



# Site Characterization Report and Remediation Workplan

January 6, 2023

**East Hobbs San Andres Unit  
Crude Oil and Produced  
Water Release  
Incident #: nAPP2224442035**

**Prepared For:**

Penroc Oil Corporation  
1515 Calle Sur, Suite 174  
Hobbs, New Mexico 88240

**Prepared By:**

Crain Environmental  
2925 East 17<sup>th</sup> Street  
Odessa, Texas 79761

A handwritten signature in blue ink that reads 'Cynthia K. Crain'.

Cynthia K. Crain, P.G.



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## 1.0 Introduction

Crain Environmental (CE), on behalf of Penroc Oil Corporation (Penroc), has prepared this *Site Characterization Report and Remediation Workplan* for the crude oil and produced water release at East Hobbs San Andres Unit (Site), located approximately 1.5 miles east of Hobbs, in Lea County, New Mexico. The global positioning system (GPS) coordinates for the Release Site are 32.714541, -103.077618. The property surface rights are privately owned. The location of the Release Site is depicted on Figure 1.

## 2.0 Background

On August 9, 2022, the New Mexico Oil Conservation Division (NMOCD) informed Penroc that a release had occurred at the East Hobbs San Andres Unit (EHSAU) #411. On August 31, 2022, CE personnel visited the Site to find that a flowline release had occurred approximately 290 feet north of the EHSAU #610 well. The flowline had been repaired; however, crude oil and produced water had flowed on the ground approximately 485 feet to the east, and approximately 660 feet north to the EHSAU #411 well pad.

An initial Release Notification Report (C-141) was submitted to the NMOCD on September 1, 2022, was approved on the same date, and assigned Incident # nAPP2224442035. It was estimated that approximately 80 barrels (bbls) of crude oil and 25 bbls of produced water were released, covering a surface area of approximately 65,000 square feet. It appeared that no fluid had been recovered. The release point and the surface extent of the crude oil and produced water release are depicted on Figure 2. A copy of the C-141 is provided in Appendix A.

This *Site Characterization Report and Remediation Workplan* was due by November 7, 2022, in accordance with 19.15.29.11 New Mexico Administrative Code (NMAC); however, a request for a 90-day extension was submitted to the NMOCD on October 22, 2022. The extension was approved on October 25, 2022, and a new due date of January 7, 2023, was provided.

## 3.0 NMOCD Closure Criteria

Cleanup standards for produced water spills are provided in 19.15.29 NMAC. The cleanup standards (described in the rule as "Closure Criteria") are based primarily on depth to groundwater but are also based on other criteria. Three different Closure Criteria are provided in the rule. The most stringent apply to sites where groundwater is found within 50 feet of the ground surface or if the release occurred within one of the following areas:

- Within 300 feet of any continuously flowing watercourse or any other significant watercourse.
- Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary highwater mark).
- Within 300 feet from an occupied permanent residence, school, hospital, institution or church.
- Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes.
- Within 1,000 feet of any fresh water well or spring.
- Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended.
- Within 300 feet of a wetland.



- Within the area overlying a subsurface mine.
- Within an unstable area such as a karst formation.
- Within a 100-year floodplain.

CE reviewed available information to determine the Closure Criteria for the Site. The findings of this evaluation are summarized below.

### 3.1 Groundwater Evaluation

A review of the New Mexico Office of the State Engineer (NMOSE) records indicated there are nine water wells located within 0.5 mile of the Site that provide an initial depth to groundwater. Depth to groundwater in the nine wells within a 0.5-mile radius of the Site ranged from 50 to 190 feet below ground surface (bgs), with depth to groundwater in the nearest well (L 08040 – drilled in 1979) initially recorded at 85 feet bgs. The most recent well to be installed (L 14585 POD 1) was drilled approximately 2,491 feet northwest of the Site in 2019, with an initial depth to groundwater recorded at 100 feet bgs.

All wells located within a 0.5-mile from the Site, with depth to groundwater information provided, are listed in the table below, and the location of all wells is provided on Figure 3. Based on the water well data available in NMOSE records, it is estimated that depth to groundwater at the Site is greater than 50 feet bgs.

#### Nearby Water Wells

Well ID	Location from Release Site	Year Installed	Use	Well Depth and Depth to Water (feet bgs)
L 08039	Approx. 2,163' to the north	1979	N/A	150 / 50
L 08040	Approx. 1,500' to the northwest	1979	N/A	150 / 85
L 09787	Approx. 2,240' to the northwest	1986	N/A	150 / 78
L 05924 POD 2	Approx. 2,403' to the northwest	1989	N/A	150 / 85
L 07231	Approx. 2,521' to the northwest	1975	N/A	126 / 72
L 07231 POD 2	Approx. 2,361' to the northwest	1987	N/A	150 / 50
L 07231 POD 4	Approx. 2,419' to the northwest	2017	N/A	267 / 190
L 14585 POD 1	Approx. 2,491' to the northwest	2019	N/A	296 / 100
L 04054	Approx. 2,215' to the southwest	1980	N/A	148 / 105

### 3.2 Surface Features and Other Development

CE reviewed recent aerial photographs, topographic maps, the NMOSE Point of Discharge (POD) GIS website, and information available from the Lea County, New Mexico Central Appraisal District website. As shown on Figures 1, the Site is **not** located:

- Within 300 feet of any continuously flowing watercourse or any other significant watercourse.
  - No continuously flowing watercourses (rivers, streams, arroyos, etc.) are apparent within 300 feet of the Site in the topographic map (Figure 1).
- Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary highwater mark).



- The topographic map (Figure 1) indicates there is not a lakebed, sinkhole or playa lake located within 200 feet of the Site.
- Within 300 feet from an occupied permanent residence, school, hospital, institution or church.
  - The Site Location Map (Figure 1) and information available from the Lea County, New Mexico Central Appraisal District do not show or list any permanent residence, school, hospital, institution, or church located within 300 feet of the Site.
- Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes.
  - No wells or springs located within 500 feet of the Site appear in any of the NMOSE records reviewed by CE.
- Within 1,000 feet of any fresh water well or spring.
  - No freshwater wells or springs located within 1,000 feet of the Site appear in any of the records reviewed by CE.
- Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended.
  - Based on the property and other records review by CE, the Site is not located in incorporated municipal boundaries or within a defined municipal fresh water well field.
- Within the area overlying a subsurface mine
  - Based on the property and other records reviewed by CE, the Site is not located within an area overlying a subsurface mine.

### 3.3 Wetlands, Floodplain, and Karst Geology

A review of the United States Fish and Wildlife Service (USFWS) wetlands map indicated the Site is not located within 300 feet of a wetland. The New Mexico Bureau of Land Management (BLM) karst potential map indicates the Site is located within a “low karst potential” area. Finally, review of the Federal Emergency Management Act (FEMA) floodplain map indicates the release at the Site is located outside of a 100-year floodplain. Figures 4 and 5 depict the FEMA floodplain information and the karst potential data, respectively.

### 3.4 Closure Criteria Currently Assumed Applicable to the Site

The Closure Criteria applicable to the Site will be based on the estimated depth to groundwater at the Release Site, which dictates the moderately stringent regulatory guidelines typically associated with groundwater depths of greater than fifty (50) feet bgs. The NMOCD requires that soil concentrations from surface to a depth of 4 feet bgs must meet the most stringent Closure Criteria regardless of depth to groundwater; however, at depths greater than 4 feet bgs, the mid-level Closure Criteria is applicable to the Site. A summary of the Closure Criteria is provided in the table below and in Table 1.



### NMOCD Closure Criteria

Constituent of Concern	Closure Criteria Based on Depth to Groundwater (mg/kg)		
	≤ 50 feet bgs	51 feet to 100 feet bgs	> 100 feet bgs
Chloride (EPA 300)	600	10,000	20,000
TPH (EPA 8015M)	GRO + DRO + MRO	100	2,500
	GRO + DRO	NA	1,000
Total BTEX (EPA 8021 or 8260)	50	50	50
Benzene (EPA 8021 or 8260)	10	10	10

Notes: NA = not applicable  
 bgs = below ground surface  
 mg/kg = milligrams per kilogram  
 GRO = gasoline range organics  
 DRO = diesel range organics  
 MRO = motor oil range organics  
 TPH = total petroleum hydrocarbons  
 BTEX = benzene, toluene, ethylbenzene, and total xylenes  
 Green highlighted cells denote applicable Closure Criteria.

#### 4.0 Site Assessment/Characterization Results

As per 19.15.29.11 NMAC, a Site Characterization Report will have the components described in Sections 4.1 through 4.5 of this document.

##### 4.1 Site Map

As required by 19.15.29.11 NMAC, a scaled diagram showing significant Site infrastructure, sample point locations, and known subsurface features such as utilities is provided as Figure 2.

##### 4.2 Depth to Groundwater

As discussed in Section 3.1, depth to groundwater at the Site is greater than 50 feet bgs. During investigation activities, a maximum depth of 10 feet bgs was reached, at which groundwater was not encountered.

##### 4.3 Wellhead Protection Area

The 0.5-mile wellhead protection area is shown on Figure 3. Nine water wells, that provide depth to groundwater data, are located within 0.5 mile of the Site. There were no other water sources, springs, or other sources of freshwater extraction identified within 0.5 mile of the Site.

##### 4.4 Distance to Nearest Significant Watercourse

The horizontal distance to the nearest significant watercourse as defined in Subsection P of 19.15.17.7 NMAC is greater than 0.5-mile from the Site.



#### 4.5 Summary of November 2022 Analytical Results

On November 8, 2022, a backhoe was used to excavate eight test holes (SP-1 through SP-8) along the release path, at depths ranging from 1 (SP-1) to 10 feet (') bgs (SP-3). Soil samples were placed in clean glass sample jars, properly labeled, immediately placed on ice and hand delivered to Cardinal Laboratories (Cardinal) in Hobbs, New Mexico under proper chain-of-custody control. All samples were analyzed for total petroleum hydrocarbons (TPH) by Environmental Protection Agency (EPA) SW-846 Method 8015 Modified, for benzene, toluene, ethylbenzene and xylenes (collectively referred to as BTEX) by EPA SW-846 Method 8021B, and for chlorides by EPA Method SM-4500Cl-B.

Table 1 provides a summary of the laboratory results, and sample locations with TPH, BTEX, and chloride concentrations are provided on Figure 2. Photographs of the release area are provided in Appendix B. The laboratory report and chain-of-custody documentation is provided in Appendix C.

Referring to Table 1, concentrations of BTEX were reported below the test method detection limits and/or Closure Criteria in all samples. Concentrations of TPH exceeded the Closure Criteria at sample points SP-3 at a depth of 5' bgs (1,700 mg/kg total Gasoline Range Organics [GRO] and Diesel Range Organics[DRO]), SP-4 at a depth of 1' bgs (5,100 mg/kg), SP-5 at a depth of 1' bgs (9,040 mg/kg), SP-6 at depth of 1' bgs (6,390 mg/kg) and 3' bgs (3,116 mg/kg), SP-7 at a depth of 1' bgs (6,926.0 mg/kg), and SP-8 at depths of 1' bgs (28,450 mg/kg) and 4.5' bgs (1,530 mg/kg total GRO and DRO). Chloride concentrations exceeded the Closure Criteria only at sample point SP-4 at a depth of 3' bgs (896 mg/kg). Soils with TPH and chloride exceedances will be addressed in accordance with the Remediation Workplan discussed in Section 5.0.

#### 4.6 Laboratory Analytical Data Quality Assurance/Quality Control Results

Data in the laboratory report dated November 18, 2022, generated by Cardinal in Hobbs, New Mexico, was reviewed to ensure that reported analytical results met data quality objectives. It was determined by quality control data associated with analytical results that reported concentrations of target analytes are defensible and that measurement data reliability is within the expected limits of sampling and analytical error. All analytical results are usable for characterization of soil at the Site. The laboratory analytical results are provided as Appendix C.



## 5.0 Proposed Remediation Workplan

### 5.1 Proposed Remedial Activities

Benzene and BTEX concentrations were reported below the test method detection limits and/or Closure Criteria in all samples. TPH concentrations were reported above the Closure Criteria in samples SP-3 through SP-8, and vertical delineation was achieved at all sample points except SP-8. Chloride concentrations were all reported below the Closure Criteria, except for the sample from SP-4 at a depth of 3' bgs.

Penroc proposes to conduct excavation of impacted soil until confirmation samples collected from the base and sidewalls of the excavation indicate soil exhibiting TPH and chloride concentrations above NMOCD Closure Criteria have been removed. Due to the large footprint of the Site, Penroc requests a variance from the one soil sample per 200 square foot requirement for confirmation sampling. Penroc requests composite confirmation sample collection be performed for each 1,000 square feet of excavation floor and each 200 linear feet of excavation sidewall. As initial BTEX concentrations were below the test method detection limits and/or Closure Criteria, each confirmation sample will be analyzed only for TPH by EPA Method 8015M and chloride by EPA Method 4500CI-B. Pursuant to 19.15.29.12(D) NMAC, confirmation samples will consist of five-point composite samples, and discrete grab samples will be collected from any wet or discolored areas.

The excavated material will be characterized and transported under manifest to a NMOCD approved disposal facility and or treated by soil shredding methods until TPH and chloride concentrations are reported below the Closure Criteria. Up to 7,500 cubic yards of soil may be excavated and disposed or treated.

Upon receipt of laboratory results that all TPH and chloride concentrations are below the Closure Criteria, the excavation will be backfilled to grade with non-impacted similar material. Pursuant to 19.15.29.13 NMAC, the impacted surface areas will be restored to pre-release conditions. Surface grading will be performed to near original conditions and contoured to prevent erosion and ponding, promote stability, and preserve storm water flow patterns.

Penroc requests a remediation schedule of 180 days from the date of NMOCD approval of this Remediation Workplan to complete the proposed remediation activities and submit a *Remediation Summary and Closure Report* for NMOCD approval, pending the results of the confirmation samples. The closure report will summarize remedial activities and confirmation sampling results, and will include the final Form C-141.

## 6.0 Distribution

Copy 1: Mike Bratcher  
New Mexico Energy, Minerals, and Natural Resources Department  
Oil Conservation Division, District 2  
811 S. First Street  
Artesia, New Mexico 88210

Copy 2: Merch Merchant  
Penroc Oil Corporation  
1515 Calle Sur, Suite 174  
Hobbs, New Mexico 88240





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**TABLE**

**TABLE 1  
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS  
PENROC OIL CORPORATION  
EHSAU Flowline Release**

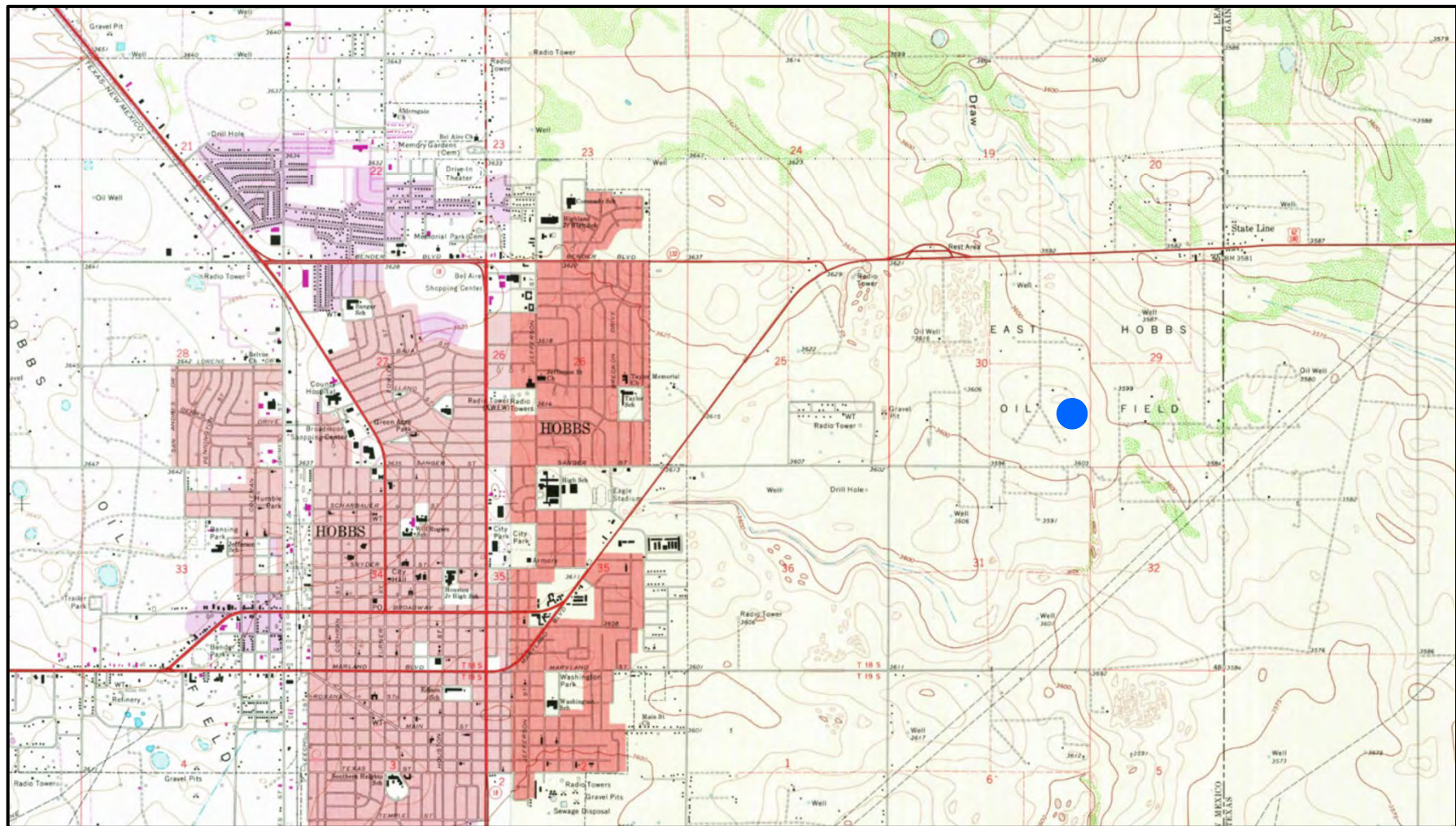
Sample ID	Sample Date	Sample Depth	Soil Status	TPH (GRO)	TPH (DRO)	TPH (MRO)	Total TPH	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	Chloride
				milligrams per kilogram (mg/kg)									
<b>NMOCD Closure Criteria (Surface to 4' bgs)</b>				-	-	100	10	-	-	-	50	600	
<b>NMOCD Closure Criteria (Greater than 4' bgs)</b>				GRO + DRO = 1,000	-	2,500	10	-	-	-	50	10,000	
SP-1	11/08/22	1'	In Situ	<10.0	<10.0	<10.0	<10.0	<b>0.058</b>	<b>0.200</b>	<0.050	<0.150	<b>0.359</b>	<b>32.0</b>
SP-2	11/08/22	1'	In Situ	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	<b>384</b>
	11/08/22	5'	In Situ	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	<b>800</b>
SP-3	11/08/22	5'	In Situ	<50.0	<b>1,700</b>	<b>411</b>	<b>2,111</b>	<0.050	<0.050	<0.050	<0.150	<0.300	<b>592</b>
	11/08/22	10'	In Situ	<10.0	<b>193</b>	<b>56.5</b>	<b>249.5</b>	--	--	--	--	--	--
SP-4	11/08/22	1'	In Situ	<100	<b>3,960</b>	<b>1,140</b>	<b>5,100</b>	<0.050	<0.050	<0.050	<0.150	<0.300	<b>592</b>
	11/08/22	3'	In Situ	<10.0	<b>53.7</b>	<10.0	<b>53.7</b>	<0.050	<0.050	<0.050	<0.150	<0.300	<b>896</b>
	11/08/22	5'	In Situ	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	<b>1,460</b>
SP-5	11/08/22	1'	In Situ	<100	<b>7,400</b>	<b>1,640</b>	<b>9,040</b>	<0.050	<0.050	<b>0.067</b>	<0.150	<0.300	<b>384</b>
	11/08/22	5-7'	In Situ	<10.0	<b>149</b>	<b>28.6</b>	<b>177.6</b>	<0.050	<0.050	<0.050	<0.150	<0.300	<b>1,870</b>
SP-6	11/08/22	1'	In Situ	<100	<b>4,940</b>	<b>1,450</b>	<b>6,390</b>	<0.050	<0.050	<b>0.067</b>	<0.150	<0.300	<b>512</b>
	11/08/22	3'	In Situ	<50.0	<b>2,380</b>	<b>736</b>	<b>3,116</b>	<0.050	<0.050	<0.050	<0.150	<0.300	<b>352</b>
	11/08/22	5'	In Situ	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	<b>272</b>
SP-7	11/08/22	1'	In Situ	<b>56.0</b>	<b>5,340</b>	<b>1,530</b>	<b>6,926.0</b>	<0.050	<0.050	<0.050	<b>0.179</b>	<0.300	<b>64.0</b>
	11/08/22	3'	In Situ	<10.0	<b>66.0</b>	<b>13.5</b>	<b>79.5</b>	<0.050	<0.050	<0.050	<0.150	<0.300	<b>48.0</b>
	11/08/22	5'	In Situ	<10.0	<b>25.7</b>	<10.0	<b>25.7</b>	<0.050	<0.050	<0.050	<0.150	<0.300	<b>48.0</b>
SP-8	11/08/22	1'	In Situ	<b>1,140</b>	<b>23,400</b>	<b>3,910</b>	<b>28,450</b>	<0.050	<0.050	<b>2.96</b>	<b>8.24</b>	<b>11.2</b>	<b>64.0</b>
	11/08/22	4.5'	In Situ	<50.0	<b>1,530</b>	<b>283</b>	<b>1,813</b>	<0.050	<0.050	<b>0.071</b>	<b>0.256</b>	<b>0.328</b>	<b>48.0</b>




**Notes:**

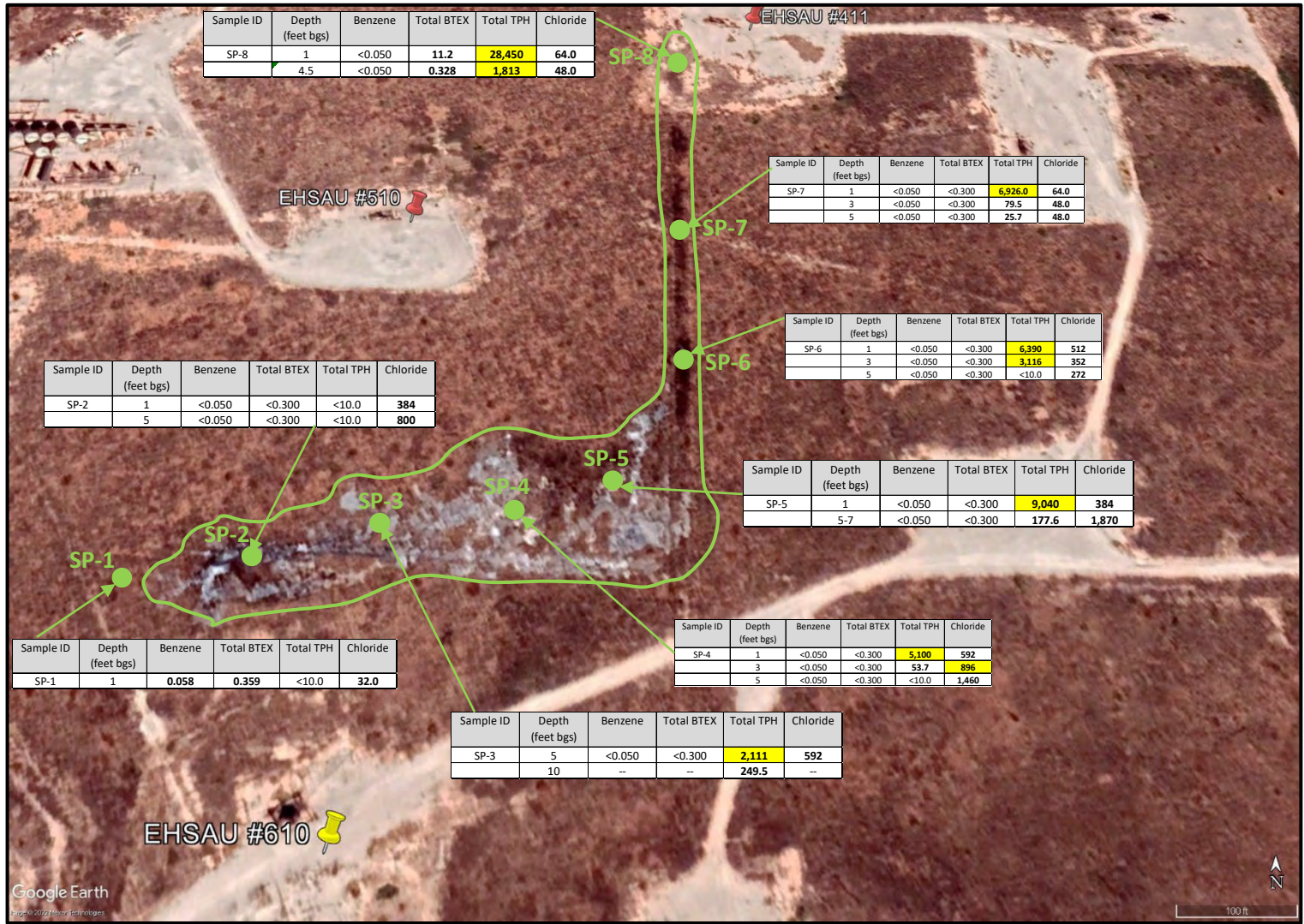
1. GRO: Gasoline Range Organics
2. DRO: Diesel Range Organics
3. MRO: Motor Oil Range Organics
4. bgs: Below ground surface.
5. - : No NMOCD Closure Criteria established.
6. Bold indicates the COC was above the appropriate laboratory method/sample detection limit.
7. < : Indicates the COC was below the appropriate laboratory method/sample detection limit.
8. Yellow highlighting indicates the COC was above the appropriate NMOCD Closure Criteria.



## FIGURES






<p>LEGEND:</p> <p> Site Location</p> <p>Base Map from GAIA GPS</p>		<p><b>Figure 1</b></p> <p>Site Location Map</p> <p>Penroc Oil Corporation</p> <p>East Hobbs San Andres Unit #411</p> <p>Lea County, New Mexico</p>	<p>Drafted by: CC   Checked by: CC</p>	
			<p>Draft: Jan. 5, 2023</p> <p>GPS: 32.714541° -103.077618°</p>	





<b>LEGEND:</b> Affected Soil Boundary Sample Location With Concentrations (mg/kg).	<b>Figure 2</b> Sample Location Map Penroc Oil Corporation East Hobbs San Andres #411 Lea County, New Mexico	Drafted by: CC   Checked by: CC Draft: Jan 5, 2023 GPS: 32.714541 -103.077618	
	Drafted by: CC   Checked by: CC		
	Draft: Jan 5, 2023		
	GPS: 32.714541 -103.077618		
	(Empty row)		








<p><b>LEGEND:</b></p> <p> Site and Water Well Locations</p> <p> 1/2 Mile Radius</p> <p>Base Map from Google Earth</p>	<p><b>Figure 3</b></p> <p>Wellhead Protection Area Map</p> <p>Penroc Oil Corporation</p> <p>East Hobbs San Andres Unit #411</p> <p>Lea County, New Mexico</p>		
		Drafted by: CC   Checked by: CC	
		Draft: Jan. 5, 2023	
		GPS: 32.714541° -103.077618°	



<b>LEGEND:</b>  Site Location	<p align="center"><b>Figure 4</b></p> <p align="center">FEMA Floodplain Map Penroc Oil Corporation East Hobbs San Andres Unit #411 Lea County, New Mexico</p>	Drafted by: CC   Checked by: CC	
		Draft: Jan. 5, 2023	
GPS: 32.714541° -103.077618°			
Base Map from Google Earth and FEMA StayDry			
Released to: Inquiries: 1/31/2023 12:05:53 PM			



<b>LEGEND:</b>  Site Location  Low Karst Potential  Medium Karst Potential  High Karst Potential Base Map from Google Earth and WHYMAP	<b>Figure 5</b> Karst Potential Map Penroc Oil Corporation East Hobbs San Andres Unit #411 Lea County, New Mexico	Drafted by: CC   Checked by: CC	
		Draft: Jan. 5, 2023	
GPS: 32.714541° -103.077618°			





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**Appendix A: Release Notification and Corrective Action Form  
(NMOCD Form C-141) and NMOCD Communication**

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	nAPP2224442035
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party	Penroc Oil Corporation	OGRID	17213
Contact Name	M. Y. Merchant	Contact Telephone	(575) 492-1236
Contact email	mymerch@penrocoil.com	Incident # (assigned by OCD)	nAPP2224442035
Contact mailing address	PO Box 2769, Hobbs, NM 88241		

### Location of Release Source

Latitude 32.714541 Longitude -103.077618  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	East Hobbs San Andres Unit	Site Type	Flow Line
Date Release Discovered	8/9/22	API# (if applicable)	

Unit Letter	Section	Township	Range	County
P	30	18S	39E	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 checked="" type="checkbox"/> Crude Oil	Volume Released (bbls)	Approx 80 bbls	Volume Recovered (bbls)	0 bbls
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls)	Approx 25 bbls	Volume Recovered (bbls)	0 bbls
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?		<input type="checkbox"/> Yes <input checked="" 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 Break in flow line. Release point has been repaired and the source of the release was stopped.

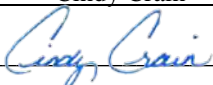
State of New Mexico  
Oil Conservation Division

Incident ID	nAPP2224442035
District RP	
Facility ID	
Application ID	

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? Release was larger than 25 bbls
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? No information available	

### 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>Cindy Crain</u>	Title: <u>Agent for Penroc Oil Corporation</u>
Signature: <u></u>	Date: <u>9/1/22</u>
email: <u>cindy.crain@gmail.com</u>	Telephone: <u>(575) 441-7244</u>
<b><u>OCD Only</u></b>	
Received by: <u>Jocelyn Harimon</u>	Date: <u>09/01/2022</u>

Incident ID	nAPP2224442035
District RP	
Facility ID	
Application ID	

## Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	85 (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 type="checkbox"/> Yes <input checked="" 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 <b>not</b> 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 1/2-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

Incident ID	nAPP2224442035
District RP	
Facility ID	
Application ID	

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

Printed Name: Cindy Crain Title: Agent for Penroc Oil Corporation

Signature:  Date: 1/6/23

email: cindy.crain@gmail.com Telephone: (575) 441-7244

**OCD Only**

Received by: Jocelyn Harimon Date: 01/06/2023

Incident ID	nAPP2224442035
District RP	
Facility ID	
Application ID	

## Remediation Plan


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

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

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

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


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

Printed Name: Cindy Crain Title: Agent for Penroc Oil Corporation  
 Signature:  Date: 1/6/23  
 email: cindy.crain@gmail.com Telephone: (575) 441-7244

**OCD Only**

Received by: Jocelyn Harimon Date: 01/06/2023

- Approved     Approved with Attached Conditions of Approval     Denied     Deferral Approved

Signature:  Date: 01/31/2023

State of New Mexico  
Oil Conservation Division

Incident ID	nAPP2224442035
District RP	
Facility ID	
Application ID	

## Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

**Closure Report Attachment Checklist:** *Each of the following items must be included in the closure report.*

- A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

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

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

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

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

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

**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 140211

**CONDITIONS**

Operator: PENROC OIL CORP P.O. Box 2769 Hobbs, NM 882412769	OGRID: 17213
	Action Number: 140211
	Action Type: [C-141] Release Corrective Action (C-141)

**CONDITIONS**

Created By	Condition	Condition Date
jharimon	None	9/2/2022



1/5/23, 10:24 PM

Gmail - Request for Extension - Penroc Oil Corporation - East Hobbs San Andres Unit (EHSAU) - Incident # nAPP2224442035



Cindy Crain <cindy.crain@gmail.com>

## Request for Extension - Penroc Oil Corporation - East Hobbs San Andres Unit (EHSAU) - Incident # nAPP2224442035

3 messages

**Cindy Crain** <cindy.crain@gmail.com>

Sat, Oct 22, 2022 at 12:44 AM

To: ocd.enviro@state.nm.us

Bcc: mymerch@penrocoil.com

Greetings,

An initial C-141 for the Penroc Oil Corporation (Penroc) EHSAU (Incident # nAPP2224442035) was approved by the OCD on September 2, 2022. A Site Characterization Report and Remediation Workplan for the historical oil and produced water release is due to the OCD on November 7, 2022.

Penroc is currently working to complete remediation of several open OCD incidents. Due to unavailability of equipment and personnel, along with several recent rainfall events, Penroc has not yet begun delineation at this site. Therefore, Penroc respectfully requests a 60-day extension on the due date for the Site Characterization Report and Remediation Workplan.

Please let me know if you have any questions, or if you approve the extension request.

Thank you,  
Cindy Crain

--

**Crain Environmental**  
2925 East 17th Street  
Odessa, TX 79761  
(575) 441-7244

**Nobui, Jennifer, EMNRD** <Jennifer.Nobui@emnrd.nm.gov>

Tue, Oct 25, 2022 at 12:24 PM

To: Cindy Crain <cindy.crain@gmail.com>

Cc: "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>, "Harimon, Jocelyn, EMNRD" <Jocelyn.Harimon@emnrd.nm.gov>

Hello Cindy

OCD has approved your request for a 60-day extension to submit a Remediation Plan to the OCD by January 7, 2023. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Thanks,

Jennifer Nobui

**From:** Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>

**Sent:** Monday, October 24, 2022 8:53 AM

**To:** Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>

**Subject:** FW: [EXTERNAL] Request for Extension - Penroc Oil Corporation - East Hobbs San Andres Unit (EHSAU) - Incident # nAPP2224442035

**Jocelyn Harimon** • Environmental Specialist

Environmental Bureau

EMNRD - Oil Conservation Division

1220 South St. Francis Drive | Santa Fe, NM 87505

(505)469-2821 | [Jocelyn.Harimon@state.nm.us](mailto:Jocelyn.Harimon@state.nm.us)

[http:// www.emnrd.nm.gov](http://www.emnrd.nm.gov)



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**From:** Cindy Crain <[cindy.crain@gmail.com](mailto:cindy.crain@gmail.com)>  
**Sent:** Friday, October 21, 2022 11:44 PM  
**To:** Enviro, OCD, EMNRD <[OCD.Enviro@emnrd.nm.gov](mailto:OCD.Enviro@emnrd.nm.gov)>  
**Subject:** [EXTERNAL] Request for Extension - Penroc Oil Corporation - East Hobbs San Andres Unit (EHS AU) - Incident # nAPP2224442035

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

[Quoted text hidden]

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**Cindy Crain** <[cindy.crain@gmail.com](mailto:cindy.crain@gmail.com)>  
To: "Nobui, Jennifer, EMNRD" <[Jennifer.Nobui@emnrd.nm.gov](mailto:Jennifer.Nobui@emnrd.nm.gov)>  
Cc: "Bratcher, Michael, EMNRD" <[mike.bratcher@emnrd.nm.gov](mailto:mike.bratcher@emnrd.nm.gov)>, "Harimon, Jocelyn, EMNRD" <[Jocelyn.Harimon@emnrd.nm.gov](mailto:Jocelyn.Harimon@emnrd.nm.gov)>  
Bcc: [mymerch@penrocoil.com](mailto:mymerch@penrocoil.com)

Sat, Oct 29, 2022 at 10:27 PM

Thank you, Jennifer -

I appreciate your quick response!

Cindy Crain  
[Quoted text hidden]



## Appendix B: Photographic Documentation

Appendix B  
Penroc Oil Corporation  
East Hobbs San Andres Unit #411



View to NE of release point (8/31/22).



View to NW of sample point SP-1 (11/8/22).



View to N of sample point SP-2 (11/8/22).



View to N of sample point SP-3 (11/8/22).



View to N of sample point SP-4 (11/8/22).



View to N of sample point SP-5 (11/8/22).



View of sample point SP-5 (11/8/22).



View to W of sample point SP-6 (11/8/22).



View to N of sample point SP-7 (11/8/22).



View to N of sample point SP-8 (11/8/22)



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## Appendix C: Laboratory Analytical Reports



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

November 18, 2022

CINDY CRAIN  
CRAIN ENVIROMENTAL  
2925 E. 17TH ST.  
ODESSA, TX 79761

RE: EHS AU FLOWLINE

Enclosed are the results of analyses for samples received by the laboratory on 11/10/22 9:11.

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

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

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

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

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

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

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

Sincerely,

Celey D. Keene  
Lab Director/Quality Manager



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

**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SP - 1 (1')	H225317-02	Soil	08-Nov-22 10:25	10-Nov-22 09:11
SP - 2 (1')	H225317-04	Soil	08-Nov-22 10:35	10-Nov-22 09:11
SP - 2 (5')	H225317-06	Soil	08-Nov-22 10:45	10-Nov-22 09:11
SP - 3 (5')	H225317-10	Soil	08-Nov-22 11:15	10-Nov-22 09:11
SP - 3 (10')	H225317-11	Soil	08-Nov-22 11:20	10-Nov-22 09:11
SP - 4 (1')	H225317-13	Soil	08-Nov-22 11:35	10-Nov-22 09:11
SP - 4 (3')	H225317-14	Soil	08-Nov-22 11:40	10-Nov-22 09:11
SP - 4 (5')	H225317-15	Soil	08-Nov-22 11:50	10-Nov-22 09:11
SP - 5 (1')	H225317-16	Soil	08-Nov-22 12:15	10-Nov-22 09:11
SP - 5 (5-7')	H225317-20	Soil	08-Nov-22 12:40	10-Nov-22 09:11
SP - 6 (1')	H225317-21	Soil	08-Nov-22 13:10	10-Nov-22 09:11
SP - 6 (3')	H225317-23	Soil	08-Nov-22 13:20	10-Nov-22 09:11
SP - 6 (5')	H225317-25	Soil	08-Nov-22 13:35	10-Nov-22 09:11
SP - 7 (1')	H225317-26	Soil	08-Nov-22 13:50	10-Nov-22 09:11
SP - 7 (3')	H225317-28	Soil	08-Nov-22 14:00	10-Nov-22 09:11
SP - 7 (5')	H225317-30	Soil	08-Nov-22 14:15	10-Nov-22 09:11
SP - 8 (1')	H225317-31	Soil	08-Nov-22 14:30	10-Nov-22 09:11
SP - 8 (4.5')	H225317-34	Soil	08-Nov-22 14:50	10-Nov-22 09:11

11/18/22 - Client added TPH to -11 on 11/17/22 (see COC). This is the revised report and will replace the one sent on 11/16/22.

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 or 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 damage 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:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 1 (1')  
H225317-02 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>32.0</b>		16.0	mg/kg	4	2111105	AC	11-Nov-22	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

<b>Benzene*</b>	<b>0.058</b>		0.050	mg/kg	50	2111024	JH	12-Nov-22	8021B	
<b>Toluene*</b>	<b>0.200</b>		0.050	mg/kg	50	2111024	JH	12-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111024	JH	12-Nov-22	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	2111024	JH	12-Nov-22	8021B	
<b>Total BTEX</b>	<b>0.359</b>		0.300	mg/kg	50	2111024	JH	12-Nov-22	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			87.3 %		69.9-140	2111024	JH	12-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	2111019	MS	10-Nov-22	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	2111019	MS	10-Nov-22	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	2111019	MS	10-Nov-22	8015B	

Surrogate: 1-Chlorooctane			79.8 %		45.3-161	2111019	MS	10-Nov-22	8015B	
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Surrogate: 1-Chlorooctadecane			85.8 %		46.3-178	2111019	MS	10-Nov-22	8015B	
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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 or 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 damage 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:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
--	---	------------------------------

**SP - 2 (1')  
H225317-04 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>384</b>		16.0	mg/kg	4	2111105	AC	11-Nov-22	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	2111024	JH	12-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111024	JH	12-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111024	JH	12-Nov-22	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	2111024	JH	12-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111024	JH	12-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			87.5 %		69.9-140	2111024	JH	12-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			99.3 %		45.3-161	2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			106 %		46.3-178	2111019	MS	11-Nov-22	8015B	
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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 2 (5')  
H225317-06 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>800</b>		16.0	mg/kg	4	2111105	AC	11-Nov-22	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111024	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			88.8 %		69.9-140	2111024	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			87.8 %		45.3-161	2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			93.3 %		46.3-178	2111019	MS	11-Nov-22	8015B	
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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 3 (5')  
H225317-10 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>592</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-Cl-B	QM-07
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111024	JH	13-Nov-22	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 99.4 % 69.9-140 2111024 JH 13-Nov-22 8021B

**Petroleum Hydrocarbons by GC FID**

**S-06**

GRO C6-C10*	<50.0		50.0	mg/kg	5	2111019	MS	11-Nov-22	8015B	
<b>DRO &gt;C10-C28*</b>	<b>1700</b>		50.0	mg/kg	5	2111019	MS	11-Nov-22	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>411</b>		50.0	mg/kg	5	2111019	MS	11-Nov-22	8015B	

Surrogate: 1-Chlorooctane 107 % 45.3-161 2111019 MS 11-Nov-22 8015B

Surrogate: 1-Chlorooctadecane 179 % 46.3-178 2111019 MS 11-Nov-22 8015B

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 3 (10')  
 H225317-11 (Soil)**

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

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	2111628	MS	17-Nov-22	8015B		
<b>DRO &gt;C10-C28*</b>	<b>193</b>		10.0	mg/kg	1	2111628	MS	17-Nov-22	8015B		
<b>EXT DRO &gt;C28-C36</b>	<b>56.5</b>		10.0	mg/kg	1	2111628	MS	17-Nov-22	8015B		
<i>Surrogate: 1-Chlorooctane</i>			80.7 %			45.3-161		2111628	MS	17-Nov-22	8015B
<i>Surrogate: 1-Chlorooctadecane</i>			111 %			46.3-178		2111628	MS	17-Nov-22	8015B

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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 4 (1')  
 H225317-13 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>592</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111024	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			90.1 %		69.9-140	2111024	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

**S-06**

GRO C6-C10*	<100		100	mg/kg	10	2111019	MS	11-Nov-22	8015B	
<b>DRO &gt;C10-C28*</b>	<b>3960</b>		100	mg/kg	10	2111019	MS	11-Nov-22	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>1140</b>		100	mg/kg	10	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			99.9 %		45.3-161	2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			241 %		46.3-178	2111019	MS	11-Nov-22	8015B	
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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 4 (3')  
H225317-14 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>896</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111024	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			84.8 %		69.9-140	2111024	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
<b>DRO &gt;C10-C28*</b>	<b>53.7</b>		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			96.5 %		45.3-161	2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			105 %		46.3-178	2111019	MS	11-Nov-22	8015B	
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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 4 (5')  
H225317-15 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>1460</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111024	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			87.6 %		69.9-140	2111024	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			92.0 %		45.3-161	2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			98.1 %		46.3-178	2111019	MS	11-Nov-22	8015B	
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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 5 (1')  
H225317-16 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>384</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
<b>Ethylbenzene*</b>	<b>0.067</b>		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111024	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			97.5 %		69.9-140	2111024	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

**S-06**

GRO C6-C10*	<100		100	mg/kg	10	2111019	MS	11-Nov-22	8015B	
<b>DRO &gt;C10-C28*</b>	<b>7400</b>		100	mg/kg	10	2111019	MS	11-Nov-22	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>1640</b>		100	mg/kg	10	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			93.2 %		45.3-161	2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			204 %		46.3-178	2111019	MS	11-Nov-22	8015B	
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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 5 (5-7')  
H225317-20 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>1870</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-CI-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111024	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			86.9 %	69.9-140		2111024	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
<b>DRO &gt;C10-C28*</b>	<b>149</b>		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>28.6</b>		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			94.2 %	45.3-161		2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			107 %	46.3-178		2111019	MS	11-Nov-22	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 6 (1')  
 H225317-21 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>512</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

**S-04**

Benzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	GC-NC
Total Xylenes*	<0.150		0.150	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111024	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			270 %		69.9-140	2111024	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

**S-06**

GRO C6-C10*	<100		100	mg/kg	10	2111019	MS	11-Nov-22	8015B	
<b>DRO &gt;C10-C28*</b>	<b>4940</b>		100	mg/kg	10	2111019	MS	11-Nov-22	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>1450</b>		100	mg/kg	10	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			118 %		45.3-161	2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			273 %		46.3-178	2111019	MS	11-Nov-22	8015B	
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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 6 (3')  
 H225317-23 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>352</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	2111024	JH	13-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111024	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			107 %		69.9-140	2111024	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

**S-06**

GRO C6-C10*	<50.0		50.0	mg/kg	5	2111019	MS	11-Nov-22	8015B	
<b>DRO &gt;C10-C28*</b>	<b>2380</b>		50.0	mg/kg	5	2111019	MS	11-Nov-22	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>736</b>		50.0	mg/kg	5	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			100 %		45.3-161	2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			179 %		46.3-178	2111019	MS	11-Nov-22	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 6 (5')  
H225317-25 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>272</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111025	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			88.3 %		69.9-140	2111025	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			94.2 %		45.3-161	2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			99.3 %		46.3-178	2111019	MS	11-Nov-22	8015B	
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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 7 (1')  
H225317-26 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>64.0</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

**S-04**

Benzene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	GC-NC
<b>Total Xylenes*</b>	<b>0.179</b>		0.150	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111025	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			244 %	69.9-140		2111025	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

**S-06**

<b>GRO C6-C10*</b>	<b>56.0</b>		50.0	mg/kg	5	2111019	MS	11-Nov-22	8015B	
<b>DRO &gt;C10-C28*</b>	<b>5340</b>		50.0	mg/kg	5	2111019	MS	11-Nov-22	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>1530</b>		50.0	mg/kg	5	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			105 %	45.3-161		2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			260 %	46.3-178		2111019	MS	11-Nov-22	8015B	
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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 7 (3')  
 H225317-28 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>48.0</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111025	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			86.5 %		69.9-140	2111025	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
<b>DRO &gt;C10-C28*</b>	<b>66.0</b>		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>13.5</b>		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			92.5 %		45.3-161	2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			101 %		46.3-178	2111019	MS	11-Nov-22	8015B	
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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 7 (5')  
 H225317-30 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>48.0</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-CI-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	2111025	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			87.1 %		69.9-140	2111025	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
<b>DRO &gt;C10-C28*</b>	<b>25.7</b>		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			89.0 %		45.3-161	2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			96.8 %		46.3-178	2111019	MS	11-Nov-22	8015B	
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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 8 (1')  
H225317-31 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>64.0</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-CI-B	
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**Volatile Organic Compounds by EPA Method 8021**

**S-04**

Benzene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	GC-NC
<b>Ethylbenzene*</b>	<b>2.96</b>		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
<b>Total Xylenes*</b>	<b>8.24</b>		0.150	mg/kg	50	2111025	JH	13-Nov-22	8021B	
<b>Total BTEX</b>	<b>11.2</b>		0.300	mg/kg	50	2111025	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			278 %	69.9-140		2111025	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

**S-04**

<b>GRO C6-C10*</b>	<b>1140</b>		100	mg/kg	10	2111019	MS	11-Nov-22	8015B	
<b>DRO &gt;C10-C28*</b>	<b>23400</b>		100	mg/kg	10	2111019	MS	11-Nov-22	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>3910</b>		100	mg/kg	10	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			327 %	45.3-161		2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			889 %	46.3-178		2111019	MS	11-Nov-22	8015B	
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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**SP - 8 (4.5')  
 H225317-34 (Soil)**

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

**Inorganic Compounds**

<b>Chloride</b>	<b>48.0</b>		16.0	mg/kg	4	2111124	GM	11-Nov-22	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Toluene*	<0.050		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
Ethylbenzene*	<b>0.071</b>		0.050	mg/kg	50	2111025	JH	13-Nov-22	8021B	
<b>Total Xylenes*</b>	<b>0.256</b>		0.150	mg/kg	50	2111025	JH	13-Nov-22	8021B	
<b>Total BTEX</b>	<b>0.328</b>		0.300	mg/kg	50	2111025	JH	13-Nov-22	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			117 %	69.9-140		2111025	JH	13-Nov-22	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<50.0		50.0	mg/kg	5	2111019	MS	11-Nov-22	8015B	
<b>DRO &gt;C10-C28*</b>	<b>1530</b>		50.0	mg/kg	5	2111019	MS	11-Nov-22	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>283</b>		50.0	mg/kg	5	2111019	MS	11-Nov-22	8015B	

<i>Surrogate: 1-Chlorooctane</i>			93.1 %	45.3-161		2111019	MS	11-Nov-22	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			144 %	46.3-178		2111019	MS	11-Nov-22	8015B	
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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**Inorganic Compounds - Quality Control**

**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 2111105 - 1:4 DI Water</b>										
<b>Blank (2111105-BLK1)</b> Prepared & Analyzed: 11-Nov-22										
Chloride	ND	16.0	mg/kg							
<b>LCS (2111105-BS1)</b> Prepared & Analyzed: 11-Nov-22										
Chloride	416	16.0	mg/kg	400		104	80-120			
<b>LCS Dup (2111105-BSD1)</b> Prepared & Analyzed: 11-Nov-22										
Chloride	416	16.0	mg/kg	400		104	80-120	0.00	20	
<b>Batch 2111124 - 1:4 DI Water</b>										
<b>Blank (2111124-BLK1)</b> Prepared & Analyzed: 11-Nov-22										
Chloride	ND	16.0	mg/kg							
<b>LCS (2111124-BS1)</b> Prepared & Analyzed: 11-Nov-22										
Chloride	416	16.0	mg/kg	400		104	80-120			
<b>LCS Dup (2111124-BSD1)</b> Prepared & Analyzed: 11-Nov-22										
Chloride	432	16.0	mg/kg	400		108	80-120	3.77	20	

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

CRAIN ENVIROMENTAL  
2925 E. 17TH ST.  
ODESSA TX, 79761

Project: EHS AU FLOWLINE  
Project Number: NONE GIVEN  
Project Manager: CINDY CRAIN  
Fax To:

Reported:  
18-Nov-22 15:22

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 2111024 - Volatiles****Blank (2111024-BLK1)**

Prepared: 10-Nov-22 Analyzed: 12-Nov-22

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>	<i>ND</i>		<i>mg/kg</i>	<i>0.0500</i>		<i>85.0</i>	<i>69.9-140</i>			

**LCS (2111024-BS1)**

Prepared: 10-Nov-22 Analyzed: 12-Nov-22

Benzene	2.01	0.050	mg/kg	2.00		101	83.4-122			
Toluene	2.11	0.050	mg/kg	2.00		105	84.2-126			
Ethylbenzene	2.01	0.050	mg/kg	2.00		101	84.2-121			
m,p-Xylene	4.13	0.100	mg/kg	4.00		103	89.9-126			
o-Xylene	1.93	0.050	mg/kg	2.00		96.7	84.3-123			
Total Xylenes	6.06	0.150	mg/kg	6.00		101	89.1-124			
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>	<i>0.0416</i>		<i>mg/kg</i>	<i>0.0500</i>		<i>83.1</i>	<i>69.9-140</i>			

**LCS Dup (2111024-BSD1)**

Prepared: 10-Nov-22 Analyzed: 12-Nov-22

Benzene	1.88	0.050	mg/kg	2.00		94.2	83.4-122	6.63	12.6	
Toluene	2.00	0.050	mg/kg	2.00		99.9	84.2-126	5.27	13.3	
Ethylbenzene	1.93	0.050	mg/kg	2.00		96.4	84.2-121	4.22	13.9	
m,p-Xylene	3.98	0.100	mg/kg	4.00		99.6	89.9-126	3.48	13.6	
o-Xylene	1.90	0.050	mg/kg	2.00		94.8	84.3-123	2.01	14.1	
Total Xylenes	5.88	0.150	mg/kg	6.00		98.0	89.1-124	3.01	13.4	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>	<i>0.0420</i>		<i>mg/kg</i>	<i>0.0500</i>		<i>84.0</i>	<i>69.9-140</i>			

**Batch 2111025 - Volatiles****Blank (2111025-BLK1)**

Prepared: 10-Nov-22 Analyzed: 13-Nov-22

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

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

CRAIN ENVIROMENTAL  
2925 E. 17TH ST.  
ODESSA TX, 79761

Project: EHS AU FLOWLINE  
Project Number: NONE GIVEN  
Project Manager: CINDY CRAIN  
Fax To:

Reported:  
18-Nov-22 15:22

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 2111025 - Volatiles****Blank (2111025-BLK1)**

Prepared: 10-Nov-22 Analyzed: 13-Nov-22

Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	ND		mg/kg	0.0500		87.5	69.9-140			

**LCS (2111025-BS1)**

Prepared: 10-Nov-22 Analyzed: 13-Nov-22

Benzene	2.00	0.050	mg/kg	2.00		100	83.4-122			
Toluene	2.09	0.050	mg/kg	2.00		105	84.2-126			
Ethylbenzene	2.03	0.050	mg/kg	2.00		101	84.2-121			
m,p-Xylene	4.19	0.100	mg/kg	4.00		105	89.9-126			
o-Xylene	1.97	0.050	mg/kg	2.00		98.6	84.3-123			
Total Xylenes	6.17	0.150	mg/kg	6.00		103	89.1-124			
Surrogate: 4-Bromofluorobenzene (PID)	0.0427		mg/kg	0.0500		85.3	69.9-140			

**LCS Dup (2111025-BSD1)**

Prepared: 10-Nov-22 Analyzed: 13-Nov-22

Benzene	1.94	0.050	mg/kg	2.00		97.2	83.4-122	2.87	12.6	
Toluene	2.07	0.050	mg/kg	2.00		104	84.2-126	1.08	13.3	
Ethylbenzene	1.99	0.050	mg/kg	2.00		99.3	84.2-121	1.99	13.9	
m,p-Xylene	4.11	0.100	mg/kg	4.00		103	89.9-126	1.97	13.6	
o-Xylene	1.95	0.050	mg/kg	2.00		97.4	84.3-123	1.22	14.1	
Total Xylenes	6.06	0.150	mg/kg	6.00		101	89.1-124	1.73	13.4	
Surrogate: 4-Bromofluorobenzene (PID)	0.0428		mg/kg	0.0500		85.6	69.9-140			

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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**Petroleum Hydrocarbons by GC FID - Quality Control**

**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 2111019 - General Prep - Organics**

<b>Blank (2111019-BLK1)</b>		Prepared & Analyzed: 10-Nov-22								
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	51.1		mg/kg	50.0		102	45.3-161			
Surrogate: 1-Chlorooctadecane	54.8		mg/kg	50.0		110	46.3-178			

<b>LCS (2111019-BS1)</b>		Prepared & Analyzed: 10-Nov-22								
GRO C6-C10	228	10.0	mg/kg	200		114	76.8-124			
DRO >C10-C28	219	10.0	mg/kg	200		109	74.9-127			
Total TPH C6-C28	446	10.0	mg/kg	400		112	77.5-124			
Surrogate: 1-Chlorooctane	56.5		mg/kg	50.0		113	45.3-161			
Surrogate: 1-Chlorooctadecane	64.3		mg/kg	50.0		129	46.3-178			

<b>LCS Dup (2111019-BSD1)</b>		Prepared & Analyzed: 10-Nov-22								
GRO C6-C10	224	10.0	mg/kg	200		112	76.8-124	1.56	17.2	
DRO >C10-C28	217	10.0	mg/kg	200		108	74.9-127	0.907	18.6	
Total TPH C6-C28	441	10.0	mg/kg	400		110	77.5-124	1.24	17.6	
Surrogate: 1-Chlorooctane	57.8		mg/kg	50.0		116	45.3-161			
Surrogate: 1-Chlorooctadecane	63.2		mg/kg	50.0		126	46.3-178			

**Batch 2111628 - General Prep - Organics**

<b>Blank (2111628-BLK1)</b>		Prepared: 16-Nov-22 Analyzed: 17-Nov-22								
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	53.0		mg/kg	50.0		106	45.3-161			
Surrogate: 1-Chlorooctadecane	58.3		mg/kg	50.0		117	46.3-178			

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**Analytical Results For:**

CRAIN ENVIROMENTAL 2925 E. 17TH ST. ODESSA TX, 79761	Project: EHS AU FLOWLINE Project Number: NONE GIVEN Project Manager: CINDY CRAIN Fax To:	Reported: 18-Nov-22 15:22
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**Petroleum Hydrocarbons by GC FID - Quality Control**

**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 2111628 - General Prep - Organics**

<b>LCS (2111628-BS1)</b>		Prepared: 16-Nov-22 Analyzed: 17-Nov-22								
GRO C6-C10	211	10.0	mg/kg	200		106	76.8-124			
DRO >C10-C28	188	10.0	mg/kg	200		93.9	74.9-127			
Total TPH C6-C28	399	10.0	mg/kg	400		99.7	77.5-124			
Surrogate: 1-Chlorooctane	60.6		mg/kg	50.0		121	45.3-161			
Surrogate: 1-Chlorooctadecane	65.1		mg/kg	50.0		130	46.3-178			
<b>LCS Dup (2111628-BSD1)</b>		Prepared: 16-Nov-22 Analyzed: 17-Nov-22								
GRO C6-C10	202	10.0	mg/kg	200		101	76.8-124	4.39	17.2	
DRO >C10-C28	190	10.0	mg/kg	200		95.2	74.9-127	1.34	18.6	
Total TPH C6-C28	392	10.0	mg/kg	400		98.1	77.5-124	1.65	17.6	
Surrogate: 1-Chlorooctane	53.8		mg/kg	50.0		108	45.3-161			
Surrogate: 1-Chlorooctadecane	62.8		mg/kg	50.0		126	46.3-178			

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Notes and Definitions

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
GC-NC 8260 confirmation analysis was performed; initial GC results were not supported by GC/MS analysis and are reported as ND.
ND Analyte NOT DETECTED at or above the reporting limit
RPD Relative Percent Difference
\*\* Samples not received at proper temperature of 6°C or below.
\*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <u>Gain Environmental</u>	P.O. #:	<b>BILL TO</b>	
Project Manager: <u>Lindy Cain</u>	Company: <u>Perce</u>	ANALYSIS REQUEST	
Address: <u>2925 E. 17th St.</u>	Attn: <u>Nech Nerdant</u>		
City: <u>Odessa</u>	Address:		
State: <u>TX</u>	City: <u>Hobbs</u>		
Zip: <u>79761</u>	State: <u>NM</u>		
Phone #: <u>(575) 441-7244</u>	Zip:		
Fax #: <u>-</u>	Phone #:		
Project #: <u>-</u>	Fax #:		
Project Name: <u>EH5AU Flowline</u>			
Project Location: <u>Lea Co., NH</u>			
Sampler Name: <u>Lindy Cain</u>			

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	TPH	BTEX	Chlorides	HOLD
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :						
H225317	SP-1 (0-6")	C	1			X				11/8/22	1030	X	X	X	X
	SP-1 (1')	C	1			X					1025	X	X	X	X
	SP-1 (2')	C	1			X					1030	X	X	X	X
	SP-2 (1')	C	1			X					1035	X	X	X	X
	SP-2 (3')	C	1			X					1040	X	X	X	X
	SP-2 (5')	C	1			X					1045	X	X	X	X
	SP-2 (7')	C	1			X					1050	X	X	X	X
	SP-2 (10')	C	1			X					1055	X	X	X	X
	SP-2 (12.5')	C	1			X					1105	X	X	X	X
	SP-3 (5')	C	1			X					1115	X	X	X	X

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Relinquished By: Lindy Cain Date: 11/10/22 Time: 0911

Received By: Stoddignery Date: \_\_\_\_\_ Time: \_\_\_\_\_

Delivered By: (Circle One) UPS Observed Temp. °C: 16.1°C Corrected Temp. °C: 5.5°C

Sampler - UPS - Bus - Other: \_\_\_\_\_

Sample Condition:  Intact  Cool  Yes  No

Checked By: (initials)

Turnaround Time: \_\_\_\_\_ Standard  RUSH Bacteria (only)  Cool  Intact  Yes  No

Thermometer ID #113 Correction Factor -0.6°C

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





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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

<b>Company Name:</b> <i>Cain Environmental</i> <b>Project Manager:</b> <i>Cindy Cain</i> <b>Address:</b> <i>2925 E. 17th St.</i> <b>City:</b> <i>Abessa</i> <b>State:</b> <i>NM</i> <b>Zip:</b> <i>79761</i> <b>Phone #:</b> <i>(575) 441-7244</i> <b>Fax #:</b> <i>-</i> <b>Project #:</b> <i>-</i> <b>Project Owner:</b> <i>Perroc</i> <b>Project Name:</b> <i>EHSAU Flowline</i> <b>Project Location:</b> <i>Lea Co., NM</i> <b>Sampler Name:</b> <i>Cindy Cain</i>		<b>BILL TO</b> <b>P.O. #:</b> <b>Company:</b> <i>Perroc</i> <b>Attn:</b> <b>Address:</b> <b>City:</b> <b>State:</b> <b>Zip:</b> <b>Phone #:</b> <b>Fax #:</b>		<b>ANALYSIS REQUEST</b>	
<b>Lab I.D.</b> <i>H225317</i>		<b>Sample I.D.</b>		<b>FOR LAB USE ONLY</b>	
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Relinquished By: <i>Cindy Cain</i> Date: <i>11/10/22</i> Time: <i>0911</i>		Received By: <i>Stedric Jones</i> Date: _____ Time: _____		Verbal Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Add'l Phone #: _____ All Results are emailed. Please provide Email address: _____ REMARKS:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Observed Temp. °C: <i>0.1°C</i> Corrected Temp. °C: <i>5.5°C</i>		Sample Condition Cool Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Checked By: <i>[Signature]</i> (Initials) Turnaround Time: _____ Thermometer ID #113 Correction Factor -0.6°C Standard <input checked="" type="checkbox"/> <i>RUSH</i> Bacteria (only) Sample Condition: <input type="checkbox"/> Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Corrected Temp. °C	

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

*P. 2024*



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

**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

Company Name: <i>Brain Environmental</i>		P.O. #:	
Project Manager: <i>Cindy Cain</i>		Company: <i>Perroc</i>	
Address: <i>2925 E. 17th St.</i>		Attn:	
City: <i>Albessa</i>		Address:	
Phone #: <i>(575) 441-7244</i>		City:	
Fax #: <i>-</i>		State:	
Project #: <i>-</i>		Zip:	
Project Name: <i>EHSAAU Flowline</i>		Phone #:	
Project Location: <i>Lea Co. NM</i>		Fax #:	
Sampler Name: <i>Cindy Cain</i>		SAMPLING	

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	ANALYSIS REQUEST							
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :										
H225317	SP-6 (1)	C	1			X				11/8/22	1310	TPH 80/15M							
	SP-6 (2)										1315		BTEX						
	SP-6 (3)										1320			Chlorides					
	SP-6 (4)										1325								
	SP-6 (5)										1335								
	SP-7 (1)										1350								
	SP-7 (2)										1355								
	SP-7 (3)										1400								
	SP-7 (4)										1405								
	SP-7 (5)										1415								

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Relinquished By: *Cindy Cain*

Relinquished Date: *11/10/22*

Received By: *Stoddionery*

Received Date: *01/11*

Turnaround Time: *Standard*

Thermometer ID #113

Correction Factor -0.6°C

Verbal Result:  Yes  No  Add'l Phone #:

REMARKS:

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

Observed Temp. °C: *6.1°C*

Corrected Temp. °C: *5.5°C*

Sample Condition:  Intact  Cool  Yes  No

Checked By: *[Signature]*

Bacteria (only) Sample Condition:  Cool  Intact  Yes  No

Observed Temp. °C:  Corrected Temp. °C:

P.344



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**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

**BILL TO**

**ANALYSIS REQUEST**

Company Name: *Gain Environmental*  
 Project Manager: *Lindy Gain*  
 Address: *2925 E. 17th St. Odessa* State: *TX* zip: *79741*  
 City: *Odessa* Attn: *Perroc*  
 Phone #: *(575) 441-7244* Fax #: *-* Address:  
 Project #: *-* Project Owner: *Perroc* City: State: Zip:  
 Project Name: *EHS&U Flowline* State: Zip:  
 Project Location: *Lea Co, NM* Phone #: Fax #:  
 Sampler Name: *Lindy Gain*

Lab I.D.	Sample I.D.	FOR LAB USE ONLY		MATRIX	PRESERV	SAMPLING	DATE	TIME	ANALYSIS REQUEST
		(G)RAB OR (C)OMP.	# CONTAINERS						
<i>H225317</i>				GROUNDWATER					
	<i>31 SP-8 (1')</i>	<i>1</i>	<i>1</i>	WASTEWATER			<i>11/8/22</i>	<i>1430</i>	<i>TPH 8015M</i>
	<i>32 SP-8 (2')</i>	<i>1</i>	<i>1</i>	SOIL	<i>X</i>			<i>1435</i>	<i>BTEX</i>
	<i>33 SP-8 (3')</i>	<i>1</i>	<i>1</i>	OIL				<i>1440</i>	<i>Chlorides</i>
	<i>34 SP-8 (4.5')</i>	<i>1</i>	<i>1</i>	SLUDGE				<i>1450</i>	<i>HOLD</i>

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Relinquished By: *Lindy Gain* Date: *11/10/22* Received By: *Stockingers* Verbal Result:  Yes  No Add'l Phone #:  
 Relinquished By: *Lindy Gain* Date: *09/11* Received By: *Stockingers* All Results are emailed. Please provide Email address:  
 Remarks:

Delivered By: (Circle One) Observed Temp. °C: *5.1°C* Sample Condition:  Cool  Intact  Yes  No  
 Sampler - UPS - Bus - Other: Corrected Temp. °C: *5.5°C* Checked BY: *SK* (Initials)  
 Turnaround Time: Standard  Rush  Bacteria (only) Sample Condition:  Cool  Intact  Yes  No  
 Thermometer ID #113 Correction Factor -0.6°C Corrected Temp. °C

† Cardinal cannot accept verbal changes. Please email changes to [celey.keene@cardinallabsnm.com](mailto:celey.keene@cardinallabsnm.com)

**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 173366

**CONDITIONS**

Operator: PENROC OIL CORP P.O. Box 2769 Hobbs, NM 882412769	OGRID: 17213
	Action Number: 173366
	Action Type: [C-141] Release Corrective Action (C-141)

**CONDITIONS**

Created By	Condition	Condition Date
jnobui	Remediation Plan Approved with Conditions. Variance approved for: composite confirmation samples will be collected from the bottom and sidewalls of the excavation from areas representing no more than five hundred (500) square feet; and laboratory testing for TPH and chlorides. Confirmation sidewall samples must be delineated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. OCD approves the method of ex-situ soil shredding, however, any application of a chemical will require prior approval from the OCD. Any soils used as backfill material must be below the strictest criteria (600 mg/kg chlorides & 100 mg/kg TPH), regardless of depth to groundwater.	1/31/2023