REVIEWED
By Mike Buchanan at 3:13 pm, Mar 04, 2024

Groundwater Investigation Report

April 14, 2023

Flying M SA Unit 4" Trunkline Crude Oil and Produced Water Release

Incident No.: NOY1827137381
1RP-5214

Prepared For:

Southwest Royalties, Inc.
P.O. Box 53570
Midland, Texas 79710

Prepared By:

Crain Environmental
2925 East 17th Street
Odessa, Texas 79761

Groundwater Investigation Report has been received for Flying M SA Unit 4 Trunkline: **Content Satisfactory**
1. Continue to monitor groundwater and collect samples for analysis until eight (8) consecutive quarterly events have demonstrated below the allowable concentrations in NM WQCC and 19.15.30 of the NMAC.
2. Submit a Stage 1 Abatement Plan as per 19.15.30 of the NMAC for OCD review
3. Submit an Annual Groundwater Monitoring Report for 2023 by April 1, 2024.

Cynthia K. Crain, P.G.

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APPENDICES

1.0 Introduction

Crain Environmental (CE), on behalf of Southwest Royalties, Inc. (SWR), has prepared this *Groundwater Investigation Report* for the produced water release at the Flying M SA Unit 4" Trunkline (Flying M) Site, located in Unit Letter K, Section 29, Township 9 South, Range 33 East, Lea County, New Mexico. The global positioning system (GPS) coordinates for the Release Site are 33.501508, -103.59383. The property surface rights are privately owned. The location of the Release Site is depicted on Figure 1.

2.0 Background

On September 25, 2018, a split in a flow line resulted in a release of approximately 5 barrels (bbls) of crude oil and 75 bbls of produced water. Immediately following the release, the area was secured, and the flow line was repaired.

The released fluid flowed on the ground approximately 150 feet south from the release point. Approximately 4 bbls of crude oil and 56 bbl of produced water was recovered, and impacted soil was excavated and stockpiled on plastic at the Site. Land use in the Site vicinity is primarily oil and gas production activity.

The release was immediately reported to the New Mexico Oil Conservation Division (NMOCD) via telephone. The NMOCD Form C-141 (Release Notification Report) was received by the NMOCD on September 28, 2018, and the Site was assigned Incident Number NOY1827137381 and RP identifier 1RP-5214. A copy of the NMOCD Form C-141 and the NMOCD response is provided in Appendix A. Crude oil and produced water surface impacts at the Site covered approximately 4,300 square feet. The release point and the surface extent of the crude oil and produced water release are depicted on Figure 2.

On January 25, 2022, a *Remediation Report and Closure Request* was submitted to the NMOCD; however, the report was denied by the NMOCD on February 9, 2022, and a revised Closure Report was requested by April 11, 2022.

Due to delays in laboratory results, drilling permits, and equipment scheduling, a request for a 60-day extension was submitted to and approved by the NMOCD on April 4, 2022, with a new due date of June 6, 2022. Additional delays were encountered (survey scheduling, receipt of lab results, and collection of groundwater samples) and a request for an additional 60-day extension was submitted to and approved by the NMOCD on June 2, 2022, with a revised due date of August 5, 2022. Copies of NMOCD correspondence is included in Appendix B.

A revised *Remediation Report, Soil Variance Request, and Groundwater Investigation* (Report) was submitted to the NMOCD on August 4, 2022, that proposed re-excavation of the southern portion of the backfilled excavation and placement of a liner at a depth of four feet (') below ground surface (bgs). The Report also documented the installation of and sample collection from three monitor wells (MWs). As chloride concentrations in all three MWs (MW-1, MW-2, and MW-3) exceeded the NMOCD Criteria of 250 milligrams per liter (mg/L), SWR additionally proposed the installation of one upgradient MW.

On August 17, 2023, the NMOCD responded to the Report, stating that re-excavation of the southern portion of the backfilled excavation and placement of a liner was not required; however, the installation of two additional MWs (located NW and SE of the existing wells) was requested. On September 9, 2022, the NMOCD approved the locations of the two proposed MWs.

On December 1, 2022, CE submitted an email to the NMOCD that detailed the installation of three new MWs (MW-4, boring BH-5 [dry], and MW-6), and the laboratory results of groundwater samples from wells MW-4 and MW-6.

On December 6, 2022, the NMOCD responded with the following requests:

- Wells MW-4 and MW-6 be surveyed,
- MW-1, MW-2, and MW-3 need to be redeveloped,
- All 5 wells need to be gauged and resampled at the same time.

On January 10, 2023, SWR requested a 90-day extension to complete the activities and submit a report, and the NMOCD approved the extension until April 14, 2023.

This Groundwater Investigation Report provides details of October and November 2022, and January 2023, activities and results of groundwater monitoring.

3.0 Groundwater Monitoring Results

3.1 Groundwater Investigation – October and November 2022

From October 6 through October 8, 2022, Talon LPE (Talon) CE were on site to install proposed monitor wells MW-4 and MW-5, construct surface completions at wells MW-1 through MW-5, develop wells MW-4 and MW-5, re-sample wells MW-1, MW-2, and MW-3, and collect groundwater samples from the new monitor wells (MW-4 and MW-5). Based on survey data from wells MW-1, MW-2, and MW-3, the estimated groundwater flow direction was from the northwest to the southeast.

Well MW-4 was drilled to a total depth of 55’ bgs at the proposed location to the southeast of MW-2 and completed with 30’ of slotted screen. The well was developed, and a groundwater sample was collected for analysis of TPH, BTEX, and chloride on October 7, 2022. Depth to groundwater was recorded at 41.60’ bgs

Well MW-5 was drilled to a total depth of 95’ bgs (2’ into the red bed) at the proposed location to the northwest of MW-3, and no moisture was encountered. The surface was covered, and the hole was allowed to remain open.

Well MW-6 was drilled to a total depth of 65’ bgs approximately half was between the MW-3 and MW-6 locations. Depth to groundwater was recorded at a depth of 63.6’ bgs on October 8, 2022. The water was very muddy and there was insufficient water to collect a sample.

Attempts were made to collect groundwater samples from monitor wells MW-1, MW-2, and MW-3, but the wells were silted in and unable to be gauged or sampled. Details were provided to NMOCD by phone, and it was determined that the wells did not need to be re-drilled (for sample collection) until chloride concentrations in the new wells (MW-4 and MW-5) were determined.

On October 11, 2022, CE returned to the site to check the boreholes at MW-5 and MW-6. Borehole MW-5 remained dry. Groundwater was measured in MW-6 at a depth of 62.4' bgs. Even though groundwater remained very muddy and development was not possible, a sample was collected for analysis of BTEX, TPH, and chloride.

On November 10, 2022, CE returned to the site to check the groundwater status at boreholes MW-5 and MW-6. Borehole MW-5 remained dry. Groundwater was measured in MW-6 at a depth of 57.7' bgs. After partial well development, a groundwater sample was collected from MW-6 for chloride analysis.

3.2 Investigation Results – October and November 2022

- Based on initial survey data from wells MW-1, MW-2, and MW-3, the estimated groundwater flow direction was from northwest to southeast.
- The groundwater sample collected from (assumed) downgradient well MW-4 on October 7, 2022, reported BTEX and TPH concentrations below the test method detection limits, and a chloride concentration of 367 mg/L.
- The groundwater sample collected from (assumed) upgradient well MW-6 on October 11, 2022, reported BTEX and TPH concentrations below the test method detection limits, except for a detection of toluene (0.000598 mg/L). The chloride concentration was reported at 28.5 mg/L.
- The groundwater sample collected from upgradient well MW-6 on November 10, 2022, reported a chloride concentration of 1,910 mg/L.

Table 1 provides a summary of the groundwater elevation data. Table 2 provides a summary of the groundwater concentrations. Figure 2 shows the locations of the monitor wells and the October/November 2022 chloride concentrations in each well. Appendix C provides copies of the laboratory reports and chain-of-custody documentation.

3.3 Groundwater Investigation – January 2023

From January 17 through January 20, and January 26 through January 27, 2023, Talon and CE were on site to re-drill monitor wells MW-1, MW-2, and MW-3, construct surface completions at wells MW-1, MW-2, MW-3, and MW-6, and re-develop monitor wells MW-1, MW-2, and MW-3. An insufficient amount of water was present in well MW-6 and development was not completed. The borehole at well MW-5 remained dry, and that boring was plugged with bentonite.

On February 20, 2023, top of casing and ground elevations were surveyed at all monitor wells (MW-1 through MW-4, and MW-6) by WTC of Andrews, Texas.

On March 13, 2023, groundwater monitoring of wells MW-1, MW-2, MW-3, MW-4, and MW-6 was conducted. Prior to sample collection, depth-to-groundwater (gauging) measurements were collected from each MW. Each well was then purged of two and a half times the well volume using dedicated disposable bailers for each well. All groundwater samples were labeled, immediately chilled in an ice chest, and transferred under chain-of-custody control to Eurofins Environment Testing (Eurofins) of Midland, Texas for analysis of chlorides. As TPH and BTEX concentrations were reported below the test method detection limits or closure criteria in previous samples, analysis was not conducted for those constituents.

Table 1 provides a summary of the groundwater elevation data. Table 2 provides a summary of the groundwater concentrations. Figure 3 shows the locations of the monitor wells and the March 2023 chloride concentrations in each well. Figure 4 provides a groundwater gradient map of the March 2023 monitoring event. Appendix C provides copies of the laboratory reports and chain-of- custody documentation. Appendix D provides copies of the boring logs.

Referring to Table 2, chloride concentrations exceeded the NMOCD Criteria in wells MW-1 (1,330 mg/L), MW-2 (2,000 mg/L), and MW-4 (273 mg/L). Referring to Figure 4, the estimated groundwater flow direction is from the southwest to the northeast. Referring to Figure 1, Lane Salt Lake is located approximately 1.9 mile southwest of the site.

3.4 Investigation Results – January 2023

- Soil boring MW-5 was plugged with bentonite.
- The estimated groundwater flow direction was from southwest to northeast.
- Lane Salt Lake is located approximately 1.9 mile southwest of the site.

- Chloride concentrations exceeded the NMOCD Criteria in wells MW-1 (1,330 mg/L), MW-2 (2,000 mg/L), and MW-4 (273 mg/L).

4.0 Summary and Proposed Actions

Five monitor wells have been installed at the site. Groundwater samples from each well report TPH and BTEX concentrations below the test method detection limit and/or closure criteria. Chloride concentrations exceeded the closure criteria in three monitor wells (MW-1 [1,330 mg/L], MW-2 [2,000 mg/L], and MW-4 [273 mg/L].

As the estimated groundwater flow direction is from southwest to northeast, and Lane Salt Lake is located approximately 1.9 mile southwest of the Site, SWR respectfully requests that Incident # nOY1827137381 (1RP-5214) be closed. A copy of the C-141 is included in Appendix A for your approval.

5.0 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: Tim Culp
Southwest Royalties, Inc.
P.O. Box 53570
Midland, Texas 79710

Copy 3: M.Y. Merchant
Southwest Royalties, Inc.
2401 Avenue O
Eunice, New Mexico 88240

TABLES

TABLE 1
SUMMARY OF GROUNDWATER ELEVATION DATA
SOUTHWEST ROYALTIES, LLC
FLYING M SA #2 PRODUCED WATER RELEASE
NMOCD TRACKING NO.: 1RP-5214

Well ID	Date Measured	Top of Casing Elevation	Depth to Water	Groundwater Elevation
		(ft AMSL)	(ft BTOC)	(ft AMSL)
BH-1	3/29/2022	--	42.37	--
BH-1	5/19/2022	4360.10	45.67	4314.43
MW-1	6/14/2022	4360.10	46.13	4313.97
MW-1	3/13/2023	4348.71	45.99	4302.72
MW-2	5/19/2022	4360.44	46.30	4314.14
MW-2	6/14/2022	4360.44	49.58	4310.86
MW-2	1/20/2023	4349.35	46.88	4302.47
MW-2	3/13/2023	4349.35	47.08	4302.27
MW-3	5/19/2022	4362.52	48.33	4314.19
MW-3	6/14/2022	4362.52	48.40	4314.12
MW-3	3/13/2023	4350.88	48.51	4302.37
MW-4	10/7/2022	4342.29	41.60	4300.69
MW-4	1/20/2023	4342.29	41.57	4300.72
MW-4	3/13/2023	4342.29	41.73	4300.56
MW-6	10/8/2022	4351.41	63.60	4287.81
MW-6	10/11/2022	4351.41	62.40	4289.01
MW-6	11/10/2022	4351.41	57.70	4293.71
MW-6	1/20/2023	4351.41	63.31	4285.10
MW-6	3/13/2023	4351.41	61.85	4289.56

bgs - Below ground surface.

---: Depth to groundwater measured prior to borehole survey.

BTOC - Below top of casing.

ft - Feet.

ID - Identification.

AMSL - Above mean sea level.

MW-1, MW-2, and MW-3 surveyed by Basin, LLC on 5/23/22

MW-1, MW-2, MW-3, MW-4, and MW-6 surveyed by WTC on 2/20/23

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
SOUTHWEST ROYALTIES, LLC
FLYING M SA #2 PRODUCED WATER RELEASE
NMOCD TRACKING NO.: 1RP-5214

Sample ID	Date	TPH C6 - C10 (mg/L)	TPH C10 - C28 (mg/L)	TPH C28-C36 (mg/L)	Total TPH (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Total BTEX (mg/L)	Chloride (mg/L)
NMOCD Guideline						**0.01**	**0.75**	**0.75**	**0.62**		**250**
BH-1/MW-1	03/29/22	<0.885	<0.885	<0.854	<0.885	<0.000408	<0.000367	<0.000657	<0.000642	<0.000657	**1,220**
BH-1/MW-1	06/14/22	<0.901	<0.901	<0.869	<0.901	<0.000408	<0.000367	<0.000657	<0.000642	<0.000657	**1,400**
MW-1	03/13/23	--	--	--	--	--	--	--	--	--	**1,330**
BH-2/MW-2	05/19/22	<0.898	<0.898	<0.867	<0.898	<0.000408	<0.000367	<0.000657	<0.000642	<0.000657	**908**
BH-2/MW-2	06/14/22	<0.901	<0.901	<0.869	<0.901	<0.000408	<0.000367	<0.000657	<0.000642	<0.000657	**1,440**
MW-2	03/13/23	--	--	--	--	--	--	--	--	--	**2,000**
BH-3/MW-3	05/19/22	<0.901	<0.901	<0.869	<0.901	<0.000408	<0.000367	<0.000657	<0.000642	<0.000657	**490**
BH-3/MW-3	06/14/22	<0.898	<0.898	<0.867	<0.898	<0.00408	<0.00367	<0.00657	<0.00642	<0.00657	**469**
MW-3	03/13/23	--	--	--	--	--	--	--	--	--	**207**
MW-4	10/07/22	<0.904	<0.904	<0.872	<0.904	<0.000408	<0.000367	<0.000657	<0.000642	<0.000657	**367**
MW-4	03/13/23	--	--	--	--	--	--	--	--	--	**273**
MW-6	10/11/22	<0.904	<0.904	<0.872	<0.904	<0.000408	0.000598	<0.000657	<0.000642	<0.000657	**28.5**
	11/10/22	--	--	--	--	--	--	--	--	--	**1,910**
	03/13/23	--	--	--	--	--	--	--	--	--	**234**

mg/L = milligram per Liter

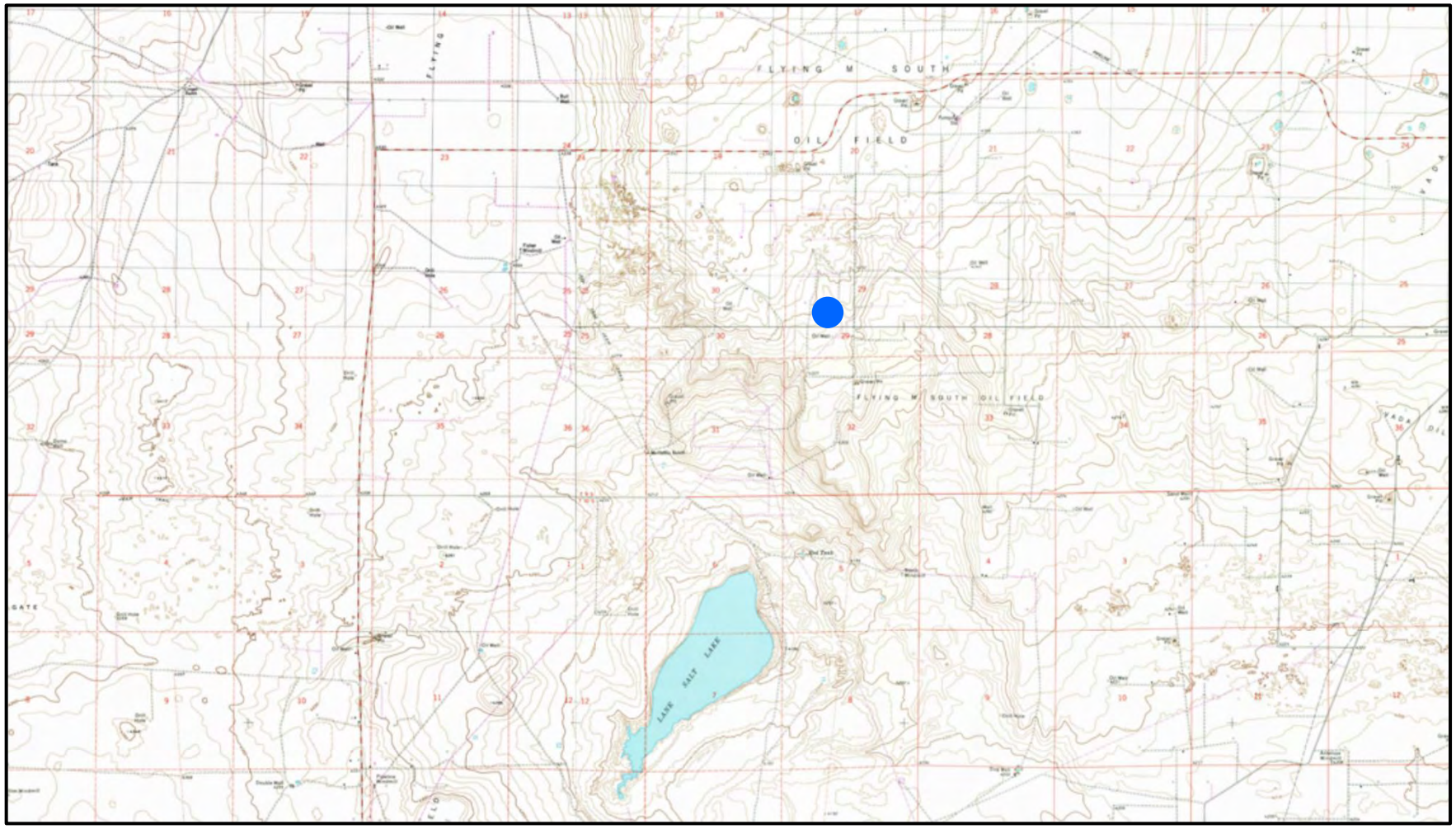
TPH = Total Petroleum Hydrocarbons by EPA Method 8015 M (Modified)

Inorganic Anions (Chlorides) by EPA Method 300

BTEX by EPA Method 8021B

Highlighted Result Exceeds the Target Concentration

FIGURES



LEGEND:

Site Location

Base Map from GAIA GPS

N
W
E
S

Figure 1
Site Location Map
Southwest Royalties, Inc,
Flying M SA Unit #4 Trunkline
Lea County, New Mexico

Drafted by: CC | Checked by: CC	
Draft: April 12, 2023	
GPS:	33.501508° -103.59383°

Grain Environmental

LEGEND:

Monitor Well Location with Chloride Concentration

New Monitor Well Location with Chloride Concentration

Base Map from Google Earth

Figure 2

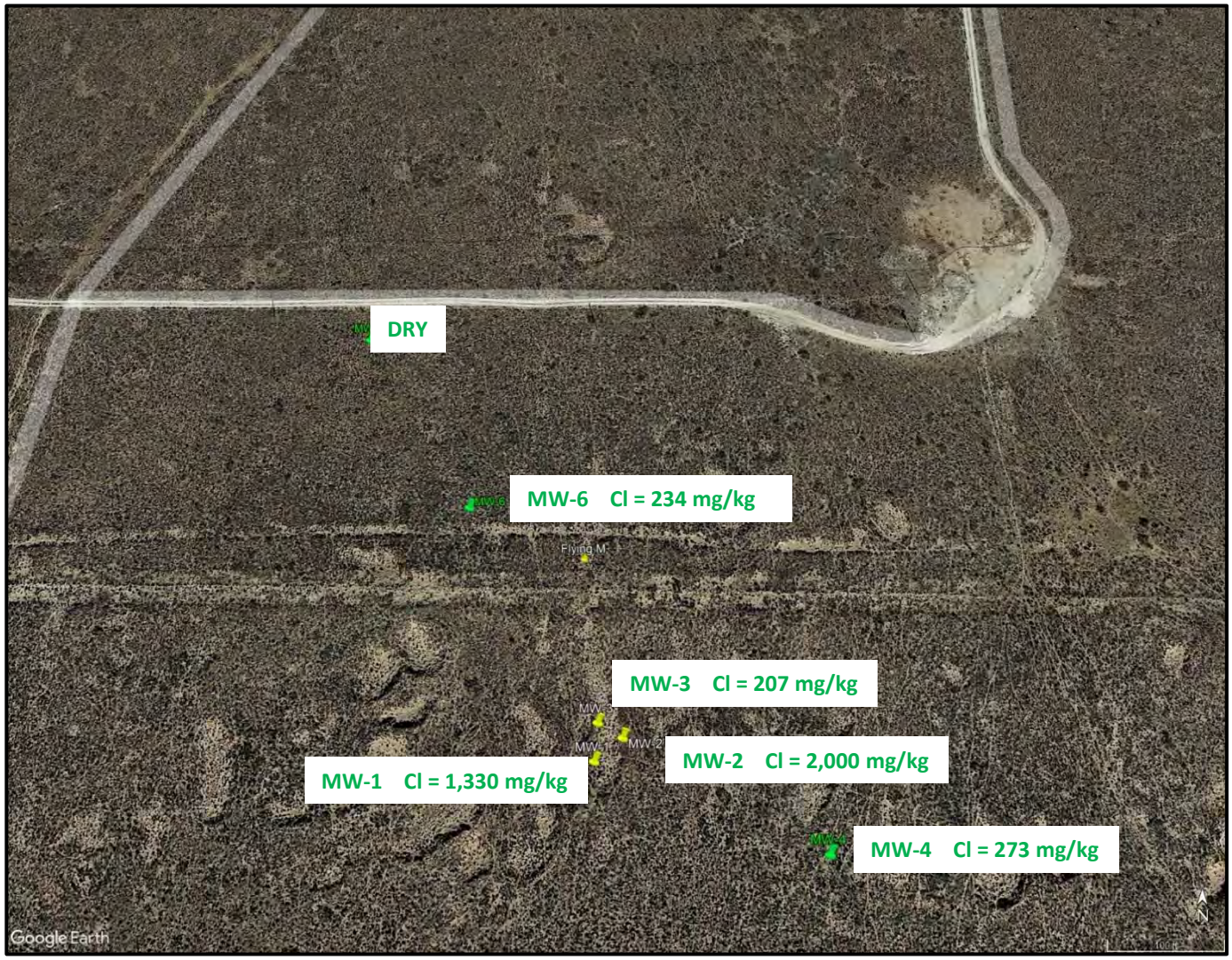
Chloride Concentrations
(October and November 2022)
Southwest Royalties, Inc,
Flying M SA Unit #4 Trunkline
Lea County, New Mexico

Drafted by: CC | Checked by: CC

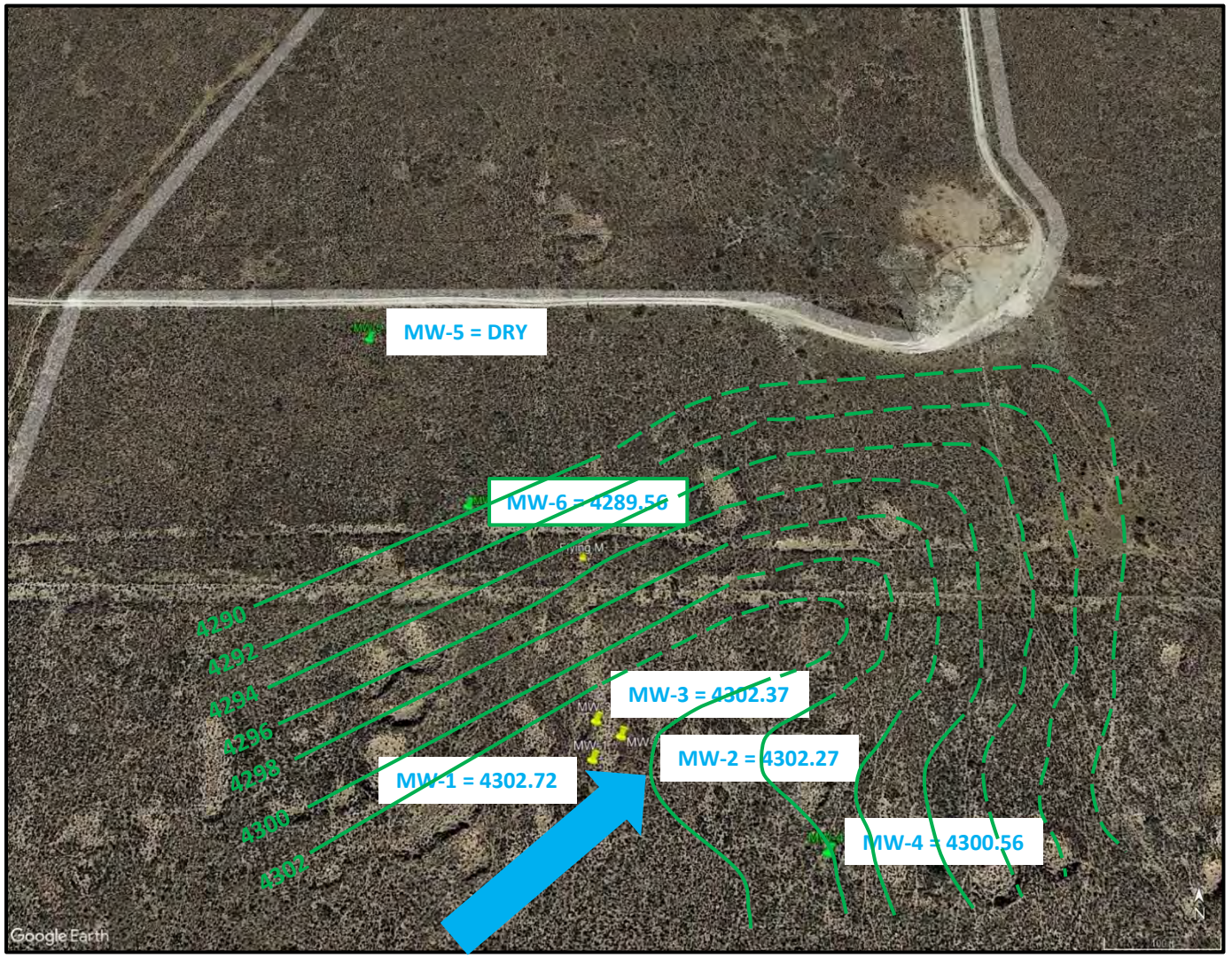
Draft: Nov. 30, 2022

GPS: 33.501508° -103.59383°

Grain Environmental



LEGEND: Monitor Well Location with Chloride Concentration New Monitor Well Location with Chloride Concentration Base Map from Google Earth	**Figure 3** Chloride Concentrations March 2023 Southwest Royalties, Inc, Flying M SA Unit #4 Trunkline Lea County, New Mexico	Drafted by: CC | Checked by: CC Draft: April 12, 2023 GPS: 33.501508° -103.59383°	Grain Environmental



LEGEND:			
Monitor Well Location with Groundwater Elevation	**Figure 4**		
New Monitor Well Location with Groundwater Elevation	Groundwater Gradient Map	Drafted by: CC | Checked by: CC	
Groundwater Elevation Contour	March 2023	Draft: April 12, 2023	
4300 Contour Interval (= 2.0 ft msl)	Southwest Royalties, Inc,	GPS: 33.501508° -103.59383°	
Estimated Direction of Groundwater Flow	Flying M SA Unit #4 Trunkline		
	Lea County, New Mexico	Base Map from Google Earth	

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

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	NOY1827137381
District RP	1RP-5214
Facility ID	fOY1827136767
Application ID	pOY1827139495

HOBBS OCD

SEP 27 2018

RECEIVED

Release Notification

Responsible Party

Responsible Party: Southwest Royalties, Inc	OGRID: 21355
Contact Name: Lindsay Livesay	Contact Telephone: 432-207-3054
Contact email: llivesay@swrpermian.com	Incident # *(assigned by OCD)* NOY1827137381
Contact mailing address: P.O. Box 53570; Midland, TX 79710	

Location of Release Source

Latitude: 33.50139 Longitude: -103.59389

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Flying M SA Unit #2 ~~#4 Trunk Line~~	Site Type: 4" Trunk Line from Battery to Injection Well
Date Release Discovered: 9/25/2018	API# *(if applicable)* 30-025-24692

Unit Letter	Section	Township	Range	County
K	29	~~0~~29S	33E	Lea

Fee minerals

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* Jarrod Johnson)

Nature and Volume of Release

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

☒ Crude Oil	Volume Released (bbls) 5 bbl	Volume Recovered (bbls) ~~5bbl~~ 4 bbl
☒ Produced Water	Volume Released (bbls) 75 bbl	Volume Recovered (bbls) ~~75 bbl~~ 56 bbl
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☒ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Break in flow line.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? Leak of a volume greater than 25 bbl.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

Yes; by Merch Merchant (VP of Southwest Royalties, Inc) to Maxey Brown via phone call.

Initial Response

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

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not 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: Tanner Culp Title: Petroleum Engineer

Signature: Tanner Culp Date: 9/26/18

email: tannerculp@swpermian.com Telephone: (432) 207-3055

OCD Only

Received by: RECEIVED By Olivia Yu at 10:23 am, Sep 28, 2018 Date:

State of New Mexico
Oil Conservation Division

Incident ID	NOY1827137381
District RP	1RP-5214
Facility ID	fOY1827136767
Application ID	pOY1827139495

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?	48 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ 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)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ 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?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NOY1827137381
District RP	1RP-5214
Facility ID	fOY1827136767
Application ID	pOY1827139495

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: Cynthia K. Crain Title: Agent for Southwest Royalties, Inc.

Signature: Cynthia K. Crain Date: 8/4/22

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

OCD Only

Received by: _____ Date: _____

Form C-141
Page 5

State of New Mexico
Oil Conservation Division

Incident ID	NOY1827137381
District RP	1RP-5214
Facility ID	fOY1827136767
Application ID	pOY1827139495

Remediation Plan

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

- [X] Detailed description of proposed remediation technique
- [X] Scaled sitemap with GPS coordinates showing delineation points
- [X] Estimated volume of material to be remediated
- [X] Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- [X] 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.***

- [X] Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- [X] Extents of contamination must be fully delineated.
- [X] 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: Cynthia K. Crain Title: Agent for Southwest Royalties, Inc.

Signature: Cynthia K. Crain Date: 8/4/22

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

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	NOY1827137381
District RP	1RP-5214
Facility ID	fOY1827136767
Application ID	pOY1827139495

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: Cynthia K. Crain Title: Agent for Southwest Royalties, Inc.

Signature: Cynthia K. Crain Date: 4/14/23

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

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: _____

Appendix B: NMOCD Correspondence

Gmail

Cindy Crain <cindy.crain@gmail.com>

The Oil Conservation Division (OCD) has approved the application, Application ID: 123608

6 messages

OCDOnline@state.nm.us <OCDOnline@state.nm.us> Wed, Aug 17, 2022 at 2:13 PM
To: cindy.crain@gmail.com

To whom it may concern (c/o Cindy Crain for SOUTHWEST ROYALTIES INC),

The OCD has approved the submitted *Application for administrative approval of a release notification and corrective action* (C-141), for incident ID (n#) nOY1827137381,
with the following conditions:

- **Remediation Plan Approved with Conditions. OCD does approve re-excavation and installation of a liner in the southern portion of the site. OCD requests the installation of two (2) additional groundwater monitoring wells at the site. However, before you proceed with this request, we ask that you provide us with a site plan depicting the 3 wells you installed (MW-1, MW-2, and MW—3) in relation to the excavation. We would like to see a groundwater monitoring well installed at last 150 feet NW of MW-3 and another well installed about 200 ft S-SE of MW-2 in Figure 6. Before you install these two wells, we request that you email OCD a figure with the proposed locations of these two new wells. Please contact OCD for further information.**

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

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

Thank you,
Jennifer Nobui
Environmental Specialist-Advanced
505-470-3407
Jennifer.Nobui@state.nm.us

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

Cindy Crain <cindy.crain@gmail.com> Wed, Aug 24, 2022 at 10:56 AM
To: "Nobui, Jennifer, EMNRD" <jennifer.nobui@state.nm.us>
Bcc: Tim Culp <tculp@swrpermian.com>, Mickey Cunningham <mcunningham@swrpermian.com>, mymerch@penrocoil.com

Jennifer,

Please see the OCD response below to the Remediation Plan for incident ID (n#) nOY1827137381.

As we discussed on the phone earlier today, it is my understanding that the first condition should say ***the OCD will not require re-excavation and installation of a liner in the southern portion of the site***. If you would please confirm that my understanding is correct, I would appreciate it.

Southwest Royalties will begin preparations for the installation of 2 additional monitor wells. A revised Figure 2 with the monitor well locations shown in relation to the excavation, and a map with proposed well locations will be sent to you next week.

Please let me know if you have any questions or need any additional information in the meantime.

Thank you,

Cindy Crain

[Quoted text hidden]

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

Nobui, Jennifer, EMNRD <Jennifer.Nobui@state.nm.us> Wed, Aug 24, 2022 at 12:07 PM
To: Cindy Crain <cindy.crain@gmail.com>
Cc: "Billings, Bradford, EMNRD" <Bradford.Billings@state.nm.us>

Hello Cindy

That is correct. The error was in OCD's response. The response should have stated :

"**OCD does not approve re-excavation and installation of a liner in the southern portion of the site".**

Please let us know if you encounter any difficulties locating the two proposed groundwater monitoring wells at the site.

Thanks,

Jennifer Nobui

From: Cindy Crain <cindy.crain@gmail.com>
Sent: Wednesday, August 24, 2022 9:56 AM
To: Nobui, Jennifer, EMNRD <Jennifer.Nobui@state.nm.us>
Subject: [EXTERNAL] Fwd: The Oil Conservation Division (OCD) has approved the application, Application ID: 123608

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

[Quoted text hidden]

Cindy Crain <cindy.crain@gmail.com> Wed, Aug 24, 2022 at 12:19 PM
To: "Nobui, Jennifer, EMNRD" <Jennifer.Nobui@state.nm.us>
Cc: "Billings, Bradford, EMNRD" <Bradford.Billings@state.nm.us>

Thank you, Jennifer!

This statement does mean that the soil portion of the site has been closed, right?

I will be sure to let you know if any difficulties are encountered with locating the monitor wells.

Cindy Crain
[Quoted text hidden]

Nobui, Jennifer, EMNRD <Jennifer.Nobui@state.nm.us> Wed, Aug 24, 2022 at 2:09 PM
To: Cindy Crain <cindy.crain@gmail.com>
Cc: "Billings, Bradford, EMNRD" <Bradford.Billings@state.nm.us>

Hello Cindy

The Incident nOY1827137381 cannot be closed at this time, even though it appears that impacted soil has been addressed. We need to determine if groundwater is indeed impacted by the release and if so, an Abatement Order will be opened up, and then this incident can be closed. If groundwater is determined not to have been impacted by the release, the incident would also be closed as well. Let me know if you have any questions.

[Quoted text hidden]

Cindy Crain <cindy.crain@gmail.com> Wed, Aug 24, 2022 at 2:41 PM
To: "Nobui, Jennifer, EMNRD" <Jennifer.Nobui@state.nm.us>
Cc: "Billings, Bradford, EMNRD" <Bradford.Billings@state.nm.us>
Bcc: mymerch@penrocoil.com, tculp@swrpermian.com, mcunningham@swrpermian.com

Thank you, Jennifer!

I appreciate the clarification/explanation!

Cindy Crain, P.G.
(575) 441-7244
cindy.crain@gmail.com
[Quoted text hidden]

Cindy Crain <cindy.crain@gmail.com> Sep 8, 2022, 2:18 PM

to Jennifer,, Bradford,

Jennifer,

Attached please find the following:

- Revised Figure 2 (showing the monitor well locations),
- Revised Figure 6 (showing the monitor well locations), and
- Figure 7 (showing the proposed monitor well locations).

Since we previously had issues with the drilling rig getting stuck in the sand, the proposed monitor wells (MW-4 and MW-5) are located as near as possible to lease roads. Proposed MW-4 is located approximately 500 feet northwest of MW-3, and proposed MW-5 is located approximately 900 feet southeast of MW-2.

Please let me know if you have any questions, and if you approve the proposed well locations.

Thank you,
Cindy Crain

N

Nobui, Jennifer, EMNRD <Jennifer.Nobui@state.nm.us> Sep 9, 2022, 9:57 AM

to me, Bradford,

Hello Cindy

Thank you for providing the revised figures and the site plan showing the locations of the proposed groundwater monitoring wells. OCD is ok with the location of the well proposed NW of well MW-3. However, the proposed location of the well S-SE of MW-2 is currently over 800 feet away from the release and that is too far. You will need to bring that proposed well location in closer to the release by about 500'. OCD is aware of the sinking sand conditions and we propose the drillers use plywood boards. Please let us know if you have any questions or would like to discuss these propose locations further.

Thanks,

Jennifer Nobui, PG ● Environmental Specialist A
Environmental Bureau
EMNRD - Oil Conservation Division
5200 Oakland Avenue N.E Suite 100 | Albuquerque, NM 87113
505.470-3407 | Jennifer.Nobui@state.nm.us
http://www.emnrd.state.nm.us/OCD/

C

Cindy Crain <cindy.crain@gmail.com> Sep 9, 2022, 2:12 PM

to Jennifer,, Bradford,

Jennifer,

Thank you for your response! Attached please find a figure with a revised location for proposed well MW-5. The new location is approximately 200 feet southeast of well MW-2, and should be accessible with a skid mounted drilling rig.

If the location of these 2 wells meets your approval, we will begin the NMOSE permitting process.

Sincerely,
Cindy Crain

One attachment • Scanned by Gmail

N

Nobui, Jennifer, EMNRD <Jennifer.Nobui@state.nm.us> Sep 9, 2022, 2:23 PM

to me, Bradford,

Hello Cindy

Yes, both locations are now approved by OCD. Thank you again for all your efforts. Have a great weekend!

C

Cindy Crain <cindy.crain@gmail.com> Sep 9, 2022, 2:45 PM

to Jennifer,, Bradford,

Thank you, Jennifer -

You have a great weekend too!

Cindy Crain

Cindy Crain <cindy.crain@gmail.com> Dec 1, 2022, 4:16 PM

to Jennifer,, Bradford,, Tim, mymerch, Mickey, Tanner

Jennifer,

From October 6 through October 8, 2022, Talon LPE and Crain Environmental (CE) were on site to install proposed monitor wells MW-4 and MW-5, construct surface completions at wells MW-1 through MW-5, develop wells MW-4 and MW-5, re-sample wells MW-1, MW-2, and MW-3, and collect groundwater samples from the new monitor wells (MW-4 and MW-5). Details of daily activities are provided below.

October 6:

- MW-4 was drilled to a total depth of 55 feet (') below ground surface (bgs) at the proposed location to the southeast of MW-2, and completed with 30' of slotted screen.
- Soil samples were collected from the surface, 5' bgs, and 10' bgs for chloride analysis.
- Surface completion was constructed at MW-4.
- Attempts were made to collect groundwater samples from monitor wells MW-1, MW-2, and MW-3, but the wells were silted in and unable to be gauged or sampled. Details were provided to OCD by phone, and it was determined that the wells did not need to be re-drilled (for sample collection) until chloride concentrations in the new wells (MW-4 and MW-5) were determined.

- Drilling began at MW-5 (proposed location to the northwest of MW-3), but the air compressor went out at a depth of 15' bgs and the boring was not completed.
- Soil samples were collected at MW-5 from the surface, 5' bgs, and 10' bgs for chloride analysis.

October 7:

- MW-4: depth to groundwater was recorded at 41.60' bgs. The well was developed and a groundwater sample was collected for analysis of BTEX, TPH, and chloride.
- MW-5: drilling continued to a total depth of 80' bgs (2' into the redbed) and no moisture was encountered. The surface was covered, and the hole was allowed to remain open.
- Drilling began at MW-6 (halfway between MW-3 and MW-5), and continued to a total depth of 65' bgs (2' into the redbed). Some moisture was encountered.
- Soil samples were collected at MW-6 from the surface, 5' bgs, and 10' bgs for chloride analysis.

October 8:

- MW-5: checked borehole for the presence of groundwater. The borehole was dry.
- MW-6: checked borehole for the presence of groundwater. Groundwater was recorded at a depth of 63.6' bgs; however, the water was very muddy and there was insufficient water to collect a sample.

On October 11, 2022, CE returned to the site to check the boreholes at MW-5 and MW-6. Borehole MW-5 remained dry. Groundwater was measured in MW-6 at a depth of 62.4' bgs. Even though groundwater remained very muddy and development was not possible, a sample was collected for analysis of BTEX, TPH, and chloride.

On November 10, 2022, CE returned to the site to check the groundwater status at boreholes MW-5 and MW-6. Borehole MW-5 remained dry. Groundwater was measured in MW-6 at a depth of 57.7' bgs. After partial well development, a groundwater sample was collected from MW-6 for chloride analysis.

Investigation Results

- Chloride concentrations in all soil samples from borings MW-4, MW-5, and MW-6 were reported below the Closure Criteria.

- The groundwater sample collected from downgradient well MW-4 on October 7, 2022 reported BTEX and TPH concentrations below the test method detection limits, and a chloride concentration of 367 mg/L.

- The groundwater sample collected from upgradient well MW-6 on October 11, 2022 reported BTEX and TPH concentrations below the test method detection limits, except for a detection of toluene (0.000598 mg/L). The chloride concentration was reported at 28.5 mg/L.

- The groundwater sample collected from upgradient well MW-6 on November 10, 2022 reported a chloride concentration of 1,910 mg/L.

The attached figure shows the locations of the monitor wells and the most recent chloride concentration in each well. The attached tables provide a summary of the soil sample results from MW-4, MW-5, and MW-6 (Table 1), and the groundwater results from wells MW-1, MW-2, MW-3, MW-4 and MW-6 (Table 2). Laboratory reports for October and November 2022 samples are attached.

Summary and Request for Closure

Soil concentrations in each borehole (MW-4, MW-5, and MW-6) reported chloride concentrations below the Closure Criteria. The downgradient well MW-4 reported a chloride concentration of 367 mg/L, and the upgradient well MW-6 reported a chloride concentration (1,910 mg/L). The chloride concentration in the upgradient well (MW-6) was higher than the chloride concentration reported in wells MW-1 (1,400 mg/L) and MW-2 (1,440 mg/L) on June 14, 2022, therefore, SWR respectfully requests that Incident # nOY1827137381 (1RP-5214) be closed. A copy of the C-141 is attached for your approval.

Please let me know if you have any questions or need additional information.

Thank you,
Cindy Crain

7 Attachments • Scanned by Gmail

Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov> Dec 6, 2022, 11:19 AM

to Bradford,, Michael,, me

Hello Cindy

OCD has reviewed your recent groundwater data and at this time we cannot close this case out. The groundwater gradient appears to be flowing to the northwest as opposed to the southeast, which may indicate the release onsite has impacted groundwater in this immediate region. In order to better evaluate this situation we request the following :

- Wells MW-4 and MW-6 be surveyed (you can use MW-1 as the benchmark elevation); we need groundwater elevations to determine a more accurate groundwater flow direction
- MW-1, MW-2, and MW-3 need to be redeveloped, the silt must be removed to be able to use these 3 wells in the evaluation
- All 5 wells need to be gauged an resampled at the same time

Going forward, the soil samples collected >10' from MW-4, MW-5, and MW-6 should have been analyzed. In situations where groundwater quality is in question, you need to obtain soil samples at depth, in particular from the air/water interface. Please let us know if you want to set up a call with OCD to discuss the path forward.

C

Cindy Crain <cindy.crain@gmail.com> Dec 7, 2022, 7:07 PM

to Jennifer,, Bradford,, Michael,

Hi Jennifer,

I would like to set up a call to discuss the path forward. I have availability all day Friday (12/9/22) if you are available any time that day. Please let me know what works best for you.

Thank you,
Cindy Crain

N

Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov> Dec 8, 2022, 10:14 AM

to me, Bradford,, Michael,

Hello Cindy

Can you make next Tuesday or Wednesday? We are not available tomorrow. Please let us know if next week will work and what time.

Thanks

C

Cindy Crain <cindy.crain@gmail.com> Dec 8, 2022, 11:09 AM

to Jennifer,, Bradford,, Michael,

Jennifer,

I can be available any time next Tuesday or Wednesday. Whatever works best for you, please just let me know.

Thank you,
Cindy Crain

N

Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov> Dec 12, 2022, 12:45 PM

to me, Bradford,, Michael,

Hi Cindy

How about tomorrow 12/13/22 at 11am MST? If that works for you can you send us an Evite so we have it on our calendars?

C

Cindy Crain <cindy.crain@gmail.com> Jan 10, 2023, 12:05 PM

to Jennifer,, Michael,, bcc: Tim, bcc: Mickey, bcc: mymerch

Good morning, Jennifer -

As I mentioned to you on the phone yesterday, drilling is scheduled for the week of January 16, 2023, at the Southwest Royalties (SWR) Flying M site. Following installation and development of monitor wells at the BH-2/MW-2 and BH-6/MW-6 locations, groundwater samples will be collected from monitor wells MW-2, MW-4, and MW-6 for chloride analysis, and top of casing and ground elevations will be surveyed by a professional surveyor.

Additionally, soil borings BH-1/MW-1, BH-3/MW-3, and BH-5 will be plugged so as to comply with the New Mexico Office of the State Engineer (NMOSE) permit.

Given the activities to be completed prior to submitting an Investigation Report, SWR respectfully requests a 90-day extension. All efforts will be made to complete activities and submit the report as soon as possible (pending subcontractor availability).

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

Thank you,
Cindy Crain

N

Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov> Jan 10, 2023, 12:19 PM

to Michael,, Robert,, Jocelyn,, me

Hello Cindy

OCD approves your request for a 90-day extension to 04/14/2023 to submit your report. 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.

Please contact me if any issues come up in the field regarding the groundwater monitoring wells.

C

Cindy Crain <cindy.crain@gmail.com> Jan 10, 2023, 1:05 PM

to Jennifer,, Michael,, Robert,, Jocelyn,, bcc: Tim, bcc: Mickey, bcc: mymerch

Jennifer,

Thank you for the quick response! I will definitely let you know if any issues arise with the groundwater monitoring wells!

Sincerely,
Cindy Crain

C

ReplyReply allForward

Appendix C: Laboratory Analytical Reports

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-13092-1
Laboratory Sample Delivery Group: Lea Co. NM
Client Project/Site: Flying M SA #2
Revision: 1

For:
Crain Environmental
2925 E. 17th St.
Odessa, Texas 79761

Attn: Cindy Crain

JKramer

Authorized for release by:
4/11/2022 8:15:56 PM

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

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Crain Environmental
Project/Site: Flying M SA #2

Laboratory Job ID: 880-13092-1
SDG: Lea Co. NM

Table of Contents

Definitions/Glossary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Job ID: 880-13092-1

Laboratory: Eurofins Midland

Narrative

Job Narrative
880-13092-1

Receipt
The sample was received on 3/30/2022 3:18 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.3°C

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Job ID: 880-13092-2

Laboratory: Eurofins Midland

Narrative

Job Narrative
880-13092-2

Receipt
The sample was received on 3/30/2022 3:18 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.3°C

General Chemistry
Method 2540C_Calcd: The following sample was analyzed outside of analytical holding time due to client adding additional test without sufficient time remaining>: BH-1 (880-13092-1).

Method SM4500_H+: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following sample has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: BH-1 (880-13092-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Client Sample ID: BH-1
Date Collected: 03/29/22 11:10
Date Received: 03/30/22 15:18

Lab Sample ID: 880-13092-1
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			03/31/22 20:54	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			03/31/22 20:54	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			03/31/22 20:54	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			03/31/22 20:54	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			03/31/22 20:54	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			03/31/22 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*03/31/22 20:54*	*1*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*		*03/31/22 20:54*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.000657	U	0.00400	0.000657	mg/L			04/01/22 15:21	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<0.885	U	4.48	0.885	mg/L			04/05/22 10:37	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<0.885	U	4.48	0.885	mg/L		04/04/22 14:13	04/04/22 20:58	1
Diesel Range Organics (Over C10-C28)	<0.885	U	4.48	0.885	mg/L		04/04/22 14:13	04/04/22 20:58	1
OII Range Organics (Over C28-C36)	<0.854	U	4.48	0.854	mg/L		04/04/22 14:13	04/04/22 20:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*106*		*70 - 130*	*04/04/22 14:13*	*04/04/22 20:58*	*1*
1-Chlorooctane	*89*		*70 - 130*	*04/04/22 14:13*	*04/04/22 21:40*	*1*
o-Terphenyl	*128*		*70 - 130*	*04/04/22 14:13*	*04/04/22 20:58*	*1*
o-Terphenyl	*99*		*70 - 130*	*04/04/22 14:13*	*04/04/22 21:40*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1220**		10.0	0.421	mg/L			04/01/22 21:54	20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**3820**	**H**	200	200	mg/L			04/08/22 09:55	1
pH	**7.3**	**HF**	0.01	0.01	S.U.			04/08/22 09:52	1
Temperature	**23.2**	**HF**	0.01	0.01	Deg. C			04/08/22 09:52	1

Surrogate Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-13092-1	BH-1	102	94
880-13092-1 MS	BH-1	105	102
880-13092-1 MSD	BH-1	99	89
880-13097-A-7 MS	Matrix Spike	106	92
880-13097-A-7 MSD	Matrix Spike Duplicate	110	86
LCS 880-22736/3	Lab Control Sample	107	95
LCS 880-22760/3	Lab Control Sample	104	93
LCSD 880-22736/4	Lab Control Sample Dup	108	90
LCSD 880-22760/4	Lab Control Sample Dup	104	99
MB 880-22736/8	Method Blank	72	88
MB 880-22760/8	Method Blank	73	88

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-13092-1	BH-1	106	128
880-13092-1	BH-1	89	99
880-13092-1 MS	BH-1	87	94

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO2	OTPH2
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
LCS 880-22959/2-A	Lab Control Sample	100	117
LCSD 880-22959/3-A	Lab Control Sample Dup	100	119
MB 880-22959/1-A	Method Blank	103	124

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-22736/8
Matrix: Water
Analysis Batch: 22736

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			03/31/22 20:28	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			03/31/22 20:28	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			03/31/22 20:28	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			03/31/22 20:28	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			03/31/22 20:28	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			03/31/22 20:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*72*		*70 - 130*		*03/31/22 20:28*	*1*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*		*03/31/22 20:28*	*1*

Lab Sample ID: LCS 880-22736/3
Matrix: Water
Analysis Batch: 22736

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1098		mg/L		110	70 - 130		
Toluene			0.100	0.1120		mg/L		112	70 - 130		
Ethylbenzene			0.100	0.1059		mg/L		106	70 - 130		
m-Xylene & p-Xylene			0.200	0.2127		mg/L		106	70 - 130		
o-Xylene			0.100	0.1072		mg/L		107	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: LCSD 880-22736/4
Matrix: Water
Analysis Batch: 22736

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1069		mg/L		107	70 - 130	3	20
Toluene			0.100	0.1074		mg/L		107	70 - 130	4	20
Ethylbenzene			0.100	0.09728		mg/L		97	70 - 130	8	20
m-Xylene & p-Xylene			0.200	0.1979		mg/L		99	70 - 130	7	20
o-Xylene			0.100	0.1006		mg/L		101	70 - 130	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*

Lab Sample ID: 880-13092-1 MS
Matrix: Water
Analysis Batch: 22736

Client Sample ID: BH-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.000408	U	0.100	0.1236		mg/L		124	70 - 130		
Toluene	<0.000367	U	0.100	0.1152		mg/L		115	70 - 130		

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-13092-1 MS
Matrix: Water
Analysis Batch: 22736

Client Sample ID: BH-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.000657	U	0.100	0.1063		mg/L		106	70 - 130
m-Xylene & p-Xylene	<0.000629	U	0.200	0.2143		mg/L		107	70 - 130
o-Xylene	<0.000642	U	0.100	0.1084		mg/L		108	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: 880-13092-1 MSD
Matrix: Water
Analysis Batch: 22736

Client Sample ID: BH-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.000408	U	0.100	0.1112		mg/L		111	70 - 130	11	25
Toluene	<0.000367	U	0.100	0.1118		mg/L		112	70 - 130	3	25
Ethylbenzene	<0.000657	U	0.100	0.1058		mg/L		106	70 - 130	0	25
m-Xylene & p-Xylene	<0.000629	U	0.200	0.2140		mg/L		107	70 - 130	0	25
o-Xylene	<0.000642	U	0.100	0.1087		mg/L		109	70 - 130	0	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*

Lab Sample ID: MB 880-22760/8
Matrix: Water
Analysis Batch: 22760

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			04/01/22 11:49	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			04/01/22 11:49	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			04/01/22 11:49	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			04/01/22 11:49	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			04/01/22 11:49	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			04/01/22 11:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*73*		*70 - 130*		*04/01/22 11:49*	*1*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*		*04/01/22 11:49*	*1*

Lab Sample ID: LCS 880-22760/3
Matrix: Water
Analysis Batch: 22760

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1158		mg/L		116	70 - 130
Toluene	0.100	0.1164		mg/L		116	70 - 130
Ethylbenzene	0.100	0.1104		mg/L		110	70 - 130
m-Xylene & p-Xylene	0.200	0.2236		mg/L		112	70 - 130

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCS 880-22760/3
Matrix: Water
Analysis Batch: 22760

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
o-Xylene			0.100	0.1127		mg/L		113	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*

Lab Sample ID: LCSD 880-22760/4
Matrix: Water
Analysis Batch: 22760

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1270		mg/L		127	70 - 130	9	20
Toluene			0.100	0.1166		mg/L		117	70 - 130	0	20
Ethylbenzene			0.100	0.1100		mg/L		110	70 - 130	0	20
m-Xylene & p-Xylene			0.200	0.2222		mg/L		111	70 - 130	1	20
o-Xylene			0.100	0.1109		mg/L		111	70 - 130	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: 880-13097-A-7 MS
Matrix: Water
Analysis Batch: 22760

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.000408	U F1	0.100	0.1325	F1	mg/L		133	70 - 130		
Toluene	<0.000367	U	0.100	0.1214		mg/L		121	70 - 130		
Ethylbenzene	<0.000657	U	0.100	0.1123		mg/L		112	70 - 130		
m-Xylene & p-Xylene	<0.000629	U	0.200	0.2255		mg/L		113	70 - 130		
o-Xylene	<0.000642	U	0.100	0.1128		mg/L		113	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*
1,4-Difluorobenzene (Surr)	*92*		*70 - 130*

Lab Sample ID: 880-13097-A-7 MSD
Matrix: Water
Analysis Batch: 22760

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.000408	U F1	0.100	0.1186		mg/L		119	70 - 130	11	25
Toluene	<0.000367	U	0.100	0.1214		mg/L		121	70 - 130	0	25
Ethylbenzene	<0.000657	U	0.100	0.1126		mg/L		113	70 - 130	0	25
m-Xylene & p-Xylene	<0.000629	U	0.200	0.2276		mg/L		114	70 - 130	1	25
o-Xylene	<0.000642	U	0.100	0.1149		mg/L		115	70 - 130	2	25

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-13097-A-7 MSD
Matrix: Water
Analysis Batch: 22760

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	110		70 - 130
1,4-Difluorobenzene (Surr)	86		70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-22959/1-A
Matrix: Water
Analysis Batch: 22887

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22959

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<0.904	U	4.57	0.904	mg/L		04/04/22 14:13	04/04/22 19:54	1
Diesel Range Organics (Over C10-C28)	<0.904	U	4.57	0.904	mg/L		04/04/22 14:13	04/04/22 19:54	1
Oil Range Organics (Over C28-C36)	<0.872	U	4.57	0.872	mg/L		04/04/22 14:13	04/04/22 19:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130	04/04/22 14:13	04/04/22 19:54	1
o-Terphenyl	124		70 - 130	04/04/22 14:13	04/04/22 19:54	1

Lab Sample ID: LCS 880-22959/2-A
Matrix: Water
Analysis Batch: 22887

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22959

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			91.7	78.40		mg/L		85	75 - 125		
Diesel Range Organics (Over C10-C28)			91.7	92.94		mg/L		101	75 - 125		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	100		70 - 130
o-Terphenyl	117		70 - 130

Lab Sample ID: LCSD 880-22959/3-A
Matrix: Water
Analysis Batch: 22887

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22959

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			92.0	78.52		mg/L		85	75 - 125	0	20
Diesel Range Organics (Over C10-C28)			92.0	90.85		mg/L		99	75 - 125	2	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	100		70 - 130
o-Terphenyl	119		70 - 130

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 880-13092-1 MS
Matrix: Water
Analysis Batch: 22887

Client Sample ID: BH-1
Prep Type: Total/NA
Prep Batch: 22959

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	79.7	F1	89.3	79.46	F1	mg/L		-0.2	75 - 125
Diesel Range Organics (Over C10-C28)	69.1	F1	89.3	66.52	F1	mg/L		-3	75 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*87*		*70 - 130*
o-Terphenyl	*94*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-22725/3
Matrix: Water
Analysis Batch: 22725

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.0210	U	0.500	0.0210	mg/L			03/31/22 22:07	1

Lab Sample ID: LCS 880-22725/4
Matrix: Water
Analysis Batch: 22725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	25.0	24.34		mg/L		97	90 - 110

Lab Sample ID: LCSD 880-22725/5
Matrix: Water
Analysis Batch: 22725

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	25.0	23.90		mg/L		96	90 - 110	2	20

Lab Sample ID: 880-13085-A-1 MS
Matrix: Water
Analysis Batch: 22725

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.78		25.0	28.02		mg/L		101	90 - 110

Lab Sample ID: 880-13085-A-1 MSD
Matrix: Water
Analysis Batch: 22725

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	2.78		25.0	27.58		mg/L		99	90 - 110	2	20

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 880-23205/1
Matrix: Water
Analysis Batch: 23205

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<25.0	U	25.0	25.0	mg/L			04/08/22 09:55	1

Lab Sample ID: LCS 880-23205/2
Matrix: Water
Analysis Batch: 23205

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			1000	989.0		mg/L		99	80 - 120		

Lab Sample ID: LCSD 880-23205/3
Matrix: Water
Analysis Batch: 23205

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids			1000	1005		mg/L		101	80 - 120	2	10

Lab Sample ID: 880-13092-1 DU
Matrix: Water
Analysis Batch: 23205

Client Sample ID: BH-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	3820	H		3664		mg/L				4	10

Method: SM 4500 H+ B - pH

Lab Sample ID: 880-13092-1 DU
Matrix: Water
Analysis Batch: 23203

Client Sample ID: BH-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.3	HF		7.3		S.U.				0.3	10
Temperature	23.2	HF		23.4		Deg. C				0.9	10

QC Association Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

GC VOA

Analysis Batch: 22736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-13092-1	BH-1	Total/NA	Water	8021B	
MB 880-22736/8	Method Blank	Total/NA	Water	8021B	
LCS 880-22736/3	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-22736/4	Lab Control Sample Dup	Total/NA	Water	8021B	
880-13092-1 MS	BH-1	Total/NA	Water	8021B	
880-13092-1 MSD	BH-1	Total/NA	Water	8021B	

Analysis Batch: 22760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-22760/8	Method Blank	Total/NA	Water	8021B	
LCS 880-22760/3	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-22760/4	Lab Control Sample Dup	Total/NA	Water	8021B	
880-13097-A-7 MS	Matrix Spike	Total/NA	Water	8021B	
880-13097-A-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	

Analysis Batch: 22836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-13092-1	BH-1	Total/NA	Water	Total BTEX	

GC Semi VOA

Analysis Batch: 22887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-13092-1	BH-1	Total/NA	Water	8015B NM	22959
880-13092-1	BH-1	Total/NA	Water	8015B NM	22959
MB 880-22959/1-A	Method Blank	Total/NA	Water	8015B NM	22959
LCS 880-22959/2-A	Lab Control Sample	Total/NA	Water	8015B NM	22959
LCSD 880-22959/3-A	Lab Control Sample Dup	Total/NA	Water	8015B NM	22959
880-13092-1 MS	BH-1	Total/NA	Water	8015B NM	22959

Prep Batch: 22959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-13092-1	BH-1	Total/NA	Water	8015NM Aq Prep	
880-13092-1	BH-1	Total/NA	Water	8015NM Aq Prep	
MB 880-22959/1-A	Method Blank	Total/NA	Water	8015NM Aq Prep	
LCS 880-22959/2-A	Lab Control Sample	Total/NA	Water	8015NM Aq Prep	
LCSD 880-22959/3-A	Lab Control Sample Dup	Total/NA	Water	8015NM Aq Prep	
880-13092-1 MS	BH-1	Total/NA	Water	8015NM Aq Prep	

Analysis Batch: 23015

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-13092-1	BH-1	Total/NA	Water	8015 NM	

HPLC/IC

Analysis Batch: 22725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-13092-1	BH-1	Total/NA	Water	300.0	
MB 880-22725/3	Method Blank	Total/NA	Water	300.0	
LCS 880-22725/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-22725/5	Lab Control Sample Dup	Total/NA	Water	300.0	
880-13085-A-1 MS	Matrix Spike	Total/NA	Water	300.0	

QC Association Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

HPLC/IC (Continued)

Analysis Batch: 22725 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-13085-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 23203

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-13092-1	BH-1	Total/NA	Water	SM 4500 H+ B	
880-13092-1 DU	BH-1	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 23205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-13092-1	BH-1	Total/NA	Water	SM 2540C	
MB 880-23205/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 880-23205/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 880-23205/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
880-13092-1 DU	BH-1	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Client Sample ID: BH-1
Date Collected: 03/29/22 11:10
Date Received: 03/30/22 15:18

Lab Sample ID: 880-13092-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	22736	03/31/22 20:54	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			22836	04/01/22 15:21	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			23015	04/05/22 10:37	AJ	XEN MID
Total/NA	Prep	8015NM Aq Prep			33.5 mL	3 mL	22959	04/04/22 14:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			22887	04/04/22 20:58	AJ	XEN MID
Total/NA	Prep	8015NM Aq Prep			33.8 mL	3 mL	22959	04/04/22 14:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			22887	04/04/22 21:40	AJ	XEN MID
Total/NA	Analysis	300.0		20			22725	04/01/22 21:54	CH	XEN MID
Total/NA	Analysis	SM 2540C		1	25 mL	200 mL	23205	04/08/22 09:55	SC	XEN MID
Total/NA	Analysis	SM 4500 H+ B		1			23203	04/08/22 09:52	SC	XEN MID

Laboratory References:
XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0		Water	Chloride
8015 NM		Water	Total TPH
SM 2540C		Water	Total Dissolved Solids
SM 4500 H+ B		Water	Temperature
Total BTEX		Water	Total BTEX

Method Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
SM 2540C	Solids, Total Dissolved (TDS)	SM	XEN MID
SM 4500 H+ B	pH	SM	XEN MID
5030B	Purge and Trap	SW846	XEN MID
8015NM Aq Prep	Microextraction	SW846	XEN MID

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-13092-1
SDG: Lea Co. NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-13092-1	BH-1	Water	03/29/22 11:10	03/30/22 15:18

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: 13092

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Project Manager:	Cindy Crain	Bill to: (if different)	Leasa Hale
Company Name:	Crain Environmental	Company Name:	SWR
Address:	2925 E. 17th St.	Address:	P.O. Box 53570
City, State ZIP:	Odessa, TX 79761	City, State ZIP:	Midland, TX 79710
Phone:	(575) 441-7244 Email:		Cindy.crain@gmail.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project: NM
Reporting Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables. EDD ☐ ADaPT ☐ Other:

Project Name:	Flying M SA #2	Turn Around	
Project Number:	–	☒ Routine ☐ Rush	
Project Location.	Lea Co, NM	Due Date	4/7/22
Sampler's Name:	Cindy Crain	TAT starts the day received by the lab, if received by 4:30pm	
PO #	–		

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID	IR8
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-1
Sample Custody Seals:	Yes No (N/A)	Temperature Reading	5.4
Total Containers:		Corrected Temperature:	5.3

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: TPH 8015M	BTEX	Chlorides
BH-1	GW	3/29/22	1110	–	–	6		X	X	X

Preservative Codes

None NO DI Water H_2O
Cool Cool MeOH Me
HCL. HC HNO_3 HN
H_2SO_4 H_2 NaOH Na
H_3PO_4 HP
$NaHSO_4$ NABIS
$Na_2S_2O_3$ $NaSO_3$
Zn Acetate+NaOH Zn
NaOH+Ascorbic Acid SAPC

Sample Comments

880-13092 Chain of Custody

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Cindy Crain		3/30/22 1518	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev 2020.2

Login Sample Receipt Checklist

Client: Crain Environmental

Job Number: 880-13092-1
SDG Number: Lea Co. NM

Login Number: 13092
List Number: 1
Creator: Rodriguez, Leticia

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

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ANALYTICAL REPORT

Eurofins Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-15046-1
Laboratory Sample Delivery Group: Lea Co. NM
Client Project/Site: Flying M SA #2
Revision: 1

For:
Crain Environmental
2925 E. 17th St.
Odessa, Texas 79761

Attn: Cindy Crain

JKramer

Authorized for release by:
6/2/2022 8:56:05 AM

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

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Crain Environmental
Project/Site: Flying M SA #2

Laboratory Job ID: 880-15046-1
SDG: Lea Co. NM

Table of Contents

Definitions/Glossary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

Job ID: 880-15046-1

Laboratory: Eurofins Midland

Narrative

Job Narrative
880-15046-1

REVISION

The report being provided is a revision of the original report sent on 5/31/2022. The report (revision 1) is being revised due to BTEX parameters missing on final report.

Report revision history

Receipt
The samples were received on 5/23/2022 12:04 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.2°C

GC VOA
Method Total_BTEX_GCV: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 880-26211 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

Client Sample ID: MW-2

Date Collected: 05/19/22 10:00
Date Received: 05/23/22 12:04

Lab Sample ID: 880-15046-1
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			05/25/22 23:51	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			05/25/22 23:51	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			05/25/22 23:51	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			05/25/22 23:51	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			05/25/22 23:51	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			05/25/22 23:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*122*		*70 - 130*		*05/25/22 23:51*	*1*
1,4-Difluorobenzene (Surr)	*92*		*70 - 130*		*05/25/22 23:51*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.000657	U	0.00400	0.000657	mg/L			05/31/22 12:57	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<0.898	U	4.55	0.898	mg/L			05/27/22 12:03	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<0.898	U	4.55	0.898	mg/L		05/26/22 14:03	05/26/22 17:39	1
Diesel Range Organics (Over C10-C28)	<0.898	U	4.55	0.898	mg/L		05/26/22 14:03	05/26/22 17:39	1
Oil Range Organics (Over C28-C36)	<0.867	U	4.55	0.867	mg/L		05/26/22 14:03	05/26/22 17:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*111*		*70 - 130*	*05/26/22 14:03*	*05/26/22 17:39*	*1*
o-Terphenyl	*122*		*70 - 130*	*05/26/22 14:03*	*05/26/22 17:39*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**908**		25.0	1.05	mg/L			05/25/22 22:40	50

Client Sample ID: MW-3

Date Collected: 05/19/22 10:50
Date Received: 05/23/22 12:04

Lab Sample ID: 880-15046-2
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			05/25/22 23:31	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			05/25/22 23:31	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			05/25/22 23:31	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			05/25/22 23:31	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			05/25/22 23:31	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			05/25/22 23:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*123*		*70 - 130*		*05/25/22 23:31*	*1*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*		*05/25/22 23:31*	*1*

Client Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

Client Sample ID: MW-3
Date Collected: 05/19/22 10:50
Date Received: 05/23/22 12:04

Lab Sample ID: 880-15046-2
Matrix: Water

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00100	U	0.00200	0.00100	mg/L			05/25/22 23:31	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<0.901	U	4.56	0.901	mg/L			05/27/22 12:03	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<0.901	U	4.56	0.901	mg/L		05/26/22 14:03	05/26/22 18:01	1
Diesel Range Organics (Over C10-C28)	<0.901	U	4.56	0.901	mg/L		05/26/22 14:03	05/26/22 18:01	1
Oil Range Organics (Over C28-C36)	<0.869	U	4.56	0.869	mg/L		05/26/22 14:03	05/26/22 18:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*127*		*70 - 130*	*05/26/22 14:03*	*05/26/22 18:01*	*1*
o-Terphenyl	*135*	*S1+*	*70 - 130*	*05/26/22 14:03*	*05/26/22 18:01*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**490**		10.0	0.421	mg/L			05/25/22 22:49	20

Surrogate Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-15046-1	MW-2	122	92
880-15046-2	MW-3	123	94

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-15046-1	MW-2	111	122
880-15046-2	MW-3	127	135 S1+
880-15197-B-1-B MS	Matrix Spike	88	85
880-15197-B-1-C MSD	Matrix Spike Duplicate	88	85
LCS 880-26369/2-A	Lab Control Sample	104	102
LCSD 880-26369/3-A	Lab Control Sample Dup	108	105
MB 880-26369/1-A	Method Blank	109	115

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

Method: Total BTEX - Total BTEX Calculation

Lab Sample ID: MB 880-26190/5-A
Matrix: Water
Analysis Batch: 26211

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 26190

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00100	U	0.00200	0.00100	mg/L		05/24/22 14:35	05/25/22 12:32	1

Lab Sample ID: MB 880-26211/39
Matrix: Water
Analysis Batch: 26211

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00100	U	0.00200	0.00100	mg/L			05/25/22 23:09	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-26369/1-A
Matrix: Water
Analysis Batch: 26295

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 26369

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<0.904	U	4.57	0.904	mg/L		05/26/22 09:03	05/26/22 10:44	1
Diesel Range Organics (Over C10-C28)	<0.904	U	4.57	0.904	mg/L		05/26/22 09:03	05/26/22 10:44	1
Oil Range Organics (Over C28-C36)	<0.872	U	4.57	0.872	mg/L		05/26/22 09:03	05/26/22 10:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*109*		*70 - 130*	*05/26/22 09:03*	*05/26/22 10:44*	*1*
o-Terphenyl	*115*		*70 - 130*	*05/26/22 09:03*	*05/26/22 10:44*	*1*

Lab Sample ID: LCS 880-26369/2-A
Matrix: Water
Analysis Batch: 26295

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 26369

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			91.7	79.04		mg/L		86	75 - 125		
Diesel Range Organics (Over C10-C28)			91.7	72.59		mg/L		79	75 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*104*		*70 - 130*
o-Terphenyl	*102*		*70 - 130*

Lab Sample ID: LCSD 880-26369/3-A
Matrix: Water
Analysis Batch: 26295

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 26369

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			92.0	82.66		mg/L		90	75 - 125	4	20
Diesel Range Organics (Over C10-C28)			92.0	76.31		mg/L		83	75 - 125	5	20

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 880-26369/3-A
Matrix: Water
Analysis Batch: 26295

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 26369

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	108		70 - 130
o-Terphenyl	105		70 - 130

Lab Sample ID: 880-15197-B-1-B MS
Matrix: Water
Analysis Batch: 26295

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 26369

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<0.893	U	89.6	91.62		mg/L		102	75 - 125
Diesel Range Organics (Over C10-C28)	<0.893	U	89.6	83.08		mg/L		93	75 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	88		70 - 130
o-Terphenyl	85		70 - 130

Lab Sample ID: 880-15197-B-1-C MSD
Matrix: Water
Analysis Batch: 26295

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 26369

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<0.893	U	89.6	93.27		mg/L		104	75 - 125	2	20
Diesel Range Organics (Over C10-C28)	<0.893	U	89.6	83.29		mg/L		93	75 - 125	0	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	88		70 - 130
o-Terphenyl	85		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-26254/3
Matrix: Water
Analysis Batch: 26254

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.0210	U	0.500	0.0210	mg/L			05/25/22 19:32	1

Lab Sample ID: LCS 880-26254/4
Matrix: Water
Analysis Batch: 26254

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	25.0	24.46		mg/L		98	90 - 110

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 880-26254/5
Matrix: Water
Analysis Batch: 26254

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			25.0	25.04		mg/L		100	90 - 110	2	20

Lab Sample ID: 880-15135-A-1 MS
Matrix: Water
Analysis Batch: 26254

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	9.41		25.0	34.99		mg/L		102	90 - 110		

Lab Sample ID: 880-15135-A-1 MSD
Matrix: Water
Analysis Batch: 26254

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	9.41		25.0	33.37		mg/L		96	90 - 110	5	20

QC Association Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

GC VOA

Prep Batch: 26190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-26190/5-A	Method Blank	Total/NA	Water	5035	

Analysis Batch: 26211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-15046-1	MW-2	Total/NA	Water	8021B	
880-15046-2	MW-3	Total/NA	Water	8021B	
880-15046-2	MW-3	Total/NA	Water	Total BTEX	
MB 880-26190/5-A	Method Blank	Total/NA	Water	Total BTEX	26190
MB 880-26211/39	Method Blank	Total/NA	Water	Total BTEX	
LCS 880-26211/34	Lab Control Sample	Total/NA	Water	Total BTEX	
LCSD 880-26211/35	Lab Control Sample Dup	Total/NA	Water	Total BTEX	
880-15046-2 MS	MW-3	Total/NA	Water	Total BTEX	
880-15046-2 MSD	MW-3	Total/NA	Water	Total BTEX	

Analysis Batch: 26584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-15046-1	MW-2	Total/NA	Water	Total BTEX	

GC Semi VOA

Analysis Batch: 26295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-15046-1	MW-2	Total/NA	Water	8015B NM	26369
880-15046-2	MW-3	Total/NA	Water	8015B NM	26369
MB 880-26369/1-A	Method Blank	Total/NA	Water	8015B NM	26369
LCS 880-26369/2-A	Lab Control Sample	Total/NA	Water	8015B NM	26369
LCSD 880-26369/3-A	Lab Control Sample Dup	Total/NA	Water	8015B NM	26369
880-15197-B-1-B MS	Matrix Spike	Total/NA	Water	8015B NM	26369
880-15197-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	8015B NM	26369

Prep Batch: 26369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-15046-1	MW-2	Total/NA	Water	8015NM Aq Prep	
880-15046-2	MW-3	Total/NA	Water	8015NM Aq Prep	
MB 880-26369/1-A	Method Blank	Total/NA	Water	8015NM Aq Prep	
LCS 880-26369/2-A	Lab Control Sample	Total/NA	Water	8015NM Aq Prep	
LCSD 880-26369/3-A	Lab Control Sample Dup	Total/NA	Water	8015NM Aq Prep	
880-15197-B-1-B MS	Matrix Spike	Total/NA	Water	8015NM Aq Prep	
880-15197-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	8015NM Aq Prep	

Analysis Batch: 26439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-15046-1	MW-2	Total/NA	Water	8015 NM	
880-15046-2	MW-3	Total/NA	Water	8015 NM	

HPLC/IC

Analysis Batch: 26254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-15046-1	MW-2	Total/NA	Water	300.0	
880-15046-2	MW-3	Total/NA	Water	300.0	
MB 880-26254/3	Method Blank	Total/NA	Water	300.0	

QC Association Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

HPLC/IC (Continued)

Analysis Batch: 26254 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-26254/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-26254/5	Lab Control Sample Dup	Total/NA	Water	300.0	
880-15135-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
880-15135-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Lab Chronicle

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

Client Sample ID: MW-2
Date Collected: 05/19/22 10:00
Date Received: 05/23/22 12:04

Lab Sample ID: 880-15046-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1			26211	05/25/22 23:51	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			26584	05/31/22 12:57	SM	XEN MID
Total/NA	Analysis	8015 NM		1			26439	05/27/22 12:03	AJ	XEN MID
Total/NA	Prep	8015NM Aq Prep			33 mL	3 mL	26369	05/26/22 14:03	DM	XEN MID
Total/NA	Analysis	8015B NM		1			26295	05/26/22 17:39	SM	XEN MID
Total/NA	Analysis	300.0		50			26254	05/25/22 22:40	CH	XEN MID

Client Sample ID: MW-3
Date Collected: 05/19/22 10:50
Date Received: 05/23/22 12:04

Lab Sample ID: 880-15046-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1			26211	05/25/22 23:31	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			26211	05/25/22 23:31	MR	XEN MID
Total/NA	Analysis	8015 NM		1			26439	05/27/22 12:03	AJ	XEN MID
Total/NA	Prep	8015NM Aq Prep			32.9 mL	3 mL	26369	05/26/22 14:03	DM	XEN MID
Total/NA	Analysis	8015B NM		1			26295	05/26/22 18:01	SM	XEN MID
Total/NA	Analysis	300.0		20			26254	05/25/22 22:49	CH	XEN MID

Laboratory References:
XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0		Water	Chloride
8015 NM		Water	Total TPH
Total BTEX		Water	Total BTEX

Method Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5030B	Purge and Trap	SW846	XEN MID
8015NM Aq Prep	Microextraction	SW846	XEN MID

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15046-1
SDG: Lea Co. NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-15046-1	MW-2	Water	05/19/22 10:00	05/23/22 12:04
880-15046-2	MW-3	Water	05/19/22 10:50	05/23/22 12:04

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Chain of Custody

Houston, TX (281) 240-4200, Dallas TX (214) 902-0300
Midland, TX (432) 704-5440 San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550 Carlsbad NM (575) 988-3199

Work Order No: 15046

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Project Manager:	Cindy Crain	Bill to. (if different)	Leasa Hale
Company Name.	Crain Environmental	Company Name.	Southwest Royalties
Address:	2925 E. 17th St.	Address.	P.O. Box 53570
City, State ZIP:	Odessa, TX 79761	City, State ZIP:	Midland, TX 79710
Phone	(575)441-7244 Email		Cindy.crain@gmail.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project: NM
Reporting Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables. EDD ☐ ADaPT ☐ Other:

Project Name:	Flying M SA #2	Turn Around	
Project Number:	–	☒ Routine ☐ Rush	
Project Location	Lea Co, NM	Due Date:	5/27/22
Sampler's Name:	Cindy Crain	TAT starts the day received by the lab, if received by 4.30pm	
PO #			

SAMPLE RECEIPT				
Temp Blank.	Yes (No)	Wet Ice:	(Yes) No	
Samples Received Intact:	(Yes) No	Thermometer ID	IR6	
Cooler Custody Seals.	Yes No (N/A)	Correction Factor:	-2	
Sample Custody Seals.	Yes No (N/A)	Temperature Reading	4.4	
Total Containers.		Corrected Temperature:	4.2	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	TPH 8015M	BTEX	Chlorides
MW-2	GW	5/19/22	1000	–	–	6		X	X	X
MW-3	GW	5/19/22	1050	–	–	6		X	X	X

Preservative Codes

None NO DI Water H_2O
Cool Cool MeOH Me
HCL. HC HNO_3 HN
H_2SO_4. H_2 NaOH Na
H_3PO_4 HP
$NaHSO_4$ NABIS
$Na_2S_2O_3$ $NaSO_3$
Zn Acetate+NaOH Zn
NaOH+Ascorbic Acid SAPC

Sample Comments

4 day rush on Cl

880-15046 Chain of Custody

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg 1631 / 245 1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of $85.00 will be applied to each project and a charge of $5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Cindy Crain		5/23/22 12:04	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev 2020.2

Login Sample Receipt Checklist

Client: Crain Environmental

Job Number: 880-15046-1
SDG Number: Lea Co. NM

Login Number: 15046
List Number: 1
Creator: Rodriguez, Leticia

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

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ANALYTICAL REPORT

Eurofins Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-15938-1
Laboratory Sample Delivery Group: Lea Co., NM
Client Project/Site: Flying M SA #2

For:
Crain Environmental
2925 E. 17th St.
Odessa, Texas 79761

Attn: Cindy Crain

JKramer

Authorized for release by:
6/20/2022 1:23:25 PM

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

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Crain Environmental
Project/Site: Flying M SA #2

Laboratory Job ID: 880-15938-1
SDG: Lea Co., NM

Table of Contents

Definitions/Glossary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Job ID: 880-15938-1

Laboratory: Eurofins Midland

Narrative

Job Narrative
880-15938-1

Receipt
The samples were received on 6/15/2022 3:21 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.7°C

GC VOA
Method 8021B: The following sample was diluted because the initial analysis produced a significant negative result - the absolute value exceeded the reporting limit (RL): MW-3 (880-15938-3). Reporting limits (RLs) are elevated as a result.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: MW-1 (880-15938-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: The method blank for preparation batch 880-27757 and analytical batch 880-27733 contained Gasoline Range Organics (GRO)-C6-C10 and Diesel Range Organics (Over C10-C28) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Client Sample ID: MW-1

Date Collected: 06/14/22 13:50
Date Received: 06/15/22 15:21

Lab Sample ID: 880-15938-1
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			06/16/22 19:23	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			06/16/22 19:23	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			06/16/22 19:23	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			06/16/22 19:23	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			06/16/22 19:23	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			06/16/22 19:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*		*06/16/22 19:23*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*		*06/16/22 19:23*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.000657	U	0.00400	0.000657	mg/L			06/17/22 09:40	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<0.901	U	4.56	0.901	mg/L			06/20/22 12:52	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<0.901	U	4.56	0.901	mg/L		06/17/22 09:00	06/18/22 07:54	1
Diesel Range Organics (Over C10-C28)	<0.901	U	4.56	0.901	mg/L		06/17/22 09:00	06/18/22 07:54	1
Oil Range Organics (Over C28-C36)	<0.869	U	4.56	0.869	mg/L		06/17/22 09:00	06/18/22 07:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*123*		*70 - 130*	*06/17/22 09:00*	*06/18/22 07:54*	*1*
o-Terphenyl	*137*	*S1+*	*70 - 130*	*06/17/22 09:00*	*06/18/22 07:54*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1400**		5.00	0.210	mg/L			06/17/22 11:21	10

Client Sample ID: MW-2

Date Collected: 06/14/22 14:45
Date Received: 06/15/22 15:21

Lab Sample ID: 880-15938-2
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			06/16/22 19:49	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			06/16/22 19:49	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			06/16/22 19:49	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			06/16/22 19:49	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			06/16/22 19:49	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			06/16/22 19:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*		*06/16/22 19:49*	*1*
1,4-Difluorobenzene (Surr)	*91*		*70 - 130*		*06/16/22 19:49*	*1*

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Client Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Client Sample ID: MW-2

Date Collected: 06/14/22 14:45
Date Received: 06/15/22 15:21

Lab Sample ID: 880-15938-2
Matrix: Water

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.000657	U	0.00400	0.000657	mg/L			06/17/22 09:40	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<0.901	U	4.56	0.901	mg/L			06/20/22 12:52	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<0.901	U	4.56	0.901	mg/L		06/17/22 09:00	06/18/22 09:10	1
Diesel Range Organics (Over C10-C28)	<0.901	U	4.56	0.901	mg/L		06/17/22 09:00	06/18/22 09:10	1
Oil Range Organics (Over C28-C36)	<0.869	U	4.56	0.869	mg/L		06/17/22 09:00	06/18/22 09:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*99*		*70 - 130*	*06/17/22 09:00*	*06/18/22 09:10*	*1*
o-Terphenyl	*110*		*70 - 130*	*06/17/22 09:00*	*06/18/22 09:10*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1440		25.0	1.05	mg/L			06/16/22 23:00	50

Client Sample ID: MW-3

Date Collected: 06/14/22 15:40
Date Received: 06/15/22 15:21

Lab Sample ID: 880-15938-3
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00408	U	0.0200	0.00408	mg/L			06/16/22 20:15	10
Toluene	<0.00367	U	0.0200	0.00367	mg/L			06/16/22 20:15	10
Ethylbenzene	<0.00657	U	0.0200	0.00657	mg/L			06/16/22 20:15	10
m-Xylene & p-Xylene	<0.00629	U	0.0400	0.00629	mg/L			06/16/22 20:15	10
o-Xylene	<0.00642	U	0.0200	0.00642	mg/L			06/16/22 20:15	10
Xylenes, Total	<0.00642	U	0.0400	0.00642	mg/L			06/16/22 20:15	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*118*		*70 - 130*		*06/16/22 20:15*	*10*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*		*06/16/22 20:15*	*10*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00657	U	0.0400	0.00657	mg/L			06/17/22 09:40	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<0.898	U	4.55	0.898	mg/L			06/20/22 12:52	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<0.898	U	4.55	0.898	mg/L		06/17/22 09:00	06/18/22 09:32	1
Diesel Range Organics (Over C10-C28)	<0.898	U	4.55	0.898	mg/L		06/17/22 09:00	06/18/22 09:32	1

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Client Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Client Sample ID: MW-3
Date Collected: 06/14/22 15:40
Date Received: 06/15/22 15:21

Lab Sample ID: 880-15938-3
Matrix: Water

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oil Range Organics (Over C28-C36)	<0.867	U	4.55	0.867	mg/L		06/17/22 09:00	06/18/22 09:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*98*		*70 - 130*	*06/17/22 09:00*	*06/18/22 09:32*	*1*
o-Terphenyl	*109*		*70 - 130*	*06/17/22 09:00*	*06/18/22 09:32*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	469		10.0	0.421	mg/L			06/16/22 23:09	20

Surrogate Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-15720-A-1 MS	Matrix Spike	114	108
880-15720-A-1 MSD	Matrix Spike Duplicate	106	95
880-15938-1	MW-1	115	100
880-15938-2	MW-2	115	91
880-15938-3	MW-3	118	94
LCS 880-27653/3	Lab Control Sample	103	99
LCSD 880-27653/4	Lab Control Sample Dup	109	100
MB 880-27653/8	Method Blank	83	93

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-15938-1	MW-1	123	137 S1+
880-15938-1 MS	MW-1	92	96
880-15938-1 MSD	MW-1	97	102
880-15938-2	MW-2	99	110
880-15938-3	MW-3	98	109
LCS 880-27757/2-A	Lab Control Sample	94	107
LCSD 880-27757/3-A	Lab Control Sample Dup	99	111
MB 880-27757/1-A	Method Blank	111	127

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-27653/8
Matrix: Water
Analysis Batch: 27653

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			06/16/22 11:07	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			06/16/22 11:07	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			06/16/22 11:07	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			06/16/22 11:07	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			06/16/22 11:07	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			06/16/22 11:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*70 - 130*		*06/16/22 11:07*	*1*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*		*06/16/22 11:07*	*1*

Lab Sample ID: LCS 880-27653/3
Matrix: Water
Analysis Batch: 27653

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.08318		mg/L		83	70 - 130		
Toluene			0.100	0.08612		mg/L		86	70 - 130		
Ethylbenzene			0.100	0.09575		mg/L		96	70 - 130		
m-Xylene & p-Xylene			0.200	0.1891		mg/L		95	70 - 130		
o-Xylene			0.100	0.09290		mg/L		93	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 880-27653/4
Matrix: Water
Analysis Batch: 27653

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.08934		mg/L		89	70 - 130	7	20
Toluene			0.100	0.09106		mg/L		91	70 - 130	6	20
Ethylbenzene			0.100	0.1006		mg/L		101	70 - 130	5	20
m-Xylene & p-Xylene			0.200	0.2001		mg/L		100	70 - 130	6	20
o-Xylene			0.100	0.09787		mg/L		98	70 - 130	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 880-15720-A-1 MS
Matrix: Water
Analysis Batch: 27653

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.000408	U	0.100	0.1035		mg/L		103	70 - 130		
Toluene	<0.000367	U	0.100	0.1080		mg/L		108	70 - 130		

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-15720-A-1 MS
Matrix: Water
Analysis Batch: 27653

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.000657	U	0.100	0.1158		mg/L		116	70 - 130
m-Xylene & p-Xylene	<0.000629	U	0.200	0.2287		mg/L		114	70 - 130
o-Xylene	<0.000642	U	0.100	0.1147		mg/L		115	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*
1,4-Difluorobenzene (Surr)	*108*		*70 - 130*

Lab Sample ID: 880-15720-A-1 MSD
Matrix: Water
Analysis Batch: 27653

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.000408	U	0.100	0.08268		mg/L		83	70 - 130	22	25
Toluene	<0.000367	U	0.100	0.08640		mg/L		86	70 - 130	22	25
Ethylbenzene	<0.000657	U	0.100	0.09580		mg/L		96	70 - 130	19	25
m-Xylene & p-Xylene	<0.000629	U	0.200	0.1898		mg/L		95	70 - 130	19	25
o-Xylene	<0.000642	U	0.100	0.09397		mg/L		94	70 - 130	20	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-27757/1-A
Matrix: Water
Analysis Batch: 27733

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 27757

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.231	J	4.57	0.904	mg/L		06/17/22 09:00	06/18/22 06:49	1
Diesel Range Organics (Over C10-C28)	1.153	J	4.57	0.904	mg/L		06/17/22 09:00	06/18/22 06:49	1
OII Range Organics (Over C28-C36)	<0.872	U	4.57	0.872	mg/L		06/17/22 09:00	06/18/22 06:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*111*		*70 - 130*	*06/17/22 09:00*	*06/18/22 06:49*	*1*
o-Terphenyl	*127*		*70 - 130*	*06/17/22 09:00*	*06/18/22 06:49*	*1*

Lab Sample ID: LCS 880-27757/2-A
Matrix: Water
Analysis Batch: 27733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 27757

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	91.7	74.37		mg/L		81	75 - 125
Diesel Range Organics (Over C10-C28)	91.7	90.76		mg/L		99	75 - 125

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QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-27757/2-A
Matrix: Water
Analysis Batch: 27733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 27757

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	94		70 - 130
o-Terphenyl	107		70 - 130

Lab Sample ID: LCSD 880-27757/3-A
Matrix: Water
Analysis Batch: 27733

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 27757

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			92.0	77.98		mg/L		85	75 - 125	5	20
Diesel Range Organics (Over C10-C28)			92.0	94.29		mg/L		102	75 - 125	4	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	99		70 - 130
o-Terphenyl	111		70 - 130

Lab Sample ID: 880-15938-1 MS
Matrix: Water
Analysis Batch: 27733

Client Sample ID: MW-1
Prep Type: Total/NA
Prep Batch: 27757

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<0.901	U	90.9	91.56		mg/L		101	75 - 125
Diesel Range Organics (Over C10-C28)	<0.901	U	90.9	91.27		mg/L		100	75 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	92		70 - 130
o-Terphenyl	96		70 - 130

Lab Sample ID: 880-15938-1 MSD
Matrix: Water
Analysis Batch: 27733

Client Sample ID: MW-1
Prep Type: Total/NA
Prep Batch: 27757

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<0.901	U	90.9	98.53		mg/L		108	75 - 125	7	20
Diesel Range Organics (Over C10-C28)	<0.901	U	90.9	98.71		mg/L		109	75 - 125	8	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	97		70 - 130
o-Terphenyl	102		70 - 130

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-27724/3
Matrix: Water
Analysis Batch: 27724

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.0210	U	0.500	0.0210	mg/L			06/16/22 19:24	1

Lab Sample ID: LCS 880-27724/4
Matrix: Water
Analysis Batch: 27724

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	25.0	25.63		mg/L		103	90 - 110

Lab Sample ID: LCSD 880-27724/5
Matrix: Water
Analysis Batch: 27724

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	25.0	25.56		mg/L		102	90 - 110	0	20

Lab Sample ID: 880-15951-A-1 MS
Matrix: Water
Analysis Batch: 27724

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	40.3		25.0	64.43		mg/L		97	90 - 110

Lab Sample ID: 880-15951-A-1 MSD
Matrix: Water
Analysis Batch: 27724

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	40.3		25.0	64.56		mg/L		97	90 - 110	0	20

Lab Sample ID: 880-15993-A-1 MS
Matrix: Water
Analysis Batch: 27724

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	8.59		25.0	33.94		mg/L		101	90 - 110

Lab Sample ID: 880-15993-A-1 MSD
Matrix: Water
Analysis Batch: 27724

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	8.59		25.0	33.94		mg/L		101	90 - 110	0	20

QC Association Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

GC VOA

Analysis Batch: 27653

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-15938-1	MW-1	Total/NA	Water	8021B	
880-15938-2	MW-2	Total/NA	Water	8021B	
880-15938-3	MW-3	Total/NA	Water	8021B	
MB 880-27653/8	Method Blank	Total/NA	Water	8021B	
LCS 880-27653/3	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-27653/4	Lab Control Sample Dup	Total/NA	Water	8021B	
880-15720-A-1 MS	Matrix Spike	Total/NA	Water	8021B	
880-15720-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	

Analysis Batch: 27782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-15938-1	MW-1	Total/NA	Water	Total BTEX	
880-15938-2	MW-2	Total/NA	Water	Total BTEX	
880-15938-3	MW-3	Total/NA	Water	Total BTEX	

GC Semi VOA

Analysis Batch: 27733

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-15938-1	MW-1	Total/NA	Water	8015B NM	27757
880-15938-2	MW-2	Total/NA	Water	8015B NM	27757
880-15938-3	MW-3	Total/NA	Water	8015B NM	27757
MB 880-27757/1-A	Method Blank	Total/NA	Water	8015B NM	27757
LCS 880-27757/2-A	Lab Control Sample	Total/NA	Water	8015B NM	27757
LCSD 880-27757/3-A	Lab Control Sample Dup	Total/NA	Water	8015B NM	27757
880-15938-1 MS	MW-1	Total/NA	Water	8015B NM	27757
880-15938-1 MSD	MW-1	Total/NA	Water	8015B NM	27757

Prep Batch: 27757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-15938-1	MW-1	Total/NA	Water	8015NM Aq Prep	
880-15938-2	MW-2	Total/NA	Water	8015NM Aq Prep	
880-15938-3	MW-3	Total/NA	Water	8015NM Aq Prep	
MB 880-27757/1-A	Method Blank	Total/NA	Water	8015NM Aq Prep	
LCS 880-27757/2-A	Lab Control Sample	Total/NA	Water	8015NM Aq Prep	
LCSD 880-27757/3-A	Lab Control Sample Dup	Total/NA	Water	8015NM Aq Prep	
880-15938-1 MS	MW-1	Total/NA	Water	8015NM Aq Prep	
880-15938-1 MSD	MW-1	Total/NA	Water	8015NM Aq Prep	

Analysis Batch: 27903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-15938-1	MW-1	Total/NA	Water	8015 NM	
880-15938-2	MW-2	Total/NA	Water	8015 NM	
880-15938-3	MW-3	Total/NA	Water	8015 NM	

HPLC/IC

Analysis Batch: 27724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-15938-1	MW-1	Total/NA	Water	300.0	
880-15938-2	MW-2	Total/NA	Water	300.0	
880-15938-3	MW-3	Total/NA	Water	300.0	

QC Association Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

HPLC/IC (Continued)

Analysis Batch: 27724 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-27724/3	Method Blank	Total/NA	Water	300.0	
LCS 880-27724/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-27724/5	Lab Control Sample Dup	Total/NA	Water	300.0	
880-15951-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
880-15951-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
880-15993-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
880-15993-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Lab Chronicle

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Client Sample ID: MW-1

Lab Sample ID: 880-15938-1
Date Collected: 06/14/22 13:50
Matrix: Water
Date Received: 06/15/22 15:21

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1			27653	06/16/22 19:23	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			27782	06/17/22 09:40	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			27903	06/20/22 12:52	SM	XEN MID
Total/NA	Prep	8015NM Aq Prep			32.9 mL	3 mL	27757	06/17/22 09:00	DM	XEN MID
Total/NA	Analysis	8015B NM		1			27733	06/18/22 07:54	SM	XEN MID
Total/NA	Analysis	300.0		10			27724	06/17/22 11:21	CH	XEN MID

Client Sample ID: MW-2

Lab Sample ID: 880-15938-2
Date Collected: 06/14/22 14:45
Matrix: Water
Date Received: 06/15/22 15:21

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1			27653	06/16/22 19:49	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			27782	06/17/22 09:40	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			27903	06/20/22 12:52	SM	XEN MID
Total/NA	Prep	8015NM Aq Prep			32.9 mL	3 mL	27757	06/17/22 09:00	DM	XEN MID
Total/NA	Analysis	8015B NM		1			27733	06/18/22 09:10	SM	XEN MID
Total/NA	Analysis	300.0		50			27724	06/16/22 23:00	CH	XEN MID

Client Sample ID: MW-3

Lab Sample ID: 880-15938-3
Date Collected: 06/14/22 15:40
Matrix: Water
Date Received: 06/15/22 15:21

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		10			27653	06/16/22 20:15	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			27782	06/17/22 09:40	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			27903	06/20/22 12:52	SM	XEN MID
Total/NA	Prep	8015NM Aq Prep			33 mL	3 mL	27757	06/17/22 09:00	DM	XEN MID
Total/NA	Analysis	8015B NM		1			27733	06/18/22 09:32	SM	XEN MID
Total/NA	Analysis	300.0		20			27724	06/16/22 23:09	CH	XEN MID

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0		Water	Chloride
8015 NM		Water	Total TPH
Total BTEX		Water	Total BTEX

Method Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5030B	Purge and Trap	SW846	XEN MID
8015NM Aq Prep	Microextraction	SW846	XEN MID

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-15938-1
SDG: Lea Co., NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-15938-1	MW-1	Water	06/14/22 13:50	06/15/22 15:21
880-15938-2	MW-2	Water	06/14/22 14:45	06/15/22 15:21
880-15938-3	MW-3	Water	06/14/22 15:40	06/15/22 15:21

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Chain of Custody

Houston, TX (281) 240-4200, Dallas TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392 7550 Carlsbad, NM (575) 988-3199

Work Order No: 15938

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Project Manager:	Cindy Crain	Bill to: (if different)	Leasa Hale
Company Name:	Crain Environmental	Company Name:	Southwest Royalties
Address:	2925 E. 17th St.	Address:	P.O. Box 53570
City, State ZIP:	Odessa, TX 79761	City, State ZIP:	Midland, TX 79710
Phone:	(575) 441-7244 Email	Email	Cindy.crain@gmail.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project: NM
Reporting Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables. EDD ☐ ADaPT ☐ Other:

Project Name:	Flying M SA #2	Turn Around	
Project Number:	–	☒ Routine ☐ Rush	
Project Location.	Lea Co., NM	Due Date:	6/23/22
Sampler's Name:	Cindy Crain	TAT starts the day received by the lab, if received by 4.30pm	
PO #	–		

SAMPLE RECEIPT			
Samples Received Intact:	Yes No	Thermometer ID:	IR2
Cooler Custody Seals.	Yes No N/A	Correction Factor:	-2
Sample Custody Seals.	Yes No N/A	Temperature Reading:	5.9
Total Containers.		Corrected Temperature:	5.7

Temp Blank: Yes No Wet Ice: Yes No

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: TPH 8015M	BTEX	Chlorides
MW-1	GW	6/14/22	1350	–	–	6		X	X	X
MW-2	GW	6/14/22	1445	–	–	6		X	X	X
MW-3	GW	6/14/22	1540	–	–	6		X	X	X

Preservative Codes

None NO DI Water H_2O
Cool Cool MeOH Me
HCL HC HNO_3 HN
H_2SO_4 H_2 NaOH Na
H_3PO_4 HP
$NaHSO_4$ NABIS
$Na_2S_2O_3$ $NaSO_3$
Zn Acetate+NaOH Zn
NaOH+Ascorbic Acid SAPC

Sample Comments

880-15938 Chain of Custody

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg 1631 / 245.1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of $85.00 will be applied to each project and a charge of $5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Cindy Crain		6/15/22 15:21	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Crain Environmental

Job Number: 880-15938-1
SDG Number: Lea Co., NM

Login Number: 15938
List Number: 1
Creator: Rodriguez, Leticia

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

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ANALYTICAL REPORT

Eurofins Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-20129-1
Laboratory Sample Delivery Group: Lea Co., NM
Client Project/Site: Flying M SA #2

For:
Crain Environmental
2925 E. 17th St.
Odessa, Texas 79761

Attn: Cindy Crain

JKramer

Authorized for release by:
10/19/2022 10:07:58 AM

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

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Crain Environmental
Project/Site: Flying M SA #2

Laboratory Job ID: 880-20129-1
SDG: Lea Co., NM

Table of Contents

Definitions/Glossary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Job ID: 880-20129-1

Laboratory: Eurofins Midland

Narrative

Job Narrative
880-20129-1

Receipt
The samples were received on 10/10/2022 9:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.9°C

Receipt Exceptions
The following samples analyzed for method <FRACTION_METHOD> were received and analyzed from an unpreserved bulk soil jar: MW-4 (0-1') (880-20129-1), MW-4 (5') (880-20129-2), MW-4 (10') (880-20129-3), MW-4 (15') (880-20129-4), MW-4 (20') (880-20129-5), MW-4 (25') (880-20129-6) and MW-4 (880-20129-7).

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-37209 and analytical batch 880-37194 was outside the upper control limits.

Method 8015MOD_NM: The method blank for preparation batch 880-37209 and analytical batch 880-37194 contained Gasoline Range Organics (GRO)-C6-C10 and Diesel Range Organics (Over C10-C28) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36661 and analytical batch 880-36885 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Client Sample ID: MW-4 (0-1')

Lab Sample ID: 880-20129-1
Matrix: Solid
Date Collected: 10/06/22 10:24
Date Received: 10/10/22 09:00
Sample Depth: 0-1'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	27.3		5.02	0.397	mg/Kg			10/13/22 17:51	1

Client Sample ID: MW-4 (5')

Lab Sample ID: 880-20129-2
Matrix: Solid
Date Collected: 10/06/22 10:30
Date Received: 10/10/22 09:00
Sample Depth: 5'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.5		5.02	0.397	mg/Kg			10/13/22 17:58	1

Client Sample ID: MW-4 (10')

Lab Sample ID: 880-20129-3
Matrix: Solid
Date Collected: 10/06/22 10:40
Date Received: 10/10/22 09:00
Sample Depth: 10'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	96.5		5.02	0.397	mg/Kg			10/13/22 18:06	1

Client Sample ID: MW-4

Lab Sample ID: 880-20129-7
Matrix: Water
Date Collected: 10/06/22 11:35
Date Received: 10/10/22 09:00

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			10/12/22 20:36	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			10/12/22 20:36	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			10/12/22 20:36	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			10/12/22 20:36	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			10/12/22 20:36	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			10/12/22 20:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*		*10/12/22 20:36*	*1*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*		*10/12/22 20:36*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.000657	U	0.00400	0.000657	mg/L			10/13/22 11:37	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<0.904	U	4.57	0.904	mg/L			10/19/22 10:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<0.904	U	4.57	0.904	mg/L		10/18/22 10:08	10/18/22 13:17	1
Diesel Range Organics (Over C10-C28)	<0.904	U	4.57	0.904	mg/L		10/18/22 10:08	10/18/22 13:17	1

Eurofins Midland

Client Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Client Sample ID: MW-4

Date Collected: 10/06/22 11:35
Date Received: 10/10/22 09:00

Lab Sample ID: 880-20129-7

Matrix: Water

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oil Range Organics (Over C28-C36)	<0.872	U	4.57	0.872	mg/L		10/18/22 10:08	10/18/22 13:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*101*		*70 - 130*	*10/18/22 10:08*	*10/18/22 13:17*	*1*
o-Terphenyl	*113*		*70 - 130*	*10/18/22 10:08*	*10/18/22 13:17*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**367**		5.00	3.46	mg/L			10/12/22 19:35	10

Surrogate Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-20129-7	MW-4	105	88
880-20129-7 MS	MW-4	107	91
880-20129-7 MSD	MW-4	114	104
LCS 880-36730/3	Lab Control Sample	107	98
LCSD 880-36730/4	Lab Control Sample Dup	107	87
MB 880-36730/8	Method Blank	70	89

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-20129-7	MW-4	101	113
880-20296-F-8-A MS	Matrix Spike	89	91
880-20296-F-8-B MSD	Matrix Spike Duplicate	88	88
LCS 880-37209/2-A	Lab Control Sample	103	117
LCSD 880-37209/3-A	Lab Control Sample Dup	95	108
MB 880-37209/1-A	Method Blank	113	131 S1+

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36730/8
Matrix: Water
Analysis Batch: 36730

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			10/12/22 20:09	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			10/12/22 20:09	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			10/12/22 20:09	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			10/12/22 20:09	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			10/12/22 20:09	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			10/12/22 20:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*70*		*70 - 130*		*10/12/22 20:09*	*1*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*		*10/12/22 20:09*	*1*

Lab Sample ID: LCS 880-36730/3
Matrix: Water
Analysis Batch: 36730

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1050		mg/L		105	70 - 130
Toluene	0.100	0.1086		mg/L		109	70 - 130
Ethylbenzene	0.100	0.1061		mg/L		106	70 - 130
m-Xylene & p-Xylene	0.200	0.2191		mg/L		110	70 - 130
o-Xylene	0.100	0.09878		mg/L		99	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: LCSD 880-36730/4
Matrix: Water
Analysis Batch: 36730

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1038		mg/L		104	70 - 130	1	20
Toluene	0.100	0.1086		mg/L		109	70 - 130	0	20
Ethylbenzene	0.100	0.1103		mg/L		110	70 - 130	4	20
m-Xylene & p-Xylene	0.200	0.2297		mg/L		115	70 - 130	5	20
o-Xylene	0.100	0.1055		mg/L		105	70 - 130	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*

Lab Sample ID: 880-20129-7 MS
Matrix: Water
Analysis Batch: 36730

Client Sample ID: MW-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.000408	U	0.100	0.1044		mg/L		104	70 - 130
Toluene	<0.000367	U	0.100	0.1055		mg/L		106	70 - 130

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-20129-7 MS
Matrix: Water
Analysis Batch: 36730

Client Sample ID: MW-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.000657	U	0.100	0.09995		mg/L		100	70 - 130
m-Xylene & p-Xylene	<0.000629	U	0.200	0.2049		mg/L		102	70 - 130
o-Xylene	<0.000642	U	0.100	0.09627		mg/L		96	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*91*		*70 - 130*

Lab Sample ID: 880-20129-7 MSD
Matrix: Water
Analysis Batch: 36730

Client Sample ID: MW-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.000408	U	0.100	0.1167		mg/L		117	70 - 130	11	25
Toluene	<0.000367	U	0.100	0.1148		mg/L		115	70 - 130	8	25
Ethylbenzene	<0.000657	U	0.100	0.1146		mg/L		115	70 - 130	14	25
m-Xylene & p-Xylene	<0.000629	U	0.200	0.2346		mg/L		117	70 - 130	14	25
o-Xylene	<0.000642	U	0.100	0.1079		mg/L		108	70 - 130	11	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-37209/1-A
Matrix: Water
Analysis Batch: 37194

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37209

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	2.263	J	4.55	0.898	mg/L		10/18/22 10:08	10/18/22 11:15	1
Diesel Range Organics (Over C10-C28)	1.319	J	4.55	0.898	mg/L		10/18/22 10:08	10/18/22 11:15	1
OII Range Organics (Over C28-C36)	<0.867	U	4.55	0.867	mg/L		10/18/22 10:08	10/18/22 11:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*113*		*70 - 130*	*10/18/22 10:08*	*10/18/22 11:15*	*1*
o-Terphenyl	*131*	*S1+*	*70 - 130*	*10/18/22 10:08*	*10/18/22 11:15*	*1*

Lab Sample ID: LCS 880-37209/2-A
Matrix: Water
Analysis Batch: 37194

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37209

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	90.4	90.37		mg/L		100	75 - 125
Diesel Range Organics (Over C10-C28)	90.4	91.17		mg/L		101	75 - 125

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-37209/2-A
Matrix: Water
Analysis Batch: 37194

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37209

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	103		70 - 130
o-Terphenyl	117		70 - 130

Lab Sample ID: LCSD 880-37209/3-A
Matrix: Water
Analysis Batch: 37194

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37209

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			90.6	85.33		mg/L		94	75 - 125	6	20
Diesel Range Organics (Over C10-C28)			90.6	85.39		mg/L		94	75 - 125	7	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	95		70 - 130
o-Terphenyl	108		70 - 130

Lab Sample ID: 880-20296-F-8-A MS
Matrix: Water
Analysis Batch: 37194

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37209

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<0.904	U F1	91.2	91.52		mg/L		100	75 - 125
Diesel Range Organics (Over C10-C28)	<0.904	U F1	91.2	77.49		mg/L		85	75 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	91		70 - 130

Lab Sample ID: 880-20296-F-8-B MSD
Matrix: Water
Analysis Batch: 37194

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37209

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<0.904	U F1	91.5	86.99		mg/L		95	75 - 125	5	20
Diesel Range Organics (Over C10-C28)	<0.904	U F1	91.5	75.07		mg/L		82	75 - 125	3	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	88		70 - 130
o-Terphenyl	88		70 - 130

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36823/3
Matrix: Water
Analysis Batch: 36823

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.346	U	0.500	0.346	mg/L			10/12/22 18:34	1

Lab Sample ID: LCS 880-36823/4
Matrix: Water
Analysis Batch: 36823

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	25.0	25.87		mg/L		103	90 - 110

Lab Sample ID: LCSD 880-36823/5
Matrix: Water
Analysis Batch: 36823

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	25.0	25.94		mg/L		104	90 - 110	0	20

Lab Sample ID: 880-20237-A-1 MS
Matrix: Water
Analysis Batch: 36823

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	87.0		25.0	109.8		mg/L		91	90 - 110

Lab Sample ID: 880-20237-A-1 MSD
Matrix: Water
Analysis Batch: 36823

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	87.0		25.0	110.0		mg/L		92	90 - 110	0	20

Lab Sample ID: MB 880-36661/1-A
Matrix: Solid
Analysis Batch: 36885

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.395	U	5.00	0.395	mg/Kg			10/13/22 15:47	1

Lab Sample ID: LCS 880-36661/2-A
Matrix: Solid
Analysis Batch: 36885

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	267.3		mg/Kg		107	90 - 110

Lab Sample ID: LCSD 880-36661/3-A
Matrix: Solid
Analysis Batch: 36885

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	254.7		mg/Kg		102	90 - 110	5	20

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 880-20128-A-21-B MS
Matrix: Solid
Analysis Batch: 36885

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	701	F1	248	910.5	F1	mg/Kg		85	90 - 110

Lab Sample ID: 880-20128-A-21-C MSD
Matrix: Solid
Analysis Batch: 36885

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	701	F1	248	901.2	F1	mg/Kg		81	90 - 110	1	20

QC Association Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

GC VOA

Analysis Batch: 36730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20129-7	MW-4	Total/NA	Water	8021B	
MB 880-36730/8	Method Blank	Total/NA	Water	8021B	
LCS 880-36730/3	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-36730/4	Lab Control Sample Dup	Total/NA	Water	8021B	
880-20129-7 MS	MW-4	Total/NA	Water	8021B	
880-20129-7 MSD	MW-4	Total/NA	Water	8021B	

Analysis Batch: 36866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20129-7	MW-4	Total/NA	Water	Total BTEX	

GC Semi VOA

Analysis Batch: 37194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20129-7	MW-4	Total/NA	Water	8015B NM	37209
MB 880-37209/1-A	Method Blank	Total/NA	Water	8015B NM	37209
LCS 880-37209/2-A	Lab Control Sample	Total/NA	Water	8015B NM	37209
LCSD 880-37209/3-A	Lab Control Sample Dup	Total/NA	Water	8015B NM	37209
880-20296-F-8-A MS	Matrix Spike	Total/NA	Water	8015B NM	37209
880-20296-F-8-B MSD	Matrix Spike Duplicate	Total/NA	Water	8015B NM	37209

Prep Batch: 37209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20129-7	MW-4	Total/NA	Water	8015NM Aq Prep	
MB 880-37209/1-A	Method Blank	Total/NA	Water	8015NM Aq Prep	
LCS 880-37209/2-A	Lab Control Sample	Total/NA	Water	8015NM Aq Prep	
LCSD 880-37209/3-A	Lab Control Sample Dup	Total/NA	Water	8015NM Aq Prep	
880-20296-F-8-A MS	Matrix Spike	Total/NA	Water	8015NM Aq Prep	
880-20296-F-8-B MSD	Matrix Spike Duplicate	Total/NA	Water	8015NM Aq Prep	

Analysis Batch: 37291

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20129-7	MW-4	Total/NA	Water	8015 NM	

HPLC/IC

Leach Batch: 36661

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20129-1	MW-4 (0-1')	Soluble	Solid	DI Leach	
880-20129-2	MW-4 (5')	Soluble	Solid	DI Leach	
880-20129-3	MW-4 (10')	Soluble	Solid	DI Leach	
MB 880-36661/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36661/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36661/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-20128-A-21-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-20128-A-21-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 36823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20129-7	MW-4	Total/NA	Water	300.0	
MB 880-36823/3	Method Blank	Total/NA	Water	300.0	

QC Association Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

HPLC/IC (Continued)

Analysis Batch: 36823 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-36823/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-36823/5	Lab Control Sample Dup	Total/NA	Water	300.0	
880-20237-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
880-20237-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 36885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20129-1	MW-4 (0-1')	Soluble	Solid	300.0	36661
880-20129-2	MW-4 (5')	Soluble	Solid	300.0	36661
880-20129-3	MW-4 (10')	Soluble	Solid	300.0	36661
MB 880-36661/1-A	Method Blank	Soluble	Solid	300.0	36661
LCS 880-36661/2-A	Lab Control Sample	Soluble	Solid	300.0	36661
LCSD 880-36661/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36661
880-20128-A-21-B MS	Matrix Spike	Soluble	Solid	300.0	36661
880-20128-A-21-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	36661

Lab Chronicle

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Client Sample ID: MW-4 (0-1')

Lab Sample ID: 880-20129-1
Matrix: Solid
Date Collected: 10/06/22 10:24
Date Received: 10/10/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	36661	10/11/22 10:10	KS	EET MID
Soluble	Analysis	300.0		1			36885	10/13/22 17:51	CH	EET MID

Client Sample ID: MW-4 (5')

Lab Sample ID: 880-20129-2
Matrix: Solid
Date Collected: 10/06/22 10:30
Date Received: 10/10/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	36661	10/11/22 10:10	KS	EET MID
Soluble	Analysis	300.0		1			36885	10/13/22 17:58	CH	EET MID

Client Sample ID: MW-4 (10')

Lab Sample ID: 880-20129-3
Matrix: Solid
Date Collected: 10/06/22 10:40
Date Received: 10/10/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	36661	10/11/22 10:10	KS	EET MID
Soluble	Analysis	300.0		1			36885	10/13/22 18:06	CH	EET MID

Client Sample ID: MW-4

Lab Sample ID: 880-20129-7
Matrix: Water
Date Collected: 10/06/22 11:35
Date Received: 10/10/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	36730	10/12/22 20:36	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			36866	10/13/22 11:37	AJ	EET MID
Total/NA	Analysis	8015 NM		1			37291	10/19/22 10:15	SM	EET MID
Total/NA	Prep	8015NM Aq Prep			32.8 mL	3 mL	37209	10/18/22 10:08	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37194	10/18/22 13:17	SM	EET MID
Total/NA	Analysis	300.0		10			36823	10/12/22 19:35	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0		Water	Chloride
8015 NM		Water	Total TPH
Total BTEX		Water	Total BTEX

Method Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
5030B	Purge and Trap	SW846	EET MID
8015NM Aq Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20129-1
SDG: Lea Co., NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
880-20129-1	MW-4 (0-1')	Solid	10/06/22 10:24	10/10/22 09:00	0-1'
880-20129-2	MW-4 (5')	Solid	10/06/22 10:30	10/10/22 09:00	5'
880-20129-3	MW-4 (10')	Solid	10/06/22 10:40	10/10/22 09:00	10'
880-20129-7	MW-4	Water	10/06/22 11:35	10/10/22 09:00	

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440 San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

WOI 880-20129 Chain of Custody

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Project Manager:	Cindy Crain	Bill to: (if different)	Leasa Hale
Company Name:	Crain Environmental	Company Name:	Southwest Royalties
Address:	2925 E. 17th St.	Address:	P.O. Box 53570
City, State ZIP:	Odessa, TX 79761	City, State ZIP:	Midland, TX 79710
Phone:	(575) 441-7244 Email:	Email:	Cindy.crain@gmail.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project: NM
Reporting Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables EDD ☐ ADaPT ☐ Other:

Project Name:	Flying M SA #2	Turn Around	☒ Routine ☐ Rush
Project Number:	—	Due Date.	
Project Location	Lea Co., NM	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Cindy Crain		
PO #	—		

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID	IR8
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-.20
Sample Custody Seals:	Yes No (N/A)	Temperature Reading	5.7
Total Containers.		Corrected Temperature:	5.9

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	TPH 8015	BTEX	Chlorides	Sample Comments
MW-4 (0-1')	S	10/6/22	1024	0-1'	C	1				X	
MW-4 (5')	S	10/6/22	1030	5'	C	1				X	
MW-4 (10')	S	10/6/22	1040	10'	C	1				X	
MW-4 (15')	S	10/6/22	1050	15'	C	1					HOLD
MW-4 (20')	S	10/6/22	1105	20'	C	1					HOLD
MW-4 (25')	S	10/6/22	1125	25'	C	1					HOLD
MW-4	GW	10/7/22	1135	-	G	6		X	X	X	

Preservative Codes

None NO DI Water H_2O
Cool Cool MeOH Me
HCL HC HNO_3 HN
H_2SO_4 H_2 NaOH Na
H_3PO_4 HP
$NaHSO_4$ NABIS
$Na_2S_2O_3$ $NaSO_3$
Zn Acetate+NaOH Zn
NaOH+Ascorbic Acid SAPC

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg 1631 / 245 1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Cindy Crain	[signature]	10/10/22 900	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Crain Environmental

Job Number: 880-20129-1
SDG Number: Lea Co., NM

Login Number: 20129
List Number: 1
Creator: Rodriguez, Leticia

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-20350-1
Laboratory Sample Delivery Group: Lea Co., NM
Client Project/Site: Flying M SA #2

For:
Crain Environmental
2925 E. 17th St.
Odessa, Texas 79761

Attn: Cindy Crain

JKramer

Authorized for release by:
10/19/2022 10:12:59 AM

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

Client: Crain Environmental
Project/Site: Flying M SA #2

Laboratory Job ID: 880-20350-1
SDG: Lea Co., NM

Table of Contents

Definitions/Glossary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Qualifiers

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Job ID: 880-20350-1

Laboratory: Eurofins Midland

Narrative

Job Narrative
880-20350-1

Receipt
The samples were received on 10/13/2022 1:35 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.4°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: MW-6 (880-20350-1), MW-6 (0-1') (880-20350-2), MW-6 (5') (880-20350-3), MW-6 (10') (880-20350-4), MW-6 (15') (880-20350-5), MW-6 (20') (880-20350-6), MW-6 (25') (880-20350-7), MW-5 (0-1') (880-20350-8), MW-5 (5') (880-20350-9), MW-5 (10') (880-20350-10), MW-5 (15') (880-20350-11), MW-5 (20') (880-20350-12) and MW-5 (25') (880-20350-13).

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-37209 and analytical batch 880-37194 was outside the upper control limits.

Method 8015MOD_NM: The method blank for preparation batch 880-37209 and analytical batch 880-37194 contained Gasoline Range Organics (GRO)-C6-C10 and Diesel Range Organics (Over C10-C28) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Client Sample ID: MW-6
Date Collected: 10/11/22 10:20
Date Received: 10/13/22 13:35

Lab Sample ID: 880-20350-1
Matrix: Water

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			10/14/22 18:46	1
Toluene	**0.000598**	**J**	0.00200	0.000367	mg/L			10/14/22 18:46	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			10/14/22 18:46	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			10/14/22 18:46	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			10/14/22 18:46	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			10/14/22 18:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*10/14/22 18:46*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*		*10/14/22 18:46*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.000657	U	0.00400	0.000657	mg/L			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<0.904	U	4.57	0.904	mg/L			10/19/22 10:15	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<0.904	U	4.57	0.904	mg/L		10/18/22 17:00	10/19/22 08:42	1
Diesel Range Organics (Over C10-C28)	<0.904	U	4.57	0.904	mg/L		10/18/22 17:00	10/19/22 08:42	1
OII Range Organics (Over C28-C36)	<0.872	U	4.57	0.872	mg/L		10/18/22 17:00	10/19/22 08:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*92*		*70 - 130*	*10/18/22 17:00*	*10/19/22 08:42*	*1*
o-Terphenyl	*107*		*70 - 130*	*10/18/22 17:00*	*10/19/22 08:42*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**28.5**		0.500	0.346	mg/L			10/13/22 22:33	1

Client Sample ID: MW-6 (0-1')
Date Collected: 10/07/22 16:50
Date Received: 10/13/22 13:35
Sample Depth: 0-1'

Lab Sample ID: 880-20350-2
Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**19.6**		4.99	0.394	mg/Kg			10/16/22 12:28	1

Client Sample ID: MW-6 (5')
Date Collected: 10/07/22 16:55
Date Received: 10/13/22 13:35
Sample Depth: 5'

Lab Sample ID: 880-20350-3
Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**19.0**		5.05	0.399	mg/Kg			10/16/22 12:33	1

Client Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Client Sample ID: MW-6 (10')
Lab Sample ID: 880-20350-4

Date Collected: 10/07/22 17:05
Matrix: Solid
Date Received: 10/13/22 13:35
Sample Depth: 10'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	23.4		5.02	0.397	mg/Kg			10/16/22 12:38	1

Client Sample ID: MW-5 (0-1')
Lab Sample ID: 880-20350-8

Date Collected: 10/06/22 13:00
Matrix: Solid
Date Received: 10/13/22 13:35
Sample Depth: 0-1'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17.9		4.99	0.394	mg/Kg			10/16/22 12:43	1

Client Sample ID: MW-5 (5')
Lab Sample ID: 880-20350-9

Date Collected: 10/06/22 13:05
Matrix: Solid
Date Received: 10/13/22 13:35
Sample Depth: 5'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.1		4.97	0.393	mg/Kg			10/16/22 12:47	1

Client Sample ID: MW-5 (10')
Lab Sample ID: 880-20350-10

Date Collected: 10/06/22 13:15
Matrix: Solid
Date Received: 10/13/22 13:35
Sample Depth: 10'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	113		5.02	0.397	mg/Kg			10/18/22 18:25	1

Surrogate Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
		BFB1	DFBZ1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
880-20298-A-1 MS	Matrix Spike	108	96										
880-20298-A-1 MSD	Matrix Spike Duplicate	106	100										
880-20350-1	MW-6	98	98										
LCS 880-36926/3	Lab Control Sample	92	109										
LCSD 880-36926/4	Lab Control Sample Dup	87	111										
MB 880-36926/8	Method Blank	85	98										

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
		1CO1	OTPH1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
880-20296-F-8-A MS	Matrix Spike	89	91										
880-20296-F-8-B MSD	Matrix Spike Duplicate	88	88										
880-20350-1	MW-6	92	107										
LCS 880-37209/2-A	Lab Control Sample	103	117										
LCSD 880-37209/3-A	Lab Control Sample Dup	95	108										
MB 880-37209/1-A	Method Blank	113	131 S1+										

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36926/8
Matrix: Water
Analysis Batch: 36926

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000408	U	0.00200	0.000408	mg/L			10/14/22 11:01	1
Toluene	<0.000367	U	0.00200	0.000367	mg/L			10/14/22 11:01	1
Ethylbenzene	<0.000657	U	0.00200	0.000657	mg/L			10/14/22 11:01	1
m-Xylene & p-Xylene	<0.000629	U	0.00400	0.000629	mg/L			10/14/22 11:01	1
o-Xylene	<0.000642	U	0.00200	0.000642	mg/L			10/14/22 11:01	1
Xylenes, Total	<0.000642	U	0.00400	0.000642	mg/L			10/14/22 11:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*70 - 130*		*10/14/22 11:01*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*		*10/14/22 11:01*	*1*

Lab Sample ID: LCS 880-36926/3
Matrix: Water
Analysis Batch: 36926

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1083		mg/L		108	70 - 130
Toluene	0.100	0.09381		mg/L		94	70 - 130
Ethylbenzene	0.100	0.08813		mg/L		88	70 - 130
m-Xylene & p-Xylene	0.200	0.1798		mg/L		90	70 - 130
o-Xylene	0.100	0.08784		mg/L		88	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*
1,4-Difluorobenzene (Surr)	*109*		*70 - 130*

Lab Sample ID: LCSD 880-36926/4
Matrix: Water
Analysis Batch: 36926

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1068		mg/L		107	70 - 130	1	20
Toluene	0.100	0.09102		mg/L		91	70 - 130	3	20
Ethylbenzene	0.100	0.08473		mg/L		85	70 - 130	4	20
m-Xylene & p-Xylene	0.200	0.1711		mg/L		86	70 - 130	5	20
o-Xylene	0.100	0.08371		mg/L		84	70 - 130	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*
1,4-Difluorobenzene (Surr)	*111*		*70 - 130*

Lab Sample ID: 880-20298-A-1 MS
Matrix: Water
Analysis Batch: 36926

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.000408	U	0.100	0.1085		mg/L		108	70 - 130
Toluene	0.000719	J	0.100	0.1033		mg/L		103	70 - 130

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-20298-A-1 MS
Matrix: Water
Analysis Batch: 36926

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.000657	U	0.100	0.1007		mg/L		101	70 - 130
m-Xylene & p-Xylene	0.00140	J	0.200	0.2135		mg/L		106	70 - 130
o-Xylene	0.00142	J	0.100	0.1054		mg/L		104	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*

Lab Sample ID: 880-20298-A-1 MSD
Matrix: Water
Analysis Batch: 36926

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.000408	U	0.100	0.1123		mg/L		112	70 - 130	3	25
Toluene	0.000719	J	0.100	0.1065		mg/L		106	70 - 130	3	25
Ethylbenzene	<0.000657	U	0.100	0.1038		mg/L		104	70 - 130	3	25
m-Xylene & p-Xylene	0.00140	J	0.200	0.2155		mg/L		107	70 - 130	1	25
o-Xylene	0.00142	J	0.100	0.1080		mg/L		107	70 - 130	2	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-37209/1-A
Matrix: Water
Analysis Batch: 37194

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37209

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	2.263	J	4.55	0.898	mg/L		10/18/22 10:08	10/18/22 11:15	1
Diesel Range Organics (Over C10-C28)	1.319	J	4.55	0.898	mg/L		10/18/22 10:08	10/18/22 11:15	1
OII Range Organics (Over C28-C36)	<0.867	U	4.55	0.867	mg/L		10/18/22 10:08	10/18/22 11:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*113*		*70 - 130*	*10/18/22 10:08*	*10/18/22 11:15*	*1*
o-Terphenyl	*131*	*S1+*	*70 - 130*	*10/18/22 10:08*	*10/18/22 11:15*	*1*

Lab Sample ID: LCS 880-37209/2-A
Matrix: Water
Analysis Batch: 37194

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37209

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	90.4	90.37		mg/L		100	75 - 125
Diesel Range Organics (Over C10-C28)	90.4	91.17		mg/L		101	75 - 125

Eurofins Midland

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-37209/2-A
Matrix: Water
Analysis Batch: 37194

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37209

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	103		70 - 130
o-Terphenyl	117		70 - 130

Lab Sample ID: LCSD 880-37209/3-A
Matrix: Water
Analysis Batch: 37194

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37209

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			90.6	85.33		mg/L		94	75 - 125	6	20
Diesel Range Organics (Over C10-C28)			90.6	85.39		mg/L		94	75 - 125	7	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	95		70 - 130
o-Terphenyl	108		70 - 130

Lab Sample ID: 880-20296-F-8-A MS
Matrix: Water
Analysis Batch: 37194

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37209

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<0.904	U F1	91.2	91.52		mg/L		100	75 - 125
Diesel Range Organics (Over C10-C28)	<0.904	U F1	91.2	77.49		mg/L		85	75 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	91		70 - 130

Lab Sample ID: 880-20296-F-8-B MSD
Matrix: Water
Analysis Batch: 37194

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37209

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<0.904	U F1	91.5	86.99		mg/L		95	75 - 125	5	20
Diesel Range Organics (Over C10-C28)	<0.904	U F1	91.5	75.07		mg/L		82	75 - 125	3	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	88		70 - 130
o-Terphenyl	88		70 - 130

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36899/3
Matrix: Water
Analysis Batch: 36899

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.346	U	0.500	0.346	mg/L			10/13/22 19:52	1

Lab Sample ID: LCS 880-36899/4
Matrix: Water
Analysis Batch: 36899

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			25.0	25.90		mg/L		104	90 - 110		

Lab Sample ID: LCSD 880-36899/5
Matrix: Water
Analysis Batch: 36899

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			25.0	26.03		mg/L		104	90 - 110	1	20

Lab Sample ID: 880-20312-A-1 MS
Matrix: Water
Analysis Batch: 36899

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	12.6		25.0	38.28		mg/L		103	90 - 110		

Lab Sample ID: 880-20312-A-1 MSD
Matrix: Water
Analysis Batch: 36899

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	12.6		25.0	38.39		mg/L		103	90 - 110	0	20

Lab Sample ID: MB 880-36935/1-A
Matrix: Solid
Analysis Batch: 37026

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.395	U	5.00	0.395	mg/Kg			10/16/22 10:22	1

Lab Sample ID: LCS 880-36935/2-A
Matrix: Solid
Analysis Batch: 37026

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	251.9		mg/Kg		101	90 - 110		

Lab Sample ID: LCSD 880-36935/3-A
Matrix: Solid
Analysis Batch: 37026

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	249.2		mg/Kg		100	90 - 110	1	20

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 890-3197-A-7-B MS
Matrix: Solid
Analysis Batch: 37026

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	1050		1240	2312		mg/Kg		102	90 - 110

Lab Sample ID: 890-3197-A-7-C MSD
Matrix: Solid
Analysis Batch: 37026

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1050		1240	2300		mg/Kg		101	90 - 110	1	20

Lab Sample ID: MB 880-36932/1-A
Matrix: Solid
Analysis Batch: 37029

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.395	U	5.00	0.395	mg/Kg			10/18/22 15:59	1

Lab Sample ID: LCS 880-36932/2-A
Matrix: Solid
Analysis Batch: 37029

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	242.3		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-36932/3-A
Matrix: Solid
Analysis Batch: 37029

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	241.7		mg/Kg		97	90 - 110	0	20

Lab Sample ID: 880-20339-A-11-B MS
Matrix: Solid
Analysis Batch: 37029

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	155		251	399.9		mg/Kg		98	90 - 110

Lab Sample ID: 880-20339-A-11-C MSD
Matrix: Solid
Analysis Batch: 37029

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	155		251	401.6		mg/Kg		99	90 - 110	0	20

QC Association Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

GC VOA

Analysis Batch: 36926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20350-1	MW-6	Total/NA	Water	8021B	
MB 880-36926/8	Method Blank	Total/NA	Water	8021B	
LCS 880-36926/3	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-36926/4	Lab Control Sample Dup	Total/NA	Water	8021B	
880-20298-A-1 MS	Matrix Spike	Total/NA	Water	8021B	
880-20298-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	

Analysis Batch: 37116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20350-1	MW-6	Total/NA	Water	Total BTEX	

GC Semi VOA

Analysis Batch: 37194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20350-1	MW-6	Total/NA	Water	8015B NM	37209
MB 880-37209/1-A	Method Blank	Total/NA	Water	8015B NM	37209
LCS 880-37209/2-A	Lab Control Sample	Total/NA	Water	8015B NM	37209
LCSD 880-37209/3-A	Lab Control Sample Dup	Total/NA	Water	8015B NM	37209
880-20296-F-8-A MS	Matrix Spike	Total/NA	Water	8015B NM	37209
880-20296-F-8-B MSD	Matrix Spike Duplicate	Total/NA	Water	8015B NM	37209

Prep Batch: 37209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20350-1	MW-6	Total/NA	Water	8015NM Aq Prep	
MB 880-37209/1-A	Method Blank	Total/NA	Water	8015NM Aq Prep	
LCS 880-37209/2-A	Lab Control Sample	Total/NA	Water	8015NM Aq Prep	
LCSD 880-37209/3-A	Lab Control Sample Dup	Total/NA	Water	8015NM Aq Prep	
880-20296-F-8-A MS	Matrix Spike	Total/NA	Water	8015NM Aq Prep	
880-20296-F-8-B MSD	Matrix Spike Duplicate	Total/NA	Water	8015NM Aq Prep	

Analysis Batch: 37294

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20350-1	MW-6	Total/NA	Water	8015 NM	

HPLC/IC

Analysis Batch: 36899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20350-1	MW-6	Total/NA	Water	300.0	
MB 880-36899/3	Method Blank	Total/NA	Water	300.0	
LCS 880-36899/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-36899/5	Lab Control Sample Dup	Total/NA	Water	300.0	
880-20312-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
880-20312-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Leach Batch: 36932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20350-10	MW-5 (10')	Soluble	Solid	DI Leach	
MB 880-36932/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36932/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36932/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

QC Association Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

HPLC/IC (Continued)

Leach Batch: 36932 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20339-A-11-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-20339-A-11-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Leach Batch: 36935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20350-2	MW-6 (0-1')	Soluble	Solid	DI Leach	
880-20350-3	MW-6 (5')	Soluble	Solid	DI Leach	
880-20350-4	MW-6 (10')	Soluble	Solid	DI Leach	
880-20350-8	MW-5 (0-1')	Soluble	Solid	DI Leach	
880-20350-9	MW-5 (5')	Soluble	Solid	DI Leach	
MB 880-36935/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36935/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36935/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3197-A-7-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3197-A-7-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 37026

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20350-2	MW-6 (0-1')	Soluble	Solid	300.0	36935
880-20350-3	MW-6 (5')	Soluble	Solid	300.0	36935
880-20350-4	MW-6 (10')	Soluble	Solid	300.0	36935
880-20350-8	MW-5 (0-1')	Soluble	Solid	300.0	36935
880-20350-9	MW-5 (5')	Soluble	Solid	300.0	36935
MB 880-36935/1-A	Method Blank	Soluble	Solid	300.0	36935
LCS 880-36935/2-A	Lab Control Sample	Soluble	Solid	300.0	36935
LCSD 880-36935/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36935
890-3197-A-7-B MS	Matrix Spike	Soluble	Solid	300.0	36935
890-3197-A-7-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	36935

Analysis Batch: 37029

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-20350-10	MW-5 (10')	Soluble	Solid	300.0	36932
MB 880-36932/1-A	Method Blank	Soluble	Solid	300.0	36932
LCS 880-36932/2-A	Lab Control Sample	Soluble	Solid	300.0	36932
LCSD 880-36932/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36932
880-20339-A-11-B MS	Matrix Spike	Soluble	Solid	300.0	36932
880-20339-A-11-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	36932

Lab Chronicle

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Client Sample ID: MW-6
Date Collected: 10/11/22 10:20
Date Received: 10/13/22 13:35

Lab Sample ID: 880-20350-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	36926	10/14/22 18:46	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37116	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			37294	10/19/22 10:15	SM	EET MID
Total/NA	Prep	8015NM Aq Prep			32.8 mL	3 mL	37209	10/18/22 17:00	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37194	10/19/22 08:42	SM	EET MID
Total/NA	Analysis	300.0		1			36899	10/13/22 22:33	CH	EET MID

Client Sample ID: MW-6 (0-1')
Date Collected: 10/07/22 16:50
Date Received: 10/13/22 13:35

Lab Sample ID: 880-20350-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.01 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		1			37026	10/16/22 12:28	CH	EET MID

Client Sample ID: MW-6 (5')
Date Collected: 10/07/22 16:55
Date Received: 10/13/22 13:35

Lab Sample ID: 880-20350-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.95 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		1			37026	10/16/22 12:33	CH	EET MID

Client Sample ID: MW-6 (10')
Date Collected: 10/07/22 17:05
Date Received: 10/13/22 13:35

Lab Sample ID: 880-20350-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		1			37026	10/16/22 12:38	CH	EET MID

Client Sample ID: MW-5 (0-1')
Date Collected: 10/06/22 13:00
Date Received: 10/13/22 13:35

Lab Sample ID: 880-20350-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.01 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		1			37026	10/16/22 12:43	CH	EET MID

Client Sample ID: MW-5 (5')
Date Collected: 10/06/22 13:05
Date Received: 10/13/22 13:35

Lab Sample ID: 880-20350-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.03 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		1			37026	10/16/22 12:47	CH	EET MID

Eurofins Midland

Lab Chronicle

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Client Sample ID: MW-5 (10')

Date Collected: 10/06/22 13:15
Date Received: 10/13/22 13:35

Lab Sample ID: 880-20350-10

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	36932	10/14/22 08:52	KS	EET MID
Soluble	Analysis	300.0		1			37029	10/18/22 18:25	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0		Water	Chloride
8015 NM		Water	Total TPH
Total BTEX		Water	Total BTEX

Method Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
5030B	Purge and Trap	SW846	EET MID
8015NM Aq Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-20350-1
SDG: Lea Co., NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
880-20350-1	MW-6	Water	10/11/22 10:20	10/13/22 13:35	
880-20350-2	MW-6 (0-1')	Solid	10/07/22 16:50	10/13/22 13:35	0-1'
880-20350-3	MW-6 (5')	Solid	10/07/22 16:55	10/13/22 13:35	5'
880-20350-4	MW-6 (10')	Solid	10/07/22 17:05	10/13/22 13:35	10'
880-20350-8	MW-5 (0-1')	Solid	10/06/22 13:00	10/13/22 13:35	0-1'
880-20350-9	MW-5 (5')	Solid	10/06/22 13:05	10/13/22 13:35	5'
880-20350-10	MW-5 (10')	Solid	10/06/22 13:15	10/13/22 13:35	10'

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440 San Antonio, TX (210) 509-3334
EL Paso TX (915) 585-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392 7550, Carlsbad, NM (575) 988-3199

880-20350 Chain of Custody

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Project Manager:	Cindy Crain	Bill to: (if different)	Leasa Hale
Company Name:	Crain Environmental	Company Name:	Southwest Royalties
Address:	2925 E. 17th St.	Address:	P.O. Box 53570
City, State ZIP:	Odessa, TX 79761	City, State ZIP:	Midland, TX 79710
Phone:	(575) 441-7244	Email:	Cindy.crain@gmail.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project: NM
Reporting Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables EDD ☐ ADaPT ☐ Other:

Project Name:	Flying M SA #2	Turn Around	
Project Number:	-	☒ Routine ☐ Rush	
Project Location	Lea Co., NM	Due Date:	
Sampler's Name:	Cindy Crain	TAT starts the day received by the lab, if received by 4.30pm	
PO #	-		

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Samples Received Intact:	Yes No	Thermometer ID:	IR8	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-.20	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	5.2	
Total Containers:		Corrected Temperature:	5.4	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	BTEX	TPH 8015M	Chlorides	Sample Comments
MW-6	GW	10/11/22	1020	-	-	6	X	X	X	
MW-6 (0-1')	S	10/7/22	1650	0-1'	C	1			X	
MW-6 (5')	S	"	1655	5'	C	1			X	
MW-6 (10')	S	"	1705	10'	C	1			X	
MW-6 (15')	S	"	1720	15'	C	1				HOLD
MW-6 (20')	S	10/8/22	0945	20'	C	1				HOLD
MW-6 (25')	S	"	0958	25'	C	1				HOLD
MW-5 (0-1')	S	10/6/22	1300	0-1'	C	1			X	Hcc
MW-5 (5')	S	10/6/22	1305	5'	C	1			X	
MW-5 (10')	S	10/6/22	1315	10'	C	1			X	

Preservative Codes

None NO | DI Water H_2O
Cool Cool | MeOH Me
HCL HC | HNO_3 HN
H_2SO_4 H_2 | NaOH Na
H_3PO_4 HP
$NaHSO_4$ NABIS
$Na_2S_2O_3$ $NaSO_3$
Zn Acetate+NaOH Zn
NaOH+Ascorbic Acid SAPC

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg 1631 / 245 1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Cindy Crain		10/13/22 1335	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550 Carlsbad, NM (575) 988-3199

Work Order No: 20350

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Project Manager:	Cindy Crain	Bill to: (if different)	Leasa Hale
Company Name:	Crain Environmental	Company Name:	SWR
Address:	2925 E. 17th St.	Address:	P.O. Box 53570
City, State ZIP:	Odessa, TX 79761	City, State ZIP:	Midland, TX 79710
Phone:	(575) 441-7244 Email		Cindy.crain@gmail.com

Work Order Comments

Program. UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project: NM
Reporting Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables EDD ☐ ADaPT ☐ Other:

Project Name:	Flying M SA #2	Turn Around	
Project Number:	—	☒ Routine ☐ Rush	
Project Location	Lea Co., NM	Due Date:	
Sampler's Name:	Cindy Crain	TAT starts the day received by the lab, if received by 4:30pm	
PO #	—		

SAMPLE RECEIPT			
Temp Blank:	Yes No	Wet Ice:	Yes No
Samples Received Intact:	Yes No	Thermometer ID:	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	
Sample Custody Seals.	Yes No N/A	Temperature Reading	
Total Containers.		Corrected Temperature:	

Preservative Codes

None NO | DI Water H_2O
Cool Cool | MeOH Me
HCL. HC | HNO_3 HN
H_2SO_4 H_2 | NaOH Na
H_3PO_4 HP
NaHSO 4. NABIS
$Na_2S_2O_3$ NaSO 3
Zn Acetate+NaOH Zn
NaOH+Ascorbic Acid SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: HOLD	Sample Comments
MW-5 (15')	S	10/6/22	1325	15'	C	1		X	
MW-5 (20')	S	10/7/22	1230	20'	C	1		X	
MW-5 (25')	S	10/7/22	1240	25'	C	1		X	Loc: 880 20350

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg 1631 / 245 1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of $85.00 will be applied to each project and a charge of $5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Cindy Crain		10/13/22 1335	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Crain Environmental

Job Number: 880-20350-1
SDG Number: Lea Co., NM

Login Number: 20350
List Number: 1
Creator: Rodriguez, Leticia

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Cindy Crain
Crain Environmental
2925 E. 17th St.
Odessa Texas 79761

Generated 11/17/2022 1:09:28 PM

JOB DESCRIPTION

Flying M SA #2
SDG NUMBER Lea Co, NM

JOB NUMBER

880-21500-1

Eurofins Midland
1211 W. Florida Ave
Midland TX 79701

my EOL

Client: Crain Environmental
Project/Site: Flying M SA #2

Laboratory Job ID: 880-21500-1
SDG: Lea Co, NM

Table of Contents

Definitions/Glossary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-21500-1
SDG: Lea Co, NM

Qualifiers

HPLC/IC

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-21500-1
SDG: Lea Co, NM

Job ID: 880-21500-1

Laboratory: Eurofins Midland

Narrative

Job Narrative
880-21500-1

Receipt
The sample was received on 11/14/2022 8:03 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.1°C

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for analytical batch 880-39756 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-21500-1
SDG: Lea Co, NM

Client Sample ID: MW-6

Date Collected: 11/10/22 14:25
Date Received: 11/14/22 08:03

Lab Sample ID: 880-21500-1

Matrix: Water

Method: MCAWW 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1910	F1	25.0	17.3	mg/L			11/16/22 23:00	50

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-21500-1
SDG: Lea Co, NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-39756/3
Matrix: Water
Analysis Batch: 39756

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.346	U	0.500	0.346	mg/L			11/16/22 22:38	1

Lab Sample ID: LCS 880-39756/4
Matrix: Water
Analysis Batch: 39756

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			25.0	25.65		mg/L		103	90 - 110		

Lab Sample ID: LCSD 880-39756/5
Matrix: Water
Analysis Batch: 39756

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			25.0	25.68		mg/L		103	90 - 110	0	20

Lab Sample ID: 880-21500-1 MS
Matrix: Water
Analysis Batch: 39756

Client Sample ID: MW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1910	F1	1250	4322	F1	mg/L		193	90 - 110		

Lab Sample ID: 880-21500-1 MSD
Matrix: Water
Analysis Batch: 39756

Client Sample ID: MW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1910	F1	1250	4335	F1	mg/L		194	90 - 110	0	20

QC Association Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-21500-1
SDG: Lea Co, NM

HPLC/IC

Analysis Batch: 39756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-21500-1	MW-6	Total/NA	Water	300.0	
MB 880-39756/3	Method Blank	Total/NA	Water	300.0	
LCS 880-39756/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-39756/5	Lab Control Sample Dup	Total/NA	Water	300.0	
880-21500-1 MS	MW-6	Total/NA	Water	300.0	
880-21500-1 MSD	MW-6	Total/NA	Water	300.0	

Lab Chronicle

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-21500-1
SDG: Lea Co, NM

Client Sample ID: MW-6

Date Collected: 11/10/22 14:25
Date Received: 11/14/22 08:03

Lab Sample ID: 880-21500-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			39756	11/16/22 23:00	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-21500-1
SDG: Lea Co, NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0		Water	Chloride

Method Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-21500-1
SDG: Lea Co, NM

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET MID

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-21500-1
SDG: Lea Co, NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-21500-1	MW-6	Water	11/10/22 14:25	11/14/22 08:03

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440 San Antonio, TX (210) 509-3334
EL Paso TX (915) 585-3443 Lubbock, TX (806) 794-1296
Hobbs NM (575) 392 7550, Carlsbad, NM (575) 988-3199

Work Order No: 21500

www.xenco.com Page 1 of 1

Project Manager:	Cindy Crain	Bill to: (if different)	Leasa Hale
Company Name:	Crain Environmental	Company Name:	SWR
Address:	2925 E. 17th St.	Address:	P.O. Box 53570
City, State ZIP:	Odessa, TX 79761	City, State ZIP:	Midland, TX 79710
Phone	(575) 441-7244 Email		Cindy.crain@gmail.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project: NM
Reporting Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables. EDD ☐ ADaPT ☐ Other:

Project Name:	Flying M SA #2	Turn Around	
Project Number:	-	☒ Routine ☐ Rush	
Project Location.	Lea Co, NM	Due Date:	
Sampler's Name:	Cindy Crain	TAT starts the day received by the lab, if received by 4.30pm	
PO #	-		

SAMPLE RECEIPT			
Temp Blank.	Yes (No)	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	IR8
Cooler Custody Seals.	Yes No (N/A)	Correction Factor:	-0.3
Sample Custody Seals:	Yes No (N/A)	Temperature Reading	0.4
Total Containers.		Corrected Temperature:	0.1

ANALYSIS REQUEST

Preservative Codes

None NO — DI Water H_2O
Cool Cool — MeOH Me
HCL HC — HNO_3 HN
H_2SO_4 H_2 — NaOH Na
H_3PO_4 HP
$NaHSO_4$ NABIS
$Na_2S_2O_3$ $NaSO_3$
Zn Acetate+NaOH Zn
NaOH+Ascorbic Acid SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: Chlorides	Sample Comments
MW-6	GW	11/10/22	1425	-	-	1		X	

880-21500 Chain of Custody

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg 1631 / 245 1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of $85.00 will be applied to each project and a charge of $5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Cindy Crain		11/14/22 0803	2		
3					
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Crain Environmental

Job Number: 880-21500-1
SDG Number: Lea Co, NM

Login Number: 21500
List Number: 1
Creator: Rodriguez, Leticia

List Source: Eurofins Midland

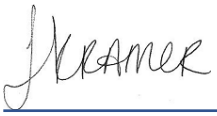
Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Eurofins Midland

Job Notes

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

Authorization



Generated
11/17/2022 1:09:28 PM

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

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ANALYTICAL REPORT

PREPARED FOR

Attn: Cindy Crain
Crain Environmental
2925 E. 17th St.
Odessa, Texas 79761

Generated 3/26/2023 7:41:12 AM

JOB DESCRIPTION

Flying M SA #2
SDG NUMBER Lea Co., NM

JOB NUMBER

880-25907-1

Eurofins Midland
1211 W. Florida Ave
Midland TX 79701

See page two for job notes and contact information.

my EOL

Eurofins Midland

Job Notes

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

Authorization

Generated
3/26/2023 7:41:12 AM

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

Client: Crain Environmental
Project/Site: Flying M SA #2

Laboratory Job ID: 880-25907-1
SDG: Lea Co., NM

Table of Contents

Definitions/Glossary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-25907-1
SDG: Lea Co., NM

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-25907-1
SDG: Lea Co., NM

Job ID: 880-25907-1

Laboratory: Eurofins Midland

Narrative

Job Narrative
880-25907-1

Receipt
The samples were received on 3/14/2023 2:42 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.3°C

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-25907-1
SDG: Lea Co., NM

Client Sample ID: MW-1
Lab Sample ID: 880-25907-1
Date Collected: 03/13/23 12:45
Matrix: Water
Date Received: 03/14/23 14:42

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1330		25.0	17.3	mg/L			03/18/23 20:03	50

Client Sample ID: MW-2
Lab Sample ID: 880-25907-2
Date Collected: 03/13/23 11:05
Matrix: Water
Date Received: 03/14/23 14:42

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2000		25.0	17.3	mg/L			03/18/23 20:19	50

Client Sample ID: MW-3
Lab Sample ID: 880-25907-3
Date Collected: 03/13/23 13:30
Matrix: Water
Date Received: 03/14/23 14:42

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	207		5.00	3.46	mg/L			03/18/23 20:24	10

Client Sample ID: MW-4
Lab Sample ID: 880-25907-4
Date Collected: 03/13/23 10:00
Matrix: Water
Date Received: 03/14/23 14:42

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	273		5.00	3.46	mg/L			03/18/23 20:29	10

Client Sample ID: MW-6
Lab Sample ID: 880-25907-5
Date Collected: 03/13/23 14:10
Matrix: Water
Date Received: 03/14/23 14:42

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	234		2.50	1.73	mg/L			03/18/23 20:34	5

QC Sample Results

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-25907-1
SDG: Lea Co., NM

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-48893/3
Matrix: Water
Analysis Batch: 48893

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.346	U	0.500	0.346	mg/L			03/18/23 19:48	1

Lab Sample ID: LCS 880-48893/4
Matrix: Water
Analysis Batch: 48893

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	25.0	26.22		mg/L		105	90 - 110

Lab Sample ID: LCSD 880-48893/5
Matrix: Water
Analysis Batch: 48893

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	25.0	26.00		mg/L		104	90 - 110	1	20

Lab Sample ID: 880-25907-1 MS
Matrix: Water
Analysis Batch: 48893

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	1330		1250	2579		mg/L		100	90 - 110

Lab Sample ID: 880-25907-1 MSD
Matrix: Water
Analysis Batch: 48893

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1330		1250	2570		mg/L		99	90 - 110	0	20

QC Association Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-25907-1
SDG: Lea Co., NM

HPLC/IC

Analysis Batch: 48893

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-25907-1	MW-1	Total/NA	Water	300.0	
880-25907-2	MW-2	Total/NA	Water	300.0	
880-25907-3	MW-3	Total/NA	Water	300.0	
880-25907-4	MW-4	Total/NA	Water	300.0	
880-25907-5	MW-6	Total/NA	Water	300.0	
MB 880-48893/3	Method Blank	Total/NA	Water	300.0	
LCS 880-48893/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-48893/5	Lab Control Sample Dup	Total/NA	Water	300.0	
880-25907-1 MS	MW-1	Total/NA	Water	300.0	
880-25907-1 MSD	MW-1	Total/NA	Water	300.0	

Lab Chronicle

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-25907-1
SDG: Lea Co., NM

Client Sample ID: MW-1
Date Collected: 03/13/23 12:45
Date Received: 03/14/23 14:42

Lab Sample ID: 880-25907-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50	10 mL	10 mL	48893	03/18/23 20:03	SMC	EET MID

Client Sample ID: MW-2
Date Collected: 03/13/23 11:05
Date Received: 03/14/23 14:42

Lab Sample ID: 880-25907-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50	10 mL	10 mL	48893	03/18/23 20:19	SMC	EET MID

Client Sample ID: MW-3
Date Collected: 03/13/23 13:30
Date Received: 03/14/23 14:42

Lab Sample ID: 880-25907-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	10 mL	10 mL	48893	03/18/23 20:24	SMC	EET MID

Client Sample ID: MW-4
Date Collected: 03/13/23 10:00
Date Received: 03/14/23 14:42

Lab Sample ID: 880-25907-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	10 mL	10 mL	48893	03/18/23 20:29	SMC	EET MID

Client Sample ID: MW-6
Date Collected: 03/13/23 14:10
Date Received: 03/14/23 14:42

Lab Sample ID: 880-25907-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	10 mL	10 mL	48893	03/18/23 20:34	SMC	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-25907-1
SDG: Lea Co., NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-25	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0		Water	Chloride

Method Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-25907-1
SDG: Lea Co., NM

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET MID

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Crain Environmental
Project/Site: Flying M SA #2

Job ID: 880-25907-1
SDG: Lea Co., NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-25907-1	MW-1	Water	03/13/23 12:45	03/14/23 14:42
880-25907-2	MW-2	Water	03/13/23 11:05	03/14/23 14:42
880-25907-3	MW-3	Water	03/13/23 13:30	03/14/23 14:42
880-25907-4	MW-4	Water	03/13/23 10:00	03/14/23 14:42
880-25907-5	MW-6	Water	03/13/23 14:10	03/14/23 14:42

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Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440 San Antonio, TX (210) 509-3334
EL Paso TX (915) 585-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392 7550 Carlsbad, NM (575) 988-3199

Work Order No: 25907

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Project Manager:	Cindy Crain	Bill to: (if different)	Leasa Hale
Company Name:	Crain Environmental	Company Name:	Southwest Royalties
Address:	2925 E. 17th St.	Address	P.O. Box 53570
City, State ZIP:	Odessa, TX 79761	City, State ZIP:	Midland, TX 79710
Phone:	(575) 441-7244 Email	Email	Cindy.crain@gmail.com

Work Order Comments

Program UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project: NM
Reporting Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables. EDD ☐ ADaPT ☐ Other:

Project Name:	Flying M SA #2	Turn Around	
Project Number:	-	☒ Routine ☐ Rush	
Project Location:	Lea Co. NM	Due Date	3/21/23
Sampler's Name:	Cindy Crain	TAT starts the day received by the lab, if received by 4.30pm	
PO #	-		

SAMPLE RECEIPT				
Temp Blank.	Yes (No)	Wet Ice:	(Yes) No	
Samples Received Intact:	(Yes) No	Thermometer ID:	IR8	
Cooler Custody Seals.	Yes No (N/A)	Correction Factor:	-.30	
Sample Custody Seals.	Yes No (N/A)	Temperature Reading	5.1	
Total Containers.		Corrected Temperature:	5.3	

ANALYSIS REQUEST

Parameters: chlorides

Preservative Codes

None NO DI Water H_2O
Cool Cool MeOH Me
HCL. HC HNO_3 HN
H_2SO_4 H_2 NaOH Na
H_3PO_4 HP
$NaHSO_4$ NABIS
$Na_2S_2O_3$ $NaSO_3$
Zn Acetate+NaOH Zn
NaOH+Ascorbic Acid SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Sample Comments
MW-1	GW	3/13/23	1245	-	-	1		
MW-2	GW		1105	-	-	1		
MW-3	GW		1330	-	-	1		
MW-4	GW		1000	-	-	1		
MW-6	GW		1410	-	-	1		

880-25907 Chain of Custody

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg 1631 / 245 1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of $85.00 will be applied to each project and a charge of $5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Cindy Crain		3/14/23 1442	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev 2020.2

Login Sample Receipt Checklist

Client: Crain Environmental

Job Number: 880-25907-1
SDG Number: Lea Co., NM

Login Number: 25907
List Number: 1
Creator: Rodriguez, Leticia

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Appendix D: Soil Boring Logs

SOIL BORING LOG

Page 1 of 4

Boring/Well Number: BH-1	Permit Number: NMOSE File Nbr: L 15278	
Site Name: Southwest Royalties, Inc. Flying M SA Unit 4" Trunk Line	Borehole Start Date: 03/24/22 End Date: 03/24/22	Borehole Start Time: 1520 ☐ AM ☑ PM End Time: ☐ AM ☐ PM
Environmental Contractor: Crain Environmental	Geologist's Name: Cindy Crain	Environmental Technician's Name: None

Drilling Company: Talon LPE	Pavement Thickness (inches): 0.00	Borehole Diameter (inches): 6	Borehole Depth (feet): 57
Drilling Method(s): Air Rotary	Apparent Borehole DTW (in feet from soil moisture content): 34	Measured Well DTW (in feet after water recharges in well): 42.37	OVA (list model and check type): ☐ FID ☐ PID

Disposition of Drill Cuttings [check method(s)]: ☐ Drum ☐ Spread ☐ Backfill ☑ Stockpile ☐ Other

(describe if other or multiple items are checked):

Borehole Completion (check one): ☐ Well ☐ Grout ☐ Bentonite ☑ Backfill ☑ Other (describe)

Groundwater was encountered and a sample collected. The boring will be filled with bentonite when lab results are received.

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)	Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
				1	Light red, well sorted sand. Fine to medium grained. No odors or staining. Dry.	SW	D	
				2				
				3				
				4				
SS	4.5-5	18	1,636	5	Light red, well sorted sand. Fine to medium grained. No odors or staining. Dry.	SW	D	
				6				
				7				
				8				
				9				
DC	9-10	18	2,493	10	Light red, well sorted sand. Fine to medium grained. No odors or staining. Dry.	SW	D	
				11	Light tan to white, fine grained, brittle sandstone, hard. No odors or staining. Dry.	SS	D	
				12				

Grain Environmental

SOIL BORING LOG

Boring/Well Number:	Permit Number: L 15278	Site Name: Southwest Royalties	Borehole Start Date:	03/24/22
BH-1		Flying M SA Unit 4" Trunkline	End Date:	03/24/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							13	Light tan to white, fine grained, brittle sandstone, hard. No odors or staining. Dry.	SS	D	
							14				
							15				
							16				
							17				
							18				
							19				
DC	19-20	18	4,059				20	Light tan to white, fine grained, brittle sandstone, hard. No odor or staining. Dry.	SS	D	
							21				
							22				
							23				
							24	Grayish green, clayey sand, well sorted. No odor or staining. Dry.	SC	D	
							25				
							26				
							27				
							28				
							29				
DC	29-30	18	1,016				30	Grayish green, clayey sand, well sorted. No odor or staining. Dry.	SC	D	

Grain Environmental

SOIL BORING LOG

Boring/Well Number:	Permit Number:	Site Name:	Borehole Start Date:
BH-1	L 15278	Southwest Royalties Flying M SA Unit 4" Trunkline	03/24/22
			End Date: 03/24/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)	Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
				31				
				32				
				33	Grayish green, clayey sand, well sorted. No odor or staining. Moist.	SC	M	
				34				
				35				
				36				
				37				
				38				
				39				
DC	39-40	18	<279	40	Orangish red, well sorted sand. No odor or staining. Moist.	SW	M	
				41				
				42				
				43	Depth to Water (3/29/22) = 42.37'			
				44				
				45	Gravelly, medium sorted, silty sand. No odor or staining. Dry.	SP	D	
				46				
				47				
				48				

Grain Environmental

SOIL BORING LOG

Boring/Well Number:	Permit Number:	Site Name:	Borehole Start Date:
BH-1	L 15278	Southwest Royalties Flying M SA Unit 4" Trunkline	03/24/22
			End Date: 03/24/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)	Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
DC	49-50	18	<279	49	Gravelly, medium sorted, silty sand. No odor or staining. Dry.	SP	D	
				50				
				51				
				52				
				53				
				54	Dark red, silty clay. Non-plastic. No odor or staining. Dry	CL	D	
				55				
				56				
				57	Total Depth of Boring			

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings

Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

SOIL BORING LOG

Page 1 of 4

Boring/Well Number: BH-2	Permit Number: NMOSE File Nbr: L 15278			
Site Name: Southwest Royalties, Inc. Flying M SA Unit 4" Trunk Line	Borehole Start Date: 05/05/22 End Date: 05/05/22	Borehole Start Time: 1030 ☑ AM ☐ PM End Time: 1230 ☐ AM ☑ PM		
Environmental Contractor: Crain Environmental	Geologist's Name: Cindy Crain	Environmental Technician's Name: None		
Drilling Company: Talon LPE	Pavement Thickness (inches): 0.00	Borehole Diameter (inches): 6	Borehole Depth (feet): 53	
Drilling Method(s): Air Rotary	Apparent Borehole DTW (in feet from soil moisture content): 41	Measured Well DTW (in feet after water recharges in well): 46.30	OVA (list model and check type): ☐ FID ☐ PID	

Disposition of Drill Cuttings [check method(s)]: ☐ Drum ☐ Spread ☐ Backfill ☑ Stockpile ☐ Other

(describe if other or multiple items are checked):

Borehole Completion (check one): ☐ Well ☐ Grout ☐ Bentonite ☑ Backfill ☑ Other (describe)

Groundwater was encountered and a sample collected. The boring will be either plugged or completed as a MW.

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							1	Light red, well sorted sand. Fine to medium grained. No odors or staining. Dry.	SW	D	
							2				
							3				
							4				
							5				
							6				
							7				
							8				
							9				
							10				
							11				
							12				

SOIL BORING LOG

Boring/Well Number: BH-2	Permit Number: L 15278	Site Name: Southwest Royalties Flying M SA Unit 4" Trunkline	Borehole Start Date: 05/05/22 End Date: 05/05/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							13	Light red, well sorted sand. Fine to medium grained. No odors or staining. Dry.	SS	D	
							14				
							15	Light tan to white, fine grained, brittle sandstone, hard. No odor or staining. Dry.			
							16				
							17				
							18				
							19				
							20		SS	D	
							21				
							22				
							23				
							24	Grayish green, clayey sand, well sorted. No odor or staining. Dry.	SC	D	
							25				
							26				
							27				
							28				
							29	Orangish red, well sorted sand. No odor or staining. Dry.	SC	M	
							30				

SOIL BORING LOG

Boring/Well Number:	Permit Number:	Site Name:	Borehole Start Date:
BH-2	L 15278	Southwest Royalties Flying M SA Unit 4" Trunkline	05/05/22
			End Date: 05/05/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)	Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
				31	Orangish red, well sorted sand. No odor or staining. Dry.	SC	M	
				32				
				33				
				34				
				35				
				36				
				37				
				38				
				39				
				40		SW	M	
				41	Light tan, well sorted sand. No odor or staining. Damp.			
				42				
				43				
				44				
				45				
				46	Depth to Water (5/19/22) = 46.30'			
				47				
				48				

SOIL BORING LOG

Page 4 of 4

Boring/Well Number: BH-2	Permit Number: L 15278	Site Name: Southwest Royalties Flying M SA Unit 4" Trunkline	Borehole Start Date: 05/05/22 End Date: 05/05/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)	Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
				49	Light tan, well sorted sand. No odor or staining. Moist.			
				50	Gravelly, medium sorted, silty sand. No odor or staining. Dry.	SP	D	
				51				
				52				
				53	Dark red, silty clay. Non-plastic. No odor or staining. Dry	CL	D	
				54	Total Depth of Boring = 53'			
				55				
				56				
				57				

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings

Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

SOIL BORING LOG

Page 1 of 4

Boring/Well Number: BH-3	Permit Number: NMOSE File Nbr: L 15278			
Site Name: Southwest Royalties, Inc. Flying M SA Unit 4" Trunk Line	Borehole Start Date: 05/05/22 End Date: 05/05/22	Borehole Start Time: 1320 ☑ AM ☐ PM End Time: 1520 ☐ AM ☑ PM		
Environmental Contractor: Crain Environmental	Geologist's Name: Cindy Crain	Environmental Technician's Name: None		
Drilling Company: Talon LPE	Pavement Thickness (inches): 0.00	Borehole Diameter (inches): 6	Borehole Depth (feet): 57	
Drilling Method(s): Air Rotary	Apparent Borehole DTW (in feet from soil moisture content): 44	Measured Well DTW (in feet after water recharges in well): 48.33	OVA (list model and check type): ☐ FID ☐ PID	

Disposition of Drill Cuttings [check method(s)]: ☐ Drum ☐ Spread ☐ Backfill ☑ Stockpile ☐ Other

(describe if other or multiple items are checked):

Borehole Completion (check one): ☐ Well ☐ Grout ☐ Bentonite ☑ Backfill ☑ Other (describe)

Groundwater was encountered and a sample collected. The boring will be either plugged or completed as a MW.

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							1	Light red, well sorted sand. Fine to medium grained. No odors or staining. Dry.	SW	D	
							2				
							3				
							4	Light tan to white, fine grained, brittle sandstone, hard. No odors or staining. Dry.	SS	D	
							5				
							6				
							7				
							8				
							9				
							10				
							11				
							12				

SOIL BORING LOG

Boring/Well Number:	Permit Number:	Site Name:	Borehole Start Date:
BH-3	L 15278	Southwest Royalties Flying M SA Unit 4" Trunkline	05/05/22
			End Date: 05/05/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							13	Light tan to white, fine grained, brittle sandstone, hard. No odor or staining. Dry.	SS	D	
							14				
							15				
							16				
							17				
							18				
							19				
							20		SS	D	
							21				
							22				
							23				
							24	Orangish red, well sorted sand. No odor or staining. Dry.	SC	M	
							25				
							26				
							27				
							28				
							29				
							30				

SOIL BORING LOG

Boring/Well Number:	Permit Number:	Site Name:	Borehole Start Date:
BH-3	L 15278	Southwest Royalties Flying M SA Unit 4" Trunkline	05/05/22
			End Date: 05/05/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							31	Orangish red, well sorted sand. No odor or staining. Dry.	SC	M	
							32				
							33				
							34				
							35				
							36				
							37				
							38				
							39				
							40				
							41				
							42				
							43	Damp			
							44				
							45				
							46				
							47				
							48				

SOIL BORING LOG

Page 4 of 4

Boring/Well Number: BH-3	Permit Number: L 15278	Site Name: Southwest Royalties Flying M SA Unit 4" Trunkline	Borehole Start Date: 05/05/22 End Date: 05/05/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)	Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
				49	Yellowish, silty sand. No odor or staining. Depth to water (5/19/22) = 48.33'	SC	M	
				50				
				51				
				52	Dark red, silty clay. Non-plastic. No odor or staining. Dry	CL	D	
				53				
				54				
				55				
				56				
				57	Total Depth of Boring = 57'			

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings

Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

SOIL BORING LOG

Page 1 of 4

Boring/Well Number: MW-4	Permit Number: NMOSE File Nbr: L 15278	
Site Name: Southwest Royalties, Inc. Flying M SA Unit 4" Trunk Line	Borehole Start Date: 10/06/22 End Date: 10/06/22	Borehole Start Time: 1024 ☑ AM ☐ PM End Time: 1240 ☐ AM ☑ PM
Environmental Contractor: Crain Environmental	Geologist's Name: Cindy Crain	Environmental Technician's Name: None

Drilling Company: Talon LPE	Pavement Thickness (inches): 0.00	Borehole Diameter (inches): 6	Borehole Depth (feet): 55
Drilling Method(s): Air Rotary	Apparent Borehole DTW (in feet from soil moisture content): 25	Measured Well DTW (in feet after water recharges in well): 41.60	OVA (list model and check type): ☐ FID ☐ PID

Disposition of Drill Cuttings [check method(s)]: ☐ Drum ☐ Spread ☐ Backfill ☑ Stockpile ☐ Other

(describe if other or multiple items are checked):

Borehole Completion (check one): ☑ Well ☐ Grout ☐ Bentonite ☐ Backfill ☐ Other (describe)

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							1	Light red, well sorted sand. Fine to medium grained. No odors or staining. Dry.	SW	D	
							2				
							3				
							4				
							5	Light tan to white, fine grained, brittle sandstone, hard. No odors or staining. Dry.	SS	D	
							6				
							7				
							8				
							9				
							10				
							11				
							12				

SOIL BORING LOG

Boring/Well Number: MW-4	Permit Number: L 15278	Site Name: Southwest Royalties Flying M SA Unit 4" Trunkline	Borehole Start Date: 10/06/22 End Date: 10/06/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							13	Light tan to white, fine grained, brittle sandstone, hard. No odor or staining. Dry.	SS	D	
							14				
							15				
							16				
							17				
							18				
							19				
							20				
							21				
							22	Reddish brown, poorly sorted silty sand. No odor or staining. Damp at 25'.	SC	M	
							23				
							24				
							25				
							26				
							27				
							28	Gray to yellow, moderately well sorted, silty sand. Dry.	SC	D	
							29				
							30				

SOIL BORING LOG

Boring/Well Number: MW-4	Permit Number: L 15278	Site Name: Southwest Royalties Flying M SA Unit 4" Trunkline	Borehole Start Date: 10/06/22 End Date: 10/06/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)	Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
				31	Gray to yellow, moderately well sorted, silty sand. Dry.	SC	D	
				32				
				33				
				34				
				35	Reddish sand, well sorted, dry.	SW	D	
				36				
				37				
				38				
				39	White, fine grained, brittle sandstone, hard. No odor or staining. Dry.	SS	D	
				40				
				41				
				42	Depth to water (10/7/22) = 41.60' bgs			
				43				
				44	Dark brown sand, well sorted, dry.	SW	D	
				45				
				46				
				47				
				48				

SOIL BORING LOG

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Boring/Well Number: MW-4	Permit Number: L 15278	Site Name: Southwest Royalties Flying M SA Unit 4" Trunkline	Borehole Start Date: 10/06/22 End Date: 10/06/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							49	Dark brown sand, well sorted, moist.	SW	M	
							50				
							51				
							52	Dark red, silty clay. Non-plastic. No odor or staining. Dry	CL	D	
							53				
							54				
							55	Total Depth of Boring = 55'			

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings
Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

SOIL BORING LOG

Page 1 of 6

Boring/Well Number: BH-5	Permit Number: NMOSE File Nbr: L 15278	
Site Name: Southwest Royalties, Inc. Flying M SA Unit 4" Trunk Line	Borehole Start Date: 10/06/22 End Date: 10/07/22	Borehole Start Time: 1300 ☐ AM ☑ PM End Time: 1535 ☐ AM ☑ PM
Environmental Contractor: Crain Environmental	Geologist's Name: Cindy Crain	Environmental Technician's Name: None

Drilling Company: Talon LPE	Pavement Thickness (inches): 0.00	Borehole Diameter (inches): 6	Borehole Depth (feet): 95

Drilling Method(s): Air Rotary	Apparent Borehole DTW (in feet from soil moisture content): DRY	Measured Well DTW (in feet after water recharges in well): DRY	OVA (list model and check type): ☐ FID ☐ PID

Disposition of Drill Cuttings [check method(s)]: ☐ Drum ☐ Spread ☐ Backfill ☑ Stockpile ☐ Other

(describe if other or multiple items are checked):

Borehole Completion (check one): ☐ Well ☐ Grout ☐ Bentonite ☐ Backfill ☑ Other (describe)

The boring was allowed to remain open to check for presence of water. The boring will be plugged if no water is present.

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							1	Light red, well sorted sand. Fine to medium grained. No odors or staining. Dry.	SW	D	
							2				
							3				
							4	Light tan to white, fine grained, brittle sandstone, hard. No odors or staining. Dry.	SS	D	
							5				
							6				
							7				
							8				
							9				
							10				
							11				
							12				

SOIL BORING LOG

Page 2 of 6

Boring/Well Number: BH-5	Permit Number: L 15278	Site Name: Southwest Royalties Flying M SA Unit 4" Trunkline	Borehole Start Date: 10/06/22 End Date: 10/07/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							13	Light tan to white, fine grained, brittle sandstone, hard. No odor or staining. Dry.	SS	D	
							14				
							15				
							16				
							17				
							18				
							19				
							20				
							21				
							22	Reddish brown, poorly sorted silty sand. No odor or staining.	SC	D	
							23				
							24				
							25				
							26				
							27				
							28	Gray to yellow, moderately well sorted, silty sand. Dry.	SC	D	
							29				
							30				

SOIL BORING LOG

Boring/Well Number:	Permit Number:	Site Name:	Borehole Start Date:
BH-5	L 15278	Southwest Royalties Flying M SA Unit 4" Trunkline	10/06/22
			End Date: 10/07/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)	Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
				31	Gray to yellow, moderately well sorted, silty sand. Dry.	SC	D	
				32				
				33				
				34				
				35				
				36				
				37	Reddish sand, well sorted, dry.	SW	D	
				38				
				39	White, fine grained, brittle sandstone, hard. No odor or staining. Dry.	SS	D	
				40				
				41				
				42				
				43	Dark brown sand, well sorted, dry.	SW	D	
				44				
				45				
				46				
				47				
				48				

Florida Department of Environmental Protection - Division of Waste Management - Bureau of Petroleum Storage Systems

BORING LOG

Boring/Well Number: BH-5	Permit Number: L 15278	Site Name: Southwest Royalties Flying M SA Unit 4" Trunkline	Borehole Start Date: 10/06/22 End Date: 10/07/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							49	Dark brown sand, well sorted, dry.	SW	D	
							50				
							51				
							52				
							53				
							54				
							55				
							56				
							57				
							58				
							59				
							60				
							61				
							62				
							63				
							64				
							65				
							66				

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings
Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

Florida Department of Environmental Protection - Division of Waste Management - Bureau of Petroleum Storage Systems

BORING LOG

Boring/Well Number: BH-5	Permit Number: L 15278	Site Name: Southwest Royalties Flying M SA Unit 4" Trunkline	Borehole Start Date: 10/06/22 End Date: 10/07/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							67	Dark brown sand, well sorted, dry.	SW	D	
							68				
							69				
							70				
							71				
							72				
							73				
							74				
							75				
							76				
							77				
							78				
							79				
							80				
							81				
							82				
							83				
							84				

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings
Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

Florida Department of Environmental Protection - Division of Waste Management - Bureau of Petroleum Storage Systems

BORING LOG

Boring/Well Number:	Permit Number:	Site Name:	Borehole Start Date:
BH-5	L 15278	Southwest Royalties Flying M SA Unit 4" Trunkline	10/06/22
			End Date: 10/07/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							85	Dark brown sand, well sorted, dry.	SW	D	
							86				
							87				
							88				
							89				
							90				
							91	Dark red, silty clay. Non-plastic. No odor or staining. Dry	CL	D	
							92				
							93				
							94				
							95	Total Depth of Boring = 95'			
							96				
							97				
							98				
							99				
							100				
							101				
							102				

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings

Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

SOIL BORING LOG

Page 1 of 4

Boring/Well Number: BH-6	Permit Number: NMOSE File Nbr: L 15278	
Site Name: Southwest Royalties, Inc. Flying M SA Unit 4" Trunk Line	Borehole Start Date: 10/07/22 End Date: 10/08/22	Borehole Start Time: 1650 ☐ AM ☑ PM End Time: 1045 ☑ AM ☐ PM
Environmental Contractor: Crain Environmental	Geologist's Name: Cindy Crain	Environmental Technician's Name: None
Drilling Company: Talon LPE	Pavement Thickness (inches): 0.00	Borehole Diameter (inches): 6
Borehole Depth (feet): 65		
Drilling Method(s): Air Rotary	Apparent Borehole DTW (in feet from soil moisture content): 45	Measured Well DTW (in feet after water recharges in well): 63.6
OVA (list model and check type): ☐ FID ☐ PID		

Disposition of Drill Cuttings [check method(s)]: ☐ Drum ☐ Spread ☐ Backfill ☑ Stockpile ☐ Other

(describe if other or multiple items are checked):

Borehole Completion (check one): ☐ Well ☐ Grout ☐ Bentonite ☐ Backfill ☑ Other (describe)

A groundwater sample was collected from the boring, and the boring will be converted to a monitor well.

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							1	Light red, well sorted sand. Fine to medium grained. No odors or staining. Dry.	SW	D	
							2				
							3				
							4	Light tan to white, fine grained, brittle sandstone, hard. No odors or staining. Dry.	SS	D	
							5				
							6				
							7				
							8				
							9				
							10				
							11				
							12				

SOIL BORING LOG

Boring/Well Number:	Permit Number:	Site Name:	Borehole Start Date:
BH-6	L 15278	Southwest Royalties Flying M SA Unit 4" Trunkline	10/07/22
			End Date: 10/08/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							13	Light tan to white, fine grained, brittle sandstone, hard. No odor or staining. Dry.	SS	D	
							14				
							15				
							16				
							17				
							18				
							19				
							20				
							21				
							22				
							23				
							24	Yellow to light tan, moderately well sorted, silty sand. No oder or staining. Dry	SC	D	
							25				
							26				
							27				
							28				
							29				
							30				

SOIL BORING LOG

Boring/Well Number: BH-6	Permit Number: L 15278	Site Name: Southwest Royalties Flying M SA Unit 4" Trunkline	Borehole Start Date: 10/07/22 End Date: 10/08/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)				Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
							31	Yellow to light tan, moderately well sorted, silty sand. No oder or staining. Dry	SC	D	
							32				
							33				
							34				
							35				
							36				
							37				
							38				
							39				
							40				
							41				
							42				
							43				
							44	Damp at 45'			
							45				
							46				
							47	Dark reddish brown, moderately well sorted, silty sand. No odor of staining. Dry.	SC	D	
							48				

Florida Department of Environmental Protection - Division of Waste Management - Bureau of Petroleum Storage Systems

BORING LOG

Boring/Well Number: BH-6	Permit Number: L 15278	Site Name: Southwest Royalties Flying M SA Unit 4" Trunkline	Borehole Start Date: 10/07/22 End Date: 10/08/22

Sample Type	Sample Depth Interval (feet)	Sample Recovery (inches)	Field Chloride Reading (ppm)	Depth (feet)	Sample Description	USCS Symbol	Moisture Content	Lab Soil and Groundwater Samples (list sample number and depth or temporary screen interval)
				49	Dark reddish brown, moderately well sorted, silty sand. No odor of staining. Dry.	SW	D	
				50				
				51				
				52				
				53				
				54				
				55				
				56				
				57				
				58				
				59				
				60				
				61				
				62				
				63	Depth to water (10/8/22) = 63.6' bgs			
				64				
				65	Dark red, silty clay. Non-plastic. No odor or staining. Dry	CL	D	
				66	Total Depth of Boring = 65'			

Sample Type Codes: **PH** = Post Hole; **HA** = Hand Auger; **SS** = Split Spoon; **ST** = Shelby Tube; **DP** = Direct Push; **SC** = Sonic Core; **DC** = Drill Cuttings

Moisture Content Codes: **D** = Dry; **M** = Moist; **W** = Wet; **S** = Saturated

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

CONDITIONS

Action 207932

CONDITIONS

Operator: SOUTHWEST ROYALTIES INC P O BOX 53570 Midland, TX 79710	OGRID: 21355
	Action Number: 207932
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Groundwater Investigation Report has been received for Flying M SA Unit 4 Trunkline: Content Satisfactory 1. Continue to monitor groundwater and collect samples for analysis until eight (8) consecutive quarterly events have demonstrated below the allowable concentrations in NM WQCC and 19.15.30 of the NMAC. 2. Submit a Stage 1 Abatement Plan as per 19.15.30 of the NMAC for OCD review 3. Submit an Annual Groundwater Monitoring Report for 2023 by April 1, 2024.	3/4/2024