

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Since 1996

Release Volume Estimate Ogden State 5H Release

The estimate provided below relies upon general data, site-specific data, assumptions, and arithmetic. We believe the calculation presented below represents a reasonable estimate of a release volume of 8± barrels to the pasture. An additional volume of less than 5 barrels probably remains within and below the production pad

1400	sq ft of release footprint from Google Earth
4.3	ft depth of sampling
6020	cubic feet of soil/rock 0-4.3 feet below footprint
0.0283	cu ft/m ³ conversion factor
170.366	cu meters of earth below footprint to 4.3 feet
1602	Kg/m ³ density of sand from internet sources
272,926.33	kg - total weight of soil beneath footprint to 4.3 ft
687	mg/kg - average chloride in samples beneath footprint - 32 (background)
187,500,390.08	mg chloride in soil 0-4.3 feet below footprint
85,800.00	mg/L chloride in release water (see attached analysis)
2,185.32	Liters - released assuming all chloride from produced water
159	liters/bbl. conversion factor
14	bbl. Released

Imperative Water Analysis Report

SYSTEM IDENTIFICATION

IMPERATIVE
CHEMICAL PARTNERS
201 W Wall Street, Suite 900
Midland, TX 79701

Company: Murchison Oil and Gas
Location: Ogden 7
Sample Source: Wellhead
Account Rep: Danny Gonzales

Sample ID#: W-31741

Sample Date: 10-04-2020

Report Date: 10-12-2020

WATER CHEMISTRY

CATIONS

Calcium(as Ca)	4383	Chloride(as Cl)	89600
Magnesium(as Mg)	1506	Sulfate(as SO ₄)	1210
Barium(as Ba)	0.0952	Dissolved CO ₂ (as CO ₂)	160.00
Strontium(as Sr)	91.39	Bicarbonate(as HCO ₃)	1684
Sodium(as Na)	51059	H ₂ S (as H ₂ S)	85.50
Potassium(as K)	489.70	Boron(as B)	14.66
Lithium(as Li)	13.49		
Iron(as Fe)	1.20		
Manganese(as Mn)	1.44		

ANIONS

PARAMETERS

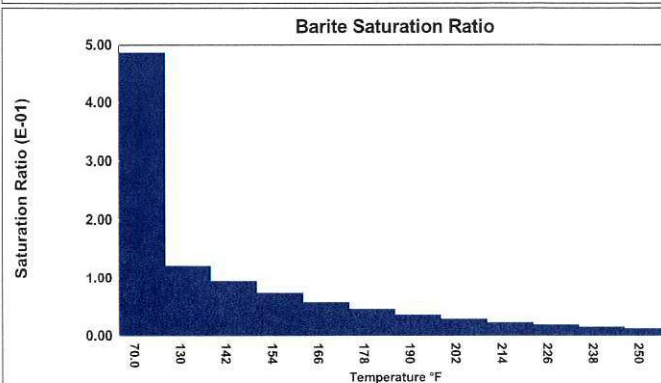
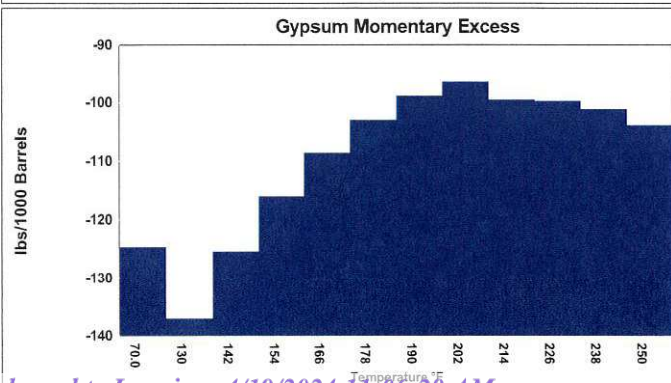
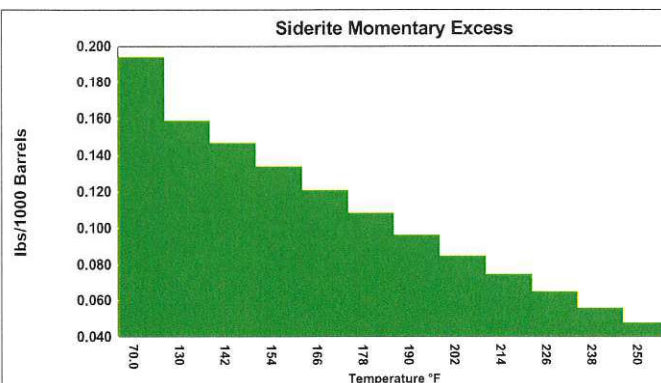
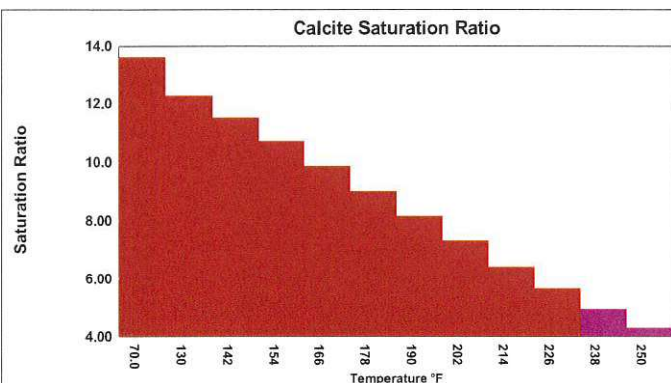
Temperature(°F)	67.70	Sample pH	6.60
Conductivity	145518	Sp.Gr.(g/mL)	1.100
Resistivity	6.87	T.D.S.	160684

SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (atm)	Calcite CaCO ₃		Anhydrite CaSO ₄		Gypsum CaSO ₄ *2H ₂ O		Barite BaSO ₄		Celestite SrSO ₄		Siderite FeCO ₃		Mackinawite FeS		CO ₂ (mpy)	pCO ₂ (atm)
70.00	1.000	13.60	0.300	0.471	-231.98	0.657	-124.84	0.486	-0.0656	0.303	-106.11	2.61	0.194	4.63	0.0888	0.122	0.243
130.00	10.000	12.25	0.192	0.545	-141.72	0.584	-137.19	0.120	-0.454	0.261	-116.55	3.49	0.159	1.77	0.0450	0.755	2.43
142.00	19.000	11.51	0.173	0.594	-111.81	0.596	-125.54	0.0928	-0.605	0.250	-120.11	3.54	0.146	1.42	0.0298	1.21	4.61
154.00	28.000	10.70	0.156	0.662	-81.04	0.607	-116.14	0.0723	-0.794	0.240	-123.96	3.55	0.133	1.13	0.0114	1.72	6.80
166.00	37.000	9.86	0.139	0.751	-51.09	0.614	-108.74	0.0566	-1.03	0.229	-128.18	3.51	0.121	0.899	-0.0108	2.06	8.98
178.00	46.000	9.00	0.124	0.867	-23.09	0.620	-103.09	0.0446	-1.32	0.218	-132.78	3.44	0.108	0.713	-0.0377	2.00	11.17
190.00	55.000	8.15	0.109	1.02	2.23	0.623	-98.99	0.0353	-1.69	0.207	-137.79	3.33	0.0961	0.565	-0.0702	1.01	13.35
202.00	64.000	7.31	0.0962	1.21	24.48	0.623	-96.36	0.0280	-2.13	0.197	-143.29	3.20	0.0847	0.446	-0.110	0.839	15.54
214.00	73.000	6.40	0.0851	1.44	43.55	0.615	-99.63	0.0221	-2.71	0.184	-152.07	2.99	0.0744	0.339	-0.164	1.05	17.72
226.00	82.000	5.64	0.0741	1.74	60.40	0.610	-99.84	0.0177	-3.39	0.174	-158.95	2.82	0.0645	0.266	-0.224	1.29	19.91
238.00	91.000	4.94	0.0641	2.14	74.63	0.603	-101.22	0.0142	-4.22	0.164	-166.43	2.64	0.0555	0.208	-0.297	1.56	22.09
250.00	100.000	4.30	0.0550	2.65	86.41	0.594	-103.95	0.0115	-5.24	0.154	-174.69	2.45	0.0473	0.163	-0.385	0.234	24.28
		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels			

Saturation Ratios (xSAT) are the ratio of ion activity to solubility, e.g. {Ca}{CO₃}/K_{sp}. pCO₂ (atm) is the partial pressure of CO₂ in the gas phase.

Lbs/1000 Barrels scale is the quantity of precipitation (or dissolution) required to instantaneously bring the water to equilibrium.



Imperative Water Analysis Report

SYSTEM IDENTIFICATION

IMPERATIVE
CHEMICAL PARTNERS
201 W Wall Street, Suite 900
Midland, TX 79701

Company: Murchison Oil and Gas
Location: Ogden 8
Sample Source: Wellhead
Account Rep: Danny Gonzales

Sample ID#: W-31742

Sample Date: 10-04-2020

Report Date: 10-12-2020

WATER CHEMISTRY

CATIONS

Calcium(as Ca)	4463
Magnesium(as Mg)	1590
Barium(as Ba)	0.122
Strontium(as Sr)	130.60
Sodium(as Na)	47528
Potassium(as K)	501.90
Lithium(as Li)	12.50
Iron(as Fe)	2.55
Manganese(as Mn)	0.820

ANIONS

Chloride(as Cl)	84800
Sulfate(as SO ₄)	1075
Dissolved CO ₂ (as CO ₂)	0.00
Bicarbonate(as HCO ₃)	1427
H ₂ S (as H ₂ S)	85.50
Boron(as B)	13.61

PARAMETERS

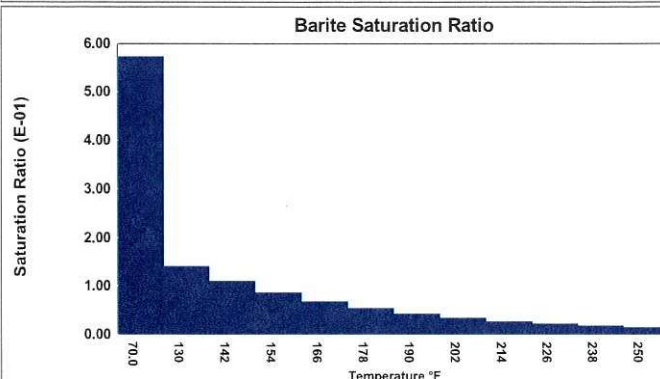
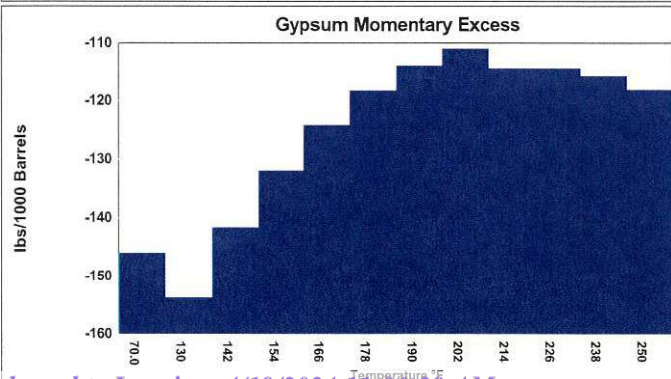
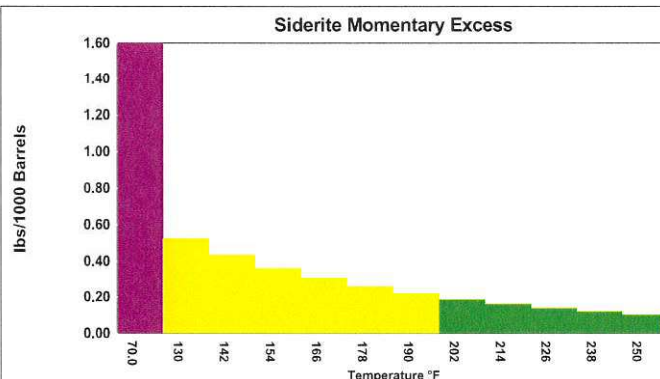
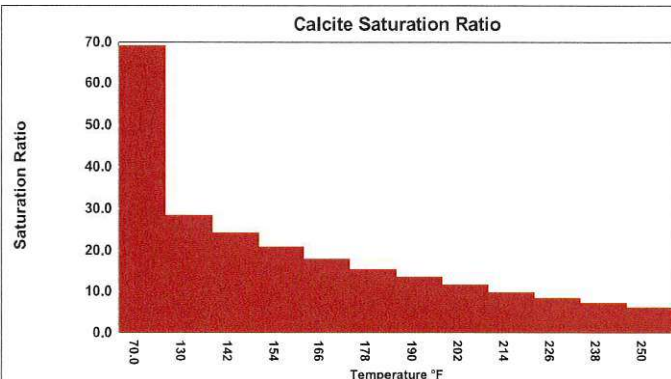
Temperature(°F)	70.10	Sample pH	7.39
Conductivity	141517	Sp.Gr.(g/mL)	1.095
Resistivity	7.07	T.D.S.	150946

SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (atm)	Calcite CaCO ₃	Anhydrite CaSO ₄	Gypsum CaSO ₄ *2H ₂ O	Barite BaSO ₄	Celestite SrSO ₄	Siderite FeCO ₃	Mackinawite FeS	CO ₂ (mpy)	pCO ₂ (atm)
70.00	1.000	69.13	1.65	0.419	-255.24	0.593	-146.17	0.572	-0.0592	0.397
130.00	10.000	28.29	0.473	0.484	-160.73	0.527	-153.83	0.141	-0.481	0.342
142.00	19.000	24.13	0.388	0.528	-130.26	0.538	-141.78	0.109	-0.645	0.327
154.00	28.000	20.70	0.321	0.587	-99.08	0.546	-132.08	0.0848	-0.851	0.313
166.00	37.000	17.81	0.268	0.665	-68.72	0.553	-124.35	0.0664	-1.11	0.299
178.00	46.000	15.35	0.225	0.767	-40.36	0.557	-118.39	0.0522	-1.43	0.285
190.00	55.000	13.24	0.191	0.898	-14.72	0.559	-114.01	0.0413	-1.82	0.271
202.00	64.000	11.41	0.162	1.07	7.85	0.559	-111.08	0.0329	-2.30	0.257
214.00	73.000	9.63	0.139	1.27	26.80	0.551	-114.41	0.0259	-2.93	0.240
226.00	82.000	8.25	0.118	1.54	43.88	0.547	-114.40	0.0208	-3.67	0.227
238.00	91.000	7.05	0.100	1.89	58.21	0.541	-115.68	0.0167	-4.57	0.214
250.00	100.000	6.01	0.0850	2.34	70.15	0.532	-118.24	0.0134	-5.65	0.201
		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels

Saturation Ratios (xSAT) are the ratio of ion activity to solubility, e.g. {Ca}{CO₃}/K_{sp}. pCO₂ (atm) is the partial pressure of CO₂ in the gas phase.

Lbs/1000 Barrels scale is the quantity of precipitation (or dissolution) required to instantaneously bring the water to equilibrium.



Imperative Water Analysis Report

SYSTEM IDENTIFICATION

IMPERATIVE
CHEMICAL PARTNERS
201 W Wall Street, Suite 900
Midland, TX 79701

Company: Murchison Oil and Gas
Location: Ogden 005 A
Sample Source: Wellhead
Account Rep: Danny Gonzales

Sample ID#: W-31743

Sample Date: 10-04-2020

Report Date: 10-12-2020

WATER CHEMISTRY

CATIONS

Calcium(as Ca)	4222
Magnesium(as Mg)	1469
Barium(as Ba)	0.0830
Strontium(as Sr)	95.74
Sodium(as Na)	48892
Potassium(as K)	489.90
Lithium(as Li)	12.81
Iron(as Fe)	6.24
Manganese(as Mn)	0.795

ANIONS

Chloride(as Cl)	85800
Sulfate(as SO ₄)	1186
Dissolved CO ₂ (as CO ₂)	0.00
Bicarbonate(as HCO ₃)	1781
H ₂ S (as H ₂ S)	85.50
Boron(as B)	12.09

PARAMETERS

Temperature(°F)	73.30	Sample pH	7.37
Conductivity	150925	Sp.Gr.(g/mL)	1.095
Resistivity	6.63	T.D.S.	153465

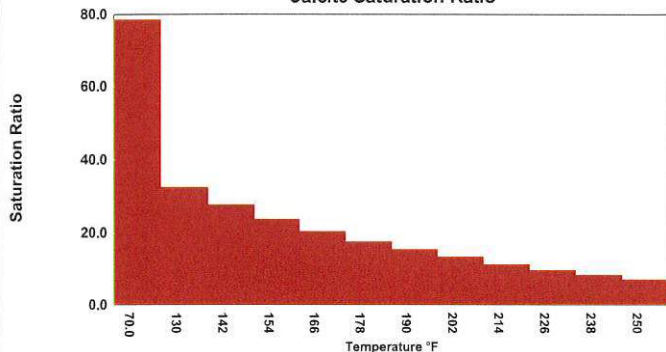
SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (atm)	Calcite CaCO ₃		Anhydrite CaSO ₄		Gypsum CaSO ₄ *2H ₂ O		Barite BaSO ₄		Celestite SrSO ₄		Siderite FeCO ₃		Mackinawite FeS		CO ₂ (mpy)	pCO ₂ (atm)
70.00	1.000	78.42	1.99	0.448	-255.33	0.631	-140.28	0.441	-0.0682	0.330	-98.81	84.90	2.28	318.13	0.589	0.0477	0.0561
130.00	10.000	32.33	0.576	0.520	-157.65	0.564	-150.18	0.109	-0.437	0.286	-109.07	52.01	0.672	41.43	0.527	0.219	0.561
142.00	19.000	27.56	0.472	0.568	-125.74	0.577	-137.64	0.0848	-0.580	0.274	-112.58	47.87	0.554	29.24	0.510	0.223	1.07
154.00	28.000	23.62	0.391	0.633	-93.01	0.587	-127.56	0.0660	-0.760	0.263	-116.41	44.17	0.461	20.96	0.492	0.249	1.57
166.00	37.000	20.31	0.327	0.719	-61.08	0.595	-119.54	0.0517	-0.984	0.251	-120.56	40.81	0.387	15.22	0.471	0.295	2.08
178.00	46.000	17.50	0.275	0.830	-31.23	0.600	-113.36	0.0407	-1.26	0.239	-125.08	37.68	0.327	11.17	0.448	0.315	2.58
190.00	55.000	15.07	0.232	0.973	-4.21	0.603	-108.84	0.0323	-1.60	0.228	-130.00	34.75	0.279	8.27	0.421	0.179	3.09
202.00	64.000	12.98	0.197	1.16	19.59	0.604	-105.82	0.0257	-2.03	0.216	-135.37	32.00	0.239	6.18	0.390	0.162	3.59
214.00	73.000	10.94	0.169	1.38	39.79	0.596	-109.17	0.0202	-2.58	0.202	-143.95	28.85	0.207	4.46	0.345	0.208	4.10
226.00	82.000	9.36	0.144	1.67	57.74	0.591	-109.27	0.0162	-3.22	0.191	-150.70	26.37	0.179	3.36	0.302	0.260	4.60
238.00	91.000	8.00	0.122	2.06	72.92	0.585	-110.57	0.0130	-4.01	0.180	-158.01	24.05	0.155	2.54	0.251	0.322	5.11
250.00	100.000	6.81	0.104	2.55	85.49	0.576	-113.29	0.0105	-4.97	0.169	-166.08	21.86	0.135	1.93	0.192	0.280	5.61
		Lbs per xSAT Barrels		Lbs per xSAT Barrels		Lbs per xSAT Barrels		Lbs per xSAT Barrels		Lbs per xSAT Barrels		Lbs per xSAT Barrels		Lbs per xSAT Barrels			

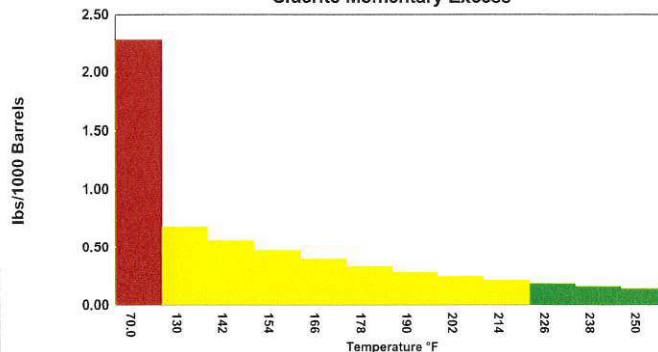
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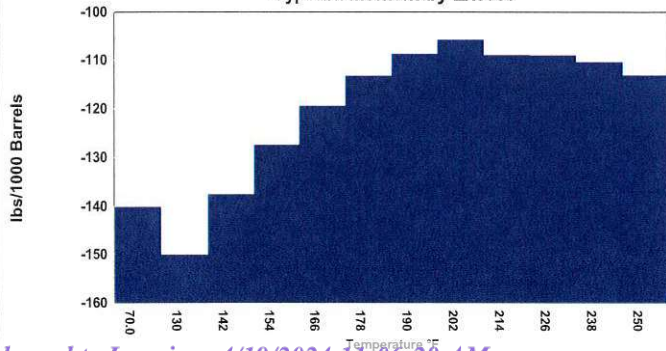
Calcite Saturation Ratio



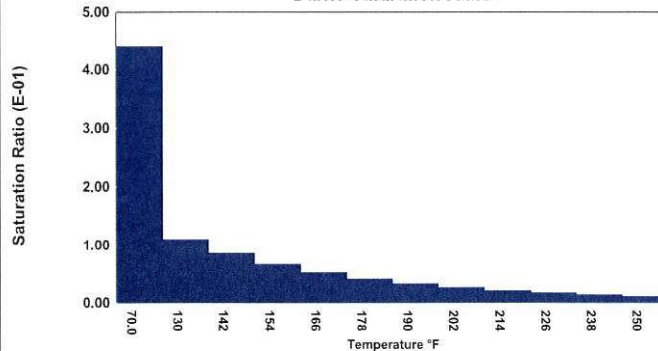
Siderite Momentary Excess



Gypsum Momentary Excess



Barite Saturation Ratio





Site Assessment and Remediation Work Plan

Murchison Oil & Gas, LLC

Ogden State 5H

Eddy County, New Mexico

Unit Letter "O", Section 2, Township 25 South, Range 26 East

Latitude 32.152079 North, Longitude 104.260939 West

NMOCD Incident # NMLB1211627407

Prepared For:

Murchison Oil & Gas
5325 Sierra Vista
Carlsbad, NM 88230

Prepared By:

Hungry Horse, LLC
4024 Plains Hwy
Lovington, NM 88260
Office: (575) 393-3386

April 2024

Bradley Wells

Bradley Wells
Project Manager
bwells@hungry-horse.com

Daniel Dominguez

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- Figure 2 – OSE POD Locations Map
- Figure 3 – USGS Well Locations Map
- Figure 4 – Proposed Delineation Sample Map

Table

RT Hick Consultants, Ltd. – Table 1 Analytical Results Ogden 5H

Attachments

- Attachment I – Karst, Wetland, and Soil Maps
- Attachment II – Depth to Groundwater
- Attachment III – Laboratory Analytical Reports – 2023 Soil Auger Boring
- Attachment IV – Boone Archaeological Consultants, LLC Archaeological Survey
- Attachment V – NMSLO Loamy Sites Seed Mixture



HUNGRY HORSE, LLC

The following *Site Assessment and Remediation Work Plan* serves as proposed remediation activities at the afore referenced Site.

Background:

The site is located in Unit Letter O (SW/SE), Section 2, Township 25 South, Range 26 East, approximately 7 miles Southeast of Whites City, in Eddy County, New Mexico. The property is located on New Mexico State Trust Land. Topographic Map, OSE POD Locations Map, and USGS Well Locations Map are included as Figure 1, Figure 2, and Figure 3, respectively.

The release occurred on an active well pad; Latitude 32.152079 North, Longitude 104.260939 West. The NMOCD Form C-141 indicated that on April 9, 2012, rain water caused steel drilling pits to overflow and wash out dirt berm on location. Fluids were removed from pits and dirt berm was rebuilt. Approximately 14 bbls of fluid was lost. Previously submitted NMOCD Form C-141 is available on the NMOCD Permitting Portal.

NMOCD Site Classification:

A search of the New Mexico Office of the State Engineer (NMOSE) and United States Geological Survey (USGS) groundwater databases was completed in an effort to determine the horizontal distance to known water sources within a half mile radius of the Release Site. Approximate depth to groundwater was determined using maintained and published water well data. Karst mapping indicates the site is located in a Gypsum Karst designated area. Depth to groundwater information is provided as Attachment II and the results are depicted on Figures 2 and 3.

No water wells were located within a half mile of the release area. On August 23, 2023, a depth to groundwater test bore was drilled on location to a depth of 105 feet bgs. No water was present in the bore so the bore was backfilled with drill cuttings. However, as the site is located in a Gypsum Karst designated area, the site will be remediated according to the strictest NMOCD Closure Criteria. Utilizing this information, the NMOCD Closure Criteria for the Site were determined as follows:

Depth to Groundwater	Constituent	Method	Limit
>105'	Chloride	EPA 300.0 or SM4500 CLB	600 mg/kg
	TPH (GRO + DRO + MRO)	EPA SW-846 Method 8015M Ext	100 mg/kg
	BTEX	EPA SW-846 Methods 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Methods 8021B or 8260B	10 mg/kg

A United States Department of Agriculture (USDA) Web Soil Survey was completed to determine soil types in the area of reclamation. Web Soil Survey indicates the area is located in the Reeves-Gypsum land complex comprised of loam and clay loam soils with 0 to 3 percent slopes. NMSLO Loamy sites seed mixture will be utilized for seeding the area after reclamation activities are complete. Karst, Wetland, and Soil Maps are provided as Attachment I.



Proposed Remediation Activities:

In accordance with NMOCD Regulations, NMSLO Reclamation and Remediation Guidelines and Procedures, and based upon laboratory analytical results, and site observations made by RT Hicks Consultants, Ltd., the following remediation activities are proposed in an effort to advance the site toward approved closure.

- Horizontal and vertical delineation of the release area will be completed prior to excavation activities, utilizing mechanical equipment. Proposed Delineation Sample Map is provided as Figure 4.
- Based upon laboratory analytical results received from RT Hicks Consultants, Ltd. sampling activities and Hungry Horse delineation sampling, the release area will be excavated to an approximate depth of four and half feet bgs. The proposed excavation area of approximately 1,400 sq. ft. is depicted on Figure 4.
- Excavated contaminated soil, approximately 300 cy, will be temporarily stockpiled onsite, atop plastic, before transport to an NMOCD approved disposal facility.
- Upon completion of excavation activities, five-point composite confirmation samples will be collected from the excavation floor and sidewalls; each sample representing no more than 200 square feet. Confirmation soil samples will be submitted to the laboratory for analysis of BTEX, TPH, and chloride.
- Upon receipt of laboratory analytical results from confirmation soil samples, demonstrating constituent contaminant levels are in excess of the strictest NMOCD Closure Criteria in the excavation floor and sidewalls, the area will be further excavated, vertically and/or horizontally, until laboratory analytical data indicates constituent contaminant levels are equal to or below the strictest NMOCD Closure Criteria in the excavation floor and sidewalls.
- Upon receipt of laboratory analytical results from confirmation soil samples, demonstrating constituent contaminant levels are equal to or below the strictest NMOCD Closure Criteria in the excavation floor and sidewalls, the excavation will be backfilled with locally sourced, clean, non-impacted, topsoil.
- Remediation activities are expected to be completed within 30 days of receiving NMOCD and NMSLO approval of the Site Assessment and Remediation Work Plan.
- Within 30 days, following the completion of these remediation activities, the affected areas will be seeded, via hand broadcast at double the recommended rate, with NMSLO approved Loamy sites seed mixture.

Cultural Properties Protection Compliance:

Archaeological Survey, NMCRIS Activity Number 155264, was completed on April 1, 2024. No cultural resources eligible for listing to the National Register of Historic Places were found within the survey area. If cultural materials are encountered during the remediation process, work will be halted, and NMSLO archaeologists notified. The report, indicating negative findings is provided as Attachment IV.



Sampling Plan:

Upon completion of excavation activities, confirmation five-point composite soil samples will be collected from the excavation floor and sidewalls; each sample representing no more than 200 square feet. Confirmation soil samples will be submitted to the laboratory for analysis of BTEX, TPH, and chloride.

Restoration, Reclamation, and Re-Vegetation:

Based upon laboratory analytical results from confirmation soil samples, the excavation will be backfilled with approximately 300 cy of locally sourced, clean, non-impacted topsoil. The area will be contoured to achieve erosion control and preserve surface water flow.

The affected area will be seeded, via hand broadcast at double the recommended rate, with NMSLO approved Loamy sites seed mixture, free of noxious weeds, within 30 days following the completion of these remediation activities. Site will also be monitored for growth and noxious weed management on a semi-annual basis until desired vegetation is achieved. NMSLO approved Loamy sites seed mix is provided as Attachment V.

Limitations:

Hungry Horse, LLC, has prepared this *Site Assessment and Remediation Work Plan* to the best of its ability. No other warranty, expressed or implied, is made or intended. Hungry Horse has examined and relied upon documents referenced in the report and on oral statements made by certain individuals. Hungry Horse has not conducted an independent examination of the facts contained in referenced materials and statements. Hungry Horse has presumed the genuineness of these documents and statements and that the information provided therein is true and accurate. Hungry Horse notes that the facts and conditions referenced in this report may change over time, and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.



Distribution:

Murchison Oil & Gas

5325 Sierra Vista
Carlsbad, NM 88230

New Mexico Energy, Minerals and Natural Resources Department

Oil Conservation Division, District 2
811 S. First St.
Artesia, NM 88210

New Mexico State Land Office

602 N. Canal. Suite B
Carlsbad, NM 88220

Figures

**Figure 2**

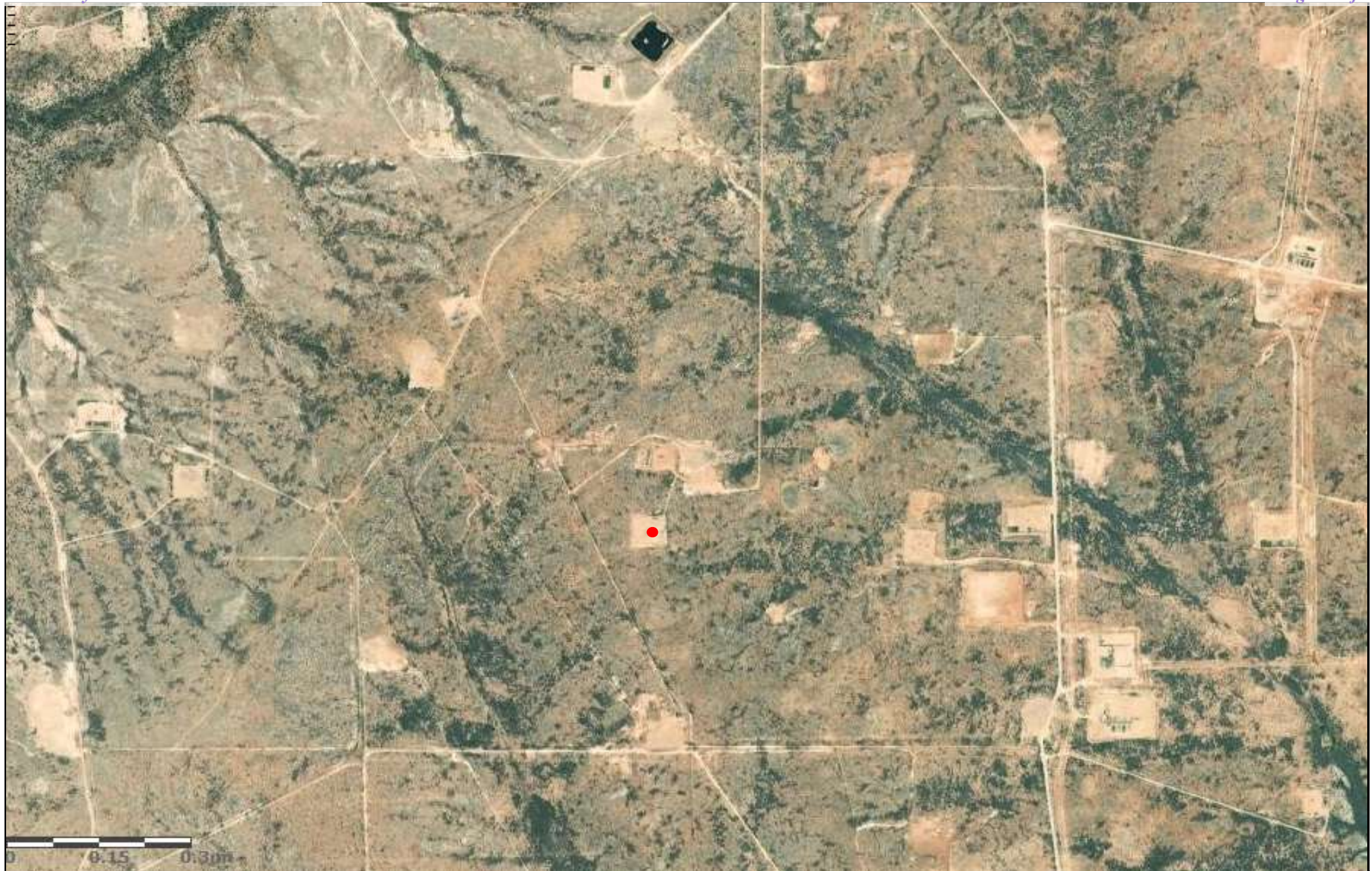
OSE POD Locations Map
Murchison Oil & Gas
Ogden State 5H
GPS: 32.152079, -104.260939
Eddy County

Legend:

● Ogden State 5H Location



Drafted: dd
Checked: bw
Date: 4/2/24

**Figure 3**

USGS Well Locations Map
Murchison Oil & Gas
Ogden State 5H
GPS: 32.152079, -104.260939
Eddy County

Legend:

● Ogden State 5H Location



Drafted: dd
Checked: bw
Date: 4/2/24

**Figure 4**

Proposed Delineation Sample Map
 Murchison Oil & Gas
 Ogden State 5H
 GPS: 32.152079, -104.260939
 Eddy County

Legend:

- Proposed Excavation Area - Approximately 1,400 square feet
- SP1 Proposed Vertical Delineation Sample Location
- HZ1 Proposed Horizontal Delineation Sample Location
- SSA-1 RT Hicks Consultants, Ltd. 2023 Auger Boring Locations

Drafted: dd
 Checked: bw
 Date: 4/2/24



Table

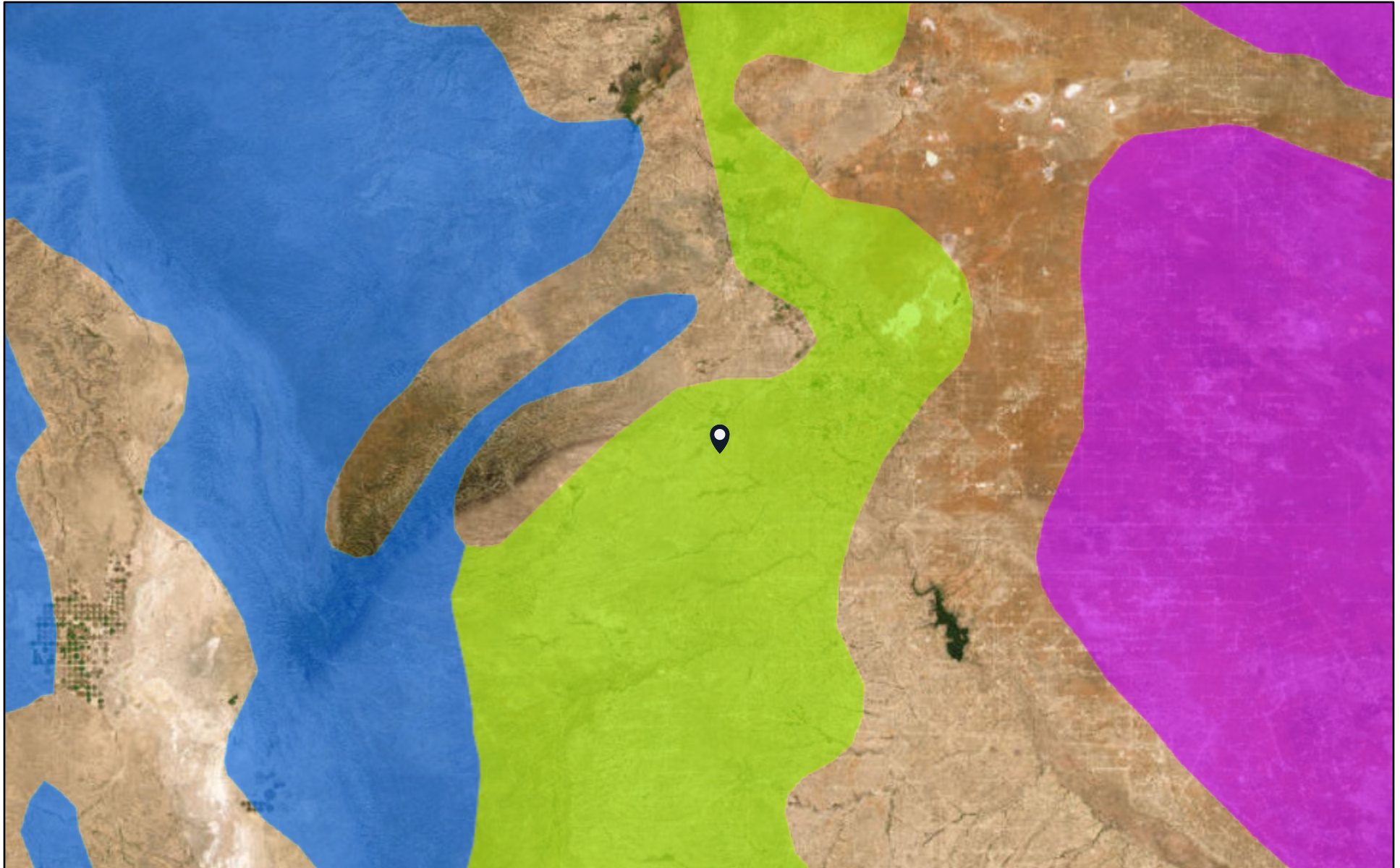
Table 1 Analytical Results
Ogden State 5H

sampleID	date_cld	matrix	discDepth_fbg	topDepth_fbg	botDepth_fbg	Cl_mg/kg 20,000	GRO_mg/kg	DRO_mg/kg	MRO_mg/kg	GRO+DRO 1,000	TPH_mg/kg 2500	Benz_mg/kg 10	BTEX_mg/kg 50
SSA - 01	7/21/2023	soil		0	2	128	ND	ND	ND	ND	ND	ND	ND
SSA- 01	7/21/2023	soil		2	4	48	ND	ND	ND	ND	ND	ND	ND
SSA - 01	7/21/2023	soil	4.5			304	ND	ND	ND	ND	ND	ND	ND
SSA-02	7/21/2023	soil		0	2	32	ND	ND	ND	ND	ND	ND	ND
SSA-02	7/21/2023	soil		2	4	32	ND	ND	ND	ND	ND	ND	ND
SSA-02	7/21/2023	soil	4.5			80	ND	ND	ND	ND	ND	ND	ND
SSA-03	7/21/2023	soil		0	2	976	ND	ND	ND	ND	ND	ND	ND
SSA-03	7/21/2023	soil		2	4	1040	ND	ND	ND	ND	ND	ND	ND
SSA-03	7/21/2023	soil	4.5			368	ND	ND	ND	ND	ND	ND	ND
SSA-04	7/21/2023	soil		0	2	912	ND	ND	ND	ND	ND	ND	ND
SSA-04	7/21/2023	soil		2	4	192	ND	ND	ND	ND	ND	ND	ND
SSA-04	7/21/2023	soil	4.5			336	ND	ND	ND	ND	ND	ND	ND
SSA-05	7/21/2023	soil		0	2	400	ND	ND	ND	ND	ND	ND	ND
SSA-05	7/21/2023	soil		2	4	448	ND	ND	ND	ND	ND	ND	ND
SSA-05	7/21/2023	soil	4.5			400	ND	ND	ND	ND	ND	ND	ND
SSA-06	7/21/2023	soil		0	2	1170	ND	ND	ND	ND	ND	ND	ND
SSA-06	7/21/2023	soil		2	4	469	ND	ND	ND	ND	ND	ND	ND
SSA-06	7/21/2023	soil	4.5			352	ND	ND	ND	ND	ND	ND	ND
SSA-07	7/21/2023	soil		0	2	208	ND	ND	ND	ND	ND	ND	ND
SSA-07	7/21/2023	soil		2	4	288	ND	ND	ND	ND	ND	ND	ND
SSA-07	7/21/2023	soil	4.5			240	ND	ND	ND	ND	ND	ND	ND
SSA-8	7/21/2023	soil		0	2	736	ND	ND	ND	ND	ND	ND	ND
SSA-8	7/21/2023	soil		2	4	256	ND	ND	ND	ND	ND	ND	ND
SSA-8	7/21/2023	soil	4.5			256	ND	ND	ND	ND	ND	ND	ND

Attachment I

Karst, Wetland, and Soil Maps

Ogden State 5H



4/15/2024

Karst Type

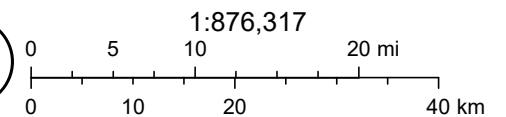
- Carbonate
- Erosional
- Gypsum

- Volcanic
- World Imagery
- Low Resolution 15m Imagery
- High Resolution 60cm Imagery

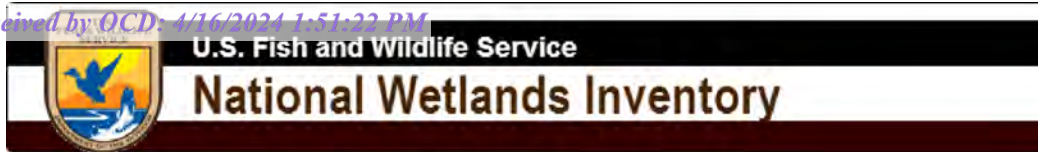
High Resolution 30cm Imagery

Citations

150m Resolution Metadata



U.S. Geological Survey Open-File Report 2004-1352, Caves and Karst in the U.S. National Park Service, AGI Karst Map of the US., Earthstar Geographics



Ogden State 5H



April 15, 2024

Wetlands

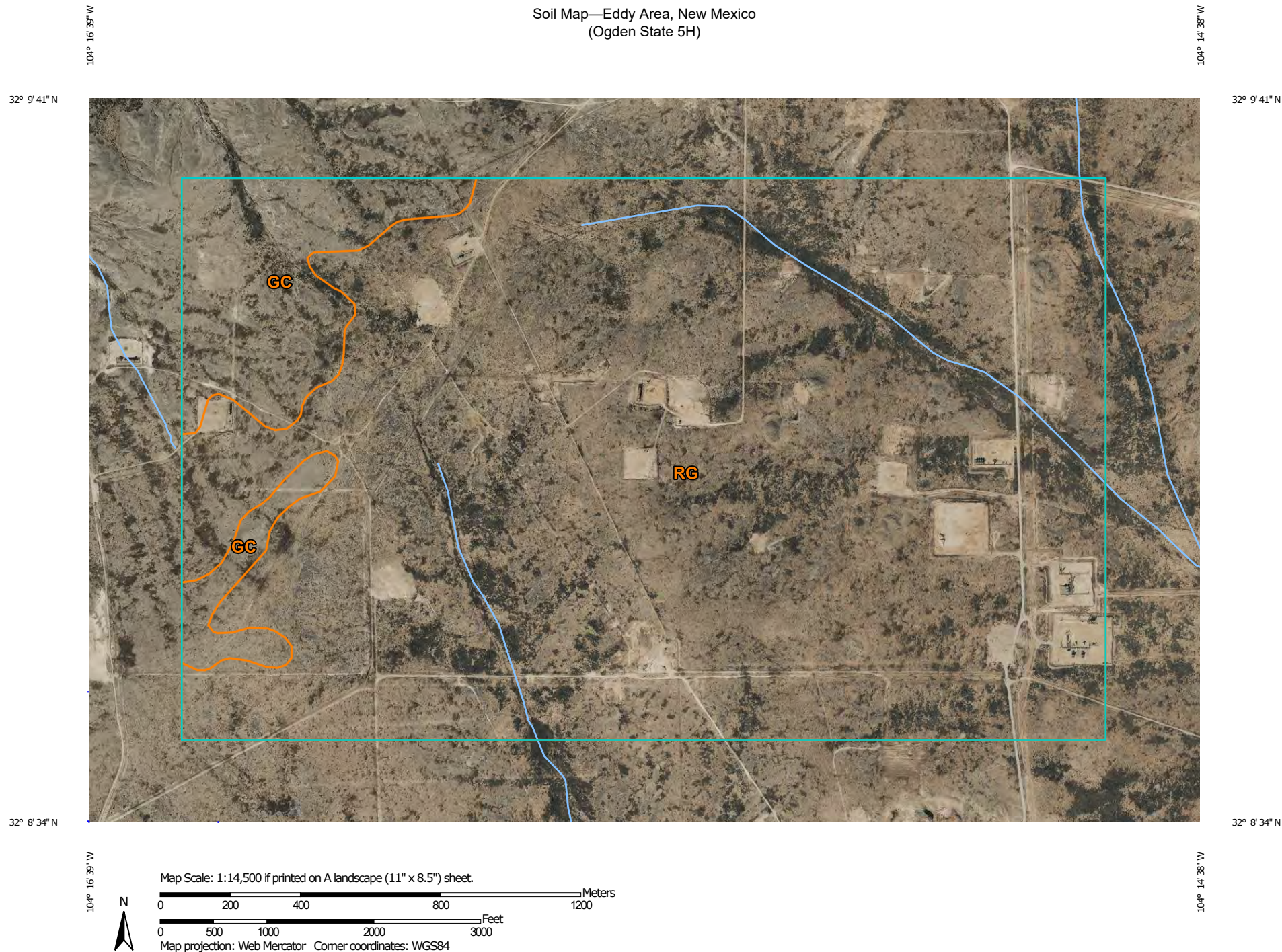
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Soil Map—Eddy Area, New Mexico
(Ogden State 5H)



Natural Resources
Conservation Service


Web Soil Survey
National Cooperative Soil Survey

4/15/2024
Page 1 of 3

Soil Map—Eddy Area, New Mexico
(Ogden State 5H)


MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Eddy Area, New Mexico

Survey Area Data: Version 19, Sep 7, 2023

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

Date(s) aerial images were photographed: Nov 12, 2022—Dec 2, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
GC	Gypsum land-Cottonwood complex, 0 to 3 percent slopes	106.9	10.2%
RG	Reeves-Gypsum land complex, 0 to 3 percent slopes	940.5	89.8%
Totals for Area of Interest		1,047.4	100.0%

Map Unit Description: Reeves-Gypsum land complex, 0 to 3 percent slopes---Eddy Area, New Mexico

Ogden State 5H

Eddy Area, New Mexico

RG—Reeves-Gypsum land complex, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w5f

Elevation: 1,250 to 5,000 feet

Mean annual precipitation: 10 to 25 inches

Mean annual air temperature: 57 to 70 degrees F

Frost-free period: 190 to 235 days

Farmland classification: Not prime farmland

Map Unit Composition

Reeves and similar soils: 55 percent

Gypsum land: 30 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reeves

Setting

Landform: Ridges, plains, hills

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

Landform position (three-dimensional): Side slope, head slope, nose slope, crest

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Residuum weathered from gypsum

Typical profile

H1 - 0 to 8 inches: loam

H2 - 8 to 32 inches: clay loam

H3 - 32 to 60 inches: gypsiferous material

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 25 percent

Gypsum, maximum content: 80 percent

Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0

Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Map Unit Description: Reeves-Gypsum land complex, 0 to 3 percent slopes---Eddy Area, New Mexico

Ogden State 5H

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: B

Ecological site: R070BC007NM - Loamy

Hydric soil rating: No

Description of Gypsum Land

Setting

Landform: Ridges, plains, hills

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

Landform position (three-dimensional): Side slope, head slope, nose slope, crest

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Residuum weathered from gypsum

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

Minor Components

Reagan

Percent of map unit: 5 percent

Ecological site: R070BC007NM - Loamy

Hydric soil rating: No

Largo

Percent of map unit: 5 percent

Ecological site: R070BC007NM - Loamy

Hydric soil rating: No

Cottonwood

Percent of map unit: 5 percent

Ecological site: R070BC033NM - Salty Bottomland

Hydric soil rating: No

Data Source Information

Soil Survey Area: Eddy Area, New Mexico

Survey Area Data: Version 19, Sep 7, 2023

Attachment II

Depth to Groundwater

New Mexico Office of the State Engineer

Wells with Well Log Information

No wells found.

UTMNAD83 Radius Search (in meters):

Easting (X): 569694.89 Northing (Y): 3557537.17 Radius: 805

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

4/15/24 1:07 PM

WELLS WITH WELL LOG INFORMATION

Logger:	Kristin Pope	Client:	Murchision Oil & Gas			Well ID:		
Driller:	Ready Drill LLC	Project Name:			SB-1			
Drilling Method:	CZM EK125 auger	Location:			(approx. 20 ft NW of pipeline tee)			
Start Date:	8/23/2023	Eddy County						
End Date:	8/23/2023	Sec. 2, T25S, R26E						
moderate and steady rain		32.15434, -104.26397						
Depth (feet BGS)	Description	Time MST	Remarks	Lithology	Completion	Sample ID (chloride mg/kg)	Depth (feet BGS)	
0	Surface	0920	Samples collected from auger bit; all samples were dry		Borehole backfilled with cuttings	Lab Analysis	0	
2	Green-gray silty clay					SB @ 3 ft = 2600	2	
4							4	
6						SB @ 6 ft = 1460	6	
8							8	
10	Red clay with gray-green silt					SB @ 10 ft = 544	10	
12	Red clay with 15% dark gray dolomite	0931					12	
14	Red & gray silt with 15% gray-white gypsum						14	
16		0948					SB @ 16 ft = 336	16
18	Red silt with gray & white, vitreous gypsum flakes; 20% dark gray dolomite			20 ft - heavy rain delay			SB @ 20 ft = 432	18
20								20
22								22
24							24	
26	Gray-white gypsum/dolomitic layers with tan silt		38 ft - Heavy rain delay; bit change				26	
28							28	
30		1028				SB @ 30 ft = 192	30	
32							32	
34							34	
36							36	
38							38	
40							40	
42		1110				SB @ 42.5 ft = 288	42	
44	Gray silt with dark gray-white dolomite						44	
46							46	
48							48	
50							50	
52	Tan-light gray silt with 40% hard, gray limestone or dolostone layers or lenses	1135	52-90 ft - hard drilling			SB @ 52 ft = 208	52	
54							54	
56							56	
58							58	
60		1200	At 60 ft, calcite or gypsum crystals appear until TD				60	
62							62	
64							64	
66		1221					66	
68							68	
70							70	
72							72	
74		1240				SB @ 73 ft = 352	74	
76							76	
78							78	
80				At 79 ft, becomes dusty (finer, less consolidated)				80
82								82
84								84
86								86
88								88
90		1352				SB @ 73 ft = 384	90	
92								92
94								94
96								96
98								98
100								100
102								102
104							104	
TD 105			1447	TD = 105 ft			SB @ 73 ft = 576	TD 105
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104		Murchision Oil & Gas				Plate #		
		Ogden 5A Release: Soil Boring Log				Sept 2023		

Attachment III
Laboratory Analytical Reports – 2023 Soil Auger Boring



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

July 28, 2023

KRISTIN POPE

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: OGDEN 5 H RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 07/21/23 14:52.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

R T HICKS CONSULTANTS
 KRISTIN POPE
 901 RIO GRANDE BLVD SUITE F-142
 ALBUQUERQUE NM, 87104
 Fax To: NONE

Received: 07/21/2023
 Reported: 07/28/2023
 Project Name: OGDEN 5 H RELEASE
 Project Number: NONE GIVEN
 Project Location: MURCHISON

Sampling Date: 07/21/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SSA - 1 @ 0-2 FT (H233831-01)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/27/2023	ND	1.95	97.5	2.00	0.530	
Toluene*	<0.050	0.050	07/27/2023	ND	2.20	110	2.00	6.38	
Ethylbenzene*	<0.050	0.050	07/27/2023	ND	2.25	113	2.00	8.69	
Total Xylenes*	<0.150	0.150	07/27/2023	ND	6.88	115	6.00	10.3	
Total BTEX	<0.300	0.300	07/27/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 120 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	07/26/2023	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	172	86.2	200	0.187	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	177	88.4	200	1.20	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 97.6 % 48.2-134

Surrogate: 1-Chlorooctadecane 115 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

R T HICKS CONSULTANTS
KRISTIN POPE
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received: 07/21/2023
Reported: 07/28/2023
Project Name: OGDEN 5 H RELEASE
Project Number: NONE GIVEN
Project Location: MURCHISON

Sampling Date: 07/21/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SSA - 1 @ 2-4 FT (H233831-02)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/27/2023	ND	1.95	97.5	2.00	0.530		
Toluene*	<0.050	0.050	07/27/2023	ND	2.20	110	2.00	6.38		
Ethylbenzene*	<0.050	0.050	07/27/2023	ND	2.25	113	2.00	8.69		
Total Xylenes*	<0.150	0.150	07/27/2023	ND	6.88	115	6.00	10.3		
Total BTEX	<0.300	0.300	07/27/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 125 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	07/26/2023	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	172	86.2	200	0.187	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	177	88.4	200	1.20	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 95.3 % 48.2-134

Surrogate: 1-Chlorooctadecane 111 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

R T HICKS CONSULTANTS
 KRISTIN POPE
 901 RIO GRANDE BLVD SUITE F-142
 ALBUQUERQUE NM, 87104
 Fax To: NONE

Received: 07/21/2023
 Reported: 07/28/2023
 Project Name: OGDEN 5 H RELEASE
 Project Number: NONE GIVEN
 Project Location: MURCHISON

Sampling Date: 07/21/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SSA - 1 @ 4.5 FT (H233831-03)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07		
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15		
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45		
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764		
Total BTEX	<0.300	0.300	07/28/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	304	16.0	07/26/2023	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	172	86.2	200	0.187	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	177	88.4	200	1.20	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 97.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 116 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

R T HICKS CONSULTANTS
 KRISTIN POPE
 901 RIO GRANDE BLVD SUITE F-142
 ALBUQUERQUE NM, 87104
 Fax To: NONE

Received: 07/21/2023
 Reported: 07/28/2023
 Project Name: OGDEN 5 H RELEASE
 Project Number: NONE GIVEN
 Project Location: MURCHISON

Sampling Date: 07/21/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SSA - 2 @ 0-2 FT (H233831-04)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07	
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764	
Total BTEX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	07/26/2023	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	172	86.2	200	0.187	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	177	88.4	200	1.20	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 93.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 109 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

R T HICKS CONSULTANTS
KRISTIN POPE
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received: 07/21/2023
Reported: 07/28/2023
Project Name: OGDEN 5 H RELEASE
Project Number: NONE GIVEN
Project Location: MURCHISON

Sampling Date: 07/21/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SSA - 2 @ 2-4 FT (H233831-05)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07	
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764	
Total BTEX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	07/26/2023	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	172	86.2	200	0.187	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	177	88.4	200	1.20	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 95.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 110 % 49.1-148

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Analytical Results For:

R T HICKS CONSULTANTS
KRISTIN POPE
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received: 07/21/2023
Reported: 07/28/2023
Project Name: OGDEN 5 H RELEASE
Project Number: NONE GIVEN
Project Location: MURCHISON

Sampling Date: 07/21/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SSA - 2 @ 4.5 FT (H233831-06)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07	
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764	
Total BTEX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	07/26/2023	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 101 % 48.2-134

Surrogate: 1-Chlorooctadecane 121 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
 KRISTIN POPE
 901 RIO GRANDE BLVD SUITE F-142
 ALBUQUERQUE NM, 87104
 Fax To: NONE

Received: 07/21/2023
 Reported: 07/28/2023
 Project Name: OGDEN 5 H RELEASE
 Project Number: NONE GIVEN
 Project Location: MURCHISON

Sampling Date: 07/21/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SSA - 3 @ 0-2 FT (H233831-07)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07		
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15		
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45		
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764		
Total BTEX	<0.300	0.300	07/28/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	976	16.0	07/26/2023	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 109 % 48.2-134

Surrogate: 1-Chlorooctadecane 131 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
KRISTIN POPE
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received: 07/21/2023
Reported: 07/28/2023
Project Name: OGDEN 5 H RELEASE
Project Number: NONE GIVEN
Project Location: MURCHISON

Sampling Date: 07/21/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SSA - 3 @ 2-4 FT (H233831-08)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07	
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764	
Total BTEX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1040	16.0	07/26/2023	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 118 % 48.2-134

Surrogate: 1-Chlorooctadecane 142 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
KRISTIN POPE
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received: 07/21/2023
Reported: 07/28/2023
Project Name: OGDEN 5 H RELEASE
Project Number: NONE GIVEN
Project Location: MURCHISON

Sampling Date: 07/21/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SSA - 3 @ 4.5 FT (H233831-09)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07	
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764	
Total BTEX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	07/26/2023	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 101 % 48.2-134

Surrogate: 1-Chlorooctadecane 121 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
 KRISTIN POPE
 901 RIO GRANDE BLVD SUITE F-142
 ALBUQUERQUE NM, 87104
 Fax To: NONE

Received: 07/21/2023
 Reported: 07/28/2023
 Project Name: OGDEN 5 H RELEASE
 Project Number: NONE GIVEN
 Project Location: MURCHISON

Sampling Date: 07/21/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SSA - 4 @ 0-2 FT (H233831-10)

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07		
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15		
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45		
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764		
Total BTEX	<0.300	0.300	07/28/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	912	16.0	07/26/2023	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 83.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 97.1 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
KRISTIN POPE
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received: 07/21/2023
Reported: 07/28/2023
Project Name: OGDEN 5 H RELEASE
Project Number: NONE GIVEN
Project Location: MURCHISON

Sampling Date: 07/21/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SSA - 4 @ 2-4 FT (H233831-11)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07		
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15		
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45		
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764		
Total BTEX	<0.300	0.300	07/28/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	192	16.0	07/26/2023	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 101 % 48.2-134

Surrogate: 1-Chlorooctadecane 120 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
 KRISTIN POPE
 901 RIO GRANDE BLVD SUITE F-142
 ALBUQUERQUE NM, 87104
 Fax To: NONE

Received: 07/21/2023
 Reported: 07/28/2023
 Project Name: OGDEN 5 H RELEASE
 Project Number: NONE GIVEN
 Project Location: MURCHISON

Sampling Date: 07/21/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SSA - 4 @ 4.5 FT (H233831-12)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07	
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764	
Total BTEX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	07/26/2023	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 99.3 % 48.2-134

Surrogate: 1-Chlorooctadecane 118 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

R T HICKS CONSULTANTS
 KRISTIN POPE
 901 RIO GRANDE BLVD SUITE F-142
 ALBUQUERQUE NM, 87104
 Fax To: NONE

Received: 07/21/2023
 Reported: 07/28/2023
 Project Name: OGDEN 5 H RELEASE
 Project Number: NONE GIVEN
 Project Location: MURCHISON

Sampling Date: 07/21/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SSA - 5 @ 0-2 FT (H233831-13)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07		
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15		
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45		
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764		
Total BTEX	<0.300	0.300	07/28/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	400	16.0	07/26/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 83.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 95.9 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
KRISTIN POPE
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received: 07/21/2023
Reported: 07/28/2023
Project Name: OGDEN 5 H RELEASE
Project Number: NONE GIVEN
Project Location: MURCHISON

Sampling Date: 07/21/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SSA - 5 @ 2-4 FT (H233831-14)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07	
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764	
Total BTEX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.0 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	07/26/2023	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 81.3 % 48.2-134

Surrogate: 1-Chlorooctadecane 95.3 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
KRISTIN POPE
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received: 07/21/2023
Reported: 07/28/2023
Project Name: OGDEN 5 H RELEASE
Project Number: NONE GIVEN
Project Location: MURCHISON

Sampling Date: 07/21/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SSA - 5 @ 4.5 FT (H233831-15)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07	
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764	
Total BTEX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	07/26/2023	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 84.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 97.8 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
 KRISTIN POPE
 901 RIO GRANDE BLVD SUITE F-142
 ALBUQUERQUE NM, 87104
 Fax To: NONE

Received: 07/21/2023
 Reported: 07/28/2023
 Project Name: OGDEN 5 H RELEASE
 Project Number: NONE GIVEN
 Project Location: MURCHISON

Sampling Date: 07/21/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SSA - 6 @ 0-2 FT (H233831-16)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07	
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764	
Total BTEX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1170	16.0	07/26/2023	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 87.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 102 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
KRISTIN POPE
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received: 07/21/2023
Reported: 07/28/2023
Project Name: OGDEN 5 H RELEASE
Project Number: NONE GIVEN
Project Location: MURCHISON

Sampling Date: 07/21/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SSA - 6 @ 2-4 FT (H233831-17)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07	
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764	
Total BTEX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	469	16.0	07/26/2023	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 91.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 106 % 49.1-148

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Analytical Results For:

R T HICKS CONSULTANTS
 KRISTIN POPE
 901 RIO GRANDE BLVD SUITE F-142
 ALBUQUERQUE NM, 87104
 Fax To: NONE

Received: 07/21/2023
 Reported: 07/28/2023
 Project Name: OGDEN 5 H RELEASE
 Project Number: NONE GIVEN
 Project Location: MURCHISON

Sampling Date: 07/21/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SSA - 6 @ 4.5 FT (H233831-18)

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07		
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15		
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45		
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764		
Total BTEx	<0.300	0.300	07/28/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	352	16.0	07/26/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 89.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 103 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
KRISTIN POPE
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received: 07/21/2023
Reported: 07/28/2023
Project Name: OGDEN 5 H RELEASE
Project Number: NONE GIVEN
Project Location: MURCHISON

Sampling Date: 07/21/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SSA - 7 @ 0-2 FT (H233831-19)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07	
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764	
Total BTX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	07/26/2023	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 96.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 109 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
 KRISTIN POPE
 901 RIO GRANDE BLVD SUITE F-142
 ALBUQUERQUE NM, 87104
 Fax To: NONE

Received: 07/21/2023
 Reported: 07/28/2023
 Project Name: OGDEN 5 H RELEASE
 Project Number: NONE GIVEN
 Project Location: MURCHISON

Sampling Date: 07/21/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SSA - 7 @ 2-4 FT (H233831-20)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07		
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15		
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45		
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764		
Total BTEX	<0.300	0.300	07/28/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	288	16.0	07/26/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 87.5 % 48.2-134

Surrogate: 1-Chlorooctadecane 100 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
 KRISTIN POPE
 901 RIO GRANDE BLVD SUITE F-142
 ALBUQUERQUE NM, 87104
 Fax To: NONE

Received: 07/21/2023
 Reported: 07/28/2023
 Project Name: OGDEN 5 H RELEASE
 Project Number: NONE GIVEN
 Project Location: MURCHISON

Sampling Date: 07/21/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SSA - 7 @ 4.5 FT (H233831-21)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07	
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764	
Total BTEX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	07/26/2023	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 95.5 % 48.2-134

Surrogate: 1-Chlorooctadecane 110 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

R T HICKS CONSULTANTS
KRISTIN POPE
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received: 07/21/2023
Reported: 07/28/2023
Project Name: OGDEN 5 H RELEASE
Project Number: NONE GIVEN
Project Location: MURCHISON

Sampling Date: 07/21/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SSA - 8 @ 0-2 FT (H233831-22)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.13	106	2.00	2.07	
Toluene*	<0.050	0.050	07/28/2023	ND	2.07	104	2.00	1.15	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	1.99	99.4	2.00	1.45	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.00	100	6.00	0.764	
Total BTEX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	736	16.0	07/26/2023	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 77.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 87.9 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

R T HICKS CONSULTANTS
 KRISTIN POPE
 901 RIO GRANDE BLVD SUITE F-142
 ALBUQUERQUE NM, 87104
 Fax To: NONE

Received: 07/21/2023
 Reported: 07/28/2023
 Project Name: OGDEN 5 H RELEASE
 Project Number: NONE GIVEN
 Project Location: MURCHISON

Sampling Date: 07/21/2023
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SSA - 8 @ 2-4 FT (H233831-23)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/28/2023	ND	2.06	103	2.00	2.15	
Toluene*	<0.050	0.050	07/28/2023	ND	1.98	98.9	2.00	5.25	
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	2.04	102	2.00	4.97	
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.12	102	6.00	4.49	
Total BTEX	<0.300	0.300	07/28/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	07/26/2023	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 85.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 96.5 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

R T HICKS CONSULTANTS
KRISTIN POPE
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received: 07/21/2023
Reported: 07/28/2023
Project Name: OGDEN 5 H RELEASE
Project Number: NONE GIVEN
Project Location: MURCHISON

Sampling Date: 07/21/2023
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SSA - 8 @ 4.5 FT (H233831-24)

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/28/2023	ND	2.06	103	2.00	2.15		
Toluene*	<0.050	0.050	07/28/2023	ND	1.98	98.9	2.00	5.25		
Ethylbenzene*	<0.050	0.050	07/28/2023	ND	2.04	102	2.00	4.97		
Total Xylenes*	<0.150	0.150	07/28/2023	ND	6.12	102	6.00	4.49		
Total BTEX	<0.300	0.300	07/28/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.4 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	256	16.0	07/26/2023	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2023	ND	188	93.8	200	22.3	
DRO >C10-C28*	<10.0	10.0	07/26/2023	ND	196	97.8	200	0.534	
EXT DRO >C28-C36	<10.0	10.0	07/26/2023	ND					

Surrogate: 1-Chlorooctane 80.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 92.0 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- ** Samples not received at proper temperature of 6°C or below.
- *** Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
Samples reported on an as received basis (wet) unless otherwise noted on report

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

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: R. T. Hicks Consultants		BILL TO		ANALYSIS REQUEST	
Project Manager: Kristin Pope		P.O. #:			
Address: 901 Rio Grande Blvd NW, Suite F-142		Company: R. T. Hicks			
City: Albuquerque		Attn: Randy			
State: NM Zip: 87104		Address:			
Phone #: 505-266-5004 Fax #:		City:			
Project #:		State:			
Project Name: Ogden SH release		Zip:			
Project Location:		Phone #:			
Fax #:					
Sampler Name: Kristin Pope		Fax #:			
FOR LAB USE ONLY		PRESERV		SAMPLING	
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS		
		GROUNDWATER			
		WASTEWATER			
		SOIL			
		OIL			
		SLUDGE			
		OTHER :			
		ACID/BASE:			
		ICE / COOL			
		OTHER :			
		DATE	TIME		
H233831	SSA-1 @ 0-2 ft	4-21-23	10:20	Chloride	
1	SSA-1 @ 2-4 ft	10:22		BTEx	
2	SSA-1 @ 4.5 ft	10:24		TPH 8015M	
3	SSA-2 @ 0-2 ft	10:15			
4	SSA-2 @ 2-4 ft	10:17			
5	SSA-2 @ 4.5 ft	10:19			
6	SSA-3 @ 0-2 ft	09:42			
7	SSA-3 @ 2-4 ft	09:44			
8	SSA-3 @ 4.5 ft	09:46			
9	SSA-4 @ 0-2 ft	09:22			
10					
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Relinquished By: Kristin Pope		Received By: [Signature]		Verbal Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #:	
Date: 4-21-23		Time: 4:00 PM		All Results are emailed. Please provide Email address:	
Relinquished By: [Signature]		Received By: [Signature]		REMARKS:	
Date: 4-21-23		Time: 4:52 PM		Kristin@rthicksconsult.com, R@rthicksconsult.com	
Delivered By: (Circle One)		Observed Temp. °C		Turnaround Time: Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/>	
Corrected Temp. °C		Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No		Bacteria (only) Sample Condition	
Sampler - UPS - Bus - Other:		Checked By: [Signature]		Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	
		Thermometer ID #1334140		Observed Temp. °C	
		Correction Factor 0.00		Corrected Temp. °C	

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



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: R.T. Hicks Consultants		BILL TO		ANALYSIS REQUEST	
Project Manager: Kristin Pope		P.O. #:			
Address: 901 Rio Grande Blvd NW, Suite F-142		Company: R.T. Hicks			
City: Albuquerque		Attn: Randy			
Phone #: 505-266-5004		Address:			
Fax #: 505-266-5004		City:			
Project #:		State:			
Project Name: Ogden 5H release		Zip:			
Project Location:		Phone #:			
Sample Name: Kristin Pope		Fax #:			
FOR LAB USE ONLY		MATRIX		PRESERV	
Lab I.D.		Sample I.D.		DATE	
H233831		11		0924	
12		12		0926	
13		13		1008	
14		14		1010	
15		15		1012	
16		16		1058	
17		17		1000	
18		18		1002	
19		19		0950	
20		20		0952	
55A-4 @ 2-4 ft		(G)RAB OR (C)OMP.		Chloride	
55A-4 @ 4.5 ft		# CONTAINERS		BTEX	
55A-5 @ 0-2 ft		GROUNDWATER		TPH 8015M	
55A-5 @ 2-4 ft		WASTEWATER			
55A-5 @ 4.5 ft		SOIL			
55A-6 @ 0-2 ft		OIL			
55A-6 @ 2-4 ft		SLUDGE			
55A-7 @ 0-2 ft		OTHER :			
55A-7 @ 2-4 ft		ACID/BASE:			
		ICE / COOL			
		OTHER :			
		DATE		TIME	
		9-21-23		0924	
		0926			
		1008			
		1010			
		1012			
		1058			
		1000			
		1002			
		0950			
		0952			
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Reinquisitioned By: Kristin Pope		Time: 1100		Received By: [Signature]	
Date: 9-21-23		Time: 1100		Received By: [Signature]	
Delivered By: (Circle One) Kristin Pope		Observed Temp. °C: 4.9		Sample Condition: Cool Intact	
Sampler - UPS - Bus - Other:		Corrected Temp. °C:		Checked By: (Initials)	
Turnaround Time: Standard		Thermometer ID #113 #140		Bacteria (only) Sample Condition	
Corrosion Factor: 1/2/12		Cool Intact		Observed Temp. °C	
		Corrected Temp. °C			

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

Attachment IV
Boone Archaeological Consultants, LLC Archaeological Survey



Stephanie Garcia Richard, Commissioner of Public Lands
State of New Mexico

NMSLO Cultural Resources Cover Sheet Exhibit

NMCRIS Activity Number: 155264

(if applicable)

Exhibit Type (select one)

☐ ARMS Inspection/Review - Summarize the results (select one):

- ☐ (A) The entire area of potential effect or project area has been previously surveyed to current standards and **no cultural properties** were found within the survey area.
- ☐ (B) The entire area of potential effect or project area has been previously surveyed to current standards and **cultural properties were found** within the survey area.
- ☐ (C) The entire area of potential effect or project area has **not** been previously surveyed or **has not been surveyed** to current standards. A complete archaeological survey will be conducted and submitted for review.

☒ Archaeological Survey

Findings:

☒ **Negative** - No further archaeological review is required.

☐ **Positive** - Have avoidance and protection measures been devised? Select one:

Comments: Proposed remediation of the Ogden 5A Pad Release. Archaeological survey was negative for cultural resources.

Project Details:

NMSLO Lease Number (if available):

Cultural Resources Consultant: Boone Archaeological Resource Consultants LLC, BARC

Project Proponent (Applicant): Murchison Oil and Gas, LLC

Project Title/Description: A Class III Archaeological Survey for the Murchison Oil and Gas, LLC Ogden 5H Pad Release, Eddy County, New Mexico

Project Location:

County(ies): Eddy County, NM

PLSS/Section/Township/Range: T25S R26E S2, 11

For NMSLO Agency Use Only:

NMSLO Lease Number:

Acknowledgment-Only:

☐

Lease Analyst:

Date Exhibit Routed to Cultural Resources Office:

No person may alter the wording of the questions or layout of the cover sheet. The completion of this cover sheet by itself does not authorize anyone to engage in new surface disturbing activity before the review and approvals required by the Cultural Properties Protections Rule.

Form Revised 12 22

Attachment V

NMSLO Loamy Sites Seed Mixture

NMSLO Seed Mix**Loamy (L)****LOAMY (L) SITES SEED MIXTURE:**

COMMON NAME	VARIETY	APPLICATION RATE (PLS/Acre)	DRILL BOX
Grasses:			
Black grama	VNS, Southern	1.0	D
Blue grama	Lovington	1.0	D
Sideoats grama	Vaughn, El Reno	4.0	F
Sand dropseed	VNS, Southern	2.0	S
Alkali sacaton	VNS, Southern	1.0	
Little bluestem	Cimarron, Pastura	1.5	F
Forbs:			
Firewheel (<i>Gaillardia</i>)	VNS, Southern	1.0	D
Shrubs:			
Fourwing saltbush	Marana, Santa Rita	1.0	D
Common winterfat	VNS, Southern	0.5	F
Total PLS/acre		18.0	

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

VNS = Variety Not Stated, PLS = Pure Live Seed

- Seed mixes should be provided in bags separating seed types into the three categories: small (S), standard (D) and fluffy (F).
- VNS, Southern – Seed should be from a southern latitude collection of this species.
- Double seed application rate for broadcast or hydroseeding.
- If one species is not available, contact the SLO for an approved substitute; alternatively the SLO may require other species proportionately increased.
- Additional information on these seed species can be found on the USDA Plants Database website at <http://plants.usda.gov>.



SITE PHOTOGRAPHS – OGDEN STATE 5H RELEASE



Above is the 4/6/2013 Google Earth Image that appears to show minor discoloration of the soil that may define the release footprint. Only sampling locations 6 and 3 exceed the Rule 29 reclamation limit (600 mg/kg) for chloride. The outline of the release is based upon this image, our 2023 field visit, and the laboratory results.



SP1 View northwest location of the October 2012 “base of delta” sample. A large rainfall event caused an overflow of the steel drilling pits on April 10, 2012. The released fluid drained to the southeast corner of the location, broke through the dirt berm, and caused erosion of the pad and deposition of a small alluvial fan (delta). This location is near the 2023 sample SSA-02.

SITE PHOTOGRAPHS – OGDEN STATE 5H RELEASE



SP2 View northwest from sample "edge of delta", which is slightly uphill from the 2023 sample SSA-03



SP3 Looking south-southwest showing the post hole boring of the "background" sample of April 2012. The base of delta and edge of delta sample bags are visible.

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

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

QUESTIONS

Action 330396

QUESTIONS

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:
	15363
	Action Number:
	330396
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

QUESTIONS

Prerequisites	
Incident ID (n#)	nMLB1211627407
Incident Name	NMLB1211627407 OGDEN STATE #005H @ 30-015-39993
Incident Type	Release Other
Incident Status	Remediation Plan Received
Incident Well	[30-015-39993] OGDEN STATE #005H

Location of Release Source	
Please answer all the questions in this group.	
Site Name	OGDEN STATE #005H
Date Release Discovered	04/09/2012
Surface Owner	State

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

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Not answered.
Produced Water Released (bbls) Details	Not answered.
Is the concentration of chloride in the produced water >10,000 mg/l	Not answered.
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Cause: Overflow - Tank, Pit, Etc. Pit (Specify) Drilling Mud/Fluid Released: 14 BBL Recovered: 0 BBL Lost: 14 BBL.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Rain water caused steel drilling pits to overflow. Dirt dike on location was washed out. Fluids were removed from pits and dirt dike rebuilt.

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QUESTIONS, Page 2

Action 330396

QUESTIONS (continued)

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:
	15363
	Action Number:
	330396
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

QUESTIONS

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

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

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

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

I hereby agree and sign off to the above statement	Name: Cindy Cottrell Title: Regulatory Coordinator Email: ccottrell@jdmii.com Date: 04/16/2024
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QUESTIONS, Page 3

Action 330396

QUESTIONS (continued)

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:
	15363
	Action Number:
	330396
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

QUESTIONS**Site Characterization**

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

What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 100 and 500 (ft.)
What method was used to determine the depth to ground water	Attached Document
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Greater than 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Greater than 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1000 (ft.) and ½ (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	High
A 100-year floodplain	Between 1 and 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	Yes

Remediation Plan

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

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

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

Chloride (EPA 300.0 or SM4500 Cl B)	1170
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	0
GRO+DRO (EPA SW-846 Method 8015M)	0
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0

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

On what estimated date will the remediation commence	04/23/2024
On what date will (or did) the final sampling or liner inspection occur	05/23/2024
On what date will (or was) the remediation complete(d)	06/23/2023
What is the estimated surface area (in square feet) that will be reclaimed	1400
What is the estimated volume (in cubic yards) that will be reclaimed	300
What is the estimated surface area (in square feet) that will be remediated	1400
What is the estimated volume (in cubic yards) that will be remediated	300

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

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

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QUESTIONS, Page 4

Action 330396

QUESTIONS (continued)

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:	15363
	Action Number:	330396
	Action Type:	[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Remediation Plan (continued)	
<i>Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
<i>(Select all answers below that apply.)</i>	
(Ex Situ) Excavation and off-site disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for off-site disposal	R360 Artesia LLC LANDFARM [FEEM0112340644]
OR which OCD approved well (API) will be used for off-site disposal	Not answered.
OR is the off-site disposal site, to be used, out-of-state	Not answered.
OR is the off-site disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and on-site remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.
<i>Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.</i>	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: Cindy Cottrell Title: Regulatory Coordinator Email: ccottrell@jdmii.com Date: 04/16/2024
<i>The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.</i>	

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QUESTIONS, Page 5

Action 330396

QUESTIONS (continued)

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID: 15363
	Action Number: 330396
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

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

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QUESTIONS, Page 6
Action 330396

QUESTIONS (continued)

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:	15363
	Action Number:	330396
	Action Type:	[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

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

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

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CONDITIONS

Action 330396

CONDITIONS

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:
	15363
	Action Number:
	330396
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

CONDITIONS

Created By	Condition	Condition Date
bhall	OCD approves horizontal and vertical delineation will be completed through excavation and confirmation sampling pursuant to 19.15.29.12 NMAC. Delineation sampling being performed prior to excavation activities will not be accepted for remediation closure. Remediation and delineation will need to meet the most stringent remediation closure criteria found on Table I of 19.15.29 NMAC.	4/19/2024
bhall	Due to incomplete delineation information the excavation may need to be extended past the proposed 4.5 feet below ground surface and will need to be extended horizontally beyond the proposed excavation area proposed on Figure 4 contingent upon the results of the remediation confirmation samples. Remediation confirmation samples must meet the most stringent remediation closure criteria found on Table I of 19.15.29 NMAC.	4/19/2024
bhall	OCD approves the temporary stockpiling of contaminated soil on top of plastic with stormwater run-on/off protection (i.e. berms, waddles, etc.) properly installed around the contaminated soil stockpile to prevent transportation of contaminated soils due to precipitation events. If the plastic is found to be damaged during remediation activities, 5-point composite samples, representative of no more than 200 square feet will need to be collected from beneath the plastic and analyzed for TPH, BTEX, and chloride to ensure no contaminated soil is present at the surface. Photos of the stockpile with the BMPs will need to be included in the closure report. The Bills of Lading and photos of the removal of the stockpile and native surface underneath the stockpile will also need to be included in the remediation closure report.	4/19/2024
bhall	The site will need to be reclaimed at time of remediation as it is in an area considered not reasonably needed for production or subsequent drilling activities. The reclamation can be submitted with OR separately from the Remediation Closure Report.	4/19/2024
bhall	The reclamation report will need to include the executive summary of the reclamation activities; scaled site map including sampling locations; analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; at least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	4/19/2024
bhall	Pursuant to 19.15.29.12 D.(1)(a) NMAC, ensure the C-141N (Notification of Sampling) application is completed on the OCD Permitting website at least 2 business days prior to collecting remediation confirmation samples.	4/19/2024
bhall	Approval of this C-141 remediation plan is only applicable for incident nMLB1211627407 and is not applicable to any other incident number.	4/19/2024
bhall	The approval of this 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	4/19/2024
bhall	A complete remediation closure report and/or reclamation report pursuant to 19.15.29 NMAC will need to be submitted by 7/19/2024. Failure to submit a complete remediation plan and/or remediation closure report by 7/19/2024 is subject to compliance and enforcement penalties pursuant to 19.15.5 NMAC.	4/19/2024