lieu of drilling a soil boring, the area of the release will need to be remediated to the most stringent standards.*
- *Submit a complete report through the OCD Permitting website by 1/1/2023.”*

A copy of the regulatory correspondence is included in Appendix B.

## REMEDATION WORK PLAN

Based on the site characterization, the collected analytical results, and the NMOCD rejection of the 2019 deferral request and 2023 work plan, ConocoPhillips proposes to remove the impacted material as indicated in Figure 5. Soils in the area of AH-23-4/BH-2, located between the horizontal separator and the vertical heater treater, will be excavated to a depth of 10 feet bgs to remove all soils with contaminant concentrations exceeding the RRALs. The surrounding areas will be excavated to 3 to 4 feet bgs. The remaining release extent around the vessels will be excavated to 1-foot bgs.

Impacted soils will be excavated using heavy equipment (backhoes, hoe rams, and track hoes) to a maximum depth of 10 feet below surface grade or until a representative sample from the excavation floor is below the RRALs of 600 mg/kg for chloride and 100 mg/kg for TPH. Based on OSHA regulations, benching protection systems will be utilized in the central excavation as it is greater than 5 feet in depth. The sides of the excavation will be benched to form a series of horizontal levels, with near-vertical surfaces between levels. The release area footprint around AH-23-4 will be remediated via a benched excavation to a total depth of 10 feet bgs. Heavy equipment (backhoe and trackhoe) will be utilized to excavate areas outside the immediate vicinity of pressurized lines and 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.

Excavated soils will be transported offsite and disposed of at an NMOCD-approved or permitted facility. In accordance with subsection D of 19.15.29.12 NMAC, the responsible party will notify the appropriate division district office prior to conducting confirmation sampling. Confirmation bottom and sidewall samples representative of no more than 200 square feet will be collected for verification of remedial activities, and analyzed for TPH, BTEX, and chlorides. Once results are received, the excavation will then be backfilled with clean material to surface grade. The estimated volume of material to be remediated is approximately 56 cubic yards.

## CONCLUSION

Existing historical impacts from the documented release have been fully delineated following the additional assessment and sampling activities. The release impacts are located in an active tank battery facility.



Release Characterization and Remediation Work Plan – Revision 2  
December 14, 2023

ConocoPhillips

Based on the results of the assessment, ConocoPhillips will remediate impacted areas to depths ranging from 1 to 10 feet bgs to remove the elevated TPH in the subsurface soils, as indicated in Figure 5.

Remediation activities at the Site are proposed to begin within 90 days of NMOCD 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 NMOCD. If you have any questions concerning the additional soil assessment or the proposed remediation activities for the Site, please call me at (512) 338-2861.

Sincerely,  
**Tetra Tech, Inc.**

A handwritten signature in blue ink, appearing to read 'S. Abbott'.

Samantha K. Abbott, P.G.  
Project Geologist

A handwritten signature in blue ink, appearing to read 'C. Llull'.

Christian M. Llull, P.G.  
Program Manager

cc:  
Mr. Ike Tavarez, RMR – ConocoPhillips

## LIST OF ATTACHMENTS

### Figures:

- Figure 1 – Overview Map
- Figure 2 – Topographic Map
- Figure 3 – Inferred Release Extent and Site Assessment (BBC)
- Figure 4 – Inferred Release Extent and Additional Assessment (Tetra Tech)
- Figure 5 – Proposed Remediation (Revised)

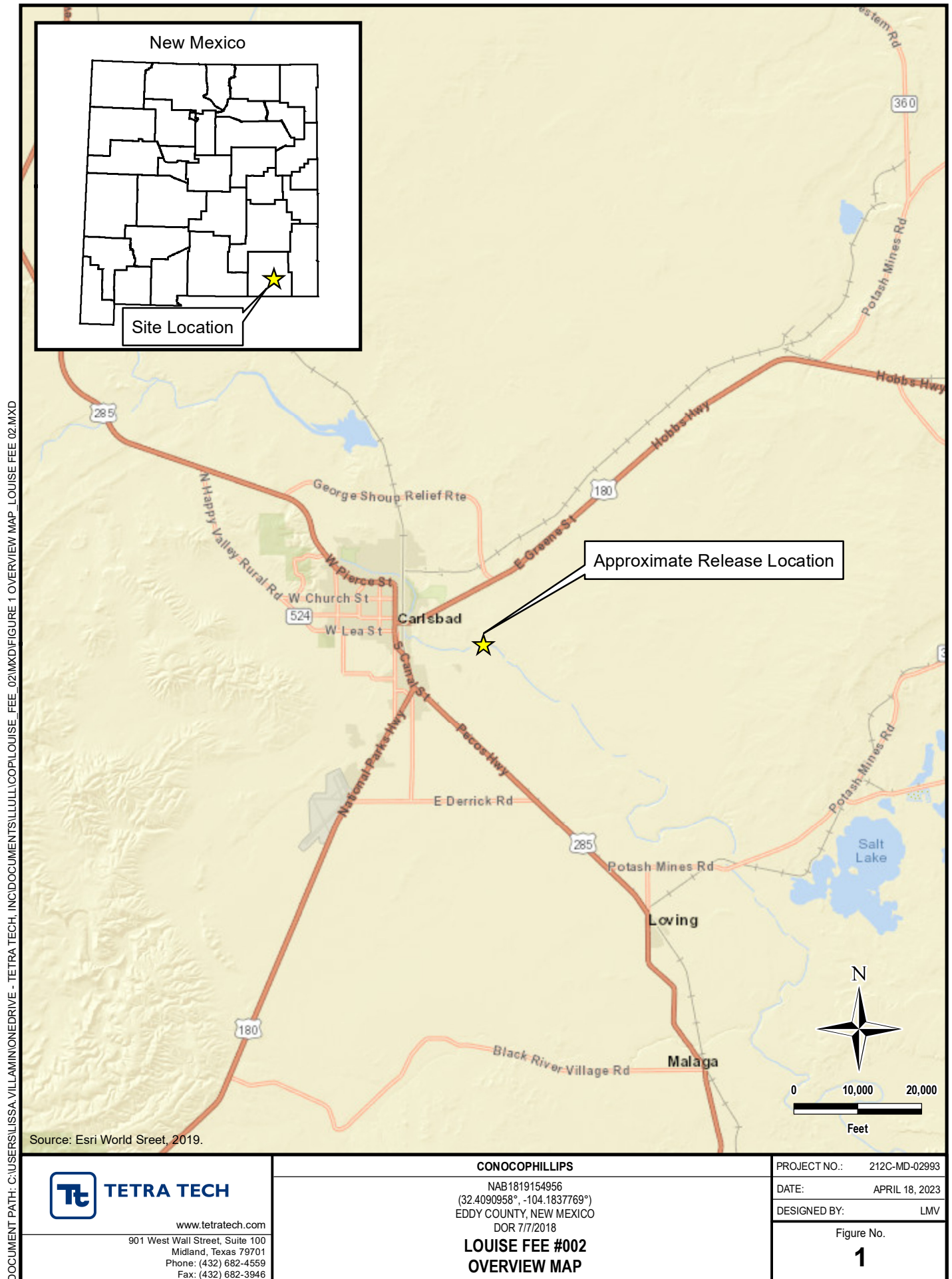
### Tables:

- Table 1 – Summary of Analytical Results – 2019 BBC Initial Soil Assessment
- Table 2 – Summary of Analytical Results – 2023 Additional Soil Assessment

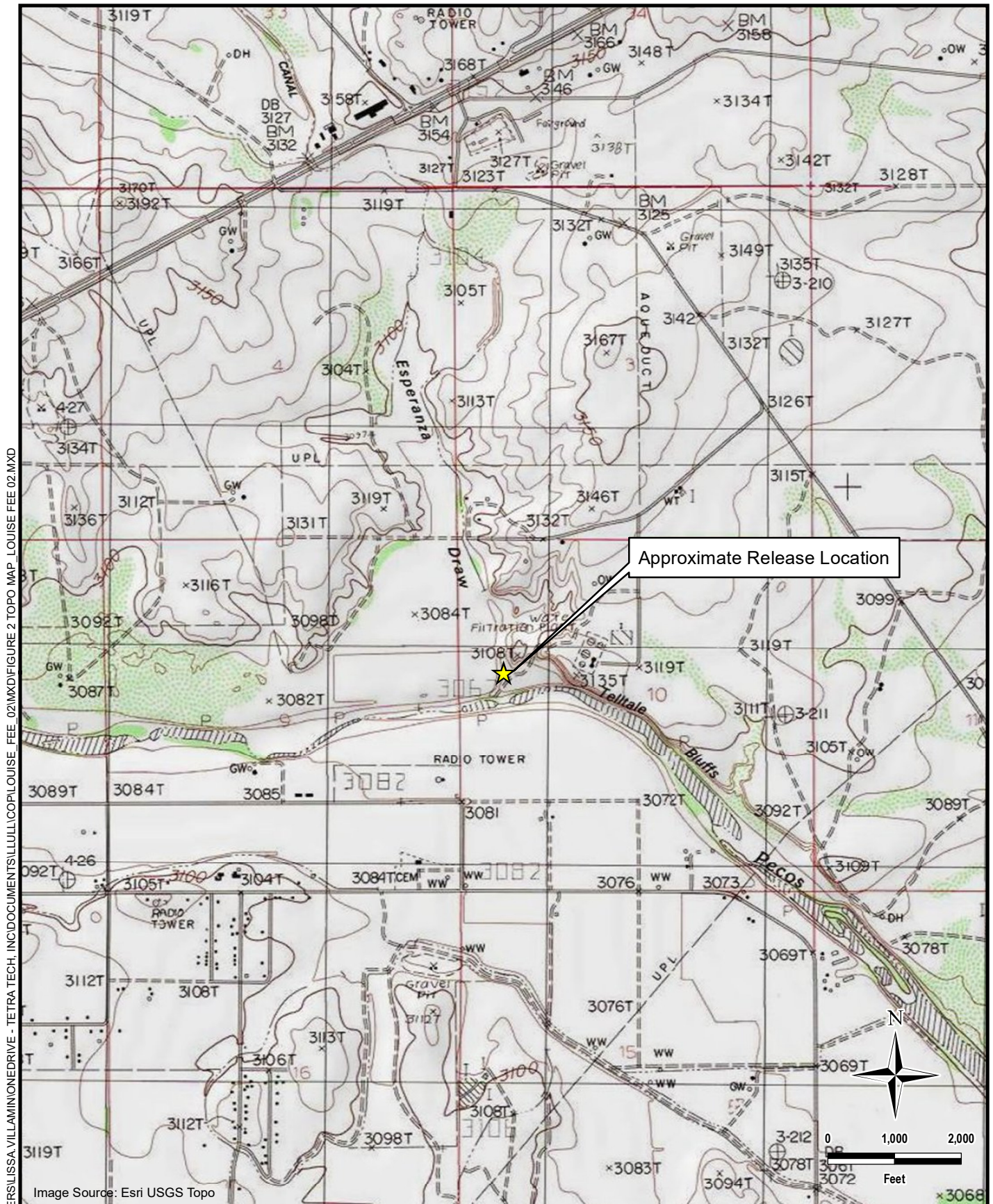
### Appendices:

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

## **FIGURES**







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CONOCOPHILLIPS

NAB1819154956  
(32.4090958°, -104.1837769°)  
EDDY COUNTY, NEW MEXICO  
DOR 7/7/2018

**LOUISE FEE #002  
TOPOGRAPHIC MAP**

PROJECT NO.: 212C-MD-02993

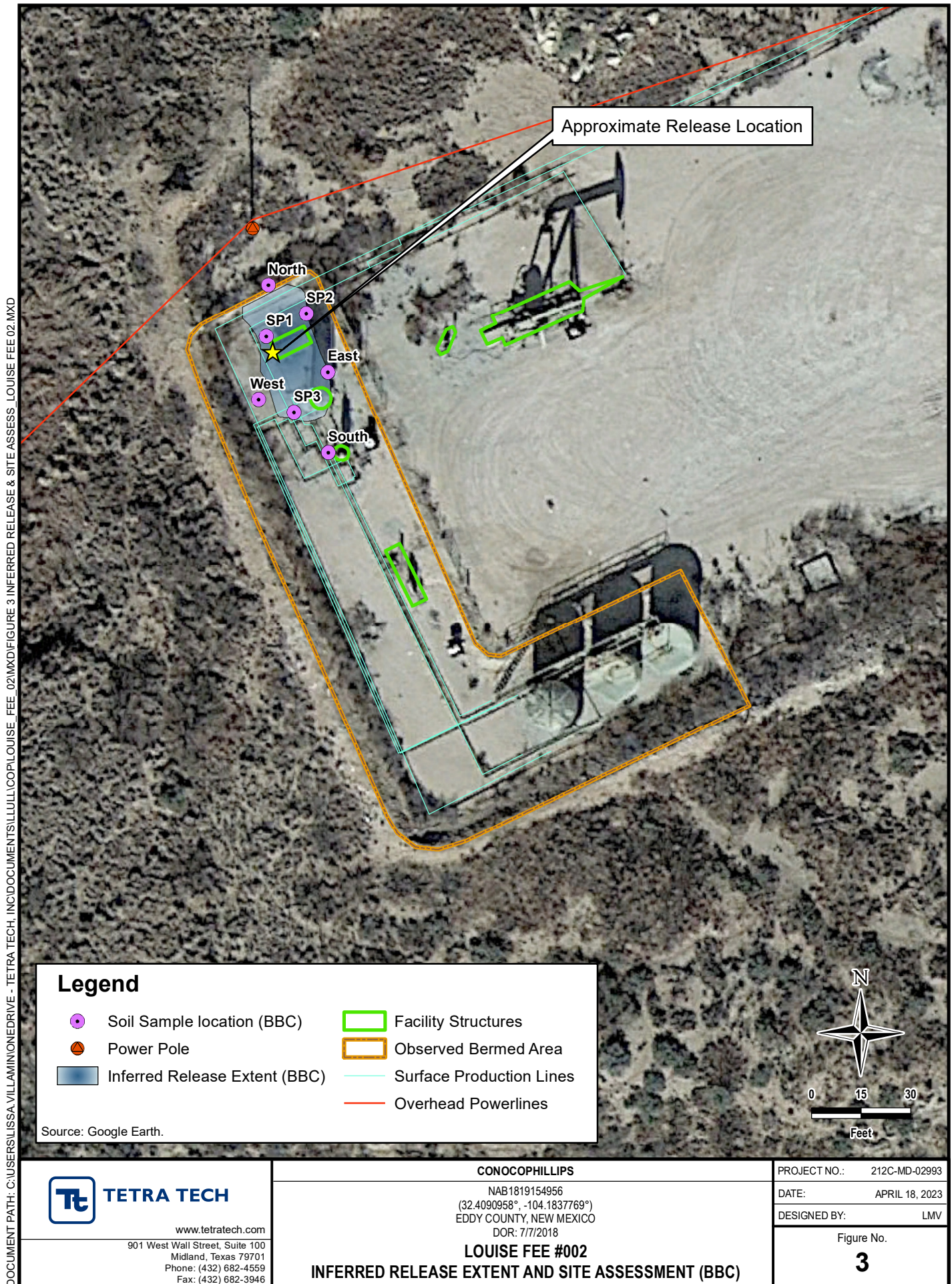
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DESIGNED BY: LMV

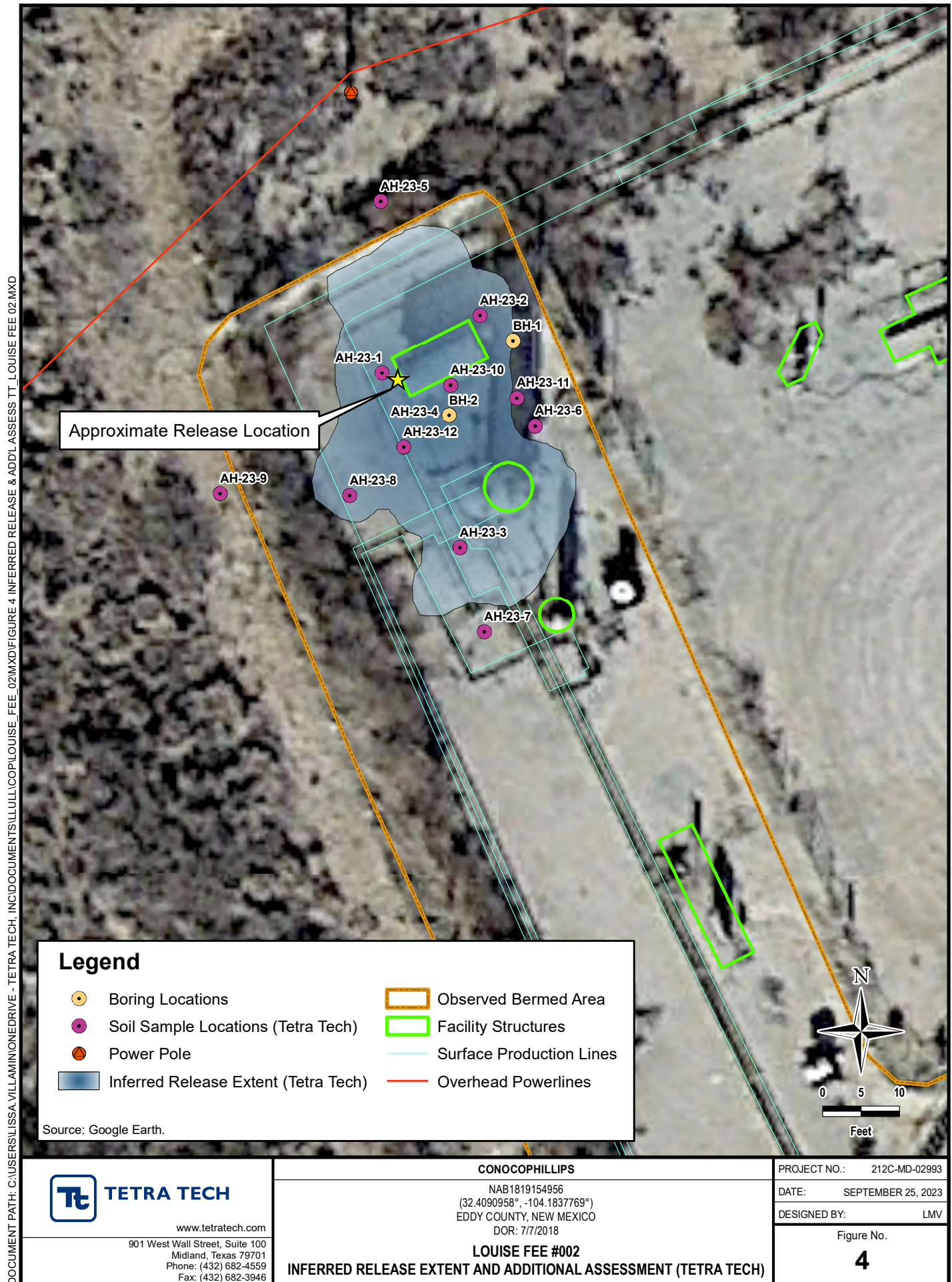
Figure No.

**2**

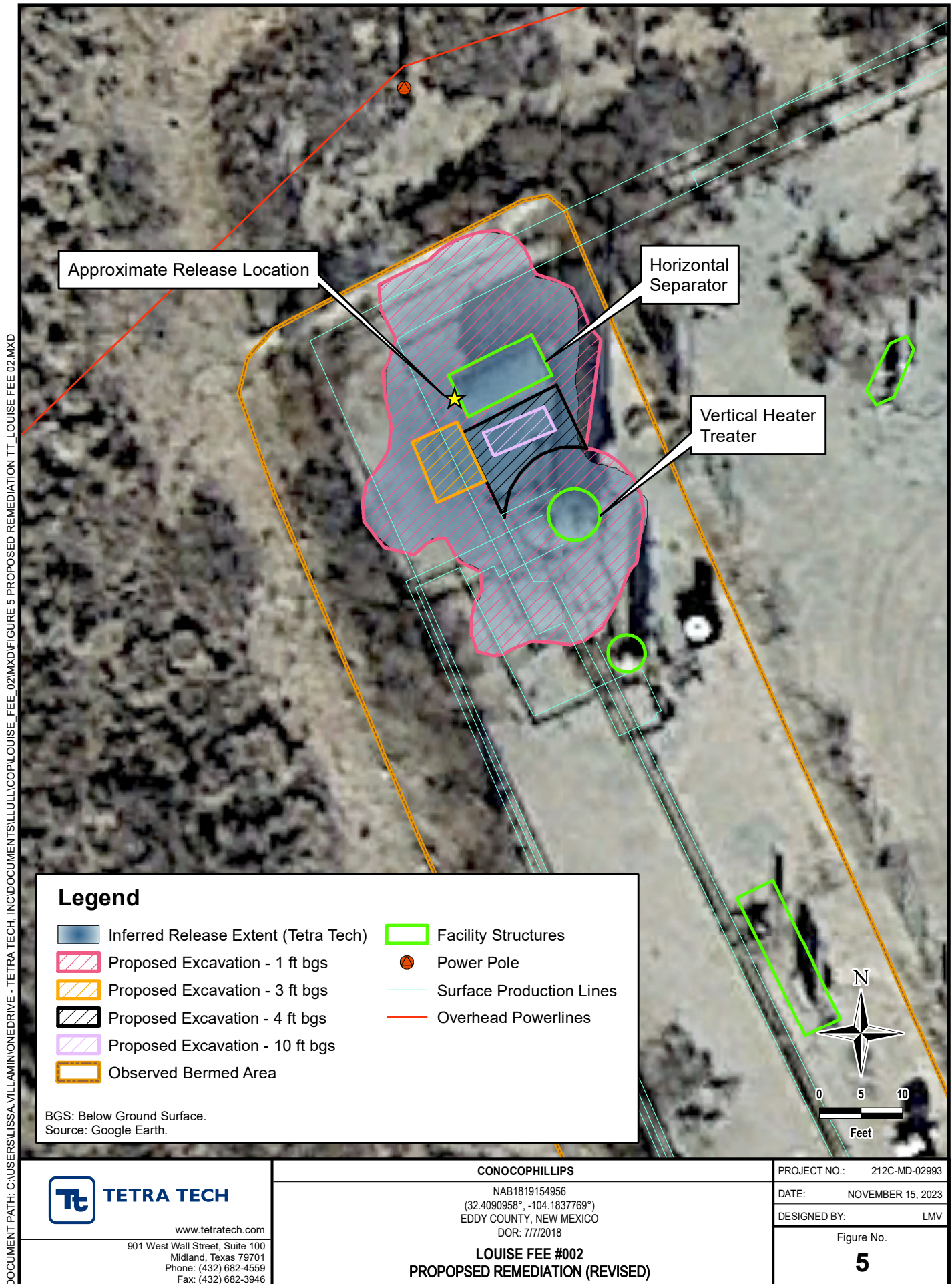












## **TABLES**

TABLE 1  
SUMMARY OF ANALYTICAL RESULTS  
BBC 2019 SOIL ASSESSMENT- nAB1819154956  
CONOCOPHILLIPS  
LOUISE FEE #002  
EDDY COUNTY, NEW MEXICO

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	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	C <sub>6</sub> - C <sub>10</sub>	Q	> C <sub>10</sub> - C <sub>28</sub>	Q	> C <sub>28</sub> - C <sub>36</sub>	Q	(GRO+DRO+EXT DRO)
SP-1	2/4/2019	SURFACE	16.0		<0.500		<0.500		<0.500		1.65		<3.00		942		30,200		4,500		<b>35,642</b>
		1	32.0		<0.500		<0.500		2.19		4.60		6.79		872		7,280		1,260		<b>9,412</b>
		2	32.0		<2.00		4.86		9.62		49.4		63.9		3,770		13,800		1,850		<b>19,420</b>
		3	32.0		<0.500		<0.500		1.19		4.71		5.90		953		7,140		1,050		<b>9,143</b>
	3/21/2019	4	96.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		224		119		<b>343</b>
		5	160		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
SP-2	2/4/2019	SURFACE	112		<0.050		0.059		0.190		1.54		1.79		39.5		2,650		592		<b>3,282</b>
		1	240		<0.050		0.150		0.440		2.16		2.75		690		4,060		522		<b>5,272</b>
		2	<b>3,520</b>		<0.050		1.74		4.85		21.5		28.1		756		8,690		1,200		<b>10,646</b>
		3	<b>2,400</b>		<0.500		1.18		5.16		20.4		26.7		784		6,510		931		<b>8,225</b>
	3/21/2019	4	80.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		202		142		<b>344</b>
		5	128		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
SP-3	2/4/2019	SURFACE	96.0		<0.050		0.056		0.185		1.44		1.68		18.9		1,410		368		<b>1,797</b>
		1	48.0		<0.500		5.14		12.4		49.9		67.4		1,790		9,880		1,230		<b>12,900</b>
		2	16.0		<0.050		2.43		<0.050		61.5		64.0		2,610		12,700		1,730		<b>17,040</b>
		3	32.0		0.075		1.93		<0.050		32.5		34.5		1,370		9,000		1,540		<b>11,910</b>
	3/21/2019	4	96.0		<0.050		<0.050		<0.050		0.263		<0.300		<10.0		239		158		<b>397</b>
		5	128		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
SP-3	2/4/2019	SURFACE	96.0		<0.050		0.056		0.185		1.44		1.68		18.9		1,410		368		<b>1,797</b>
		1	48.0		<0.500		5.14		12.4		49.9		67.4		1,790		9,880		1,230		<b>12,900</b>
		2	16.0		<0.050		2.43		<0.050		61.5		64.0		2,610		12,700		1,730		<b>17,040</b>
		3	32.0		0.075		1.93		<0.050		32.5		34.5		1,370		9,000		1,540		<b>11,910</b>
	3/21/2019	4	96.0		<0.050		<0.050		<0.050		0.263		<0.300		<10.0		239		158		<b>397</b>
		5	128		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
N	2/4/2019	-	122		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
E	2/4/2019	-	80.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		26.1		16.8		42.9
S	2/4/2019	-	96.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
W	2/4/2019	-	112		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		10.7		<10.0		10.7

## 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 Reclamation Requirements.**



TABLE 2  
SUMMARY OF ANALYTICAL RESULTS  
TT 2023 SOIL ASSESSMENT- nAB1819154956  
CONOCOPHILLIPS  
LOUISE FEE #002  
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		DRO		EXT DRO		Total TPH
		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
AH-23-1	3/30/2023	0-1	-	-	16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		1,100		516		<b>1,616</b>
		2-3	-	-	<16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
		3-4	-	-	16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		10.2		<10.0		10.2
		4-5	-	-	32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
AH-23-2	3/30/2023	0-1	-	-	80.0		<0.050		<0.050		<0.050		0.372		0.372		11.3		281		173		<b>465.3</b>
		2-3	-	-	16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
		3-4	-	-	<16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
		4-5	-	0.9	<16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
AH23-3	3/30/2023	0-1	-	-	<16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		102		79.8		<b>181.8</b>
		2-3	-	-	<16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		35.7		26.7		62.4
		3-4	-	-	32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
		4-5	-	0.7	<16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
AH-23-4	3/30/2023	0-1	-	-	<16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<50.0		913		509		<b>1,422</b>
		2-3	-	-	32.0		<0.050		<0.050		<0.050		0.183		<0.300		99.2		6,080		1,440		<b>7,619</b>
		3-4	-	-	80.0		<0.050		0.451	GC-NC1	3.04	GC-NC1	19.3		22.8	GC-NC1	726		5,060		898		<b>6,684</b>
		4-5	-	617.5	224		<0.200		0.684	GC-NC1	3.87	GC-NC1	36.7		41.3	GC-NC1	899		5,200		924		<b>7,023</b>
	4/11/2023	5-6	-	-	464		<0.050		<0.050		<0.050		20.8		20.8		571		4,080		670		<b>5,321</b>
AH-23-5	3/30/2023	0-1	-	0.1	80.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
AH-23-6	3/30/2023	0-1	-	0.2	192		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
AH-23-7	3/30/2023	0-1	-	0.3	16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
AH-23-8	3/30/2023	0-1	-	0.2	32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		66.7		36		<b>102.7</b>
AH-23-9	4/13/2023	0-1	-	-	<16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
AH-23-10	9/14/2023	1-2			<b>944</b>		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
		2-3			304		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
AH-23-11	9/14/2023	2-3			32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-
AH-23-12	9/14/2023	2-3			16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		136		68.4		<b>204.4</b>

TABLE 2  
SUMMARY OF ANALYTICAL RESULTS  
TT 2023 SOIL ASSESSMENT- nAB1819154956  
CONOCOPHILLIPS  
LOUISE FEE #002  
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)	
			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	Q	mg/kg
BH-1	6/21/2023	0-1	-	-	32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		2,310		1,150		3,460	
		2-3	-	-	16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		39.6		28.9		68.5	
		3-4	-	-	112		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		17.0		11.3		28.3	
		5-6	-	-	32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
BH-2	9/14/2023	0-1			32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		419		343		762	
		1-2			16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		113		111		224	
		2-3			32.0		<0.050		<0.050		0.089	GC-NC1	0.779	GC-NC1	0.868	GC-NC1	50.8		1,540		448		2,039	
		3-4			<16.0		<0.050		<0.050	GC-NC	3.56	GC-NC1	27.1	GC-NC1	30.7	GC-NC1	1,070		6,560		1,250		8,880	
		5-6			<16.0		<0.050		<0.050	GC-NC	0.367	GC-NC1	4.15	GC-NC1	4.52	GC-NC1	67.3		2,580		752		3,399	
		7-8			96.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0		-	
		9-10			32.0		<0.050		<0.050		0.081	GC-NC1	0.766	GC-NC1	0.847	GC-NC1	<10.0		105		37.9		142.9	
		11-12			272		<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 RRALs.***

Shaded rows indicate soil intervals proposed for excavation.

QUALIFIERS:

GC-NC1 8260 confirmation analysis was performed; initial GC results were not supported by GC/MS analysis and are biased high with interfering compounds.  
GC-NC 8260 confirmation analysis was performed; initial GC results were not supported by GC/MS analysis and are reported as ND.

## **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

JUL 09 2018

Form C-141  
Revised April 3, 2017

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

DISTRICT II-ARTESIA OGD  
Submit a copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

## Release Notification and Corrective Action

NAB1819154956

## OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC (OGRID #229137)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: Louise Fee #002	Facility Type: Tank Battery

Surface Owner: Private	Mineral Owner: Private	API No. 30-015-20264
------------------------	------------------------	----------------------

## LOCATION OF RELEASE

Unit Letter E	Section 10	Township 22S	Range 27E	Feet from the 1,980	North/South Line North	Feet from the 760	East/West Line West	County Eddy
------------------	---------------	-----------------	--------------	------------------------	---------------------------	----------------------	------------------------	----------------

Latitude 32.4090958 Longitude -104.1837769 NAD83

## NATURE OF RELEASE

Type of Release: Oil & Produced Water	Volume of Release: 6 bbl. Oil 6 bbl. Produced Water	Volume Recovered: 2 bbl. Oil 2 bbl. Produced Water
Source of Release: Hole in tubing	Date and Hour of Occurrence: July 7, 2018 10:00am	Date and Hour of Discovery: July 7, 2018 10:00am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
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.\*

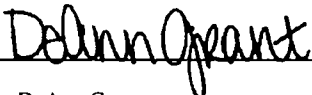

Describe Cause of Problem and Remedial Action Taken.\*

The release was caused by a hole in the fire tube. The tube is being repaired.

Describe Area Affected and Cleanup Action Taken.\*

The release was on location. 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	Approved by Environmental Specialist: 	
Title: HSE Administrative Assistant	Approval Date: 7/9/18	Expiration Date: N/A
E-mail Address: agrant@concho.com	Conditions of Approval: See attached	Attached To: JHP-4847
Date: July 9, 2018	Phone: 432-253-4513	

\* Attach Additional Sheets If Necessary

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 7/9/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 289-4847 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

*The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]*

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 2 office in ARTESIA on or before 8/9/2018. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted



for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

**Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.**

**Jim Griswold**

OCD Environmental Bureau Chief  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505  
505-476-3465  
jim.griswold@state.nm.us

**Bratcher, Mike, EMNRD**

---

**From:** DeAnn Grant <agrant@concho.com>  
**Sent:** Monday, July 9, 2018 10:22 AM  
**To:** Bratcher, Mike, EMNRD  
**Cc:** Weaver, Crystal, EMNRD; Sheldon Hitchcock; Dakota Neel; Rebecca Haskell; DeAnn Grant  
**Subject:** (C-141 Initial) Louise Fee #002 (30-015-20264) 07-07-2018  
**Attachments:** (C-141 Initial) Louise Fee #002 (30-015-20264) 07-07-2018.pdf

Mr. Bratcher,

Please find the attached Initial C-141 for your consideration. If you have any questions or concerns please contact me.

Thank you,

**DeAnn Grant**

HSE Administrative Assistant

[agrant@concho.com](mailto:agrant@concho.com)

COG Operating LLC

600 W Illinois Avenue | Midland, TX 79701

Direct: 432-253-4513 | Main: 432.683.7443



CONCHO

NOTICE: The information in this email may be confidential and/or privileged. If you are not the intended recipient or an authorized representative of the intended recipient, you are hereby notified that any review, dissemination or copying of this email and its attachments, if any, or the information contained herein, is prohibited. If you have received this email in error, please immediately notify the sender by return email and delete this email from your system. Further, any contract terms proposed or purportedly accepted in this email are not binding and are subject to management's final approval as memorialized in a separate written instrument, excluding electronic correspondence, executed by an authorized representative of COG Operating LLC or its affiliates.

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

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

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

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



## **APPENDIX B**

### **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															
		Sub-	Q Q Q										Depth Depth Water		
POD Number	Code	basin	County	64	16	4	Sec	Tws	Rng	X	Y	Distance	Well	Water	Column
<a href="#">C 00160</a>		C	ED	2	3	3	10	22S	27E	576826	3585355* 	724	85	40	45
<a href="#">C 00160 CLW198701</a>	O	C	ED	2	3	3	10	22S	27E	576826	3585355* 	724			
<a href="#">C 00589</a>		CUB	ED	2	4	4	04	22S	27E	576412	3586974* 	961			
<a href="#">C 00021 A</a>		CUB	ED	4	4	4	09	22S	27E	576421	3585150* 	983	196	40	156
<a href="#">C 00021 CLW193276</a>	O	CUB	ED	4	4	4	09	22S	27E	576421	3585150* 	983	100		
<a href="#">C 00479</a>		C	ED			3	03	22S	27E	576919	3587082* 	1020	200		
<a href="#">C 00744</a>		CUB	ED	3	3	4	10	22S	27E	577437	3585166* 	1137	175		
<a href="#">C 02374</a>		C	ED		3	4	09	22S	27E	575916	3585247* 	1177	54	15	39
<a href="#">C 02379</a>		C	ED		3	4	09	22S	27E	575916	3585247* 	1177	55	20	35
<a href="#">C 03029</a>		C	ED		3	4	09	22S	27E	575916	3585247* 	1177	45	18	27
<a href="#">C 00092 A</a>	O	CUB	ED	1	3	4	09	22S	27E	575815	3585346* 	1188	200		
<a href="#">C 02899</a>		C	ED	1	3	4	09	22S	27E	575815	3585346* 	1188	33	22	11
<a href="#">C 03038</a>		C	ED	1	3	4	09	22S	27E	575815	3585346* 	1188	43	15	28

Average Depth to Water: **24 feet**

Minimum Depth: **15 feet**

Maximum Depth: **40 feet**

Record Count: 13

UTMNAD83 Radius Search (in meters):

Easting (X): 576753.47

Northing (Y): 3586075.37

Radius: 1200

\*UTM location was derived from PLSS - see Help

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

4/21/23 8:49 AM

Page 1 of 1

WATER COLUMN/ AVERAGE  
DEPTH TO WATER

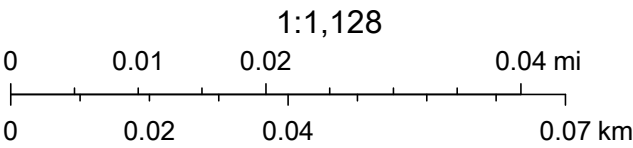
# OCD Potential Karst Map



1/27/2023, 12:59:44 PM

Karst Occurrence Potential

Medium



BLM, OCD, New Mexico Tech, Maxar, Microsoft, Esri, HERE, Garmin, iPC

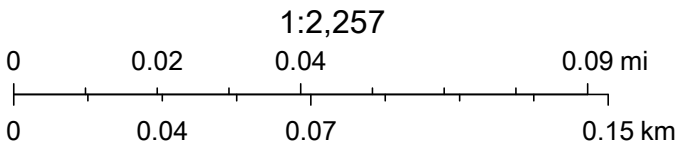


# OCD Waterbodies Map



1/27/2023, 1:51:30 PM

- OSW Water Bodys
- OSE Streams



Maxar, Microsoft, Esri, HERE, Garmin, iPC, NM OSE



OCD - Ownership



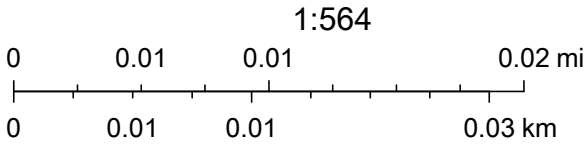
10/3/2023, 9:32:10 AM

Mineral Ownership

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

Land Ownership

P



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



# National Flood Hazard Layer FIRMette



104°11'20"W 32°24'48"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

104°10'43"W 32°24'18"N

Released to Imaging: 12/19/2023 9:37:52 AM

Basemap Imagery Source: USGS National Map 2023

## Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/3/2023 at 10:51 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

## **APPENDIX C**

### **Regulatory Correspondence**

## Chavira, Lisbeth

---

**From:** OCDOnline@state.nm.us  
**Sent:** Wednesday, November 30, 2022 10:22 AM  
**To:** Beauvais, Charles R  
**Subject:** [EXTERNAL]The Oil Conservation Division (OCD) has rejected the application, Application ID: 162460

**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#) nAB1819154956, for the following reasons:

- **Workplan and deferral request denied. Due to the shallow depth of groundwater, the site being located in a floodplain, and it's close proximity to the Pecos River: a deferral of the release could cause an imminent risk to human health, the environment, or ground water.**
- **2RP-4847 closed. Please refer to incident #NAB1819154956 for all future communication.**
- **Please submit a complete report through the OCD Permitting website by 3/3/2023.**

The rejected IM-BNF can be found in the OCD Online: Permitting - Action Status, under the Application ID: 162460. 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**

---

**From:** Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>  
**Sent:** Tuesday, February 28, 2023 9:39 AM  
**To:** Abbott, Sam  
**Cc:** Llull, Christian; Beauvais, Charles R  
**Subject:** RE: [EXTERNAL] Extension Request - Application ID 162460 (Incident ID nAB1819154956)

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

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

Sam,  
Your extension request for **nAB1819154956** is approved. The new due date is June 1, 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:** Abbott, Sam <Sam.Abbott@tetrattech.com>  
**Sent:** Tuesday, February 28, 2023 7:44 AM  
**To:** Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>  
**Cc:** Llull, Christian <Christian.Llull@tetrattech.com>; Beauvais, Charles R <Charles.R.Beauvais@conocophillips.com>  
**Subject:** [EXTERNAL] Extension Request - Application ID 162460 (Incident ID nAB1819154956)

**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 90-day extension (until June 1, 2023) to complete additional assessment activities and associated reporting for the Louise Fee #002 Release site (**nAB1819154956**).

ConocoPhillips recently received a large volume of NMOCD determinations related to unresolved releases from ConocoPhillips' predecessor-in-interest ("COG") via the *Internal Manual Incident File Supporting Documentation (ENV)* (IM-BNF) process.

Given the difficulties inherent with available resource allocation for several projects with similar deadlines within a short period of time, this extension is required to safely complete the additional assessment. ConocoPhillips plans to conduct the additional assessment in the coming month however, and once the sampling data is collected, tabulated, and evaluated, a revised report will be submitted to the OCD.



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

Sam

**Samantha Abbott, PG** | Project Manager

Direct Mobile +1 (512) 739-7874 | Business +1 (512) 338-1667 | [Sam.Abbott@tetrattech.com](mailto:Sam.Abbott@tetrattech.com)

**Tetra Tech, Inc.** | *Leading with Science*® | OGA

8911 N Capital of Texas Hwy #2310 | Austin, TX 78759 | [tetrattech.com](http://tetrattech.com)

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**TETRA TECH**

**Poole, Nicholas**

---

**From:** Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>  
**Sent:** Wednesday, June 7, 2023 8:10 AM  
**To:** Llull, Christian; Abbott, Sam  
**Cc:** Chavira, Lisbeth  
**Subject:** RE: [EXTERNAL] Extension Request #2 - Application ID 162460 (Incident ID nAB1819154956)

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

Christian,

Thank you for the clarification. The extension for **nAB1819154956** is approved. New due date is August 30, 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:** Llull, Christian <Christian.Llull@tetrattech.com>  
**Sent:** Tuesday, June 6, 2023 3:40 PM  
**To:** Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>; Abbott, Sam <Sam.Abbott@tetrattech.com>  
**Cc:** Chavira, Lisbeth <LISBETH.CHAVIRA@tetrattech.com>  
**Subject:** RE: [EXTERNAL] Extension Request #2 - Application ID 162460 (Incident ID nAB1819154956)

Apologies Brittany.

The original Louise Fee Work Plan and deferral request completed by BBC was denied by OCD.  
Based on the rejection, COP completed additional assessment to confirm impacts at the Louise Fee.  
Figures and tables are attached for review as evidence of the additional work completed and proof of good cause.

The extent was horizontally delineated, however, vertical delineation was not achieved as the facility is congested and hand auger efforts were unsuccessful.  
The risk management and remediation group at ConocoPhillips is willing to attempt to drill within the bermed facility to vertically delineate the area around AH-23-4. This additional work takes time to arrange and coordinate.  
Additionally, this release is on private land. Stakeholder input is required prior to decision making processes for remedial action.  
In order to guide the eventual remedial action, COP requires additional time for coordination with operations, time to discuss facility and production equipment obstructions, and the associated stakeholder engagement regarding the work.

Please let me know if this is enough information for you to consider the extension.

Christian

---

**From:** Hall, Brittany, EMNRD <[Brittany.Hall@emnrd.nm.gov](mailto:Brittany.Hall@emnrd.nm.gov)>  
**Sent:** Tuesday, June 06, 2023 3:37 PM  
**To:** Llull, Christian <[Christian.Llull@tetrattech.com](mailto:Christian.Llull@tetrattech.com)>; Abbott, Sam <[Sam.Abbott@tetrattech.com](mailto:Sam.Abbott@tetrattech.com)>  
**Cc:** Chavira, Lisbeth <[LISBETH.CHAVIRA@tetrattech.com](mailto:LISBETH.CHAVIRA@tetrattech.com)>  
**Subject:** RE: [EXTERNAL] Extension Request #2 - Application ID 162460 (Incident ID nAB1819154956)

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Christian,

I need a little bit more information before I can grant another extension for this incident. Per 19.15.29.12 B. (2) "Any remediation under 19.15.29 NMAC should be completed as soon as practicable. Any remediation that exceeds 90 days must follow the division-approved timeline in the remediation plan. The responsible party may request an extension of time to remediate upon a showing of good cause as determined by the division."

Reviewing and evaluating the data is not enough to show good cause for an extension.

Please let me know if you have any questions.

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:** Llull, Christian <[Christian.Llull@tetrattech.com](mailto:Christian.Llull@tetrattech.com)>  
**Sent:** Tuesday, June 6, 2023 9:04 AM  
**To:** Hall, Brittany, EMNRD <[Brittany.Hall@emnrd.nm.gov](mailto:Brittany.Hall@emnrd.nm.gov)>; Abbott, Sam <[Sam.Abbott@tetrattech.com](mailto:Sam.Abbott@tetrattech.com)>  
**Cc:** Chavira, Lisbeth <[LISBETH.CHAVIRA@tetrattech.com](mailto:LISBETH.CHAVIRA@tetrattech.com)>  
**Subject:** [EXTERNAL] Extension Request #2 - Application ID 162460 (Incident ID nAB1819154956)

**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 an additional 90-day extension (until August 30, 2023) to complete the evaluation of the collected data and the ensuing reporting for the Louise Fee #002 Release site (**nAB1819154956**).

ConocoPhillips has safely completed the additional assessment proposed at the Site. Given the complexities of this site, including shallow groundwater in the area, the site location in a floodplain, and numerous surface and subsurface utilities within the release footprint, this incident is now being handled by the risk management and remediation group at ConocoPhillips. The collected data will be evaluated in the coming months and, after review, a revised report will be submitted to the OCD within the allotted timeframe.

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

Christian

**Christian Llull, P.G.** | Program Manager  
Mobile +1 (512) 565-0190 | [christian.llull@tetrattech.com](mailto:christian.llull@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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**Poole, Nicholas**

---

**From:** Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>  
**Sent:** Tuesday, September 12, 2023 2:14 PM  
**To:** Abbott, Sam  
**Cc:** Tavarez, Ike; Llull, Christian; Chavira, Lisbeth  
**Subject:** RE: [EXTERNAL] Extension Request #3 - Application ID 162460 (Incident ID nAB1819154956)

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

Sam,

The extension for **nAB1819154956** is approved. New due date November 28, 2023.

Please be advised that this will be the last extension approval for this incident number.

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:** Abbott, Sam <Sam.Abbott@tetrattech.com>  
**Sent:** Tuesday, September 12, 2023 11:06 AM  
**To:** Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>  
**Cc:** Tavarez, Ike <Ike.Tavarez@conocophillips.com>; Llull, Christian <Christian.Llull@tetrattech.com>; Chavira, Lisbeth <LISBETH.CHAVIRA@tetrattech.com>  
**Subject:** [EXTERNAL] Extension Request #3 - Application ID 162460 (Incident ID nAB1819154956)

**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 an additional 90-day extension (until November 28, 2023) to complete the additional assessment delineation and the ensuing reporting for the Louise Fee #002 Release site (nAB1819154956).

The original Louise Fee Work Plan and deferral request completed by BBC was denied by OCD. ConocoPhillips has since completed additional assessment activities to confirm impacts at the Louise Fee in accordance with the OCD rejection and the previous extension requests granted by OCD.

The extent was horizontally delineated, however, vertical delineation was not achieved as the facility is congested and hand auger efforts were unsuccessful. On behalf of the risk management and remediation group at ConocoPhillips, Tetra Tech was on-site on June 21, 2023, and planned to install one 20-foot boring (BH-1) within the release area inside the berm to complete vertical delineation of the release extent. The berm was removed to allow for drill rig access, but the

rig was unable to access the exact area of AH-23-4 due to the amount of equipment inside the battery. The boring (BH-1) was installed as close as possible to a depth of 6 feet bgs.

Figures and tables are attached for review as evidence of the additional work completed and proof of good cause. The analytical results associated with the additional sampling indicate that the location of BH-1 was not adequate for achieving vertical delineation of the release.

This release is on private land, and stakeholder input is required prior to decision making processes for remedial action. In order to guide the eventual remedial action, ConocoPhillips has required additional time for coordination with operations, time to discuss facility and production equipment obstructions, and the associated stakeholder engagement regarding the work. Additionally, the proper equipment necessary to enter the congested area has been difficult to schedule.

Tetra Tech is scheduled to return to the site the week of September 11, 2023 to install a new boring using a track-mounted Geoprobe in the exact area of AH-23-4 to obtain vertical delineation. The collected data will be evaluated and a revised report will be submitted to the OCD within the requested timeframe.

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

Thank you,  
Sam

**Samantha Abbott, PG** | Project Manager  
Direct Mobile +1 (512) 739-7874 | Business +1 (512) 338-1667 | [Sam.Abbott@tetrattech.com](mailto:Sam.Abbott@tetrattech.com)

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**TETRA TECH**

**Abbott, Sam**

---

**From:** OCDOnline@state.nm.us  
**Sent:** Monday, November 20, 2023 4:07 PM  
**To:** Llull, Christian  
**Subject:** The Oil Conservation Division (OCD) has rejected the application, Application ID: 286830

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

To whom it may concern (c/o Christian Llull for COG OPERATING LLC),

The OCD has rejected the submitted *Application for administrative approval of a release notification and corrective action* (C-141), for incident ID (n#) nAB1819154956, for the following reasons:

- **Variance request denied. Due to the shallow depth of groundwater, the site being located in a floodplain, and it's close proximity to the Pecos River; a variance proposed to leave contaminants in place could cause an imminent risk to human health, the environment, or groundwater. Downward migration of remaining contaminants due to infiltration of surface water is not the only mechanism that can lead to impacts to freshwater.**
- **OCD is requesting a soil boring be drilled as close as possible to the release area in order to determine an accurate depth to groundwater. If groundwater is encountered in the boring, a sample will need to be collected and analyzed. In lieu of drilling a soil boring, the area of the release will need to be remediated to the most stringent standards.**
- **Submit a complete report through the OCD Permitting website by 1/1/2023.**

The rejected C-141 can be found in the OCD Online: Permitting - Action Status, under the Application ID: 286830.

Please review and make the required correction(s) prior to resubmitting.

If you have any questions why this application was rejected or believe it was rejected in error, please contact me prior to submitting an additional C-141.

Thank you,  
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

## **APPENDIX D**

### **Boring Log**



[illegible]

## **APPENDIX E**

# **Photographic Documentation**



TETRA TECH, INC. PROJECT NO. 212C-MD-02993	DESCRIPTION	View of site signage.	1
	SITE NAME	Louise Fee #002 Release	1/30/2023

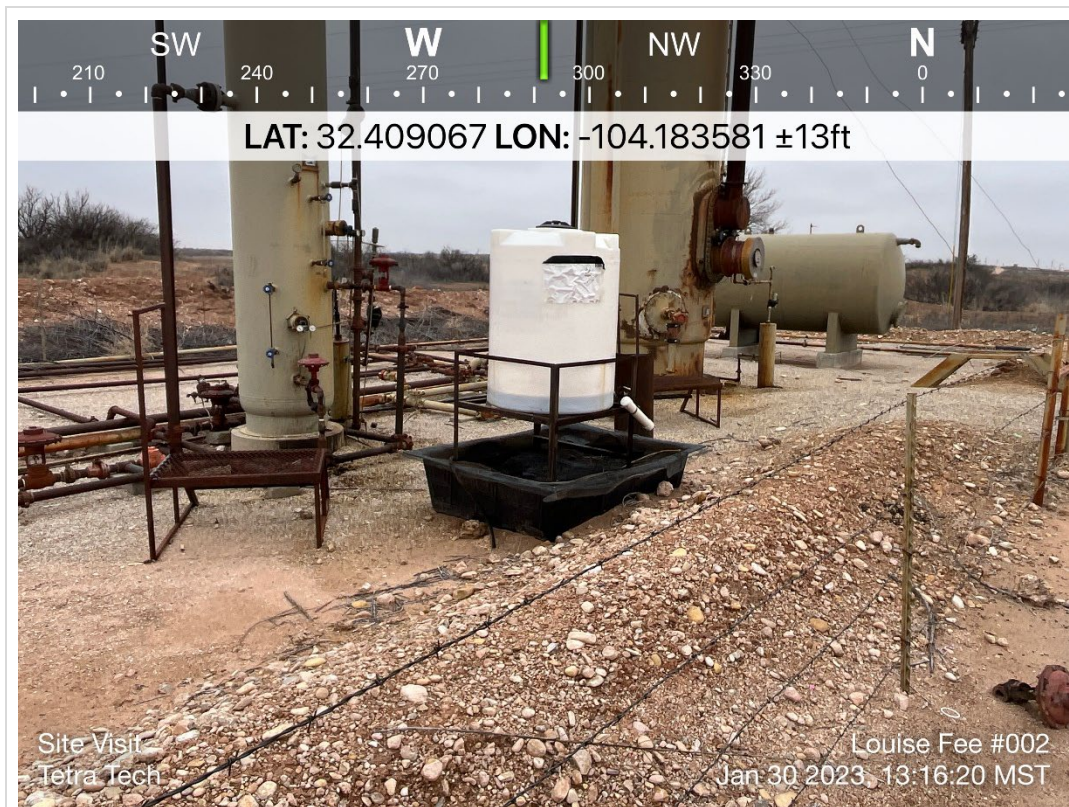


TETRA TECH, INC. PROJECT NO. 212C-MD-02993	DESCRIPTION	View east towards pad. Exposed pipe and pumpjack present	2
	SITE NAME	Louise Fee #002 Release	1/30/2023



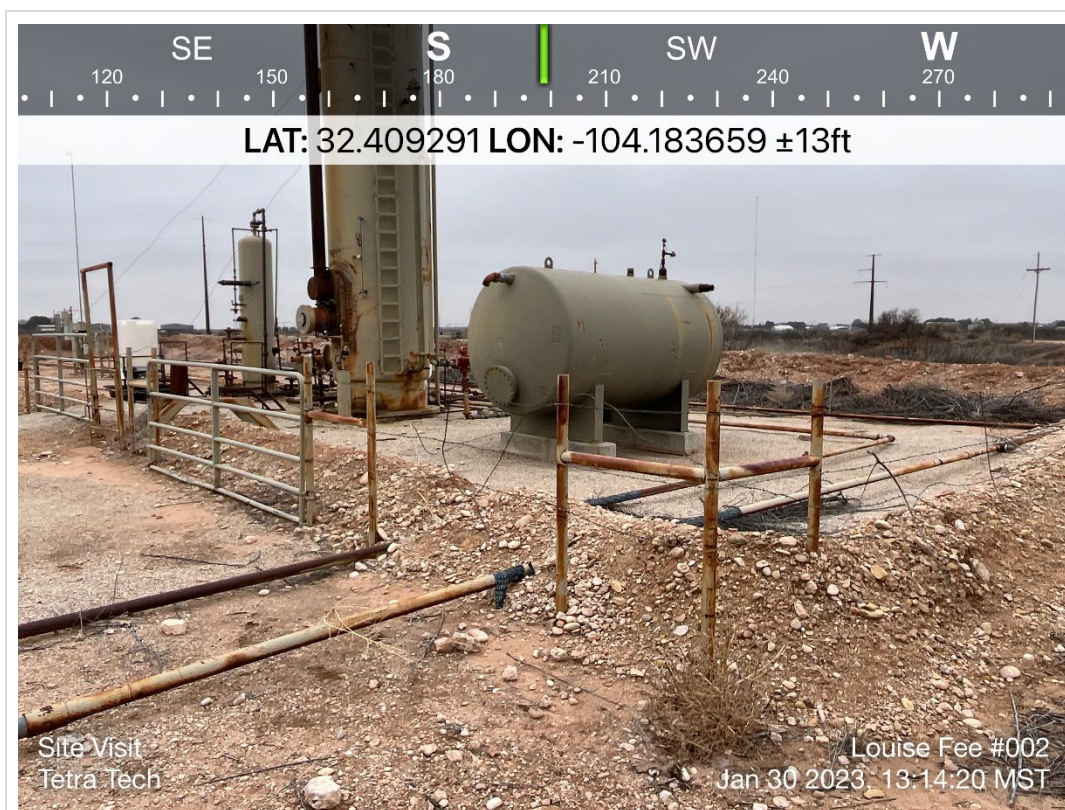


TETRA TECH, INC. PROJECT NO. 212C-MD-02993	DESCRIPTION	View south-southeast of production equipment. Raised lines present.	3
	SITE NAME	Louise Fee #002 Release	1/30/2023



TETRA TECH, INC. PROJECT NO. 212C-MD-02993	DESCRIPTION	View north-northwest of production equipment.	4
	SITE NAME	Louise Fee #002 Release	1/30/2023





TETRA TECH, INC. PROJECT NO. 212C-MD-02993	DESCRIPTION	View south-southwest of gated production equipment and surface piping.	5
	SITE NAME	Louise Fee #002 Release	1/30/2023

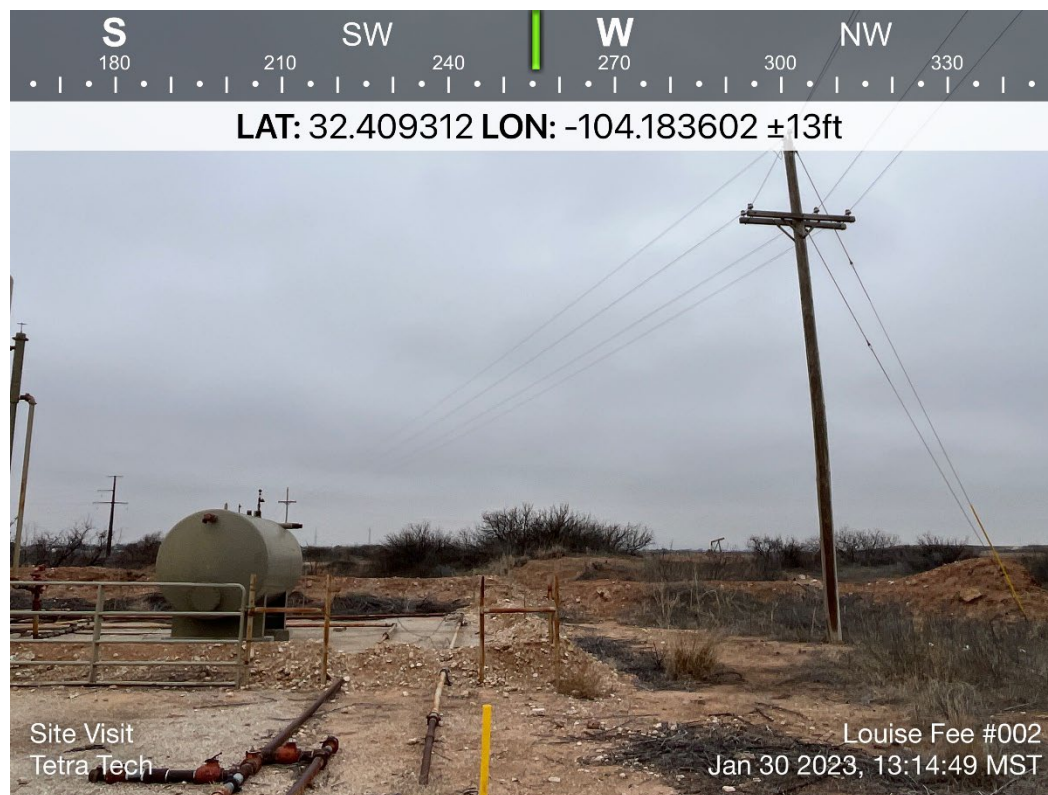


TETRA TECH, INC. PROJECT NO. 212C-MD-02993	DESCRIPTION	View southwest towards outside berm. Sparse vegetation present.	6
	SITE NAME	Louise Fee #002 Release	1/30/2023



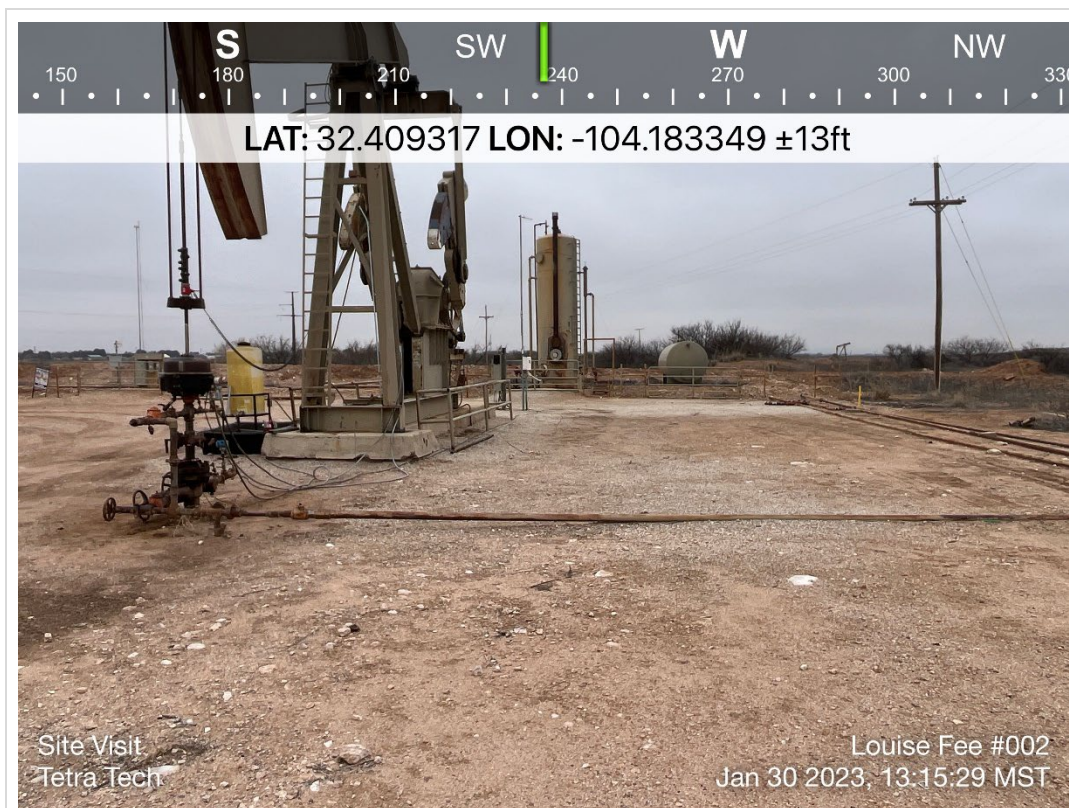


TETRA TECH, INC. PROJECT NO. 212C-MD-02993	DESCRIPTION	View west-southwest of surface piping and production equipment.	7
	SITE NAME	Louise Fee #002 Release	1/30/2023

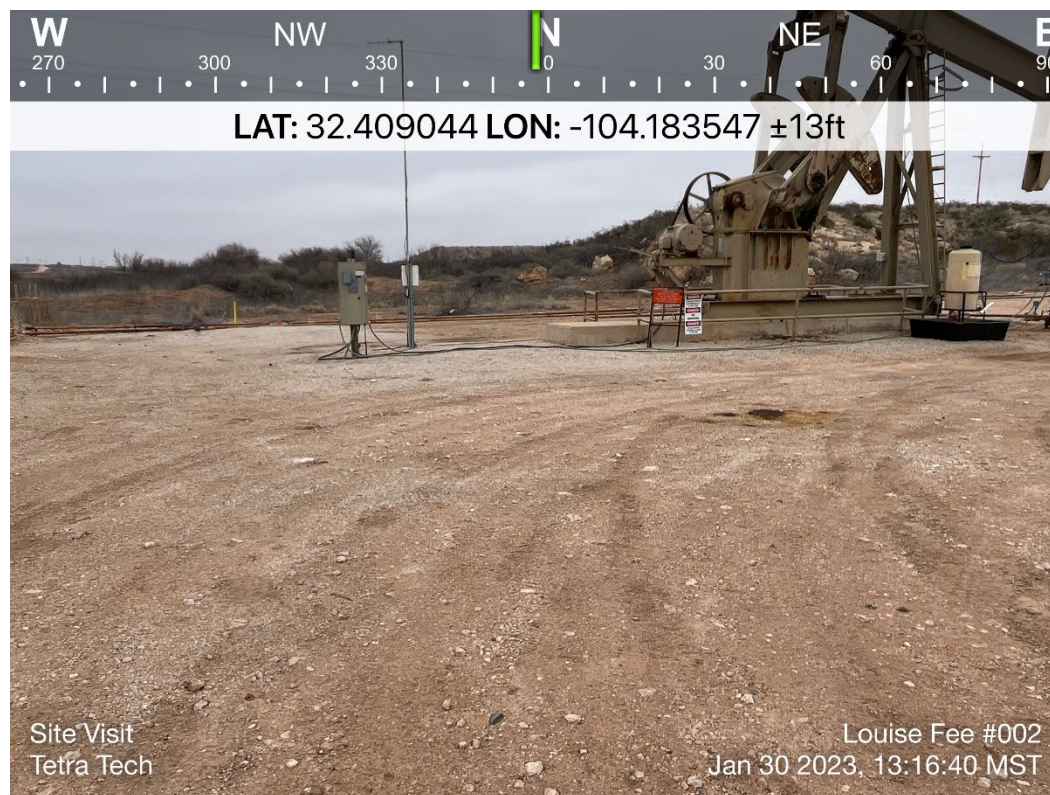


TETRA TECH, INC. PROJECT NO. 212C-MD-02993	DESCRIPTION	View west of production equipment. Surface piping and overhead electrical present.	8
	SITE NAME	Louise Fee #002 Release	1/30/2023





TETRA TECH, INC. PROJECT NO. 212C-MD-02993	DESCRIPTION	View southwest. Surface lines present. Overhead electrical.	9
	SITE NAME	Louise Fee #002 Release	1/30/2023



TETRA TECH, INC. PROJECT NO. 212C-MD-02993	DESCRIPTION	View north of pad center. Pumpjack and possible staining visible.	10
	SITE NAME	Louise Fee #002 Release	1/30/2023

## **APPENDIX F**

### **Laboratory Analytical Data**

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

---

April 13, 2023

SAM ABBOTT

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: LOUISE FEE #002

Enclosed are the results of analyses for samples received by the laboratory on 03/30/23 13:42.

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

[www.tceq.texas.gov/field/ga/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/ga/lab_accred_certif.html).

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

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

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

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

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

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AH - 23 - 1 (0'-1')	H231476-01	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 1 (2'-3')	H231476-02	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 1 (3'-4')	H231476-03	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 1 (4'-5')	H231476-04	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 2 (0'-1')	H231476-06	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 2 (2'-3')	H231476-07	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 2 (3'-4')	H231476-08	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 2 (4'-5')	H231476-09	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 3 (0'-1')	H231476-10	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 3 (2'-3')	H231476-11	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 3 (3'-4')	H231476-12	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 3 (4'-5')	H231476-13	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 4 (0'-1')	H231476-14	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 4 (2'-3')	H231476-15	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 4 (3'-4')	H231476-16	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 4 (4'-5')	H231476-17	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 4 (5'-6')	H231476-18	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 5 (0'-1')	H231476-19	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 6 (0'-1')	H231476-20	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 7 (0'-1')	H231476-21	Soil	30-Mar-23 00:00	30-Mar-23 13:42
AH - 23 - 8 (0'-1')	H231476-22	Soil	30-Mar-23 00:00	30-Mar-23 13:42

04/13/23 - Client added analysis to sample -18 (see COC). This is the revised report and will replace the one sent on 04/05/23.

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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  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 1 (0-1')****H231476-01 (Soil)**

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

<b>Chloride</b>	<b>16.0</b>	16.0	mg/kg	4	3040304	AC	03-Apr-23	4500-Cl-B
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B
Toluene*	<0.050	0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B
Ethylbenzene*	<0.050	0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B
Total Xylenes*	<0.150	0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B
Total BTEX	<0.300	0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B

Surrogate: 4-Bromofluorobenzene (PID)	106 %	71.5-134	3033050	JH	01-Apr-23	8021B
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	mg/kg	1	3033041	MS	01-Apr-23	8015B
DRO >C10-C28*	1100	10.0	mg/kg	1	3033041	MS	01-Apr-23	8015B
EXT DRO >C28-C36	516	10.0	mg/kg	1	3033041	MS	01-Apr-23	8015B

Surrogate: 1-Chlorooctane	97.1 %	48.2-134	3033041	MS	01-Apr-23	8015B
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Surrogate: 1-Chlorooctadecane	121 %	49.1-148	3033041	MS	01-Apr-23	8015B
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 1 (2'-3')****H231476-02 (Soil)**

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

Chloride	<16.0		16.0	mg/kg	4	3040304	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			106 %	71.5-134		3033050	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			103 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			114 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 1 (3'-4')****H231476-03 (Soil)**

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

Chloride	16.0		16.0	mg/kg	4	3040304	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			106 %	71.5-134		3033050	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	10.2		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			86.7 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			95.3 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 1 (4'-5')****H231476-04 (Soil)**

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

Chloride	32.0		16.0	mg/kg	4	3040304	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			105 %	71.5-134		3033050	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			93.4 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			104 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 2 (0-1')****H231476-06 (Soil)**

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

Chloride	80.0		16.0	mg/kg	4	3040304	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total Xylenes*	0.372		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	0.372		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			115 %	71.5-134		3033050	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	11.3		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	281		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	173		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			94.3 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			113 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 2 (2'-3')****H231476-07 (Soil)**

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

Chloride	16.0		16.0	mg/kg	4	3040304	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			105 %	71.5-134		3033050	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			89.8 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			101 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 2 (3'-4')****H231476-08 (Soil)**

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

Chloride	<16.0		16.0	mg/kg	4	3040304	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			105 %	71.5-134		3033050	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			100 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			113 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 2 (4'-5')****H231476-09 (Soil)**

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

Chloride	<16.0		16.0	mg/kg	4	3040304	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			104 %	71.5-134		3033050	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			104 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			118 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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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  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 3 (0-1')****H231476-10 (Soil)**

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

Chloride	<16.0		16.0	mg/kg	4	3040304	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			105 %	71.5-134		3033050	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	102		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	79.8		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			97.0 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			116 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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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  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 3 (2'-3')****H231476-11 (Soil)**

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

Chloride	<16.0		16.0	mg/kg	4	3040304	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			106 %	71.5-134		3033050	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	35.7		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	26.7		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			94.1 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			107 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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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  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 3 (3'-4')****H231476-12 (Soil)**

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

Chloride	32.0		16.0	mg/kg	4	3040304	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			105 %	71.5-134		3033050	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			95.4 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			108 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 3 (4'-5')****H231476-13 (Soil)**

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

Chloride	<16.0		16.0	mg/kg	4	3040304	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			105 %	71.5-134		3033050	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			93.0 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			104 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 4 (0-1')****H231476-14 (Soil)**

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

Chloride	<16.0		16.0	mg/kg	4	3040304	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			105 %	71.5-134		3033050	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID****S-06**

GRO C6-C10*	<50.0		50.0	mg/kg	5	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	913		50.0	mg/kg	5	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	509		50.0	mg/kg	5	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			101 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			160 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager





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

**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 4 (2'-3')****H231476-15 (Soil)**

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

<b>Chloride</b>	<b>32.0</b>		16.0	mg/kg	4	3040328	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021****S-04**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
<b>Total Xylenes*</b>	<b>0.183</b>		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)		145 %		71.5-134		3033050	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID****S-06**

<b>GRO C6-C10*</b>	<b>99.2</b>		50.0	mg/kg	5	3033043	MS	31-Mar-23	8015B	
<b>DRO &gt;C10-C28*</b>	<b>6080</b>		50.0	mg/kg	5	3033043	MS	31-Mar-23	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>1440</b>		50.0	mg/kg	5	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane		114 %		48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane		161 %		49.1-148		3033043	MS	31-Mar-23	8015B	
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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 4 (3'-4')****H231476-16 (Soil)**

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

Chloride	80.0		16.0	mg/kg	4	3040328	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021****S-04**

Benzene*	<0.050		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Toluene*	0.451		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	GC-NC1
Ethylbenzene*	3.04		0.050	mg/kg	50	3033050	JH	01-Apr-23	8021B	GC-NC1
Total Xylenes*	19.3		0.150	mg/kg	50	3033050	JH	01-Apr-23	8021B	
Total BTEX	22.8		0.300	mg/kg	50	3033050	JH	01-Apr-23	8021B	GC-NC1

Surrogate: 4-Bromofluorobenzene (PID) 428 % 71.5-134 3033050 JH 01-Apr-23 8021B

**Petroleum Hydrocarbons by GC FID****S-04**

GRO C6-C10*	726		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	5060		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	898		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane 178 % 48.2-134 3033043 MS 31-Mar-23 8015B

Surrogate: 1-Chlorooctadecane 133 % 49.1-148 3033043 MS 31-Mar-23 8015B

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 4 (4'-5')****H231476-17 (Soil)**

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

<b>Chloride</b>	<b>224</b>		16.0	mg/kg	4	3040328	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021****S-04**

Benzene*	<0.200		0.200	mg/kg	200	3033050	JH	03-Apr-23	8021B	
Toluene*	<b>0.684</b>		0.200	mg/kg	200	3033050	JH	03-Apr-23	8021B	GC-NC1
Ethylbenzene*	<b>3.87</b>		0.200	mg/kg	200	3033050	JH	03-Apr-23	8021B	GC-NC1
Total Xylenes*	<b>36.7</b>		0.600	mg/kg	200	3033050	JH	03-Apr-23	8021B	
Total BTEX	<b>41.3</b>		1.20	mg/kg	200	3033050	JH	03-Apr-23	8021B	GC-NC1

Surrogate: 4-Bromofluorobenzene (PID) 244 % 71.5-134 3033050 JH 03-Apr-23 8021B

**Petroleum Hydrocarbons by GC FID****S-04**

<b>GRO C6-C10*</b>	<b>899</b>		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
<b>DRO &gt;C10-C28*</b>	<b>5200</b>		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>924</b>		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane 197 % 48.2-134 3033043 MS 31-Mar-23 8015B

Surrogate: 1-Chlorooctadecane 136 % 49.1-148 3033043 MS 31-Mar-23 8015B

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  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 4 (5'-6')****H231476-18 (Soil)**

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

<b>Chloride</b>	<b>464</b>		16.0	mg/kg	4	3041123	GM	11-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021****S-04**

Benzene*	<0.050		0.050	mg/kg	50	3041019	JH/	11-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3041019	JH/	11-Apr-23	8021B	GC-NC
Ethylbenzene*	<0.050		0.050	mg/kg	50	3041019	JH/	11-Apr-23	8021B	
<b>Total Xylenes*</b>	<b>20.8</b>		0.150	mg/kg	50	3041019	JH/	11-Apr-23	8021B	
<b>Total BTEX</b>	<b>20.8</b>		0.300	mg/kg	50	3041019	JH/	11-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 491 % 71.5-134 3041019 JH/ 11-Apr-23 8021B

**Petroleum Hydrocarbons by GC FID****S-04**

<b>GRO C6-C10*</b>	<b>571</b>		10.0	mg/kg	1	3041021	MS	10-Apr-23	8015B	
<b>DRO &gt;C10-C28*</b>	<b>4080</b>		10.0	mg/kg	1	3041021	MS	10-Apr-23	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>670</b>		10.0	mg/kg	1	3041021	MS	10-Apr-23	8015B	

Surrogate: 1-Chlorooctane 157 % 48.2-134 3041021 MS 10-Apr-23 8015B

Surrogate: 1-Chlorooctadecane 121 % 49.1-148 3041021 MS 10-Apr-23 8015B

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  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 5 (0-1')****H231476-19 (Soil)**

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

Chloride	80.0		16.0	mg/kg	4	3040328	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033121	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			106 %	71.5-134		3033121	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	05-Apr-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3033043	MS	05-Apr-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3033043	MS	05-Apr-23	8015B	

Surrogate: 1-Chlorooctane			83.7 %	48.2-134		3033043	MS	05-Apr-23	8015B	
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Surrogate: 1-Chlorooctadecane			89.7 %	49.1-148		3033043	MS	05-Apr-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 6 (0-1')****H231476-20 (Soil)**

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

Chloride	192		16.0	mg/kg	4	3040328	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033121	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			107 %		71.5-134	3033121	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			99.8 %		48.2-134	3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			111 %		49.1-148	3033043	MS	31-Mar-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 7 (0-1')****H231476-21 (Soil)**

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

Chloride	16.0		16.0	mg/kg	4	3040328	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033121	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			107 %	71.5-134		3033121	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			103 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			114 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**AH - 23 - 8 (0-1')****H231476-22 (Soil)**

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

Chloride	32.0		16.0	mg/kg	4	3040328	AC	03-Apr-23	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Toluene*	<0.050		0.050	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	3033121	JH	01-Apr-23	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	3033121	JH	01-Apr-23	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			105 %	71.5-134		3033121	JH	01-Apr-23	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
DRO >C10-C28*	66.7		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	
EXT DRO >C28-C36	36.0		10.0	mg/kg	1	3033043	MS	31-Mar-23	8015B	

Surrogate: 1-Chlorooctane			91.9 %	48.2-134		3033043	MS	31-Mar-23	8015B	
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Surrogate: 1-Chlorooctadecane			107 %	49.1-148		3033043	MS	31-Mar-23	8015B	
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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**Inorganic Compounds - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3040304 - 1:4 DI Water****Blank (3040304-BLK1)**

Prepared &amp; Analyzed: 03-Apr-23

Chloride	ND	16.0	mg/kg
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**LCS (3040304-BS1)**

Prepared &amp; Analyzed: 03-Apr-23

Chloride	416	16.0	mg/kg	400	104	80-120
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**LCS Dup (3040304-BSD1)**

Prepared &amp; Analyzed: 03-Apr-23

Chloride	448	16.0	mg/kg	400	112	80-120	7.41	20
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**Batch 3040328 - 1:4 DI Water****Blank (3040328-BLK1)**

Prepared &amp; Analyzed: 03-Apr-23

Chloride	ND	16.0	mg/kg
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**LCS (3040328-BS1)**

Prepared &amp; Analyzed: 03-Apr-23

Chloride	416	16.0	mg/kg	400	104	80-120
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**LCS Dup (3040328-BSD1)**

Prepared &amp; Analyzed: 03-Apr-23

Chloride	416	16.0	mg/kg	400	104	80-120	0.00	20
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**Batch 3041123 - 1:4 DI Water****Blank (3041123-BLK1)**

Prepared &amp; Analyzed: 11-Apr-23

Chloride	ND	16.0	mg/kg
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**LCS (3041123-BS1)**

Prepared &amp; Analyzed: 11-Apr-23

Chloride	416	16.0	mg/kg	400	104	80-120
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**Inorganic Compounds - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3041123 - 1:4 DI Water****LCS Dup (3041123-BSD1)**

Prepared &amp; Analyzed: 11-Apr-23

Chloride	432	16.0	mg/kg	400		108	80-120	3.77	20	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**Volatile Organic Compounds by EPA Method 8021 - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3033050 - Volatiles****Blank (3033050-BLK1)**

Prepared: 30-Mar-23 Analyzed: 01-Apr-23

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0526		mg/kg	0.0500		105	71.5-134			

**LCS (3033050-BS1)**

Prepared: 30-Mar-23 Analyzed: 01-Apr-23

Benzene	1.99	0.050	mg/kg	2.00		99.3	81.4-118			
Toluene	2.01	0.050	mg/kg	2.00		100	88.7-121			
Ethylbenzene	2.07	0.050	mg/kg	2.00		103	86.1-120			
m,p-Xylene	4.25	0.100	mg/kg	4.00		106	88.2-124			
o-Xylene	2.02	0.050	mg/kg	2.00		101	84.9-118			
Total Xylenes	6.26	0.150	mg/kg	6.00		104	87.3-122			
Surrogate: 4-Bromofluorobenzene (PID)	0.0496		mg/kg	0.0500		99.3	71.5-134			

**LCS Dup (3033050-BSD1)**

Prepared: 30-Mar-23 Analyzed: 01-Apr-23

Benzene	2.02	0.050	mg/kg	2.00		101	81.4-118	1.86	15.8	
Toluene	2.05	0.050	mg/kg	2.00		103	88.7-121	2.20	15.9	
Ethylbenzene	2.11	0.050	mg/kg	2.00		105	86.1-120	1.85	16	
m,p-Xylene	4.32	0.100	mg/kg	4.00		108	88.2-124	1.73	16.2	
o-Xylene	2.11	0.050	mg/kg	2.00		106	84.9-118	4.52	16.7	
Total Xylenes	6.43	0.150	mg/kg	6.00		107	87.3-122	2.64	16.3	
Surrogate: 4-Bromofluorobenzene (PID)	0.0502		mg/kg	0.0500		100	71.5-134			

**Batch 3033121 - Volatiles****Blank (3033121-BLK1)**

Prepared: 31-Mar-23 Analyzed: 01-Apr-23

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

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**Volatile Organic Compounds by EPA Method 8021 - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3033121 - Volatiles****Blank (3033121-BLK1)**

Prepared: 31-Mar-23 Analyzed: 01-Apr-23

Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0535		mg/kg	0.0500		107	71.5-134			

**LCS (3033121-BS1)**

Prepared: 31-Mar-23 Analyzed: 01-Apr-23

Benzene	1.91	0.050	mg/kg	2.00		95.3	81.4-118			
Toluene	1.93	0.050	mg/kg	2.00		96.6	88.7-121			
Ethylbenzene	1.98	0.050	mg/kg	2.00		99.1	86.1-120			
m,p-Xylene	4.12	0.100	mg/kg	4.00		103	88.2-124			
o-Xylene	1.98	0.050	mg/kg	2.00		99.1	84.9-118			
Total Xylenes	6.10	0.150	mg/kg	6.00		102	87.3-122			
Surrogate: 4-Bromofluorobenzene (PID)	0.0511		mg/kg	0.0500		102	71.5-134			

**LCS Dup (3033121-BS1)**

Prepared: 31-Mar-23 Analyzed: 01-Apr-23

Benzene	2.08	0.050	mg/kg	2.00		104	81.4-118	8.61	15.8	
Toluene	2.11	0.050	mg/kg	2.00		105	88.7-121	8.77	15.9	
Ethylbenzene	2.17	0.050	mg/kg	2.00		109	86.1-120	9.10	16	
m,p-Xylene	4.46	0.100	mg/kg	4.00		111	88.2-124	7.99	16.2	
o-Xylene	2.17	0.050	mg/kg	2.00		108	84.9-118	8.95	16.7	
Total Xylenes	6.63	0.150	mg/kg	6.00		110	87.3-122	8.30	16.3	
Surrogate: 4-Bromofluorobenzene (PID)	0.0517		mg/kg	0.0500		103	71.5-134			

**Batch 3041019 - Volatiles****Blank (3041019-BLK1)**

Prepared: 10-Apr-23 Analyzed: 11-Apr-23

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0529		mg/kg	0.0500		106	71.5-134			

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**Volatile Organic Compounds by EPA Method 8021 - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3041019 - Volatiles****LCS (3041019-BS1)**

Prepared: 10-Apr-23 Analyzed: 11-Apr-23

Benzene	2.02	0.050	mg/kg	2.00		101	81.4-118			
Toluene	2.09	0.050	mg/kg	2.00		105	88.7-121			
Ethylbenzene	2.06	0.050	mg/kg	2.00		103	86.1-120			
m,p-Xylene	4.36	0.100	mg/kg	4.00		109	88.2-124			
o-Xylene	2.10	0.050	mg/kg	2.00		105	84.9-118			
Total Xylenes	6.46	0.150	mg/kg	6.00		108	87.3-122			

Surrogate: 4-Bromofluorobenzene (PID)

0.0510

mg/kg

0.0500

102

71.5-134

**LCS Dup (3041019-BSD1)**

Prepared: 10-Apr-23 Analyzed: 11-Apr-23

Benzene	2.02	0.050	mg/kg	2.00		101	81.4-118	0.0965	15.8	
Toluene	2.10	0.050	mg/kg	2.00		105	88.7-121	0.402	15.9	
Ethylbenzene	2.07	0.050	mg/kg	2.00		103	86.1-120	0.512	16	
m,p-Xylene	4.39	0.100	mg/kg	4.00		110	88.2-124	0.814	16.2	
o-Xylene	2.12	0.050	mg/kg	2.00		106	84.9-118	0.592	16.7	
Total Xylenes	6.51	0.150	mg/kg	6.00		109	87.3-122	0.742	16.3	

Surrogate: 4-Bromofluorobenzene (PID)

0.0514

mg/kg

0.0500

103

71.5-134

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**Petroleum Hydrocarbons by GC FID - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3033041 - General Prep - Organics****Blank (3033041-BLK1)**

Prepared: 30-Mar-23 Analyzed: 31-Mar-23

GRO C6-C10	ND	10.0	mg/kg						
DRO >C10-C28	ND	10.0	mg/kg						
EXT DRO >C28-C36	ND	10.0	mg/kg						
Surrogate: 1-Chlorooctane	39.3		mg/kg	50.0		78.6	48.2-134		
Surrogate: 1-Chlorooctadecane	53.8		mg/kg	50.0		108	49.1-148		

**LCS (3033041-BS1)**

Prepared: 30-Mar-23 Analyzed: 31-Mar-23

GRO C6-C10	168	10.0	mg/kg	200		84.1	78.5-124		
DRO >C10-C28	198	10.0	mg/kg	200		98.9	72.5-126		
Total TPH C6-C28	366	10.0	mg/kg	400		91.5	77.6-123		
Surrogate: 1-Chlorooctane	46.5		mg/kg	50.0		92.9	48.2-134		
Surrogate: 1-Chlorooctadecane	65.8		mg/kg	50.0		132	49.1-148		

**LCS Dup (3033041-BS1)**

Prepared: 30-Mar-23 Analyzed: 31-Mar-23

GRO C6-C10	181	10.0	mg/kg	200		90.6	78.5-124	7.44	17.7
DRO >C10-C28	213	10.0	mg/kg	200		107	72.5-126	7.61	21
Total TPH C6-C28	395	10.0	mg/kg	400		98.7	77.6-123	7.53	18.5
Surrogate: 1-Chlorooctane	46.0		mg/kg	50.0		92.0	48.2-134		
Surrogate: 1-Chlorooctadecane	65.2		mg/kg	50.0		130	49.1-148		

**Batch 3033043 - General Prep - Organics****Blank (3033043-BLK1)**

Prepared: 30-Mar-23 Analyzed: 31-Mar-23

GRO C6-C10	ND	10.0	mg/kg						
DRO >C10-C28	ND	10.0	mg/kg						
EXT DRO >C28-C36	ND	10.0	mg/kg						
Surrogate: 1-Chlorooctane	40.2		mg/kg	50.0		80.4	48.2-134		
Surrogate: 1-Chlorooctadecane	45.8		mg/kg	50.0		91.6	49.1-148		

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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**Petroleum Hydrocarbons by GC FID - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3033043 - General Prep - Organics****LCS (3033043-BS1)**

Prepared: 30-Mar-23 Analyzed: 31-Mar-23

GRO C6-C10	187	10.0	mg/kg	200		93.5	78.5-124		
DRO >C10-C28	187	10.0	mg/kg	200		93.7	72.5-126		
Total TPH C6-C28	374	10.0	mg/kg	400		93.6	77.6-123		
Surrogate: 1-Chlorooctane	48.4		mg/kg	50.0		96.8	48.2-134		
Surrogate: 1-Chlorooctadecane	51.7		mg/kg	50.0		103	49.1-148		

**LCS Dup (3033043-BS1)**

Prepared: 30-Mar-23 Analyzed: 31-Mar-23

GRO C6-C10	195	10.0	mg/kg	200		97.5	78.5-124	4.21	17.7
DRO >C10-C28	193	10.0	mg/kg	200		96.5	72.5-126	2.95	21
Total TPH C6-C28	388	10.0	mg/kg	400		97.0	77.6-123	3.58	18.5
Surrogate: 1-Chlorooctane	45.8		mg/kg	50.0		91.5	48.2-134		
Surrogate: 1-Chlorooctadecane	47.7		mg/kg	50.0		95.4	49.1-148		

**Batch 3041021 - General Prep - Organics****Blank (3041021-BLK1)**

Prepared &amp; Analyzed: 10-Apr-23

GRO C6-C10	ND	10.0	mg/kg						
DRO >C10-C28	ND	10.0	mg/kg						
EXT DRO >C28-C36	ND	10.0	mg/kg						
Surrogate: 1-Chlorooctane	40.1		mg/kg	50.0		80.3	48.2-134		
Surrogate: 1-Chlorooctadecane	41.2		mg/kg	50.0		82.4	49.1-148		

**LCS (3041021-BS1)**

Prepared &amp; Analyzed: 10-Apr-23

GRO C6-C10	216	10.0	mg/kg	200		108	78.5-124		
DRO >C10-C28	208	10.0	mg/kg	200		104	72.5-126		
Total TPH C6-C28	424	10.0	mg/kg	400		106	77.6-123		
Surrogate: 1-Chlorooctane	56.2		mg/kg	50.0		112	48.2-134		
Surrogate: 1-Chlorooctadecane	57.0		mg/kg	50.0		114	49.1-148		

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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: LOUISE FEE #002  
Project Number: 212C - MD - 02993  
Project Manager: SAM ABBOTT  
Fax To: (432) 682-3946

Reported:  
13-Apr-23 12:30

**Petroleum Hydrocarbons by GC FID - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3041021 - General Prep - Organics****LCS Dup (3041021-BSD1)**

Prepared: 10-Apr-23 Analyzed: 11-Apr-23

GRO C6-C10	176	10.0	mg/kg	200		87.9	78.5-124	20.6	17.7	QR-04
DRO >C10-C28	176	10.0	mg/kg	200		87.9	72.5-126	16.9	21	
Total TPH C6-C28	352	10.0	mg/kg	400		87.9	77.6-123	18.7	18.5	QR-04
Surrogate: 1-Chlorooctane	46.3		mg/kg	50.0		92.6	48.2-134			
Surrogate: 1-Chlorooctadecane	47.6		mg/kg	50.0		95.3	49.1-148			

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### Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
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.
GC-NC1	8260 confirmation analysis was performed; initial GC results were not supported by GC/MS analysis and are biased high with interfering compounds.
GC-NC	8260 confirmation analysis was performed; initial GC results were not supported by GC/MS analysis and are reported as ND.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager



### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

**Company Name:** Tetra Tech

**Project Manager:** Sam Abbott

**Address:** 8911 Capital o Texas Hwy, Suite 2310

**City:** Austin **State:** TX **Zip:**

**Phone #:** (512)565-0190 **Fax #:**

**Project #:** 212C-MD-02893 **Project Owner:** ConocoPhillips

**Project Name:** Louise Fee #002

**Project Location:** Eddy County, New Mexico

**Sampler Name:** Colton Bickerstaff

**P.O. #:**

**Company:** Tetra Tech

**Attn:** Sam Abbott

**Address:** EMAIL

**City:**

**State:** **Zip:**

**Phone #:**

**Fax #:**

**BILL TO**

**ANALYSIS REQUEST**

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX					PRESERV.	SAMPLING	DATE	TIME	TPH 8015M	BTEX 8021B	Chloride SM4500CI-B						
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE													
																					OTHER :
4231476	1		1																		
	2		1																		
	3		1																		
	4		1																		
	5		1																		
	6		1																		
	7		1																		
	8		1																		
	9		1																		
	10		1																		

**Lab I.D.**

**Sample I.D.**

**(G)RAB OR (C)OMP.**

**# CONTAINERS**

**MATRIX**

**PRESERV.**

**SAMPLING**

**DATE**

**TIME**

**TPH 8015M**

**BTEX 8021B**

**Chloride SM4500CI-B**

**Verbal Result:** ☐ Yes ☐ No

**REMARKS:**

**ADD'l Phone #:**

**Delivered By:** (Circle One) **Sampler - UPS - Bus - Other:**

**Observed Temp. °C** **Corrected Temp. °C**

**Sample Condition** **Cool** **Impact**

**Checked By:** (Initials)

**Turnaround Time:** **Standard** **Bacteria (only) Sample Condition**

**Thermometer ID #113** **Correction Factor -0.5°C**

**Corrected Temp. °C**



### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

<b>Company Name:</b> Tetra Tech <b>Project Manager:</b> Sam Abbott <b>Address:</b> 8911 Capital o Texas Hwy, Suite 2310 <b>City:</b> Austin <b>State:</b> TX <b>Zip:</b> _____ <b>Phone #:</b> (512)565-0190 <b>Fax #:</b> _____ <b>Project #:</b> 212C-MD-02993 <b>Project Owner:</b> ConocoPhillips <b>Project Name:</b> Louise Free #002 <b>Project Location:</b> Eddy County, New Mexico <b>Sampler Name:</b> Eddy County, New Mexico <b>Sampler Name:</b> Colton Bickerstaff										<b>BILL TO</b> <b>P.O. #:</b> _____ <b>Company:</b> Tetra Tech <b>Attn:</b> Sam Abbott <b>Address:</b> EMAIL <b>City:</b> _____ <b>State:</b> _____ <b>Zip:</b> _____ <b>Phone #:</b> _____ <b>Fax #:</b> _____										<b>ANALYSIS REQUEST</b>																																							
<b>Lab I.D.</b> H231476										<b>Sample I.D.</b> (G)RAB OR (C)OMP. # CONTAINERS GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER : ACID/BASE: ICE / COOL OTHER :										<b>DATE</b> 3/30/2023										<b>TIME</b> 13:42										<b>TPH 8015M</b> <b>BTEX 8021B</b> <b>Chloride SM4500CI-B</b> added 4-10-23										<b>HOLD</b>									
<b>Delivered By:</b> (Circle One) Sampler - UPS - Bus - Other:										<b>Observed Temp. °C</b> Corrected Temp. °C										<b>Sample Condition</b> Cool    Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> No										<b>CHECKED BY:</b> (Initials) [Signature]										<b>Thermometer ID</b> #113 <b>Correction Factor</b> -0.5°C <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> No																			
<b>Reinquinished By:</b> Colton Bickerstaff										<b>Date:</b> 3/30/23										<b>Received By:</b> [Signature]										<b>Verbal Result:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <b>Add'l Phone #:</b> _____																													
<b>Reinquinished By:</b>										<b>Date:</b>										<b>Received By:</b>										<b>REMARKS:</b>																													





### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



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

---

April 19, 2023

CHRISTIAN LLULL

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: LOUISE FEE #002

Enclosed are the results of analyses for samples received by the laboratory on 04/13/23 13:22.

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:	04/13/2023	Sampling Date:	04/13/2023
Reported:	04/19/2023	Sampling Type:	Soil
Project Name:	LOUISE FEE #002	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02993	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NEW MEXICO		

**Sample ID: AH - 23 - 9 (0'-1') (H231780-01)**

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	04/19/2023	ND	2.00	99.9	2.00	1.54		
Toluene*	<0.050	0.050	04/19/2023	ND	2.10	105	2.00	2.27		
Ethylbenzene*	<0.050	0.050	04/19/2023	ND	2.06	103	2.00	1.19		
Total Xylenes*	<0.150	0.150	04/19/2023	ND	6.40	107	6.00	1.05		
Total BTEX	<0.300	0.300	04/19/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 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	04/19/2023	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/18/2023	ND	194	96.8	200	8.37	
DRO >C10-C28*	<10.0	10.0	04/18/2023	ND	181	90.5	200	13.0	
EXT DRO >C28-C36	<10.0	10.0	04/18/2023	ND					

Surrogate: 1-Chlorooctane 78.5 % 48.2-134

Surrogate: 1-Chlorooctadecane 78.2 % 49.1-148

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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### Notes and Definitions

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

Cardinal Laboratories

\*=Accredited Analyte

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

Caley D. Keene, Lab Director/Quality Manager



## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Page 1 of 1

[illegible]



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

---

June 30, 2023

CHRISTIAN LLULL

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: LOUISE FEE #002 BATTERY RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 06/27/23 15:50.

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).

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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.

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Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

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:	06/27/2023	Sampling Date:	06/21/2023
Reported:	06/30/2023	Sampling Type:	Soil
Project Name:	LOUISE FEE #002 BATTERY RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02993A	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NEW MEXICO		

**Sample ID: BH - 1 (0'-1') (H233327-01)**

BTX 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	06/29/2023	ND	1.89	94.4	2.00	2.45		
Toluene*	<0.050	0.050	06/29/2023	ND	1.86	93.0	2.00	2.97		
Ethylbenzene*	<0.050	0.050	06/29/2023	ND	1.87	93.6	2.00	3.69		
Total Xylenes*	<0.150	0.150	06/29/2023	ND	5.59	93.2	6.00	3.81		
Total BTX	<0.300	0.300	06/29/2023	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	32.0	16.0	06/28/2023	ND	432	108	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	06/29/2023	ND	195	97.7	200	18.6	
DRO >C10-C28*	2310	10.0	06/29/2023	ND	189	94.3	200	16.8	
EXT DRO >C28-C36	1150	10.0	06/29/2023	ND					

Surrogate: 1-Chlorooctane 135 % 48.2-134

Surrogate: 1-Chlorooctadecane 193 % 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: 06/27/2023  
 Reported: 06/30/2023  
 Project Name: LOUISE FEE #002 BATTERY RELEASE  
 Project Number: 212C - MD - 02993A  
 Project Location: EDDY COUNTY, NEW MEXICO

Sampling Date: 06/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: BH - 1 (2'-3') (H233327-02)**

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	06/29/2023	ND	1.89	94.4	2.00	2.45		
Toluene*	<0.050	0.050	06/29/2023	ND	1.86	93.0	2.00	2.97		
Ethylbenzene*	<0.050	0.050	06/29/2023	ND	1.87	93.6	2.00	3.69		
Total Xylenes*	<0.150	0.150	06/29/2023	ND	5.59	93.2	6.00	3.81		
Total BTEX	<0.300	0.300	06/29/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 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	06/28/2023	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2023	ND	198	98.9	200	3.05	
DRO >C10-C28*	39.6	10.0	06/28/2023	ND	181	90.5	200	2.15	
EXT DRO >C28-C36	28.9	10.0	06/28/2023	ND					

Surrogate: 1-Chlorooctane 127 % 48.2-134

Surrogate: 1-Chlorooctadecane 140 % 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: 06/27/2023  
 Reported: 06/30/2023  
 Project Name: LOUISE FEE #002 BATTERY RELEASE  
 Project Number: 212C - MD - 02993A  
 Project Location: EDDY COUNTY, NEW MEXICO

Sampling Date: 06/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: BH - 1 (3'-4') (H233327-03)**

BTX 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	06/29/2023	ND	1.89	94.4	2.00	2.45		
Toluene*	<0.050	0.050	06/29/2023	ND	1.86	93.0	2.00	2.97		
Ethylbenzene*	<0.050	0.050	06/29/2023	ND	1.87	93.6	2.00	3.69		
Total Xylenes*	<0.150	0.150	06/29/2023	ND	5.59	93.2	6.00	3.81		
Total BTX	<0.300	0.300	06/29/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 110 % 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	112	16.0	06/28/2023	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2023	ND	198	98.9	200	3.05	
DRO >C10-C28*	17.0	10.0	06/28/2023	ND	181	90.5	200	2.15	
EXT DRO >C28-C36	11.3	10.0	06/28/2023	ND					

Surrogate: 1-Chlorooctane 104 % 48.2-134

Surrogate: 1-Chlorooctadecane 114 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

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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:	06/27/2023	Sampling Date:	06/21/2023
Reported:	06/30/2023	Sampling Type:	Soil
Project Name:	LOUISE FEE #002 BATTERY RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02993A	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NEW MEXICO		

**Sample ID: BH - 1 (5'-6') (H233327-04)**

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	06/29/2023	ND	1.89	94.4	2.00	2.45		
Toluene*	<0.050	0.050	06/29/2023	ND	1.86	93.0	2.00	2.97		
Ethylbenzene*	<0.050	0.050	06/29/2023	ND	1.87	93.6	2.00	3.69		
Total Xylenes*	<0.150	0.150	06/29/2023	ND	5.59	93.2	6.00	3.81		
Total BTEx	<0.300	0.300	06/29/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 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	32.0	16.0	06/28/2023	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2023	ND	198	98.9	200	3.05	
DRO >C10-C28*	<10.0	10.0	06/28/2023	ND	181	90.5	200	2.15	
EXT DRO >C28-C36	<10.0	10.0	06/28/2023	ND					

Surrogate: 1-Chlorooctane 102 % 48.2-134

Surrogate: 1-Chlorooctadecane 112 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

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

---

Cardinal Laboratories

\*=Accredited Analyte

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

---

Celey D. Keene, Lab Director/Quality Manager





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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

Company Name: <b>Cordova Phillips</b>		P.O. #:	
Project Manager: <b>Christina Hull</b>		Company: <b>Tetra Tech</b>	
Address: <b>Christina Hull @ tetratech.com</b>		Attn: <b>Christina</b>	
City: <b>State: Zip:</b>		Address:	
Phone #: <b>Fax #:</b>		City: <b>State: Zip:</b>	
Project #: <b>010C-MD-00993A</b>		Project Owner: <b>Louise Fee #002 Battery Release</b>	
Project Location: <b>Eddy County, NH</b>		Phone #: <b>Fax #:</b>	
Sampler Name: <b>Joe Tyler</b>		FOR LAB USE ONLY	

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.	SAMPLING	TPH	BTEX	Chlorides	Hold	
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :							
H533327	BH-1 (0-1')	G	1			X						X	X	X		
	BH-1 (2-5')											X	X	X		
	BH-1 (3-4')											X	X	X		
	BH-1 (5-6')											X	X	X		
	BH-1 (7-8')											X	X	X		
	BH-1 (9-10')											X	X	X		

Delivered By: (Circle One)	Observed Temp. °C	Sample Condition	CHECKED BY: (Initials)	Turnaround Time:	Standard	Bacteria (only)	Sample Condition
<input checked="" type="checkbox"/> UPS <input type="checkbox"/> Bus <input type="checkbox"/> Other	5.8	<input checked="" type="checkbox"/> Cool <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	Date: 6-27-03 Time: 1550 Received By: <i>[Signature]</i>	Verbal Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #:	<input checked="" type="checkbox"/> Rush <input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	Observed Temp. °C Corrected Temp. °C

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

Relinquished By: *[Signature]*

Relinquished By: *[Signature]*

REMARKS:



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

September 20, 2023

CHRISTIAN LLULL

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: LOUISE FEE #002 BATTERY RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 09/14/23 13:00.

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:	09/14/2023	Sampling Date:	09/14/2023
Reported:	09/20/2023	Sampling Type:	Soil
Project Name:	LOUISE FEE #002 BATTERY RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02993A	Sample Received By:	Dionica Hinojos
Project Location:	EDDY COUNTY, NEW MEXICO		

**Sample ID: BH - 2 ( 0-1' ) (H234986-01)**

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	09/15/2023	ND	1.83	91.4	2.00	0.547	
Toluene*	<0.050	0.050	09/15/2023	ND	2.08	104	2.00	1.73	
Ethylbenzene*	<0.050	0.050	09/15/2023	ND	2.22	111	2.00	1.79	
Total Xylenes*	<0.150	0.150	09/15/2023	ND	6.62	110	6.00	0.324	
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	32.0	16.0	09/15/2023	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/15/2023	ND	200	100	200	2.63	
DRO >C10-C28*	419	10.0	09/15/2023	ND	196	98.1	200	0.463	
EXT DRO >C28-C36	343	10.0	09/15/2023	ND					

Surrogate: 1-Chlorooctane 88.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 128 % 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: 09/14/2023  
 Reported: 09/20/2023  
 Project Name: LOUISE FEE #002 BATTERY RELEASE  
 Project Number: 212C - MD - 02993A  
 Project Location: EDDY COUNTY, NEW MEXICO

Sampling Date: 09/14/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Dionica Hinojos

**Sample ID: BH - 2 ( 1'-2' ) (H234986-02)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/18/2023	ND	1.83	91.4	2.00	0.547		
Toluene*	<0.050	0.050	09/18/2023	ND	2.08	104	2.00	1.73		
Ethylbenzene*	<0.050	0.050	09/18/2023	ND	2.22	111	2.00	1.79		
Total Xylenes*	<0.150	0.150	09/18/2023	ND	6.62	110	6.00	0.324		
Total BTEx	<0.300	0.300	09/18/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 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	09/15/2023	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/15/2023	ND	200	100	200	2.63	
DRO >C10-C28*	113	10.0	09/15/2023	ND	196	98.1	200	0.463	
EXT DRO >C28-C36	111	10.0	09/15/2023	ND					

Surrogate: 1-Chlorooctane 98.6 % 48.2-134

Surrogate: 1-Chlorooctadecane 124 % 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: 09/14/2023  
 Reported: 09/20/2023  
 Project Name: LOUISE FEE #002 BATTERY RELEASE  
 Project Number: 212C - MD - 02993A  
 Project Location: EDDY COUNTY, NEW MEXICO

Sampling Date: 09/14/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Dionica Hinojos

**Sample ID: BH - 2 ( 2'-3' ) (H234986-03)**

BTEx 8021B		mg/kg	Analyzed By: JH					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/18/2023	ND	1.83	91.4	2.00	0.547	
Toluene*	<0.050	0.050	09/18/2023	ND	2.08	104	2.00	1.73	
Ethylbenzene*	0.089	0.050	09/18/2023	ND	2.22	111	2.00	1.79	GC-NC1
Total Xylenes*	0.779	0.150	09/18/2023	ND	6.62	110	6.00	0.324	GC-NC1
Total BTEX	0.868	0.300	09/18/2023	ND					GC-NC1

Surrogate: 4-Bromofluorobenzene (PID) 159 % 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	09/15/2023	ND	448	112	400	0.00	

TPH 8015M		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	50.8	10.0	09/15/2023	ND	200	100	200	2.63	
DRO >C10-C28*	1540	10.0	09/15/2023	ND	196	98.1	200	0.463	
EXT DRO >C28-C36	448	10.0	09/15/2023	ND					

Surrogate: 1-Chlorooctane 106 % 48.2-134

Surrogate: 1-Chlorooctadecane 113 % 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: 09/14/2023  
 Reported: 09/20/2023  
 Project Name: LOUISE FEE #002 BATTERY RELEASE  
 Project Number: 212C - MD - 02993A  
 Project Location: EDDY COUNTY, NEW MEXICO

Sampling Date: 09/14/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Dionica Hinojos

**Sample ID: BH - 2 ( 3'-4' ) (H234986-04)**

BTX 8021B		mg/kg	Analyzed By: JH					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/18/2023	ND	1.83	91.4	2.00	0.547	
Toluene*	<0.050	0.050	09/18/2023	ND	2.08	104	2.00	1.73	GC-NC
Ethylbenzene*	3.56	0.050	09/18/2023	ND	2.22	111	2.00	1.79	GC-NC1
Total Xylenes*	27.1	0.150	09/18/2023	ND	6.62	110	6.00	0.324	GC-NC1
Total BTX	30.7	0.300	09/18/2023	ND					GC-NC1

Surrogate: 4-Bromofluorobenzene (PID) 825 % 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	09/15/2023	ND	448	112	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*	1070	10.0	09/15/2023	ND	200	100	200	2.63	
DRO >C10-C28*	6560	10.0	09/15/2023	ND	196	98.1	200	0.463	
EXT DRO >C28-C36	1250	10.0	09/15/2023	ND					

Surrogate: 1-Chlorooctane 213 % 48.2-134

Surrogate: 1-Chlorooctadecane 143 % 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:	09/14/2023	Sampling Date:	09/14/2023
Reported:	09/20/2023	Sampling Type:	Soil
Project Name:	LOUISE FEE #002 BATTERY RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02993A	Sample Received By:	Dionica Hinojos
Project Location:	EDDY COUNTY, NEW MEXICO		

**Sample ID: BH - 2 ( 5'-6' ) (H234986-05)**

BTX 8021B		mg/kg		Analyzed By: JH				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/18/2023	ND	1.83	91.4	2.00	0.547	
Toluene*	<0.050	0.050	09/18/2023	ND	2.08	104	2.00	1.73	GC-NC
Ethylbenzene*	<b>0.367</b>	0.050	09/18/2023	ND	2.22	111	2.00	1.79	GC-NC1
<b>Total Xylenes*</b>	<b>4.15</b>	0.150	09/18/2023	ND	6.62	110	6.00	0.324	GC-NC1
<b>Total BTX</b>	<b>4.52</b>	0.300	09/18/2023	ND					GC-NC1

Surrogate: 4-Bromofluorobenzene (PID) 147 % 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	09/15/2023	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10*</b>	<b>67.3</b>	10.0	09/15/2023	ND	200	100	200	2.63	
<b>DRO &gt;C10-C28*</b>	<b>2580</b>	10.0	09/15/2023	ND	196	98.1	200	0.463	
<b>EXT DRO &gt;C28-C36</b>	<b>752</b>	10.0	09/15/2023	ND					

Surrogate: 1-Chlorooctane 97.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 117 % 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: 09/14/2023  
 Reported: 09/20/2023  
 Project Name: LOUISE FEE #002 BATTERY RELEASE  
 Project Number: 212C - MD - 02993A  
 Project Location: EDDY COUNTY, NEW MEXICO

Sampling Date: 09/14/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Dionica Hinojos

**Sample ID: BH - 2 ( 7'-8' ) (H234986-06)**

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	09/18/2023	ND	1.83	91.4	2.00	0.547		
Toluene*	<0.050	0.050	09/18/2023	ND	2.08	104	2.00	1.73		
Ethylbenzene*	<0.050	0.050	09/18/2023	ND	2.22	111	2.00	1.79		
Total Xylenes*	<0.150	0.150	09/18/2023	ND	6.62	110	6.00	0.324		
Total BTEX	<0.300	0.300	09/18/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 119 % 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	96.0	16.0	09/15/2023	ND	448	112	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/15/2023	ND	200	100	200	2.63	
DRO >C10-C28*	<10.0	10.0	09/15/2023	ND	196	98.1	200	0.463	
EXT DRO >C28-C36	<10.0	10.0	09/15/2023	ND					

Surrogate: 1-Chlorooctane 98.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 115 % 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:	09/14/2023	Sampling Date:	09/14/2023
Reported:	09/20/2023	Sampling Type:	Soil
Project Name:	LOUISE FEE #002 BATTERY RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02993A	Sample Received By:	Dionica Hinojos
Project Location:	EDDY COUNTY, NEW MEXICO		

**Sample ID: BH - 2 ( 9'-10' ) (H234986-07)**

BTX 8021B		mg/kg		Analyzed By: JH				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/18/2023	ND	1.83	91.4	2.00	0.547	
Toluene*	<0.050	0.050	09/18/2023	ND	2.08	104	2.00	1.73	
Ethylbenzene*	<b>0.081</b>	0.050	09/18/2023	ND	2.22	111	2.00	1.79	GC-NC1
Total Xylenes*	<b>0.766</b>	0.150	09/18/2023	ND	6.62	110	6.00	0.324	GC-NC1
Total BTX	<b>0.847</b>	0.300	09/18/2023	ND					GC-NC1

Surrogate: 4-Bromofluorobenzene (PID) 150 % 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	<b>32.0</b>	16.0	09/15/2023	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/15/2023	ND	200	100	200	2.63	
DRO >C10-C28*	<b>105</b>	10.0	09/15/2023	ND	196	98.1	200	0.463	
EXT DRO >C28-C36	<b>37.9</b>	10.0	09/15/2023	ND					

Surrogate: 1-Chlorooctane 102 % 48.2-134

Surrogate: 1-Chlorooctadecane 123 % 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: 09/14/2023  
 Reported: 09/20/2023  
 Project Name: LOUISE FEE #002 BATTERY RELEASE  
 Project Number: 212C - MD - 02993A  
 Project Location: EDDY COUNTY, NEW MEXICO

Sampling Date: 09/14/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Dionica Hinojos

**Sample ID: BH - 2 ( 11'-12' ) (H234986-08)**

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	09/18/2023	ND	1.83	91.4	2.00	0.547	
Toluene*	<0.050	0.050	09/18/2023	ND	2.08	104	2.00	1.73	
Ethylbenzene*	<0.050	0.050	09/18/2023	ND	2.22	111	2.00	1.79	
Total Xylenes*	<0.150	0.150	09/18/2023	ND	6.62	110	6.00	0.324	
Total BTX	<0.300	0.300	09/18/2023	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	272	16.0	09/15/2023	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/15/2023	ND	200	100	200	2.63	
DRO >C10-C28*	<10.0	10.0	09/15/2023	ND	196	98.1	200	0.463	
EXT DRO >C28-C36	<10.0	10.0	09/15/2023	ND					

Surrogate: 1-Chlorooctane 96.8 % 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: 09/14/2023  
 Reported: 09/20/2023  
 Project Name: LOUISE FEE #002 BATTERY RELEASE  
 Project Number: 212C - MD - 02993A  
 Project Location: EDDY COUNTY, NEW MEXICO

Sampling Date: 09/14/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Dionica Hinojos

**Sample ID: AH - 23-10 ( 1'-2' ) (H234986-10)**

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	09/18/2023	ND	1.83	91.4	2.00	0.547		
Toluene*	<0.050	0.050	09/18/2023	ND	2.08	104	2.00	1.73		
Ethylbenzene*	<0.050	0.050	09/18/2023	ND	2.22	111	2.00	1.79		
Total Xylenes*	<0.150	0.150	09/18/2023	ND	6.62	110	6.00	0.324		
Total BTEx	<0.300	0.300	09/18/2023	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	944	16.0	09/15/2023	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/15/2023	ND	200	100	200	2.63	
DRO >C10-C28*	<10.0	10.0	09/15/2023	ND	196	98.1	200	0.463	
EXT DRO >C28-C36	<10.0	10.0	09/15/2023	ND					

Surrogate: 1-Chlorooctane 97.1 % 48.2-134

Surrogate: 1-Chlorooctadecane 112 % 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: 09/14/2023  
 Reported: 09/20/2023  
 Project Name: LOUISE FEE #002 BATTERY RELEASE  
 Project Number: 212C - MD - 02993A  
 Project Location: EDDY COUNTY, NEW MEXICO

Sampling Date: 09/14/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Dionica Hinojos

**Sample ID: AH - 23-10 ( 2'-3' ) (H234986-11)**

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	09/18/2023	ND	1.83	91.4	2.00	0.547		
Toluene*	<0.050	0.050	09/18/2023	ND	2.08	104	2.00	1.73		
Ethylbenzene*	<0.050	0.050	09/18/2023	ND	2.22	111	2.00	1.79		
Total Xylenes*	<0.150	0.150	09/18/2023	ND	6.62	110	6.00	0.324		
Total BTEX	<0.300	0.300	09/18/2023	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	304	16.0	09/15/2023	ND	448	112	400	3.64		

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	09/15/2023	ND	200	100	200	2.63	
DRO >C10-C28*	<10.0	10.0	09/15/2023	ND	196	98.1	200	0.463	
EXT DRO >C28-C36	<10.0	10.0	09/15/2023	ND					

Surrogate: 1-Chlorooctane 102 % 48.2-134

Surrogate: 1-Chlorooctadecane 117 % 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: 09/14/2023  
 Reported: 09/20/2023  
 Project Name: LOUISE FEE #002 BATTERY RELEASE  
 Project Number: 212C - MD - 02993A  
 Project Location: EDDY COUNTY, NEW MEXICO

Sampling Date: 09/14/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Dionica Hinojos

**Sample ID: AH - 23-11 ( 2'-3' ) (H234986-13)**

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	09/15/2023	ND	1.83	91.4	2.00	0.547		
Toluene*	<0.050	0.050	09/15/2023	ND	2.08	104	2.00	1.73		
Ethylbenzene*	<0.050	0.050	09/15/2023	ND	2.22	111	2.00	1.79		
Total Xylenes*	<0.150	0.150	09/15/2023	ND	6.62	110	6.00	0.324		
Total BTEX	<0.300	0.300	09/15/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 107 % 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	09/15/2023	ND	448	112	400	3.64		

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	09/15/2023	ND	192	95.9	200	2.28	
DRO >C10-C28*	<10.0	10.0	09/15/2023	ND	199	99.4	200	0.991	
EXT DRO >C28-C36	<10.0	10.0	09/15/2023	ND					

Surrogate: 1-Chlorooctane 85.5 % 48.2-134

Surrogate: 1-Chlorooctadecane 88.1 % 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: 09/14/2023  
 Reported: 09/20/2023  
 Project Name: LOUISE FEE #002 BATTERY RELEASE  
 Project Number: 212C - MD - 02993A  
 Project Location: EDDY COUNTY, NEW MEXICO

Sampling Date: 09/14/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Dionica Hinojos

**Sample ID: AH - 23-12 ( 2'-3' ) (H234986-14)**

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	09/15/2023	ND	1.83	91.4	2.00	0.547	
Toluene*	<0.050	0.050	09/15/2023	ND	2.08	104	2.00	1.73	
Ethylbenzene*	<0.050	0.050	09/15/2023	ND	2.22	111	2.00	1.79	
Total Xylenes*	<0.150	0.150	09/15/2023	ND	6.62	110	6.00	0.324	
Total BTEX	<0.300	0.300	09/15/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 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	09/15/2023	ND	448	112	400	3.64	

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	09/15/2023	ND	192	95.9	200	2.28	
DRO >C10-C28*	136	10.0	09/15/2023	ND	199	99.4	200	0.991	
EXT DRO >C28-C36	68.4	10.0	09/15/2023	ND					

Surrogate: 1-Chlorooctane 85.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 87.4 % 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.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
GC-NC1	8260 confirmation analysis was performed; initial GC results were not supported by GC/MS analysis and are biased high with interfering compounds.
GC-NC	8260 confirmation analysis was performed; initial GC results were not supported by GC/MS analysis and are reported as ND.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

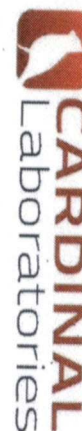
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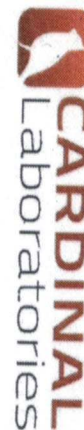
Celey D. Keene, Lab Director/Quality Manager





### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

252

[illegible]

Ps 207

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

QUESTIONS

Action 295884

**QUESTIONS**

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID:
	229137
	Action Number:
	295884
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

**QUESTIONS**

Prerequisites	
Incident ID (n#)	nAB1819154956
Incident Name	NAB1819154956 LOUISE FEE #002 @ 30-015-20264
Incident Type	Produced Water Release
Incident Status	Remediation Plan Received
Incident Well	[30-015-20264] LOUISE FEE #002

**Location of Release Source**

Please answer all the questions in this group.

Site Name	LOUISE FEE #002
Date Release Discovered	07/07/2018
Surface Owner	Private

**Incident Details**

Please answer all the questions in this group.

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

**Nature and Volume of Release**

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

Crude Oil Released (bbls) Details	Cause: Corrosion   Other (Specify)   Crude Oil   Released: 6 BBL   Recovered: 2 BBL   Lost: 4 BBL.
Produced Water Released (bbls) Details	Cause: Corrosion   Other (Specify)   Produced Water   Released: 6 BBL   Recovered: 2 BBL   Lost: 4 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	No
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Not answered.



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QUESTIONS, Page 2

Action 295884

**QUESTIONS (continued)**

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID:
	229137
	Action Number:
	295884
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

**QUESTIONS**

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

**Initial Response**

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

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

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

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

I hereby agree and sign off to the above statement	Name: Christian LLuLL Title: Project Manager Email: christian.llull@tetrattech.com Date: 12/18/2023
--	--

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**District IV**

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

QUESTIONS, Page 3

Action 295884

**QUESTIONS (continued)**

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID:
	229137
	Action Number:
	295884
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

**QUESTIONS****Site Characterization**

Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Less than or equal 25 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
<b>What is the minimum distance, between the closest lateral extents of the release and the following surface areas:</b>	
A continuously flowing watercourse or any other significant watercourse	Between 300 and 500 (ft.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Greater than 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Between 1 and 5 (mi.)
A wetland	Greater than 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Medium
A 100-year floodplain	Zero feet, overlying, or within area
Did the release impact areas not on an exploration, development, production, or storage site	No

**Remediation Plan**

Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No

**Soil Contamination Sampling:** (Provide the highest observable value for each, in milligrams per kilograms.)

Chloride	(EPA 300.0 or SM4500 Cl B)	3520
TPH (GRO+DRO+MRO)	(EPA SW-846 Method 8015M)	35642
GRO+DRO	(EPA SW-846 Method 8015M)	31142
BTEX	(EPA SW-846 Method 8021B or 8260B)	67.4
Benzene	(EPA SW-846 Method 8021B or 8260B)	0

Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.

On what estimated date will the remediation commence	04/18/2024
On what date will (or did) the final sampling or liner inspection occur	04/23/2024
On what date will (or was) the remediation complete(d)	04/23/2024
What is the estimated surface area (in square feet) that will be reclaimed	1100
What is the estimated volume (in cubic yards) that will be reclaimed	56
What is the estimated surface area (in square feet) that will be remediated	1100
What is the estimated volume (in cubic yards) that will be remediated	56

These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.

The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.



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**Santa Fe, NM 87505**

QUESTIONS, Page 4

Action 295884

**QUESTIONS (continued)**

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID:	229137
	Action Number:	295884
	Action Type:	[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

**QUESTIONS****Remediation Plan (continued)**

Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

**This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:**

(Select all answers below that apply.)	
(Ex Situ) Excavation and <b>off-site</b> disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for <b>off-site</b> disposal	HALFWAY DISPOSAL AND LANDFILL [fEEM0112334510]
<b>OR</b> which OCD approved well (API) will be used for <b>off-site</b> disposal	Not answered.
<b>OR</b> is the <b>off-site</b> disposal site, to be used, out-of-state	Not answered.
<b>OR</b> is the <b>off-site</b> disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and <b>on-site</b> remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.

Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.

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

I hereby agree and sign off to the above statement	Name: Christian LLuLL Title: Project Manager Email: christian.llull@tetrattech.com Date: 12/18/2023
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The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.

**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**

QUESTIONS, Page 5  
  
Action 295884

QUESTIONS (continued)

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 295884
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

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

**District I**  
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QUESTIONS, Page 6

Action 295884

QUESTIONS (continued)

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID:
	229137
	Action Number:
	295884
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

QUESTIONS

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

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	No

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CONDITIONS  
  
Action 295884

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 295884
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

CONDITIONS

Created By	Condition	Condition Date
bhall	Remediation plan approved. Ensure faces of the near vertical surfaces of the benched excavation are included in the 5-point composite confirmation samples.	12/19/2023
bhall	Submit a complete report through the OCD Permitting website by 4/26/2024.	12/19/2023