

Incident ID	nAPP2116941928
District RP	
Facility ID	
Application ID	

Remediation Plan

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

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

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

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

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

Printed Name: Amber Griffin Title: Rep Safety & Environmental Sr
Signature: Amber Griffin Date: 11/14/2022
email: Amber_Griffin@eogresources.com Telephone: 575-748-1471

OCD Only

Received by: Jocelyn Harimon Date: 11/15/2022

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

Signature: Jennifer Nobui Date: 12/12/2022

2135 S. Loop 250 W.
Midland, Texas 79703
United States
www.ghd.com

Our ref: 11230055-LTR-1

November 14, 2022

New Mexico Oil Conservation Division
District 2
811 South First Street
Artesia, New Mexico 88210

Updated Site Remediation Work Plan
Roden GD Federal #3 Release Site
EOG Resources Inc.
Incident ID: nAPP2116941928
F-24-19S-24E, Eddy County, New Mexico

To Whom It May Concern:

1. Introduction

GHD Services Inc. (GHD), on behalf of EOG Resources (EOG), submits this Updated Site Remediation Work Plan to the New Mexico Oil Conservation Division (NMOCD) District 2 Office. This Report provides documentation of remedial activities, sampling, and analyses in the affected area at the EOG Roden GD Federal #3 Release Site (Site). The Site is located in Unit Letter F Section 24 of Township 19 South and Range 24 East in Eddy County, New Mexico. The GPS coordinates for the release site are 32.64837 N latitude and 104.54375 W longitude. The release occurred on land managed by the Bureau of Land Management (BLM). Figure 1 depicts the Site location. The EOG production facility and other site details are depicted on Figure 2, Site Details Map.

2. Background Information

A C-141, Release Notification, for this release was submitted to the NMOCD on June 18, 2021. The C-141 stated that no known volume or date could be assigned to this historical release. The potential release area was discovered during EOG well plugging and site abandonment activities associated with this location. Soils within the former tank battery containment appeared to be discolored and after discussions between field personnel and environmental staff, EOG made the decision to go ahead and file a C-141 for this suspect release location.

The release falls under the jurisdiction of the NMOCD District 2 Office in Artesia, New Mexico. The NMOCD assigned the release with Incident Number NAPP2116941928. The Release Notification and Site Assessment/ Characterization portions of Form C-141 are attached to the front of this report. GHD characterized the Site according to Table 1, Closure Criteria for Soils Impacted by a Release, from New Mexico Administrative Code (NMAC) Title 19, Chapter 15, Part 29, Section 12 (NMAC 19.15.29.12).

3. Excavation Summary

In April 2022 GHD, on behalf of EOG, completed excavation and sampling activities at the Site. During the excavation activities composite excavation samples from the sidewalls and bottom of the excavation were collected and analyzed for BTEX by EPA Method 8021B, TPH by Method 8015B Modified, and chloride by EPA Method 300. BTEX and TPH exceedances were noted in bottom hole confirmation samples BH-19 through BH-21 at 23 feet background surface (bgs). At the completion of confirmation sampling and based on results the excavation was backfilled with non-impacted soil prior to the setting of treatment wells to begin bioremediation of the hydrocarbon impacts.

Analytical results are provided in Table 1. Details regarding the completed excavation activities will be documented in the site closure report.

4. Treatment Summary

As approved by NMOCD on January 31, 2022, drilling oversight and installation of treatment wells was conducted on May 26, 2022, and June 1, 2022. A total of six soil treatment wells SB-1 through SB-6 were installed within the affected area to assist with the bioremediation and venting of the hydrocarbon impacts below 25 feet bgs.

One treatment well was installed for every 100 square feet of impacted area to be remediated. The wells consisted of 2-inch pvc pipe with slotted well screen installed for the last 5-10 feet of the well, well depth was staggered to ensure that the microbial product used to increase bioremediation made contact with all areas that required treatment. The product utilized for treatment was Rigby Taylor (RT) Remediact, which is a concentrated solution of bacteria and microorganisms used to bioremediate hydrocarbons in soils. The RT Remediact was absorbed into the surrounding soils, allowing for the digestion of organics and the breakdown of the hydrocarbons. The RT Remediact was injected into the wells every 2 weeks for approximately 12 weeks, totaling six separate treatments. Each well was injected with 63 gallons of solution for each treatment event. A total of 2,268 gallons of solution and 22,680 gallons of water was injected for the entire treatment period. The first treatment was completed the week of August 22, 2022 and the final treatment was completed the week of October 24, 2022.

5. Confirmation Soil Sampling Summary and Findings

On November 7, 2022, GHD and EOG's contractor HCI Drilling advanced three soil borings for the purpose of collecting confirmation soil samples. This consisted of performing one sample boring per 200 square feet, with samples collected at 5-foot increments beginning at 30 feet bgs to a depth of 40 feet bgs. All soil samples were analyzed for BTEX by EPA Method 8021B, TPH by Method 8015B Modified, and chloride by EPA Method 300 by Cardinal Laboratories in Hobbs, New Mexico.

Two of the three borings had samples exceeding applicable NMAC Table 1 Closure Criteria for groundwater greater than 100 feet: CB-1 and CB-3. Figure 2, Site Details Map, depicts the locations of the confirmation boring samples. The CB-1, CB-2, and CB-3 soil boring logs are provided as Attachment A. Analytical results are provided in Table 1, on Figure 3, and in the Laboratory Analytical Reports provided in Attachment B.

6. nAPP2116941928 Proposed Work Plan

CB-1 exhibited TPH GRO and DRO above Table 1 closure criteria to a depth of 35 and 40 feet bgs. CB-3 exhibited exceedances above Table 1 closure criteria for BTEX and TPH from 30 feet bgs to 40 feet bgs. None of the other samples submitted for analysis exhibited exceedances above Table 1 closure criteria. Based on results from the confirmation soil borings further treatment injections are required to adequately breakdown the hydrocarbon within the impacted soils. Continued injections are proposed to the speed of bioremediation.

The RT Remediate microbial strain will continue to be injected into the wells every 3 weeks for approximately 18 weeks, totaling six separate treatments. The amount of treatment solution will be increased for the injection events. Approximately 30 days after the last treatment, a core rig will be brought in to perform sampling of the treated areas. This will consist of performing one sample boring per 200 square feet, with samples collected at 5-foot increments with anticipated sampling to begin at 30 feet bgs to a depth of 40 feet bgs.

Once confirmation samples collected from the soil boring(s) post treatment are below Table 1 closure criteria, treatment wells will be plugged with non-impacted soil material and cut/capped at a depth of 3 feet bgs, or completely removed with the bore hole backfilled with non-impacted soil material. A closure report will be prepared to document remediation activities and submitted to the NMOCD. If the samples exhibit Total TPH concentrations above Table 1 closure criteria an update will be provided to NMOCD with the progress to date with the additional remediation steps that will occur for the site.

If you have any questions or comments concerning this Site Characterization and Remediation Work Plan, please do not hesitate to contact our Midland office at (432) 686-0086.

Regards,



J.T. Murray
Project Director

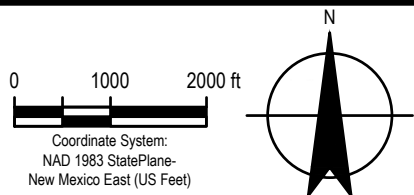
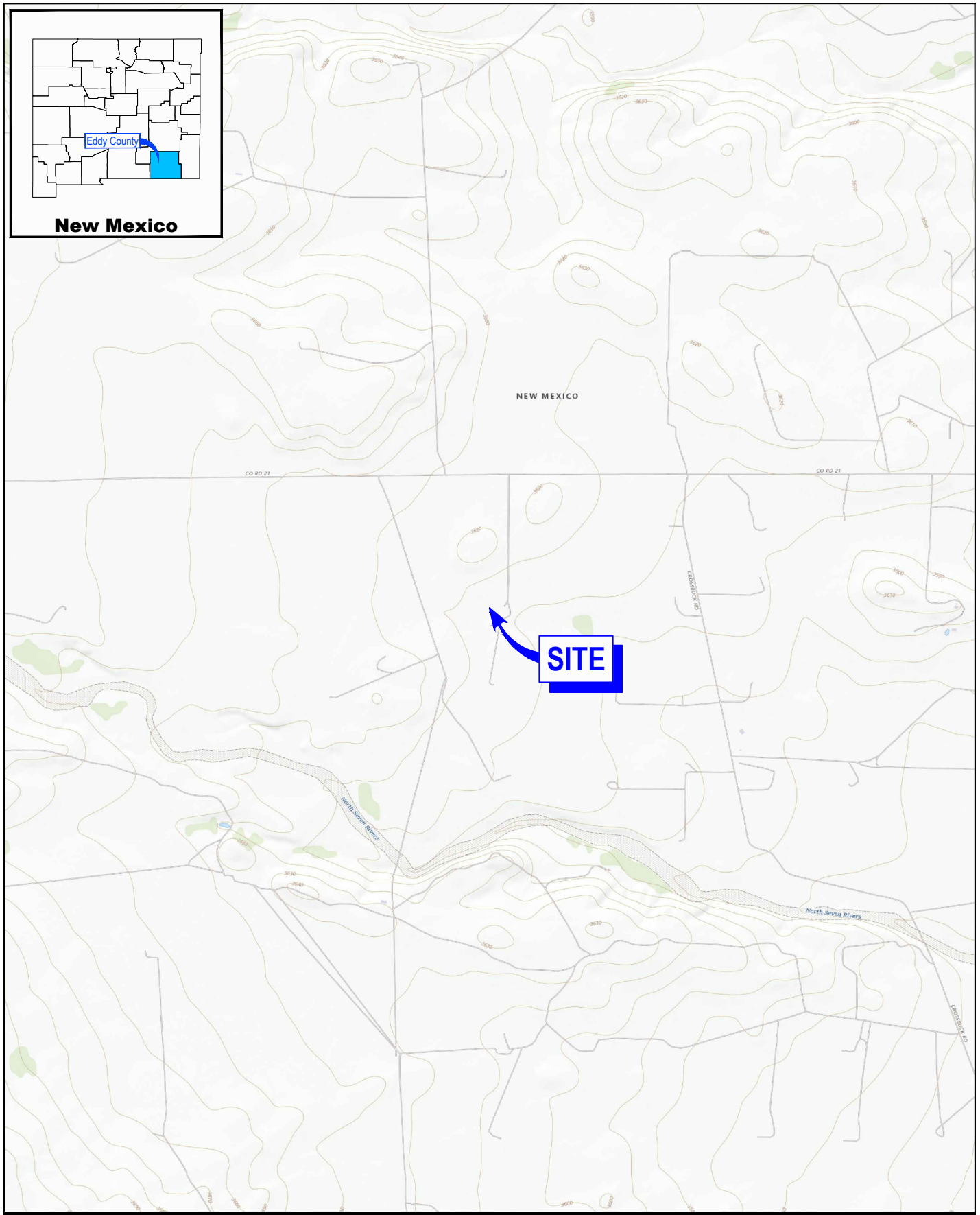


Moshghan Mansoori
Senior Project Manager

JTM/MM/mk/LTR-1

Encl. Figure 1 – Site Location Map
 Figure 2 – Site Details Map
 Figure 3 – Confirmation Soil Analytical
 Table 1 – Summary of Soil Analytical Data
 Attachment A – CB-1, CB-2, and CB-3 Soil Boring Logs
 Attachment B – Laboratory Analytical Reports and Chain-of-Custody Documentation

cc: Chase Settle



EOG RESOURCES
EDDY COUNTY, NEW MEXICO
RODEN GD FEDERAL #3

Project No. 11230055
Date November 2022

SITE LOCATION MAP

FIGURE 1



LEGEND

- CONFIRMATION SAMPLE LOCATION
- SOIL BORING LOCATION
- INJECTION WELL LOCATION

0 15 30 ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

EOG RESOURCES
EDDY COUNTY, NEW MEXICO
RODEN GD FEDERAL #3

SITE DETAILS MAP

Project No. 11230055
Date November 2022

FIGURE 2



■

CONFIRMATION SAMPLE LOCATION

⊠

SOIL BORING LOCATION

●

INJECTION WELL LOCATION

DEPTH

DEPTH OF SAMPLE (FT)

BTEX

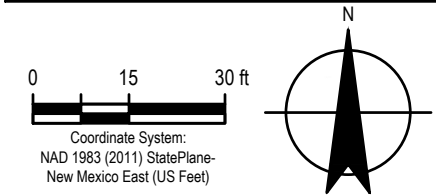
BENZENE, TOLUENE, ETHYLBENZENE & XYLENES CONCENTRATION (MG/KG)

TPH

TOTAL PETROLEUM HYDROCARBONS CONCENTRATION (MG/KG)

LEGEND

- NOTES:**
1. RESULTS IN MILLIGRAMS PER KILOGRAM (MG/KG).
 2. SEE TABLE 1 FOR FULL ANALYTICAL RESULTS/DETAILS.
 3. YELLOW SHADED CELLS INDICATE EXCEEDANCE.



EOG RESOURCES

EDDY COUNTY, NEW MEXICO

RODEN GD FEDERAL #3

Project No. 11230055

Date November 2022

GHD

CONFIRMATION SOIL ANALYTICAL

FIGURE 3

Filename: \\ghdnet\ghd\US\Midland\Projects\56211230055\Digital_Design\ACAD\Figures\PRE0011\1230055-GHD-00-00-PRE-EN-D101_DL-001.dwg
Plot Date: 14 November 2022 2:49 PM

Data Source: Image © 2021 Google - Imagery Date: December 21, 2019
Lat/Long: 32.6482° North, 104.5443° West

Released to Imaging: 12/12/2022 4:03:28 PM

Table 1
Summary of Soil Analytical Data
Roden GD Federal #3
EOG Resources
New Mexico

Sample ID	SampleDate	Depth bgs) (ft	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	Total Petroleum Hydrocarbons (TPH)					Chloride
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
			Table I Closure Criteria for Soils >100 ft Depth to Groundwater 19.15.29 NMAC										
			10 mg/kg	---	---	---	50 mg/kg	---	1,000 mg/kg	---	2,500 mg/kg	20,000 mg/kg	
Initial Assessment Samples													
TP1-2	7/19/21	2	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<9.4	<9.4	<47	<47	<60
TP1-4	7/19/21	4	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	< 10	< 10	<50	<50	<60
TP1-6	7/19/21	6	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.9	<9.9	<50	<50	150
TP2-S	7/19/21	Surface	<0.025	<0.049	<0.049	<0.098	<0.098	<4.9	<9.8	<9.8	<49	<49	<60
TP2-2	7/19/21	2	<0.025	<0.050	<0.050	<0.099	<0.099	<5.0	<9.8	<9.8	<49	<49	<60
TP3-S	7/19/21	Surface	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.7	<9.7	<49	<49	<60
TP3-2	7/19/21	2	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.7	<9.7	<48	<48	<60
TP4-S	7/19/21	Surface	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	14	14	<49	28	<60
TP4-2	7/19/21	2	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<9.5	<9.5	<48	<48	<60
TP5-15	7/19/21	15	4.1	20	73	100	197.1	2,000	9,900	11,900	3,900	27,700	110
TP5-20	7/19/21	20	10	19	82	110	221	2,300	8,800	11,100	3,500	25,700	140
TP6-S	7/19/21	Surface	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<9.8	<9.8	<49	<49	<60
TP6-2	7/19/21	2	<0.024	<0.049	<0.049	<0.098	<0.098	<4.9	<8.7	<8.7	<43	<43	<60
TP7-S	7/19/21	Surface	<0.025	<0.050	<0.050	<0.099	<0.099	<5.0	<9.7	<9.7	<48	<48	150
TP7-2	7/19/21	2	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<9.7	<9.7	<49	<49	<60
Initial Assessment Samples													
SB-1-5'	12/20/21	5	0.6	7.2	25	53	86	1,100	11,000	12,100	2,300	14,400	260
SB-1-10'	12/20/21	10	<0.24	0.56	21	29	51	870	6,400	7,270	1,800	16,340	<60
SB-1-15'	12/20/21	15	0.3	0.48	21	28	50	740	5,900	6,640	2,100	8,740	<60
SB-1-20'	12/20/21	20	0.31	<0.50	22	31	54	830	7,800	8,630	2,500	11,130	130
SB-1-25'	12/20/21	25	<0.25	8.4	17	33	58	840	2,300	3,140	590	3,730	960
SB-1-30'	12/20/21	30	0.23	4.5	8.1	20	33	470	920	1,390	410	1,800	2,000
SB-1-35'	12/20/21	35	2.9	45	34	95	180	2,700	5,500	8,200	730	8,930	700
SB-1-40'	12/20/21	40	4.6	46	38	100	190	2,600	6,400	9,000	1,500	10,500	330
SB-1-45'	12/20/21	45	<0.024	<0.049	0.069	0.12	0.19	9.4	380	389	110	499.4	120
SB-1-50'	12/20/21	50	<0.024	0.061	0.17	0.42	0.65	24	700	724	180	904	120
SB-1-55'	12/20/21	55	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<9.1	<9.1	<45	<45	<60

Table 1
Summary of Soil Analytical Data
Roden GD Federal #3
EOG Resources
New Mexico

Sample ID	SampleDate	Depth (ft) bgs)	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	Total Petroleum Hydrocarbons (TPH)					Chloride
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	GRO (C6-C10)	DRO (C10-C28)	GRO + DRO	MRO (C28-C35)	Total GRO/DRO/MRO	
			Table I Closure Criteria for Soils >100 ft Depth to Groundwater 19.15.29 NMAC										
			10 mg/kg	---	---	---	50 mg/kg	---		1,000 mg/kg	---	2,500 mg/kg	20,000 mg/kg
Sidewall Confirmation Samples													
SW-1	4/26/22	Sidewall	<0.019	<0.039	<0.039	<0.077	<0.077	<3.9	<9.8	<9.8	<49	<49	<60
SW-2	4/26/22	Sidewall	<0.018	<0.036	<0.036	<0.073	<0.073	<3.6	<9.8	<9.8	<49	<49	<61
SW-3	4/26/22	Sidewall	<0.017	<0.034	<0.034	<0.068	<0.068	<3.4	<10	<10	<50	<50	<60
SW-4	4/26/22	Sidewall	<0.073	<0.15	<0.15	<0.29	<0.29	<15	120	120	<48	<48	<60
SW-5	4/26/22	Sidewall	<0.078	<0.16	<0.16	<0.31	<0.31	<16	120	120	<48	<48	<60
SW-6	4/26/22	Sidewall	<0.016	<0.032	<0.032	<0.063	<0.063	<3.2	27	27	<47	<47	<59
SW-7	4/26/22	Sidewall	<0.017	<0.034	<0.034	<0.068	<0.068	<3.4	170	170	<50	<50	<60
SW-8	4/26/22	Sidewall	<0.015	<0.030	<0.030	<0.059	<0.059	<3.0	<9.1	<9.1	<45	<45	<60
SW-9	4/26/22	Sidewall	<0.015	<0.030	<0.030	<0.060	<0.060	<3.0	<9.7	<9.7	<49	<49	<60
SW-10	4/27/22	Sidewall	<0.023	<0.047	<0.047	<0.094	<0.094	<4.7	<9.9	<9.9	<49	<49	190
SW-11	4/27/22	Sidewall	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<10	<10	<50	<50	250
SW-12	4/27/22	Sidewall	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<9.5	<9.5	<47	<47	<60
SW-13	4/27/22	Sidewall	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<9.5	<9.5	<47	<47	<60
SW-14	4/27/22	Sidewall	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	<10	<10	<50	<50	480
SW-15	4/27/22	Sidewall	<0.025	<0.049	<0.049	<0.098	<0.098	<4.9	<10	<10	<50	<50	170
SW-16	4/27/22	Sidewall	<0.024	<0.049	<0.049	<0.098	<0.098	<4.9	<9.6	<9.6	<48	<48	<60
SW-17	4/27/22	Sidewall	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<9.9	<9.9	<50	<50	<30
SW-18	4/27/22	Sidewall	<0.025	<0.050	<0.050	<0.099	<0.099	<5.0	<9.9	<9.9	<50	<50	<60
SW-19	4/27/22	Sidewall	<0.025	<0.050	<0.050	<0.099	<0.099	<5.0	<9.4	<9.4	<47	<47	62
SW-20	4/27/22	Sidewall	<0.024	<0.049	<0.049	<0.098	<0.098	<4.9	<9.2	<9.2	<46	<46	<60
SW-21	4/27/22	Sidewall	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<9.5	<9.5	<48	<48	1,000
SW-22	4/27/22	Sidewall	0.032	0.057	<0.049	<0.099	0.089	<4.9	<9.9	<9.9	<50	<50	<60
SW-23	4/27/22	Sidewall	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<9.2	<9.2	<46	<46	<60
SW-24	4/27/22	Sidewall	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<9.5	<9.5	<47	<47	<60
SW-25	4/27/22	Sidewall	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<9.4	<9.4	<47	<47	<60

Table 1
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Roden GD Federal #3
EOG Resources
New Mexico


Sample ID	SampleDate	Depth bgs) (ft	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	Total Petroleum Hydrocarbons (TPH)					Chloride
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
			Table I Closure Criteria for Soils >100 ft Depth to Groundwater 19.15.29 NMAC										
			10 mg/kg	---	---	---	50 mg/kg	---	1,000 mg/kg	---	2,500 mg/kg	20,000 mg/kg	
Bottom Hole Confirmation Samples													
BH-1	4/27/22	4	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<10	<10	<50	<50	280
BH-2	4/27/22	4	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.8	<9.8	<49	<49	<61
BH-3	4/27/22	4	<0.024	<0.047	<0.047	<0.095	<0.095	<4.7	<9.9	<9.9	<49	<49	<60
BH-4	4/27/22	8-9	<0.024	<0.047	<0.047	<0.095	<0.095	<4.7	<9.6	<9.6	<48	<48	720
BH-5	4/27/22	8-9	<0.025	<0.050	<0.050	<0.099	<0.099	<5.0	<9.6	<9.6	<48	<48	<61
BH-6	4/27/22	8-9	<0.023	<0.047	<0.047	<0.093	<0.093	<4.7	<9.9	<9.9	<49	<49	<61
BH-7	4/27/22	0-4	<0.024	<0.047	<0.047	<0.095	<0.095	<4.7	<9.8	<9.8	<49	<49	250
BH-8	4/27/22	0-4	<0.025	<0.050	<0.050	<0.099	<0.099	<5.0	<9.5	<9.5	<48	<48	<60
BH-9	4/27/22	0-4	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<9.9	<9.9	<49	<49	90
BH-10	4/27/22	0-4	<0.024	<0.047	<0.047	<0.095	<0.095	<4.7	<9.6	<9.6	<48	<48	170
BH-11	4/27/22	4-12	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.9	<9.9	<50	<50	110
BH-12	4/27/22	4-12	<0.12	<0.25	<0.25	<0.49	<0.49	<25	24	24	<49	24	79
BH-13	4/27/22	4-12	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	18	18	<48	18	480
BH-14	4/27/22	4-12	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	<10	<10	<50	<50	180
BH-15	4/27/22	12-18	<0.024	<0.047	<0.047	<0.094	<0.094	<4.7	17	17	<50	17	550
BH-16	4/27/22	12-18	<0.024	<0.049	<0.049	<0.098	<0.098	<4.9	55	55	<49	55	680
BH-17	4/27/22	12-18	<0.024	<0.047	<0.047	<0.095	<0.095	<4.7	<9.8	<9.8	<49	<49	<60
BH-18	4/27/22	12-18	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<9.8	<9.8	<49	<49	<60
BH-19	4/27/22	23	<0.12	<0.25	0.84	2.7	3.54	200	830	1,030	140	1,170	61
BH-20	4/27/22	23	35	130	97	170	432	5,100	8,000	13,100	2,100	15,200	1,600
BH-21	4/27/22	23	19	110	82	130	341	4,000	6,300	10,300	1,900	12,200	180
BH-22	4/27/22	18	<0.025	<0.049	<0.049	<0.098	<0.098	<4.9	<9.4	<9.4	<47	<47	<60
BH-23	4/27/22	18	<0.024	<0.049	<0.049	<0.098	<0.098	<4.9	<9.5	<9.5	<47	<47	<60
Soil Pile Samples													
SP-1	4/6/22	Stockpile	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	69	69	48	117	220
SP-2	4/6/22	Stockpile	<0.025	<0.050	<0.050	<0.099	<0.099	<5.0	84	84	65	149	210
SP-3	4/6/22	Stockpile	<0.023	<0.047	<0.047	<0.093	<0.093	<4.7	88	88	<48	88	380
SP-4	4/6/22	Stockpile	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	57	57	73	130	340
SP-5	4/6/22	Stockpile	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	48	48	51	99	330
SP-6	4/6/22	Stockpile	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	230	230	160	390	230
SP-7	4/6/22	Stockpile	<0.025	0.069	0.34	0.66	1.07	9.9	130	139.9	130	270	290

Table 1
Summary of Soil Analytical Data
Roden GD Federal #3
EOG Resources
New Mexico

Sample ID	SampleDate	Depth (ft bgs)	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	Total Petroleum Hydrocarbons (TPH)					Chloride	
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	GRO (C6-C10)	DRO (C10-C28)	GRO + DRO	MRO (C28-C35)	Total GRO/DRO/MRO		
			Table I Closure Criteria for Soils >100 ft Depth to Groundwater 19.15.29 NMAC											
			10 mg/kg	---	---	---	50 mg/kg	---		1,000 mg/kg	---	2,500 mg/kg		20,000 mg/kg
SP1-1	4/26/22	Stockpile	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	19	19	<48	19	230	
SP1-2	4/26/22	Stockpile	<0.024	<0.049	<0.049	<0.098	<0.098	<4.9	130	130	57	187	460	
SP1-3	4/26/22	Stockpile	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<9.4	<9.4	<47	<47	200	
SP1-4	4/26/22	Stockpile	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<9.3	<9.3	<47	<47	79	
SP1-5	4/26/22	Stockpile	<0.023	<0.047	<0.047	<0.094	<0.094	<4.7	12	12	<50	12	77	
SP1-6	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	11	11	<48	11	<60	
SP1-7	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.7	<9.7	<49	<49	<60	
SP1-8	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	<10	<10	<50	<50	<59	
SP1-9	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.9	<9.9	<50	<50	<61	
SP1-10	4/26/22	Stockpile	<0.023	<0.047	<0.047	<0.094	<0.094	<4.7	<9.2	<9.2	<46	<46	<60	
SP1-11	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<9.2	<9.2	<46	<46	<60	
SP1-12	4/26/22	Stockpile	<0.024	<0.049	<0.049	<0.098	<0.098	<4.9	25	25	<48	25	<60	
SP1-13	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<9.5	<9.5	<48	<48	63	
SP1-14	4/26/22	Stockpile	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<9.8	<9.8	<49	<49	60	
SP1-15	4/26/22	Stockpile	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<9.7	<9.7	<48	<48	71	
SP1-16	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	<9.8	<9.8	<49	<49	62	
SP1-17	4/26/22	Stockpile	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<9.5	<9.5	<48	<48	<60	
SP1-18	4/26/22	Stockpile	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<9.9	<9.9	<49	<49	<59	
SP1-19	4/26/22	Stockpile	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	38	38	<50	38	<60	
SP1-20	4/26/22	Stockpile	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	12	12	<47	12	85	
SP1-21	4/26/22	Stockpile	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	24	24	<47	24	270	
SP1-22	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	240	240	68	308	520	
SP1-23	4/26/22	Stockpile	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	180	180	47	227	500	
SP1-24	4/26/22	Stockpile	<0.023	<0.046	<0.046	<0.092	<0.092	6.9	350	357	87	444	360	
SP1-25	4/26/22	Stockpile	<0.024	<0.047	<0.047	<0.094	<0.094	<4.7	100	100	<48	100	270	
SP1-26	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	95	95	<50	95	140	
SP1-27	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	<8.7	<8.7	<44	<44	480	
SP1-28	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	290	290	71	361	270	
SP1-29	4/26/22	Stockpile	<0.024	<0.047	<0.047	<0.094	<0.094	<4.7	<9.0	<9.0	<45	<45	380	
SP1-30	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	120	120	<46	120	210	
SP1-31	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	100	100	<47	100	170	
SP1-32	4/26/22	Stockpile	<0.025	<0.050	<0.050	<0.099	<0.099	<5.0	110	110	49	159	200	
SP1-33	4/26/22	Stockpile	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	540	540	200	740	180	
SP1-34	4/26/22	Stockpile	<0.024	<0.047	<0.047	<0.095	<0.095	<4.7	550	550	190	740	140	
SP1-35	4/26/22	Stockpile	<0.023	<0.047	<0.047	<0.094	<0.094	<4.7	370	370	140	510	90	

Table 1
Summary of Soil Analytical Data
Roden GD Federal #3
EOG Resources
New Mexico

Sample ID	SampleDate	Depth bgs) (ft	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	Total Petroleum Hydrocarbons (TPH)					Chloride
								GRO (C6-C10)	DRO (C10-C28)	GRO + DRO	MRO C35) (C28-	Total GRO/DRO/MRO	
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
			Table I Closure Criteria for Soils >100 ft Depth to Groundwater 19.15.29 NMAC										
10 mg/kg	---	---	---	50 mg/kg	---		1,000 mg/kg	---	2,500 mg/kg	20,000 mg/kg			
Confirmation Soil Samples													
CB-1	11/7/22	30'	<0.050	0.073	1.127	<0.150	0.309	10.4	145	155	22	177	368
CB-1	11/7/22	35'	<0.050	0.412	1.07	3.87	5.35	114	1,030	1,144	113	1,257	384
CB-1	11/7/22	40'	<0.050	0.68	1.64	7.04	9.36	245	1,980	2,225	208	2,433	320
CB-2	11/7/22	30'	<0.050	<0.050	0.068	<0.150	<0.300	<10	<10	<10	<10	<10	96
CB-2	11/7/22	35'	<0.050	<0.050	<0.050	<0.150	<0.300	<10	35.9	35.9	<10	35.9	128
CB-2	11/7/22	40'	<0.050	<0.050	<0.050	<0.150	<0.300	<10	29.3	29.3	<10	29.3	432
CB-3	11/7/22	30'	0.066	1.82	5.7	13.3	20.9	250	2,260	2,510	304	2,814	192
CB-3	11/7/22	35'	0.333	7.07	13.5	32.9	53.8	487	2,620	3,107	339	3,446	256
CB-3	11/7/22	40'	0.262	4.39	9.99	23.6	38.2	594	4,160	4,754	648	5,402	240

- Notes:
1. Values reported in mg/kg
2. < = Value Less than Reporting Limit (RL)
3. Bold Indicates Analyte Detected
4 BTEX analyses by EPA Method SW 8021B.
-  B-BH-2 Sample Point Excavated
5. TPH analyses by EPA Method SW 8015 Mod.
6. GRO/DRO/MRO = Gasoline/Diesel/Motor Oil
7. Yellow shaded cells indicate analytical samples that exceed the NMAC 19.15.29.12 Table I Closure Criteria for the site.
8. J - the target analytes was positively identified below the quantitation limit and above the detection limit.
9. Peach shaded cells indicate analytical samples that exceed the NMAC 19.15.29.12 Table I Closure Criteria for the depth to Groundwater <50' (used for the top 4 feet)

Attachments

Attachment A

CB-1, CB-2, and CB-3 Soil Boring Logs



STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: Roden GD Federal #3

HOLE DESIGNATION: CB-1

PROJECT NUMBER: 11230055

DATE COMPLETED: 7 November 2022

CLIENT: EOG Resources

DRILLING METHOD: Air Rotary

LOCATION: Eddy County, New Mexico

FIELD PERSONNEL: L. Mullins

DRILLING CONTRACTOR: HCI Drilling

DRILLER: K. Cooper

File: \\GHDNET\GHD\USMIDLAND\PROJECTS\56211230055\TECH\GINT LOGS\11230055 LOGS-V01.GPJ Library File: GHD_ENV\RO_V06.GLB Report: OVERBURDEN LOG Date: 11/11/22

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
2	BACKFILL: caliche rock with sand, brown, dry						
4							
6							
8							
10							
12							
14							
16							
18							
20							
22		21.00					
24		23.00					
26							
28							
30			28-30'				67.6
32							
34			33-35'				609.2
36							
38	SANDSTONE, partially consolidated, reddish brown, slightly moist	37.00					
40		40.00	38-40'				497.6
42	END OF BOREHOLE @ 40.00ft BGS						
44							
46							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ☐



STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: Roden GD Federal #3

HOLE DESIGNATION: CB-2

PROJECT NUMBER: 11230055

DATE COMPLETED: 7 November 2022

CLIENT: EOG Resources

DRILLING METHOD: Air Rotary

LOCATION: Eddy County, New Mexico

FIELD PERSONNEL: L. Mullins

DRILLING CONTRACTOR: HCI Drilling

DRILLER: K. Cooper

File: \\GHDNET\GHD\USMIDLAND\PROJECTS\56211230055\TECH\GINT LOGS\11230055 LOGS-V01.GPJ Library File: GHD_ENV\RO_V06.GLB Report: OVERBURDEN LOG Date: 11/11/22

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
2	BACKFILL: caliche rock with sand, brown, dry						
4							
6							
8							
10							
12							
14							
16							
18							
20		20.00					
22							
24		24.00					
26							
28							
30							
32							
34							
36							
38		37.00					
40		40.00					
42	END OF BOREHOLE @ 40.00ft BGS						
44							
46							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS





STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: Roden GD Federal #3

HOLE DESIGNATION: CB-3

PROJECT NUMBER: 11230055

DATE COMPLETED: 7 November 2022

CLIENT: EOG Resources

DRILLING METHOD: Air Rotary

LOCATION: Eddy County, New Mexico

FIELD PERSONNEL: L. Mullins

DRILLING CONTRACTOR: HCI Drilling

DRILLER: K. Cooper

File: \\GHDNET\GHD\USMIDLAND\PROJECTS\56211230055\TECH\GINT LOGS\11230055 LOGS-V01.GPJ Library File: GHD_ENV\RO_V06.GLB Report: OVERBURDEN LOG Date: 11/11/22

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
2	BACKFILL: caliche rock with sand, brown, dry						
4							
6							
8							
10							
12							
14							
16							
18							
20	CL-SILTY CLAY, reddish brown to light brown, slightly moist	20.00					
22							
24							
26	SP-SAND, fine to medium grained, light brown, slightly moist	25.00					
28							
30			28-30'				801
32							
34			33-35'				734
36							
38	SANDSTONE, partially consolidated, reddish brown, slightly moist	38.00					
40	END OF BOREHOLE @ 40.00ft BGS	40.00	38-40'				892
42							
44							
46							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

Attachment B

Laboratory Analytical Reports and Chain-of-Custody Documentation



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

November 09, 2022

JT MURREY

GHD SERVICES, INC.

6121 INDIAN SCHOOL RD, NE STE. 200

ALBUQUERQUE, NM 87110

RE: RODEN GD FEDERAL #3

Enclosed are the results of analyses for samples received by the laboratory on 11/08/22 12:03.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

GHD SERVICES, INC.
 JT MURREY
 6121 INDIAN SCHOOL RD, NE STE. 200
 ALBUQUERQUE NM, 87110
 Fax To:

Received:	11/08/2022	Sampling Date:	11/07/2022
Reported:	11/09/2022	Sampling Type:	Soil
Project Name:	RODEN GD FEDERAL #3	Sampling Condition:	Cool & Intact
Project Number:	11230055	Sample Received By:	Tamara Oldaker
Project Location:	EOG Y - ARTESIA NM		

Sample ID: CB- 1 (30') (H225265-01)

BTX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/08/2022	ND	1.90	94.9	2.00	2.91	
Toluene*	0.073	0.050	11/08/2022	ND	2.10	105	2.00	2.75	
Ethylbenzene*	0.127	0.050	11/08/2022	ND	1.95	97.3	2.00	3.33	
Total Xylenes*	<0.150	0.150	11/08/2022	ND	5.87	97.8	6.00	3.07	
Total BTX	0.309	0.300	11/08/2022	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	11/09/2022	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	10.4	10.0	11/09/2022	ND	181	90.4	200	7.48	
DRO >C10-C28*	145	10.0	11/09/2022	ND	210	105	200	6.11	
EXT DRO >C28-C36	22.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 78.2 % 45.3-161

Surrogate: 1-Chlorooctadecane 84.1 % 46.3-178

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

GHD SERVICES, INC.
 JT MURREY
 6121 INDIAN SCHOOL RD, NE STE. 200
 ALBUQUERQUE NM, 87110
 Fax To:

Received:	11/08/2022	Sampling Date:	11/07/2022
Reported:	11/09/2022	Sampling Type:	Soil
Project Name:	RODEN GD FEDERAL #3	Sampling Condition:	Cool & Intact
Project Number:	11230055	Sample Received By:	Tamara Oldaker
Project Location:	EOG Y - ARTESIA NM		

Sample ID: CB- 1 (35') (H225265-02)

BTX 8021B		mg/kg		Analyzed By: JH				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/08/2022	ND	1.90	94.9	2.00	2.91	
Toluene*	0.412	0.050	11/08/2022	ND	2.10	105	2.00	2.75	
Ethylbenzene*	1.07	0.050	11/08/2022	ND	1.95	97.3	2.00	3.33	
Total Xylenes*	3.87	0.150	11/08/2022	ND	5.87	97.8	6.00	3.07	
Total BTX	5.35	0.300	11/08/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 207 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	11/09/2022	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	114	10.0	11/09/2022	ND	181	90.4	200	7.48	
DRO >C10-C28*	1030	10.0	11/09/2022	ND	210	105	200	6.11	
EXT DRO >C28-C36	113	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 97.6 % 45.3-161

Surrogate: 1-Chlorooctadecane 111 % 46.3-178

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

GHD SERVICES, INC.
 JT MURREY
 6121 INDIAN SCHOOL RD, NE STE. 200
 ALBUQUERQUE NM, 87110
 Fax To:

Received:	11/08/2022	Sampling Date:	11/07/2022
Reported:	11/09/2022	Sampling Type:	Soil
Project Name:	RODEN GD FEDERAL #3	Sampling Condition:	Cool & Intact
Project Number:	11230055	Sample Received By:	Tamara Oldaker
Project Location:	EOG Y - ARTESIA NM		

Sample ID: CB- 1 (40') (H225265-03)

BTX 8021B		mg/kg		Analyzed By: JH				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/08/2022	ND	1.90	94.9	2.00	2.91	
Toluene*	0.680	0.050	11/08/2022	ND	2.10	105	2.00	2.75	
Ethylbenzene*	1.64	0.050	11/08/2022	ND	1.95	97.3	2.00	3.33	
Total Xylenes*	7.04	0.150	11/08/2022	ND	5.87	97.8	6.00	3.07	
Total BTX	9.36	0.300	11/08/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 221 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	11/09/2022	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	245	10.0	11/09/2022	ND	181	90.4	200	7.48	
DRO >C10-C28*	1980	10.0	11/09/2022	ND	210	105	200	6.11	
EXT DRO >C28-C36	208	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 121 % 45.3-161

Surrogate: 1-Chlorooctadecane 143 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

GHD SERVICES, INC.
 JT MURREY
 6121 INDIAN SCHOOL RD, NE STE. 200
 ALBUQUERQUE NM, 87110
 Fax To:

Received:	11/08/2022	Sampling Date:	11/07/2022
Reported:	11/09/2022	Sampling Type:	Soil
Project Name:	RODEN GD FEDERAL #3	Sampling Condition:	Cool & Intact
Project Number:	11230055	Sample Received By:	Tamara Oldaker
Project Location:	EOG Y - ARTESIA NM		

Sample ID: CB- 2 (30') (H225265-04)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/08/2022	ND	1.90	94.9	2.00	2.91		
Toluene*	<0.050	0.050	11/08/2022	ND	2.10	105	2.00	2.75		
Ethylbenzene*	0.068	0.050	11/08/2022	ND	1.95	97.3	2.00	3.33		
Total Xylenes*	<0.150	0.150	11/08/2022	ND	5.87	97.8	6.00	3.07		
Total BTEx	<0.300	0.300	11/08/2022	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	96.0	16.0	11/09/2022	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	181	90.4	200	7.48	
DRO >C10-C28*	<10.0	10.0	11/09/2022	ND	210	105	200	6.11	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 91.7 % 45.3-161

Surrogate: 1-Chlorooctadecane 96.0 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

GHD SERVICES, INC.
 JT MURREY
 6121 INDIAN SCHOOL RD, NE STE. 200
 ALBUQUERQUE NM, 87110
 Fax To:

Received:	11/08/2022	Sampling Date:	11/07/2022
Reported:	11/09/2022	Sampling Type:	Soil
Project Name:	RODEN GD FEDERAL #3	Sampling Condition:	Cool & Intact
Project Number:	11230055	Sample Received By:	Tamara Oldaker
Project Location:	EOG Y - ARTESIA NM		

Sample ID: CB- 2 (35') (H225265-05)

BTEx 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/08/2022	ND	1.90	94.9	2.00	2.91	
Toluene*	<0.050	0.050	11/08/2022	ND	2.10	105	2.00	2.75	
Ethylbenzene*	<0.050	0.050	11/08/2022	ND	1.95	97.3	2.00	3.33	
Total Xylenes*	<0.150	0.150	11/08/2022	ND	5.87	97.8	6.00	3.07	
Total BTEx	<0.300	0.300	11/08/2022	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	11/09/2022	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	181	90.4	200	7.48	
DRO >C10-C28*	35.9	10.0	11/09/2022	ND	210	105	200	6.11	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 91.4 % 45.3-161

Surrogate: 1-Chlorooctadecane 98.5 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

GHD SERVICES, INC.
 JT MURREY
 6121 INDIAN SCHOOL RD, NE STE. 200
 ALBUQUERQUE NM, 87110
 Fax To:

Received:	11/08/2022	Sampling Date:	11/07/2022
Reported:	11/09/2022	Sampling Type:	Soil
Project Name:	RODEN GD FEDERAL #3	Sampling Condition:	Cool & Intact
Project Number:	11230055	Sample Received By:	Tamara Oldaker
Project Location:	EOG Y - ARTESIA NM		

Sample ID: CB- 2 (40') (H225265-06)

BTEx 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/08/2022	ND	1.94	96.9	2.00	5.61	
Toluene*	<0.050	0.050	11/08/2022	ND	2.09	105	2.00	6.43	
Ethylbenzene*	<0.050	0.050	11/08/2022	ND	2.05	102	2.00	7.40	
Total Xylenes*	<0.150	0.150	11/08/2022	ND	6.23	104	6.00	7.42	
Total BTEx	<0.300	0.300	11/08/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 89.6 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	11/09/2022	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/09/2022	ND	181	90.4	200	7.48	
DRO >C10-C28*	29.3	10.0	11/09/2022	ND	210	105	200	6.11	
EXT DRO >C28-C36	<10.0	10.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 91.7 % 45.3-161

Surrogate: 1-Chlorooctadecane 98.5 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

GHD SERVICES, INC.
 JT MURREY
 6121 INDIAN SCHOOL RD, NE STE. 200
 ALBUQUERQUE NM, 87110
 Fax To:

Received:	11/08/2022	Sampling Date:	11/07/2022
Reported:	11/09/2022	Sampling Type:	Soil
Project Name:	RODEN GD FEDERAL #3	Sampling Condition:	Cool & Intact
Project Number:	11230055	Sample Received By:	Tamara Oldaker
Project Location:	EOG Y - ARTESIA NM		

Sample ID: CB- 3 (30') (H225265-07)

BTX 8021B		mg/kg		Analyzed By: JH				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.066	0.050	11/08/2022	ND	1.94	96.9	2.00	5.61	
Toluene*	1.82	0.050	11/08/2022	ND	2.09	105	2.00	6.43	
Ethylbenzene*	5.70	0.050	11/08/2022	ND	2.05	102	2.00	7.40	
Total Xylenes*	13.3	0.150	11/08/2022	ND	6.23	104	6.00	7.42	
Total BTX	20.9	0.300	11/08/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 219 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	11/09/2022	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	250	50.0	11/09/2022	ND	181	90.4	200	7.48	
DRO >C10-C28*	2260	50.0	11/09/2022	ND	210	105	200	6.11	
EXT DRO >C28-C36	304	50.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 118 % 45.3-161

Surrogate: 1-Chlorooctadecane 161 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

GHD SERVICES, INC.
 JT MURREY
 6121 INDIAN SCHOOL RD, NE STE. 200
 ALBUQUERQUE NM, 87110
 Fax To:

Received:	11/08/2022	Sampling Date:	11/07/2022
Reported:	11/09/2022	Sampling Type:	Soil
Project Name:	RODEN GD FEDERAL #3	Sampling Condition:	Cool & Intact
Project Number:	11230055	Sample Received By:	Tamara Oldaker
Project Location:	EOG Y - ARTESIA NM		

Sample ID: CB- 3 (35') (H225265-08)

BTEx 8021B		mg/kg		Analyzed By: JH				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.333	0.100	11/09/2022	ND	1.94	96.9	2.00	5.61	
Toluene*	7.07	0.100	11/09/2022	ND	2.09	105	2.00	6.43	
Ethylbenzene*	13.5	0.100	11/09/2022	ND	2.05	102	2.00	7.40	
Total Xylenes*	32.9	0.300	11/09/2022	ND	6.23	104	6.00	7.42	
Total BTEX	53.8	0.600	11/09/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 185 % 69.9-140

Chloride, SM4500Cl-B			mg/kg					Analyzed By: GM	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	11/09/2022	ND	432	108	400	0.00	

TPH 8015M			mg/kg					Analyzed By: MS	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	487	50.0	11/09/2022	ND	181	90.4	200	7.48	
DRO >C10-C28*	2620	50.0	11/09/2022	ND	210	105	200	6.11	
EXT DRO >C28-C36	339	50.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 132 % 45.3-161

Surrogate: 1-Chlorooctadecane 172 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

GHD SERVICES, INC.
 JT MURREY
 6121 INDIAN SCHOOL RD, NE STE. 200
 ALBUQUERQUE NM, 87110
 Fax To:

Received:	11/08/2022	Sampling Date:	11/07/2022
Reported:	11/09/2022	Sampling Type:	Soil
Project Name:	RODEN GD FEDERAL #3	Sampling Condition:	Cool & Intact
Project Number:	11230055	Sample Received By:	Tamara Oldaker
Project Location:	EOG Y - ARTESIA NM		

Sample ID: CB- 3 (40') (H225265-09)

BTX 8021B		mg/kg		Analyzed By: JH				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.262	0.100	11/09/2022	ND	1.94	96.9	2.00	5.61	
Toluene*	4.39	0.100	11/09/2022	ND	2.09	105	2.00	6.43	
Ethylbenzene*	9.99	0.100	11/09/2022	ND	2.05	102	2.00	7.40	
Total Xylenes*	23.6	0.300	11/09/2022	ND	6.23	104	6.00	7.42	
Total BTX	38.2	0.600	11/09/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 174 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	11/09/2022	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	594	50.0	11/09/2022	ND	181	90.4	200	7.48	
DRO >C10-C28*	4160	50.0	11/09/2022	ND	210	105	200	6.11	
EXT DRO >C28-C36	648	50.0	11/09/2022	ND					

Surrogate: 1-Chlorooctane 156 % 45.3-161

Surrogate: 1-Chlorooctadecane 223 % 46.3-178

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

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

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

Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: GHDD EOLG		P.O. #:		
Project Manager: ST.Murphy@GHDD.com		Company: EDG		
Address: Amber Griffin On File - email		Attn:		
City:	State:	Zip:		
Phone #:	Fax #:	Address:		
Project #: 11230055	Project Owner: Chase Settle	City:		
Project Name: Roden @ EOGresources.com	State:	Zip:		
Project Location: GAD Federal #3	Phone #:			
Sampler Name: Lee M	Fax #:			

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

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Relinquished By:		Date:	Received By:	Date:
<i>[Signature]</i>		11/8/12	<i>[Signature]</i>	
Time:		1803	Time:	
Date:			Received By:	
Relinquished By:			REMARKS:	
Delivered By: (Circle One)		Observed Temp. °C	Corrected Temp. °C	Turnaround Time:
Sampler - UPS - Bus - Other:		36	30	Standard Rush
				Bacteria (only) Sample Condition
				Cool Intact Yes No
				Observed Temp. °C Corrected Temp. °C

District I

1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 158718

CONDITIONS

Operator: EOG RESOURCES INC P.O. Box 2267 Midland, TX 79702	OGRID: 7377
	Action Number: 158718
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jnobui	Remediation Plan Approved. Please track and report volumes of microbial strain injected into the subsurface. OCD recommends confirmation sampling occur 60 days after last injection event. Please advance confirmation soil borings adequately between injection points.	12/12/2022