

# 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 5a 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 1399 ± barrels.

29600	sq ft of release footprint from Google Earth
4.3	ft depth of sampling
127280	cubic feet of soil/rock 0-4.3 feet below footprint
0.0283	cu ft/m <sup>3</sup> conversion factor
3602.024	cu meters of earth below footprint to 4.3 feet
1450	Kg/m <sup>3</sup> density of silty clay from internet sources
5,222,934.80	kg - total weight of soil beneath footprint to 4.3 ft
3653	mg/kg - average chloride in samples beneath footprint - 100 (background)
19,079,380,824.40	mg chloride in soil 0-4.3 feet below footprint
85,800.00	mg/L chloride in release water (see attached analysis)
222,370.41	Liters - released assuming all chloride from produced water
159	liters/bbl. conversion factor
1399	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 <sub>4</sub> )	1210
Barium(as Ba)	0.0952	Dissolved CO <sub>2</sub> (as CO <sub>2</sub> )	160.00
Strontium(as Sr)	91.39	Bicarbonate(as HCO <sub>3</sub> )	1684
Sodium(as Na)	51059	H <sub>2</sub> S (as H <sub>2</sub> 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

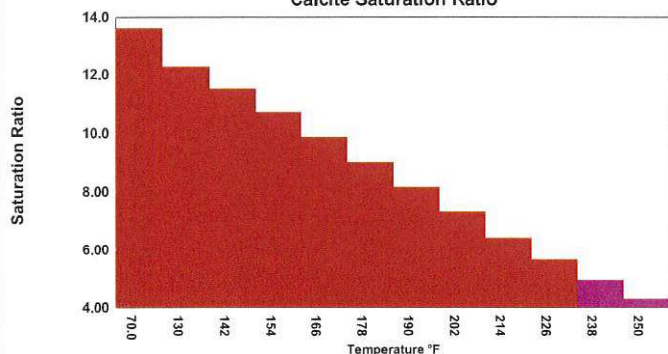
## SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (atm)	Calcite CaCO <sub>3</sub>		Anhydrite CaSO <sub>4</sub>		Gypsum CaSO <sub>4</sub> *2H <sub>2</sub> O		Barite BaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Siderite FeCO <sub>3</sub>		Mackinawite FeS		CO <sub>2</sub> (mpy)	pCO <sub>2</sub> (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		Lbs per		Lbs per		Lbs per		Lbs per		Lbs per		Lbs per				
		xSAT	1000	xSAT	1000	xSAT	1000	xSAT	1000	xSAT	1000	xSAT	1000	xSAT	1000			
		Barrels		Barrels		Barrels		Barrels		Barrels		Barrels		Barrels				

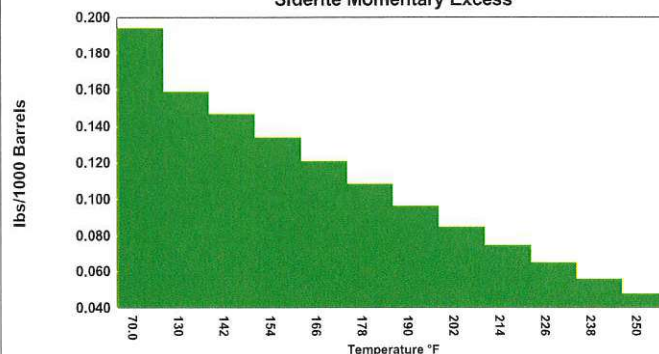
Saturation Ratios (xSAT) are the ratio of ion activity to solubility, e.g. {Ca}{CO<sub>3</sub>}/K<sub>sp</sub>. pCO<sub>2</sub> (atm) is the partial pressure of CO<sub>2</sub> in the gas phase.

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

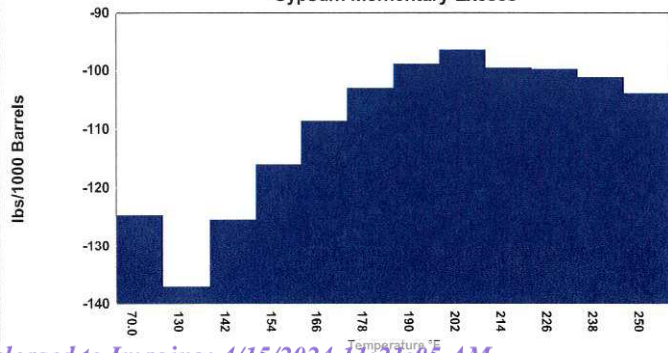
Calcite Saturation Ratio



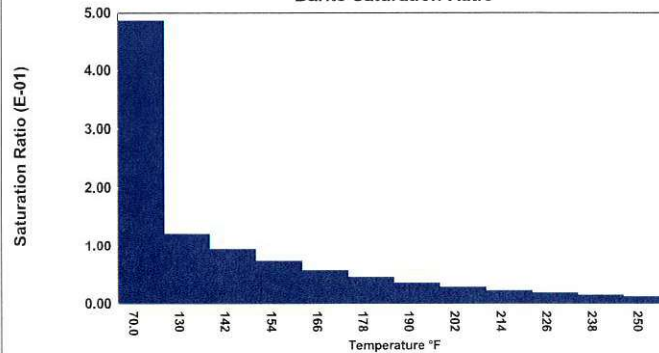
Siderite Momentary Excess



Gypsum Momentary Excess



Barite Saturation Ratio





# 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 <sub>4</sub> )	1075
Dissolved CO <sub>2</sub> (as CO <sub>2</sub> )	0.00
Bicarbonate(as HCO <sub>3</sub> )	1427
H <sub>2</sub> S (as H <sub>2</sub> S)	85.50
Boron(as B)	13.61

### PARAMETERS

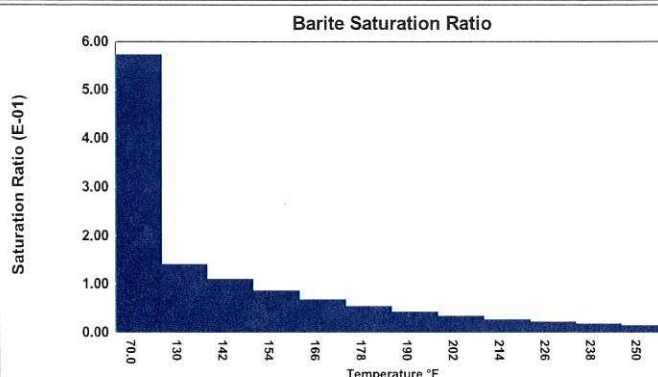
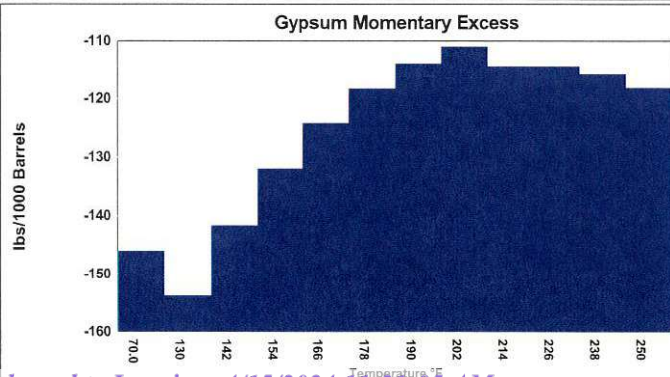
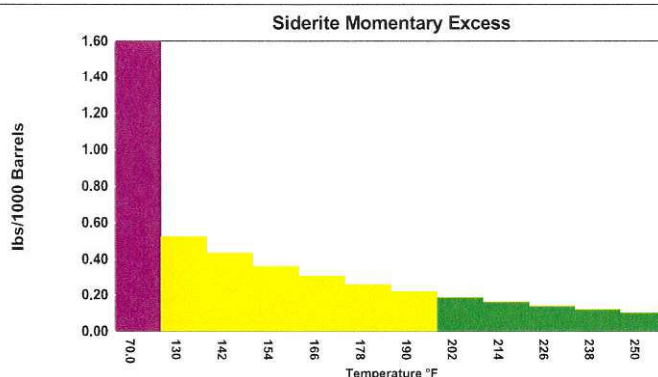
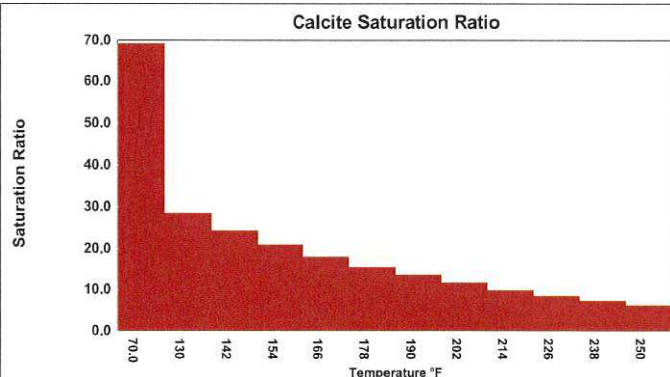
Temperature(°F)	70.10	Sample pH	7.39
Conductivity	141517	Sp.Gr.(g/mL)	1.095
Resistivity	7.07	T.D.S.	150946

## SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (atm)	Calcite CaCO <sub>3</sub>		Anhydrite CaSO <sub>4</sub>		Gypsum CaSO <sub>4</sub> *2H <sub>2</sub> O		Barite BaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Siderite FeCO <sub>3</sub>		Mackinawite FeS		CO <sub>2</sub> (mpy)	pCO <sub>2</sub> (atm)
70.00	1.000	69.13	1.65	0.419	-255.24	0.593	-146.17	0.572	-0.0592	0.397	-91.76	28.82	1.60	131.95	0.240	0.0402	0.0430
130.00	10.000	28.29	0.473	0.484	-160.73	0.527	-153.83	0.141	-0.481	0.342	-102.64	17.51	0.523	17.79	0.209	0.185	0.430
142.00	19.000	24.13	0.388	0.528	-130.26	0.538	-141.78	0.109	-0.645	0.327	-106.26	16.13	0.431	12.56	0.199	0.188	0.817
154.00	28.000	20.70	0.321	0.587	-99.08	0.546	-132.08	0.0848	-0.851	0.313	-110.19	14.90	0.359	9.01	0.188	0.210	1.20
166.00	37.000	17.81	0.268	0.665	-68.72	0.553	-124.35	0.0664	-1.11	0.299	-114.43	13.78	0.301	6.54	0.175	0.243	1.59
178.00	46.000	15.35	0.225	0.767	-40.36	0.557	-118.39	0.0522	-1.43	0.285	-119.02	12.73	0.254	4.81	0.159	0.260	1.98
190.00	55.000	13.24	0.191	0.898	-14.72	0.559	-114.01	0.0413	-1.82	0.271	-124.01	11.76	0.216	3.56	0.141	0.148	2.36
202.00	64.000	11.41	0.162	1.07	7.85	0.559	-111.08	0.0329	-2.30	0.257	-129.44	10.85	0.184	2.66	0.119	0.135	2.75
214.00	73.000	9.63	0.139	1.27	26.80	0.551	-114.41	0.0259	-2.93	0.240	-138.15	9.80	0.159	1.92	0.0874	0.128	3.14
226.00	82.000	8.25	0.118	1.54	43.88	0.547	-114.40	0.0208	-3.67	0.227	-144.91	8.97	0.137	1.45	0.0546	0.264	3.53
238.00	91.000	7.05	0.100	1.89	58.21	0.541	-115.68	0.0167	-4.57	0.214	-152.32	8.19	0.118	1.10	0.0149	0.422	3.91
250.00	100.000	6.01	0.0850	2.34	70.15	0.532	-118.24	0.0134	-5.65	0.201	-160.43	7.46	0.101	0.833	-0.0329	0.525	4.30
		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}{CO<sub>3</sub>}/K<sub>sp</sub>. pCO<sub>2</sub> (atm) is the partial pressure of CO<sub>2</sub> 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

## IMPERATIVE

CHEMICAL PARTNERS

201 W Wall Street, Suite 900  
Midland, TX 79701

### SYSTEM IDENTIFICATION

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<sub>4</sub>) 1186  
Dissolved CO<sub>2</sub>(as CO<sub>2</sub>) 0.00  
Bicarbonate(as HCO<sub>3</sub>) 1781  
H<sub>2</sub>S (as H<sub>2</sub>S) 85.50  
Boron(as B) 12.09

#### PARAMETERS

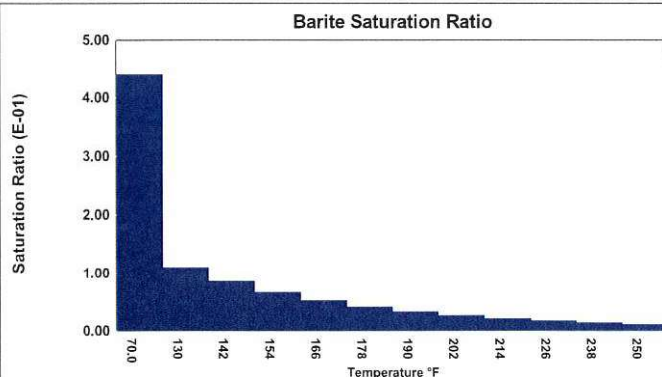
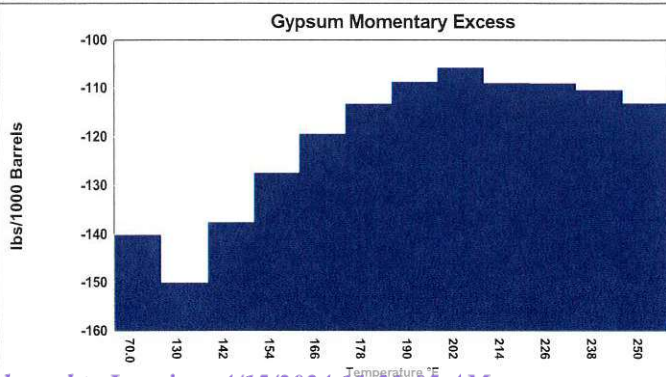
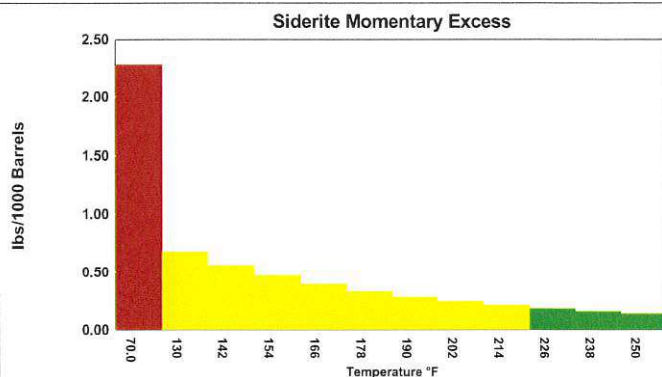
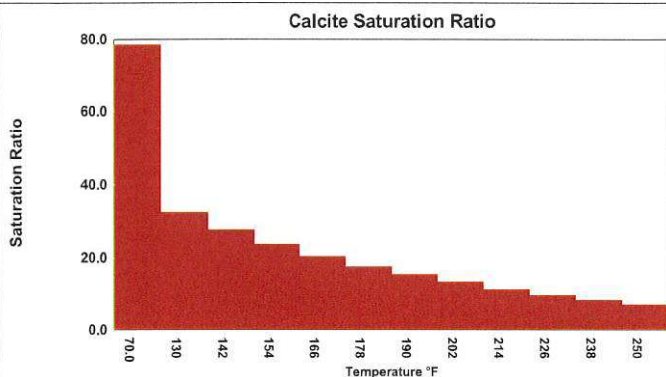
Temperature(°F) 73.30 Sample pH 7.37  
Conductivity 150925 Sp.Gr.(g/mL) 1.095  
Resistivity 6.63 T.D.S. 153465

### SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (atm)	Calcite CaCO <sub>3</sub>		Anhydrite CaSO <sub>4</sub>		Gypsum CaSO <sub>4</sub> *2H <sub>2</sub> O		Barite BaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Siderite FeCO <sub>3</sub>		Mackinawite FeS		CO <sub>2</sub> (mpy)	pCO <sub>2</sub> (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 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}{CO<sub>3</sub>}/K<sub>sp</sub>. pCO<sub>2</sub> (atm) is the partial pressure of CO<sub>2</sub> in the gas phase.

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







## Site Assessment and Remediation Work Plan

**Murchison Oil & Gas, LLC**

**Ogden State 5a**

**Eddy County, New Mexico**

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

**Latitude 32.154250 North, Longitude 104.263969 West**

**NMOCD Incident # NAB1902343484**

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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  
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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 2 Murchison Ogden 5a Summary of All Analytical

### Attachments

- Attachment I – Karst, Wetland, and Soil Maps
- Attachment II – Depth to Groundwater
- Attachment III – RT Hick Consultants, Ltd.
  - Figure 1 Release Footprint and 2018-19 Sample Locations
  - Figure 2E All Rule 29 Compliance Samples – East Half
  - Figure 2W All Rule 29 Compliance Samples – West Half
- Attachment IV – RT Hick Consultants, Ltd.
  - Site Characterization/Assessment Report, Ogden State 5a Release
  - Volume 2, Sampling History and Methods, Laboratory Reports
- Attachment V – Boone Archaeological Consultants, LLC Archaeological Survey
  - CEHMM SSPS Survey
- Attachment VI – 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 produced water line; Latitude 32.154250 North, Longitude 104.263969 West. The NMOCD Form C-141 indicated that on May 26, 2017 an unknown amount of produced water was released due to a leak in the produced water line. A crew was dispatched to the release site and the line was repaired. No fluid was recovered. Previously submitted pages of the NMOCD Form C-141 are 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.





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**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 five feet bgs. The proposed excavation area of approximately 29,600 sq. ft. is depicted on Figure 4.
- Excavated contaminated soil, approximately 5,500 cy, will be temporarily stockpiled onsite, atop plastic, before transport to an NMOCD approved disposal facility. Retention berms, installed by RT Hicks Consultants, Ltd. for the purpose of flooding the release area, will also be removed and hauled to disposal.
- 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 and Special Status Plant Species:**

Archaeological Survey, NMCRIS Activity Number 154352, was completed on November 20, 2023. 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.

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CEHMM conducted a Special Status Plant Species (SSPS) survey on November 27, 2023 and found no protected species within the spill footprint and 100-meter buffer. The reports, indicating negative findings are provided as Attachment V.

**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 5,500 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 VI.

**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.





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**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 1**

Topographic Map  
 Murchison Oil & Gas  
 Ogden State 5a  
 GPS: 32.15425, -104.263969  
 Eddy County

**Legend:**

● Ogden State 5a Location

Drafted: dd  
 Checked: bw  
 Date: 3/19/24





**Figure 2**

OSE POD Locations Map  
Murchison Oil & Gas  
Ogden State 5a  
GPS: 32.15425, -104.263969  
Eddy County

**Legend:**

● Ogden State 5a Location



Drafted: dd  
Checked: bw  
Date: 3/19/24



**Figure 3**

USGS Well Locations Map  
Murchison Oil & Gas  
Ogden State 5a  
GPS: 32.15425, -104.263969  
Eddy County

**Legend:**

● Ogden State 5a Location

Drafted: dd  
Checked: bw  
Date: 3/19/24





**Figure 4**

Proposed Delineation Sample Map  
 Murchison Oil & Gas  
 Ogden State 5a  
 GPS: 32.15425, -104.263969  
 Eddy County

**Legend:**

- Proposed Excavation Area - Approximately 29,600 square feet
- SP1 Proposed Vertical Delineation Sample Location
- HZ1 Proposed Horizontal Delineation Sample Location

Drafted: dd  
 Checked: bw  
 Date: 4/1/24





## Table



Table 2

**Murchison Ogden State 5a  
Summary of All Analytical**

Sample Name	Date	Top Depth	Base Depth	Discrete Depth	In-Use	Cl 20,000 Standard	GRO+DRO 1000 Standard	TPHext 2500 Standard	BTEX 50 Standard	Benzene 10 Standard
T Tee (release origin)	04/26/2018	0.0	0.5		Yes	4,800	0	0	0	0
T Tee (release origin)	04/26/2018	0.5	1.0		Yes	830	0	0		
T Tee (release origin)	04/26/2018	1.0	2.0		Yes	1,100	0	0	0	0
T Tee (release origin)	04/26/2018	2.0	3.0		Yes	1,100	0	0		
T Tee (release origin)	04/26/2018	3.0	4.0		Yes	1,500	0	0	0	0
T Tee (release origin)	04/26/2018	4.0	5.0		Yes	1,600	0	0	0	0
77 77 ft East (of origin)	04/26/2018	0.0	0.5		Yes	16,000	0	0	0	0
77 77 ft East (of origin)	04/26/2018	0.5	1.0		Yes	11,000	0	0		
77 77 ft East (of origin)	04/26/2018	1.0	2.0		Yes	8,200	0	0	0	0
77 77 ft East (of origin)	04/26/2018	2.0	3.0		Yes	8,300	0	0		
77 77 ft East (of origin)	04/26/2018	3.0	4.0		Yes	4,400	0	0	0	0
77 77 ft East (of origin)	04/26/2018	4.0	5.0		Yes	3,400	0	0	0	0
77 77 ft East (of origin)	01/16/2019	0.0	2.0		Yes	6,000				
77 77 ft East (of origin)	01/16/2019	2.0	4.0		Yes	1,420				
77 77 ft East (of origin)	01/16/2019	0.0	4.0		Yes	2,880	0	0	0	0
77 77 ft East (of origin)	01/16/2019			5.0	Yes	1,760	0	0	0	0
35 35 ft Northeast (of origin)	04/26/2018	0.0	0.5		No	8,600	0	0	0	0
35 35 ft Northeast (of origin)	01/16/2019	0.0	2.0		No	4,320				
35 35 ft Northeast (of origin)	01/16/2019	2.0	4.0		No	3,920				
35 35 ft Northeast (of origin)	01/16/2019	0.0	4.0		No	5,600	0	0	0	0
35 35 ft Northeast (of origin)	01/16/2019			5.0	No	5,040	0	0	0	0
230 230 ft East (of origin)	04/26/2018	0.0	0.5		Yes	47,000	0	0	0	0
230 230 ft East (of origin)	01/16/2019	0.0	2.0		Yes	8,660				
230 230 ft East (of origin)	01/16/2019	2.0	4.0		Yes	960				
230 230 ft East (of origin)	01/16/2019	0.0	4.0		Yes	6,320	0	0	0	0
230 230 ft East (of origin)	01/16/2019			5.0	Yes	368	0	0	0	0
230 230 ft East (monitor)	06/13/2023	0.0	2.0		Yes	160				
230 230 ft East (monitor)	06/13/2023	2.0	4.0		Yes	80				
230 230 ft East (monitor)	06/13/2023			4.5	Yes	80				

Blank - Not Analyzed For Constituent

0 = Below Detection Limits



**Table 2**

**Murchison Ogden State 5a  
Summary of All Analytical**

390	390 ft East (of origin)	04/26/2018	0.0	0.5		Yes	760	0	0	0	0
390	390 ft East (of origin)	01/16/2019	0.0	2.0		Yes	8,000				
390	390 ft East (of origin)	01/16/2019	2.0	4.0		Yes	624				
390	390 ft East (of origin)	01/16/2019	0.0	4.0		Yes	5,600	0	0	0	0
390	390 ft East (of origin)	01/16/2019			4.3	Yes	3,360	0	0	0	0
E1	EC-01	01/16/2019	0.0	2.0		No	2,600				
E1	EC-01	01/16/2019	2.0	4.0		No	352				
E1	EC-01	01/16/2019	0.0	4.0		No	1,140	0	0	0	0
E1	EC-01	01/16/2019			4.3	No	64	0	0	0	0
E2	EC-02	01/16/2019	0.0	4.0		No	256	0	0	0	0
E2	EC-02	01/16/2019			4.3	No	7,200	0	0	0	0
E3	EC-03	01/16/2019	0.0	4.0		No	32	0	0	0	0
E3	EC-03	01/16/2019			5.0	No	48	0	0	0	0
E4	EC-04	01/16/2019	0.0	2.0		Yes	2,720				
E4	EC-04	01/16/2019	2.0	4.0		Yes	688				
E4	EC-04	01/16/2019	0.0	4.0		Yes	2,320	0	0	0	0
E4	EC-04	01/16/2019			5.0	Yes	192	0	0	0	0
5n	5 ft N of EC-4	05/02/2019	0.0	2.0		No	384				
5n	5 ft N of EC-4	05/02/2019	2.0	4.0		No	32				
5n	5 ft N of EC-4	05/02/2019			4.5	No	48				
E5	EC-05	01/16/2019	0.0	2.0		No	3,360				
E5	EC-05	01/16/2019	2.0	4.0		No	1,010				
E5	EC-05	01/16/2019	0.0	4.0		No	1,760	0	0	0	0
E5	EC-05	01/16/2019			5.0	No	704	0	0	0	0
390n	390 ft E, 20x17, 10 ft N WALL COMP.	04/26/2019	0.0	4.0		No	1,580				
390s	390 ft E, 20x17, 7 ft S WALL COMP.	04/26/2019	0.0	4.0		No	9,460				
390e	390 ft E, 20x17, 10 ft E WALL COMP.	04/26/2019	0.0	4.0		No	14,900				
390w	390 ft E, 20x17, 10 ft W WALL COMP.	04/26/2019	0.0	4.0		No	10,900				
390f	390 ft E, 20x17, FLOOR COMP. @4 ft	04/26/2019			4.0	No	3,400				
E1n	EC-01, 20x20, 10 ft N WALL COMP.	04/26/2019	0.0	4.0		No	384				
E1s	EC-01, 20x20, 10 ft S WALL COMP.	04/26/2019	0.0	4.0		No	2240				
E1e	EC-01, 20x20, 10 ft E WALL COMP.	04/26/2019	0.0	4.0		No	528				
E1w	EC-01, 20x20, 10 ft W WALL COMP.	04/26/2019	0.0	4.0		No	3600				
E1f	EC-01, 20x20, FLOOR COMP. @4 ft	04/26/2019			4.0	No	4160				

Blank - Not Analyzed For Constituent

0 = Below Detection Limits



**Table 2****Murchison Ogden State 5a  
Summary of All Analytical**

35n	35 ft N of 390 ft E	05/02/2019	0.0	2.0		No	80				
35n	35 ft N of 390 ft E	05/02/2019	2.0	4.0		No	64				
35n	35 ft N of 390 ft E	05/02/2019			4.5	No	48				
E6	EC-06	05/02/2019	0.0	2.0		No	192				
E6	EC-06	05/02/2019	2.0	3.5		No	128				
E6	EC-06	05/02/2019			3.5	No	144				
E7	EC-07	05/03/2019	0.0	2.0		No	80				
E7	EC-07	05/03/2019	2.0	4.0		No	112				
E7	EC-07	05/03/2019			4.5	No	80				
E8	EC-08	05/03/2019	0.0	2.0		No	2,360				
E8	EC-08	05/03/2019	2.0	4.0		No	923				
E8	EC-08	05/03/2019			4.5	No	704				
5s	5 ft S of EC-08	05/03/2019	0.0	2.0		No	16				
5s	5 ft S of EC-08	05/03/2019	2.0	3.5		No	16				
5s	5 ft S of EC-08	05/03/2019			3.5	No	112				
SB	Soil Boring (20 ft NW of tee)	08/23/2023			3.0		2,600				
SB	Soil Boring (20 ft NW of tee)	08/23/2023			6.0		1,460				
SB	Soil Boring (20 ft NW of tee)	08/23/2023			10.0		544				
SB	Soil Boring (20 ft NW of tee)	08/23/2023			16.0		336				
SB	Soil Boring (20 ft NW of tee)	08/23/2023			20.0		432				
SB	Soil Boring (20 ft NW of tee)	08/23/2023			30.0		192				
SB	Soil Boring (20 ft NW of tee)	08/23/2023			42.5		288				
SB	Soil Boring (20 ft NW of tee)	08/23/2023			52.0		208				
SB	Soil Boring (20 ft NW of tee)	08/23/2023			73.0		352				
SB	Soil Boring (20 ft NW of tee)	08/23/2023			90.0		384				
SB	Soil Boring (20 ft NW of tee)	08/23/2023			105.0		576				
BG	Background	01/30/2019	0.0	2.0			110				
BG	Background	01/30/2019	2.0	4.0			61				
BG	Background	01/30/2019			5.0		120				
1	SP-1	03/24/2021	0.0	2.0			3,880				
1	SP-1	03/24/2021	2.0	4.0			2,000				
1	SP-1	03/24/2021			4.5		2,600				
1	SP-1	06/13/2023	0.0	2.0			288				
1	SP-1	06/13/2023	2.0	4.0			864				
1	SP-1	06/13/2023			4.5		1,060				

Blank - Not Analyzed For Constituent

0 = Below Detection Limits



Table 2

**Murchison Ogden State 5a  
Summary of All Analytical**

2	SP-2	03/24/2021	0.0	2.0			3,800				
2	SP-2	03/24/2021	2.0	4.0			4,880				
2	SP-2	03/24/2021			4.5		5,200				
2	SP-2	06/13/2023	0.0	2.0			1,720				
2	SP-2	06/13/2023	2.0	4.0			288				
2	SP-2	06/13/2023			4.5		368				
2b	SP-2B	06/13/2023	0.0	2.0			4,560				
2b	SP-2B	06/13/2023	2.0	4.0			2,480				
2b	SP-2B	06/13/2023			4.5		2,040				
3	SP-3	03/24/2021	0.0	2.0			160				
3	SP-3	03/24/2021	2.0	4.0			96				
3	SP-3	03/24/2021			4.5		64				
3	SP-3	06/13/2023	0.0	2.0			2,800				
3	SP-3	06/13/2023	2.0	4.0			2,960				
3	SP-3	06/13/2023			4.5		1,600				
4	SP-4	03/24/2021	0.0	2.0			8,200				
4	SP-4	03/24/2021	2.0	4.0			5,730				
4	SP-4	03/24/2021			4.5		1,760				
4	SP-4	06/13/2023	0.0	2.0			8,640				
4	SP-4	06/13/2023	2.0	4.0			11,300				
4	SP-4	06/13/2023			4.5		3,920				
5	SP-5	03/24/2021	0.0	2.0			288				
5	SP-5	03/24/2021	2.0	4.0			240				
5	SP-5	03/24/2021			4.5		160				
6	SP-6	03/24/2021	0.0	2.0			5,360				
6	SP-6	03/24/2021	2.0	4.0			3,760				
6	SP-6	03/24/2021			4.5		1,440				
6	SP-6	06/13/2023	0.0	2.0			4,400				
6	SP-6	06/13/2023	2.0	4.0			1,060				
6	SP-6	06/13/2023			4.5		336				
6b	SP-6B	06/13/2023	0.0	2.0			6,880				
6b	SP-6B	06/13/2023	2.0	4.0			4,400				
6b	SP-6B	06/13/2023			4.5		5,040				

Blank - Not Analyzed For Constituent

0 = Below Detection Limits



**Table 2****Murchison Ogden State 5a  
Summary of All Analytical**

7	SP-7	03/24/2021	0.0	2.0			464				
7	SP-7	03/24/2021	2.0	4.0			176				
7	SP-7	03/24/2021			4.5		160				
8	SP-8	03/24/2021	0.0	2.0			496				
8	SP-8	03/24/2021	2.0	4.0			48				
8	SP-8	03/24/2021			4.5		80				
9	SP-9	03/24/2021	0.0	2.0			10,800				
9	SP-9	03/24/2021	2.0	4.0			3,720				
9	SP-9	03/24/2021			4.5		1,520				
9	SP-9	06/13/2023	0.0	2.0			10,800				
9	SP-9	06/13/2023	2.0	4.0			7,040				
9	SP-9	06/13/2023			4.5		2,800				
9b	SP-9B	06/13/2023	0.0	2.0			1,070				
9b	SP-9B	06/13/2023	2.0	4.0			704				
9b	SP-9B	06/13/2023			4.5		176				
9c	SP-9C	06/13/2023	0.0	2.0			10,100				
9c	SP-9C	06/13/2023	2.0	4.0			848				
9c	SP-9C	06/13/2023			4.5		2,120				
10	SP-10	03/24/2021	0.0	2.0			224				
10	SP-10	03/24/2021	2.0	4.0			288				
10	SP-10	03/24/2021			4.5		256				

Blank - Not Analyzed For Constituent

0 = Below Detection Limits

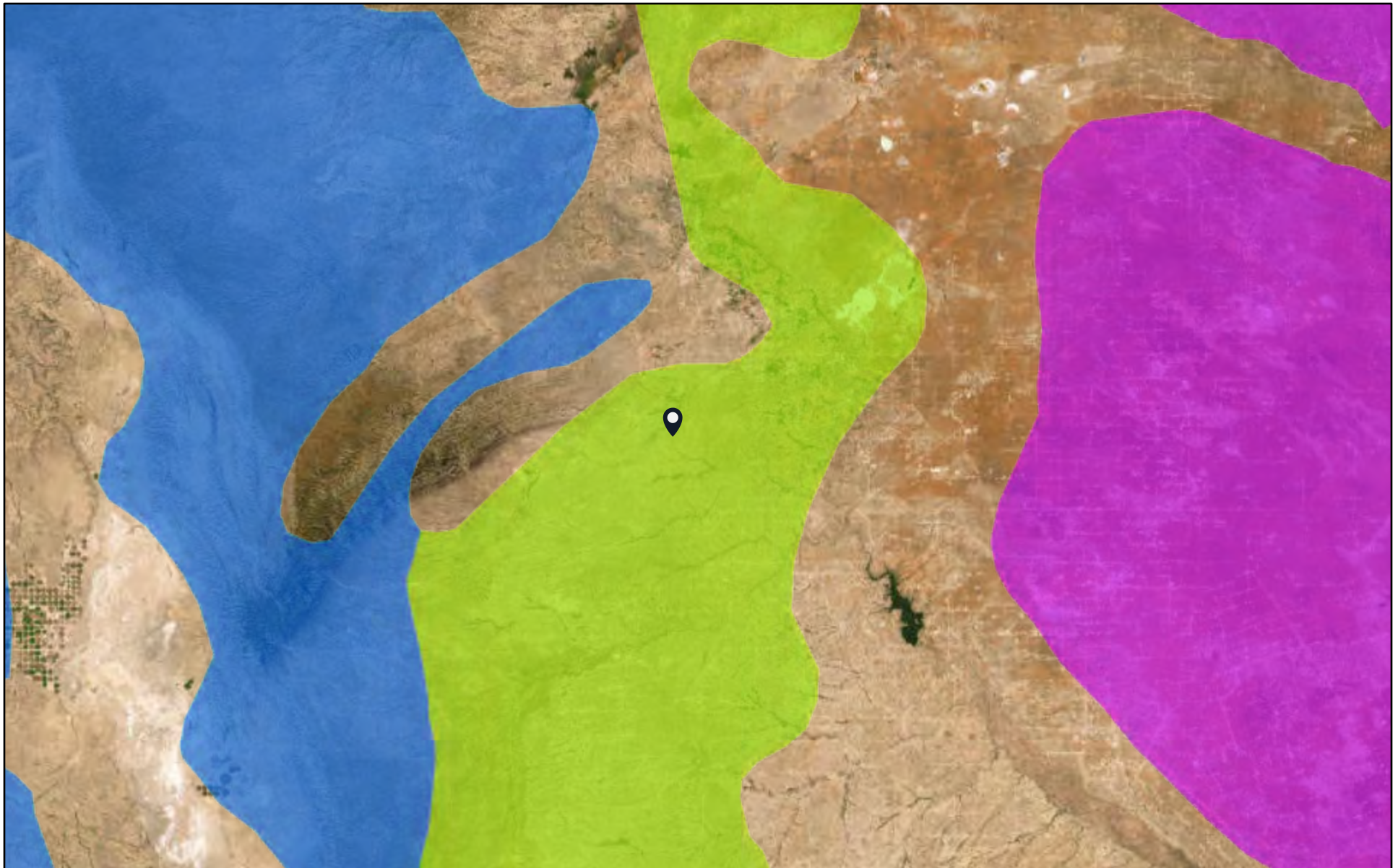


## **Attachment I**

### **Karst, Wetland, and Soil Maps**



## Ogden State 5a



3/20/2024

## Karst Type

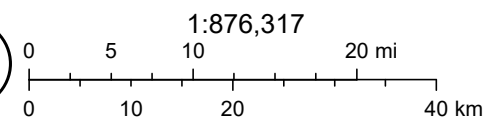
- Carbonate
- Erosional
- Gypsum

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

High Resolution 30cm Imagery

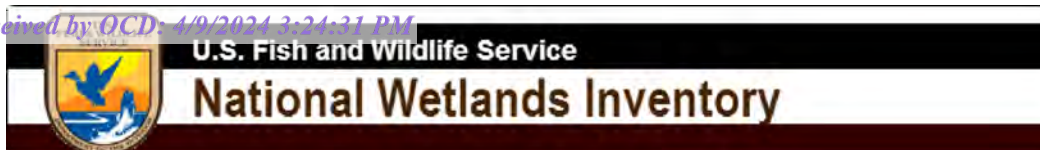
Citations

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 5a



March 20, 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.



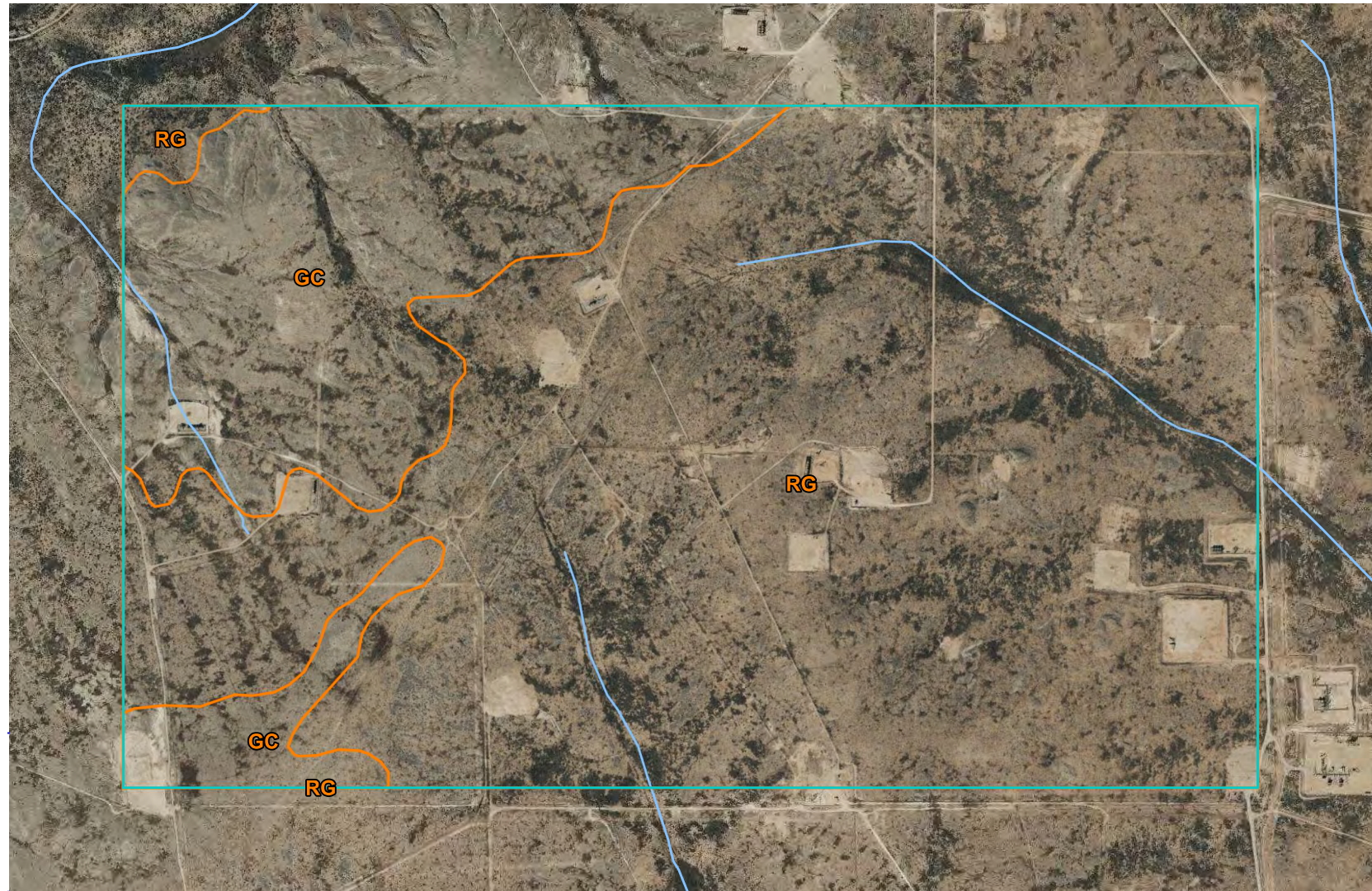
Soil Map—Eddy Area, New Mexico  
(Ogden State 5a)

W 104° 15' 51" 0401

W 104° 15' 41" 0401

32° 9' 49" N

32° 9' 49" N



32° 8' 41" N

32° 8' 41" N

W 104° 15' 51" 0401

W 104° 15' 41" 0401



Map Scale: 1:14,800 if printed on A landscape (11" x 8.5") sheet.

0 200 400 800 1200 Meters

0 500 1000 2000 3000 Feet

Map projection: Web Mercator Corner coordinates: WGS84



**Natural Resources  
Conservation Service**

Web Soil Survey  
National Cooperative Soil Survey


3/20/2024  
Page 1 of 3



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

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	248.1	23.0%
RG	Reeves-Gypsum land complex, 0 to 3 percent slopes	829.6	77.0%
Totals for Area of Interest		1,077.8	100.0%



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

Ogden State 5a

## 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 5a

### 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): 569406.25      Northing (Y): 3557770.61      Radius: 805

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



# R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

## Memorandum

From: Kristin Pope

Date: September 11, 2023

**RE: Murchison-Ogden St. 5A release, Characterization Soil Boring**  
Lat./long.: 32.15434, -104.26397

The subject site is located approximately 12 miles south of Carlsbad city limits, with a surface elevation of approximately 3,390 feet asl. On August 23, 2023, I met the client Greg Boans (Murchison), Dr. David Decker (Southwest Geophysical Consulting), and representatives of Ready Drill LLC on site to install an investigative soil boring nearest the release origin. To maintain a safe distance from active, underground pipelines, the soil boring was located approximately 20 feet northwest of the junction, or "tee" as shown on the adjacent image. The location was within the berms surrounding the release footprint.



2023 Google Earth satellite image

Weather conditions were cloudy with moderate-light but steady rain. Drilling began at 9:20 a.m. MST with instructions to the driller to proceed at a consistent rate and pressure. I continuously monitored the cuttings during each trip while regularly communicating with the driller as to the "feel" of the drilling, with instructions to inform Dr. Decker and me if any moisture was suspected or voids were encountered. I recorded the lithology and moisture content with each trip out of the hole. If any appreciable moisture would have been indicated, the operation would have been suspended to allow the water to accumulate and then measured.

Drilling steadily advanced at a rate of approximately 0.75 feet per minute until 23 feet, when heavy rain precluded inspection of cuttings and drilling ceased until the rain let up at 10:28 a.m. Hard dolomitic and gypsy rock in a matrix of silt and clay caused the need for a bit change at 38 feet. After this depth, drilling slowed to a rate of approximately 0.2 feet per minute. Hard drilling continuing from 52 feet until the remainder of the hole. Dr. Decker also inspected cuttings and communicated with the driller regarding karst considerations until 12:21 p.m. when he departed; we discussed the remainder of the soil boring conditions and lithologies later that day.

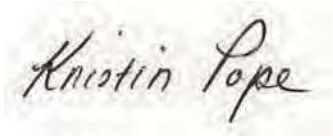
At 73 feet, the cuttings became dusty and continued until total depth was reached as planned, at 105 feet. No water or drilling fluids were used during drilling and the hole was backfilled with cuttings. I observed no water or measurable moisture in any of the cuttings I inspected, nor did the driller



Page 2

indicate any conditions associated with subsoil dampness or saturation. The experienced driller stated that he did not observe or feel any instances of the bit dropping which indicate the presence of voids.

Representative samples were submitted for laboratory analysis of chloride. Chloride concentrations, drilling conditions, and lithologies are summarized in the enclosed boring log. Based on my observations, I am certain that no groundwater is present below the surface of this well site to 105 feet (3,285 feet asl).

A handwritten signature in black ink that reads "Kristin Pope". The signature is written in a cursive style and is positioned on a light-colored, slightly textured background.



<b>Logger:</b>	Kristin Pope	<b>Client:</b>	Murchison Oil & Gas		<b>Well ID:</b>	<b>SB-1</b> (approx. 20 ft NW of pipeline tee)			
<b>Driller:</b>	Ready Drill LLC	<b>Project Name:</b>	Ogden 5A release						
<b>Drilling Method:</b>	CZM EK125 auger	<b>Location:</b>	Eddy County						
<b>Start Date:</b>	8/23/2023								
<b>End Date:</b>	8/23/2023								
moderate and steady rain			32.15434, -104.26397	Sec. 2, T25S, R26E					
<b>Depth</b> (feet BGS)	<b>Description</b>	<b>Time</b> MST	<b>Remarks</b>	<b>Lithology</b>	<b>Completion</b>	<b>Sample ID</b> (chloride mg/kg)	<b>Depth</b> (feet BGS)		
0	Surface	0920	Samples collected from auger bit; all samples were dry			Lab Analysis	0		
2	Green-gray silty clay		20 ft - heavy rain delay		Borehole backfilled with cuttings	SB @ 3 ft = 2600	2		
4									
6									
8									
10	Red clay with 15% dark gray dolomite	0931						SB @ 6 ft = 1460	6
12									
14	Red & gray silt with 15% gray-white gypsum							SB @ 10 ft = 544	10
16		0948							
18	Red silt with gray & white, vitreous gypsum flakes; 20% dark gray dolomite							SB @ 16 ft = 336	16
20		0952						SB @ 20 ft = 432	20
22							22		
24	Gray-white gypsum/dolomitic layers with tan silt		38 ft - Heavy rain delay; bit change		Borehole backfilled with cuttings	SB @ 30 ft = 192	24		
26									26
28									28
30		1028							30
32									32
34									34
36									36
38									38
40									40
42							1110		
44	Gray silt with dark gray-white dolomite		52-90 ft - hard drilling		Borehole backfilled with cuttings	SB @ 52 ft = 208	44		
46									46
48									48
50									50
52		1135							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			74					
76	Tan-light gray silt with 40% hard, gray limestone or dolostone layers or lenses		At 79 ft, becomes dusty (finer, less consolidated)		Borehole backfilled with cuttings	SB @ 73 ft = 352	76		
78									78
80									80
82									82
84									84
86									86
88									88
90		1352							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		
<b>R.T. Hicks Consultants, Ltd</b> 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104		<b>Murchison Oil &amp; Gas</b>			<b>Plate #</b>				
		<b>Ogden 5A Release: Soil Boring Log</b>			<b>Sept 2023</b>				





3-ft sample: demonstration of plasticity



6-ft sample: appearance of red clay at  
bottom of auger

10-ft sample: auger (right), dolomite (bottom)

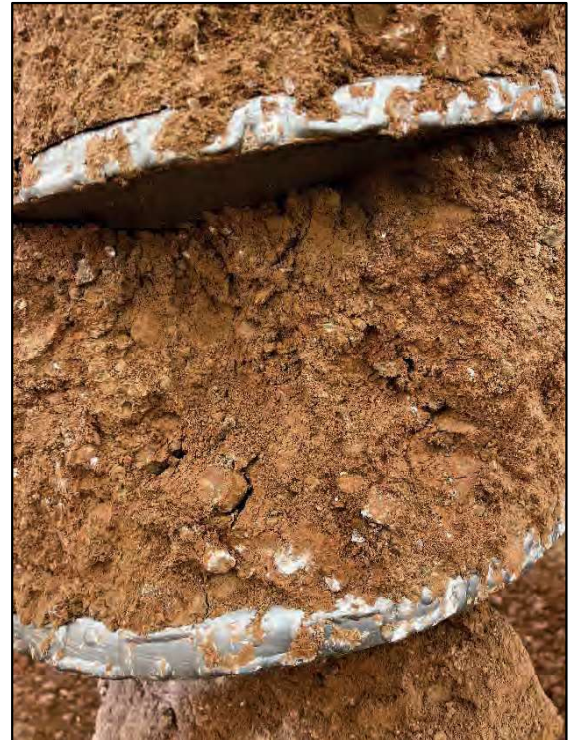






16-ft sample: Silt with gypsum or dolomite

20-ft sample: Auger (left) and  
vitreous gypsum shown (bottom)



30-ft sample: Dolomite or gypsum with silt







42.5 ft-sample: Silt with dolomite

52-ft sample: hard limestone or dolomite in silt (left),  
auger(right)



60-ft sample





73-ft sample: auger (left), silt with limestone or dolomite (above)

90-ft sample: returns have become dusty



Hard dolomite or limestone at 95 ft





Hard dolomite at 99 ft



105-ft sample from TD (above); spin of final TOOH (left)



## **Attachment III**

**RT Hick Consultants, Ltd.**

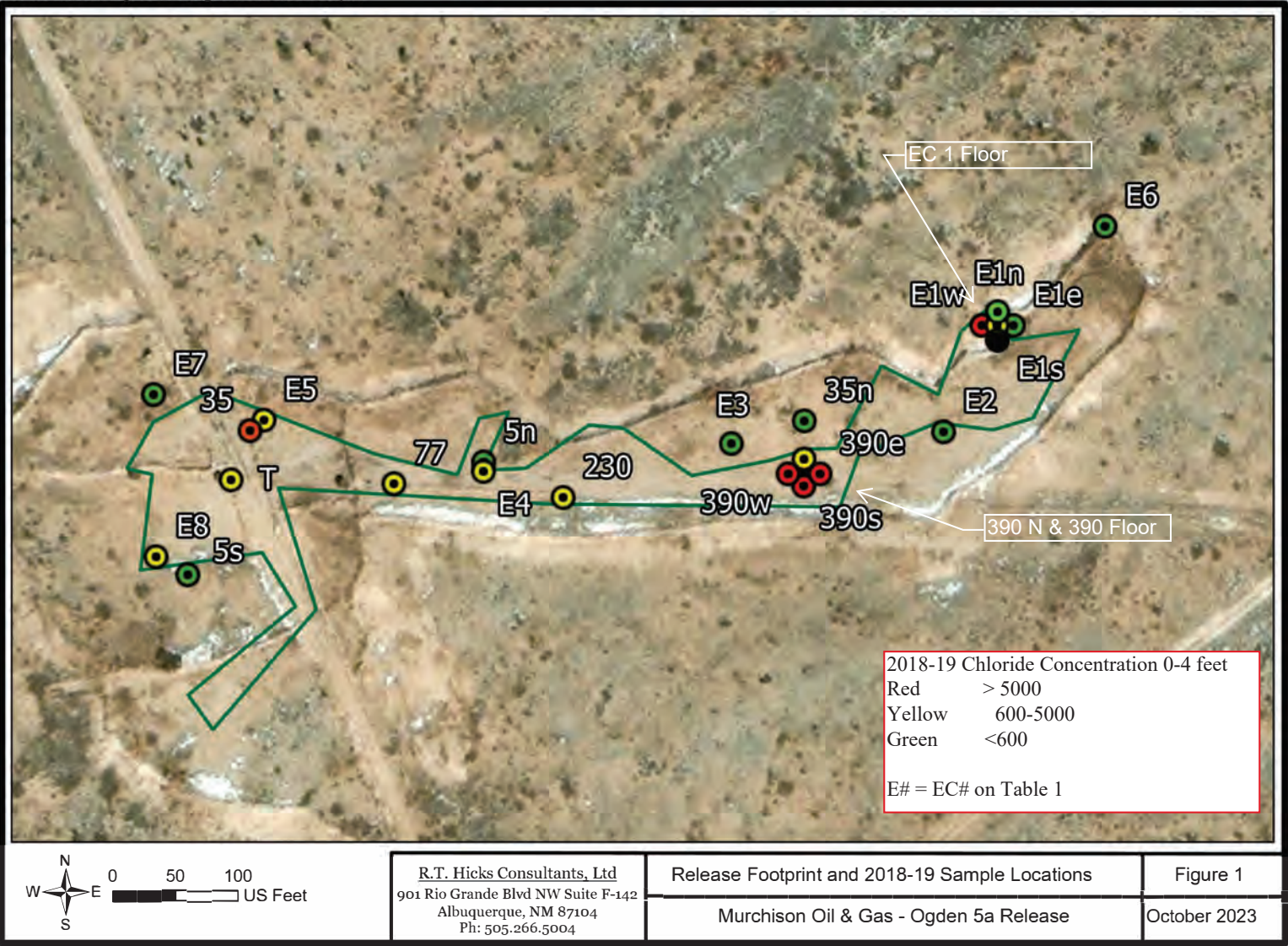
**Figure 1 - Release Footprint and 2018-19 Sample Locations**

**Figure 2E - All Rule 29 Compliance Samples – East Half**

**Figure 2W - All Rule 29 Compliance Samples – West Half**

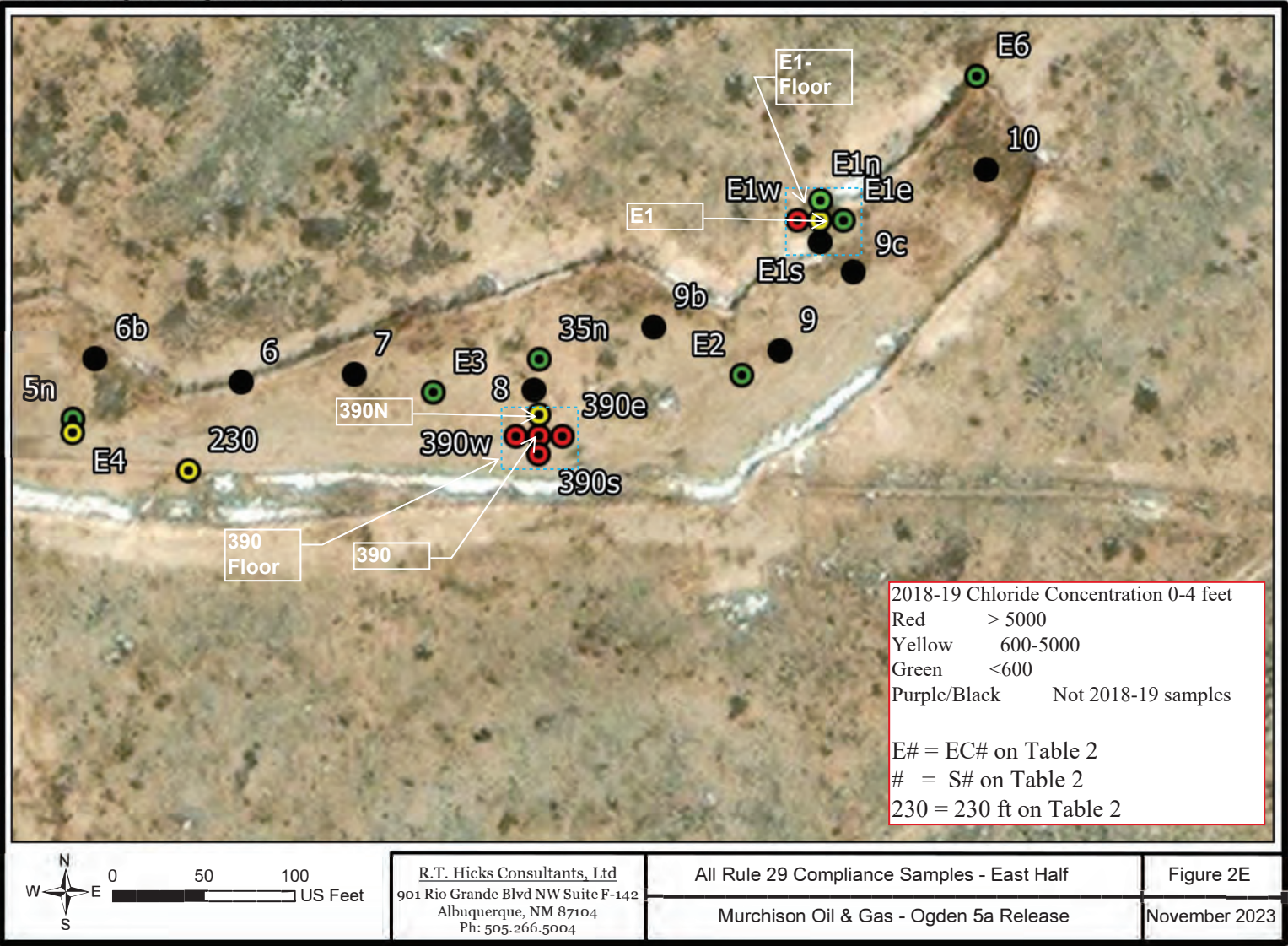


P:\Murchison Ogden 5a\Ogden5aRelease.aprx



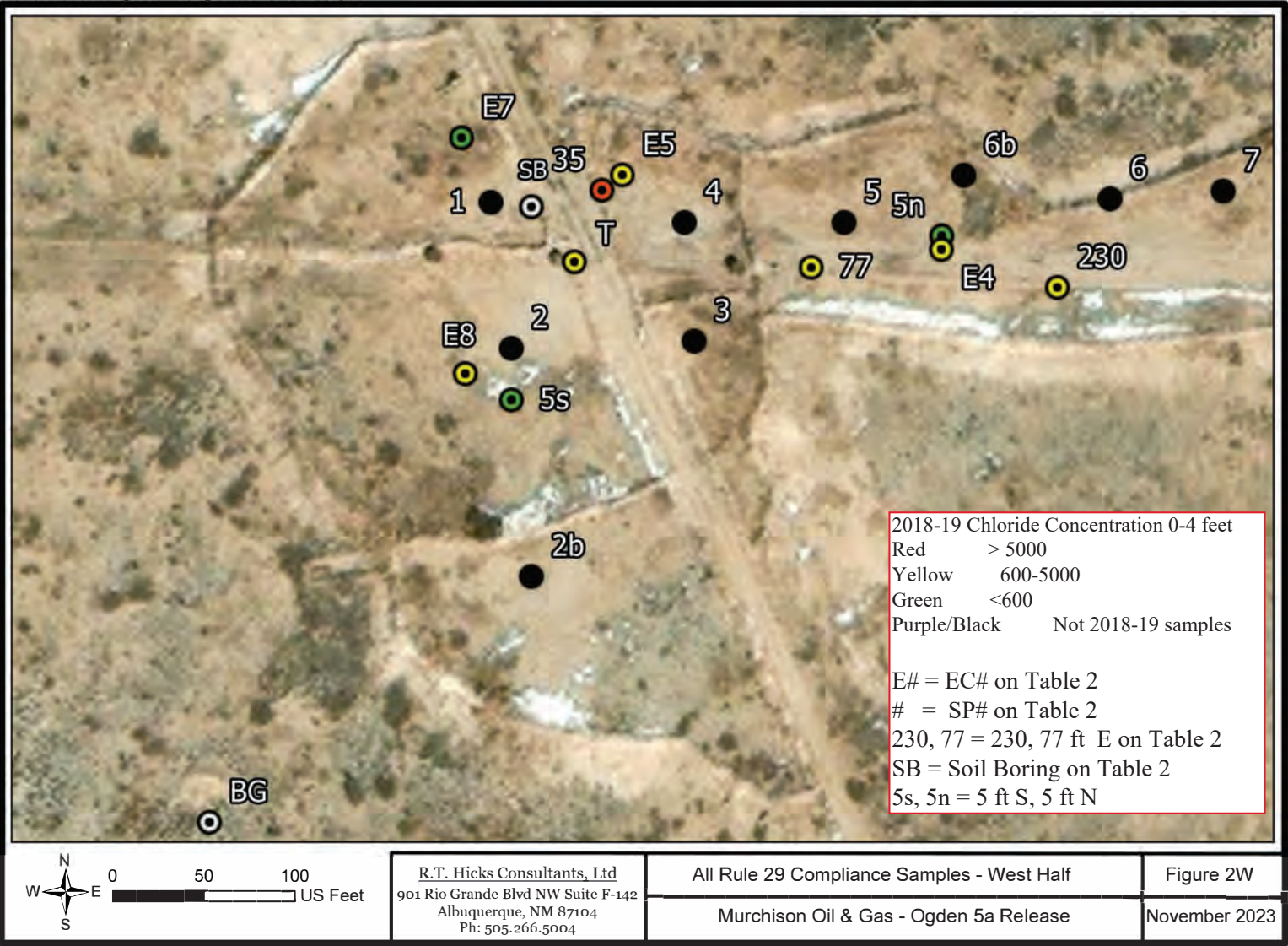


P:\Murchison Ogden 5a\Ogden5aRelease.aprx





P:\Murchison Ogden 5a\Ogden5aRelease.aprx





**Attachment IV**  
**RT Hick Consultants, Ltd.**  
**Site Characterization/Assessment Report, Ogden State 5a**  
**Release Volume 2, Sampling History and Methods, Laboratory**  
**Reports**



July 2023

**Site Characterization/Assessment Report  
Ogden State 5a Release  
Volume 2  
Sampling History and Methods  
Laboratory Reports**



*View of background sampling location showing the quality of vegetation and topsoil outside of the release footprint.*

**Prepared for:  
Murchison Oil and Gas LLC  
Plano, Texas**

**Prepared by:  
R.T. Hicks Consultants, Ltd.  
901 Rio Grande NW F-142  
Albuquerque, New Mexico**



## Appendix – Explanation of Field Investigations

### Release Footprint Characterization Protocol

CM Services obtained clearance from the NM811 “one-call” service for underground facilities location before any excavation. RT Hicks Consultants was responsible for the collection, storage, integrity, and transport of all samples.

We followed the procedures transmitted to NMOCD in January 19, 2022. On January 19, 2022, Hicks Consultants met with JC Services to obtain 28 samples from 7 locations at the site) and returned to collect 12 samples on February 2, 2023 (see Figure 1). The samples were obtained from the following depth intervals and submitted to Cardinal Laboratories for analysis.

- a. 0-4 feet depth interval
- b. 0-2 foot depth
- c. 2-4 foot depth
- d. 4.2 feet depth

We sampled locations 1-6 and a background location during the January 2022 sampling event. Locations 1-6 were all located within the surface area of the release.

### Horizontal Characterization

We returned to the site on February 2, 2023 to re-sample locations 1-6 and added locations 7 and 8 using the protocol described previously. Sample locations 7-8 were selected to determine what, if any, lateral impacts were caused outside the surface footprint of the release. The locations of 7 and 8 were determined by ease of access, surface and sub-surface facilities, and geometry of the release observed by field personnel. Five borings, spaced about 100 feet apart characterize the impacts along the main flow path of water from the source of produced water to the distal end of the footprint. These are labeled 1, 5, 9, 13 and 16.

- Eight borings, also spaced about 100 feet apart, characterize the magnitude of horizontal spread from the flow line to the edges of the footprint. These locations are: 3, 4, 6, 7, 8, 10, 11, 14, 15
- Three locations are outside of but near to the obvious release footprint to determine if lateral spread in the soil zone may have occurred. They are: 2, 12, 17

### Vertical Characterization

The results of the January 2022 sampling to the depth of 4.3 feet demonstrated that vertical characterization of the release area was incomplete. Hicks Consultants with JCS mobilized to the site on December 20, 2022 to obtain four trench samples to greater depth. They are:

- L-5, the source of the release
- L-10 and L-11, locations midway along the release path and footprint, and
- L-16 at the distal end of the release.

Samples were collected at the depths of:

- a. 4.3 feet to allow comparison with the shallower samples collected in January 2022
- b. 6.0 feet
- c. 9.0 feet
- d. 12.0 feet



## Appendix – Explanation of Field Investigations

- e. An additional sample at greater depth if possible.

JC Services provided an excavator and an operator for the sampling. The procedures used were the same as used in January 2022 with adaptations to the use of the backhoe as compared to the auger. We preserved the samples on ice and submitted coolers to Hall Environmental Laboratories on Dec. 21, 2022 for analysis.

We requested chloride analyses for all samples. Based upon the January sampling results, we asked Hall to evaluate all samples from L-11 for TPH, GRO/DRO, and BTEX/benzene as the L-11 shallow samples had the highest concentrations for hydrocarbons.



LABORATORY REPORTS  
IN CHRONOLOGICAL ORDER





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

May 23, 2018

Kristin Pope

R.T. Hicks Consultants, LTD

901 Rio Grande Blvd. NW

Suite F-142

Albuquerque, NM 87104

TEL: (505) 266-5004

FAX (505) 266-0745

RE: Murchison Jawbone Ogden Release

OrderNo.: 1805021

Dear Kristin Pope:

Hall Environmental Analysis Laboratory received 15 sample(s) on 5/1/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



## Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: Tee @ 0-6"

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 10:05:00 AM

Lab ID: 1805021-001

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	4800	300		mg/Kg	200	5/21/2018 6:46:29 PM	37984
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	18	9.3		mg/Kg	1	5/4/2018 3:43:41 PM	37939
Motor Oil Range Organics (MRO)	60	47		mg/Kg	1	5/4/2018 3:43:41 PM	37939
Surr: DNOP	104	70-130		%Rec	1	5/4/2018 3:43:41 PM	37939
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/2/2018 12:23:27 PM	37887
Surr: BFB	82.9	15-316		%Rec	1	5/2/2018 12:23:27 PM	37887
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	5/2/2018 12:23:27 PM	37887
Toluene	ND	0.048		mg/Kg	1	5/2/2018 12:23:27 PM	37887
Ethylbenzene	ND	0.048		mg/Kg	1	5/2/2018 12:23:27 PM	37887
Xylenes, Total	ND	0.095		mg/Kg	1	5/2/2018 12:23:27 PM	37887
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	5/2/2018 12:23:27 PM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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## Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: Tee @ 6-12"

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 10:11:00 AM

Lab ID: 1805021-002

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	830	30		mg/Kg	20	5/8/2018 12:45:54 PM	37984
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	140	10		mg/Kg	1	5/4/2018 4:50:12 PM	37939
Motor Oil Range Organics (MRO)	260	51		mg/Kg	1	5/4/2018 4:50:12 PM	37939
Surr: DNOP	97.9	70-130		%Rec	1	5/4/2018 4:50:12 PM	37939
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/2/2018 1:33:42 PM	37887
Surr: BFB	83.1	15-316		%Rec	1	5/2/2018 1:33:42 PM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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## Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: Tee @ 1-2'

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 10:30:00 AM

Lab ID: 1805021-003

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	1100	75		mg/Kg	50	5/21/2018 6:58:53 PM	37984
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	35	10		mg/Kg	1	5/4/2018 5:12:10 PM	37939
Motor Oil Range Organics (MRO)	85	50		mg/Kg	1	5/4/2018 5:12:10 PM	37939
Surr: DNOP	99.2	70-130		%Rec	1	5/4/2018 5:12:10 PM	37939
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/2/2018 8:57:52 PM	37887
Surr: BFB	82.0	15-316		%Rec	1	5/2/2018 8:57:52 PM	37887
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	5/2/2018 8:57:52 PM	37887
Toluene	ND	0.048		mg/Kg	1	5/2/2018 8:57:52 PM	37887
Ethylbenzene	ND	0.048		mg/Kg	1	5/2/2018 8:57:52 PM	37887
Xylenes, Total	ND	0.096		mg/Kg	1	5/2/2018 8:57:52 PM	37887
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	5/2/2018 8:57:52 PM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: Tee @ 2-3'

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 10:35:00 AM

Lab ID: 1805021-004

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	1100	75		mg/Kg	50	5/21/2018 7:11:17 PM	37984
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	130	9.5		mg/Kg	1	5/4/2018 5:34:17 PM	37939
Motor Oil Range Organics (MRO)	240	47		mg/Kg	1	5/4/2018 5:34:17 PM	37939
Surr: DNOP	104	70-130		%Rec	1	5/4/2018 5:34:17 PM	37939
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/2/2018 9:21:04 PM	37887
Surr: BFB	82.7	15-316		%Rec	1	5/2/2018 9:21:04 PM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



## Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: Tee @ 3-4'

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 10:40:00 AM

Lab ID: 1805021-005

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	1500	75		mg/Kg	50	5/21/2018 7:23:42 PM	37984
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	54	9.7		mg/Kg	1	5/4/2018 5:56:23 PM	37939
Motor Oil Range Organics (MRO)	110	48		mg/Kg	1	5/4/2018 5:56:23 PM	37939
Surr: DNOP	107	70-130		%Rec	1	5/4/2018 5:56:23 PM	37939
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/2/2018 9:44:16 PM	37887
Surr: BFB	83.4	15-316		%Rec	1	5/2/2018 9:44:16 PM	37887
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	5/2/2018 9:44:16 PM	37887
Toluene	ND	0.047		mg/Kg	1	5/2/2018 9:44:16 PM	37887
Ethylbenzene	ND	0.047		mg/Kg	1	5/2/2018 9:44:16 PM	37887
Xylenes, Total	ND	0.094		mg/Kg	1	5/2/2018 9:44:16 PM	37887
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	5/2/2018 9:44:16 PM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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## Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: Tee @ 4-5'

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 10:44:00 AM

Lab ID: 1805021-006

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	1600	75		mg/Kg	50	5/21/2018 7:36:06 PM	37984
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	34	9.6		mg/Kg	1	5/4/2018 6:18:34 PM	37939
Motor Oil Range Organics (MRO)	73	48		mg/Kg	1	5/4/2018 6:18:34 PM	37939
Surr: DNOP	106	70-130		%Rec	1	5/4/2018 6:18:34 PM	37939
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/2/2018 11:17:12 PM	37887
Surr: BFB	90.1	15-316		%Rec	1	5/2/2018 11:17:12 PM	37887
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	5/2/2018 11:17:12 PM	37887
Toluene	ND	0.046		mg/Kg	1	5/2/2018 11:17:12 PM	37887
Ethylbenzene	ND	0.046		mg/Kg	1	5/2/2018 11:17:12 PM	37887
Xylenes, Total	ND	0.092		mg/Kg	1	5/2/2018 11:17:12 PM	37887
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	5/2/2018 11:17:12 PM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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## Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: 77' E @ 0-6"

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 12:08:00 PM

Lab ID: 1805021-007

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	16000	750		mg/Kg	500	5/21/2018 7:48:30 PM	37984
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/4/2018 6:40:43 PM	37939
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/4/2018 6:40:43 PM	37939
Surr: DNOP	103	70-130		%Rec	1	5/4/2018 6:40:43 PM	37939
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/2/2018 11:40:25 PM	37887
Surr: BFB	91.0	15-316		%Rec	1	5/2/2018 11:40:25 PM	37887
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	5/2/2018 11:40:25 PM	37887
Toluene	ND	0.048		mg/Kg	1	5/2/2018 11:40:25 PM	37887
Ethylbenzene	ND	0.048		mg/Kg	1	5/2/2018 11:40:25 PM	37887
Xylenes, Total	ND	0.097		mg/Kg	1	5/2/2018 11:40:25 PM	37887
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	5/2/2018 11:40:25 PM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: 77' E @ 6-12"

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 12:10:00 PM

Lab ID: 1805021-008

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	11000	750		mg/Kg	500	5/21/2018 8:00:55 PM	37984
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/4/2018 7:02:57 PM	37939
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/4/2018 7:02:57 PM	37939
Surr: DNOP	115	70-130		%Rec	1	5/4/2018 7:02:57 PM	37939
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/3/2018 12:03:40 AM	37887
Surr: BFB	90.3	15-316		%Rec	1	5/3/2018 12:03:40 AM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 8 of 20
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



## Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: 77' E @ 1-2'

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 12:30:00 PM

Lab ID: 1805021-009

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	8200	750		mg/Kg	500	5/21/2018 8:38:08 PM	37984
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/4/2018 7:25:02 PM	37939
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/4/2018 7:25:02 PM	37939
Surr: DNOP	106	70-130		%Rec	1	5/4/2018 7:25:02 PM	37939
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/3/2018 12:26:54 AM	37887
Surr: BFB	89.2	15-316		%Rec	1	5/3/2018 12:26:54 AM	37887
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	5/3/2018 12:26:54 AM	37887
Toluene	ND	0.046		mg/Kg	1	5/3/2018 12:26:54 AM	37887
Ethylbenzene	ND	0.046		mg/Kg	1	5/3/2018 12:26:54 AM	37887
Xylenes, Total	ND	0.091		mg/Kg	1	5/3/2018 12:26:54 AM	37887
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	5/3/2018 12:26:54 AM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 1805021  
Date Reported: 5/23/2018

CLIENT: R.T. Hicks Consultants, LTD  
Project: Murchison Jawbone Ogden Release  
Lab ID: 1805021-010

Matrix: SOIL

Client Sample ID: 77' E @ 2-3'  
Collection Date: 4/26/2018 12:38:00 PM  
Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	8300	750		mg/Kg	500	5/21/2018 8:50:33 PM	37984
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/4/2018 7:47:12 PM	37939
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/4/2018 7:47:12 PM	37939
Surr: DNOP	106	70-130		%Rec	1	5/4/2018 7:47:12 PM	37939
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/3/2018 12:50:13 AM	37887
Surr: BFB	90.7	15-316		%Rec	1	5/3/2018 12:50:13 AM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



## Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: 77' E @ 3-4'

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 12:44:00 PM

Lab ID: 1805021-011

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	4400	300		mg/Kg	200	5/21/2018 9:02:57 PM	37984
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	5/4/2018 8:09:12 PM	37939
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/4/2018 8:09:12 PM	37939
Surr: DNOP	104	70-130		%Rec	1	5/4/2018 8:09:12 PM	37939
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/3/2018 1:13:39 AM	37887
Surr: BFB	89.0	15-316		%Rec	1	5/3/2018 1:13:39 AM	37887
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	5/3/2018 1:13:39 AM	37887
Toluene	ND	0.049		mg/Kg	1	5/3/2018 1:13:39 AM	37887
Ethylbenzene	ND	0.049		mg/Kg	1	5/3/2018 1:13:39 AM	37887
Xylenes, Total	ND	0.098		mg/Kg	1	5/3/2018 1:13:39 AM	37887
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	5/3/2018 1:13:39 AM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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## Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: 77' E @ 4-5'

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 12:49:00 PM

Lab ID: 1805021-012

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	3400	150		mg/Kg	100	5/21/2018 9:15:22 PM	37984
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/4/2018 8:31:27 PM	37939
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/4/2018 8:31:27 PM	37939
Surr: DNOP	95.1	70-130		%Rec	1	5/4/2018 8:31:27 PM	37939
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/3/2018 1:37:06 AM	37887
Surr: BFB	92.3	15-316		%Rec	1	5/3/2018 1:37:06 AM	37887
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	5/3/2018 1:37:06 AM	37887
Toluene	ND	0.047		mg/Kg	1	5/3/2018 1:37:06 AM	37887
Ethylbenzene	ND	0.047		mg/Kg	1	5/3/2018 1:37:06 AM	37887
Xylenes, Total	ND	0.093		mg/Kg	1	5/3/2018 1:37:06 AM	37887
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	5/3/2018 1:37:06 AM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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## Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: 35' NE @ 0-6"

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 12:15:00 PM

Lab ID: 1805021-013

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	8600	750		mg/Kg	500	5/21/2018 9:27:46 PM	37984
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/4/2018 8:53:32 PM	37939
Motor Oil Range Organics (MRO)	ND	52		mg/Kg	1	5/4/2018 8:53:32 PM	37939
Surr: DNOP	99.9	70-130		%Rec	1	5/4/2018 8:53:32 PM	37939
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/3/2018 2:00:34 AM	37887
Surr: BFB	88.2	15-316		%Rec	1	5/3/2018 2:00:34 AM	37887
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	5/3/2018 2:00:34 AM	37887
Toluene	ND	0.049		mg/Kg	1	5/3/2018 2:00:34 AM	37887
Ethylbenzene	ND	0.049		mg/Kg	1	5/3/2018 2:00:34 AM	37887
Xylenes, Total	ND	0.098		mg/Kg	1	5/3/2018 2:00:34 AM	37887
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	5/3/2018 2:00:34 AM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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## Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: 230' E @ 0-6"

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 12:25:00 PM

Lab ID: 1805021-014

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	47000	1500		mg/Kg	1E	5/21/2018 9:40:11 PM	37984
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	12		mg/Kg	1	5/4/2018 9:15:46 PM	37939
Motor Oil Range Organics (MRO)	ND	58		mg/Kg	1	5/4/2018 9:15:46 PM	37939
Surr: DNOP	86.7	70-130		%Rec	1	5/4/2018 9:15:46 PM	37939
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/3/2018 2:23:54 AM	37887
Surr: BFB	88.0	15-316		%Rec	1	5/3/2018 2:23:54 AM	37887
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	5/3/2018 2:23:54 AM	37887
Toluene	ND	0.050		mg/Kg	1	5/3/2018 2:23:54 AM	37887
Ethylbenzene	ND	0.050		mg/Kg	1	5/3/2018 2:23:54 AM	37887
Xylenes, Total	ND	0.10		mg/Kg	1	5/3/2018 2:23:54 AM	37887
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	5/3/2018 2:23:54 AM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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## Analytical Report

Lab Order 1805021

Date Reported: 5/23/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: 390' E @ 0-6"

Project: Murchison Jawbone Ogden Release

Collection Date: 4/26/2018 12:36:00 PM

Lab ID: 1805021-015

Matrix: SOIL

Received Date: 5/1/2018 9:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	760	30		mg/Kg	20	5/8/2018 3:52:02 PM	37984
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/8/2018 9:32:37 AM	37975
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/8/2018 9:32:37 AM	37975
Surr: DNOP	89.8	70-130		%Rec	1	5/8/2018 9:32:37 AM	37975
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/3/2018 2:47:05 AM	37887
Surr: BFB	90.6	15-316		%Rec	1	5/3/2018 2:47:05 AM	37887
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	5/3/2018 2:47:05 AM	37887
Toluene	ND	0.048		mg/Kg	1	5/3/2018 2:47:05 AM	37887
Ethylbenzene	ND	0.048		mg/Kg	1	5/3/2018 2:47:05 AM	37887
Xylenes, Total	ND	0.095		mg/Kg	1	5/3/2018 2:47:05 AM	37887
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	5/3/2018 2:47:05 AM	37887

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1805021  
23-May-18

Client: R.T. Hicks Consultants, LTD  
Project: Murchison Jawbone Ogden Release

Sample ID	MB-37984	SampType:	mblk	TestCode:	EPA Method 300.0: Anions						
Client ID:	PBS	Batch ID:	37984	RunNo:	51112						
Prep Date:	5/8/2018	Analysis Date:	5/8/2018	SeqNo:	1661424	Units:	mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chloride	ND	1.5									

Sample ID	LCS-37984	SampType:	lcs	TestCode:	EPA Method 300.0: Anions						
Client ID:	LCSS	Batch ID:	37984	RunNo:	51112						
Prep Date:	5/8/2018	Analysis Date:	5/8/2018	SeqNo:	1661425	Units:	mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chloride	14	1.5	15.00	0	96.0	90	110				

Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Page 16 of 20



**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1805021

23-May-18

**Client:** R.T. Hicks Consultants, LTD  
**Project:** Murchison Jawbone Ogden Release

Sample ID	1805021-001AMS	SampType:	MS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	Tee @ 0-6"	Batch ID:	37939	RunNo:	51045					
Prep Date:	5/3/2018	Analysis Date:	5/4/2018	SeqNo:	1658619	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57	9.4	47.17	18.38	82.5	55.8	125			
Surr: DNOP	4.9		4.717		103	70	130			

Sample ID	1805021-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	Tee @ 0-6"	Batch ID:	37939	RunNo:	51045					
Prep Date:	5/3/2018	Analysis Date:	5/4/2018	SeqNo:	1658620	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	60	9.5	47.44	18.38	87.4	55.8	125	4.37	20	
Surr: DNOP	4.7		4.744		98.4	70	130	0	0	

Sample ID	LCS-37939	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	37939	RunNo:	51045					
Prep Date:	5/3/2018	Analysis Date:	5/4/2018	SeqNo:	1658642	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.7	70	130			
Surr: DNOP	4.7		5.000		93.6	70	130			

Sample ID	MB-37939	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	37939	RunNo:	51045					
Prep Date:	5/3/2018	Analysis Date:	5/4/2018	SeqNo:	1658643	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.9		10.00		99.3	70	130			

Sample ID	LCS-37975	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	37975	RunNo:	51107					
Prep Date:	5/7/2018	Analysis Date:	5/8/2018	SeqNo:	1660527	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	105	70	130			
Surr: DNOP	4.8		5.000		95.3	70	130			

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1805021  
23-May-18

Client: R.T. Hicks Consultants, LTD

Project: Murchison Jawbone Ogden Release

Sample ID	MB-37975	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	37975	RunNo:	51107					
Prep Date:	5/7/2018	Analysis Date:	5/8/2018	SeqNo:	1660528	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		103	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	Page 18 of 20
D Sample Diluted Due to Matrix	E Value above quantitation range	
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	
ND Not Detected at the Reporting Limit	P Sample pH Not In Range	
PQL Practical Quantitative Limit	RL Reporting Detection Limit	
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified	



**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1805021

23-May-18

**Client:** R.T. Hicks Consultants, LTD  
**Project:** Murchison Jawbone Ogden Release

Sample ID <b>MB-37887</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>37887</b>		RunNo: <b>50982</b>							
Prep Date: <b>5/1/2018</b>	Analysis Date: <b>5/2/2018</b>		SeqNo: <b>1655651</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	910		1000		90.6	15	316			

Sample ID <b>LCS-37887</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>37887</b>		RunNo: <b>50982</b>							
Prep Date: <b>5/1/2018</b>	Analysis Date: <b>5/2/2018</b>		SeqNo: <b>1655652</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	108	75.9	131			
Surr: BFB	1000		1000		102	15	316			

Sample ID <b>1805021-001AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>Tee @ 0-6"</b>	Batch ID: <b>37887</b>		RunNo: <b>50982</b>							
Prep Date: <b>5/1/2018</b>	Analysis Date: <b>5/2/2018</b>		SeqNo: <b>1655654</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	4.9	24.34	0	112	77.8	128			
Surr: BFB	950		973.7		97.5	15	316			

Sample ID <b>1805021-001AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>Tee @ 0-6"</b>	Batch ID: <b>37887</b>		RunNo: <b>50982</b>							
Prep Date: <b>5/1/2018</b>	Analysis Date: <b>5/2/2018</b>		SeqNo: <b>1655655</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	5.0	24.98	0	115	77.8	128	4.43	20	
Surr: BFB	1000		999.0		99.7	15	316	0	0	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

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**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 1805021

23-May-18

**Client:** R.T. Hicks Consultants, LTD  
**Project:** Murchison Jawbone Ogden Release

Sample ID <b>MB-37887</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>37887</b>		RunNo: <b>50982</b>							
Prep Date: <b>5/1/2018</b>	Analysis Date: <b>5/2/2018</b>		SeqNo: <b>1655691</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		105	80	120			

Sample ID <b>LCS-37887</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>37887</b>		RunNo: <b>50982</b>							
Prep Date: <b>5/1/2018</b>	Analysis Date: <b>5/2/2018</b>		SeqNo: <b>1655692</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	1.000	0	98.9	77.3	128			
Toluene	1.0	0.050	1.000	0	102	79.2	125			
Ethylbenzene	1.0	0.050	1.000	0	101	80.7	127			
Xylenes, Total	3.1	0.10	3.000	0	103	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		109	80	120			

Sample ID <b>1805021-002AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>Tee @ 6-12"</b>	Batch ID: <b>37887</b>		RunNo: <b>50982</b>							
Prep Date: <b>5/1/2018</b>	Analysis Date: <b>5/2/2018</b>		SeqNo: <b>1655695</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.2	0.096	0.9643	0	120	56.9	130			
Benzene	1.1	0.024	0.9643	0	116	68.5	133			
Toluene	1.2	0.048	0.9643	0.008333	120	75	130			
Ethylbenzene	1.2	0.048	0.9643	0	123	79.4	128			
Xylenes, Total	3.6	0.096	2.893	0	125	77.3	131			
Surr: 4-Bromofluorobenzene	1.0		0.9643		104	80	120			

Sample ID <b>1805021-002AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>Tee @ 6-12"</b>	Batch ID: <b>37887</b>		RunNo: <b>50982</b>							
Prep Date: <b>5/1/2018</b>	Analysis Date: <b>5/2/2018</b>		SeqNo: <b>1655696</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.024	0.9615	0	111	68.5	133	5.49	20	
Toluene	1.1	0.048	0.9615	0.008333	114	75	130	5.41	20	
Ethylbenzene	1.1	0.048	0.9615	0	116	79.4	128	6.05	20	
Xylenes, Total	3.4	0.096	2.885	0	118	77.3	131	5.91	20	
Surr: 4-Bromofluorobenzene	1.0		0.9615		104	80	120	0	0	

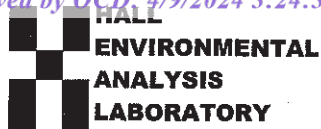
**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: www.hallenvironmental.com

## Sample Log-In Check List

Client Name: RT HICKS

Work Order Number: 1805021

RcptNo: 1

Received By: Isaiah Ortiz

5/1/2018 9:15:00 AM

Completed By: Ashley Gallegos

5/1/2018 12:03:24 PM

Reviewed By: ENM

5/1/18

Labeled by:

IMO

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?  
(If no, notify customer for authorization.) Yes ☒ No ☐

# of preserved  
bottles checked  
for pH:

( $<2$  or  $>12$  unless noted)

Adjusted? IMO

Checked by: \_\_\_\_\_

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: \_\_\_\_\_

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

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: \_\_\_\_\_

Client Instructions: \_\_\_\_\_

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.1	Good	Yes			



## Chain-of-Custody Record

Client: R.T. Hicks Consultants  
901 Rio Grande Blvd NW  
Mailing Address: Suite F-142  
Albuquerque, NM 87104  
Phone #: 505-266-5004  
email or Fax#: R@rthicksconsult.com

QA/QC Package:

<input checked="" type="checkbox"/> Standard Accreditation <input type="checkbox"/> NELAP <input type="checkbox"/> EDD (Type) _____	<input type="checkbox"/> Level 4 (Full Validation)
---	--

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

Jawbone / Ogden  
Release

Project #:

**Project Manager:**

Kristin Pope

Sampler: K. Pope

Office: ☐ Yes ☒ No

Sample Temperature: 0, 1

Date	Time	Matrix	Sample Request ID
------	------	--------	-------------------

Container

Container Type and #	Preservative Type
-------------------------	----------------------

HEAL No. 180501

4/26/18	1005	501	Tee @ 0-6"
	1011		Tee @ 6-12"
	1030		Tee @ 1-2'
	1035		Tee @ 2-3'
	1040		Tee @ 3-4'
	1044		Tee @ 4.5'
	1208		77'E @ 0-6"
	1210		77'E @ 6-12"
	1230		77'E @ 1-2'
	1238		77'E @ 2-3'
	1244		77'E @ 3-4'
	1249		77'E @ 4.5'

Date:	Time:	Relinquished by:
-------	-------	------------------

Date:	1/30/18	Time:	0800	Relinquished by:	Karstin Pope
-------	---------	-------	------	------------------	--------------

Date:	Time:	Relinquished by:
-------	-------	------------------

Received by:

Received by: Dora Lopez Date: 4/30/13 Time: 0800

Received by: / / Date Time

Remarks:	
----------	--

Email to R@rthicksconsult.com,  
Kristin @ "

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

## Analysis Request

[illegible]

Remarks:	
----------	--

Email to R@rthicksconsult.com,  
Kristin @ "



# Chain-of-Custody Record

Client: RT Hicks Consultants

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

Project #:

Project Manager:

Sampler: Kristin Pope

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.1

Container Type and #

Preservative Type

HEAL No

1805021

-013

-014

-015

Sample Request ID

Matrix

Date

4-26-18 1215

↓ 1225

↓ 1236

35' NE @ 0-6"

↓ 230' E @ 0-6"

↓ 390' E @ 0-6"

1 glass

ice

902

-013

-014

-015

Date:

Time:

Relinquished by:

Relinquished by:

Received by:

Received by:

Date

Time

Remarks:

Email results

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

### Analysis Request

BTEX + MTBE + TMB's (8021)	<input checked="" type="checkbox"/>	BTEX + MTBE + TMB's (8021)	<input checked="" type="checkbox"/>
BTEX + MTBE + TPH (Gas only)	<input checked="" type="checkbox"/>	BTEX + MTBE + TPH (Gas only)	<input checked="" type="checkbox"/>
TPH 8015B (GRO / DRO / MRO)	<input checked="" type="checkbox"/>	TPH 8015B (GRO / DRO / MRO)	<input checked="" type="checkbox"/>
TPH (Method 418.1)	<input checked="" type="checkbox"/>	TPH (Method 418.1)	<input checked="" type="checkbox"/>
EDB (Method 504.1)	<input checked="" type="checkbox"/>	EDB (Method 504.1)	<input checked="" type="checkbox"/>
PAH's (8310 or 8270 SIMS)	<input checked="" type="checkbox"/>	PAH's (8310 or 8270 SIMS)	<input checked="" type="checkbox"/>
RCRA 8 Metals	<input checked="" type="checkbox"/>	RCRA 8 Metals	<input checked="" type="checkbox"/>
Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	<input checked="" type="checkbox"/>	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	<input checked="" type="checkbox"/>
8081 Pesticides / 8082 PCB's	<input checked="" type="checkbox"/>	8081 Pesticides / 8082 PCB's	<input checked="" type="checkbox"/>
8260B (VOA)	<input checked="" type="checkbox"/>	8260B (VOA)	<input checked="" type="checkbox"/>
8270 (Semi-VOA)	<input checked="" type="checkbox"/>	8270 (Semi-VOA)	<input checked="" type="checkbox"/>
Air Bubbles (V or N)	<input checked="" type="checkbox"/>	Air Bubbles (V or N)	<input checked="" type="checkbox"/>





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

---

January 29, 2019

KRISTIN POPE

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: OGDEN ST. RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 01/24/19 12:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received:	01/24/2019	Sampling Date:	01/16/2019
Reported:	01/29/2019	Sampling Type:	Soil
Project Name:	OGDEN ST. RELEASE	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MURCHISON - EDDY CO NM		

**Sample ID: 35' NE @ 0-2' (H900258-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4320	16.0	01/25/2019	ND	416	104	400	3.92	

**Sample ID: 35' NE @ 2-4' (H900258-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3920	16.0	01/25/2019	ND	416	104	400	3.92	

**Sample ID: 77' E @ 0-2' (H900258-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6000	16.0	01/25/2019	ND	416	104	400	3.92	

**Sample ID: 77'E @ 2-4' (H900258-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1420	16.0	01/25/2019	ND	416	104	400	3.92	

Cardinal Laboratories

\*=Accredited Analyte

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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: 01/24/2019  
Reported: 01/29/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Tamara Oldaker

**Sample ID: 230' E @ 0-2' (H900258-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	8660	16.0	01/25/2019	ND	416	104	400	3.92		

**Sample ID: 230' E @ 2-4' (H900258-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	960	16.0	01/25/2019	ND	416	104	400	3.92		

**Sample ID: 390' E @ 0-2' (H900258-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	8000	16.0	01/25/2019	ND	416	104	400	3.92		

**Sample ID: 390' E @ 2-4' (H900258-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	624	16.0	01/25/2019	ND	416	104	400	3.92		

**Sample ID: EC-1 @ 0-2' (H900258-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2600	16.0	01/25/2019	ND	416	104	400	3.92		

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\*=Accredited Analyte

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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: 01/24/2019  
Reported: 01/29/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Tamara Oldaker

**Sample ID: EC-1 @ 2-4' (H900258-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	352	16.0	01/25/2019	ND	416	104	400	3.92		

**Sample ID: EC-4 @ 0-2' (H900258-11)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2720	16.0	01/25/2019	ND	416	104	400	3.92		

**Sample ID: EC-4 @ 2-4' (H900258-12)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	688	16.0	01/25/2019	ND	416	104	400	3.92		

**Sample ID: EC-5 @ 0-2' (H900258-13)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3360	16.0	01/25/2019	ND	416	104	400	3.92	

**Sample ID: EC-5 @ 2-4' (H900258-14)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1010	16.0	01/25/2019	ND	416	104	400	3.92	

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Celey D. Keene, Lab Director/Quality Manager



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---

### Notes and Definitions

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

---

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

---

Celey D. Keene, Lab Director/Quality Manager





### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: RT Hicks Consultants						
Project Manager: Kristin Pope						
Address: 901 Rio Grande Blvd NW, Suite F-112						
City: Albuquerque State: NM Zip: 87104 Attn:						
Phone #: 505-866-5004 Fax #:						
Project #:						
Project Owner: Murchison						
Project Name: Ogden St. Release						
Project Location: Eddy Co.						
Sampler Name: K. Pope						
FOR LAB USE ONLY						
		(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX	PRESERV.	SAMPLING
		GROUNDWATER				
		WASTEWATER				
		SOIL	X			
		OIL				
		SLUDGE				
		OTHER :				
		ACID/BASE				
		ICE / COOL				
		OTHER :				
		DATE	TIME			
Lab I.D. HPOCR258						
Sample I.D.						
1 35' NE @ 0-2'		G 1		F-16-19	1028	
2 36' NE @ 2-4'		G 1	X	"	1050	
3 77'E @ 0-2'		G 1	X	"	1022	
4 77'E @ 2-4'		G 1	X	"	1100	
5 230'E @ 0-2'		G 1	X	"	1020	
6 230'E @ 2-4'		G 1	X	"	1130	
7 390'E @ 0-2'		G 1	X	"	1018	
8 390'E @ 2-4'		G 1	X	"	1230	
9 EO-1 @ 0-2'		G 1	X	"	1005	
10 EO-1 @ 2-4'		G 1	X	"	1342	
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Relinquished By:		Date: F-24-19	Received By:			
Reinstated By:		Time: 12:25	Received By:			
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition <input type="checkbox"/> Cool <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CHECKED BY: (Initials)		
P.O. #:		COMPANY: RT Hicks				
Attn:						
Address:						
City:						
State:		Zip:				
Phone #:						
Fax #:						
REMARKS:		Email to kristin@rthicksconsult.com, andrew@... Chloride				





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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>																																					
Project Manager:		P.O. #:																																							
Address:		Company: <i>RT Hicks</i>																																							
City:		Attn:																																							
State:		Address:																																							
Zip:		City:																																							
Phone #:		State:																																							
Fax #:		Zip:																																							
Project #:		Phone #:																																							
Project Owner:		Fax #:																																							
Project Name: <i>Ogden St. Release</i>																																									
Project Location:																																									
Sampler Name:																																									
FOR LAB USE ONLY																																									
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													
H9D0258		EC-4 @ 0-2'		G 1		1																				1-16-19		0950		Chloride											
		EC-4 @ 2-4'		G 1		1																				"		1116													
		EC-5 @ 0-2'		G 1		1																				"		0945													
		EC-5 @ 2-4'		G 1		1																				"		1034													





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

January 22, 2019

KRISTIN POPE

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: OGDEN ST. RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 01/17/19 11:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received:	01/17/2019	Sampling Date:	01/16/2019
Reported:	01/22/2019	Sampling Type:	Soil
Project Name:	OGDEN ST. RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MURCHISON - EDDY CO NM		

**Sample ID: 35' NE @ 0-4' (H900157-01)**

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	01/19/2019	ND	1.88	94.0	2.00	1.97	
Toluene*	<0.050	0.050	01/19/2019	ND	1.80	89.8	2.00	0.340	
Ethylbenzene*	<0.050	0.050	01/19/2019	ND	1.79	89.6	2.00	1.79	
Total Xylenes*	<0.150	0.150	01/19/2019	ND	5.40	90.0	6.00	1.54	
Total BTEX	<0.300	0.300	01/19/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5600	16.0	01/17/2019	ND	400	100	400	7.69	

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	01/18/2019	ND	215	108	200	2.39	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	217	109	200	6.33	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 100 % 41-142

Surrogate: 1-Chlorooctadecane 99.4 % 37.6-147

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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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: 35' NE @ 5' (H900157-02)**

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	01/19/2019	ND	1.88	94.0	2.00	1.97		
Toluene*	<0.050	0.050	01/19/2019	ND	1.80	89.8	2.00	0.340		
Ethylbenzene*	<0.050	0.050	01/19/2019	ND	1.79	89.6	2.00	1.79		
Total Xylenes*	<0.150	0.150	01/19/2019	ND	5.40	90.0	6.00	1.54		
Total BTX	<0.300	0.300	01/19/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5040	16.0	01/17/2019	ND	400	100	400	7.69	QM-07	

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	01/18/2019	ND	215	108	200	2.39	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	217	109	200	6.33	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 96.6 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

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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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: 77' E @ 0-4' (H900157-03)**

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	01/19/2019	ND	1.88	94.0	2.00	1.97	
Toluene*	<0.050	0.050	01/19/2019	ND	1.80	89.8	2.00	0.340	
Ethylbenzene*	<0.050	0.050	01/19/2019	ND	1.79	89.6	2.00	1.79	
Total Xylenes*	<0.150	0.150	01/19/2019	ND	5.40	90.0	6.00	1.54	
Total BTEx	<0.300	0.300	01/19/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2880	16.0	01/17/2019	ND	400	100	400	7.69	

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	01/18/2019	ND	215	108	200	2.39	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	217	109	200	6.33	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 96.1 % 41-142

Surrogate: 1-Chlorooctadecane 91.3 % 37.6-147

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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: 01/17/2019  
 Reported: 01/22/2019  
 Project Name: OGDEN ST. RELEASE  
 Project Number: NONE GIVEN  
 Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: 77' E @ 5' (H900157-04)**

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	01/19/2019	ND	1.88	94.0	2.00	1.97		
Toluene*	<0.050	0.050	01/19/2019	ND	1.80	89.8	2.00	0.340		
Ethylbenzene*	<0.050	0.050	01/19/2019	ND	1.79	89.6	2.00	1.79		
Total Xylenes*	<0.150	0.150	01/19/2019	ND	5.40	90.0	6.00	1.54		
Total BTEx	<0.300	0.300	01/19/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1760	16.0	01/17/2019	ND	400	100	400	7.69		

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	01/18/2019	ND	215	108	200	2.39	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	217	109	200	6.33	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 92.3 % 41-142

Surrogate: 1-Chlorooctadecane 89.1 % 37.6-147

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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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: 230' E @ 0-4' (H900157-05)**

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	01/19/2019	ND	1.88	94.0	2.00	1.97		
Toluene*	<0.050	0.050	01/19/2019	ND	1.80	89.8	2.00	0.340		
Ethylbenzene*	<0.050	0.050	01/19/2019	ND	1.79	89.6	2.00	1.79		
Total Xylenes*	<0.150	0.150	01/19/2019	ND	5.40	90.0	6.00	1.54		
Total BTEx	<0.300	0.300	01/19/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	6320	16.0	01/17/2019	ND	400	100	400	7.69		

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	01/18/2019	ND	215	108	200	2.39	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	217	109	200	6.33	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 95.6 % 41-142

Surrogate: 1-Chlorooctadecane 92.5 % 37.6-147

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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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: 230' E @ 5' (H900157-06)**

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	01/19/2019	ND	1.88	94.0	2.00	1.97	
Toluene*	<0.050	0.050	01/19/2019	ND	1.80	89.8	2.00	0.340	
Ethylbenzene*	<0.050	0.050	01/19/2019	ND	1.79	89.6	2.00	1.79	
Total Xylenes*	<0.150	0.150	01/19/2019	ND	5.40	90.0	6.00	1.54	
Total BTX	<0.300	0.300	01/19/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	01/17/2019	ND	400	100	400	7.69	

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	01/18/2019	ND	215	108	200	2.39	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	217	109	200	6.33	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 91.9 % 41-142

Surrogate: 1-Chlorooctadecane 89.8 % 37.6-147

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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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: 390' E @ 0-4' (H900157-07)**

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	01/19/2019	ND	1.88	94.0	2.00	1.97	
Toluene*	<0.050	0.050	01/19/2019	ND	1.80	89.8	2.00	0.340	
Ethylbenzene*	<0.050	0.050	01/19/2019	ND	1.79	89.6	2.00	1.79	
Total Xylenes*	<0.150	0.150	01/19/2019	ND	5.40	90.0	6.00	1.54	
Total BTX	<0.300	0.300	01/19/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5600	16.0	01/17/2019	ND	400	100	400	7.69	

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	01/18/2019	ND	215	108	200	2.39	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	217	109	200	6.33	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 92.0 % 41-142

Surrogate: 1-Chlorooctadecane 87.4 % 37.6-147

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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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: 390' E @ 4.3' (H900157-08)**

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	01/19/2019	ND	1.88	94.0	2.00	1.97	
Toluene*	<0.050	0.050	01/19/2019	ND	1.80	89.8	2.00	0.340	
Ethylbenzene*	<0.050	0.050	01/19/2019	ND	1.79	89.6	2.00	1.79	
Total Xylenes*	<0.150	0.150	01/19/2019	ND	5.40	90.0	6.00	1.54	
Total BTEX	<0.300	0.300	01/19/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3360	16.0	01/17/2019	ND	400	100	400	7.69	

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	01/18/2019	ND	215	108	200	2.39	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	217	109	200	6.33	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 81.5 % 41-142

Surrogate: 1-Chlorooctadecane 75.8 % 37.6-147

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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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: EC - 1 @ 0-4' (H900157-09)**

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	01/21/2019	ND	2.47	123	2.00	1.61		
Toluene*	<0.050	0.050	01/21/2019	ND	2.37	118	2.00	1.89		
Ethylbenzene*	<0.050	0.050	01/21/2019	ND	2.32	116	2.00	1.18		
Total Xylenes*	<0.150	0.150	01/21/2019	ND	7.15	119	6.00	1.20		
Total BTEX	<0.300	0.300	01/21/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1140	16.0	01/17/2019	ND	400	100	400	7.69		

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	01/18/2019	ND	198	99.1	200	0.887	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	193	96.5	200	1.97	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 77.4 % 41-142

Surrogate: 1-Chlorooctadecane 78.5 % 37.6-147

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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: 01/17/2019  
 Reported: 01/22/2019  
 Project Name: OGDEN ST. RELEASE  
 Project Number: NONE GIVEN  
 Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: EC - 1 @ 4.3' (H900157-10)**

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	01/21/2019	ND	2.47	123	2.00	1.61	
Toluene*	<0.050	0.050	01/21/2019	ND	2.37	118	2.00	1.89	
Ethylbenzene*	<0.050	0.050	01/21/2019	ND	2.32	116	2.00	1.18	
Total Xylenes*	<0.150	0.150	01/21/2019	ND	7.15	119	6.00	1.20	
Total BTEX	<0.300	0.300	01/21/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	01/17/2019	ND	400	100	400	7.69		

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	01/18/2019	ND	198	99.1	200	0.887	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	193	96.5	200	1.97	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 82.1 % 41-142

Surrogate: 1-Chlorooctadecane 83.0 % 37.6-147

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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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: EC - 2 @ 0-4' (H900157-11)**

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	01/21/2019	ND	2.47	123	2.00	1.61	
Toluene*	<0.050	0.050	01/21/2019	ND	2.37	118	2.00	1.89	
Ethylbenzene*	<0.050	0.050	01/21/2019	ND	2.32	116	2.00	1.18	
Total Xylenes*	<0.150	0.150	01/21/2019	ND	7.15	119	6.00	1.20	
Total BTX	<0.300	0.300	01/21/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	256	16.0	01/17/2019	ND	400	100	400	7.69		

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	01/18/2019	ND	198	99.1	200	0.887	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	193	96.5	200	1.97	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 82.2 % 41-142

Surrogate: 1-Chlorooctadecane 81.2 % 37.6-147

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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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: EC - 2 @ 4.3' (H900157-12)**

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	01/21/2019	ND	2.47	123	2.00	1.61	
Toluene*	<0.050	0.050	01/21/2019	ND	2.37	118	2.00	1.89	
Ethylbenzene*	<0.050	0.050	01/21/2019	ND	2.32	116	2.00	1.18	
Total Xylenes*	<0.150	0.150	01/21/2019	ND	7.15	119	6.00	1.20	
Total BTX	<0.300	0.300	01/21/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	7200	16.0	01/17/2019	ND	400	100	400	7.69		

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	01/18/2019	ND	198	99.1	200	0.887	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	193	96.5	200	1.97	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 88.8 % 41-142

Surrogate: 1-Chlorooctadecane 90.4 % 37.6-147

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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: EC - 3 @ 0-4' (H900157-13)**

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	01/21/2019	ND	2.47	123	2.00	1.61	
Toluene*	<0.050	0.050	01/21/2019	ND	2.37	118	2.00	1.89	
Ethylbenzene*	<0.050	0.050	01/21/2019	ND	2.32	116	2.00	1.18	
Total Xylenes*	<0.150	0.150	01/21/2019	ND	7.15	119	6.00	1.20	
Total BTEX	<0.300	0.300	01/21/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

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	01/17/2019	ND	400	100	400	7.69		

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	01/18/2019	ND	198	99.1	200	0.887	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	193	96.5	200	1.97	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 90.8 % 41-142

Surrogate: 1-Chlorooctadecane 92.7 % 37.6-147

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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: 01/17/2019  
 Reported: 01/22/2019  
 Project Name: OGDEN ST. RELEASE  
 Project Number: NONE GIVEN  
 Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: EC - 3 @ 5' (H900157-14)**

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	01/21/2019	ND	2.47	123	2.00	1.61	
Toluene*	<0.050	0.050	01/21/2019	ND	2.37	118	2.00	1.89	
Ethylbenzene*	<0.050	0.050	01/21/2019	ND	2.32	116	2.00	1.18	
Total Xylenes*	<0.150	0.150	01/21/2019	ND	7.15	119	6.00	1.20	
Total BTEx	<0.300	0.300	01/21/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

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	01/17/2019	ND	400	100	400	7.69	

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	01/18/2019	ND	198	99.1	200	0.887	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	193	96.5	200	1.97	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 88.5 % 41-142

Surrogate: 1-Chlorooctadecane 90.4 % 37.6-147

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\*=Accredited Analyte

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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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: EC - 4 @ 0-4' (H900157-15)**

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	01/21/2019	ND	2.47	123	2.00	1.61	
Toluene*	<0.050	0.050	01/21/2019	ND	2.37	118	2.00	1.89	
Ethylbenzene*	<0.050	0.050	01/21/2019	ND	2.32	116	2.00	1.18	
Total Xylenes*	<0.150	0.150	01/21/2019	ND	7.15	119	6.00	1.20	
Total BTX	<0.300	0.300	01/21/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2320	16.0	01/17/2019	ND	400	100	400	7.69		

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	01/18/2019	ND	198	99.1	200	0.887	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	193	96.5	200	1.97	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 79.5 % 41-142

Surrogate: 1-Chlorooctadecane 80.8 % 37.6-147

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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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: EC - 4 @ 5' (H900157-16)**

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/21/2019	ND	2.47	123	2.00	1.61	
Toluene*	<0.050	0.050	01/21/2019	ND	2.37	118	2.00	1.89	
Ethylbenzene*	<0.050	0.050	01/21/2019	ND	2.32	116	2.00	1.18	
Total Xylenes*	<0.150	0.150	01/21/2019	ND	7.15	119	6.00	1.20	
Total BTX	<0.300	0.300	01/21/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	192	16.0	01/17/2019	ND	400	100	400	7.69		

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	01/18/2019	ND	198	99.1	200	0.887	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	193	96.5	200	1.97	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 83.8 % 41-142

Surrogate: 1-Chlorooctadecane 85.3 % 37.6-147

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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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: EC - 5 @ 0-4' (H900157-17)**

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	01/21/2019	ND	2.47	123	2.00	1.61		
Toluene*	<0.050	0.050	01/21/2019	ND	2.37	118	2.00	1.89		
Ethylbenzene*	<0.050	0.050	01/21/2019	ND	2.32	116	2.00	1.18		
Total Xylenes*	<0.150	0.150	01/21/2019	ND	7.15	119	6.00	1.20		
Total BTEx	<0.300	0.300	01/21/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1760	16.0	01/17/2019	ND	400	100	400	7.69		

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	01/18/2019	ND	198	99.1	200	0.887	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	193	96.5	200	1.97	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 87.3 % 41-142

Surrogate: 1-Chlorooctadecane 89.9 % 37.6-147

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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: 01/17/2019  
Reported: 01/22/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 01/16/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: EC - 5 @ 5' (H900157-18)**

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	01/21/2019	ND	2.47	123	2.00	1.61	
Toluene*	<0.050	0.050	01/21/2019	ND	2.37	118	2.00	1.89	
Ethylbenzene*	<0.050	0.050	01/21/2019	ND	2.32	116	2.00	1.18	
Total Xylenes*	<0.150	0.150	01/21/2019	ND	7.15	119	6.00	1.20	
Total BTEx	<0.300	0.300	01/21/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	704	16.0	01/17/2019	ND	400	100	400	7.69		

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	01/18/2019	ND	198	99.1	200	0.887	
DRO >C10-C28*	<10.0	10.0	01/18/2019	ND	193	96.5	200	1.97	
EXT DRO >C28-C36	<10.0	10.0	01/18/2019	ND					

Surrogate: 1-Chlorooctane 87.2 % 41-142

Surrogate: 1-Chlorooctadecane 90.1 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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### Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

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

---

Caley D. Keene, Lab Director/Quality Manager





## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <u>RT Hicks Consultants</u>		P.O. #:		BILL TO		ANALYSIS REQUEST	
Project Manager: <u>Kristin Pope</u>		Company: <u>RT Hicks</u>					
Address: <u>901 Rio Grande Blvd NW, F-142</u>		Attn:					
City: <u>Albuquerque</u> State: <u>NM</u> Zip: <u>87104</u>		Address:					
Phone #: <u>505-266-5004</u> Fax #:		City:					
Project #: _____ Project Owner: <u>Murchison</u>		State:					
Project Name: <u>Ogden St. Release</u>		Zip:					
Project Location: <u>Jeddy Co.</u>		Phone #:					
Sampler Name: <u>Kristin Pope</u>		Fax #:					
FOR LAB USE ONLY		MATRIX		PRESERV		SAMPLING	
Lab I.D.		(G)RAB OR (C)OMP.		# CONTAINERS		GROUNDWATER	
Sample I.D.		WASTEWATER		SOIL		OIL	
		SLUDGE		OTHER :		ACID/BASE:	
		ICE / COOL		OTHER :		DATE	
						TIME	
H900157		1-16-19		1050		BTEX	
1 35' NE @ 0-4'		1		1055		TPH 8015M (GRO/PRO/PRO ext)	
2 35' NE @ 5'		1		1100		Chloride	
3 77' E @ 0-4'		1		1104			
4 77' E @ 5'		1		1130			
5 230' E @ 0-4'		1		1133			
6 230' E @ 5'		1		1230			
7 390' E @ 0-4'		1		1233			
8 390' E @ 4.3'		1					

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Reinquinished By: Kristin Pope Date: 1-17-19 Received By: Juanita Delacruz Time: 11:05

Delivered By: (Circle One) 2.3i #47 Sample Condition: Yes Intact CHECKED BY: VE (Initials)

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

Phone Result: ☐ Yes ☐ No Add'l Phone #: \_\_\_\_\_  
Fax Result: ☐ Yes ☐ No Add'l Fax #: \_\_\_\_\_

REMARKS: Email to andrew@rthicksconsult.com, kristin@rthicksconsult.com, Bush CL only

+ Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

10x2



Page 22 of 22



## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

[illegible]

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

$2 \times 2$





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

February 04, 2019

Kristin Pope

R.T. Hicks Consultants, LTD

901 Rio Grande Blvd. NW

Suite F-142

Albuquerque, NM 87104

TEL: (505) 266-5004

FAX (505) 266-0745

RE: Murchison Ogden Release

OrderNo.: 1901B85

Dear Kristin Pope:

Hall Environmental Analysis Laboratory received 3 sample(s) on 1/31/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



## Analytical Report

Lab Order: 1901B85

Date Reported: 2/4/2019

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Lab Order: 1901B85

Project: Murchison Ogden Release

Lab ID: 1901B85-001

Collection Date: 1/30/2019 11:00:00 AM

Client Sample ID: BG @0-2 ft

Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							
Chloride	110	30		mg/Kg	20	2/1/2019 6:14:57 PM	42938

Analyst: MRA

Lab ID: 1901B85-002

Collection Date: 1/30/2019 11:03:00 AM

Client Sample ID: BG @2-4 ft

Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							
Chloride	61	30		mg/Kg	20	2/1/2019 6:27:21 PM	42938

Analyst: MRA

Lab ID: 1901B85-003

Collection Date: 1/30/2019 11:08:00 AM

Client Sample ID: BG @ 5ft

Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							
Chloride	120	30		mg/Kg	20	2/1/2019 6:39:45 PM	42938

Analyst: MRA

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit

Page 1 of 2



QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1901B85  
04-Feb-19

Client: R.T. Hicks Consultants, LTD  
Project: Murchison Ogden Release

Sample ID	MB-42938	SampType:	mblk	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	42938	RunNo:	57439					
Prep Date:	2/1/2019	Analysis Date:	2/1/2019	SeqNo:	1921458	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-42938	SampType:	lcs	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	42938	RunNo:	57439					
Prep Date:	2/1/2019	Analysis Date:	2/1/2019	SeqNo:	1921459	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.1	90	110			

Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Page 2 of 2





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: www.hallenvironmental.com

## Sample Log-In Check List

Client Name: RT HICKS

Work Order Number: 1901B85

RcptNo: 1

Received By: Erin Melendrez

1/31/2019 11:05:00 AM

Completed By: Victoria Zellar

1/31/2019 2:14:44 PM

Reviewed By: ENM

1/31/19

Victoria Zellar

labeled by IO 1/31/2019

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?  
(If no, notify customer for authorization.) Yes ☒ No ☐

# of preserved  
bottles checked  
for pH:

( $<2$  or  $>12$  unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: \_\_\_\_\_

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

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: \_\_\_\_\_

Client Instructions: \_\_\_\_\_

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.5	Good	Yes			









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

---

April 30, 2019

KRISTIN POPE

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: OGDEN ST. RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 04/29/19 11:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received:	04/29/2019	Sampling Date:	04/26/2019
Reported:	04/30/2019	Sampling Type:	Soil
Project Name:	OGDEN ST. RELEASE	Sampling Condition:	Cool & Intact
Project Number:	5A	Sample Received By:	Tamara Oldaker
Project Location:	MURCHISON - EDDY CO NM		

**Sample ID: 10' N WALL COMP ( EC - 1 ) (H901522-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 10' S WALL COMP ( EC - 1 ) (H901522-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2240	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 10' E WALL COMP ( EC - 1 ) (H901522-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	528	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 10' W WALL COMP ( EC - 1 ) (H901522-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3600	16.0	04/30/2019	ND	416	104	400	3.92	

Cardinal Laboratories

\*=Accredited Analyte

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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: 04/29/2019  
Reported: 04/30/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: 5A  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 04/26/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: FLOOR COMP 4' BGS ( EC - 1 ) (H901522-05)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4160	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 10' N WALL COMP ( 390' E ) (H901522-06)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1580	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 7' S WALL COMP ( 390' E ) (H901522-07)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9460	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 10' E WALL COMP ( 390' E ) (H901522-08)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	14900	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 10' W WALL COMP ( 390' E ) (H901522-09)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10900	16.0	04/30/2019	ND	416	104	400	3.92	

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\*=Accredited Analyte

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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:	04/29/2019	Sampling Date:	04/26/2019
Reported:	04/30/2019	Sampling Type:	Soil
Project Name:	OGDEN ST. RELEASE	Sampling Condition:	Cool & Intact
Project Number:	5A	Sample Received By:	Tamara Oldaker
Project Location:	MURCHISON - EDDY CO NM		

**Sample ID: FLOOR COMP 4' BGS ( 390' E ) (H901522-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3400	16.0	04/30/2019	ND	416	104	400	3.92		

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Celey D. Keene, Lab Director/Quality Manager



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---

### Notes and Definitions

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

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

---

Celey D. Keene, Lab Director/Quality Manager





## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: RT Hicks Consultants

Project Manager: Kristin Pope

Address: 901 Rio Grande Blvd NW, Suite E-142

City: Albuquerque State: NM Zip: 87104

Phone #: 505-266-5004 Fax #:

Project #: Project Owner: Murchison

Project Name: Ogden St. 5th Release

Project Location: Eddy Co.

Sampler Name: K. Pope

FOR LAB USE ONLY

Lab I.D. Sample I.D.

## BILL TO

## ANALYSIS REQUEST

P.O. #:

Company: RT Hicks

Attn:

Address:

City:

State: Zip:

Phone #:

Fax #:

PRESERV.

SAMPLING

MATRIX

(G)RAB OR (C)OMP.

# CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

HA01522-

1 10' N Wall Comp. (EC-1) C 1

2 10' S Wall Comp. (EC-1) C 1

3 10' E Wall Comp. (EC-1) C 1

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

April 30, 2019

KRISTIN POPE

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: OGDEN ST. RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 04/29/19 11:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received:	04/29/2019	Sampling Date:	04/26/2019
Reported:	04/30/2019	Sampling Type:	Soil
Project Name:	OGDEN ST. RELEASE	Sampling Condition:	Cool & Intact
Project Number:	5A	Sample Received By:	Tamara Oldaker
Project Location:	MURCHISON - EDDY CO NM		

**Sample ID: 10' N WALL COMP ( EC - 1 ) (H901522-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 10' S WALL COMP ( EC - 1 ) (H901522-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2240	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 10' E WALL COMP ( EC - 1 ) (H901522-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	528	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 10' W WALL COMP ( EC - 1 ) (H901522-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3600	16.0	04/30/2019	ND	416	104	400	3.92	

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: 04/29/2019  
Reported: 04/30/2019  
Project Name: OGDEN ST. RELEASE  
Project Number: 5A  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 04/26/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: FLOOR COMP 4' BGS ( EC - 1 ) (H901522-05)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4160	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 10' N WALL COMP ( 390' E ) (H901522-06)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1580	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 7' S WALL COMP ( 390' E ) (H901522-07)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9460	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 10' E WALL COMP ( 390' E ) (H901522-08)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	14900	16.0	04/30/2019	ND	416	104	400	3.92	

**Sample ID: 10' W WALL COMP ( 390' E ) (H901522-09)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10900	16.0	04/30/2019	ND	416	104	400	3.92	

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received:	04/29/2019	Sampling Date:	04/26/2019
Reported:	04/30/2019	Sampling Type:	Soil
Project Name:	OGDEN ST. RELEASE	Sampling Condition:	Cool & Intact
Project Number:	5A	Sample Received By:	Tamara Oldaker
Project Location:	MURCHISON - EDDY CO NM		

**Sample ID: FLOOR COMP 4' BGS ( 390' E ) (H901522-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3400	16.0	04/30/2019	ND	416	104	400	3.92		

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Celey D. Keene, Lab Director/Quality Manager



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---

### Notes and Definitions

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

---

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

---

Celey D. Keene, Lab Director/Quality Manager



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

Released to Imaging: 4/15/2024 11:21:05 AM





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

May 08, 2019

KRISTIN POPE

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: OGDEN ST. RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 05/03/19 8:12.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received:	05/03/2019	Sampling Date:	05/02/2019
Reported:	05/08/2019	Sampling Type:	Soil
Project Name:	OGDEN ST. RELEASE	Sampling Condition:	** (See Notes)
Project Number:	NOT GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MURCHISON - EDDY CO NM		

**Sample ID: EC - 4, 5' N @ 0-2' BGS (H901601-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	05/07/2019	ND	432	108	400	3.77	

**Sample ID: EC - 4, 5' N @ 2-4' BGS (H901601-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	05/07/2019	ND	432	108	400	3.77	

**Sample ID: EC - 4, 5' N @ 4.5' BGS (H901601-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	05/07/2019	ND	432	108	400	3.77	

**Sample ID: 390' E , 35' N @ 0-2' BGS (H901601-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	05/07/2019	ND	432	108	400	3.77	

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: 05/03/2019  
 Reported: 05/08/2019  
 Project Name: OGDEN ST. RELEASE  
 Project Number: NOT GIVEN  
 Project Location: MURCHISON - EDDY CO NM

Sampling Date: 05/02/2019  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Tamara Oldaker

**Sample ID: 390' E , 35' N @ 2-4' BGS (H901601-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	05/07/2019	ND	432	108	400	3.77		

**Sample ID: 390' E , 35' N @ 4.5' BGS (H901601-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	05/07/2019	ND	432	108	400	3.77		

**Sample ID: EC - 6 @ 0-2' BGS (H901601-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	05/07/2019	ND	432	108	400	3.77	

**Sample ID: EC - 6 @ 2-3.5' BGS (H901601-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	05/07/2019	ND	432	108	400	3.77		

**Sample ID: EC - 6 @ 3.5' BGS (H901601-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	05/07/2019	ND	432	108	400	3.77	

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

---

### Notes and Definitions

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

---

Cardinal Laboratories

\*=Accredited Analyte

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

---

Celey D. Keene, Lab Director/Quality Manager





## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <u>RT Hicks Consultants</u>		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>									
Project Manager: <u>Kristin Pope</u>		P.O. #:											
Address: <u>901 Rio Grande Blvd NW, Suite E-142</u>		Company: <u>RT Hicks</u>											
City: <u>Albuquerque</u>		Attn:											
Phone #: <u>(505) 266-5004</u>		Address:											
Fax #: _____		City:											
Project #: _____		State: _____ Zip: _____											
Project Name: <u>Ogden Release</u>		Phone #: _____											
Project Location: <u>Eddy County</u>		Fax #: _____											
Sampler Name: <u>A. Parker</u>													

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :			
1	EC-4, 5' N @ 0-2' bgs		1							5-2-19	1100	Chloride
2	EC-4, 5' N @ 2-4' bgs		1								1058	
3	EC-4, 5' N @ 4.5' bgs		1								1055	
4	390'E 35' N @ 0-2' bgs		1								1405	
5	390'E 35' N @ 2-4' bgs		1								1410	
6	390'E 35' N @ 4.5' bgs		1								1420	
7	EC-6 @ 0-2' bgs		1								1630	
8	EC-6 @ 2-3.5' bgs		1								1625	
9	EC-6 @ 3.5' bgs		1								1610	

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Relinquished By:	Date: <u>5-3-19</u>	Received By:	Date: <u>08-12</u>
Relinquished By:	Date: <u>5-3-19</u>	Received By:	Date: <u>5-3-19</u>
Delivered By: (Circle One)	Time: <u>08:12:30</u>	Sample Condition	CHECKED BY: (Initials)
Sampler - UPS - Bus - Other:	Time: <u>08:12:30</u>	Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	<u>JP</u>

REMARKS: email to kristin@rthicksconsulting.com, andrew@rthicksconsulting.com





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

---

May 13, 2019

KRISTIN POPE

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: OGDEN ST. RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 05/06/19 10:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

Accreditation applies to public drinking water matrices.

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 fluid and cursive, with the first name "Celey" and last name "Keene" clearly distinguishable.

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:	05/06/2019	Sampling Date:	05/03/2019
Reported:	05/13/2019	Sampling Type:	Soil
Project Name:	OGDEN ST. RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MURCHISON - EDDY CO NM		

**Sample ID: EC - 7 @ 0-2' BGS (H901617-01)**

Chloride, SM4500CI-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	05/10/2019	ND	400	100	400	4.08	

**Sample ID: EC - 7 @ 2-4' BGS (H901617-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	05/10/2019	ND	400	100	400	4.08	

**Sample ID: EC - 7 @ 4.5' BGS (H901617-03)**

Chloride, SM4500CI-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	05/10/2019	ND	400	100	400	4.08	

**Sample ID: EC - 8 @ 0-2' BGS (H901617-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2360	16.0	05/10/2019	ND	400	100	400	4.08	

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: 05/06/2019  
 Reported: 05/13/2019  
 Project Name: OGDEN ST. RELEASE  
 Project Number: NONE GIVEN  
 Project Location: MURCHISON - EDDY CO NM

Sampling Date: 05/03/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: EC - 8 @ 2-4' BGS (H901617-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	928	16.0	05/10/2019	ND	400	100	400	4.08	

**Sample ID: EC - 8 @ 4.5' BGS (H901617-06)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	704	16.0	05/10/2019	ND	400	100	400	4.08	

**Sample ID: 5' S OF EC - 8 @ 0-2' BGS (H901617-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	05/10/2019	ND	400	100	400	4.08	

**Sample ID: 5' S OF EC - 8 @ 2-3.5' BGS (H901617-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	05/10/2019	ND	400	100	400	4.08	

**Sample ID: 5' S OF EC - 8 @ 3.5' BGS (H901617-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	05/10/2019	ND	400	100	400	4.08	

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Celey D. Keene, Lab Director/Quality Manager



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---

### Notes and Definitions

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

---

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

---

Celey D. Keene, Lab Director/Quality Manager





## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <b>RT Hicks Consultants</b>		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>																					
Project Manager: <b>Kristin Pope</b>		P.O. #:																							
Address: <b>901 Rio Grande Blvd NW, Suite E-142</b>		Company: <b>RT Hicks</b>																							
City: <b>Albuquerque</b>		Attn: <b>Randy Hicks</b>																							
Phone #: <b>(505) 346-5004</b>		Address:																							
Project #:		City:																							
Project Name: <b>Ogden Release</b>		State:																							
Project Location: <b>Eddy County</b>		Zip:																							
Sampler Name: <b>A. Parker</b>		Fax #:																							
FOR LAB USE ONLY																									
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER:		ACID/BASE:		ICE / COOL		OTHER:		DATE		TIME	
		# CONTAINERS	MATRIX		PRESERV.		SAMPLING																		
<b>H901617</b>	<b>EC-7 @ 0-2' 1' bgs</b>																								
	<b>2 EC-7 @ 2-4' 1' bgs</b>																								
	<b>3 EC-7 @ 4.5' 1' bgs</b>																								
	<b>4 EC-8 @ 0-2' 1' bgs</b>																								
	<b>5 EC-8 @ 2-4' 1' bgs</b>																								
	<b>6 EC-8 @ 4.5' 1' bgs</b>																								
	<b>7 5' of EC-8 @ 0-2' 1' bgs</b>																								
	<b>8 5' of EC-8 @ 2-4' 1' bgs</b>																								
	<b>9 5' of EC-8 @ 4.5' 1' bgs</b>																								

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Relinquished By: **David Pope** Date: **3-3-19** Received By: **Kristin Pope** Date: **3-6-19**

Reinforced By: **David Pope** Time: **16:00** Received By: **Jamara Dabbs** Time: **10:40**

Delivered By: **Kristin Pope** Sample Condition: **Cool Intact** CHECKED BY: **(Initials)**

Sampler - UPS - Bus - Other: **1.88 #97** **70.**

Phone Result: ☐ Yes ☐ No ☐ Add'l Phone #: **70.**

Fax Result: ☐ Yes ☐ No ☐ Add'l Fax #: **70.**

REMARKS: **Email to kristin@rthicksconsult.com, andrew@**





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

---

April 16, 2021

KRISTIN POPE

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: OGDEN ST. RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 04/14/21 9:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received:	04/14/2021	Sampling Date:	03/24/2021
Reported:	04/16/2021	Sampling Type:	Soil
Project Name:	OGDEN ST. RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MURCHISON - EDDY CO NM		

**Sample ID: SP 1 @ 0-2' (H210937-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3880	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 1 @ 2-4' (H210937-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2000	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 1 @ 4.5' (H210937-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2600	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 2 @ 0-2' (H210937-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3800	16.0	04/15/2021	ND	400	100	400	0.00	

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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: 04/14/2021  
Reported: 04/16/2021  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 03/24/2021  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: SP 2 @ 2-4' (H210937-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4880	16.0	04/15/2021	ND	400	100	400	0.00		

**Sample ID: SP 2 @ 4.5' (H210937-06)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5200	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 3 @ 0-2' (H210937-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	160	16.0	04/15/2021	ND	400	100	400	0.00		

**Sample ID: SP 3 @ 2-4' (H210937-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 3 @ 4.5' (H210937-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	04/15/2021	ND	400	100	400	0.00	

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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: 04/14/2021  
Reported: 04/16/2021  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 03/24/2021  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: SP 4 @ 0-2' (H210937-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8200	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 4 @ 2-4' (H210937-11)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5730	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 4 @ 4.5' (H210937-12)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1760	16.0	04/15/2021	ND	400	100	400	0.00		

**Sample ID: SP 5 @ 0-2' (H210937-13)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 5 @ 2-4' (H210937-14)**

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	04/15/2021	ND	400	100	400	0.00	

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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: 04/14/2021  
 Reported: 04/16/2021  
 Project Name: OGDEN ST. RELEASE  
 Project Number: NONE GIVEN  
 Project Location: MURCHISON - EDDY CO NM

Sampling Date: 03/24/2021  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 5 @ 4.5' (H210937-15)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	160	16.0	04/15/2021	ND	400	100	400	0.00		

**Sample ID: SP 6 @ 0-2' (H210937-16)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5360	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 6 @ 2-4' (H210937-17)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3760	16.0	04/15/2021	ND	400	100	400	0.00		

**Sample ID: SP 6 @ 4.5' (H210937-18)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1440	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 7 @ 0-2' (H210937-19)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	464	16.0	04/15/2021	ND	400	100	400	0.00	

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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: 04/14/2021  
Reported: 04/16/2021  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 03/24/2021  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: SP 7 @ 2-4' (H210937-20)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 7 @ 4.5' (H210937-21)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 8 @ 0-2' (H210937-22)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	496	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 8 @ 2-4' (H210937-23)**

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	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 8 @ 4.5' (H210937-24)**

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	04/15/2021	ND	400	100	400	0.00	

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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: 04/14/2021  
Reported: 04/16/2021  
Project Name: OGDEN ST. RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY CO NM

Sampling Date: 03/24/2021  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: SP 9 @ 0-2' (H210937-25)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10800	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 9 @ 2-4' (H210937-26)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3720	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 9 @ 4.5' (H210937-27)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1520	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 10 @ 0-2' (H210937-28)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	04/15/2021	ND	400	100	400	0.00	

**Sample ID: SP 10 @ 2-4' (H210937-29)**

Chloride, SM4500Cl-B		mg/ kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	04/15/2021	ND	400	100	400	0.00	

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received: 04/14/2021  
 Reported: 04/16/2021  
 Project Name: OGDEN ST. RELEASE  
 Project Number: NONE GIVEN  
 Project Location: MURCHISON - EDDY CO NM

Sampling Date: 03/24/2021  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP 10 @ 4.5' (H210937-30)**

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	04/15/2021	ND	400	100	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager





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Notes and Definitions

- QM-07      The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- ND      Analyte NOT DETECTED at or above the reporting limit
- RPD      Relative Percent Difference
- \*\*      Samples not received at proper temperature of 6°C or below.
- \*\*\*      Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

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

Celey D. Keene, Lab Director/Quality Manager





CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <u>RT Hicks Consultant</u>		P.O. #:		BILL TO										ANALYSIS REQUEST																									
Project Manager: <u>Kristin Pope</u>		Company: <u>RT Hicks</u>																																					
Address: <u>901 Rio Grande Blvd NW, E-142</u>		Attn: <u>Randy Hicks</u>																																					
City: <u>Albuquerque</u>		Address:																																					
State: <u>NM</u>		City:																																					
Zip: <u>87104</u>		State:																																					
Phone #: <u>(505) 266-5004</u>		Fax #:																																					
Project #:		Project Owner: <u>Murchison</u>																																					
Project Name: <u>Ordan State Release</u>		City:																																					
Project Location: <u>Eddy Co.</u>		State:																																					
Sampler Name: <u>Kristin Pope</u>		Phone #:																																					
Fax #:		Zip:																																					
FOR LAB USE ONLY		Matrix		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											
1 SP1 @ 0-2 ft		G 1		X		X		X		X		X		X		X		X		X		X		X		3-24-21		0940		Chloride									
2 SP1 @ 2-4 ft		G 1		X		X		X		X		X		X		X		X		X		X		X		}		}											
3 SP1 @ 4.5 ft		G 1		X		X		X		X		X		X		X		X		X		X		X		}		}											
4 SP2 @ 0-2 ft		G 1		X		X		X		X		X		X		X		X		X		X		X		}		}											
5 SP2 @ 2-4 ft		G 1		X		X		X		X		X		X		X		X		X		X		X		}		}											
6 SP2 @ 4.5 ft		G 1		X		X		X		X		X		X		X		X		X		X		X		}		}											
7 SP3 @ 0-2 ft		G 1		X		X		X		X		X		X		X		X		X		X		X		}		}											
8 SP3 @ 2-4 ft		G 1		X		X		X		X		X		X		X		X		X		X		X		}		}											
9 SP3 @ 4.5 ft		G 1		X		X		X		X		X		X		X		X		X		X		X		}		}											
10 SP4 @ 0-2 ft		G 1		X		X		X		X		X		X		X		X		X		X		X		}		}											
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Delivered By: (Circle One)		Sample Condition		Checked By: (Initials)																																			
Sampler - UPS - Bus - Other: <u>3.36 #113</u>		Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		<u>VP</u>																																			





### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

<b>Company Name:</b> AT Hicks Consultants				<b>P.O. #:</b>				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>			
<b>Project Manager:</b> Kristin Pope				<b>Company:</b> AT Hicks											
<b>Address:</b>				<b>Attn:</b> Randy Hicks											
<b>City:</b>				<b>State:</b>				<b>Zip:</b>							
<b>Phone #:</b>				<b>Fax #:</b>				<b>Address:</b>							
<b>Project #:</b>				<b>Project Owner:</b> Murchison				<b>City:</b>							
<b>Project Name:</b> Cadon State Release				<b>State:</b>				<b>Zip:</b>							
<b>Project Location:</b> Edley Co.				<b>Phone #:</b>											
<b>Sample Name:</b> Kristin Pope				<b>Fax #:</b>											
<small>FOR LAB USE ONLY</small>				<b>MATRIX</b>				<b>PRESERV</b>				<b>SAMPLING</b>			
				<input type="checkbox"/> GROUNDWATER											
				<input checked="" type="checkbox"/> WASTEWATER											
				<input checked="" type="checkbox"/> SOIL											
				<input checked="" type="checkbox"/> OIL											
				<input checked="" type="checkbox"/> SLUDGE											
				<input type="checkbox"/> OTHER :											
				<input type="checkbox"/> ACID/BASE:											
				<input type="checkbox"/> ICE / COOL											
				<input type="checkbox"/> OTHER :											
<b>Lab I.D.</b>				<b>(G)RAB OR (C)OMP.</b>				<b># CONTAINERS</b>							
<b>Sample I.D.</b>															
<b>H20937</b>															
11 SP 4 @ 2-4 ft				G 1				X				DATE TIME 3-24-21 1048			
12 SP 4 @ 4.5 ft				G 1				X				1048			
13 SP 5 @ 0-2 ft				G 1				X				1110			
14 SP 5 @ 2-4 ft				G 1				X				}			
15 SP 5 @ 4.5 ft				G 1				X				1129			
16 SP 6 @ 0-2 ft				G 1				X				{			
17 SP 6 @ 2-4 ft				G 1				X				{			
18 SP 6 @ 4.5 ft				G 1				X				{			
19 SP 7 @ 0-2 ft				G 1				X				1148			
20 SP 7 @ 2-4 ft				G 1				X				{			

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<b>Relinquished By:</b>		<b>Date:</b> 4-14-21		<b>Received By:</b>		<b>Date:</b>	
<i>Kristin Pope</i>				<i>Laura Delaney</i>			
<b>Requined By:</b>		<b>Date:</b>		<b>Received By:</b>		<b>Date:</b>	

**Delivered By: (Circle One)** 3.3c #113

**Sampler - UPS - Bus - Other:**

**Sample Condition** Cool Intact Yes ☒ No ☐

**CHECKED BY:** T.P.

**REMARKS:** Email to kristin@rthicksconsult.com





CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <u>RT Hicks Consultants</u>		P.O. #:		BILL TO										ANALYSIS REQUEST																									
Project Manager: <u>Kristin Pope</u>		Company:																																					
Address:		Attn:																																					
City:		Address:																																					
Phone #:		City:																																					
Fax #:		State:																																					
Project #:		Zip:																																					
Project Name: <u>Ogden State Release</u>		Phone #:																																					
Project Location:		Fax #:																																					
Sampler Name: <u>Kristin Pope</u>		PRESERV.																																					
FOR LAB USE ONLY		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		Chloride									
<u>H210937</u>		<u>SP 9 @ 4.5 ft</u>		<u>1</u>		<u>1</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>3-24-21</u>		<u>3:24</u>											
<u>22 SP 8 @ 0-2 ft</u>		<u>1</u>		<u>1</u>		<u>1</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>											
<u>23 SP 8 @ 2-4 ft</u>		<u>1</u>		<u>1</u>		<u>1</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>											
<u>24 SP 8 @ 4.5 ft</u>		<u>1</u>		<u>1</u>		<u>1</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>											
<u>25 SP 9 @ 0-2 ft</u>		<u>1</u>		<u>1</u>		<u>1</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>											
<u>26 SP 9 @ 2-4 ft</u>		<u>1</u>		<u>1</u>		<u>1</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>											
<u>27 SP 9 @ 4.5 ft</u>		<u>1</u>		<u>1</u>		<u>1</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>											
<u>28 SP 10 @ 0-2 ft</u>		<u>1</u>		<u>1</u>		<u>1</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>											
<u>29 SP 10 @ 2-4 ft</u>		<u>1</u>		<u>1</u>		<u>1</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>											
<u>30 SP 10 @ 4.5 ft</u>		<u>1</u>		<u>1</u>		<u>1</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>											

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Relinquished By: Kristin Pope Date: 4-14-21 Received By: Barbara Clark Date: 4-14-21

Relinquished By: Kristin Pope Date: 4-14-21 Received By: Barbara Clark Date: 4-14-21

Delivered By: (Circle One) 3.3c #113 Sample Condition: Yes Intact Yes No No CHECKED BY: TP

Sampler - UPS - Bus - Other: 3.3c #113

REMARKS: Email to kristin@rthicksconsult.com





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

June 20, 2023

KRISTIN POPE

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: ODGEN ST 5A RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 06/16/23 14:50.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received: 06/16/2023  
 Reported: 06/20/2023  
 Project Name: ODGEN ST 5A RELEASE  
 Project Number: NONE GIVEN  
 Project Location: MURCHISON - EDDY COUNTY

Sampling Date: 06/13/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP - 1 @ 0-2 FT (H233139-01)**

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	06/19/2023	ND	416	104	400	7.41	

**Sample ID: SP - 1 @ 2-4 FT (H233139-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	864	16.0	06/19/2023	ND	416	104	400	7.41	

**Sample ID: SP - 1 @ 4.5 FT (H233139-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1060	16.0	06/19/2023	ND	416	104	400	7.41	

**Sample ID: SP - 2 @ 0-2 FT (H233139-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1720	16.0	06/19/2023	ND	416	104	400	3.77	QM-07

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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: 06/16/2023  
Reported: 06/20/2023  
Project Name: ODGEN ST 5A RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY COUNTY

Sampling Date: 06/13/2023  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: SP - 2 @ 2-4 FT (H233139-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	06/19/2023	ND	416	104	400	3.77	

**Sample ID: SP - 2 @ 4.5 FT (H233139-06)**

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	06/19/2023	ND	416	104	400	3.77	

**Sample ID: SP - 2B @ 0-2 FT (H233139-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4560	16.0	06/19/2023	ND	416	104	400	3.77	

**Sample ID: SP - 2B @ 2-4 FT (H233139-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2480	16.0	06/19/2023	ND	416	104	400	3.77	

**Sample ID: SP - 2B @ 4.5 FT (H233139-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2040	16.0	06/19/2023	ND	416	104	400	3.77	

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: 06/16/2023  
 Reported: 06/20/2023  
 Project Name: ODGEN ST 5A RELEASE  
 Project Number: NONE GIVEN  
 Project Location: MURCHISON - EDDY COUNTY

Sampling Date: 06/13/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP - 4 @ 0-2 FT (H233139-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	8640	16.0	06/19/2023	ND	416	104	400	3.77		

**Sample ID: SP - 4 @ 2-4 FT (H233139-11)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	11300	16.0	06/19/2023	ND	416	104	400	3.77		

**Sample ID: SP - 4 @ 4.5 FT (H233139-12)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3920	16.0	06/19/2023	ND	416	104	400	3.77		

**Sample ID: SP - 6 @ 0-2 FT (H233139-13)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4400	16.0	06/19/2023	ND	416	104	400	3.77		

**Sample ID: SP - 6 @ 2-4 FT (H233139-14)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1060	16.0	06/19/2023	ND	416	104	400	3.77		

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\*=Accredited Analyte

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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: 06/16/2023  
Reported: 06/20/2023  
Project Name: ODGEN ST 5A RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY COUNTY

Sampling Date: 06/13/2023  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: SP - 6 @ 4.5 FT (H233139-15)**

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	06/19/2023	ND	416	104	400	3.77		

**Sample ID: SP - 6B @ 0-2 FT (H233139-16)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	6880	16.0	06/19/2023	ND	416	104	400	3.77		

**Sample ID: SP - 6B @ 2-4 FT (H233139-17)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4400	16.0	06/19/2023	ND	416	104	400	3.77		

**Sample ID: SP - 6B @ 4.5 FT (H233139-18)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5040	16.0	06/19/2023	ND	416	104	400	3.77		

**Sample ID: SP - 9 @ 0-2 FT (H233139-19)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10800	16.0	06/19/2023	ND	416	104	400	3.77	

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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: 06/16/2023  
Reported: 06/20/2023  
Project Name: ODGEN ST 5A RELEASE  
Project Number: NONE GIVEN  
Project Location: MURCHISON - EDDY COUNTY

Sampling Date: 06/13/2023  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: SP - 9 @ 2-4 FT (H233139-20)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	7040	16.0	06/19/2023	ND	416	104	400	3.77		

**Sample ID: SP - 9 @ 4.5 FT (H233139-21)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2800	16.0	06/19/2023	ND	416	104	400	3.77		

**Sample ID: SP - 9B @ 0-2 FT (H233139-22)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1070	16.0	06/19/2023	ND	416	104	400	3.77		

**Sample ID: SP - 9B @ 2-4 FT (H233139-23)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	704	16.0	06/19/2023	ND	416	104	400	3.77		

**Sample ID: SP - 9B @ 4.5 FT (H233139-24)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	06/20/2023	ND	400	100	400	3.92	

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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: 06/16/2023  
 Reported: 06/20/2023  
 Project Name: ODGEN ST 5A RELEASE  
 Project Number: NONE GIVEN  
 Project Location: MURCHISON - EDDY COUNTY

Sampling Date: 06/13/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: SP - 9C @ 0-2 FT (H233139-25)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	10100	16.0	06/20/2023	ND	400	100	400	3.92		

**Sample ID: SP - 9C @ 2-4 FT (H233139-26)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	848	16.0	06/20/2023	ND	400	100	400	3.92		

**Sample ID: SP - 9C @ 4.5 FT (H233139-27)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2120	16.0	06/20/2023	ND	400	100	400	3.92	

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### Notes and Definitions

- QM-07      The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- ND      Analyte NOT DETECTED at or above the reporting limit
- RPD      Relative Percent Difference
- \*\*      Samples not received at proper temperature of 6°C or below.
- \*\*\*      Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

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

Celey D. Keene, Lab Director/Quality Manager





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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

<b>Company Name:</b> R. T. Hicks Consultants <b>Project Manager:</b> Kristin Pope <b>Address:</b> 901 Rio Grande Blvd NW, Suite F-142 <b>City:</b> Albuquerque <b>Phone #:</b> 505-266-5004 <b>Fax #:</b> <b>Project #:</b> <b>Project Name:</b> Ogden St 5A release <b>Project Location:</b> Eddy County <b>Sample Name:</b> Kristin Pope				<b>P.O. #:</b> <b>Company:</b> R. T. Hicks <b>Attn:</b> Randy <b>Address:</b> <b>City:</b> <b>State:</b> <b>Zip:</b> <b>Phone #:</b> <b>Fax #:</b>			
<b>FOR LAB USE ONLY</b>				<b>BILL TO</b>			
<b>Lab I.D.</b>				<b>ANALYSIS REQUEST</b>			
<b>Sample I.D.</b>				<b>CLORIDE</b>			
HT33139				CHLORIDE			
SP-1 @ 0-2 ft				DATE 6.13.23 TIME 0850			
SP-1 @ 2-4 ft				0855			
SP-1 @ 4,5 ft				0900			
SP-2 @ 0-2 ft				0910			
SP-2 @ 2-4 ft				0912			
SP-2 @ 4,5 ft				0915			
SP-2 @ 0-2 ft				0925			
SP-2 @ 2-4 ft				0927			
SP-2 @ 4,5 ft				0930			
SP-4 @ 0-2 ft				0954			
(G)RAB OR (C)OMP.				# CONTAINERS			
GROUNDWATER				WASTEWATER			
SOIL				OIL			
SLUDGE				OTHER :			
ACID/BASE:				ICE / COOL			
OTHER :				DATE			
MATRIX				PRESERV			
SAMPLING				TIME			
RECEIVED BY:				RECEIVED BY:			
DATE:				DATE:			
TIME:				TIME:			
RELINQUISHED BY:				RELINQUISHED BY:			
DELIVERED BY: (Circle One)				OBSERVED TEMP: °C			
UPS - Bus - Other:				CORRECTED TEMP: °C			
SAMPLE CONDITION				CHECKED BY:			
Cool Intact				(Initials)			
Yes No				Yes No			
THERMOCOOL ID #113				THERMOCOOL FACTOR -0.5°C			
STANDARD				BACTERIA (only)			
RUSH				COOL INTACT			
Yes No				YES NO			
CORRECTED TEMP: °C				OBSERVED TEMP: °C			
REMARKS:				REMARKS:			





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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

<b>Company Name:</b> R. T. Hicks Consultants		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>									
<b>Project Manager:</b> Kristin Pope		<b>P.O. #:</b>											
<b>Address:</b> 901 Rio Grande Blvd NW, Suite E-142		<b>Company:</b> R. T. Hicks											
<b>City:</b> Albuquerque		<b>Attn:</b> Randy											
<b>State:</b> NM <b>Zip:</b> 87104		<b>Address:</b>											
<b>Phone #:</b> 505-266-5004 <b>Fax #:</b>		<b>City:</b>											
<b>Project #:</b>		<b>State:</b>											
<b>Project Name:</b> Ogden St 5A release		<b>Zip:</b>											
<b>Project Location:</b> Eddy County		<b>Phone #:</b>											
<b>Sampler Name:</b> Kristin Pope		<b>Fax #:</b>											
<b>FOR LAB USE ONLY</b>													
<b>Lab I.D.</b>		<b>Sample I.D.</b>											
H233139		11											
12 SP-4 @ 2-4		1											
13 SP-4 @ 4.5		1											
14 SP-6 @ 0-2		1											
15 SP-6 @ 2-4		1											
16 SP-6 @ 4.5		1											
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213 SP-9 @ 2-4		1											
214 SP-9 @ 4.5		1											
215 SP-9 @ 0-2		1											
216 SP-9 @ 2-4		1											
217 SP-9 @ 4.5		1											
218 SP-9 @ 0-2		1											
219 SP-9 @ 2-4		1											
220 SP-9 @ 4.5		1											
221 SP-9 @ 0-2		1											
222 SP-9 @ 2-4		1											
223 SP-9 @ 4.5		1											
224 SP-9 @ 0-2		1											
225 SP-9 @ 2-4		1											
226 SP-9 @ 4.5		1											
227 SP-9 @ 0-2		1											
228 SP-9 @ 2-4		1											
229 SP-9 @ 4.5		1											
230 SP-9 @ 0-2		1											
231 SP-9 @ 2-4		1											
232 SP-9 @ 4.5		1											
233 SP-9 @ 0-2		1											
234 SP-9 @ 2-4		1											
235 SP-9 @ 4.5		1											
236 SP-9 @ 0-2		1											
237 SP-9 @ 2-4		1											
238 SP-9 @ 4.5		1											
239 SP-9 @ 0-2		1											
240 SP-9 @ 2-4		1											
241 SP-9 @ 4.5		1											
242 SP-9 @ 0-2		1											
243 SP-9 @ 2-4		1											
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254 SP-9 @ 0-2		1											
255 SP-9 @ 2-4		1											
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257 SP-9 @ 0-2		1											
258 SP-9 @ 2-4		1											
259 SP-9 @ 4.5		1											
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261 SP-9 @ 2-4		1											
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263 SP-9 @ 0-2		1											
264 SP-9 @ 2-4		1											
265 SP-9 @ 4.5		1											
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267 SP-9 @ 2-4		1											
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269 SP-9 @ 0-2		1											
270 SP-9 @ 2-4		1											
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284 SP-9 @ 0-2		1											
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294 SP-9 @ 2-4		1											
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296 SP-9 @ 0-2		1											
297 SP-9 @ 2-4		1											
298 SP-9 @ 4.5		1											
299 SP-9 @ 0-2		1											
300 SP-9 @ 2-4		1											
301 SP-9 @ 4.5													





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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]





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

June 20, 2023

KRISTIN POPE

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: ODGEN ST 5A RELEASE CONFIRMATION

Enclosed are the results of analyses for samples received by the laboratory on 06/16/23 14:50.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received:	06/16/2023	Sampling Date:	06/13/2023
Reported:	06/20/2023	Sampling Type:	Soil
Project Name:	ODGEN ST 5A RELEASE CONFIRMATION	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	MURCHISON - EDDY COUNTY		

**Sample ID: SP - 3 @ 0-2 FT (H233137-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2800	16.0	06/19/2023	ND	416	104	400	7.41	

**Sample ID: SP - 3 @ 2-4 FT (H233137-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2960	16.0	06/19/2023	ND	416	104	400	7.41	

**Sample ID: SP - 3 @ 4.5 FT (H233137-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1600	16.0	06/19/2023	ND	416	104	400	7.41	

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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---

### Notes and Definitions

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

---

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

---

Celey D. Keene, Lab Director/Quality Manager





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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]





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

June 20, 2023

KRISTIN POPE

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: ODGEN ST 5A RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 06/16/23 14:50.

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

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Method EPA 524.2	Total Trihalomethanes (TTHM)
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Sincerely,

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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: 06/16/2023  
 Reported: 06/20/2023  
 Project Name: ODGEN ST 5A RELEASE  
 Project Number: NONE GIVEN  
 Project Location: MURCHISON - EDDY COUNTY

Sampling Date: 06/13/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: 230 ' E @ 0-2 FT (H233138-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	06/19/2023	ND	416	104	400	7.41	

**Sample ID: 230 ' E @ 2-4 FT (H233138-02)**

Chloride, SM4500CI-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	06/19/2023	ND	416	104	400	7.41	

**Sample ID: 230 ' E @ 4.5 FT (H233138-03)**

Chloride, SM4500CI-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	06/19/2023	ND	416	104	400	7.41	

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Celey D. Keene, Lab Director/Quality Manager



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---

### Notes and Definitions

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

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

---

Celey D. Keene, Lab Director/Quality Manager



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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



**Attachment V**  
**Boone Archaeological Consultants, LLC Archaeological Survey**  
**CEHMM SSPS Survey**





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

## NMSLO Cultural Resources Cover Sheet Exhibit

NMCRIS Activity Number: 154352

(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 Release. Archaeological survey was negative for cultural resources. See NMCRIS Activity No. 154352 Report for complete details of the survey.

### Project Details:

NMSLO Lease Number (if available):

Cultural Resources Consultant: Boone Archaeological Resource Consultants LLC, BARC 10-23-59

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

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

### Project Location:

County(ies): Eddy County, NM

PLSS/Section/Township/Range: T25S R26E S2

---

### 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





**CEHMM**

Conservation & Environmental Services  
505 North Main Street | Carlsbad, New Mexico 88220-5875  
phone: (575)885-3700 | email: info@cehmm.org

MURCHISON OIL AND GAS, LLC.

OGDEN 5A RELEASE

SPECIAL STATUS PLANT SPECIES SURVEY REPORT

11/27/2023



TABLE OF CONTENTS

Summary.....1

Figure 1: SSPS Overview within the proposed project area.....2



## SUMMARY

CEHMM conducted a Special Status Plant Species (SSPS) survey for Scheer's beehive cactus (*Coryphantha robustispina* ssp. *scheeri*), Gypsum milkvetch (*Astragalus gypsodes*) and gypsum wild buckwheat (*Eriogonum gypsophilum*) for the Murchison Oil and Gas, LLC Ogden 5A Release spill clean-up project (Project) on November 16, 2023. Per New Mexico State Land Office (SLO) regulations parallel transects for the SSPS survey spaced at 20 meters apart were walked, encompassing a 100-meter buffer around the Project in potential habitat for Scheer's beehive cactus and Gypsum milkvetch on SLO land

Field Notes from the survey indicate that no individuals of the Scheer's beehive cactus, Gypsum milkvetch or Gypsum wild buckwheat were observed within the 100-meter buffer of the Project.



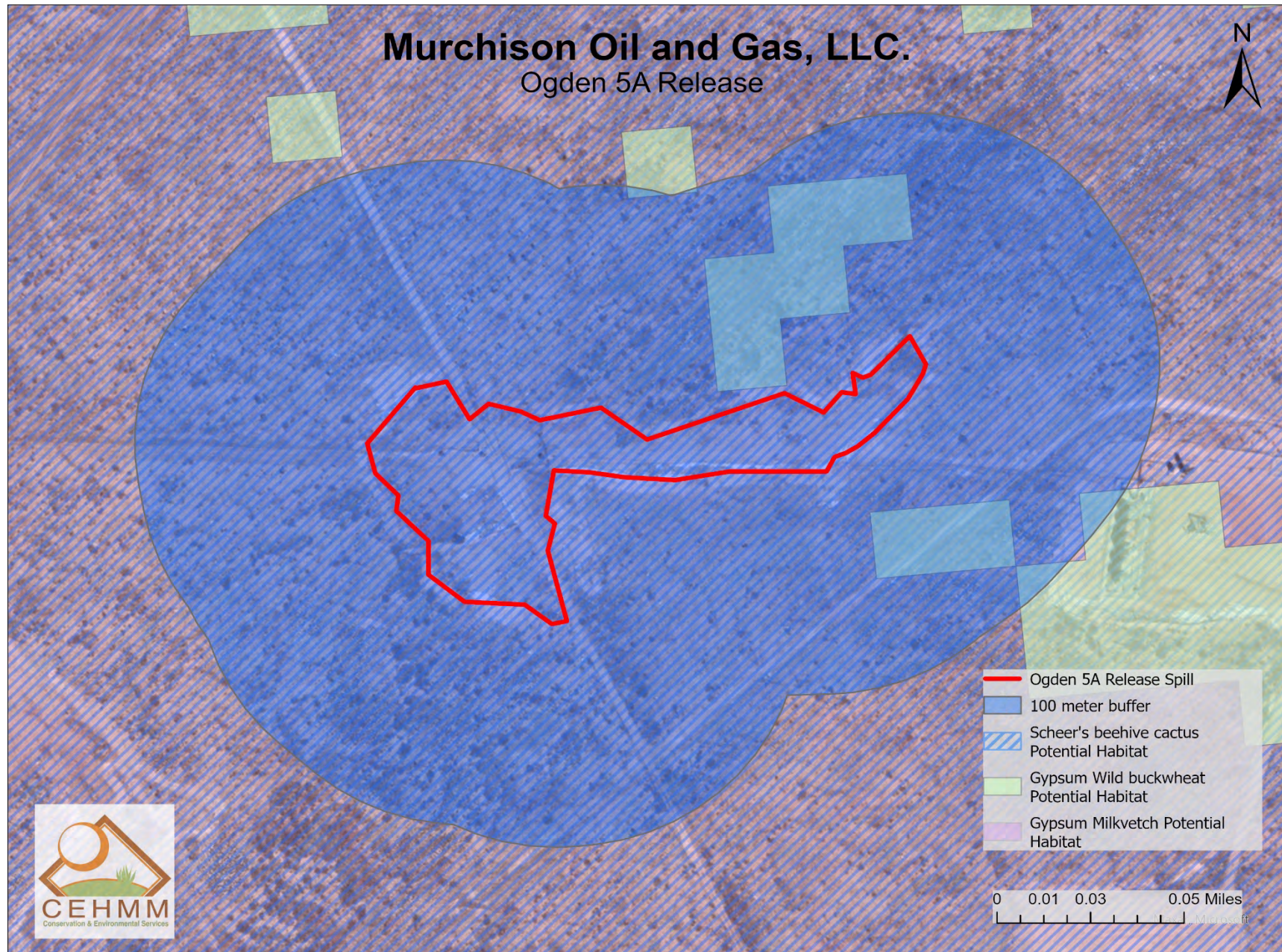


Figure 1: SSPS Overview within the proposed project area.



## **Attachment VI**

### **NMSLO Loamy Sites Seed Mixture**



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

COMMON NAME	VARIETY	APPLICATION RATE (PLS/Acre)	DRILL BOX
<b>Grasses:</b>			
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
<b>Forbs:</b>			
Firewheel ( <i>Gaillardia</i> )	VNS, Southern	1.0	D
<b>Shrubs:</b>			
Fourwing saltbush	Marana, Santa Rita	1.0	D
Common winterfat	VNS, Southern	0.5	F
<b>Total PLS/acre</b>		<b>18.0</b>	

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>.





**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 330379

QUESTIONS

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:
	15363
	Action Number:
	330379
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

QUESTIONS

Prerequisites	
Incident ID (n#)	nAB1902343484
Incident Name	NAB1902343484 OGDEN STATE 5A RELEASE @ 0
Incident Type	Produced Water Release
Incident Status	Remediation Plan Received
Incident Facility	[fAB1902343284] OGDEN STATE 5A RELEASE

Location of Release Source	
Please answer all the questions in this group.	
Site Name	OGDEN STATE 5A RELEASE
Date Release Discovered	05/26/2017
Surface Owner	State

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

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Not answered.
Produced Water Released (bbls) Details	Cause: Equipment Failure   Flow Line - Production   Produced Water   Released: 1,399 BBL   Recovered: 0 BBL   Lost: 1,399 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Not answered.



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Phone:(505) 334-6178 Fax:(505) 334-6170

**District IV**

1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

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

QUESTIONS, Page 2

Action 330379

**QUESTIONS (continued)**

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:
	15363
	Action Number:
	330379
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	Yes
Reasons why this would be considered a submission for a notification of a major release	From paragraph A. "Major release" determine using: (1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.
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: 04/09/2024
--	---



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

QUESTIONS, Page 3

Action 330379

**QUESTIONS (continued)**

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:
	15363
	Action Number:
	330379
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
<b>What is the minimum distance, between the closest lateral extents of the release and the following surface areas:</b>	
A continuously flowing watercourse or any other significant watercourse	Between 1000 (ft.) and ½ (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	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)	47000
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	04/17/2024
On what date will (or did) the final sampling or liner inspection occur	05/17/2024
On what date will (or was) the remediation complete(d)	06/16/2024
What is the estimated surface area (in square feet) that will be reclaimed	0
What is the estimated volume (in cubic yards) that will be reclaimed	0
What is the estimated surface area (in square feet) that will be remediated	29600
What is the estimated volume (in cubic yards) that will be remediated	5500

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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**District II**

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**District IV**

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Action 330379

**QUESTIONS (continued)**

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:	15363
	Action Number:	330379
	Action Type:	[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

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

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

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

(Select all answers below that apply.)

(Ex Situ) Excavation and <b>off-site</b> disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for <b>off-site</b> disposal	R360 Artesia LLC LANDFARM [FEEM0112340644]
<b>OR</b> which OCD approved well (API) will be used for <b>off-site</b> disposal	Not answered.
<b>OR</b> is the <b>off-site</b> disposal site, to be used, out-of-state	Not answered.
<b>OR</b> is the <b>off-site</b> disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and <b>on-site</b> remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.

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

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

I hereby agree and sign off to the above statement	Name: Cindy Cottrell Title: Regulatory Coordinator Email: ccottrell@jdmii.com Date: 04/09/2024
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The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.



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Action 330379

QUESTIONS (continued)

Operator:  Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:  15363
	Action Number:  330379
	Action Type:  [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

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



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QUESTIONS, Page 6  
  
Action 330379

QUESTIONS (continued)

Operator:  Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:  15363
	Action Number:  330379
	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 330379

**CONDITIONS**

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:
	15363
	Action Number: 330379
	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.	4/15/2024
bhall	Due to limited delineation information the excavation will need to be extended past five feet below ground surface 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.	4/15/2024
bhall	OCD approves the temporary stockpiling of contaminated soil on top of plastic with stormwater run-on/off protection (i.e. berms, wattles, 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.	4/15/2024
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.	4/15/2024
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.	4/15/2024
bhall	On the C-141, zeros were entered for the questions What is the estimated surface area (in square feet) that will be reclaimed and What is the estimated volume (in cubic yards) that will be reclaimed, this is incorrect as the release will need to be reclaimed at the time of remediation as it is in an area considered not reasonably needed for production or subsequent drilling activities. When the Remediation Closure Report is submitted the correct square footage and cubic yardage for the reclaimed areas will need to be provided on the C-141 and in the associated report.	4/15/2024
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.	4/15/2024
bhall	Approval of this C-141 remediation plan is only applicable for incident nAB1902343484 and is not applicable to any other incident number.	4/15/2024
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	4/15/2024
bhall	A complete remediation closure report and/or reclamation report pursuant to 19.15.29 NMAC will need to be submitted by 7/15/2024. Failure to submit a complete remediation plan and/or remediation closure report by 7/15/2024 is subject to compliance and enforcement penalties pursuant to 19.15.5 NMAC.	4/15/2024