



May 3, 2023

District Supervisor
Oil Conservation Division, District 2
811 S. First St.
Artesia, New Mexico 88210

**Re: Release Characterization and Remediation Work Plan
ConocoPhillips
James A Waterflood Facility Release
Unit Letter P, Section 2, Township 22 South, Range 30 East
Eddy County, New Mexico
Incident ID NMAP1829546514
2RP-5017**

Sir or Madam:

Tetra Tech, Inc. (Tetra Tech) was contacted by ConocoPhillips to assess a release that occurred as the result of a leak on the injection well discharge line at the James A Waterflood Facility. The release footprint is located in Public Land Survey System (PLSS) Unit Letter P, Section 2, Township 22 South, Range 30 East, in Eddy County, New Mexico (Site). The approximate release point occurred at coordinates 32.416398°, -103.847294°, 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 August 24, 2018. The C-141 attributed the release to the James A #012, however, the release occurred at the James A Waterflood Facility (Facility ID fMAP1829545945), which shares a lease pad with the James A #012 well. The release occurred as the result of a leak on the injection well discharge line. Approximately 89 barrels (bbls) of produced water were released, of which 55 bbls were recovered. The NMOCD received the initial C-141 on October 22, 2018, and subsequently assigned the release the Remediation Permit (RP) number 2RP-5017 and the Incident ID NMAP1829546514. The initial C-141 form is included in Appendix A.

According to a Corrective Action Plan (CAP) submitted to the NMOCD in 2019 by ConocoPhillips, there were three additional releases at the Site on August 30, 2018, March 25, 2019, and April 4, 2019. The August 30, 2018 release occurred as a result of a tank overflow when the injection station lost power during a thunderstorm, resulting in the release of 33 bbls of produced water, of which 25 bbls were recovered. Although an initial C-141 was included in the CAP, there is no RP number or Incident ID associated with the August 30, 2018 release.

Separate Release Characterization and Remediation Work Plans will be submitted for the March 25, 2019 (Incident ID NAB1912758567/2RP-5398) and April 4, 2019 (Incident ID NAB1912759510/2RP-5399) releases. However, all stated incidents will be addressed with equivalent remedial action due to their coincident footprints.

Tetra Tech

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SITE CHARACTERIZATION

A Site characterization was performed and no sinkholes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, springs, playa lakes, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the distances specified in 19.15.29 New Mexico Administrative Code (NMAC). The Site is in an area of high karst potential. Additionally, several stream bodies were identified within ½ mile of the Site, but these have been identified as ephemeral drainage channels.

The Site is within a New Mexico oil and gas production area. According to the New Mexico Office of the State Engineers (NMOSE) reporting system, there are no water wells within ½ mile (800 meters) of the Site. There is (1) water well within 1.5 miles (2,400 meters) of the Site with a depth to groundwater of 410 feet below ground surface (bgs).

As the available water level information is from a well further than ½ mile away from the Site, ConocoPhillips elected to drill a boring to verify depth to groundwater. On September 26, 2022, a licensed well drilling subcontractor was onsite to drill a groundwater determination borehole (DTW) to 55 feet bgs along the edge of the James A Waterflood Facility pad. The borehole was temporarily set and screened using 2-inch PVC well materials. No water was present in the well during or after drilling. The well screen and casing were removed, and the borehole was plugged with 3/8-inch bentonite chips. The Site characterization data, boring log, and temporary well diagram are included in Appendix B.

LAND OWNERSHIP

The Site is located on land owned by the Bureau of Land Management (BLM). The release extent was confined to on-pad, previously disturbed areas.

REGULATORY FRAMEWORK

Based upon the release footprint location 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 high karst potential and in accordance with Table I of 19.15.29.12 NMAC, the proposed RRALs for the Site are as follows:

Constituent	Reclamation RRAL
Chloride	600 mg/kg
TPH	100 mg/kg
BTEX	50 mg/kg
Benzene	10 mg/kg

INITIAL RESPONSE ACTIONS

According to the 2019 CAP, the August 30, 2018 release consisted of a tank overflowing at the same location as the August 24, 2018 release. Initial response actions included excavating the release extent to approximately 2 feet bgs. The CAP also indicates that 39 samples were collected from the excavation area ranging in depth from 2 to 8 feet bgs. The sample locations were reportedly indicated on the figure provided as a portion of the CAP; however, the handwritten location annotations are illegible. Additionally, according to the CAP, the March 25, 2019 (mistakenly identified as occurring on March 3rd) and April 4, 2019 releases both occurred within the excavation areas before backfilling occurred, and saturated soils were removed.

The CAP included a request to backfill portions of the excavation, and to resample other excavation areas, presumably where the 2019 releases occurred. The CAP was denied by Mike Bratcher of the NMOCD via email on Tuesday, May 7, 2019. The rationale provided for the denial is as follows:

“Assuming this is the remediation proposal for this release, it is DENIED due for the most part, for not meeting requirements of current spill rule [19.15.29] NMAC.

Here is a link to the rule: <http://164.64.110.134/parts/title19/19.015.0029.html>

Please review and resubmit including all documentation as required. Along with multiple other deficiencies, the analytical data needs to be in a table format with sample points clearly marked on a scaled site diagram.

The attachments you have sent are not legible, making this type submittal unacceptable. I would suggest a third party contractor be retained to formulate your proposal.”

A copy of the regulatory correspondence is included as Appendix C. The excavation was backfilled, however, associated records are scarce.

SITE ASSESSMENT ACTIVITIES

Given the history of the Site and the multiple associated incidents, on September 26, 2022, Tetra Tech personnel were onsite to oversee the installation of six (6) air rotary soil borings (B-1 through B-6), to a terminal depth of 20 feet bgs each. Soil borings were installed in the release area footprint to vertically delineate the extent of impacted soils. To complete horizontal delineation of the release footprint, Tetra Tech personnel returned to the Site on October 5, 2022 to install fifteen (15) hand auger borings (AH-1 through AH-15) to depths ranging from 1 to 5 feet bgs. Two additional air rotary borings (B-7 and B-8) were installed on and December 12, 2022 to a terminal depth of 30 feet bgs each to complete vertical delineation of the release extent. Soil assessment sampling locations are presented in Figure 4. Photographic documentation from the Site assessment activities is presented in Appendix D.

A total of ninety (90) soil samples were collected from the eight (8) air rotary borings and the fifteen (15) hand auger borings and submitted to Cardinal Laboratories in Hobbs, NM to be analyzed for chloride via EPA Method SM4500CI-B, BTEX via EPA Method 8021B, and TPH via EPA Method 8015M. Copies of the laboratory analytical reports are included as Appendix E.

On December 6, 2022, Ensolum, LLC was onsite at the James A Waterflood to perform additional soil sampling activities on behalf of COP. Boring locations BH-01 through BH-06 (Indicated on Figure 4) were installed to depths of 4 feet. Soil samples were collected from 1' and 4' bgs. Samples were submitted to Eurofins Carlsbad, based in Carlsbad, NM. Copies of the laboratory analytical reports are included as Appendix E.

SUMMARY OF SAMPLING RESULTS

Analytical results for chloride exceeded the Site RRAL of 600 mg/kg in all interior borings (B-1 through B-6) at multiple variable sample intervals, as well as in the 0-1 and 2-3 foot bgs sample intervals at AH-11 and the 0-1, 2-3, and 4-5 foot bgs sample intervals at AH-15.

The analytical results for TPH exceeded the Site RRAL of 100 mg/kg in the 0-1 foot bgs sample intervals at boring locations B-3, AH-11, and AH-15. There were no detections of BTEX above the reporting limits in any of the analyzed samples. Results from the 2022 soil sampling events are summarized in Table 1. The release was successfully delineated horizontally and vertically as a result of the soil assessment activities.

The Ensolum analytical results were directly compared to the established Site RRALs. The analytical results associated with the sampled borings were below reclamation requirements/RRALs for all constituents. Results from the Ensolum soil sampling event are summarized in Table 2. These data points were used to refine the historical release extents at the Site.

REMEDIATION WORK PLAN

Based on the analytical results, ConocoPhillips proposes to remove the remaining impacted material as shown in Figure 5. Impacted soils will be excavated using heavy equipment (backhoes, hoe rams, and track hoes) to a maximum depth of 4 feet below the surrounding surface or until a representative sample from the walls and bottom of the excavation is below the RRALs. Select areas containing pressurized lines will be hand-dug to a depth of 4 feet or the maximum extent practicable and heavy equipment will come no more than 3 ft from any pressurized lines. Substantial lease pad areas of the release footprint contain production tanks, electrical and/or pressurized lines, and associated production equipment where remediation could cause a major facility deconstruction. The remediation of these areas is proposed to be deferred until the equipment is removed during other operations, or when the facility is abandoned. Figure 5 provides the details on the areas proposed for deferral.

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 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 2,430 cubic yards.

VARIANCE REQUEST

After characterization of this release, ConocoPhillips proposes to leave impacted soils (with concentrations greater than those specified in Table I) located below four (4) feet bgs in place. The release impact is fully delineated, groundwater in this area is deeper than 55 feet bgs, and the release footprint is located in areas immediately under or around pipelines where any further excavation past four feet bgs could cause a major facility deconstruction, and/or additional unwanted impact to the environment.

Additionally, the Site is located in an area with abundant potash reserves, and so naturally occurring soluble mineral salts such as sylvite (KCl) do lead to natural variations of chloride in the soils of the region. Given the depth to groundwater at the site and the naturally occurring mineral salts in soil at depth, deeper chloride concentrations observed in the assessment data could be the result of potassium salts in the form of nitrates, sulfates, and chlorides.

Thus, in accordance with 19.15.29.14(A) NMAC, ConocoPhillips requests a variance for the placement of a liner within the excavated area. A 20-mil reinforced poly liner will be installed and properly seated throughout the base of the excavation (at 4 feet below surrounding grade). The liner will provide an engineering control that will serve as a barrier and inhibit the downward migration of residual constituents.

ALTERNATIVE CONFIRMATION SAMPLING PLAN

In accordance with 19.15.29.12(D)(1)(b) NMAC, ConocoPhillips proposes the following alternative confirmation sampling plan to adhere with NMOCD requirements. The proposed confirmation sample locations are depicted in Figure 6. Forty-two (42) confirmation floor samples and twenty-five (25) confirmation sidewall samples are proposed for verification of remedial activities. The proposed excavation encompasses a surface area of approximately 16,500 square feet.

These confirmation sidewall and floor samples will be representative of no more than approximately 400 square feet of excavated area. Confirmation samples will be sent to an accredited laboratory for analysis of chloride via EPA Method SM4500Cl-B or 300.0, BTEX via EPA Method 8021B, and TPH via EPA Method 8015M. Once results are received, NMOCD will be notified, and the excavation will then be backfilled with clean material to surface grade.

CONCLUSION

Existing historical impacts from the three documented releases above Site RRALs found during the Site delineation and characterization have been vertically defined. All analytical results associated with the horizontal delineation sampling locations surrounding the release area were below applicable Site RRALs.

Release Characterization and Remediation Work Plan
May 3, 2023

ConocoPhillips

As described above, COP will remediate impacted areas to four-foot bgs, as indicated in Figure 5. A liner will be placed at the base of the excavation. Per 19.15.29.12(2) NMAC, a deferral for the remediation, restoration, and reclamation for the remaining surface impact is requested until the equipment is removed during other operations, or when the facility is retrofitted or abandoned, whichever comes first. These areas proposed for deferral in Figure 5 are immediately under or around energized or pressurized lines could cause additional unwanted impact to the environment and/or present safety concerns for onsite personnel. Final remediation and reclamation of the remaining surficial impacts (0-4' bgs) shall take place in accordance with 19.15.29.12 and 19.15.29.13 NMAC once the site is no longer being used for oil and gas operations.

As described in the variance request, given the established DTW determination, the subsurface soils at the Site do not pose a threat to freshwater, human health, or the environment. The subsurface chloride concentrations observed in the assessment data are likely due to natural fluctuations in mineral salts in the region. The final C-141 forms are enclosed in Appendix A. If you have any questions concerning the soil assessment activities at the Site, please call me at (512) 739-7874 or Christian at (512) 288-6281.

Sincerely,

Tetra Tech, Inc.



Samantha K. Abbott, P.G.
Project Manager



Christian M. Llull, P.G.
Program Manager

cc:

Mr. Sam Widmer, RMR – ConocoPhillips

Ms. Shelly Taylor, BLM

LIST OF ATTACHMENTS

Figures:

- Figure 1 – Overview Map
- Figure 2 – Topographic Map
- Figure 3 – Approximate Release Extent
- Figure 4 – Approximate Release Extents and Site Assessment
- Figure 5 – Proposed Remediation and Deferment Extent
- Figure 6 – Alternative Confirmation Sampling Plan

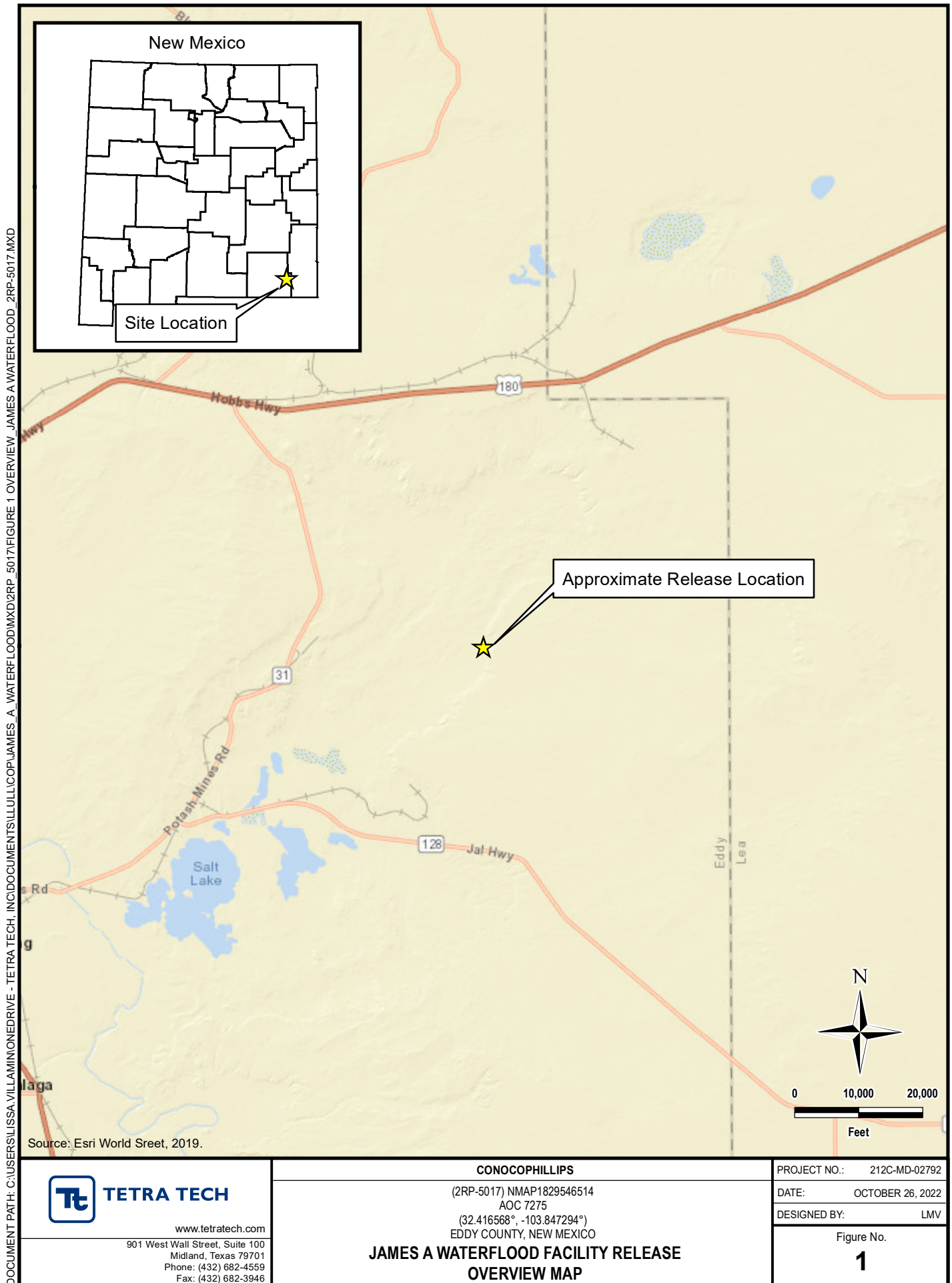
Tables:

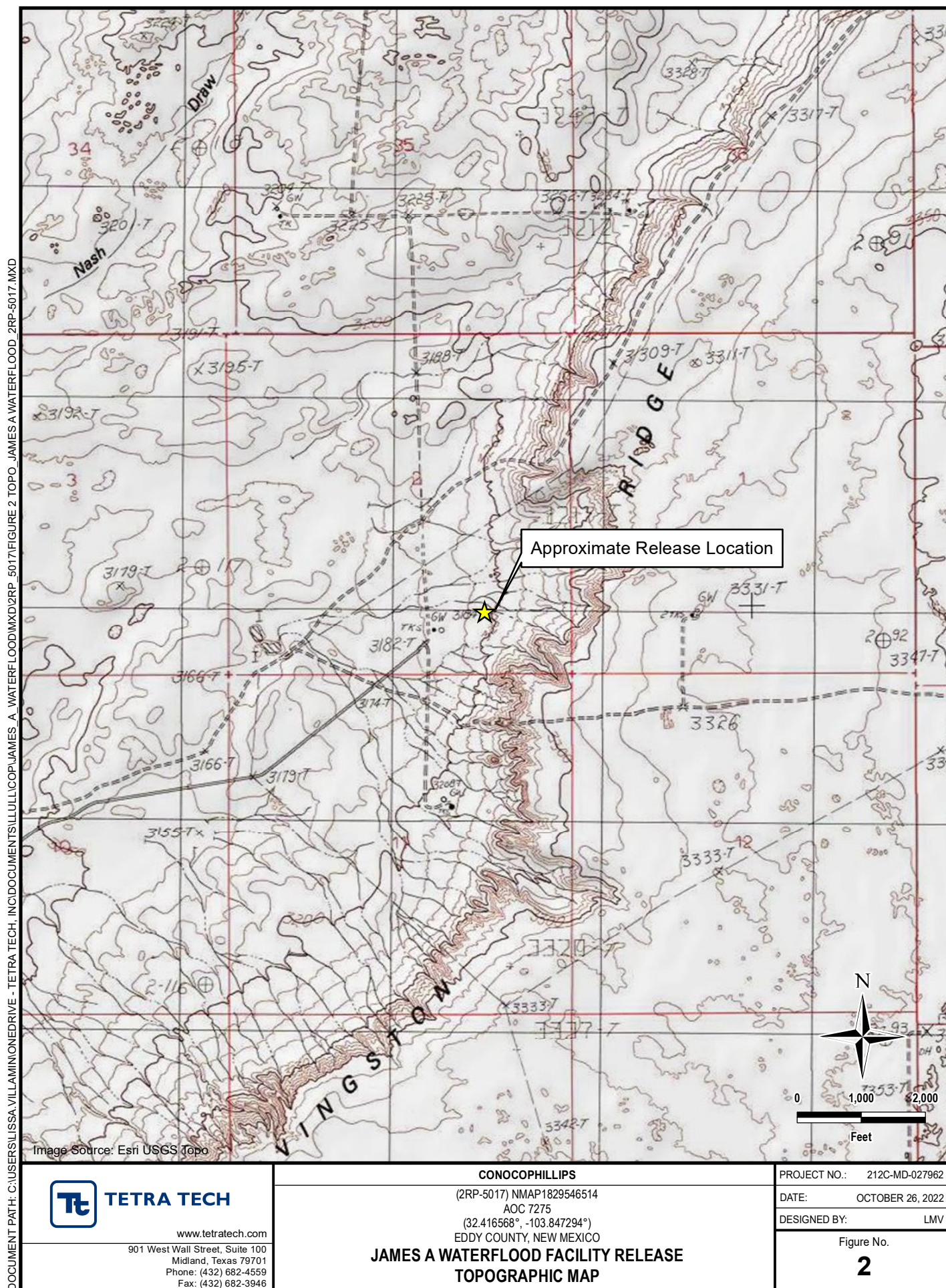
- Table 1 – Summary of Analytical Results – Soil Assessment
- Table 2 – Summary of Analytical Results – Additional Assessment

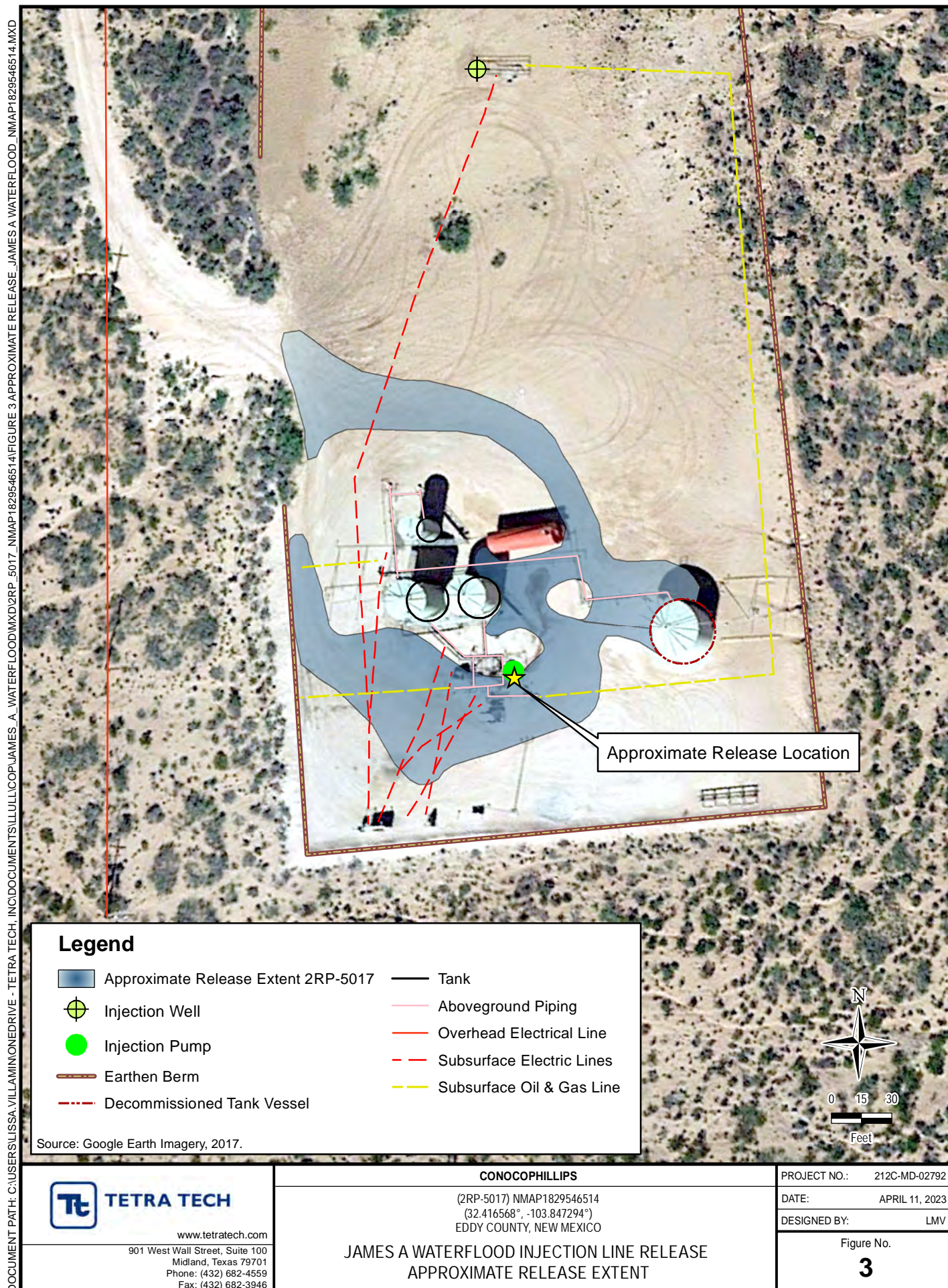
Appendices:

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

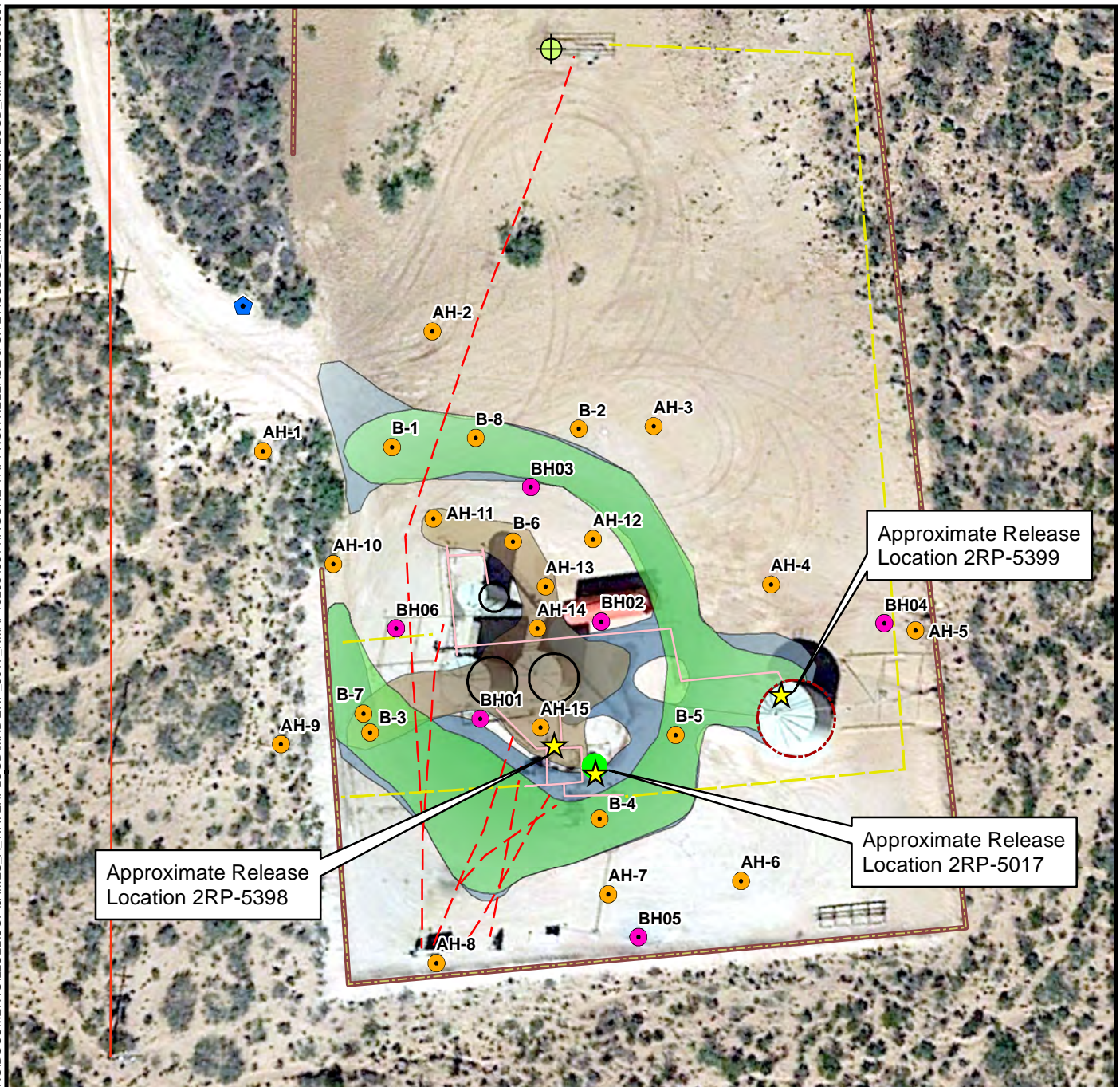
FIGURES







DOCUMENT PATH: C:\USERS\LISSA.VILLAMONEDRIVE - TETRA TECH, INC\DOCUMENTS\LISSA.VILLAMONEDRIVE - TETRA TECH, INC\PROJECTS\JAMES A WATERFLOOD\FIGURE 4 APPROX RELEASE & SITE ASSESS - JAMES A WATERFLOOD_NMAP1829546514.MXD



Legend

- | | | |
|-------------------------------------|----------------------------|---------------------------|
| Approximate Release Extent 2RP-5017 | Injection Well | Tank |
| Approximate Release Extent 2RP-5398 | Injection Pump | Aboveground Piping |
| Approximate Release Extent 2RP-5399 | Tetra Tech Boring Location | Overhead Electrical Line |
| Ensolum Boring Location (2022) | Earthen Berm | Subsurface Electric Line |
| DTW | Decommissioned Tank Vessel | Subsurface Oil & Gas Line |

Source: Google Earth Imagery, 2017.



TETRA TECH

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CONOCOPHILLIPS

(2RP-5017) NMAP1829546514
(32.416568°, -103.847294°)
EDDY COUNTY, NEW MEXICO

JAMES A WATERFLOOD INJECTION LINE RELEASE APPROXIMATE RELEASE EXTENTS AND SITE ASSESSMENT

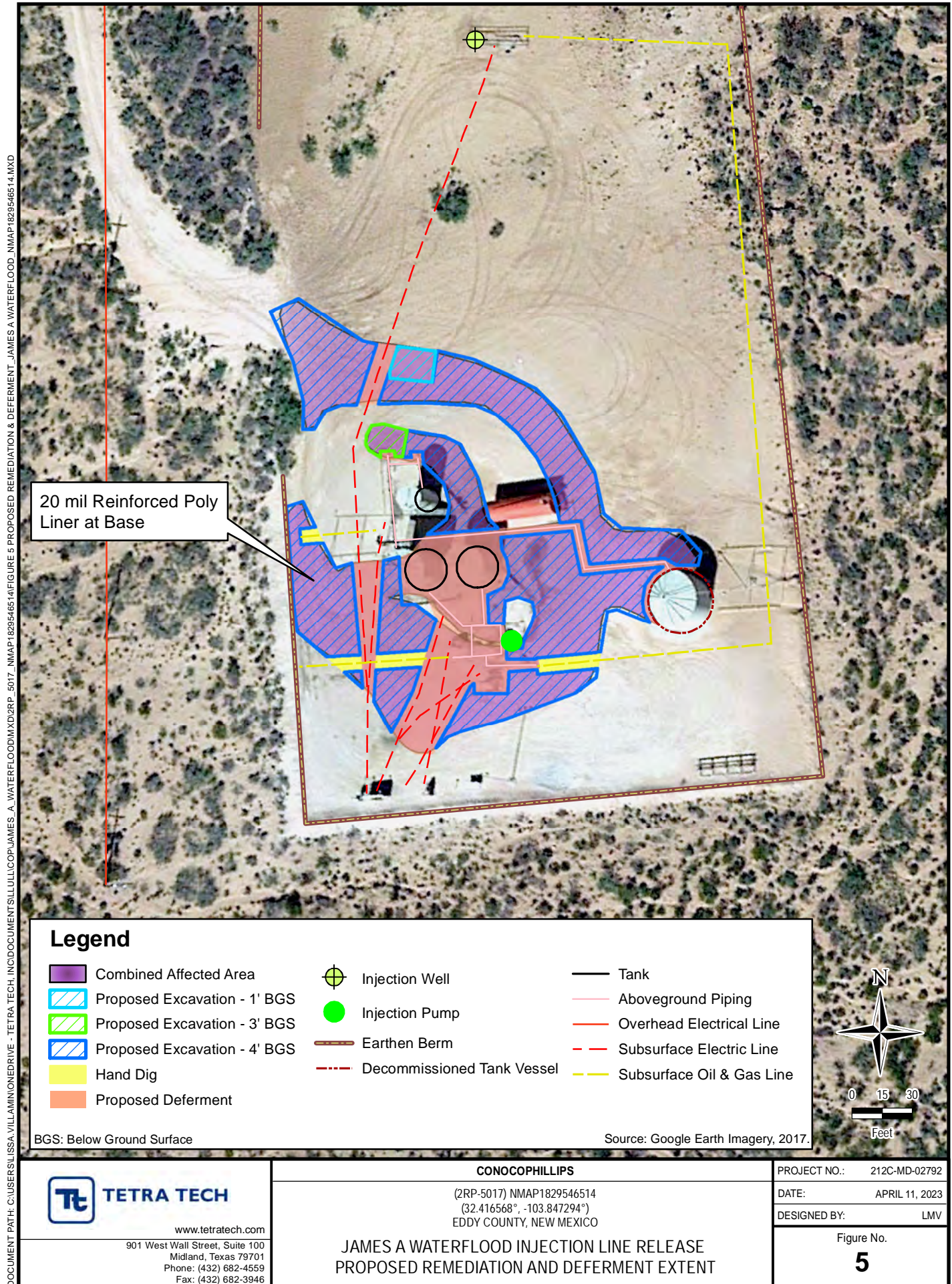
PROJECT NO.: 212C-MD-02792

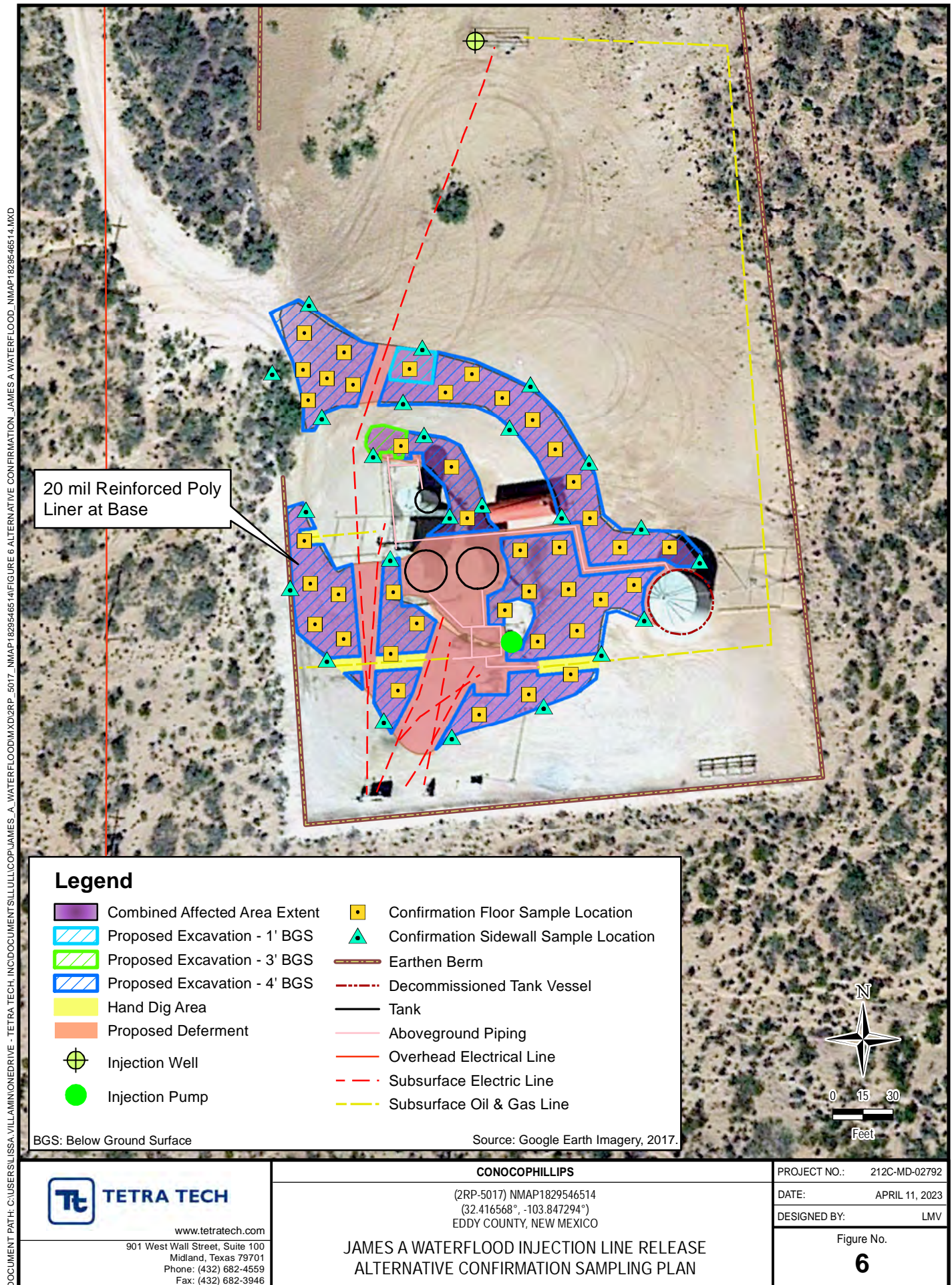
DATE: APRIL 11, 2023

DESIGNED BY: LMV

Figure No.

4





TABLES

TABLE 1
SUMMARY OF ANALYTICAL RESULTS
SOIL ASSESSMENT- 2RP-5017 / nMAP1829546514
CONOCOPHILLIPS
JAMES A WATERFLOOD (MULTIPLE RELEASES)
EDDY COUNTY, NM

Sample ID	Sample Date	Sample Depth	Field Screening Results		Chloride ¹		BTEX ²								TPH ³									
			Chloride	PID			Benzene		Toluene		Ethylbenzene		Total Xylenes		Total BTEX		GRO		DRO		EXT DRO		(GRO+DRO)	Total TPH (GRO+DRO+EXT DRO)
		ft. bgs			ppm	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	C ₆ - C ₁₀	Q	mg/kg	Q	mg/kg		Q
		Closure Criteria for Pasture / Off-Pad Soils 0-4' bgs:				600 mg/kg		< 10 mg/kg		--		--		--		< 50 mg/kg		--		--		--		--
Closure Criteria for Soils >4' bgs (GW 50-100 ft):				10,000 mg/kg		< 10 mg/kg		--		--		--		< 50 mg/kg		--		--		--		1000 mg/kg		2500 mg/kg
B-1	9/26/2022	0-1	-	-	192		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		2-3	-	-	800		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		3-4	-	-	1,250		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		4-5	-	-	1,920		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		6-7	-	-	1,600		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		8-9	-	-	224		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		14-15	-	-	288		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		19-20	-	-	800		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
B-2	9/26/2022	0-1	-	-	288		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		2-3	-	-	224		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		3-4	-	-	256		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		4-5	-	-	176		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		6-7	-	-	272		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		8-9	-	-	288		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		14-15	-	-	864		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		19-20	-	-	1,800		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
B-3	9/26/2022	0-1	-	-	5,120		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		1,150		248		1,150	1,398
		2-3	-	-	2,880		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		37.9		24		37.9	61.9
		3-4	-	-	1,790		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		4-5	-	-	1,360		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		6-7	-	-	1,780		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		8-9	-	-	1,340		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		14-15	-	-	1,420		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		19-20	-	-	1,310		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
B-4	9/26/2022	0-1	-	-	9,730		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		2-3	-	-	2,800		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		3-4	-	-	3,280		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		4-5	-	-	3,000		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		6-7	-	-	3,080		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		8-9	-	-	2,800		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		14-15	-	-	800		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-
		19-20	-	-	352		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--	-

TABLE 1
SUMMARY OF ANALYTICAL RESULTS
SOIL ASSESSMENT- 2RP-5017 / nMAP1829546514
CONOCOPHILLIPS
JAMES A WATERFLOOD (MULTIPLE RELEASES)
EDDY COUNTY, NM

Sample ID	Sample Date	Sample Depth	Field Screening Results		Chloride ¹		BTEX ²										TPH ³									
			Chloride	PID			Benzene		Toluene		Ethylbenzene		Total Xylenes		Total BTX		GRO		DRO		EXT DRO		(GRO+DRO)	Total TPH (GRO+DRO+EXT DRO)		
		ft. bgs			ppm	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	C ₆ - C ₁₀	Q	mg/kg	Q	mg/kg			Q	mg/kg
		Closure Criteria for Pasture / Off-Pad Soils 0-4' bgs:					600 mg/kg		< 10 mg/kg		--		--		--		< 50 mg/kg		--		--		--		100 mg/kg	
Closure Criteria for Soils >4' bgs (GW 50-100 ft):					10,000 mg/kg		< 10 mg/kg		--		--		--		< 50 mg/kg		--		--		--		1000 mg/kg		2500 mg/kg	
B-5	9/26/2022	0-1	-	-	1,920		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		2-3	-	-	960		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		3-4	-	-	1,150		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		4-5	-	-	1,060		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		6-7	-	-	1,520		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		8-9	-	-	2,200		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		14-15	-	-	944		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		19-20	-	-	1,760		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
B-6	9/26/2022	0-1	-	-	128		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		2-3	-	-	208		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		3-4	-	-	688		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		4-5	-	-	1,040		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		6-7	-	-	1,310		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		8-9	-	-	1,460		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		14-15	-	-	1,380		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		19-20	-	-	1,390		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
B-7	12/12/2022	0-1	-	-	8,260		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		2-3	-	-	4,000		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		3-4	-	-	976		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		4-5	-	-	336		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		6-7	-	-	272		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		8-9	-	-	224		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		14-15	-	-	336		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		19-20	-	-	176		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		24-25	-	-	128		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		29-30	-	-	128		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
B-8	12/12/2022	0-1	-	-	752		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		45.2		< 10.0		45.2		45.2	
		2-3	-	-	240		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		3-4	-	-	368		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		4-5	-	-	336		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		6-7	-	-	320		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		8-9	-	-	256		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		14-15	-	-	320		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		19-20	-	-	176		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		--		-	
		24-25	-	-	672		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0		< 10.0		--	

TABLE 1
SUMMARY OF ANALYTICAL RESULTS
SOIL ASSESSMENT- 2RP-5017 / nMAP1829546514
CONOCOPHILLIPS
JAMES A WATERFLOOD (MULTIPLE RELEASES)
EDDY COUNTY, NM

Sample ID	Sample Date	Sample Depth	Field Screening Results		Chloride ¹		BTX ²										TPH ³						
			Chloride	PID			Benzene		Toluene		Ethylbenzene		Total Xylenes		Total BTX		GRO	DRO		EXT DRO		(GRO+DRO)	Total TPH
		ft. bgs		ppm	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	C ₆ - C ₁₀	> C ₁₀ - C ₂₈	> C ₂₈ - C ₃₆			mg/kg	mg/kg
		Closure Criteria for Pasture / Off-Pad Soils 0-4' bgs:			600 mg/kg		< 10 mg/kg		--		--		--		< 50 mg/kg		--	--	--	--	--	--	100 mg/kg
		Closure Criteria for Soils >4' bgs (GW 50-100 ft):			10,000 mg/kg		< 10 mg/kg		--		--		--		< 50 mg/kg		--	--	--	--	--	1000 mg/kg	2500 mg/kg
		29-30	-	-	624		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0	--	-
AH-1	10/5/2022	0-1	75.5	-	32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
AH-2	10/5/2022	0-1	193	-	112		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		13.8		11.3	13.8	25.1
AH-3	10/5/2022	0-1	307	-	128		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
AH-4	10/5/2022	0-1	299	-	128		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
AH-5	10/5/2022	0-1	48.8	-	16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
AH-6	10/5/2022	0-1	67.3	-	32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
AH-7	10/5/2022	0-1	193	-	112		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
AH-8	10/5/2022	0-1	543	-	288		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
AH-9	10/5/2022	0-1	61.3	-	32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
AH-10	10/5/2022	0-1	130	-	32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
AH-11	10/5/2022	0-1	5870	-	5,360		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		95.7		23.5	95.7	119.2
		2-3	2000	-	2,400		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
		4-5	701	-	400		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
AH-12	10/5/2022	0-1	107	-	32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		31.8		<10.0	31.8	31.8
		2-3	97	-	32.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
AH-13	10/5/2022	0-1	81.2	-	16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
		2-3	87.8	-	16.0		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
AH-14	10/5/2022	0-1	683	-	384		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
		2-3	578	-	320		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
AH-15	10/5/2022	0-1	1205	-	12,400		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		190		52.7	190	242.7
		2-3	5370	-	5,840		<0.050		<0.050		<0.050		<0.150		<0.300		<10.0		<10.0		<10.0	--	-
		4-5	2100	-	2,840		<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

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

Shaded rows indicate intervals proposed for excavation.

QUALIFIERS:

TABLE 2
SUMMARY OF ADDITIONAL ANALYTICAL RESULTS
SOIL ASSESSMENT - NMAP1829546514 (2RP-5017)
CONOCOPHILLIPS
JAMES A WATERFLOOD FACILITY
EDDY COUNTY, NM

Sample ID	Sample Date	Sample Depth	Field Screening Results		Chloride ¹		BTEX ²										TPH ³									
			Chloride	PID			Benzene		Toluene		Ethylbenzene		Total Xylenes		Total BTEX		GRO		DRO		EXT DRO		(GRO+DRO)			
		ft. bgs	ppm		mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q				
		Closure Criteria for Pasture / Off-Pad Soils 0-4' bgs:					600 mg/kg		< 10 mg/kg		--		--		--		< 50 mg/kg		--		--		--		--	
		Closure Criteria for Soils >4' bgs (GW 50-100 ft):					10,000 mg/kg		< 10 mg/kg		--		--		--		< 50 mg/kg		--		--		--		1000 mg/kg	
BH01	12/6/2022	1'			16.8		<0.00202		<0.00202		<0.00202		<0.00404		<0.00404		<49.9		<49.9		<49.9		<49.9		<49.9	
		4'			54.4		<0.00199		<0.00199		<0.00199		<0.00398		<0.00398		<49.8		<49.8		<49.8		<49.8		<49.8	
BH02	12/6/2022	1'			5.94		<0.00199		<0.00199		<0.00199		<0.00398		<0.00398		<50.0		<50.0		<50.0		<50.0		<50.0	
		4'			35.4		<0.00199		<0.00199		<0.00199		<0.00398		<0.00398		<50.0		<50.0		<50.0		<50.0		<50.0	
BH03	12/6/2022	1'			506		<0.00198		<0.00198		<0.00198		<0.00396		<0.00396		<49.9		56.9		<49.9		56.9		56.9	
		4'			542		<0.00200		<0.00200		<0.00200		<0.00401		<0.00401		<49.9		65.5		<49.9		65.5		65.5	
BH04	12/6/2022	1'			578		<0.00201		<0.00201		<0.00201		<0.00402		<0.00402		<50.0		<50.0		<50.0		<50.0		<50.0	
		4'			87.5		<0.00201		<0.00201		<0.00201		<0.00402		<0.00402		<49.9		<49.9		<49.9		<49.9		<49.9	
BH05	12/6/2022	1'			23.5		<0.00199		<0.00199		<0.00199		<0.00398		<0.00398		<49.9		<49.9	*1	<49.9		<49.9		<49.9	
		4'			93.9		<0.00200		<0.00200		<0.00200		<0.00401		<0.00401		<50.0		<50.0	*1	<50.0		<50.0		<50.0	
BH06	12/6/2022	1'			146		<0.00199		<0.00199		<0.00199		<0.00398		<0.00398		<50.0		<50.0	*1	<50.0		<50.0		<50.0	
		4'			171		<0.00200		<0.00200		<0.00200		<0.00399		<0.00399		<50.0		<50.0	*1	<50.0		<50.0		<50.0	

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 SM4500CI-B

2 Method 8021B

3 Method 8015M

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

Shaded rows indicate intervals proposed for excavation.

QUALIFIERS:

*1

LCS/LCSD RPD exceeds control limits.

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NMAP1829546514
District RP	2RP-5017
Facility ID	fMAP1829545945
Application ID	pMAP1829546087

Release Notification

Responsible Party

Responsible Party	ConocoPhillips	OGRID	217817
Contact Name	Justin Wright	Contact Telephone	575-631-9092
Contact email	Justin.Wright@ConocoPhillips.com	Incident # (assigned by OCD)	NMAP1829546514
Contact mailing address	29 Vacuum Complex Lane Lovington, NM 88240		

Location of Release Source

Latitude 32.4173279 Longitude -103.8466568
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	James A #012	Site Type	Injection Line
Date Release Discovered	8/24/2018	API# (if applicable)	fMAP1829545945

Unit Letter	Section	Township	Range	County
	2	22S	30E	Lea

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 89	Volume Recovered (bbls) 55
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)


Cause of Release A leak was found on the discharge line to the injection well, resulting in a release of 89 BBL of produced water. 55 BBL were recovered. Site will be remediated per NMOCD guidelines.

Incident ID	NMAP1829546514
District RP	2RP-5017
Facility ID	fMAP1829545945
Application ID	pMAP1829546087

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? Exceeds the quantity for a major release as defined by 19.15.29.7 A(1)
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? No. Via email from Jose Zepeda to Jamie Keyes	

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: 	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
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: <u>Cullen Rosine</u>	Title: <u>HSE Specialist</u>
Signature: <u><i>Cullen Rosine</i></u>	Date: <u>10-15-2018</u>
email: <u>Cullen.J.Rosine@ConocoPhillips.com</u>	Telephone: <u>575-391-3133</u>
<u>OCD Only</u> Received by: <u></u> Date: <u>10/22/18</u>	

Incident ID	NMAP1829546514
District RP	2RP-5017
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?	>55 _____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" 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	NMAP1829546514
District RP	2RP-5017
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: Sam widmer Title: Principal Program Manager
Signature:  Date: Apr-19-2023
email: 5454CA5BAD33498... Sam.widmer@conocophillips.com Telephone: 281-206-5298

OCD Only

Received by: Jocelyn Harimon Date: 05/03/2023

Incident ID	NMAP1829546514
District RP	2RP-5017
Facility ID	
Application ID	

Remediation Plan

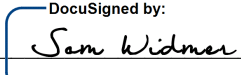
Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☒ 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: Sam widmer Title: Principal Program Manager
Signature:  Date: May-03-2023
email: Sam.widmer@conocophillips.com Telephone: 281-206-5298

OCD Only

Received by: Jocelyn Harimon Date: 05/03/2023

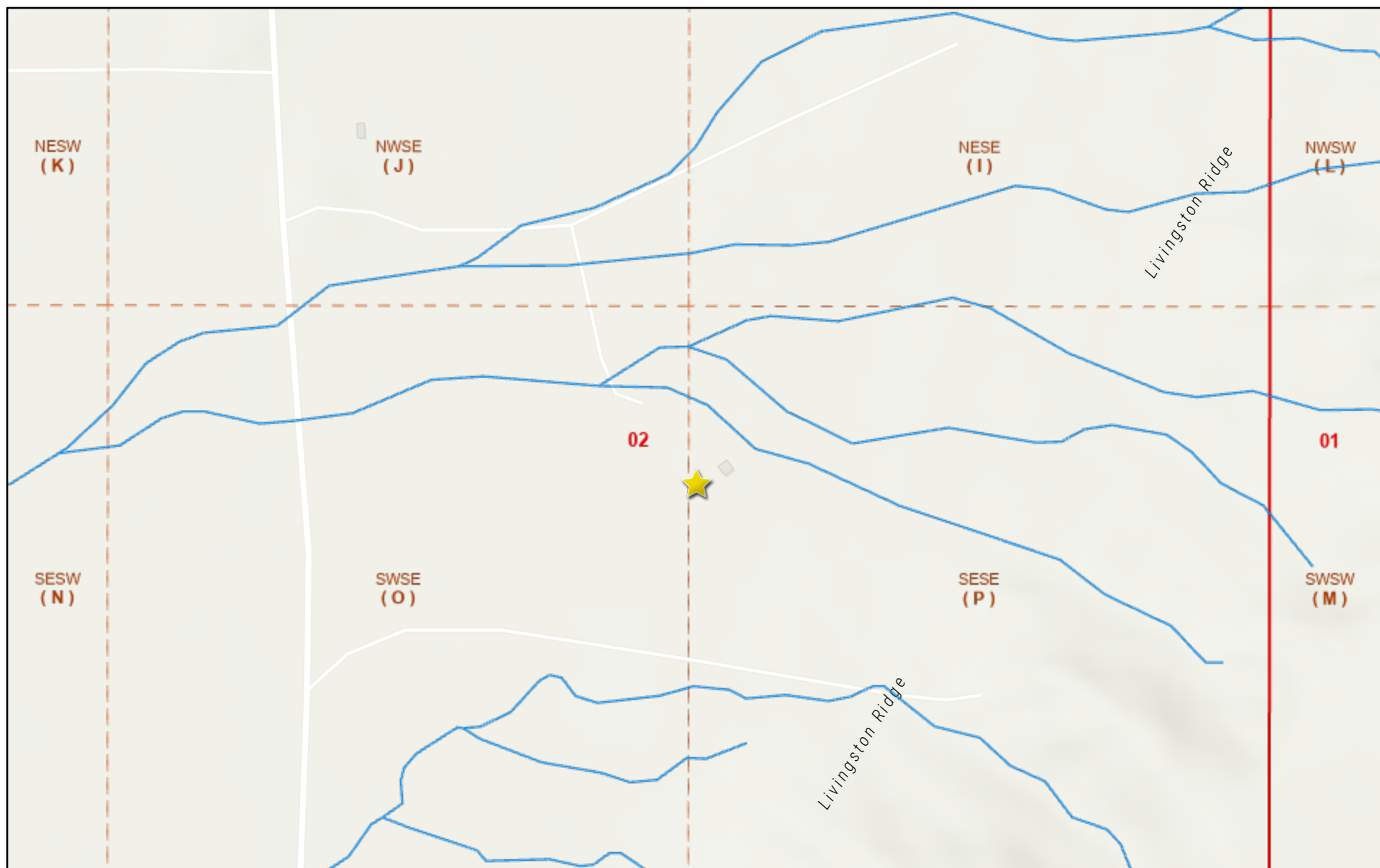
☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____





APPENDIX B

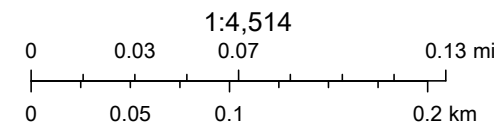
Site Characterization Data

James A Waterflood - Water Bodies



10/12/2022, 11:21:51 AM

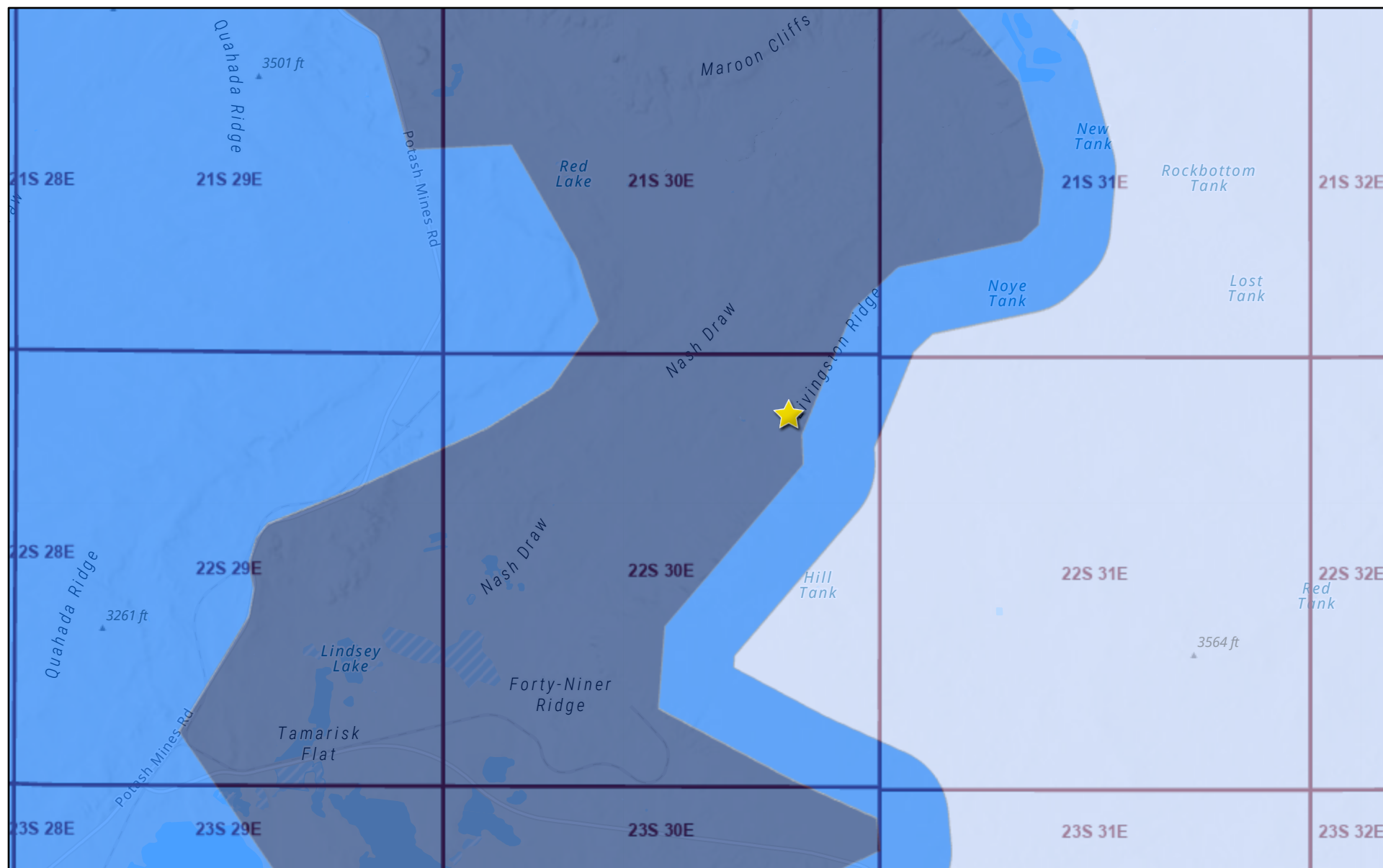
-  Override 1
-  PLSS Second Division
-  OSE Streams
-  PLSS First Division



Esri Community Maps Contributors, New Mexico State University, Texas Parks & Wildlife, © OpenStreetMap, Microsoft, CONANP, Esri, HERE,

New Mexico Oil Conservation Division

James A Waterflood - Karst



10/12/2022, 11:31:59 AM



Override 1

Karst Occurrence Potential

High

Medium

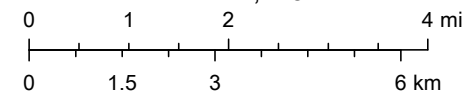


Low



PLSS Townships

1:144,448



BLM, OCD, New Mexico Tech, Esri, NASA, NGA, USGS, New Mexico State University, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin,

New Mexico Oil Conservation Division

NM OCD Oil and Gas Map. <http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=4d017f2306164de29fd2fb9f8f35ca75>: New Mexico Oil Conservation Division



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 04528 POD1	CUB	ED		1	3	3	12	22S	30E	608886	3585625	1626			
C 03234 EXPLORE	CUB	ED		1	2	3	35	21S	30E	607695	3589207*	2148	410		

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 2

UTMNAD83 Radius Search (in meters):

Easting (X): 608396.493

Northing (Y): 3587175.815

Radius: 2400

*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.

10/20/22 3:06 PM

Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER

212C-MD-02792		TETRA TECH		LOG OF BORING DTW			Page 1 of 1	
Project Name: James A Waterflood Release								
Borehole LocationGPS: 32.416966°, -103.847724°					Surface Elevation: 3198 ft			
Borehole Number:DTW				Borehole Diameter (in.): 8		Date Started: 9/26/2022		Date Finished: 9/26/2022

DEPTH (ft)	OPERATION TYPE	SAMPLE	CHLORIDE FIELD SCREENING (ppm)	VOC FIELD SCREENING (ppm)	SAMPLE RECOVERY (%)	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	LIQUID LIMIT	PLASTICITY INDEX	MINUS NO. 200 (%)	GRAPHIC LOG	WATER LEVEL OBSERVATIONS		
												While Drilling <u>▽</u> DRY ft Upon Completion of Drilling <u>▽</u> DRY ft		
												Remarks:		
												MATERIAL DESCRIPTION	DEPTH (ft)	REMARKS
5													3	<p>-SP- SILTY SAND: Light brown to brown, loose, dry, fine grained, with trace caliche nodules, no staining impact or odor</p> <p>-SM- SAND: Brown, weakly cemented, dry, very fine grained, with trace caliche</p> <p>-SC- CLAYEY SAND: Reddish brown, moderately cemented, moist</p> <p>-SM- SILTY SAND: Reddish Brown, dense, weakly cemented, dry</p>
10														
15														
20														
25														
30														
35														
40														
45														
50														
55														

Bottom of borehole at 55.0 feet.

Sampler Types: Split Spoon Shelby Bulk Sample Grab Sample	Acetate Liner Vane Shear Discrete Sample Test Pit	Operation Types: Mud Rotary Continuous Flight Auger Wash Rotary	Hand Auger Air Rotary Direct Push Core Barrel	Notes: Surface elevation is based on Google Earth data.
--	--	---	--	---

Logger: Colton Bickerstaff	Drilling Equipment: Air Rotary	Driller: Scarborough Drilling
-----------------------------------	---------------------------------------	--------------------------------------

APPENDIX C

Regulatory Correspondence

Bratcher, Mike, EMNRD

From: Bratcher, Mike, EMNRD
Sent: Tuesday, May 7, 2019 3:50 PM
To: Wright, Justin K
Cc: Fejervary Morena, Gustavo A; Hamlet, Robert, EMNRD; Venegas, Victoria, EMNRD
Subject: RE: CAP for James A Waterflood 2RP-5017
Attachments: 20190503124725.pdf

RE: ConocoPhillips * James A 12 aka James A Waterflood * 2RP-5017 * DOR: 8/24/18

Justin,

Assuming this is the remediation proposal for this release, it is **DENIED** due for the most part, for not meeting requirements of current spill rule [19.15.29]NMAC.

Here is a link to the rule: <http://164.64.110.134/parts/title19/19.015.0029.html>

Please review and resubmit including all documentation as required. Along with multiple other deficiencies, the analytical data needs to be in a table format with sample points clearly marked on a scaled site diagram. The attachments you have sent are not legible, making this type submittal unacceptable. I would suggest a third party contractor be retained to formulate your proposal.

Also, for all OCD District 2 Environmental correspondence, please address to the following District Environmental Specialists:

Rob Hamlet: robert.hamlet@state.nm.us
Victoria Venegas: victoria.venegas@state.nm.us

You may continue to copy me as well.

Thank you,

Mike Bratcher
NMOCD District 2
811 South First Street
Artesia, NM 88210
575-748-1283 Ext 108

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

From: Wright, Justin K <Justin.Wright@conocophillips.com>
Sent: Friday, May 3, 2019 2:08 PM
To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>

Cc: Fejervary Morena, Gustavo A <G.Fejervary@conocophillips.com>

Subject: [EXT] FW: CAP for James A Waterflood 2RP-5017

From: Wright, Justin K <Justin.Wright@conocophillips.com>

Sent: Friday, May 3, 2019 12:50 PM

To: Wright, Justin K <Justin.Wright@conocophillips.com>

Subject:

APPENDIX D

Photographic Documentation



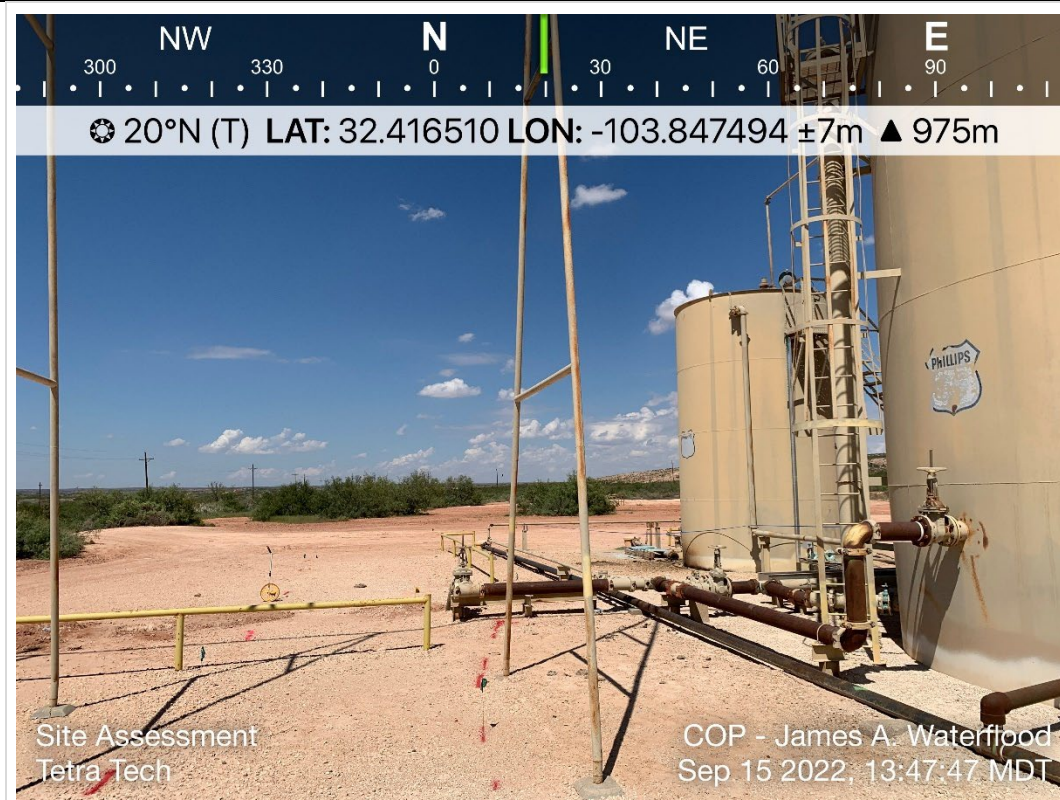
TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	Site Signage. James A Waterflood Site.	1
	SITE NAME	ConocoPhillips James Waterflood Releases	9/15/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View east southeast. View of site from lease road entrance.	2
	SITE NAME	ConocoPhillips James Waterflood Releases	9/15/2022



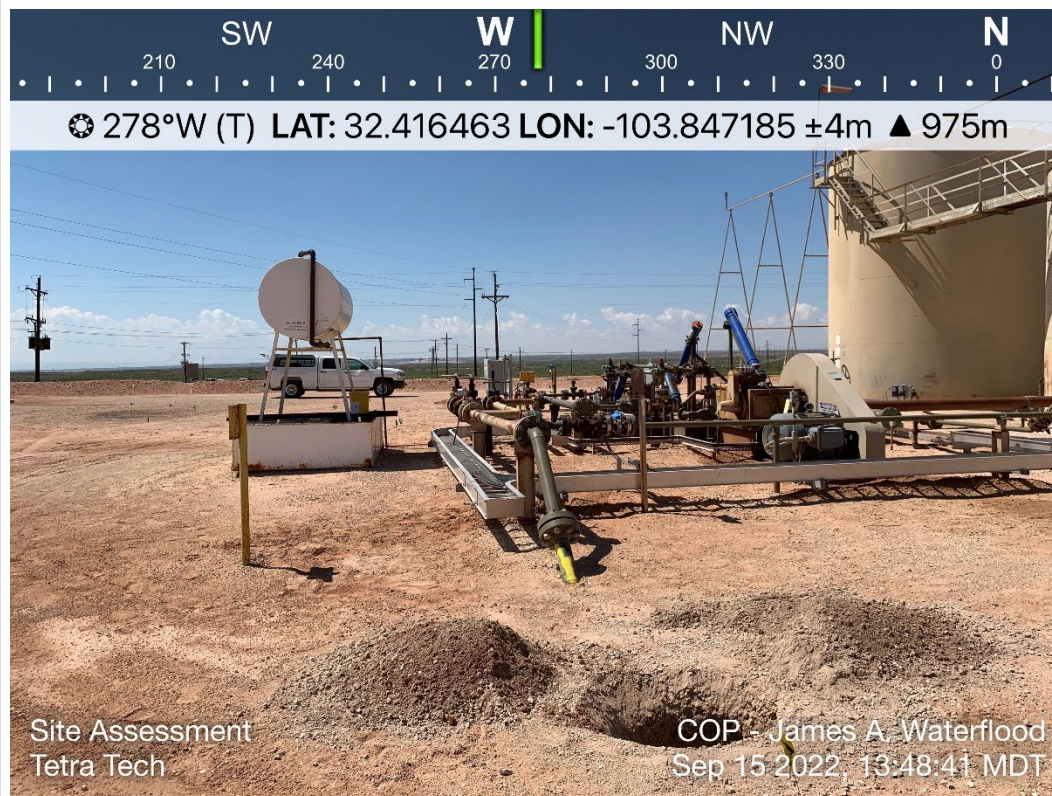
TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View east. View of tank batteries and injection pumps. Pothole for utility verification.	3
	SITE NAME	ConocoPhillips James Waterflood Releases	9/15/2022



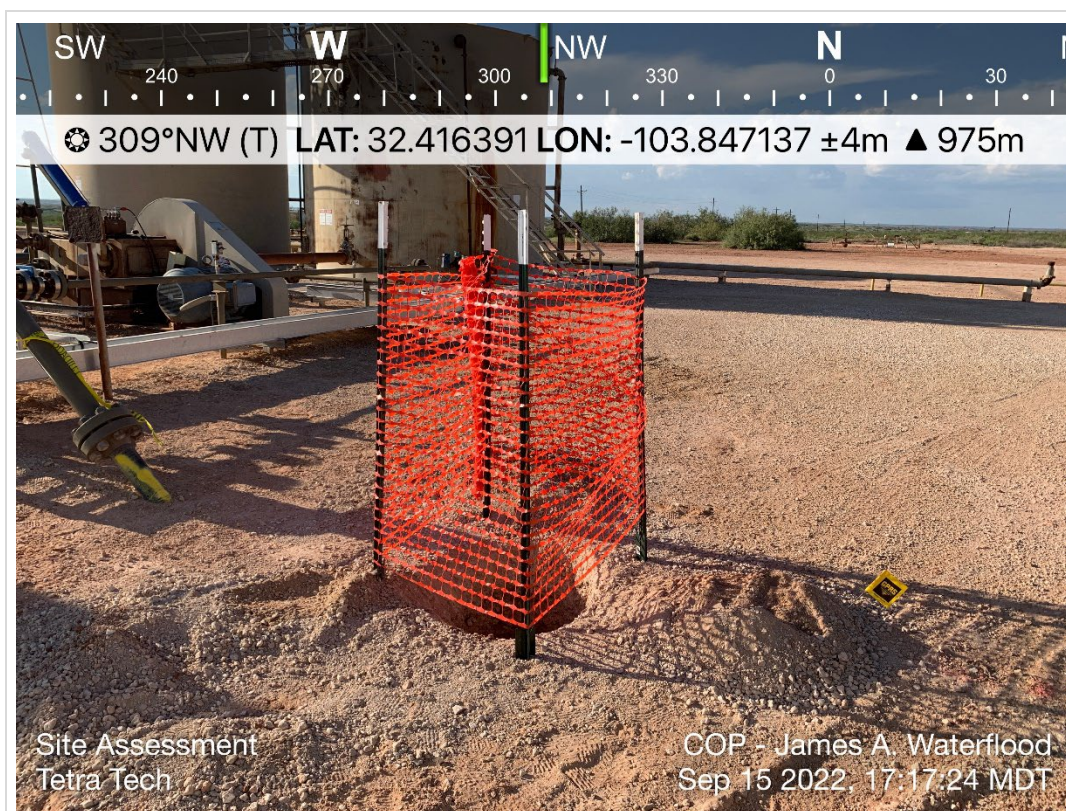
TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View north northeast. View of tank batteries. Subsurface electrical lines.	4
	SITE NAME	ConocoPhillips James Waterflood Releases	9/15/2022



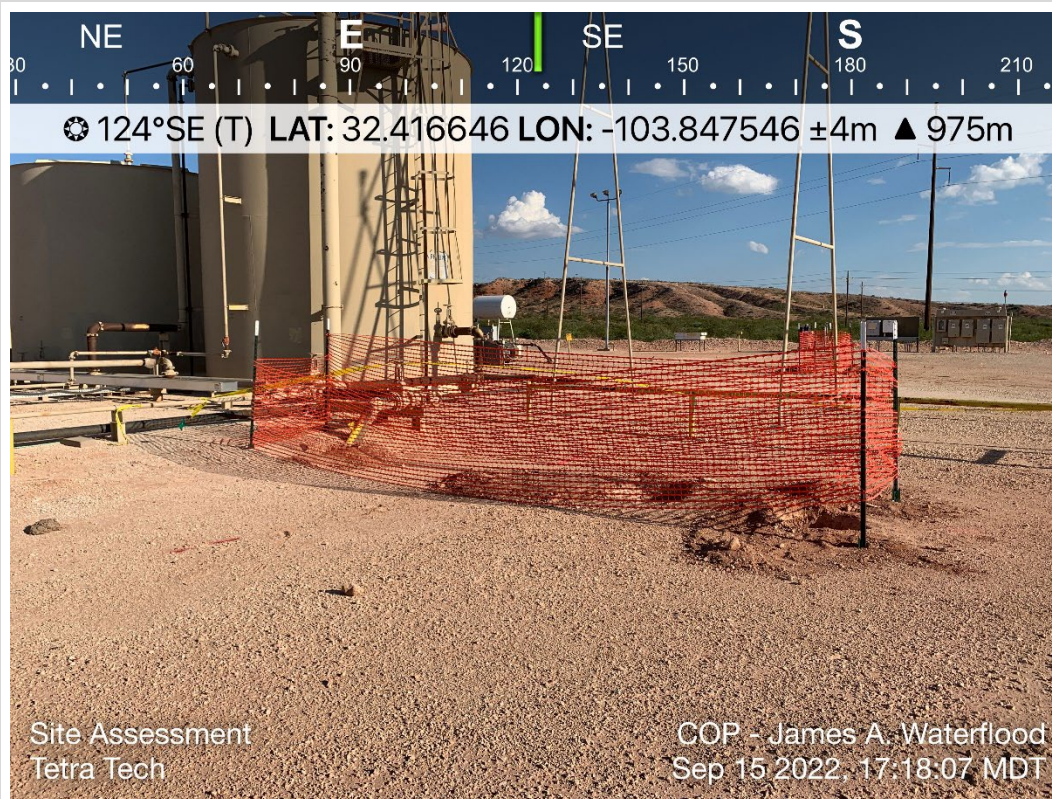
TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View east. Pothole for utility verification. View of injection pump. Approximate release point of 2P-5398. Subsurface utilities.	5
	SITE NAME	ConocoPhillips James Waterflood Releases	9/15/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View west. Pothole for utility verification View of injection pump. Approximate release point for 2RP-5017.	6
	SITE NAME	ConocoPhillips James Waterflood Releases	9/15/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View northwest. Barricaded pothole for utility verification. Approximate release point for 2RP-5017.	7
	SITE NAME	ConocoPhillips James Waterflood Releases	9/15/2022



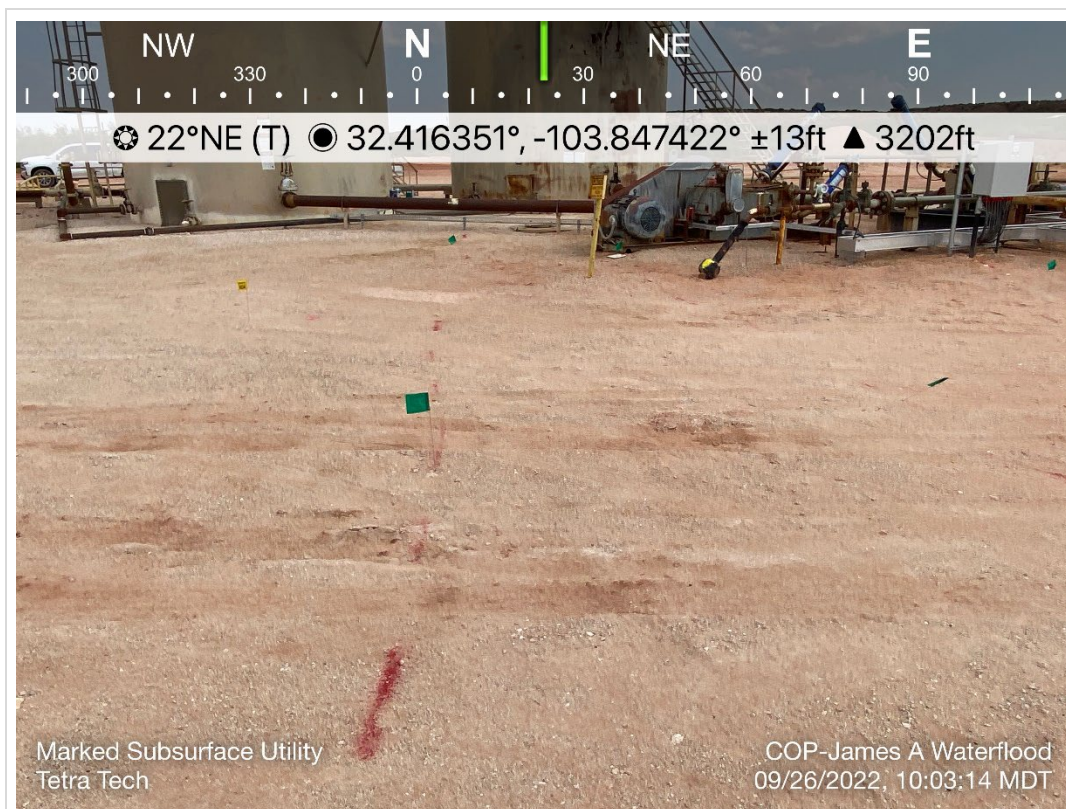
TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View east southeast. View of tank battery. Subsurface utilities. Barricaded pothole for utility verification.	8
	SITE NAME	ConocoPhillips James Waterflood Releases	9/15/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View northwest east. Approximate release point for 2RP-5399.	9
	SITE NAME	ConocoPhillips James Waterflood Releases	9/15/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View south. Subsurface utility lines. Barricaded pothole for utility verification.	10
	SITE NAME	ConocoPhillips James Waterflood Releases	9/26/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View north northeast. Subsurface utility lines. View of Tank Batteries.	11
	SITE NAME	ConocoPhillips James Waterflood Releases	9/26/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View northwest. View of injection pump. Approximate release point for 2RP-5017 and 2RP-5398.	12
	SITE NAME	ConocoPhillips James Waterflood Releases	9/26/2022



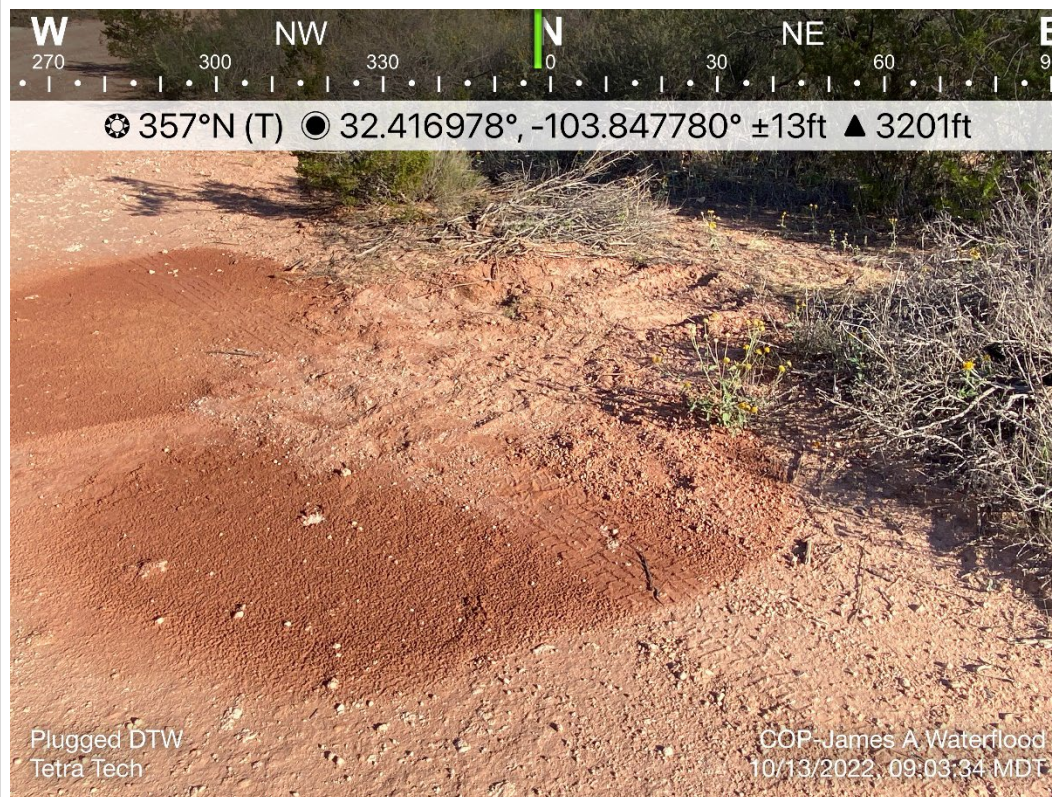
TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View east southeast. Pothole with view of subsurface line.	13
	SITE NAME	ConocoPhillips James Waterflood Releases	9/26/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View north. Subsurface utilities.	14
	SITE NAME	ConocoPhillips James Waterflood Releases	10/7/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View northeast. View of Injection pump. Approximate release areas.	15
	SITE NAME	ConocoPhillips James Waterflood Releases	10/7/2022



TETRA TECH, INC. PROJECT NO. 212C-MD-02792	DESCRIPTION	View north. Location of DTW.	16
	SITE NAME	ConocoPhillips James Waterflood Releases	10/13/2022

APPENDIX E

Laboratory Analytical Data



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

September 28, 2022

CHRISTIAN LLULL

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: JAMES A WATERFLOOD

Enclosed are the results of analyses for samples received by the laboratory on 09/26/22 15:11.

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

Cardinal Laboratories is 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:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 1 (0-1') (H224460-01)

BTX 8021B			mg/kg		Analyzed By: JH				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/27/2022	ND	2.09	104	2.00	2.55	
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24	
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84	
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82	
Total BTX	<0.300	0.300	09/27/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.8 % 69.9-140

Chloride, SM4500Cl-B			mg/kg		Analyzed By: GM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	09/27/2022	ND	416	104	400	3.77	

TPH 8015M			mg/kg		Analyzed By: CK				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	218	109	200	6.55	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	216	108	200	6.75	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 89.0 % 45.3-161

Surrogate: 1-Chlorooctadecane 95.1 % 46.3-178

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 1 (2'-3') (H224460-02)

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	09/27/2022	ND	2.09	104	2.00	2.55		
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82		
Total BTEX	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.4 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	800	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	218	109	200	6.55	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	216	108	200	6.75	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 114 % 45.3-161

Surrogate: 1-Chlorooctadecane 121 % 46.3-178

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 1 (3'-4') (H224460-03)

BTX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/27/2022	ND	2.09	104	2.00	2.55		
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82		
Total BTX	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.2 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1250	16.0	09/27/2022	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	218	109	200	6.55	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	216	108	200	6.75	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 101 % 45.3-161

Surrogate: 1-Chlorooctadecane 108 % 46.3-178

Cardinal Laboratories

*=Accredited Analyte

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

Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 1 (4'-5') (H224460-04)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/27/2022	ND	2.09	104	2.00	2.55		
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82		
Total BTEX	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.1 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1920	16.0	09/27/2022	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	218	109	200	6.55	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	216	108	200	6.75	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 105 % 45.3-161

Surrogate: 1-Chlorooctadecane 112 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 1 (6'-7') (H224460-05)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/27/2022	ND	2.09	104	2.00	2.55		
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82		
Total BTEx	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.8 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1600	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 107 % 45.3-161

Surrogate: 1-Chlorooctadecane 128 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 1 (8'-9') (H224460-06)

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	09/27/2022	ND	2.09	104	2.00	2.55		
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82		
Total BTX	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.3 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 114 % 45.3-161

Surrogate: 1-Chlorooctadecane 136 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 1 (14'-15') (H224460-07)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/27/2022	ND	2.09	104	2.00	2.55		
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82		
Total BTEx	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.7 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	288	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 96.0 % 45.3-161

Surrogate: 1-Chlorooctadecane 115 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 1 (19'-20') (H224460-08)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/27/2022	ND	2.09	104	2.00	2.55		
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82		
Total BTEx	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.8 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	800	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 103 % 45.3-161

Surrogate: 1-Chlorooctadecane 122 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 2 (0-1') (H224460-09)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/27/2022	ND	2.09	104	2.00	2.55		
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82		
Total BTEx	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.2 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	288	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 94.7 % 45.3-161

Surrogate: 1-Chlorooctadecane 111 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 2 (2'-3') (H224460-10)

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	09/27/2022	ND	2.09	104	2.00	2.55		
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82		
Total BTEX	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.4 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	09/27/2022	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 104 % 45.3-161

Surrogate: 1-Chlorooctadecane 122 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 2 (3'-4') (H224460-11)

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	09/27/2022	ND	2.09	104	2.00	2.55		
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82		
Total BTEx	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.2 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	256	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 101 % 45.3-161

Surrogate: 1-Chlorooctadecane 120 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 2 (4'-5') (H224460-12)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/27/2022	ND	2.09	104	2.00	2.55		
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82		
Total BTEX	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.7 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	176	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 106 % 45.3-161

Surrogate: 1-Chlorooctadecane 127 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 2 (6'-7') (H224460-13)

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	09/27/2022	ND	2.09	104	2.00	2.55		
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82		
Total BTEX	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.7 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	272	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 105 % 45.3-161

Surrogate: 1-Chlorooctadecane 124 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 2 (8'-9') (H224460-14)

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	09/27/2022	ND	2.09	104	2.00	2.55		
Toluene*	<0.050	0.050	09/27/2022	ND	2.02	101	2.00	3.24		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.95	97.7	2.00	2.84		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.98	99.6	6.00	1.82		
Total BTEx	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.9 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	288	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 100 % 45.3-161

Surrogate: 1-Chlorooctadecane 117 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 2 (14'-15') (H224460-15)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEx	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.6 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	864	16.0	09/27/2022	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 98.3 % 45.3-161

Surrogate: 1-Chlorooctadecane 115 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 2 (19'-20') (H224460-16)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEx	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.5 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1800	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 109 % 45.3-161

Surrogate: 1-Chlorooctadecane 127 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 3 (0-1') (H224460-17)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.9 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5120	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	1150	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	248	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 96.7 % 45.3-161

Surrogate: 1-Chlorooctadecane 204 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 3 (2'-3') (H224460-18)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.9 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2880	16.0	09/27/2022	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	37.9	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	24.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 97.0 % 45.3-161

Surrogate: 1-Chlorooctadecane 116 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 3 (4'-5') (H224460-19)

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	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.5 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1360	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 101 % 45.3-161

Surrogate: 1-Chlorooctadecane 119 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 3 (6'-7') (H224460-20)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEx	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.5 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1780	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 100 % 45.3-161

Surrogate: 1-Chlorooctadecane 117 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 3 (8'-9') (H224460-21)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEx	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.5 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1340	16.0	09/27/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 93.1 % 45.3-161

Surrogate: 1-Chlorooctadecane 109 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 3 (14'-15') (H224460-22)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.6 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1420	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 98.6 % 45.3-161

Surrogate: 1-Chlorooctadecane 124 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 3 (19'-20') (H224460-23)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEx	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.9 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1310	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 95.1 % 45.3-161

Surrogate: 1-Chlorooctadecane 111 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 4 (0-1') (H224460-24)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.8 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	9730	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	211	105	200	3.88	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	200	100	200	4.46	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 113 % 45.3-161

Surrogate: 1-Chlorooctadecane 136 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 4 (2'-3') (H224460-25)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.1 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2800	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 90.0 % 45.3-161

Surrogate: 1-Chlorooctadecane 104 % 46.3-178

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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:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 4 (4'-5') (H224460-26)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.7 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3000	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 92.4 % 45.3-161

Surrogate: 1-Chlorooctadecane 105 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 4 (6'-7') (H224460-27)

BTX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.1 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3080	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 94.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 105 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 4 (8'-9') (H224460-28)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.7 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2800	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 100 % 45.3-161

Surrogate: 1-Chlorooctadecane 115 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 4 (14'-15') (H224460-29)

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	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.3 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	800	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 97.6 % 45.3-161

Surrogate: 1-Chlorooctadecane 110 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 4 (19'-20') (H224460-30)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.4 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	352	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 95.2 % 45.3-161

Surrogate: 1-Chlorooctadecane 108 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 5 (0-1') (H224460-31)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.1 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1920	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 87.6 % 45.3-161

Surrogate: 1-Chlorooctadecane 97.3 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 5 (2'-3') (H224460-32)

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	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.4 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	960	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 83.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 94.7 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 5 (3'-4') (H224460-33)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.5 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1150	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 90.1 % 45.3-161

Surrogate: 1-Chlorooctadecane 100 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 5 (4'-5') (H224460-34)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	09/28/2022	ND	2.08	104	2.00	0.255		
Toluene*	<0.050	0.050	09/28/2022	ND	2.02	101	2.00	0.634		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.94	96.9	2.00	0.859		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.97	99.6	6.00	1.85		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.9 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1060	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 78.9 % 45.3-161

Surrogate: 1-Chlorooctadecane 90.2 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 5 (6'-7') (H224460-35)

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	09/27/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/27/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.70	95.1	6.00	9.78		
Total BTX	<0.300	0.300	09/27/2022	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1520	16.0	09/28/2022	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 86.2 % 45.3-161

Surrogate: 1-Chlorooctadecane 98.8 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 5 (8'-9') (H224460-36)

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	09/27/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/27/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.70	95.1	6.00	9.78		
Total BTX	<0.300	0.300	09/27/2022	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2200	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 82.7 % 45.3-161

Surrogate: 1-Chlorooctadecane 93.3 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 5 (14'-15') (H224460-37)

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	09/27/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/27/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.70	95.1	6.00	9.78		
Total BTEx	<0.300	0.300	09/27/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	944	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 83.3 % 45.3-161

Surrogate: 1-Chlorooctadecane 93.5 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 5 (19'-20') (H224460-38)

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	09/27/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/27/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/27/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/27/2022	ND	5.70	95.1	6.00	9.78		
Total BTEx	<0.300	0.300	09/27/2022	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1760	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 83.3 % 45.3-161

Surrogate: 1-Chlorooctadecane 94.0 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 6 (0-1') (H224460-39)

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	09/28/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/28/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.70	95.1	6.00	9.78		
Total BTEx	<0.300	0.300	09/28/2022	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 79.9 % 45.3-161

Surrogate: 1-Chlorooctadecane 89.8 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 6 (2'-3') (H224460-40)

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	09/28/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/28/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.70	95.1	6.00	9.78		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	208	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 89.3 % 45.3-161

Surrogate: 1-Chlorooctadecane 103 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 6 (3'-4') (H224460-41)

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	09/28/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/28/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.70	95.1	6.00	9.78		
Total BTEX	<0.300	0.300	09/28/2022	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	688	16.0	09/28/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 91.7 % 45.3-161

Surrogate: 1-Chlorooctadecane 105 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 6 (4'-5') (H224460-42)

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	09/28/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/28/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.70	95.1	6.00	9.78		
Total BTEX	<0.300	0.300	09/28/2022	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1040	16.0	09/27/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 84.0 % 45.3-161

Surrogate: 1-Chlorooctadecane 96.8 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 6 (6'-7') (H224460-43)

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	09/28/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/28/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.70	95.1	6.00	9.78		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1310	16.0	09/27/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 85.6 % 45.3-161

Surrogate: 1-Chlorooctadecane 99.0 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 6 (8'-9') (H224460-44)

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	09/28/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/28/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.70	95.1	6.00	9.78		
Total BTX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1460	16.0	09/27/2022	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	230	115	200	1.58	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	239	120	200	0.398	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 87.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 100 % 46.3-178

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Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 6 (14'-15') (H224460-45)

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	09/28/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/28/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.70	95.1	6.00	9.78		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1380	16.0	09/27/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	203	102	200	1.09	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	206	103	200	0.321	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 137 % 45.3-161

Surrogate: 1-Chlorooctadecane 162 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 6 (19'-20') (H224460-46)

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	09/28/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/28/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.70	95.1	6.00	9.78		
Total BTEX	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1390	16.0	09/27/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	203	102	200	1.09	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	206	103	200	0.321	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 100 % 45.3-161

Surrogate: 1-Chlorooctadecane 119 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 3 (3'-4') (H224460-47)

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	09/28/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/28/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.70	95.1	6.00	9.78		
Total BTEx	<0.300	0.300	09/28/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1790	16.0	09/27/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	203	102	200	1.09	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	206	103	200	0.321	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 103 % 45.3-161

Surrogate: 1-Chlorooctadecane 122 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	09/26/2022	Sampling Date:	09/26/2022
Reported:	09/28/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - LEA CO, NM		

Sample ID: B - 4 (3'-4') (H224460-48)

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	09/28/2022	ND	1.84	92.0	2.00	9.06		
Toluene*	<0.050	0.050	09/28/2022	ND	2.01	101	2.00	10.1		
Ethylbenzene*	<0.050	0.050	09/28/2022	ND	1.91	95.3	2.00	8.05		
Total Xylenes*	<0.150	0.150	09/28/2022	ND	5.70	95.1	6.00	9.78		
Total BTEX	<0.300	0.300	09/28/2022	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3280	16.0	09/27/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/27/2022	ND	203	102	200	1.09	
DRO >C10-C28*	<10.0	10.0	09/27/2022	ND	206	103	200	0.321	
EXT DRO >C28-C36	<10.0	10.0	09/27/2022	ND					

Surrogate: 1-Chlorooctane 100 % 45.3-161

Surrogate: 1-Chlorooctadecane 119 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

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

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

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: <u>Conoco Phillips</u>		P.O. #:		BILL TO		ANALYSIS REQUEST	
Project Manager: <u>Christy Ann Lull</u>		Company: <u>James Tech</u>					
Address:		Attn: <u>Christy Ann Lull</u>					
City:		Address: <u>by email</u>					
Phone #:		City:					
Fax #:		State:					
Project #: <u>212C-MD-02792</u>		Zip:					
Project Name: <u>James A Water Flood</u>		Phone #:					
Project Location: <u>Edwards County, MN</u>		Fax #:					
Sampler Name: <u>Lab 111</u>		MATRIX		PRESERV.		SAMPLING	
FOR LAB USE ONLY		GROUNDWATER					
		WASTEWATER					
		SOIL					
		OIL					
		SLUDGE					
		OTHER :					
		ACID/BASE:					
		ICE / COOL					
		OTHER :					
Lab I.D.		DATE		TIME			
Sample I.D.							
1 <u>B24400</u>		9/26/22				TPH	
2 <u>B24400-1</u>						BTX	
3 <u>B24400-2</u>						Chlorides	
4 <u>B24400-3</u>							
5 <u>B24400-4</u>							
6 <u>B24400-5</u>							
7 <u>B24400-6</u>							
8 <u>B24400-7</u>							
9 <u>B24400-8</u>							
10 <u>B24400-9</u>							
11 <u>B24400-10</u>							
12 <u>B24400-11</u>							
13 <u>B24400-12</u>							
14 <u>B24400-13</u>							
15 <u>B24400-14</u>							
16 <u>B24400-15</u>							
17 <u>B24400-16</u>							
18 <u>B24400-17</u>							
19 <u>B24400-18</u>							
20 <u>B24400-19</u>							
21 <u>B24400-20</u>							
22 <u>B24400-21</u>							
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26 <u>B24400-25</u>							
27 <u>B24400-26</u>							
28 <u>B24400-27</u>							
29 <u>B24400-28</u>							
30 <u>B24400-29</u>							
31 <u>B24400-30</u>							
32 <u>B24400-31</u>							
33 <u>B24400-32</u>							
34 <u>B24400-33</u>							
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61 <u>B24400-60</u>							
62 <u>B24400-61</u>							
63 <u>B24400-62</u>							
64 <u>B24400-63</u>							
65 <u>B24400-64</u>							
66 <u>B24400-65</u>							
67 <u>B24400-</u>							



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: <u>Conoco Phillips</u>				P.O. #:				BILL TO				ANALYSIS REQUEST							
Project Manager: <u>Christy Ann Lull</u>				Company: <u>Tetra Tech</u>															
Address:				Attn: <u>Christy Ann Lull</u>				Address: <u>by email</u>											
City:				State:				Zip:											
Phone #:				Fax #:				City:											
Project #: <u>2111-MD-02792</u>				Project Owner:				State:				Zip:							
Project Name: <u>Sand & Water Flood</u>				Phone #:				Fax #:											
Project Location: <u>Edwards County, AR</u>																			
Sample Name: <u>Leakage BTEX</u>																			
FOR LAB USE ONLY																			
Lab I.D.				Sample I.D.				(G)RAB OR (C)OMP.				DATE				TIME			
								# CONTAINERS											
Matrix				GROUNDWATER WASTEWATER <input checked="" type="checkbox"/> SOIL <input type="checkbox"/> OIL <input type="checkbox"/> SLUDGE OTHER :				ACID/BASE: <input checked="" type="checkbox"/> ICE / COOL OTHER :				TPH BTEX Chlorides							
																SAMPLING			
Relinquished By: <u>[Signature]</u>				Date: <u>9/26/02</u>				Received By: <u>[Signature]</u>				Turnaround Time:							
Relinquished By: <u>[Signature]</u>				Date: <u>9/26/02</u>				Received By: <u>[Signature]</u>				Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/>							
Relinquished By: <u>[Signature]</u>				Date: <u>9/26/02</u>				Received By: <u>[Signature]</u>				Bacteria (only) <input checked="" type="checkbox"/> Cool Intact <input type="checkbox"/> Observed Temp. °C							
Relinquished By: <u>[Signature]</u>				Date: <u>9/26/02</u>				Received By: <u>[Signature]</u>				Corrected Temp. °C							
Relinquished By: <u>[Signature]</u>				Date: <u>9/26/02</u>				Received By: <u>[Signature]</u>				Remarks: <u>Christy Ann Lull @ tetra tech, com</u>							



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(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



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(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: <u>ConocoPhillips</u> Project Manager: <u>Christen Lull</u> Address: City: _____ State: _____ Zip: _____ Phone #: _____ Fax #: _____ Project #: <u>212-MD-02792</u> Project Owner: _____ Project Name: <u>Texas A Water Flood</u> Project Location: <u>Edwards County, TX</u> Sample Name: <u>Cotton Brackstaff</u>				P.O. #: _____ Company: <u>Tetra Tech</u> Attn: <u>Christen Lull</u> Address: <u>by email</u> City: _____ State: _____ Zip: _____ Phone #: _____ Fax #: _____				BILL TO				ANALYSIS REQUEST											
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Delivered By: (Circle One) _____ Sampler - UPS - Bus - Other: _____				Observed Temp. °C <u>8.70</u> Corrected Temp. °C <u>8.32</u>				Sample Condition Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/>				CHECKED BY: _____ (Initials)				Turnaround Time: _____ Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/> Thermometer ID #113 <u>0.4</u> Correction Factor -0.5°C				Bacteria (only) <input checked="" type="checkbox"/> Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> Corrected Temp. °C			
Lab I.D. _____ Sample I.D. _____				(G)RAB OR (C)OMP. _____ # CONTAINERS _____ GROUNDWATER _____ WASTEWATER _____ SOIL <input checked="" type="checkbox"/> _____ OIL _____ SLUDGE _____ OTHER : _____ ACID/BASE: _____ ICE / COOL <input checked="" type="checkbox"/> _____ OTHER : _____ DATE <u>9/26/12</u> TIME _____				MATRIX _____ PRESERV. _____ SAMPLING _____				TPH <input checked="" type="checkbox"/> _____ BTEX <input checked="" type="checkbox"/> _____ Chlorides <input checked="" type="checkbox"/> _____											



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Caroco Phillips		BILL TO		ANALYSIS REQUEST	
Project Manager: Christopher Hall		P.O. #:			
Address:		Company: Tetra Tech			
City:		Attn: Christopher Hall			
State:		Address: by email			
Zip:		City:			
Phone #:		State:			
Fax #:		Zip:			
Project #: 2006-MD-02792		Project Owner:			
Project Name: James A. Waters Flood		Phone #:			
Project Location: Eddy County, NM		Fax #:			
Sample Name: 14700 Bitterroot		MATRIX		PRESERV.	
FOR LAB USE ONLY		GROUNDWATER		SAMPLING	
WASTEWATER		SOIL			
OIL		SLUDGE			
OTHER :		ACID/BASE:			
ICE / COOL		OTHER :			
DATE		TIME			
Lab I.D.		Sample I.D.			
1624400		B-6 (3-4')		TPH	
41		B-6 (4-5')		BTEX	
42		B-6 (6-7')		Chlorides	
43		B-6 (8-9')			
44		B-6 (14-15')			
45		B-6 (19-20')			
46		B-3 (3-4')			
47		B-4 (3-4')			
48					
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Reinquisitioned By:		Date: 9/26/02		Received By: Christopher Hall	
Reinquisitioned By:		Time: 5:11		Received By: Christopher Hall	
Date:		Time:		Received By:	
Delivered By: (Circle One)		Observed Temp. °C 0.9°C		Sample Condition	
Sampler - UPS - Bus - Other:		Corrected Temp. °C 0.32		Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				CHECKED BY: (initials)	
				Turnaround Time:	
				Thermometer ID #13	
				Correction Factor -0.10°C	
				Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/>	
				Bacteria (only) <input type="checkbox"/> Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	
				Sample Condition <input type="checkbox"/> Observed Temp. °C <input type="checkbox"/> Corrected Temp. °C <input type="checkbox"/>	
REMARKS: Christopher Hall@tetra-tech.com					



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

October 11, 2022

NICHOLAS POOLE

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: JAMES A WATERFLOOD

Enclosed are the results of analyses for samples received by the laboratory on 10/06/22 10:40.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 1 (0-1') (H224693-01)

BTX 8021B			mg/kg		Analyzed By: JH				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/09/2022	ND	2.31	116	2.00	4.75	
Toluene*	<0.050	0.050	10/09/2022	ND	2.16	108	2.00	4.22	
Ethylbenzene*	<0.050	0.050	10/09/2022	ND	2.09	104	2.00	5.37	
Total Xylenes*	<0.150	0.150	10/09/2022	ND	6.37	106	6.00	5.59	
Total BTX	<0.300	0.300	10/09/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 91.9 % 69.9-140

Chloride, SM4500Cl-B			mg/kg		Analyzed By: GM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	10/10/2022	ND	416	104	400	7.41	

TPH 8015M			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/08/2022	ND	226	113	200	0.261	
DRO >C10-C28*	<10.0	10.0	10/08/2022	ND	237	118	200	0.910	
EXT DRO >C28-C36	<10.0	10.0	10/08/2022	ND					

Surrogate: 1-Chlorooctane 85.0 % 45.3-161

Surrogate: 1-Chlorooctadecane 99.4 % 46.3-178

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

Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 2 (0-1') (H224693-02)

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	10/09/2022	ND	2.31	116	2.00	4.75	
Toluene*	<0.050	0.050	10/09/2022	ND	2.16	108	2.00	4.22	
Ethylbenzene*	<0.050	0.050	10/09/2022	ND	2.09	104	2.00	5.37	
Total Xylenes*	<0.150	0.150	10/09/2022	ND	6.37	106	6.00	5.59	
Total BTEx	<0.300	0.300	10/09/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.9 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	10/10/2022	ND	416	104	400	7.41	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/08/2022	ND	226	113	200	0.261	
DRO >C10-C28*	13.8	10.0	10/08/2022	ND	237	118	200	0.910	
EXT DRO >C28-C36	11.3	10.0	10/08/2022	ND					

Surrogate: 1-Chlorooctane 67.2 % 45.3-161

Surrogate: 1-Chlorooctadecane 78.5 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 3 (0-1') (H224693-03)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/09/2022	ND	2.31	116	2.00	4.75		
Toluene*	<0.050	0.050	10/09/2022	ND	2.16	108	2.00	4.22		
Ethylbenzene*	<0.050	0.050	10/09/2022	ND	2.09	104	2.00	5.37		
Total Xylenes*	<0.150	0.150	10/09/2022	ND	6.37	106	6.00	5.59		
Total BTEx	<0.300	0.300	10/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.1 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	10/10/2022	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/08/2022	ND	226	113	200	0.261	
DRO >C10-C28*	<10.0	10.0	10/08/2022	ND	237	118	200	0.910	
EXT DRO >C28-C36	<10.0	10.0	10/08/2022	ND					

Surrogate: 1-Chlorooctane 73.9 % 45.3-161

Surrogate: 1-Chlorooctadecane 87.2 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 4 (0-1') (H224693-04)

BTX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/09/2022	ND	2.31	116	2.00	4.75	
Toluene*	<0.050	0.050	10/09/2022	ND	2.16	108	2.00	4.22	
Ethylbenzene*	<0.050	0.050	10/09/2022	ND	2.09	104	2.00	5.37	
Total Xylenes*	<0.150	0.150	10/09/2022	ND	6.37	106	6.00	5.59	
Total BTX	<0.300	0.300	10/09/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.7 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	10/10/2022	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/08/2022	ND	226	113	200	0.261	
DRO >C10-C28*	<10.0	10.0	10/08/2022	ND	237	118	200	0.910	
EXT DRO >C28-C36	<10.0	10.0	10/08/2022	ND					

Surrogate: 1-Chlorooctane 76.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 89.9 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 5 (0-1') (H224693-05)

BTEx 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/09/2022	ND	2.31	116	2.00	4.75	
Toluene*	<0.050	0.050	10/09/2022	ND	2.16	108	2.00	4.22	
Ethylbenzene*	<0.050	0.050	10/09/2022	ND	2.09	104	2.00	5.37	
Total Xylenes*	<0.150	0.150	10/09/2022	ND	6.37	106	6.00	5.59	
Total BTEx	<0.300	0.300	10/09/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 91.3 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	10/10/2022	ND	416	104	400	7.41	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/08/2022	ND	226	113	200	0.261	
DRO >C10-C28*	<10.0	10.0	10/08/2022	ND	237	118	200	0.910	
EXT DRO >C28-C36	<10.0	10.0	10/08/2022	ND					

Surrogate: 1-Chlorooctane 76.4 % 45.3-161

Surrogate: 1-Chlorooctadecane 89.2 % 46.3-178

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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 6 (0-1') (H224693-06)

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	10/09/2022	ND	2.29	115	2.00	1.42	QR-03
Toluene*	<0.050	0.050	10/09/2022	ND	2.16	108	2.00	1.43	QR-03
Ethylbenzene*	<0.050	0.050	10/09/2022	ND	2.09	104	2.00	1.34	QR-03
Total Xylenes*	<0.150	0.150	10/09/2022	ND	6.34	106	6.00	1.62	
Total BTX	<0.300	0.300	10/09/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 91.5 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	10/10/2022	ND	416	104	400	7.41	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/08/2022	ND	226	113	200	0.261	
DRO >C10-C28*	<10.0	10.0	10/08/2022	ND	237	118	200	0.910	
EXT DRO >C28-C36	<10.0	10.0	10/08/2022	ND					

Surrogate: 1-Chlorooctane 79.0 % 45.3-161

Surrogate: 1-Chlorooctadecane 92.8 % 46.3-178

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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 7 (0-1') (H224693-07)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/09/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/09/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/09/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/09/2022	ND	6.34	106	6.00	1.62		
Total BTEx	<0.300	0.300	10/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.6 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	10/10/2022	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/07/2022	ND	213	106	200	2.20	
DRO >C10-C28*	<10.0	10.0	10/07/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/07/2022	ND					

Surrogate: 1-Chlorooctane 102 % 45.3-161

Surrogate: 1-Chlorooctadecane 108 % 46.3-178

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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 8 (0-1') (H224693-08)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/09/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/09/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/09/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/09/2022	ND	6.34	106	6.00	1.62		
Total BTEx	<0.300	0.300	10/09/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.4 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	288	16.0	10/10/2022	ND	416	104	400	7.41		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/07/2022	ND	213	106	200	2.20	
DRO >C10-C28*	<10.0	10.0	10/07/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/07/2022	ND					

Surrogate: 1-Chlorooctane 87.4 % 45.3-161

Surrogate: 1-Chlorooctadecane 90.4 % 46.3-178

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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 9 (0-1') (H224693-09)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/10/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62		
Total BTEx	<0.300	0.300	10/10/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.2 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	10/10/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/07/2022	ND	213	106	200	2.20	
DRO >C10-C28*	<10.0	10.0	10/07/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/07/2022	ND					

Surrogate: 1-Chlorooctane 105 % 45.3-161

Surrogate: 1-Chlorooctadecane 111 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 10 (0-1') (H224693-10)

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	10/10/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62		
Total BTEx	<0.300	0.300	10/10/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.8 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	10/10/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/07/2022	ND	213	106	200	2.20	
DRO >C10-C28*	<10.0	10.0	10/07/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/07/2022	ND					

Surrogate: 1-Chlorooctane 103 % 45.3-161

Surrogate: 1-Chlorooctadecane 109 % 46.3-178

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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 11 (0-1') (H224693-11)

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	10/10/2022	ND	2.29	115	2.00	1.42	
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43	
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34	
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62	
Total BTEx	<0.300	0.300	10/10/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 91.8 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5360	16.0	10/10/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/07/2022	ND	213	106	200	2.20	
DRO >C10-C28*	95.7	10.0	10/07/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	23.5	10.0	10/07/2022	ND					

Surrogate: 1-Chlorooctane 91.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 106 % 46.3-178

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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 11 (2'-3') (H224693-12)

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	10/10/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62		
Total BTX	<0.300	0.300	10/10/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 90.9 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2400	16.0	10/10/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/07/2022	ND	213	106	200	2.20	
DRO >C10-C28*	<10.0	10.0	10/07/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/07/2022	ND					

Surrogate: 1-Chlorooctane 95.4 % 45.3-161

Surrogate: 1-Chlorooctadecane 102 % 46.3-178

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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 11 (4'-5') (H224693-13)

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	10/10/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62		
Total BTX	<0.300	0.300	10/10/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.2 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	400	16.0	10/10/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/07/2022	ND	213	106	200	2.20	
DRO >C10-C28*	<10.0	10.0	10/07/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/07/2022	ND					

Surrogate: 1-Chlorooctane 97.0 % 45.3-161

Surrogate: 1-Chlorooctadecane 102 % 46.3-178

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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 12 (0-1') (H224693-14)

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	10/10/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62		
Total BTEx	<0.300	0.300	10/10/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.6 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	10/10/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/07/2022	ND	213	106	200	2.20	
DRO >C10-C28*	31.8	10.0	10/07/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/07/2022	ND					

Surrogate: 1-Chlorooctane 84.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 86.8 % 46.3-178

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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 12 (2'-3') (H224693-15)

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	10/10/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62		
Total BTX	<0.300	0.300	10/10/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.7 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	10/10/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/07/2022	ND	213	106	200	2.20	
DRO >C10-C28*	<10.0	10.0	10/07/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/07/2022	ND					

Surrogate: 1-Chlorooctane 97.2 % 45.3-161

Surrogate: 1-Chlorooctadecane 101 % 46.3-178

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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 13 (0-1') (H224693-16)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/10/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62		
Total BTEx	<0.300	0.300	10/10/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.3 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	10/10/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/07/2022	ND	213	106	200	2.20	
DRO >C10-C28*	<10.0	10.0	10/07/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/07/2022	ND					

Surrogate: 1-Chlorooctane 102 % 45.3-161

Surrogate: 1-Chlorooctadecane 107 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 13 (2'-3') (H224693-17)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/10/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62		
Total BTEx	<0.300	0.300	10/10/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.9 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	10/10/2022	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/07/2022	ND	213	106	200	2.20	
DRO >C10-C28*	<10.0	10.0	10/07/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/07/2022	ND					

Surrogate: 1-Chlorooctane 102 % 45.3-161

Surrogate: 1-Chlorooctadecane 111 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 14 (0-1') (H224693-18)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/10/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62		
Total BTEx	<0.300	0.300	10/10/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.5 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	384	16.0	10/10/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/07/2022	ND	213	106	200	2.20	
DRO >C10-C28*	<10.0	10.0	10/07/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/07/2022	ND					

Surrogate: 1-Chlorooctane 102 % 45.3-161

Surrogate: 1-Chlorooctadecane 107 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 14 (2'-3') (H224693-19)

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	10/10/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62		
Total BTEx	<0.300	0.300	10/10/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.0 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	10/10/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/07/2022	ND	213	106	200	2.20	
DRO >C10-C28*	<10.0	10.0	10/07/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/07/2022	ND					

Surrogate: 1-Chlorooctane 106 % 45.3-161

Surrogate: 1-Chlorooctadecane 113 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 15 (0-1') (H224693-20)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/10/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62		
Total BTEx	<0.300	0.300	10/10/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.3 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	12400	16.0	10/10/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/08/2022	ND	213	106	200	2.20	
DRO >C10-C28*	190	10.0	10/08/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	52.7	10.0	10/08/2022	ND					

Surrogate: 1-Chlorooctane 86.2 % 45.3-161

Surrogate: 1-Chlorooctadecane 90.9 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 15 (2'-3') (H224693-21)

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	10/10/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62		
Total BTX	<0.300	0.300	10/10/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 89.7 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5840	16.0	10/10/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/08/2022	ND	213	106	200	2.20	
DRO >C10-C28*	<10.0	10.0	10/08/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/08/2022	ND					

Surrogate: 1-Chlorooctane 102 % 45.3-161

Surrogate: 1-Chlorooctadecane 106 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	10/06/2022	Sampling Date:	10/05/2022
Reported:	10/11/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-02792	Sample Received By:	Tamara Oldaker
Project Location:	COP - EDDY CO, NM		

Sample ID: AH - 15 (4'-5') (H224693-22)

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	10/10/2022	ND	2.29	115	2.00	1.42		
Toluene*	<0.050	0.050	10/10/2022	ND	2.16	108	2.00	1.43		
Ethylbenzene*	<0.050	0.050	10/10/2022	ND	2.09	104	2.00	1.34		
Total Xylenes*	<0.150	0.150	10/10/2022	ND	6.34	106	6.00	1.62		
Total BTX	<0.300	0.300	10/10/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.4 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2840	16.0	10/10/2022	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	10/08/2022	ND	213	106	200	2.20	
DRO >C10-C28*	<10.0	10.0	10/08/2022	ND	220	110	200	3.73	
EXT DRO >C28-C36	<10.0	10.0	10/08/2022	ND					

Surrogate: 1-Chlorooctane 104 % 45.3-161

Surrogate: 1-Chlorooctadecane 110 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

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

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

Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

1/3



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

213

Company Name: <u>ConocoPhillips</u>		P.O. #:		BILL TO		ANALYSIS REQUEST	
Project Manager: <u>Nicholas Poole</u>		Company: <u>Tetra Tech</u>					
Address:		Attn: <u>Christen Linn</u>					
City:		Address: <u>by email</u>					
State:		City:					
Zip:		State:					
Phone #:		Fax #:					
Project #: <u>212-MD-02792</u>		Project Owner:					
Project Name: <u>Texas A Waterford</u>		City:					
Project Location: <u>Eddy County, NM</u>		State:					
Sample Name: <u>Cotton Bitter Lake</u>		Phone #:					
Fax #:							
FOR LAB USE ONLY		PRESERV.		SAMPLING			
Lab I.D.		Sample I.D.					
H24693		AH-11 (0-1')		G1		TPH	
11		AH-11 (2-3')		X		BTEX	
12		AH-11 (4-5')		X		Chlorides	
13		AH-12 (0-1')		X			
14		AH-12 (2-3')		X			
15		AH-13 (0-1')		X			
16		AH-13 (2-3')		X			
17		AH-14 (0-1')		X			
18		AH-14 (2-3')		X			
19		AH-15 (0-1')		X			
20		AH-15 (2-3')		X			

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Relinquished By: <u>Cole B</u>	Date: <u>10/6/22</u>	Received By: <u>Nicholas Poole</u>	Verbal Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Relinquished By: <u>Cole B</u>	Date: <u>10/6/22</u>	Received By: <u>Nicholas Poole</u>	All Results are emailed. Please provide Email address:	
REMARKS: <u>Attn: Nicholas Poole at tetra.tech.com</u>				

Delivered By: (Circle One)	Observed Temp. °C	Sample Condition	CHECKED BY: (Initials)	Turnaround Time:	Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/>	Bacteria (only) <input type="checkbox"/>	Sample Condition
Sampler - UPS - Bus - Other:	Corrected Temp. °C	Cool <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	<u>TP</u>			Cool <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	Observed Temp. °C
							Corrected Temp. °C

† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: <u>Cardinal Labs</u>		P.O. #:		BILL TO		ANALYSIS REQUEST	
Project Manager: <u>Nicholas Poole</u>		Company: <u>Tetra Tech</u>					
Address:		Attn: <u>Christen Linn</u>					
City:		Address: <u>by email</u>					
State:		City:					
Zip:		State:					
Phone #:		Zip:					
Fax #:		Phone #:					
Project #: <u>212-140-02792</u>		Project Owner:					
Project Name: <u>Taney A Water Pond</u>		City:					
Project Location: <u>Eddy County, NM</u>		State:					
Sampler Name: <u>Cathy Birkstead</u>		Fax #:					
FOR LAB USE ONLY		MATRIX		PRESERV		SAMPLING	
Lab I.D.		(G)RAB OR (C)OMP.		DATE		TIME	
Sample I.D.		# CONTAINERS					
		GROUNDWATER					
		WASTEWATER					
		SOIL					
		OIL					
		SLUDGE					
		OTHER :					
		ACID/BASE:					
		ICE / COOL					
		OTHER :					
<u>H22-4693</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>21</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>22</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>23</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>24</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>25</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>26</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>27</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>28</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>29</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>30</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>31</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>32</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>33</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>34</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>35</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>36</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>37</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>38</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>39</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>40</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>41</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>42</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>43</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>44</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>45</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>46</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>47</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>48</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>49</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>50</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>51</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>52</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>53</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>54</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>55</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>56</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>57</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>58</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>59</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>60</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>61</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>62</u>		<u>61</u>		<u>10/5/22</u>		<u>10/5/22</u>	
<u>63</u>		<u>61</u>		<u>10/5/22</u>			



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

December 15, 2022

CHRISTIAN LLULL

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: JAMES A WATERFLOOD

Enclosed are the results of analyses for samples received by the laboratory on 12/12/22 15:19.

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

Cardinal Laboratories is 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:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 7 (0-1') (H225848-01)

BTX 8021B		mg/kg		Analyzed By: JH/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.25	
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41	
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453	
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413	
Total BTX	<0.300	0.300	12/13/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8260	16.0	12/13/2022	ND	400	100	400	3.92	

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	12/13/2022	ND	197	98.6	200	0.758	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	204	102	200	0.639	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 66.6 % 45.3-161

Surrogate: 1-Chlorooctadecane 71.7 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 7 (2'-3') (H225848-02)

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	12/13/2022	ND	2.23	112	2.00	1.25		
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41		
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453		
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413		
Total BTEx	<0.300	0.300	12/13/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 107 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4000	16.0	12/13/2022	ND	400	100	400	3.92		

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	12/13/2022	ND	197	98.6	200	0.758	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	204	102	200	0.639	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 64.4 % 45.3-161

Surrogate: 1-Chlorooctadecane 69.5 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 7 (3'-4') (H225848-03)

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.25		
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41		
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453		
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413		
Total BTEx	<0.300	0.300	12/13/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	976	16.0	12/13/2022	ND	400	100	400	3.92	

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	12/13/2022	ND	197	98.6	200	0.758	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	204	102	200	0.639	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 80.3 % 45.3-161

Surrogate: 1-Chlorooctadecane 86.4 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 7 (4'-5') (H225848-04)

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.25		
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41		
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453		
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413		
Total BTEx	<0.300	0.300	12/13/2022	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	336	16.0	12/13/2022	ND	400	100	400	3.92		

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	12/13/2022	ND	197	98.6	200	0.758	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	204	102	200	0.639	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 58.1 % 45.3-161

Surrogate: 1-Chlorooctadecane 61.6 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 7 (6'-7') (H225848-05)

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.25		
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41		
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453		
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413		
Total BTEx	<0.300	0.300	12/13/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 69.9-140

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	12/13/2022	ND	400	100	400	3.92		

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	12/13/2022	ND	197	98.6	200	0.758	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	204	102	200	0.639	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 65.4 % 45.3-161

Surrogate: 1-Chlorooctadecane 69.6 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 7 (8'-9') (H225848-06)

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	12/13/2022	ND	2.23	112	2.00	1.25		
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41		
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453		
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413		
Total BTEx	<0.300	0.300	12/13/2022	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	12/13/2022	ND	400	100	400	3.92		

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	12/13/2022	ND	197	98.6	200	0.758	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	204	102	200	0.639	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 50.7 % 45.3-161

Surrogate: 1-Chlorooctadecane 54.5 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 7 (14'-15') (H225848-07)

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.25		
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41		
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453		
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413		
Total BTEx	<0.300	0.300	12/13/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	336	16.0	12/13/2022	ND	400	100	400	3.92		

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	12/13/2022	ND	222	111	200	0.145	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	199	99.5	200	0.927	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 67.6 % 45.3-161

Surrogate: 1-Chlorooctadecane 72.0 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 7 (19'-20') (H225848-08)

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.25		
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41		
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453		
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413		
Total BTEx	<0.300	0.300	12/13/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	176	16.0	12/13/2022	ND	400	100	400	3.92		

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	12/13/2022	ND	222	111	200	0.145	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	199	99.5	200	0.927	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 73.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 76.6 % 46.3-178

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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 7 (24'-25') (H225848-09)

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.25		
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41		
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453		
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413		
Total BTEX	<0.300	0.300	12/13/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	12/13/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	12/13/2022	ND	222	111	200	0.145		
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	199	99.5	200	0.927		
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND						

Surrogate: 1-Chlorooctane 69.2 % 45.3-161

Surrogate: 1-Chlorooctadecane 72.3 % 46.3-178

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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 7 (29'-30') (H225848-10)

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	12/13/2022	ND	2.23	112	2.00	1.25		
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41		
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453		
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413		
Total BTEx	<0.300	0.300	12/13/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 107 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	12/13/2022	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/13/2022	ND	222	111	200	0.145	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	199	99.5	200	0.927	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 73.1 % 45.3-161

Surrogate: 1-Chlorooctadecane 76.0 % 46.3-178

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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 8 (0-1') (H225848-11)

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	12/13/2022	ND	2.23	112	2.00	1.25		
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41		
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453		
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413		
Total BTEX	<0.300	0.300	12/13/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	752	16.0	12/13/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/13/2022	ND	222	111	200	0.145	
DRO >C10-C28*	45.2	10.0	12/13/2022	ND	199	99.5	200	0.927	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 70.8 % 45.3-161

Surrogate: 1-Chlorooctadecane 75.6 % 46.3-178

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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 8 (2'-3') (H225848-12)

BTEx 8021B		mg/kg		Analyzed By: JH/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.25		
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41		
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453		
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413		
Total BTEx	<0.300	0.300	12/13/2022	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	240	16.0	12/13/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/13/2022	ND	222	111	200	0.145	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	199	99.5	200	0.927	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 71.7 % 45.3-161

Surrogate: 1-Chlorooctadecane 76.7 % 46.3-178

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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 8 (3'-4') (H225848-13)

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	12/13/2022	ND	2.23	112	2.00	1.25	
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41	
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453	
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413	
Total BTEX	<0.300	0.300	12/13/2022	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	368	16.0	12/13/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/13/2022	ND	222	111	200	0.145	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	199	99.5	200	0.927	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 76.7 % 45.3-161

Surrogate: 1-Chlorooctadecane 81.3 % 46.3-178

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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 8 (4'-5') (H225848-14)

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	12/13/2022	ND	2.23	112	2.00	1.25		
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41		
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453		
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413		
Total BTEx	<0.300	0.300	12/13/2022	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	336	16.0	12/13/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/13/2022	ND	222	111	200	0.145	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	199	99.5	200	0.927	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 78.0 % 45.3-161

Surrogate: 1-Chlorooctadecane 82.8 % 46.3-178

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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 8 (6'-7') (H225848-15)

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	12/13/2022	ND	2.23	112	2.00	1.25	
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.41	
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.17	109	2.00	0.453	
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.66	111	6.00	0.413	
Total BTX	<0.300	0.300	12/13/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	12/13/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/13/2022	ND	222	111	200	0.145	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	199	99.5	200	0.927	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 67.0 % 45.3-161

Surrogate: 1-Chlorooctadecane 68.8 % 46.3-178

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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 8 (8'-9') (H225848-16)

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	12/13/2022	ND	2.22	111	2.00	1.83	
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.89	
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.26	113	2.00	3.09	
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.83	114	6.00	3.12	
Total BTX	<0.300	0.300	12/13/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	12/13/2022	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/13/2022	ND	222	111	200	0.145	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	199	99.5	200	0.927	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 66.4 % 45.3-161

Surrogate: 1-Chlorooctadecane 71.1 % 46.3-178

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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:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 8 (14'-15') (H225848-17)

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	12/13/2022	ND	2.22	111	2.00	1.83	
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.89	
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.26	113	2.00	3.09	
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.83	114	6.00	3.12	
Total BTEx	<0.300	0.300	12/13/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	12/13/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/13/2022	ND	197	98.6	200	0.758	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	204	102	200	0.639	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 60.6 % 45.3-161

Surrogate: 1-Chlorooctadecane 65.5 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 8 (19'-20') (H225848-18)

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	12/13/2022	ND	2.22	111	2.00	1.83		
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.89		
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.26	113	2.00	3.09		
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.83	114	6.00	3.12		
Total BTEx	<0.300	0.300	12/13/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	176	16.0	12/13/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/13/2022	ND	197	98.6	200	0.758	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	204	102	200	0.639	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 81.5 % 45.3-161

Surrogate: 1-Chlorooctadecane 87.4 % 46.3-178

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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 8 (24'-25') (H225848-19)

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	12/13/2022	ND	2.22	111	2.00	1.83	
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.89	
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.26	113	2.00	3.09	
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.83	114	6.00	3.12	
Total BTEx	<0.300	0.300	12/13/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	672	16.0	12/13/2022	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/13/2022	ND	199	99.3	200	2.06	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	217	108	200	1.24	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 99.6 % 45.3-161

Surrogate: 1-Chlorooctadecane 102 % 46.3-178

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Analytical Results For:

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

Received:	12/12/2022	Sampling Date:	12/12/2022
Reported:	12/15/2022	Sampling Type:	Soil
Project Name:	JAMES A WATERFLOOD	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-02792	Sample Received By:	Shalyn Rodriguez
Project Location:	COP - EDDY CO, NM		

Sample ID: B - 8 (29'-30') (H225848-20)

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	12/13/2022	ND	2.22	111	2.00	1.83	
Toluene*	<0.050	0.050	12/13/2022	ND	2.23	112	2.00	1.89	
Ethylbenzene*	<0.050	0.050	12/13/2022	ND	2.26	113	2.00	3.09	
Total Xylenes*	<0.150	0.150	12/13/2022	ND	6.83	114	6.00	3.12	
Total BTEX	<0.300	0.300	12/13/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	624	16.0	12/13/2022	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/13/2022	ND	199	99.3	200	2.06	
DRO >C10-C28*	<10.0	10.0	12/13/2022	ND	217	108	200	1.24	
EXT DRO >C28-C36	<10.0	10.0	12/13/2022	ND					

Surrogate: 1-Chlorooctane 91.9 % 45.3-161

Surrogate: 1-Chlorooctadecane 94.2 % 46.3-178

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

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

Celey D. Keene, Lab Director/Quality Manager



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† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinaliaabusiness.com.



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Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Kalei Jennings
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 12/19/2022 4:40:31 PM

JOB DESCRIPTION

James A Waterflood
SDG NUMBER Lea County NM

JOB NUMBER

890-3603-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad**Job Notes**

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
12/19/2022 4:40:31 PM

Authorized for release by
Jessica Kramer, Project Manager
Jessica.Kramer@et.eurofinsus.com
(432)704-5440

Client: Ensolum
Project/Site: James A Waterflood

Laboratory Job ID: 890-3603-1
SDG: Lea County NM

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Definitions/Glossary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

Job ID: 890-3603-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-3603-1****Receipt**

The samples were received on 12/8/2022 11:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BH06 (890-3603-1) and BH06 (890-3603-2).

GC VOA

Method 8021B: The following samples were diluted due to the nature of the sample matrix: (890-3601-A-1-C MS) and (890-3601-A-1-D MSD). Because of this dilution, the surrogate spike and matrix spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-41625 and analytical batch 880-41693 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-41693/5) and (LCS 880-41625/2-A). Evidence of matrix interferences is not obvious.

Method 8015MOD_NM: The method blank for preparation batch 880-41625 and analytical batch 880-41693 contained Gasoline Range Organics (GRO)-C6-C10 above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8015MOD_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-41625 and analytical batch 880-41693 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

Client Sample ID: BH06

Lab Sample ID: 890-3603-1

Date Collected: 12/06/22 15:00

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 10:11	1
Toluene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 10:11	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 10:11	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/15/22 15:22	12/17/22 10:11	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 10:11	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/15/22 15:22	12/17/22 10:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	116		70 - 130	12/15/22 15:22	12/17/22 10:11	1
1,4-Difluorobenzene (Surr)	100		70 - 130	12/15/22 15:22	12/17/22 10:11	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			12/19/22 16:21	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			12/14/22 12:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/12/22 11:00	12/13/22 16:06	1
Diesel Range Organics (Over C10-C28)	<50.0	U *1	50.0	mg/Kg		12/12/22 11:00	12/13/22 16:06	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/12/22 11:00	12/13/22 16:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	95		70 - 130	12/12/22 11:00	12/13/22 16:06	1
o-Terphenyl	99		70 - 130	12/12/22 11:00	12/13/22 16:06	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	146		5.01	mg/Kg			12/14/22 10:03	1

Client Sample ID: BH06

Lab Sample ID: 890-3603-2

Date Collected: 12/06/22 15:30

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 4

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 13:40	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 13:40	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 13:40	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		12/15/22 15:22	12/17/22 13:40	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 13:40	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		12/15/22 15:22	12/17/22 13:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	12/15/22 15:22	12/17/22 13:40	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

Client Sample ID: BH06

Lab Sample ID: 890-3603-2

Date Collected: 12/06/22 15:30

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 4

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	94		70 - 130	12/15/22 15:22	12/17/22 13:40	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			12/19/22 16:21	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			12/14/22 12:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/12/22 11:00	12/13/22 16:28	1
Diesel Range Organics (Over C10-C28)	<50.0	U *1	50.0	mg/Kg		12/12/22 11:00	12/13/22 16:28	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/12/22 11:00	12/13/22 16:28	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	102		70 - 130			12/12/22 11:00	12/13/22 16:28	1
o-Terphenyl	103		70 - 130			12/12/22 11:00	12/13/22 16:28	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	171		4.99	mg/Kg			12/14/22 10:23	1

Surrogate Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-3601-A-1-C MS	Matrix Spike	85	92
890-3601-A-1-D MSD	Matrix Spike Duplicate	86	89
890-3603-1	BH06	116	100
890-3603-2	BH06	99	94
LCS 880-41943/1-A	Lab Control Sample	97	95
LCSD 880-41943/2-A	Lab Control Sample Dup	94	94
MB 880-41938/5-A	Method Blank	92	93
MB 880-41943/5-A	Method Blank	97	90
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-22478-A-1-E MS	Matrix Spike	125	104
880-22478-A-1-F MSD	Matrix Spike Duplicate	127	106
890-3603-1	BH06	95	99
890-3603-2	BH06	102	103
LCS 880-41625/2-A	Lab Control Sample	165 S1+	162 S1+
LCSD 880-41625/3-A	Lab Control Sample Dup	127	128
MB 880-41625/1-A	Method Blank	148 S1+	209 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-41938/5-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41938

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/15/22 14:55	12/16/22 22:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130	12/15/22 14:55	12/16/22 22:04	1
1,4-Difluorobenzene (Surr)	93		70 - 130	12/15/22 14:55	12/16/22 22:04	1

Lab Sample ID: MB 880-41943/5-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41943

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/15/22 15:22	12/17/22 08:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	12/15/22 15:22	12/17/22 08:47	1
1,4-Difluorobenzene (Surr)	90		70 - 130	12/15/22 15:22	12/17/22 08:47	1

Lab Sample ID: LCS 880-41943/1-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09030		mg/Kg		90	70 - 130
Toluene	0.100	0.08409		mg/Kg		84	70 - 130
Ethylbenzene	0.100	0.07938		mg/Kg		79	70 - 130
m-Xylene & p-Xylene	0.200	0.1705		mg/Kg		85	70 - 130
o-Xylene	0.100	0.08759		mg/Kg		88	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: LCSD 880-41943/2-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09270		mg/Kg		93	70 - 130	3	35

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QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-41943/2-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08517		mg/Kg		85	70 - 130	1	35
Ethylbenzene	0.100	0.07903		mg/Kg		79	70 - 130	0	35
m-Xylene & p-Xylene	0.200	0.1679		mg/Kg		84	70 - 130	2	35
o-Xylene	0.100	0.08660		mg/Kg		87	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-3601-A-1-C MS

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U F2 F1	0.100	<0.00200	U F1	mg/Kg		1	70 - 130
Toluene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0.6	70 - 130
Ethylbenzene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0	70 - 130
m-Xylene & p-Xylene	<0.00401	U F1	0.200	<0.00401	U F1	mg/Kg		0.6	70 - 130
o-Xylene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0.5	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	85		70 - 130
1,4-Difluorobenzene (Surr)	92		70 - 130

Lab Sample ID: 890-3601-A-1-D MSD

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U F2 F1	0.0996	<0.00199	U F2 F1	mg/Kg		0.4	70 - 130	113	35
Toluene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35
Ethylbenzene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35
m-Xylene & p-Xylene	<0.00401	U F1	0.199	<0.00398	U F1	mg/Kg		0	70 - 130	NC	35
o-Xylene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		70 - 130
1,4-Difluorobenzene (Surr)	89		70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-41625/1-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41625

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/12/22 11:00	12/13/22 08:06	1

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QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 880-41625/1-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41625

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/12/22 11:00	12/13/22 08:06	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/12/22 11:00	12/13/22 08:06	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	148	S1+	70 - 130			12/12/22 11:00	12/13/22 08:06	1
o-Terphenyl	209	S1+	70 - 130			12/12/22 11:00	12/13/22 08:06	1

Lab Sample ID: LCS 880-41625/2-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 41625

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	949.4		mg/Kg		95	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1175		mg/Kg		118	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	165	S1+	70 - 130				
o-Terphenyl	162	S1+	70 - 130				

Lab Sample ID: LCSD 880-41625/3-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41625

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	922.3		mg/Kg		92	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	1000	925.4	*1	mg/Kg		93	70 - 130	24	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	127		70 - 130						
o-Terphenyl	128		70 - 130						

Lab Sample ID: 880-22478-A-1-E MS

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 41625

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	999	1156		mg/Kg		113	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U *1	999	1148		mg/Kg		113	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	125		70 - 130						
o-Terphenyl	104		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 880-22478-A-1-F MSD

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 41625

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	1120		mg/Kg		109	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<50.0	U *1	997	1190		mg/Kg		117	70 - 130	4	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	127		70 - 130								
o-Terphenyl	106		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41471/1-A

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			12/14/22 08:09	1

Lab Sample ID: LCS 880-41471/2-A

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	254.3		mg/Kg		102	90 - 110

Lab Sample ID: LCSD 880-41471/3-A

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	268.2		mg/Kg		107	90 - 110	5	20

Lab Sample ID: 890-3603-1 MS

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: BH06

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	146		251	401.1		mg/Kg		102	90 - 110

Lab Sample ID: 890-3603-1 MSD

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: BH06

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	146		251	406.4		mg/Kg		104	90 - 110	1	20

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QC Association Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

GC VOA

Prep Batch: 41938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-41938/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 41943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3603-1	BH06	Total/NA	Solid	5035	
890-3603-2	BH06	Total/NA	Solid	5035	
MB 880-41943/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-41943/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-41943/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3601-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-3601-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 41993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3603-1	BH06	Total/NA	Solid	8021B	41943
890-3603-2	BH06	Total/NA	Solid	8021B	41943
MB 880-41938/5-A	Method Blank	Total/NA	Solid	8021B	41938
MB 880-41943/5-A	Method Blank	Total/NA	Solid	8021B	41943
LCS 880-41943/1-A	Lab Control Sample	Total/NA	Solid	8021B	41943
LCSD 880-41943/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	41943
890-3601-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	41943
890-3601-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	41943

Analysis Batch: 42248

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3603-1	BH06	Total/NA	Solid	Total BTEX	
890-3603-2	BH06	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 41625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3603-1	BH06	Total/NA	Solid	8015NM Prep	
890-3603-2	BH06	Total/NA	Solid	8015NM Prep	
MB 880-41625/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41625/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41625/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-22478-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-22478-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 41693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3603-1	BH06	Total/NA	Solid	8015B NM	41625
890-3603-2	BH06	Total/NA	Solid	8015B NM	41625
MB 880-41625/1-A	Method Blank	Total/NA	Solid	8015B NM	41625
LCS 880-41625/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41625
LCSD 880-41625/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41625
880-22478-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	41625
880-22478-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	41625

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QC Association Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

GC Semi VOA

Analysis Batch: 41809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3603-1	BH06	Total/NA	Solid	8015 NM	
890-3603-2	BH06	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 41471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3603-1	BH06	Soluble	Solid	DI Leach	
890-3603-2	BH06	Soluble	Solid	DI Leach	
MB 880-41471/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41471/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41471/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3603-1 MS	BH06	Soluble	Solid	DI Leach	
890-3603-1 MSD	BH06	Soluble	Solid	DI Leach	

Analysis Batch: 41738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3603-1	BH06	Soluble	Solid	300.0	41471
890-3603-2	BH06	Soluble	Solid	300.0	41471
MB 880-41471/1-A	Method Blank	Soluble	Solid	300.0	41471
LCS 880-41471/2-A	Lab Control Sample	Soluble	Solid	300.0	41471
LCSD 880-41471/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41471
890-3603-1 MS	BH06	Soluble	Solid	300.0	41471
890-3603-1 MSD	BH06	Soluble	Solid	300.0	41471

Lab Chronicle

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

Client Sample ID: BH06

Lab Sample ID: 890-3603-1

Date Collected: 12/06/22 15:00

Matrix: Solid

Date Received: 12/08/22 11:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	41943	12/15/22 15:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	41993	12/17/22 10:11	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42248	12/19/22 16:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			41809	12/14/22 12:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	41625	12/12/22 11:00	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41693	12/13/22 16:06	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	41471	12/09/22 13:16	KS	EET MID
Soluble	Analysis	300.0		1			41738	12/14/22 10:03	CH	EET MID

Client Sample ID: BH06

Lab Sample ID: 890-3603-2

Date Collected: 12/06/22 15:30

Matrix: Solid

Date Received: 12/08/22 11:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	41943	12/15/22 15:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	41993	12/17/22 13:40	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42248	12/19/22 16:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			41809	12/14/22 12:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	41625	12/12/22 11:00	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41693	12/13/22 16:28	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	41471	12/09/22 13:16	KS	EET MID
Soluble	Analysis	300.0		1			41738	12/14/22 10:23	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

- 1
- 2
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- 13
- 14

Method Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3603-1
SDG: Lea County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3603-1	BH06	Solid	12/06/22 15:00	12/08/22 11:20	1
890-3603-2	BH06	Solid	12/06/22 15:30	12/08/22 11:20	4

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Environment Testing
Xenco


Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

www.xenco.com Page 1 of 1

Project Manager:	Kalei Jennings	Bill to: (if different)	Kalei Jennings
Company Name:	Ensolum, LLC	Company Name:	Ensolum, LLC
Address:	601 N Martenfield St Suite 400	Address:	601 N Martenfield St Suite 400
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Midland, TX 79701
Phone:	817.683.2603	Email:	kjennings@ensolum.com, jadamis@ensolum.com

Work Order Comments Program: <input type="checkbox"/> UST/PT <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/> State of Project: _____ Reporting: Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/> Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other: _____	
--	--

Project Name:	James A Waterflood	Turn Around	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code	
Project Number:	03D2024119 & 03D2024120	Due Date:			
Project Location:	Lea County, NM	TAT starts the day received by the lab, if received by 4:30pm			
Sample's Name:	Conner Shore				
PO #:					
SAMPLE RECEIPT Samples Received Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Thermometer ID: <u>811007</u> Cooler Custody Seals: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Correction Factor: <u>-0.2</u> Sample Custody Seals: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temperature Reading: <u>22</u> Total Containers: <u>2</u> Corrected Temperature: <u>22</u>		ANALYSIS REQUEST  890-3603 Chain of Custody			
Sample Identification Matrix Sampled Date Time Depth Grab/Comp # of Cont BH06 S 12.6.22 1500 1' G 1 1 BH06 S 12.6.22 1530 4' G 1 1		Parameters CHLORIDES (EPA: 300.0) <input type="checkbox"/> TPH (8015) <input type="checkbox"/> BTEX (8021) <input type="checkbox"/>			
Sample Comments Incident Number		Preservative Codes None: NO DI Water: H ₂ O Cool: Cool MeOH: Me HCL: HC HNO ₃ : HN H ₂ SO ₄ : H ₂ NaOH: Na H ₃ PO ₄ : HP NaHSO ₄ : NABIS Na ₂ S ₂ O ₃ : NaSO ₃ Zn Acetate+NaOH: Zn NaOH+Ascorbic Acid: SAPC			

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO ₂ Na Sr Ti Sn U V Zn Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U Hg: 1631 / 245.1 / 7470 / 7471					
Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.					
Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		12-8-22 11:20			
3					
5					

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3603-1

SDG Number: Lea County NM

Login Number: 3603

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	N/A	Refer to Job Narrative for details.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3603-1

SDG Number: Lea County NM

Login Number: 3603

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 12/09/22 11:39 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Kalei Jennings
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 12/19/2022 4:40:40 PM

JOB DESCRIPTION

James A Waterflood
SDG NUMBER Lea County NM

JOB NUMBER

890-3604-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220



Eurofins Carlsbad**Job Notes**

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
12/19/2022 4:40:40 PM

Authorized for release by
Jessica Kramer, Project Manager
Jessica.Kramer@et.eurofinsus.com
(432)704-5440

Client: Ensolum
Project/Site: James A Waterflood

Laboratory Job ID: 890-3604-1
SDG: Lea County NM

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Definitions/Glossary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

Job ID: 890-3604-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-3604-1****Receipt**

The samples were received on 12/8/2022 11:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BH05 (890-3604-1) and BH05 (890-3604-2).

GC VOA

Method 8021B: The following samples were diluted due to the nature of the sample matrix: (890-3601-A-1-C MS) and (890-3601-A-1-D MSD). Because of this dilution, the surrogate spike and matrix spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-41625 and analytical batch 880-41693 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-41693/5) and (LCS 880-41625/2-A). Evidence of matrix interferences is not obvious.

Method 8015MOD_NM: The method blank for preparation batch 880-41625 and analytical batch 880-41693 contained Gasoline Range Organics (GRO)-C6-C10 above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8015MOD_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-41625 and analytical batch 880-41693 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

Client Sample ID: BH05

Lab Sample ID: 890-3604-1

Date Collected: 12/06/22 14:00

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 14:01	1
Toluene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 14:01	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 14:01	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/15/22 15:22	12/17/22 14:01	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 14:01	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/15/22 15:22	12/17/22 14:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130	12/15/22 15:22	12/17/22 14:01	1
1,4-Difluorobenzene (Surr)	102		70 - 130	12/15/22 15:22	12/17/22 14:01	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			12/19/22 16:21	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			12/14/22 12:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		12/12/22 11:00	12/13/22 16:51	1
Diesel Range Organics (Over C10-C28)	<49.9	U *1	49.9	mg/Kg		12/12/22 11:00	12/13/22 16:51	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/12/22 11:00	12/13/22 16:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	118		70 - 130	12/12/22 11:00	12/13/22 16:51	1
o-Terphenyl	119		70 - 130	12/12/22 11:00	12/13/22 16:51	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	23.5		4.95	mg/Kg			12/14/22 10:29	1

Client Sample ID: BH05

Lab Sample ID: 890-3604-2

Date Collected: 12/06/22 14:10

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 4

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 14:43	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 14:43	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 14:43	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		12/15/22 15:22	12/17/22 14:43	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 14:43	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		12/15/22 15:22	12/17/22 14:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		70 - 130	12/15/22 15:22	12/17/22 14:43	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

Client Sample ID: BH05

Lab Sample ID: 890-3604-2

Date Collected: 12/06/22 14:10

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 4

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	97		70 - 130	12/15/22 15:22	12/17/22 14:43	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			12/19/22 16:21	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			12/14/22 12:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		12/12/22 11:00	12/13/22 17:13	1
Diesel Range Organics (Over C10-C28)	<49.9	U *1	49.9	mg/Kg		12/12/22 11:00	12/13/22 17:13	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/12/22 11:00	12/13/22 17:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130			12/12/22 11:00	12/13/22 17:13	1
o-Terphenyl	105		70 - 130			12/12/22 11:00	12/13/22 17:13	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	93.9		4.98	mg/Kg			12/14/22 10:49	1

Surrogate Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-3601-A-1-C MS	Matrix Spike	85	92
890-3601-A-1-D MSD	Matrix Spike Duplicate	86	89
890-3604-1	BH05	114	102
890-3604-2	BH05	120	97
LCS 880-41943/1-A	Lab Control Sample	97	95
LCSD 880-41943/2-A	Lab Control Sample Dup	94	94
MB 880-41938/5-A	Method Blank	92	93
MB 880-41943/5-A	Method Blank	97	90
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-22478-A-1-E MS	Matrix Spike	125	104
880-22478-A-1-F MSD	Matrix Spike Duplicate	127	106
890-3604-1	BH05	118	119
890-3604-2	BH05	105	105
LCS 880-41625/2-A	Lab Control Sample	165 S1+	162 S1+
LCSD 880-41625/3-A	Lab Control Sample Dup	127	128
MB 880-41625/1-A	Method Blank	148 S1+	209 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-41938/5-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41938

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/15/22 14:55	12/16/22 22:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130	12/15/22 14:55	12/16/22 22:04	1
1,4-Difluorobenzene (Surr)	93		70 - 130	12/15/22 14:55	12/16/22 22:04	1

Lab Sample ID: MB 880-41943/5-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41943

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/15/22 15:22	12/17/22 08:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	12/15/22 15:22	12/17/22 08:47	1
1,4-Difluorobenzene (Surr)	90		70 - 130	12/15/22 15:22	12/17/22 08:47	1

Lab Sample ID: LCS 880-41943/1-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09030		mg/Kg		90	70 - 130
Toluene	0.100	0.08409		mg/Kg		84	70 - 130
Ethylbenzene	0.100	0.07938		mg/Kg		79	70 - 130
m-Xylene & p-Xylene	0.200	0.1705		mg/Kg		85	70 - 130
o-Xylene	0.100	0.08759		mg/Kg		88	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: LCSD 880-41943/2-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09270		mg/Kg		93	70 - 130	3	35

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-41943/2-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08517		mg/Kg		85	70 - 130	1	35
Ethylbenzene	0.100	0.07903		mg/Kg		79	70 - 130	0	35
m-Xylene & p-Xylene	0.200	0.1679		mg/Kg		84	70 - 130	2	35
o-Xylene	0.100	0.08660		mg/Kg		87	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-3601-A-1-C MS

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U F2 F1	0.100	<0.00200	U F1	mg/Kg		1	70 - 130
Toluene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0.6	70 - 130
Ethylbenzene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0	70 - 130
m-Xylene & p-Xylene	<0.00401	U F1	0.200	<0.00401	U F1	mg/Kg		0.6	70 - 130
o-Xylene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0.5	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	85		70 - 130
1,4-Difluorobenzene (Surr)	92		70 - 130

Lab Sample ID: 890-3601-A-1-D MSD

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U F2 F1	0.0996	<0.00199	U F2 F1	mg/Kg		0.4	70 - 130	113	35
Toluene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35
Ethylbenzene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35
m-Xylene & p-Xylene	<0.00401	U F1	0.199	<0.00398	U F1	mg/Kg		0	70 - 130	NC	35
o-Xylene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		70 - 130
1,4-Difluorobenzene (Surr)	89		70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-41625/1-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41625

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/12/22 11:00	12/13/22 08:06	1

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 880-41625/1-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41625

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/12/22 11:00	12/13/22 08:06	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/12/22 11:00	12/13/22 08:06	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	148	S1+	70 - 130			12/12/22 11:00	12/13/22 08:06	1
o-Terphenyl	209	S1+	70 - 130			12/12/22 11:00	12/13/22 08:06	1

Lab Sample ID: LCS 880-41625/2-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 41625

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	949.4		mg/Kg		95	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1175		mg/Kg		118	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	165	S1+	70 - 130				
o-Terphenyl	162	S1+	70 - 130				

Lab Sample ID: LCSD 880-41625/3-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41625

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	922.3		mg/Kg		92	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	1000	925.4	*1	mg/Kg		93	70 - 130	24	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	127		70 - 130						
o-Terphenyl	128		70 - 130						

Lab Sample ID: 880-22478-A-1-E MS

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 41625

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	999	1156		mg/Kg		113	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U *1	999	1148		mg/Kg		113	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	125		70 - 130						
o-Terphenyl	104		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 880-22478-A-1-F MSD

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 41625

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	1120		mg/Kg		109	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<50.0	U *1	997	1190		mg/Kg		117	70 - 130	4	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	127		70 - 130								
o-Terphenyl	106		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41471/1-A

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			12/14/22 08:09	1

Lab Sample ID: LCS 880-41471/2-A

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	254.3		mg/Kg		102	90 - 110

Lab Sample ID: LCSD 880-41471/3-A

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	268.2		mg/Kg		107	90 - 110	5	20

Lab Sample ID: 890-3603-A-1-B MS

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	146		251	401.1		mg/Kg		102	90 - 110

Lab Sample ID: 890-3603-A-1-C MSD

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	146		251	406.4		mg/Kg		104	90 - 110	1	20

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

GC VOA

Prep Batch: 41938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-41938/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 41943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3604-1	BH05	Total/NA	Solid	5035	
890-3604-2	BH05	Total/NA	Solid	5035	
MB 880-41943/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-41943/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-41943/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3601-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-3601-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 41993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3604-1	BH05	Total/NA	Solid	8021B	41943
890-3604-2	BH05	Total/NA	Solid	8021B	41943
MB 880-41938/5-A	Method Blank	Total/NA	Solid	8021B	41938
MB 880-41943/5-A	Method Blank	Total/NA	Solid	8021B	41943
LCS 880-41943/1-A	Lab Control Sample	Total/NA	Solid	8021B	41943
LCSD 880-41943/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	41943
890-3601-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	41943
890-3601-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	41943

Analysis Batch: 42251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3604-1	BH05	Total/NA	Solid	Total BTEX	
890-3604-2	BH05	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 41625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3604-1	BH05	Total/NA	Solid	8015NM Prep	
890-3604-2	BH05	Total/NA	Solid	8015NM Prep	
MB 880-41625/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41625/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41625/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-22478-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-22478-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 41693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3604-1	BH05	Total/NA	Solid	8015B NM	41625
890-3604-2	BH05	Total/NA	Solid	8015B NM	41625
MB 880-41625/1-A	Method Blank	Total/NA	Solid	8015B NM	41625
LCS 880-41625/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41625
LCSD 880-41625/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41625
880-22478-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	41625
880-22478-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	41625

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QC Association Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

GC Semi VOA

Analysis Batch: 41810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3604-1	BH05	Total/NA	Solid	8015 NM	
890-3604-2	BH05	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 41471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3604-1	BH05	Soluble	Solid	DI Leach	
890-3604-2	BH05	Soluble	Solid	DI Leach	
MB 880-41471/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41471/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41471/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3603-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3603-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 41738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3604-1	BH05	Soluble	Solid	300.0	41471
890-3604-2	BH05	Soluble	Solid	300.0	41471
MB 880-41471/1-A	Method Blank	Soluble	Solid	300.0	41471
LCS 880-41471/2-A	Lab Control Sample	Soluble	Solid	300.0	41471
LCSD 880-41471/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41471
890-3603-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	41471
890-3603-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	41471

Lab Chronicle

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

Client Sample ID: BH05

Lab Sample ID: 890-3604-1

Date Collected: 12/06/22 14:00

Matrix: Solid

Date Received: 12/08/22 11:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	41943	12/15/22 15:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	41993	12/17/22 14:01	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42251	12/19/22 16:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			41810	12/14/22 12:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	41625	12/12/22 11:00	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41693	12/13/22 16:51	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	41471	12/09/22 13:16	KS	EET MID
Soluble	Analysis	300.0		1			41738	12/14/22 10:29	CH	EET MID

Client Sample ID: BH05

Lab Sample ID: 890-3604-2

Date Collected: 12/06/22 14:10

Matrix: Solid

Date Received: 12/08/22 11:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	41943	12/15/22 15:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	41993	12/17/22 14:43	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42251	12/19/22 16:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			41810	12/14/22 12:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	41625	12/12/22 11:00	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41693	12/13/22 17:13	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	41471	12/09/22 13:16	KS	EET MID
Soluble	Analysis	300.0		1			41738	12/14/22 10:49	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

1
2
3
4
5
6
7
8
9
10
11
12
13
14

Method Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3604-1
SDG: Lea County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3604-1	BH05	Solid	12/06/22 14:00	12/08/22 11:20	1
890-3604-2	BH05	Solid	12/06/22 14:10	12/08/22 11:20	4

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14



Environment Testing
Xenoco

Houston, TX (281) 240-4200, Dallas, TX (214) 502-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199


Chain of Custody

Work Order No:

Page 01
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Project Manager:	Katei Jennings	Bill to: (if different)	Katei Jennings
Company Name:	Ensolum, LLC	Company Name:	Ensolum, LLC
Address:	601 N Marientfield St Suite 400	Address:	601 N Marientfield St Suite 400
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Midland, TX 79701
Phone:	817.683.2503	Email:	kjennings@ensolum.com, jadams@ensolum.com



Work Order Comments	
Program: UST/PST	<input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:	
Reporting: Level II	<input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables: EDD	<input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Name:		James A Waterflood		Turn Around			
Project Number:		03D2024119 & 03D2024120		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush			
Project Location:		Lea County, NM		Due Date:			
Sampler's Name:		Conner Shore		TAT starts the day received by the lab. if received by 4:30pm			
PO #:							
SAMPLE RECEIPT		Temp Blank:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Well Ice:	
Samples Received Intact:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Thermometer ID:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Cooler Custody Seals:		Yes No		M/A		Correction Factor:	
Sample Custody Seals:		Yes No		N/A		Temperature Reading:	
Total Containers:						Corrected Temperature:	
Parameters							
RIDES (EPA: 300.0)							
015)							
8021							
ANALYSIS REQUEST							
890-3604 Chain of Custody							
							
H ₃ PO ₄ : HP NaHSO ₄ : NABIS Na ₂ S ₂ O ₃ : NASO ₃ Zn Acetate+NaOH: Zn NaOH+Ascorbic Acid: SAPC		None: NO Cool: Cool HCL: HC H ₂ SO ₄ : H ₂ H ₃ PO ₄ : HP NaHSO ₄ : NABIS Na ₂ S ₂ O ₃ : NASO ₃ Zn Acetate+NaOH: Zn NaOH+Ascorbic Acid: SAPC		DI Water: H ₂ O MeOH: Me HNO ₃ : HN NaOH: Na			

[illegible]

Total	200.7 / 6010	200.8 / 6020:	
Circle Method(s) and Metal(s) to be analyzed	8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO ₂ Na Sr Ti Sn U V Zn		
	TCLP/ SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	Hg: 1631 / 245.1 / 7470 / 7471	

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 		12-5-22 1120 ²			
3		4			
5		6			

Revised Date 08/25/2020 Rev. 2020

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3604-1

SDG Number: Lea County NM

Login Number: 3604

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	N/A	Refer to Job Narrative for details.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3604-1

SDG Number: Lea County NM

Login Number: 3604

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 12/09/22 11:39 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Kalei Jennings
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 12/19/2022 4:41:15 PM

JOB DESCRIPTION

JAMES A WATERFLOOD
SDG NUMBER Lea County NM

JOB NUMBER

890-3605-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad**Job Notes**

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
12/19/2022 4:41:15 PM

Authorized for release by
Jessica Kramer, Project Manager
Jessica.Kramer@et.eurofinsus.com
(432)704-5440

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Laboratory Job ID: 890-3605-1
SDG: Lea County NM

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Definitions/Glossary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

Job ID: 890-3605-1

Laboratory: Eurofins Carlsbad

Narrative

**Job Narrative
890-3605-1**

Receipt

The samples were received on 12/8/2022 11:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BH04 (890-3605-1) and BH04 (890-3605-2).

GC VOA

Method 8021B: The following samples were diluted due to the nature of the sample matrix: (890-3601-A-1-C MS) and (890-3601-A-1-D MSD). Because of this dilution, the surrogate spike and matrix spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-41626 and analytical batch 880-41693 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: BH04 (890-3605-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

Client Sample ID: BH04

Lab Sample ID: 890-3605-1

Date Collected: 12/06/22 13:00

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		12/15/22 15:22	12/17/22 15:04	1
Toluene	<0.00201	U	0.00201	mg/Kg		12/15/22 15:22	12/17/22 15:04	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		12/15/22 15:22	12/17/22 15:04	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		12/15/22 15:22	12/17/22 15:04	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		12/15/22 15:22	12/17/22 15:04	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		12/15/22 15:22	12/17/22 15:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130	12/15/22 15:22	12/17/22 15:04	1
1,4-Difluorobenzene (Surr)	99		70 - 130	12/15/22 15:22	12/17/22 15:04	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			12/19/22 16:21	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			12/14/22 12:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 20:58	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 20:58	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 20:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	138	S1+	70 - 130	12/12/22 11:03	12/13/22 20:58	1
o-Terphenyl	139	S1+	70 - 130	12/12/22 11:03	12/13/22 20:58	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	578		5.04	mg/Kg			12/14/22 10:56	1

Client Sample ID: BH04

Lab Sample ID: 890-3605-2

Date Collected: 12/06/22 13:30

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 4

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		12/15/22 15:22	12/17/22 15:25	1
Toluene	<0.00201	U	0.00201	mg/Kg		12/15/22 15:22	12/17/22 15:25	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		12/15/22 15:22	12/17/22 15:25	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		12/15/22 15:22	12/17/22 15:25	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		12/15/22 15:22	12/17/22 15:25	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		12/15/22 15:22	12/17/22 15:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	121		70 - 130	12/15/22 15:22	12/17/22 15:25	1

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Client Sample Results

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

Client Sample ID: BH04

Lab Sample ID: 890-3605-2

Date Collected: 12/06/22 13:30

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 4

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	98		70 - 130	12/15/22 15:22	12/17/22 15:25	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			12/19/22 16:21	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			12/14/22 12:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		12/12/22 11:03	12/13/22 22:04	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		12/12/22 11:03	12/13/22 22:04	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/12/22 11:03	12/13/22 22:04	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	110		70 - 130			12/12/22 11:03	12/13/22 22:04	1
o-Terphenyl	112		70 - 130			12/12/22 11:03	12/13/22 22:04	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	87.5		5.02	mg/Kg			12/14/22 11:02	1

Surrogate Summary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-3601-A-1-C MS	Matrix Spike	85	92
890-3601-A-1-D MSD	Matrix Spike Duplicate	86	89
890-3605-1	BH04	113	99
890-3605-2	BH04	121	98
LCS 880-41943/1-A	Lab Control Sample	97	95
LCSD 880-41943/2-A	Lab Control Sample Dup	94	94
MB 880-41938/5-A	Method Blank	92	93
MB 880-41943/5-A	Method Blank	97	90
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-3605-1	BH04	138 S1+	139 S1+
890-3605-1 MS	BH04	104	91
890-3605-1 MSD	BH04	94	93
890-3605-2	BH04	110	112
LCS 880-41626/2-A	Lab Control Sample	102	116
LCSD 880-41626/3-A	Lab Control Sample Dup	114	127
MB 880-41626/1-A	Method Blank	152 S1+	207 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-41938/5-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41938

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/15/22 14:55	12/16/22 22:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130	12/15/22 14:55	12/16/22 22:04	1
1,4-Difluorobenzene (Surr)	93		70 - 130	12/15/22 14:55	12/16/22 22:04	1

Lab Sample ID: MB 880-41943/5-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41943

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/15/22 15:22	12/17/22 08:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	12/15/22 15:22	12/17/22 08:47	1
1,4-Difluorobenzene (Surr)	90		70 - 130	12/15/22 15:22	12/17/22 08:47	1

Lab Sample ID: LCS 880-41943/1-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09030		mg/Kg		90	70 - 130
Toluene	0.100	0.08409		mg/Kg		84	70 - 130
Ethylbenzene	0.100	0.07938		mg/Kg		79	70 - 130
m-Xylene & p-Xylene	0.200	0.1705		mg/Kg		85	70 - 130
o-Xylene	0.100	0.08759		mg/Kg		88	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: LCSD 880-41943/2-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09270		mg/Kg		93	70 - 130	3	35

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-41943/2-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08517		mg/Kg		85	70 - 130	1	35
Ethylbenzene	0.100	0.07903		mg/Kg		79	70 - 130	0	35
m-Xylene & p-Xylene	0.200	0.1679		mg/Kg		84	70 - 130	2	35
o-Xylene	0.100	0.08660		mg/Kg		87	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-3601-A-1-C MS

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U F2 F1	0.100	<0.00200	U F1	mg/Kg		1	70 - 130
Toluene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0.6	70 - 130
Ethylbenzene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0	70 - 130
m-Xylene & p-Xylene	<0.00401	U F1	0.200	<0.00401	U F1	mg/Kg		0.6	70 - 130
o-Xylene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0.5	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	85		70 - 130
1,4-Difluorobenzene (Surr)	92		70 - 130

Lab Sample ID: 890-3601-A-1-D MSD

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U F2 F1	0.0996	<0.00199	U F2 F1	mg/Kg		0.4	70 - 130	113	35
Toluene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35
Ethylbenzene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35
m-Xylene & p-Xylene	<0.00401	U F1	0.199	<0.00398	U F1	mg/Kg		0	70 - 130	NC	35
o-Xylene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		70 - 130
1,4-Difluorobenzene (Surr)	89		70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-41626/1-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41626

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 19:51	1

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 880-41626/1-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41626

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 19:51	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 19:51	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	152	S1+	70 - 130			12/12/22 11:03	12/13/22 19:51	1
o-Terphenyl	207	S1+	70 - 130			12/12/22 11:03	12/13/22 19:51	1

Lab Sample ID: LCS 880-41626/2-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 41626

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	811.3		mg/Kg		81	70 - 130
Diesel Range Organics (Over C10-C28)	1000	825.1		mg/Kg		83	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	102		70 - 130				
o-Terphenyl	116		70 - 130				

Lab Sample ID: LCSD 880-41626/3-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41626

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	928.5		mg/Kg		93	70 - 130	13	20
Diesel Range Organics (Over C10-C28)	1000	910.5		mg/Kg		91	70 - 130	10	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	114		70 - 130						
o-Terphenyl	127		70 - 130						

Lab Sample ID: 890-3605-1 MS

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: BH04

Prep Type: Total/NA

Prep Batch: 41626

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	999	939.4		mg/Kg		92	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	999	1020		mg/Kg		102	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	104		70 - 130						
o-Terphenyl	91		70 - 130						

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 890-3605-1 MSD

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: BH04

Prep Type: Total/NA

Prep Batch: 41626

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	910.9		mg/Kg		89	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<50.0	U	997	1037		mg/Kg		104	70 - 130	2	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	94		70 - 130								
o-Terphenyl	93		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41471/1-A

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			12/14/22 08:09	1

Lab Sample ID: LCS 880-41471/2-A

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	254.3		mg/Kg		102	90 - 110

Lab Sample ID: LCSD 880-41471/3-A

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	268.2		mg/Kg		107	90 - 110	5	20

Lab Sample ID: 890-3603-A-1-B MS

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	146		251	401.1		mg/Kg		102	90 - 110

Lab Sample ID: 890-3603-A-1-C MSD

Matrix: Solid

Analysis Batch: 41738

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	146		251	406.4		mg/Kg		104	90 - 110	1	20

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QC Association Summary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

GC VOA

Prep Batch: 41938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-41938/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 41943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3605-1	BH04	Total/NA	Solid	5035	
890-3605-2	BH04	Total/NA	Solid	5035	
MB 880-41943/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-41943/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-41943/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3601-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-3601-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 41993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3605-1	BH04	Total/NA	Solid	8021B	41943
890-3605-2	BH04	Total/NA	Solid	8021B	41943
MB 880-41938/5-A	Method Blank	Total/NA	Solid	8021B	41938
MB 880-41943/5-A	Method Blank	Total/NA	Solid	8021B	41943
LCS 880-41943/1-A	Lab Control Sample	Total/NA	Solid	8021B	41943
LCSD 880-41943/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	41943
890-3601-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	41943
890-3601-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	41943

Analysis Batch: 42252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3605-1	BH04	Total/NA	Solid	Total BTEX	
890-3605-2	BH04	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 41626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3605-1	BH04	Total/NA	Solid	8015NM Prep	
890-3605-2	BH04	Total/NA	Solid	8015NM Prep	
MB 880-41626/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41626/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41626/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3605-1 MS	BH04	Total/NA	Solid	8015NM Prep	
890-3605-1 MSD	BH04	Total/NA	Solid	8015NM Prep	

Analysis Batch: 41693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3605-1	BH04	Total/NA	Solid	8015B NM	41626
890-3605-2	BH04	Total/NA	Solid	8015B NM	41626
MB 880-41626/1-A	Method Blank	Total/NA	Solid	8015B NM	41626
LCS 880-41626/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41626
LCSD 880-41626/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41626
890-3605-1 MS	BH04	Total/NA	Solid	8015B NM	41626
890-3605-1 MSD	BH04	Total/NA	Solid	8015B NM	41626

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QC Association Summary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

GC Semi VOA

Analysis Batch: 41813

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3605-1	BH04	Total/NA	Solid	8015 NM	
890-3605-2	BH04	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 41471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3605-1	BH04	Soluble	Solid	DI Leach	
890-3605-2	BH04	Soluble	Solid	DI Leach	
MB 880-41471/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41471/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41471/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3603-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3603-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 41738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3605-1	BH04	Soluble	Solid	300.0	41471
890-3605-2	BH04	Soluble	Solid	300.0	41471
MB 880-41471/1-A	Method Blank	Soluble	Solid	300.0	41471
LCS 880-41471/2-A	Lab Control Sample	Soluble	Solid	300.0	41471
LCSD 880-41471/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41471
890-3603-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	41471
890-3603-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	41471

Lab Chronicle

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

Client Sample ID: BH04

Lab Sample ID: 890-3605-1

Date Collected: 12/06/22 13:00

Matrix: Solid

Date Received: 12/08/22 11:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	41943	12/15/22 15:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	41993	12/17/22 15:04	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42252	12/19/22 16:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			41813	12/14/22 12:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	41626	12/12/22 11:03	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41693	12/13/22 20:58	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	41471	12/09/22 13:16	KS	EET MID
Soluble	Analysis	300.0		1			41738	12/14/22 10:56	CH	EET MID

Client Sample ID: BH04

Lab Sample ID: 890-3605-2

Date Collected: 12/06/22 13:30

Matrix: Solid

Date Received: 12/08/22 11:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	41943	12/15/22 15:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	41993	12/17/22 15:25	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42252	12/19/22 16:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			41813	12/14/22 12:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	41626	12/12/22 11:03	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41693	12/13/22 22:04	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	41471	12/09/22 13:16	KS	EET MID
Soluble	Analysis	300.0		1			41738	12/14/22 11:02	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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Method Summary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3605-1
SDG: Lea County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3605-1	BH04	Solid	12/06/22 13:00	12/08/22 11:20	1
890-3605-2	BH04	Solid	12/06/22 13:30	12/08/22 11:20	4

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Environment Testing
Xenoco

Houston, TX (281) 240-4200, Dallas, TX (214) 502-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Chain of Custody

Work Order No:


www.xenco.com

Page

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Project Manager:	Katei Jennings	Bill to: (if different)	Katei Jennings
Company Name:	Ensolum, LLC	Company Name:	Ensolum, LLC
Address:	601 N Marientfeld St Suite 400	Address:	601 N Marientfeld St Suite 400
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Midland, TX 79701
Phone:	817.683.2503	Email:	kjennings@ensolum.com , ladams@ensolum.com

Work Order Comments	
Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting: Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>	
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:	



Project Name:		James A Waterflood		Turn Around		Pres. Code		ANALYSIS REQUEST										Preservative Codes					
Project Number:		03SD2024119 & 03SD2024120		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush														None: NO					
Project Location:		Lea County, NM		Due Date:														Cool: Cool					
Sampler's Name:		Conner Shore		TAT starts the day received by the lab, if received by 4:30pm														HCL: HC					
PO #:																		H ₂ SO ₄ : H ₂					
SAMPLE RECEIPT		Temp Blank:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Well Ice:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No												H ₃ PO ₄ : HP			
Samples Received Intact:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Thermometer ID:		720007 -0.8												NaHSO ₄ : NABIS					
Cooler Custody Seals:		Yes No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Correction Factor:		N/A -0.8												Na ₂ S ₂ O ₃ : NaSO ₃					
Sample Custody Seals:		Yes No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Temperature Reading:		N/A -0.8												Zn Acetate+NaOH: Zn					
Total Containers:				Corrected Temperature:		2-10												NaOH+Ascorbic Acid: SACP					
Parameters																							
RIDES (EPA: 300.0)																							
(3015)																							
(8021)																							
																							
890-3605 Chain of Custody																							

[illegible]

Total 200.7 / 6010 200.8 / 6020:
Circle Method(s) and Metal(s) to be analyzed

8RCRA	13PPM	Texas 11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO ₂	Na	Sr	Ti	Sn	U	V	Zn
TCLP/SPLP 6010:		8RCRA	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U												
			Hg: 1631 / 245.1 / 7470 / 7471																											

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		12-8-2011			

Revised Date 08/25/2020 Rev 2020

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3605-1

SDG Number: Lea County NM

Login Number: 3605

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	N/A	Refer to Job Narrative for details.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3605-1

SDG Number: Lea County NM

Login Number: 3605

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 12/09/22 11:39 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Kalei Jennings
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 12/19/2022 4:41:43 PM

JOB DESCRIPTION

James A Waterflood
SDG NUMBER Lea County NM

JOB NUMBER

890-3606-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220



Eurofins Carlsbad**Job Notes**

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
12/19/2022 4:41:43 PM

Authorized for release by
Jessica Kramer, Project Manager
Jessica.Kramer@et.eurofinsus.com
(432)704-5440

Client: Ensolum
Project/Site: James A Waterflood

Laboratory Job ID: 890-3606-1
SDG: Lea County NM

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Definitions/Glossary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

Job ID: 890-3606-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-3606-1****Receipt**

The samples were received on 12/8/2022 11:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BH03 (890-3606-1) and BH03 (890-3606-2).

GC VOA

Method 8021B: The following samples were diluted due to the nature of the sample matrix: (890-3601-A-1-C MS) and (890-3601-A-1-D MSD). Because of this dilution, the surrogate spike and matrix spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-41626 and analytical batch 880-41693 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: (890-3605-A-1-B). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-41479 and analytical batch 880-41945 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

Client Sample ID: BH03

Lab Sample ID: 890-3606-1

Date Collected: 12/06/22 12:30

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		12/15/22 15:22	12/17/22 15:45	1
Toluene	<0.00198	U	0.00198	mg/Kg		12/15/22 15:22	12/17/22 15:45	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		12/15/22 15:22	12/17/22 15:45	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		12/15/22 15:22	12/17/22 15:45	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		12/15/22 15:22	12/17/22 15:45	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		12/15/22 15:22	12/17/22 15:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		70 - 130	12/15/22 15:22	12/17/22 15:45	1
1,4-Difluorobenzene (Surr)	93		70 - 130	12/15/22 15:22	12/17/22 15:45	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			12/19/22 16:21	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	56.9		49.9	mg/Kg			12/14/22 12:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		12/12/22 11:03	12/13/22 22:26	1
Diesel Range Organics (Over C10-C28)	56.9		49.9	mg/Kg		12/12/22 11:03	12/13/22 22:26	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/12/22 11:03	12/13/22 22:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	117		70 - 130	12/12/22 11:03	12/13/22 22:26	1
o-Terphenyl	118		70 - 130	12/12/22 11:03	12/13/22 22:26	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	506	F1	5.03	mg/Kg			12/16/22 02:29	1

Client Sample ID: BH03

Lab Sample ID: 890-3606-2

Date Collected: 12/06/22 12:45

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 4

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 16:06	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 16:06	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 16:06	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		12/15/22 15:22	12/17/22 16:06	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 16:06	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		12/15/22 15:22	12/17/22 16:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130	12/15/22 15:22	12/17/22 16:06	1

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Client Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

Client Sample ID: BH03

Lab Sample ID: 890-3606-2

Date Collected: 12/06/22 12:45

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 4

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	102		70 - 130	12/15/22 15:22	12/17/22 16:06	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			12/19/22 16:21	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	65.5		50.0	mg/Kg			12/14/22 12:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 22:48	1
Diesel Range Organics (Over C10-C28)	65.5		50.0	mg/Kg		12/12/22 11:03	12/13/22 22:48	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 22:48	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130			12/12/22 11:03	12/13/22 22:48	1
o-Terphenyl	112		70 - 130			12/12/22 11:03	12/13/22 22:48	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	542		4.97	mg/Kg			12/16/22 02:51	1

Surrogate Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-3601-A-1-C MS	Matrix Spike	85	92
890-3601-A-1-D MSD	Matrix Spike Duplicate	86	89
890-3606-1	BH03	104	93
890-3606-2	BH03	110	102
LCS 880-41943/1-A	Lab Control Sample	97	95
LCSD 880-41943/2-A	Lab Control Sample Dup	94	94
MB 880-41938/5-A	Method Blank	92	93
MB 880-41943/5-A	Method Blank	97	90
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-3605-A-1-C MS	Matrix Spike	104	91
890-3605-A-1-D MSD	Matrix Spike Duplicate	94	93
890-3606-1	BH03	117	118
890-3606-2	BH03	114	112
LCS 880-41626/2-A	Lab Control Sample	102	116
LCSD 880-41626/3-A	Lab Control Sample Dup	114	127
MB 880-41626/1-A	Method Blank	152 S1+	207 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-41938/5-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41938

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/15/22 14:55	12/16/22 22:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130	12/15/22 14:55	12/16/22 22:04	1
1,4-Difluorobenzene (Surr)	93		70 - 130	12/15/22 14:55	12/16/22 22:04	1

Lab Sample ID: MB 880-41943/5-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41943

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/15/22 15:22	12/17/22 08:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	12/15/22 15:22	12/17/22 08:47	1
1,4-Difluorobenzene (Surr)	90		70 - 130	12/15/22 15:22	12/17/22 08:47	1

Lab Sample ID: LCS 880-41943/1-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09030		mg/Kg		90	70 - 130
Toluene	0.100	0.08409		mg/Kg		84	70 - 130
Ethylbenzene	0.100	0.07938		mg/Kg		79	70 - 130
m-Xylene & p-Xylene	0.200	0.1705		mg/Kg		85	70 - 130
o-Xylene	0.100	0.08759		mg/Kg		88	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: LCSD 880-41943/2-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09270		mg/Kg		93	70 - 130	3	35

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QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-41943/2-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08517		mg/Kg		85	70 - 130	1	35
Ethylbenzene	0.100	0.07903		mg/Kg		79	70 - 130	0	35
m-Xylene & p-Xylene	0.200	0.1679		mg/Kg		84	70 - 130	2	35
o-Xylene	0.100	0.08660		mg/Kg		87	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-3601-A-1-C MS

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U F2 F1	0.100	<0.00200	U F1	mg/Kg		1	70 - 130
Toluene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0.6	70 - 130
Ethylbenzene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0	70 - 130
m-Xylene & p-Xylene	<0.00401	U F1	0.200	<0.00401	U F1	mg/Kg		0.6	70 - 130
o-Xylene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0.5	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	85		70 - 130
1,4-Difluorobenzene (Surr)	92		70 - 130

Lab Sample ID: 890-3601-A-1-D MSD

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U F2 F1	0.0996	<0.00199	U F2 F1	mg/Kg		0.4	70 - 130	113	35
Toluene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35
Ethylbenzene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35
m-Xylene & p-Xylene	<0.00401	U F1	0.199	<0.00398	U F1	mg/Kg		0	70 - 130	NC	35
o-Xylene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		70 - 130
1,4-Difluorobenzene (Surr)	89		70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-41626/1-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41626

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 19:51	1

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QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 880-41626/1-A
Matrix: Solid
Analysis Batch: 41693

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 41626

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 19:51	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 19:51	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	152	S1+	70 - 130			12/12/22 11:03	12/13/22 19:51	1
o-Terphenyl	207	S1+	70 - 130			12/12/22 11:03	12/13/22 19:51	1

Lab Sample ID: LCS 880-41626/2-A
Matrix: Solid
Analysis Batch: 41693

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 41626

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	811.3		mg/Kg		81	70 - 130
Diesel Range Organics (Over C10-C28)	1000	825.1		mg/Kg		83	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	102		70 - 130				
o-Terphenyl	116		70 - 130				

Lab Sample ID: LCSD 880-41626/3-A
Matrix: Solid
Analysis Batch: 41693

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 41626

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	928.5		mg/Kg		93	70 - 130	13	20
Diesel Range Organics (Over C10-C28)	1000	910.5		mg/Kg		91	70 - 130	10	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	114		70 - 130						
o-Terphenyl	127		70 - 130						

Lab Sample ID: 890-3605-A-1-C MS
Matrix: Solid
Analysis Batch: 41693

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 41626

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	999	939.4		mg/Kg		92	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	999	1020		mg/Kg		102	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	104		70 - 130						
o-Terphenyl	91		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 890-3605-A-1-D MSD

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 41626

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	910.9		mg/Kg		89	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<50.0	U	997	1037		mg/Kg		104	70 - 130	2	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	94		70 - 130								
o-Terphenyl	93		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41479/1-A

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			12/16/22 02:07	1

Lab Sample ID: LCS 880-41479/2-A

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	253.5		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-41479/3-A

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.3		mg/Kg		101	90 - 110	1	20

Lab Sample ID: 890-3606-1 MS

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: BH03

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	506	F1	252	812.9	F1	mg/Kg		82	90 - 110

Lab Sample ID: 890-3606-1 MSD

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: BH03

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	506	F1	252	812.4	F1	mg/Kg		82	90 - 110	0	20

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

GC VOA

Prep Batch: 41938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-41938/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 41943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3606-1	BH03	Total/NA	Solid	5035	
890-3606-2	BH03	Total/NA	Solid	5035	
MB 880-41943/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-41943/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-41943/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3601-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-3601-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 41993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3606-1	BH03	Total/NA	Solid	8021B	41943
890-3606-2	BH03	Total/NA	Solid	8021B	41943
MB 880-41938/5-A	Method Blank	Total/NA	Solid	8021B	41938
MB 880-41943/5-A	Method Blank	Total/NA	Solid	8021B	41943
LCS 880-41943/1-A	Lab Control Sample	Total/NA	Solid	8021B	41943
LCSD 880-41943/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	41943
890-3601-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	41943
890-3601-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	41943

Analysis Batch: 42253

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3606-1	BH03	Total/NA	Solid	Total BTEX	
890-3606-2	BH03	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 41626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3606-1	BH03	Total/NA	Solid	8015NM Prep	
890-3606-2	BH03	Total/NA	Solid	8015NM Prep	
MB 880-41626/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41626/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41626/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3605-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3605-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 41693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3606-1	BH03	Total/NA	Solid	8015B NM	41626
890-3606-2	BH03	Total/NA	Solid	8015B NM	41626
MB 880-41626/1-A	Method Blank	Total/NA	Solid	8015B NM	41626
LCS 880-41626/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41626
LCSD 880-41626/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41626
890-3605-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	41626
890-3605-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	41626

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

GC Semi VOA

Analysis Batch: 41814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3606-1	BH03	Total/NA	Solid	8015 NM	
890-3606-2	BH03	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 41479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3606-1	BH03	Soluble	Solid	DI Leach	
890-3606-2	BH03	Soluble	Solid	DI Leach	
MB 880-41479/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41479/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41479/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3606-1 MS	BH03	Soluble	Solid	DI Leach	
890-3606-1 MSD	BH03	Soluble	Solid	DI Leach	

Analysis Batch: 41945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3606-1	BH03	Soluble	Solid	300.0	41479
890-3606-2	BH03	Soluble	Solid	300.0	41479
MB 880-41479/1-A	Method Blank	Soluble	Solid	300.0	41479
LCS 880-41479/2-A	Lab Control Sample	Soluble	Solid	300.0	41479
LCSD 880-41479/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41479
890-3606-1 MS	BH03	Soluble	Solid	300.0	41479
890-3606-1 MSD	BH03	Soluble	Solid	300.0	41479

Lab Chronicle

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

Client Sample ID: BH03

Lab Sample ID: 890-3606-1

Date Collected: 12/06/22 12:30

Matrix: Solid

Date Received: 12/08/22 11:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	41943	12/15/22 15:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	41993	12/17/22 15:45	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42253	12/19/22 16:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			41814	12/14/22 12:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	41626	12/12/22 11:03	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41693	12/13/22 22:26	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	41479	12/09/22 13:24	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	41945	12/16/22 02:29	CH	EET MID

Client Sample ID: BH03

Lab Sample ID: 890-3606-2

Date Collected: 12/06/22 12:45

Matrix: Solid

Date Received: 12/08/22 11:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	41943	12/15/22 15:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	41993	12/17/22 16:06	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42253	12/19/22 16:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			41814	12/14/22 12:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	41626	12/12/22 11:03	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41693	12/13/22 22:48	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	41479	12/09/22 13:24	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	41945	12/16/22 02:51	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Method Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

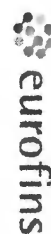
Sample Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3606-1
SDG: Lea County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3606-1	BH03	Solid	12/06/22 12:30	12/08/22 11:20	1
890-3606-2	BH03	Solid	12/06/22 12:45	12/08/22 11:20	4

- 1
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Environ
ment
Xenco

Houston, TX (281) 240-4200, Dallas, TX (214) 502-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 986-3199

Chain of Custody

Work Order No:

www.xenco.com

Page 1 of 1



Project Manager:	Katei Jennings	Bill to: (if different)	Katei Jennings
Company Name:	Ensolum, LLC	Company Name:	Ensolum, LLC
Address:	601 N Marientfeld St Suite 400	Address:	601 N Marientfeld St Suite 400
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Midland, TX 79701
Phone:	817.683.2503	Email:	kjennings@ensolum.com; jadams@ensolum.com

Work Order Comments	
Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting: Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>	
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:	

Project Name:		James A Waterflood		Turn Around		
Project Number:		03D2024119 & 03D2024120		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush		Pers. Code
Project Location:		Lea County, NM		Due Date:		
Sampler's Name:		Conner Shore		TAT starts the day received by the lab, if received by 4:30pm		
PO #:						
SAMPLE RECEIPT		Temp Blank:		Yes No		
Samples Received intact:		(Yes) No		Thermometer ID:		
Cooler Custody Seals:		Yes No		Correction Factor:		
Sample Custody Seals:		Yes No		Temperature Reading:		
Total Containers:				Corrected Temperature:		
Parameters						
RIDES (EPA: 300.0)						
015)						
8021						
ANALYSIS REQUEST						
Preservative Codes						
None: NO DI Water: H ₂ O						
Cool: Cool MeOH: Me						
HCL: HC HNO ₃ : HN						
H ₂ SO ₄ : H ₂ NaOH: Na						
H ₃ PO ₄ : HP						
NaHSO ₄ : NABIS						
Na ₂ S ₂ O ₃ : NASO ₃						
Zn Acetate+NaOH: Zn						
NaOH+Ascorbic Acid: SACP						

[illegible][illegible]

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xeno, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xeno will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xeno. A minimum charge of \$65.00 will be applied to each project and a charge of \$3 for each sample submitted to Eurofins Xeno, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 		12-8-22 11:20	2		
3			4		
5			6		

Printed Date: 08/25/2020 Row: 2020

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3606-1

SDG Number: Lea County NM

Login Number: 3606

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	N/A	Refer to Job Narrative for details.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3606-1

SDG Number: Lea County NM

Login Number: 3606

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 12/09/22 11:39 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Kalei Jennings
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 12/19/2022 4:42:00 PM

JOB DESCRIPTION

James A Waterflood
SDG NUMBER Lea County NM

JOB NUMBER

890-3607-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad**Job Notes**

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
12/19/2022 4:42:00 PM

Authorized for release by
Jessica Kramer, Project Manager
Jessica.Kramer@et.eurofinsus.com
(432)704-5440

Client: Ensolum
Project/Site: James A Waterflood

Laboratory Job ID: 890-3607-1
SDG: Lea County NM

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Definitions/Glossary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

Job ID: 890-3607-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-3607-1****Receipt**

The samples were received on 12/8/2022 11:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BH02 (890-3607-1) and BH02 (890-3607-2).

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-41943 and analytical batch 880-41993 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-41626 and analytical batch 880-41693 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: (890-3605-A-1-B). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-41479 and analytical batch 880-41945 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

Client Sample ID: BH02

Lab Sample ID: 890-3607-1

Date Collected: 12/06/22 12:15

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 16:27	1
Toluene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 16:27	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 16:27	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/15/22 15:22	12/17/22 16:27	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 16:27	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/15/22 15:22	12/17/22 16:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130	12/15/22 15:22	12/17/22 16:27	1
1,4-Difluorobenzene (Surr)	105		70 - 130	12/15/22 15:22	12/17/22 16:27	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			12/19/22 16:21	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			12/14/22 12:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		12/12/22 11:03	12/13/22 23:10	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		12/12/22 11:03	12/13/22 23:10	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/12/22 11:03	12/13/22 23:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130	12/12/22 11:03	12/13/22 23:10	1
o-Terphenyl	111		70 - 130	12/12/22 11:03	12/13/22 23:10	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.94		4.97	mg/Kg			12/16/22 02:58	1

Client Sample ID: BH02

Lab Sample ID: 890-3607-2

Date Collected: 12/06/22 12:25

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 4

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 16:47	1
Toluene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 16:47	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 16:47	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/15/22 15:22	12/17/22 16:47	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		12/15/22 15:22	12/17/22 16:47	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/15/22 15:22	12/17/22 16:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	121		70 - 130	12/15/22 15:22	12/17/22 16:47	1

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Client Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

Client Sample ID: BH02

Lab Sample ID: 890-3607-2

Date Collected: 12/06/22 12:25

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 4

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	102		70 - 130	12/15/22 15:22	12/17/22 16:47	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			12/19/22 16:21	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			12/14/22 12:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 23:32	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 23:32	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 23:32	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	128		70 - 130			12/12/22 11:03	12/13/22 23:32	1
o-Terphenyl	123		70 - 130			12/12/22 11:03	12/13/22 23:32	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	35.4		4.98	mg/Kg			12/16/22 03:05	1

Surrogate Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-3601-A-1-C MS	Matrix Spike	85	92
890-3601-A-1-D MSD	Matrix Spike Duplicate	86	89
890-3607-1	BH02	115	105
890-3607-2	BH02	121	102
LCS 880-41943/1-A	Lab Control Sample	97	95
LCSD 880-41943/2-A	Lab Control Sample Dup	94	94
MB 880-41938/5-A	Method Blank	92	93
MB 880-41943/5-A	Method Blank	97	90
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-3605-A-1-C MS	Matrix Spike	104	91
890-3605-A-1-D MSD	Matrix Spike Duplicate	94	93
890-3607-1	BH02	112	111
890-3607-2	BH02	128	123
LCS 880-41626/2-A	Lab Control Sample	102	116
LCSD 880-41626/3-A	Lab Control Sample Dup	114	127
MB 880-41626/1-A	Method Blank	152 S1+	207 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-41938/5-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41938

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 14:55	12/16/22 22:04	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/15/22 14:55	12/16/22 22:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130	12/15/22 14:55	12/16/22 22:04	1
1,4-Difluorobenzene (Surr)	93		70 - 130	12/15/22 14:55	12/16/22 22:04	1

Lab Sample ID: MB 880-41943/5-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41943

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 15:22	12/17/22 08:47	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/15/22 15:22	12/17/22 08:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	12/15/22 15:22	12/17/22 08:47	1
1,4-Difluorobenzene (Surr)	90		70 - 130	12/15/22 15:22	12/17/22 08:47	1

Lab Sample ID: LCS 880-41943/1-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09030		mg/Kg		90	70 - 130
Toluene	0.100	0.08409		mg/Kg		84	70 - 130
Ethylbenzene	0.100	0.07938		mg/Kg		79	70 - 130
m-Xylene & p-Xylene	0.200	0.1705		mg/Kg		85	70 - 130
o-Xylene	0.100	0.08759		mg/Kg		88	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: LCSD 880-41943/2-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09270		mg/Kg		93	70 - 130	3	35

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QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-41943/2-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08517		mg/Kg		85	70 - 130	1	35
Ethylbenzene	0.100	0.07903		mg/Kg		79	70 - 130	0	35
m-Xylene & p-Xylene	0.200	0.1679		mg/Kg		84	70 - 130	2	35
o-Xylene	0.100	0.08660		mg/Kg		87	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 890-3601-A-1-C MS

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U F2 F1	0.100	<0.00200	U F1	mg/Kg		1	70 - 130
Toluene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0.6	70 - 130
Ethylbenzene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0	70 - 130
m-Xylene & p-Xylene	<0.00401	U F1	0.200	<0.00401	U F1	mg/Kg		0.6	70 - 130
o-Xylene	<0.00200	U F1	0.100	<0.00200	U F1	mg/Kg		0.5	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	85		70 - 130
1,4-Difluorobenzene (Surr)	92		70 - 130

Lab Sample ID: 890-3601-A-1-D MSD

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 41943

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U F2 F1	0.0996	<0.00199	U F2 F1	mg/Kg		0.4	70 - 130	113	35
Toluene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35
Ethylbenzene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35
m-Xylene & p-Xylene	<0.00401	U F1	0.199	<0.00398	U F1	mg/Kg		0	70 - 130	NC	35
o-Xylene	<0.00200	U F1	0.0996	<0.00199	U F1	mg/Kg		0	70 - 130	NC	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		70 - 130
1,4-Difluorobenzene (Surr)	89		70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-41626/1-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41626

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 19:51	1

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QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 880-41626/1-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41626

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 19:51	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/12/22 11:03	12/13/22 19:51	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	152	S1+	70 - 130			12/12/22 11:03	12/13/22 19:51	1
o-Terphenyl	207	S1+	70 - 130			12/12/22 11:03	12/13/22 19:51	1

Lab Sample ID: LCS 880-41626/2-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 41626

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	811.3		mg/Kg		81	70 - 130
Diesel Range Organics (Over C10-C28)	1000	825.1		mg/Kg		83	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	102		70 - 130				
o-Terphenyl	116		70 - 130				

Lab Sample ID: LCSD 880-41626/3-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41626

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	928.5		mg/Kg		93	70 - 130	13	20
Diesel Range Organics (Over C10-C28)	1000	910.5		mg/Kg		91	70 - 130	10	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	114		70 - 130						
o-Terphenyl	127		70 - 130						

Lab Sample ID: 890-3605-A-1-C MS

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 41626

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	999	939.4		mg/Kg		92	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	999	1020		mg/Kg		102	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	104		70 - 130						
o-Terphenyl	91		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 890-3605-A-1-D MSD

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 41626

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	910.9		mg/Kg		89	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<50.0	U	997	1037		mg/Kg		104	70 - 130	2	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	94		70 - 130								
o-Terphenyl	93		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41479/1-A

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			12/16/22 02:07	1

Lab Sample ID: LCS 880-41479/2-A

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	253.5		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-41479/3-A

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.3		mg/Kg		101	90 - 110	1	20

Lab Sample ID: 890-3606-A-1-C MS

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	606	F1	252	812.9	F1	mg/Kg		82	90 - 110

Lab Sample ID: 890-3606-A-1-D MSD

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	606	F1	252	812.4	F1	mg/Kg		82	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

GC VOA

Prep Batch: 41938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-41938/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 41943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3607-1	BH02	Total/NA	Solid	5035	
890-3607-2	BH02	Total/NA	Solid	5035	
MB 880-41943/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-41943/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-41943/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3601-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-3601-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 41993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3607-1	BH02	Total/NA	Solid	8021B	41943
890-3607-2	BH02	Total/NA	Solid	8021B	41943
MB 880-41938/5-A	Method Blank	Total/NA	Solid	8021B	41938
MB 880-41943/5-A	Method Blank	Total/NA	Solid	8021B	41943
LCS 880-41943/1-A	Lab Control Sample	Total/NA	Solid	8021B	41943
LCSD 880-41943/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	41943
890-3601-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	41943
890-3601-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	41943

Analysis Batch: 42254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3607-1	BH02	Total/NA	Solid	Total BTEX	
890-3607-2	BH02	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 41626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3607-1	BH02	Total/NA	Solid	8015NM Prep	
890-3607-2	BH02	Total/NA	Solid	8015NM Prep	
MB 880-41626/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41626/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41626/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3605-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3605-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 41693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3607-1	BH02	Total/NA	Solid	8015B NM	41626
890-3607-2	BH02	Total/NA	Solid	8015B NM	41626
MB 880-41626/1-A	Method Blank	Total/NA	Solid	8015B NM	41626
LCS 880-41626/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41626
LCSD 880-41626/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41626
890-3605-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	41626
890-3605-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	41626

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QC Association Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

GC Semi VOA

Analysis Batch: 41815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3607-1	BH02	Total/NA	Solid	8015 NM	
890-3607-2	BH02	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 41479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3607-1	BH02	Soluble	Solid	DI Leach	
890-3607-2	BH02	Soluble	Solid	DI Leach	
MB 880-41479/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41479/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41479/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3606-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3606-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 41945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3607-1	BH02	Soluble	Solid	300.0	41479
890-3607-2	BH02	Soluble	Solid	300.0	41479
MB 880-41479/1-A	Method Blank	Soluble	Solid	300.0	41479
LCS 880-41479/2-A	Lab Control Sample	Soluble	Solid	300.0	41479
LCSD 880-41479/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41479
890-3606-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	41479
890-3606-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	41479

Lab Chronicle

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

Client Sample ID: BH02

Lab Sample ID: 890-3607-1

Date Collected: 12/06/22 12:15

Matrix: Solid

Date Received: 12/08/22 11:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	41943	12/15/22 15:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	41993	12/17/22 16:27	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42254	12/19/22 16:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			41815	12/14/22 12:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	41626	12/12/22 11:03	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41693	12/13/22 23:10	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	41479	12/09/22 13:24	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	41945	12/16/22 02:58	CH	EET MID

Client Sample ID: BH02

Lab Sample ID: 890-3607-2

Date Collected: 12/06/22 12:25

Matrix: Solid

Date Received: 12/08/22 11:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	41943	12/15/22 15:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	41993	12/17/22 16:47	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42254	12/19/22 16:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			41815	12/14/22 12:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	41626	12/12/22 11:03	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41693	12/13/22 23:32	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	41479	12/09/22 13:24	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	41945	12/16/22 03:05	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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Method Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Ensolum
Project/Site: James A Waterflood

Job ID: 890-3607-1
SDG: Lea County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3607-1	BH02	Solid	12/06/22 12:15	12/08/22 11:20	1
890-3607-2	BH02	Solid	12/06/22 12:25	12/08/22 11:20	4

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Environ Health Perspect
Xenobio

Houston, TX (281) 240-4200, Dallas, TX (214) 502-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Chain of Custody

Work Order No:

www.xenco.com Page 1 of 1

Project Manager:	Katei Jennings	Bill to: (if different)	Katei Jennings
Company Name:	Ensolum, LLC	Company Name:	Ensolum, LLC
Address:	601 N Marienfeld St Suite 400	Address:	601 N Marienfeld St Suite 400
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Midland, TX 79701
Phone:	817.683.2503	Email:	kjennings@ensolum.com; jadam@ensolum.com

Work Order Comments	
Program: UST/PST	<input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:	
Reporting: Level II	<input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables: EDD	<input type="checkbox"/> ADAPT <input type="checkbox"/> Other:



Project Name:						James A Waterflood								Turn Around				Pres. Code		ANALYSIS REQUEST										Preservative Codes									
Project Number:						03DD2024119 & 03DD2024120								<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush																None: NO DI Water: H ₂ O									
Project Location:						Lea County, NM								Due Date:																Cool: Cool MeOH: Me									
Sampler's Name:						Conner Shore								TAT starts the day received by the lab, if received by 4:30pm																HCL: HC HNO ₃ : HN NaOH: Na									
PO #:																														H ₂ SO ₄ : H ₂									
SAMPLE RECEIPT						Temp Blank:				<input checked="" type="radio"/> Yes <input type="radio"/> No				Wet Ice:				<input checked="" type="radio"/> Yes <input type="radio"/> No																					
Samples Received Intact:						<input checked="" type="radio"/> Yes <input type="radio"/> No				Thermometer ID:				TW-607														H ₃ PO ₄ : HP											
Cooler Custody Seals:						Yes No N/A				Correction Factor:				-0.02														NaHSO ₄ : NABIS											
Sample Custody Seals:						Yes No N/A				Temperature Reading:				0.28														Na ₂ S ₂ O ₃ : NASO ₃											
Total Containers:										Corrected Temperature:				0.10														Zn Acetate+NaOH: Zn NaOH+Ascorbic Acid: SAPC											

[illegible]

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 A Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO₂ Na Sr Ti Sn U V Zn
TCLP/SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U Hg: 1631 / 245.1 / 7470 / 7471

Notice: Signature of this document and the relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xeno, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xeno will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xeno. A minimum charge of \$65.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xeno, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 		12-8-22 11:20			
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Revised Date: 08/25/2020 Row: 2020

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3607-1

SDG Number: Lea County NM

Login Number: 3607

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	N/A	Refer to Job Narrative for details.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3607-1

SDG Number: Lea County NM

Login Number: 3607

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 12/09/22 11:39 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Kalei Jennings
Ensolum
601 N. Marienfeld St.
Suite 400
Midland, Texas 79701

Generated 12/16/2022 1:23:04 PM

JOB DESCRIPTION

JAMES A WATERFLOOD
SDG NUMBER Lea County NM

JOB NUMBER

890-3608-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad**Job Notes**

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
12/16/2022 1:23:04 PM

Authorized for release by
Jessica Kramer, Project Manager
Jessica.Kramer@et.eurofinsus.com
(432)704-5440

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Laboratory Job ID: 890-3608-1
SDG: Lea County NM

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Definitions/Glossary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

Job ID: 890-3608-1

Laboratory: Eurofins Carlsbad

Narrative**Job Narrative
890-3608-1****Receipt**

The samples were received on 12/8/2022 11:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BH01 (890-3608-1) and BH01 (890-3608-2).

GC VOA

Method 8021B: Surrogate recovery for the following sample was outside control limits: BH01 (890-3608-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-41899 and analytical batch 880-41993 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-41625 and analytical batch 880-41693 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-41693/5) and (LCS 880-41625/2-A). Evidence of matrix interferences is not obvious.

Method 8015MOD_NM: The method blank for preparation batch 880-41625 and analytical batch 880-41693 contained Gasoline Range Organics (GRO)-C6-C10 above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8015MOD_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-41625 and analytical batch 880-41693 recovered outside control limits for the following analytes: Diesel Range Organics (Over C10-C28).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-41479 and analytical batch 880-41945 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

Client Sample ID: BH01

Lab Sample ID: 890-3608-1

Date Collected: 12/05/22 09:40

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		12/15/22 10:18	12/16/22 12:38	1
Toluene	<0.00202	U	0.00202	mg/Kg		12/15/22 10:18	12/16/22 12:38	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		12/15/22 10:18	12/16/22 12:38	1
m-Xylene & p-Xylene	<0.00404	U	0.00404	mg/Kg		12/15/22 10:18	12/16/22 12:38	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		12/15/22 10:18	12/16/22 12:38	1
Xylenes, Total	<0.00404	U	0.00404	mg/Kg		12/15/22 10:18	12/16/22 12:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	135	S1+	70 - 130	12/15/22 10:18	12/16/22 12:38	1
1,4-Difluorobenzene (Surr)	75		70 - 130	12/15/22 10:18	12/16/22 12:38	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404	mg/Kg			12/16/22 14:05	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			12/14/22 12:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		12/12/22 11:00	12/13/22 15:00	1
Diesel Range Organics (Over C10-C28)	<49.9	U *1	49.9	mg/Kg		12/12/22 11:00	12/13/22 15:00	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		12/12/22 11:00	12/13/22 15:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	127		70 - 130	12/12/22 11:00	12/13/22 15:00	1
o-Terphenyl	125		70 - 130	12/12/22 11:00	12/13/22 15:00	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16.8		4.98	mg/Kg			12/16/22 03:12	1

Client Sample ID: BH01

Lab Sample ID: 890-3608-2

Date Collected: 12/05/22 09:55

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 4

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		12/15/22 10:18	12/16/22 12:58	1
Toluene	<0.00199	U	0.00199	mg/Kg		12/15/22 10:18	12/16/22 12:58	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		12/15/22 10:18	12/16/22 12:58	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		12/15/22 10:18	12/16/22 12:58	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		12/15/22 10:18	12/16/22 12:58	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		12/15/22 10:18	12/16/22 12:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	119		70 - 130	12/15/22 10:18	12/16/22 12:58	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

Client Sample ID: BH01

Lab Sample ID: 890-3608-2

Date Collected: 12/05/22 09:55

Matrix: Solid

Date Received: 12/08/22 11:20

Sample Depth: 4

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	97		70 - 130	12/15/22 10:18	12/16/22 12:58	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			12/16/22 14:05	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			12/14/22 12:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8	mg/Kg		12/12/22 11:00	12/13/22 15:44	1
Diesel Range Organics (Over C10-C28)	<49.8	U *1	49.8	mg/Kg		12/12/22 11:00	12/13/22 15:44	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		12/12/22 11:00	12/13/22 15:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	115		70 - 130			12/12/22 11:00	12/13/22 15:44	1
o-Terphenyl	119		70 - 130			12/12/22 11:00	12/13/22 15:44	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	54.4		4.96	mg/Kg			12/16/22 03:34	1

Surrogate Summary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-3590-A-1-D MS	Matrix Spike	105	73
890-3590-A-1-E MSD	Matrix Spike Duplicate	100	90
890-3608-1	BH01	135 S1+	75
890-3608-2	BH01	119	97
LCS 880-41899/1-A	Lab Control Sample	99	94
LCSD 880-41899/2-A	Lab Control Sample Dup	106	89
MB 880-41899/5-A	Method Blank	102	87
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-22478-A-1-E MS	Matrix Spike	125	104
880-22478-A-1-F MSD	Matrix Spike Duplicate	127	106
890-3608-1	BH01	127	125
890-3608-2	BH01	115	119
LCS 880-41625/2-A	Lab Control Sample	165 S1+	162 S1+
LCSD 880-41625/3-A	Lab Control Sample Dup	127	128
MB 880-41625/1-A	Method Blank	148 S1+	209 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-41899/5-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41899

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/15/22 10:18	12/16/22 10:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/15/22 10:18	12/16/22 10:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/15/22 10:18	12/16/22 10:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/15/22 10:18	12/16/22 10:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/15/22 10:18	12/16/22 10:53	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/15/22 10:18	12/16/22 10:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130	12/15/22 10:18	12/16/22 10:53	1
1,4-Difluorobenzene (Surr)	87		70 - 130	12/15/22 10:18	12/16/22 10:53	1

Lab Sample ID: LCS 880-41899/1-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 41899

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1057		mg/Kg		106	70 - 130
Toluene	0.100	0.1002		mg/Kg		100	70 - 130
Ethylbenzene	0.100	0.09641		mg/Kg		96	70 - 130
m-Xylene & p-Xylene	0.200	0.2086		mg/Kg		104	70 - 130
o-Xylene	0.100	0.1033		mg/Kg		103	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: LCSD 880-41899/2-A

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41899

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1010		mg/Kg		101	70 - 130	5	35
Toluene	0.100	0.09757		mg/Kg		98	70 - 130	3	35
Ethylbenzene	0.100	0.09721		mg/Kg		97	70 - 130	1	35
m-Xylene & p-Xylene	0.200	0.2124		mg/Kg		106	70 - 130	2	35
o-Xylene	0.100	0.1060		mg/Kg		106	70 - 130	3	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	89		70 - 130

Lab Sample ID: 890-3590-A-1-D MS

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 41899

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U F1 F2	0.101	0.04468	F1	mg/Kg		44	70 - 130
Toluene	<0.00199	U	0.101	0.08001		mg/Kg		79	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 890-3590-A-1-D MS

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 41899

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00199	U	0.101	0.09723		mg/Kg		96	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.202	0.1697		mg/Kg		84	70 - 130
o-Xylene	<0.00199	U	0.101	0.08477		mg/Kg		84	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		70 - 130
1,4-Difluorobenzene (Surr)	73		70 - 130

Lab Sample ID: 890-3590-A-1-E MSD

Matrix: Solid

Analysis Batch: 41993

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 41899

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U F1 F2	0.0996	0.08835	F2	mg/Kg		89	70 - 130	66	35
Toluene	<0.00199	U	0.0996	0.08545		mg/Kg		86	70 - 130	7	35
Ethylbenzene	<0.00199	U	0.0996	0.08497		mg/Kg		85	70 - 130	13	35
m-Xylene & p-Xylene	<0.00398	U	0.199	0.1852		mg/Kg		93	70 - 130	9	35
o-Xylene	<0.00199	U	0.0996	0.09154		mg/Kg		92	70 - 130	8	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		70 - 130
1,4-Difluorobenzene (Surr)	90		70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-41625/1-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 41625

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/12/22 11:00	12/13/22 08:06	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/12/22 11:00	12/13/22 08:06	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/12/22 11:00	12/13/22 08:06	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	148	S1+	70 - 130	12/12/22 11:00	12/13/22 08:06	1
o-Terphenyl	209	S1+	70 - 130	12/12/22 11:00	12/13/22 08:06	1

Lab Sample ID: LCS 880-41625/2-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 41625

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	949.4		mg/Kg		95	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1175		mg/Kg		118	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-41625/2-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 41625

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	165	S1+	70 - 130
o-Terphenyl	162	S1+	70 - 130

Lab Sample ID: LCSD 880-41625/3-A

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 41625

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	922.3		mg/Kg		92	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	1000	925.4	*1	mg/Kg		93	70 - 130	24	20

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	127		70 - 130
o-Terphenyl	128		70 - 130

Lab Sample ID: 880-22478-A-1-E MS

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 41625

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	999	1156		mg/Kg		113	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U *1	999	1148		mg/Kg		113	70 - 130

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	125		70 - 130
o-Terphenyl	104		70 - 130

Lab Sample ID: 880-22478-A-1-F MSD

Matrix: Solid

Analysis Batch: 41693

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 41625

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	997	1120		mg/Kg		109	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<50.0	U *1	997	1190		mg/Kg		117	70 - 130	4	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	127		70 - 130
o-Terphenyl	106		70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-41479/1-A

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			12/16/22 02:07	1

Lab Sample ID: LCS 880-41479/2-A

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	253.5		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-41479/3-A

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.3		mg/Kg		101	90 - 110	1	20

Lab Sample ID: 890-3606-A-1-C MS

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	606	F1	252	812.9	F1	mg/Kg		82	90 - 110

Lab Sample ID: 890-3606-A-1-D MSD

Matrix: Solid

Analysis Batch: 41945

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	606	F1	252	812.4	F1	mg/Kg		82	90 - 110	0	20

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QC Association Summary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

GC VOA

Prep Batch: 41899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3608-1	BH01	Total/NA	Solid	5035	
890-3608-2	BH01	Total/NA	Solid	5035	
MB 880-41899/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-41899/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-41899/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3590-A-1-D MS	Matrix Spike	Total/NA	Solid	5035	
890-3590-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 41993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3608-1	BH01	Total/NA	Solid	8021B	41899
890-3608-2	BH01	Total/NA	Solid	8021B	41899
MB 880-41899/5-A	Method Blank	Total/NA	Solid	8021B	41899
LCS 880-41899/1-A	Lab Control Sample	Total/NA	Solid	8021B	41899
LCSD 880-41899/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	41899
890-3590-A-1-D MS	Matrix Spike	Total/NA	Solid	8021B	41899
890-3590-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	41899

Analysis Batch: 42042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3608-1	BH01	Total/NA	Solid	Total BTEX	
890-3608-2	BH01	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 41625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3608-1	BH01	Total/NA	Solid	8015NM Prep	
890-3608-2	BH01	Total/NA	Solid	8015NM Prep	
MB 880-41625/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-41625/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-41625/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-22478-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-22478-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 41693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3608-1	BH01	Total/NA	Solid	8015B NM	41625
890-3608-2	BH01	Total/NA	Solid	8015B NM	41625
MB 880-41625/1-A	Method Blank	Total/NA	Solid	8015B NM	41625
LCS 880-41625/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	41625
LCSD 880-41625/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	41625
880-22478-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	41625
880-22478-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	41625

Analysis Batch: 41808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3608-1	BH01	Total/NA	Solid	8015 NM	
890-3608-2	BH01	Total/NA	Solid	8015 NM	

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QC Association Summary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

HPLC/IC

Leach Batch: 41479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3608-1	BH01	Soluble	Solid	DI Leach	
890-3608-2	BH01	Soluble	Solid	DI Leach	
MB 880-41479/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-41479/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-41479/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3606-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3606-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 41945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3608-1	BH01	Soluble	Solid	300.0	41479
890-3608-2	BH01	Soluble	Solid	300.0	41479
MB 880-41479/1-A	Method Blank	Soluble	Solid	300.0	41479
LCS 880-41479/2-A	Lab Control Sample	Soluble	Solid	300.0	41479
LCSD 880-41479/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	41479
890-3606-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	41479
890-3606-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	41479

Lab Chronicle

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

Client Sample ID: BH01

Lab Sample ID: 890-3608-1

Date Collected: 12/05/22 09:40

Matrix: Solid

Date Received: 12/08/22 11:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	41899	12/15/22 10:18	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	41993	12/16/22 12:38	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42042	12/16/22 14:05	SM	EET MID
Total/NA	Analysis	8015 NM		1			41808	12/14/22 12:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	41625	12/12/22 11:00	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41693	12/13/22 15:00	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	41479	12/09/22 13:24	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	41945	12/16/22 03:12	CH	EET MID

Client Sample ID: BH01

Lab Sample ID: 890-3608-2

Date Collected: 12/05/22 09:55

Matrix: Solid

Date Received: 12/08/22 11:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	41899	12/15/22 10:18	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	41993	12/16/22 12:58	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			42042	12/16/22 14:05	SM	EET MID
Total/NA	Analysis	8015 NM		1			41808	12/14/22 12:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	41625	12/12/22 11:00	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	41693	12/13/22 15:44	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	41479	12/09/22 13:24	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	41945	12/16/22 03:34	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Method Summary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

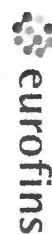
Sample Summary

Client: Ensolum
Project/Site: JAMES A WATERFLOOD

Job ID: 890-3608-1
SDG: Lea County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3608-1	BH01	Solid	12/05/22 09:40	12/08/22 11:20	1
890-3608-2	BH01	Solid	12/05/22 09:55	12/08/22 11:20	4

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14



Environment Testing
Xerco

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Chain of Custody

Work Order No:

www.xenco.com Page 1 of 1



Project Manager:	Kalei Jennings	Bill to: (if different)	Kalei Jennings
Company Name:	Ensolum, LLC	Company Name:	Ensolum, LLC
Address:	601 N Marientfield St Suite 400	Address:	601 N Marientfield St Suite 400
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Midland, TX 79701
Phone:	817.683.2503	Email:	kjennings@ensolum.com; jadams@ensolum.com

Work Order Comments	
Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting: Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>	
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:	

[illegible][illegible]

Total	200.7 / 6010	200.8 / 6020:	8RCRA	13PPM	Texas	11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO ₂	Na	Sr	Ti	Sn	U	Zn
Circle Method(s) and Metal(s)	to be analyzed		TCLP / SPLP	6010:	8RCRA	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U						Hg:	1631 / 245.1	7470	7471			

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco. Its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 		12-5-22 1120			
3		4			
5		6			

Revised Date: 08/25/2020 Rev 2020

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3608-1

SDG Number: Lea County NM

Login Number: 3608

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	N/A	Refer to Job Narrative for details.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3608-1

SDG Number: Lea County NM

Login Number: 3608

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 12/09/22 11:39 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Incident ID	NMAP1829546514
District RP	2RP-5017
Facility ID	
Application ID	

Remediation Plan

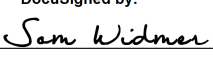
Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☒ 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: Sam widmer Title: Principal Program Manager
Signature:  Date: May-03-2023
email: Sam.widmer@conocophillips.com Telephone: 281-206-5298

OCD Only

Received by: Jocelyn Harimon Date: 05/03/2023

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

Signature:  Date: 9/20/2023

District I

1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 213252

CONDITIONS

Operator: CONOCOPHILLIPS COMPANY 600 W. Illinois Avenue Midland, TX 79701	OGRID: 217817
	Action Number: 213252
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	The Remediation Plan is Conditionally Approved. This release is in a high karst area and will need to be remediated to the strictest closure criteria from Table 1 of the OCD Spill Rule. The variance to install a liner at 4 feet below ground surface is only approved under the circumstance that as much contaminated soil is safely removed as possible. The excavations should be backfilled to 4 feet below surface with clean material, liner installed, and then backfilled to surface with clean material. A deferral may be granted so long as the contamination is fully delineated and does not cause an imminent risk to human health, the environment, or ground water. As much contaminated soil as possible should be removed safely with alternative methods (shovel, hydrovac, etc.). Only sample points that could cause a major facility deconstruction will be deferred. Due to the sensitive nature of the site, the variance for 400 ft2 confirmation samples is denied.	9/20/2023