Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2228654422
District RP	
Facility ID	
Application ID	

Closure

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

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

☑ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☑ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☑ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☑ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Chase Settle Title: Rep Safety & Environmental Sr

Signature: Chase Settle Date: 11/18/2022

email: Chase_Settle@eogresources.com Telephone: 575-748-1471

OCD Only

Received by: Jocelyn Harimon Date: 11/18/2022

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

Closure Approved by: Robert Hamlet Date: 4/21/2023

Printed Name: Robert Hamlet Title: Environmental Specialist - Advanced

November 17,2022 Vertex Project #: 22E-00716-07

Spill Closure Report: Roy AET #5 (Section 8, Township 19 South, Range 25 East)
API: 30-015-27843
County: Eddy
Incident Report: nAPP2228654422

Prepared For: **EOG Resources, Inc.**
104 South 4th Street
Artesia, New Mexico 88210

New Mexico Oil Conservation Division – District 2 Artesia
811 South 1st Street
Artesia, New Mexico 88210

EOG Resources, Inc. (EOG) retained Vertex Resource Services Inc. (Vertex) to conduct a site investigation of potential historical contamination requested by the private landowner, Howell Ranch, on the surface of the plugged and abandoned location Roy AET #5, API 30-015-27843, Incident nAPP2228654422 (hereafter referred to as "Roy"). This letter provides a description of the Site Assessment and includes a request for Incident Closure. The impacted area is located at N 32.67018, W -104.50052.

Background

The site is located approximately 6.92 miles northwest of Seven Rivers, New Mexico (Google Inc., 2022). The legal location for the site is Section 8, Township 19 South and Range 25 East in Eddy County, New Mexico. The spill area is located on private property (Howell Revocable Trust). An aerial photograph and site schematic are included in Figure 1, Attachment 1.

The Geological Map of New Mexico (New Mexico Bureau of Geology and Mineral Resources, 2022) indicates the site's surface geology is comprised primarily of Qp – Piedmont alluvial deposits (Holocene to lower Pleistocene) and is characterized as loamy. The Natural Resources Conservation Service *Web Soil Survey* characterizes the predominant soil texture on the site is Reagan-Upton complex. It tends to be well drained with low runoff and moderate available moisture levels in the soil profile (United States Department of Agriculture, Natural Resources Conservation Service, 2022).

The surrounding landscape is associated with fan remnants and alluvial fans at elevations of 1,100 to 5,400 feet above sea level. The climate is semi-arid, with an annual precipitation ranging between 8 to 16 inches. Historically, the plant community has grassland aspect, dominated by grasses with shrubs. Blue grama, black grama, and tobosa is dominant with a mixture of juniper and broom snakeweed. Overgrazing and extended drought can reduce grass cover (United States Department of Agriculture, Natural Resources Conservation Service, 2022).

There is no surface water located on-site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7

Mexico Administrative Code (NMAC; New Mexico Oil Conservation Division, 2018), is Brantley Lake located approximately 8.16 miles southwest of the site (Google Earth Inc., 2022). There are no continuous flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

Investigation Description

The site investigation began on July 11, 2022, due to barren areas of concern having been identified at the plugged and abandoned location by the landowner. Contaminated soils were discovered after the initial assessment and during characterization of the area from August to September of 2022. EOG was informed of the final results on October 13, 2022, and submitted a C-141 Report to The New Mexico Oil Conservation Division (NMOCD) the same day. C-141 Report: nAPP2228654422 is included in Attachment 3. The daily field report and site photographs are included in Attachment 4.

Closure Criteria Determination

The depth to groundwater was determined using information from the United States Department of the Interior, United States Geological Survey (2022) National Water Information Mapping System and New Mexico Office of the State Engineer (2022) Water Rights Reporting System. The closest recorded depth to groundwater was determined to be 119 feet below ground surface (bgs; New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System, 2022).

Vertex went to confirm the location of the water well after discrepancies with satellite imagery were encountered during closure research. After a site visit to the purported active well, it became apparent that the coordinates on the USGS National Water Information System website were inaccurate. No water well or water well infrastructure was found. Aerial photography of the area shows USGS 324041104294801 adjacent to a well pad, with no indication of livestock activity or vegetation characteristic of a watering well. The correct location of the well was determined to be at 32.67522, -104.49868, and is surrounded by surface infrastructure including a windmill, watering trough, and livestock impacts. This corrected location is within the required 0.5-mile radius from the impacted area at Roy. The justification of this judgement is shown alongside other documentation used in Closure Criteria Determination in Attachment 5.

Closure Criteria Worksheet			
Site Name: Roy #5 Well Pad			
Spill Coordinates:		**X: 32.67018**	**Y: -104.50052**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater	**119**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	50,163	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	44,470	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	4,386	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**		feet
	ii) Within 1000 feet of any fresh water well or spring	4,737	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	6,288	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Medium	Critical High Medium Low
10	Within a 100-year Floodplain	>500	year
11	Soil Type	Reagan upton association	
12	Ecological Classification	Reagan (70%)	
13	Geology	Qp	
NMAC 19.15.29.12 E (Table 1) Closure Criteria		>100'	<50' 51-100' >100'

The closure criteria determined for the site are associated with the following constituent concentration limits as presented in Table 1.

Table 1. Closure Criteria for Soils to Remediation & Reclamation Standards		
	Constituent	**Limit**
0-4 feet bgs (19.15.29.13)	Chloride	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
DTGW > 100 feet (19.15.29.12)	Chloride	20,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg
	GRO+DRO	1,000 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

TDS - Total dissolved solids, TPH - Total petroleum hydrocarbons = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO), BTEX - Benzene, toluene, ethylbenzene, and xylenes

Remedial Actions Taken

The impacted area was determined from the site characterization to be approximately 180 feet long and 133 feet wide; the total affected area was determined to be 3,328 square feet. Remediation efforts began on October 18, 2022, and were completed on November 3, 2022. Vertex personnel supervised the excavation of impacted soils. Field screening consisted of analysis using a photo ionization detector (volatile hydrocarbons), Dexsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons) and silver nitrate titration (chlorides). Field screening results were used to identify areas requiring further remediation. Soils were removed to a depth of 4 feet bgs. Impacted soil was transported by a licensed waste hauler and disposed of at an approved waste management facility. Field screening results are included in Table 3, Attachment 5.

Notification that confirmatory samples were being collected was provided to the NMOCD on October 20 and 31, 2022, and are included in Attachment 6. Confirmatory composite samples were collected from the base and walls of the excavation in 200 square foot increments. A total of 24 samples were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to Hall Environmental Analysis Laboratory under chain-of-custody (COC) protocols and analyzed for BTEX (EPA Method 8021B), total Petroleum hydrocarbons (GRO, DRO, MRO – EPA Method 8015D) and total chlorides (EPA Method 300.0). Laboratory results are presented in Table 3, Attachment 5 and the laboratory data report can be found in Attachment 7. All confirmatory samples collected and analyzed were below closure criteria for the site.

Closure Request

The impacted area was fully delineated and remediated by November 3, 2022. Confirmatory samples were analyzed by the laboratory and found to be below allowable concentrations as per the New Mexico Administrative Code (NMAC) Closure Criteria for Soils Impacted by a Release locations “greater than 100 feet to groundwater”. Based on these findings, EOG Resources, Inc requests that this incident be closed.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 575.988.2681 or mmoffitt@vertex.ca.

Michael Moffitt

Michael Moffitt, B.Sc
MANAGER OF ENVIROMENT, REPORTING

11/17/22
Date

Attachments

Attachment 1. Site Schematics
Attachment 2. Tables
Attachment 3. NMOCD C-141 Reports
Attachment 4. Daily Field Reports with Pictures
Attachment 5. Closure Criteria Documentation
Attachment 6. Confirmatory Sampling Notifications to the NMOCD
Attachment 7. Laboratory Data Reports and COCs

References

Google Inc. (2022). *Google Earth Pro* (Version 7.3.4) [Software]. Retrieved from http://www.google.com/earth on September 1, 2022.

New Mexico Bureau of Geology and Mineral Resources. (2022). *Interactive Geologic Map.* Retrieved from http://geoinfo.nmt.edu.

New Mexico Mining and Minerals Division. (2022). *Coal Mine Resources in New Mexico*. Retrieved from http://www.emnrd.state.nm.us/MMD/gismapminedata.html

New Mexico Oil Conservation Division. (2018). N*ew Mexico Administrative Code – Natural Resources and Wildlife Oil and Gas Releases*. Santa Fe, New Mexico.

New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System. (2022). *Water Column/Average Depth to Water Report.* Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html

United States Department of Agriculture, Natural Resources Conservation Service. (2022). *Web Soil Survey.* Retrieved from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

United States Department of Homeland Security, FEMA Flood Map Service Center. (2020). *Flood Map Number 35015C1875D*. Retrieved from https://msc.fema.gov/portal/search?AddressQuery=malaga%20new%20mexico#searchresultsanchor

United States Department of the Interior, Bureau of Land Management. (2018). *New Mexico Cave/Karsts.* Retrieved from https://www.blm.gov/programs/recreation/recreation-programs/caves/new-mexico.

United States Fish and Wildlife Service. (2022). *National Wetlands Inventory Surface Waters and Wetland*. Retrieved from https://www.fws.gov/ wetlands/data/Mapper.html.

Limitations

This report has been prepared for the sole benefit of EOG Resources, Inc. This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division, without the express written consent of Vertex Resource Services Inc. (Vertex) and EOG Resources, Inc. Any use of this report by a third party, or any reliance on decisions made based on it, or damages suffered as a result of the use of this report are the sole responsibility of the user.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgement of Vertex based on the data collected during the assessment. Due to the nature of the assessment and the data available, Vertex cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be considered legal advice.

ATTACHMENT 1

P Approximate Pad Release

Borehole (Prefixed by "BH22-")

Potential 2' Excavation (~836 sq. ft.)

Potential 4' Excavation (~2492 sq. ft.)

VERTEX

0 5 10 20 ft

Map Center:
Lat/Long: 32.670021, -104.500242

NAD 1983 UTM Zone 13N
Date: Oct 05/22

N

Characterization Schematic
Roy AET #005 Well Pad

FIGURE:
1

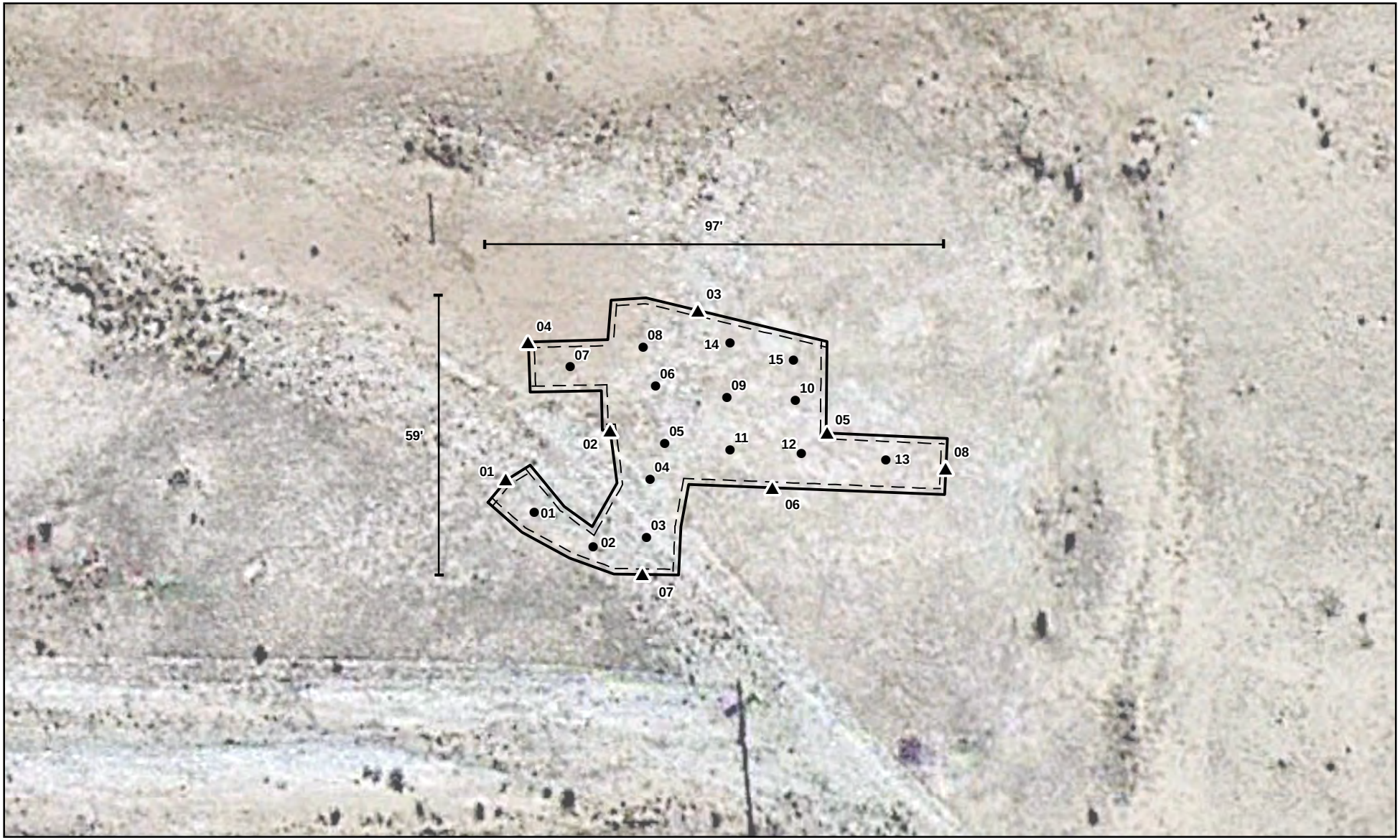
eog resources

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Background imagery from Google Earth, 2019. Features from GPS, Vertex Professional Services Ltd., 2022.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\EOG Resources Inc\22E-00716 (Howell Ranch Reclamation Projects)\007 - Roy #5 Well Pad\Figure 1 Characterization Schematic (Roy #5 Well Pad).mxd



● Base Sample (Prefixed by "BES22-") ▲ Wall Sample (Prefixed by "WES22-") 4' Excavation (~2,700 sq. ft.)

VERTEX

0 5 10 20 ft

Map Center:
Lat/Long: 32.670026, -104.500228

NAD 1983 UTM Zone 13N
Date: Nov 07/22

N

Confirmation Schematic
Roy AET #005 Well Pad

FIGURE:
2

eog resources

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Background imagery from Google Earth, 2019. Features from GPS, Vertex Professional Services Ltd., 2022.

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Document Path: G:\1-Projects_US PROJECTS\EOG Resources Inc\22E-00716 (Howell Ranch Reclamation Projects)\007 - Roy #5 Well Pad\Figure 2 Confirmation Schematic (Roy #5 Well Pad).mxd

ATTACHMENT 2

Client Name: EOG Resources, Inc.
Site Name: Roy AET #005 Wellpad
NMOCD Tracking #: nAPP2228654422
Project #: 22E-00716-07
Lab ReportS: 2208695, 2209B60

Table 2. Initial Characterization Field Screen and Laboratory Results - Depth to Groundwater <50 feet bgs (Waiting on DTGW)

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH22-01	0	August 9, 2022	0	-	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 9, 2022	0	-	1,692	ND	ND	ND	ND	ND	ND	ND	**730**
	4	August 9, 2022	0	-	1,183	ND	ND	ND	ND	ND	ND	ND	**610**
BH22-02	2	August 9, 2022	0	75	ND	ND	ND	ND	16	ND	16	ND	ND
	2	August 9, 2022	0	32	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4	August 9, 2022	0	48	699	ND	ND	ND	ND	ND	ND	ND	380
BH22-03	0	August 9, 2022	0	-	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 9, 2022	0	-	2,527	ND	ND	ND	ND	ND	ND	ND	**1300**
	4	August 9, 2022	0	-	2,068	ND	ND	ND	ND	ND	ND	ND	**1100**
BH22-04	0	August 9, 2022	0	-	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 9, 2022	0	-	1,550	ND	ND	ND	ND	ND	ND	ND	**690**
	4	August 9, 2022	0	-	190	ND	ND	ND	ND	ND	ND	ND	160
BH22-05	0	August 9, 2022	0	-	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 9, 2022	0	-	2,071	ND	ND	ND	ND	ND	ND	ND	**990**
	4	August 9, 2022	0	-	230	ND	ND	ND	ND	ND	ND	ND	190
BH22-06	0	August 9, 2022	0	-	ND	ND	ND	ND	24	ND	24	ND	ND
	2	August 9, 2022	0	-	2,247	ND	ND	ND	ND	ND	ND	ND	**1200**
	4	August 9, 2022	0	-	545	ND	ND	ND	ND	ND	ND	ND	470
BH22-07	0	August 9, 2022	0	52	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 9, 2022	0	29	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4	August 9, 2022	0	37	509	ND	ND	ND	ND	ND	ND	ND	310
BH22-08	0	August 9, 2022	0	-	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 9, 2022	0	-	1,677	ND	ND	ND	ND	ND	ND	ND	**720**
	4	August 9, 2022	0	-	2,022	ND	ND	ND	ND	ND	ND	ND	**1200**
BH22-09	0	August 9, 2022	0	-	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 9, 2022	0	-	1,190	ND	ND	ND	ND	ND	ND	ND	560
	4	August 9, 2022	0	-	2,091	ND	ND	ND	ND	ND	ND	ND	**1300**
BH22-10	0	August 9, 2022	0	-	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 9, 2022	0	-	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4	August 9, 2022	0	-	652	ND	ND	ND	ND	ND	ND	ND	290
BH22-11	0	August 24, 2022	0	-	0	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 24, 2022	0	28	126	ND	ND	ND	ND	ND	ND	ND	160
	4	August 24, 2022	0	24	694	ND	ND	ND	ND	ND	ND	ND	**650**
BH22-12	0	September 20, 2022	-	51	125	ND	ND	ND	ND	ND	ND	ND	ND
	1	September 20, 2022	-	-	115	ND	ND	ND	ND	ND	ND	ND	ND
	2	September 20, 2022	-	38	540	ND	ND	ND	ND	ND	ND	ND	380
	3	September 20, 2022	-	-	845	ND	ND	ND	ND	ND	ND	ND	**720**
	4	September 20, 2022	-	39	885	ND	ND	ND	ND	ND	ND	ND	**630**
BH22-13	0	September 20, 2022	-	48	90	ND	ND	ND	ND	ND	ND	ND	ND
	1	September 20, 2022	-	-	1,040	ND	ND	ND	ND	ND	ND	ND	**920**
	2	September 20, 2022	-	43	850	ND	ND	ND	ND	ND	ND	ND	**900**
	3	September 20, 2022	-	-	500	ND	ND	ND	ND	ND	ND	ND	530
	4	September 20, 2022	-	44	360	ND	ND	ND	ND	ND	ND	ND	250

"ND" Not Detected at the Reporting Limit
"-" indicates not analyzed/assessed
Bold and grey shaded indicates exceedance outside of NMOCD Closure Criteria (on-pad)

VERTEX

Client Name: EOG Resources, Inc
Site Name: Roy #5 Wellpad
NMOCD Tracking #: NAPP2228654422
Project #: 22E-00716-07
Lab Reports: 2210E18, 2210E56, 2211298

Table 2. Initial Characterization/Confirmatory Sample Field Screen and Laboratory Results - Depth to Groundwater <50 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
WES22-01	0-4'	10/26/22	-	16	415	ND	ND	ND	ND	ND	ND	ND	350
WES22-02	0-4'	10/26/22	-	14	205	ND	ND	ND	ND	ND	ND	ND	110
WES22-03	0-4'	10/26/22	-	14	595	ND	ND	ND	ND	ND	ND	ND	**610**
WES22-03	0-4'	11/3/22	-	10	480	ND	ND	ND	ND	ND	ND	ND	**310**
WES22-04	0-4'	10/27/22	-	11	410	ND	ND	ND	ND	ND	ND	ND	370
WES22-05	0-4'	10/27/22	-	18	200	ND	ND	ND	ND	ND	ND	ND	330
WES22-06	0-4'	10/27/22	-	14	495	ND	ND	ND	ND	ND	ND	ND	**710**
WES22-06	0-4'	11/3/22	-	12	315	ND	ND	ND	ND	ND	ND	ND	**130**
WES22-07	0-4'	10/27/22	-	10	175	ND	ND	ND	ND	ND	ND	ND	79
WES22-08	0-4'	11/03/22	-	9	368	ND	ND	ND	ND	ND	ND	ND	97
BES22-01	4'	10/27/22	-	-	-	ND	ND	ND	ND	ND	ND	ND	640
BES22-02	4'	10/27/22	-	-	-	ND	ND	ND	ND	ND	ND	ND	1200
BES22-03	4'	10/27/22	-	-	-	ND	ND	ND	ND	ND	ND	ND	830
BES22-04	4'	10/27/22	-	-	-	ND	ND	ND	ND	ND	ND	ND	480
BES22-05	4'	10/27/22	-	-	-	ND	ND	ND	ND	ND	ND	ND	680
BES22-06	4'	10/27/22	-	-	-	ND	ND	ND	ND	ND	ND	ND	650
BES22-07	4'	10/27/22	-	-	-	ND	ND	ND	ND	ND	ND	ND	690
BES22-08	4'	10/27/22	-	-	-	ND	ND	ND	49	97	49	146	840
BES22-09	4'	10/27/22	-	-	-	ND	ND	ND	ND	ND	ND	ND	690
BES22-10	4'	10/27/22	-	-	-	ND	ND	ND	ND	ND	ND	ND	480
BES22-11	4'	10/27/22	-	-	-	ND	ND	ND	ND	ND	ND	ND	570
BES22-12	4'	10/27/22	-	-	-	ND	ND	ND	ND	ND	ND	ND	280
BES22-13	4'	10/27/22	-	-	-	ND	ND	ND	ND	ND	ND	ND	660
BES22-14	4'	11/03/22	-	20	790	ND	ND	ND	ND	ND	ND	ND	870
BES22-15	4'	11/03/22	-	18	705	ND	ND	ND	ND	ND	ND	ND	630

"ND" Not Detected at the Reporting Limit
"-" indicates not analyzed/assessed
Bold and green shaded indicates exceedance outside of NMOCD Reclamation Criteria that were excavated out and re-sampled
Bold and grey shaded indicates confirmatory samples that were recollected that are within NMOCD Reclamation Criteria

VERTEX

ATTACHMENT 3

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	nAPP2228654422
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party EOG Resources, Inc.	OGRID 7377
Contact Name Chase Settle	Contact Telephone 575-748-1471
Contact email Chase_Settle@eogresources.com	Incident # *nAPP2228654422*
Contact mailing address 104 S. 4th Street, Artesia, NM 88210	

Location of Release Source

Latitude 32.67018 Longitude -104.50052
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Roy AET #5	Site Type Well Pad
Date Release Discovered 10/13/2022	API# *(if applicable)* 30-015-27843

Unit Letter	Section	Township	Range	County
P	8	19S	25E	Eddy

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☑ Private (*Name:* Howell Revocable Trust)

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☑ Produced Water	Volume Released (bbls) Unknown	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☑ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release: Notice was provided from the private surface owner of possible impacts remaining on the well pad of the P&A'd location. An environmental consultant was retained to investigate and assess the site. Based on the assessment of the site, scattered areas of minimal chloride impaction were discovered, which individually would not meet a threshold for reportability based on the size and volume of soil. However, if the areas become contiguous then the volume could possibly be considered for reportable. In an abundance of caution, a C-141 is being submitted for the site and remediation will be completed to current Spill Rule (NMAC 19.15.29) requirements.

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2228654422
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☑ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

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

If all the actions described above have not been undertaken, explain why:

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

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

Printed Name: Chase Settle
Title: Rep Safety & Environmental Sr

Signature: Chase Settle
Date: 10/13/2022

email: Chase_Settle@eogresources.com
Telephone: 575-748-1471

OCD Only

Received by: Jocelyn Harimon
Date: 10/13/2022

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 150869

CONDITIONS

Operator: EOG RESOURCES INC P.O. Box 2267 Midland, TX 79702	OGRID: 7377
	Action Number: 150869
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	10/14/2022

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2228654422
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	119 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2228654422
District RP	
Facility ID	
Application ID	

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

Printed Name: Chase Settle Title: Rep Safety & Environmental Sr

Signature: Chase Settle Date: 11/18/2022

email: Chase_Settle@eogresources.com Telephone: 575-748-1471

OCD Only

Received by: Jocelyn Harimon Date: 11/18/2022

Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2228654422
District RP	
Facility ID	
Application ID	

Closure

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

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

☑ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☑ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☑ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☑ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Chase Settle Title: Rep Safety & Environmental Sr

Signature: Chase Settle Date: 11/18/2022

email: Chase_Settle@eogresources.com Telephone: 575-748-1471

OCD Only

Received by: Jocelyn Harimon Date: 11/18/2022

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

ATTACHMENT 4

Daily Site Visit Report

Client:	EOG Resources Inc.	Inspection Date:	7/11/2022
Site Location Name:	Roy #5 Pipeline	Report Run Date:	7/11/2022 10:59 PM
Client Contact Name:	Chase Settle	API #:	
Client Contact Phone #:	575-703-6537		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	7/11/2022 9:31 AM
Departed Site	7/11/2022 11:37 AM

Field Notes

9:36 Arrived at site and filled out safety paperwork

9:37 Will whiteflag areas of possible contamination.

10:40 Two points: one next to dry hole marker and one near northwest corner of site.

10:40 Marked a 20ft radius around the points with white line.

Next Steps & Recommendations

1 Call 811

Daily Site Visit Report

Site Photos

Viewing Direction: East	**Viewing Direction**: Northeast
	
Point near dry hole marker	Point near northwest corner of site

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Fernando Rodriguez

Signature: 
Signature

Daily Site Visit Report

Client:	EOG Resources Inc.	Inspection Date:	9/20/2022
Site Location Name:	Roy #5 Well Pad	Report Run Date:	9/20/2022 9:24 PM
Client Contact Name:	Chase Settle	API #:	
Client Contact Phone #:	575-703-6537		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	9/20/2022 9:15 AM
Departed Site	9/20/2022 1:00 PM

Field Notes

9:54 Completed safety meeting, ran magnetic locator in borehole areas

10:05 Finished sampling BH22-12 at 0', 1', 2', 3', and 4'

10:07 Collecting BH22-13

10:28 Beginning screening for all 10 samples

11:40 Screened all samples for chlorides/TPH

12:07 All samples collected sent to lab. Wrapping up the day here.

12:26 Packaging samples for lab analysis

Next Steps & Recommendations

1 Await lab results

Daily Site Visit Report

Site Photos

Viewing Direction: Northeast	**Viewing Direction**: North
	
Site before excavation	Site at end of day
Viewing Direction: Southwest	**Viewing Direction**: Southeast
	
Closed up the fence at the entrance to the lease road	Site at end of day

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: Southwest
	
BH22-13	Site at end of day
Viewing Direction: Northwest	**Viewing Direction**: West
	
Site at end of day	Borehole bald spots

Daily Site Visit Report

Viewing Direction: West

BH22-12 from 13

Viewing Direction: East

BH22-13 from 12

Viewing Direction: Southeast

Southern boreholes

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Sally Carttar

Signature:

Daily Site Visit Report

Client:	EOG Resources Inc.	Inspection Date:	10/27/2022
Site Location Name:	Roy #5 Well Pad	Report Run Date:	10/27/2022 11:29 PM
Client Contact Name:	Chase Settle	API #:	
Client Contact Phone #:	575-703-6537		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	10/27/2022 8:15 AM
Departed Site	10/27/2022 4:15 PM

Field Notes

8:22 On site. Running magnetic locator in today's excavation area while 4 Elements gets ready

8:36 Everyone on site, completing safety meeting.

9:00 Loading the first round of trucks

10:10 Focus today will be on getting clean wall samples, then collecting base samples and sending them directly to lab. Base samples will not be field screened due to rush, per PM.

10:49 Putting down a liner so we don't have to wait on trucks to dig out

12:50 Collected remaining wall samples

13:24 Trucks are here for their second loads

13:55 WES22-07 is barely over 600, will scrape out/excavate wall further and then recollect sample

15:07 All wall samples clean. Packing them up for lab, then will start collecting base samples

Next Steps & Recommendations

1. Send samples to lab
2. Submit report for closure

Daily Site Visit Report

Daily Site Visit Report

Site Photos

Viewing Direction: Southwest

Stockpile after first round of trucks

Viewing Direction: South

Excavation

Viewing Direction: Southeast

Excavation

Viewing Direction: East

Southern bit of excavation

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: Southeast
	
Other little pile	Excavation
Viewing Direction: South	**Viewing Direction**: Northeast
	
Trenching to collect wall samples	Excavation

Daily Site Visit Report

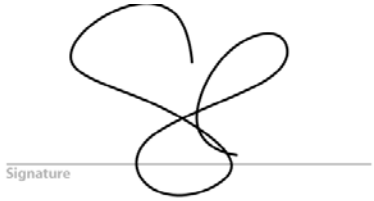
Viewing Direction: East	**Viewing Direction**: East
	
North side of excavation	Pile for loading tomorrow
Viewing Direction: West	**Viewing Direction**: Southwest
	
Excavation	Excavation

Daily Site Visit Report

Daily Site Visit Signature

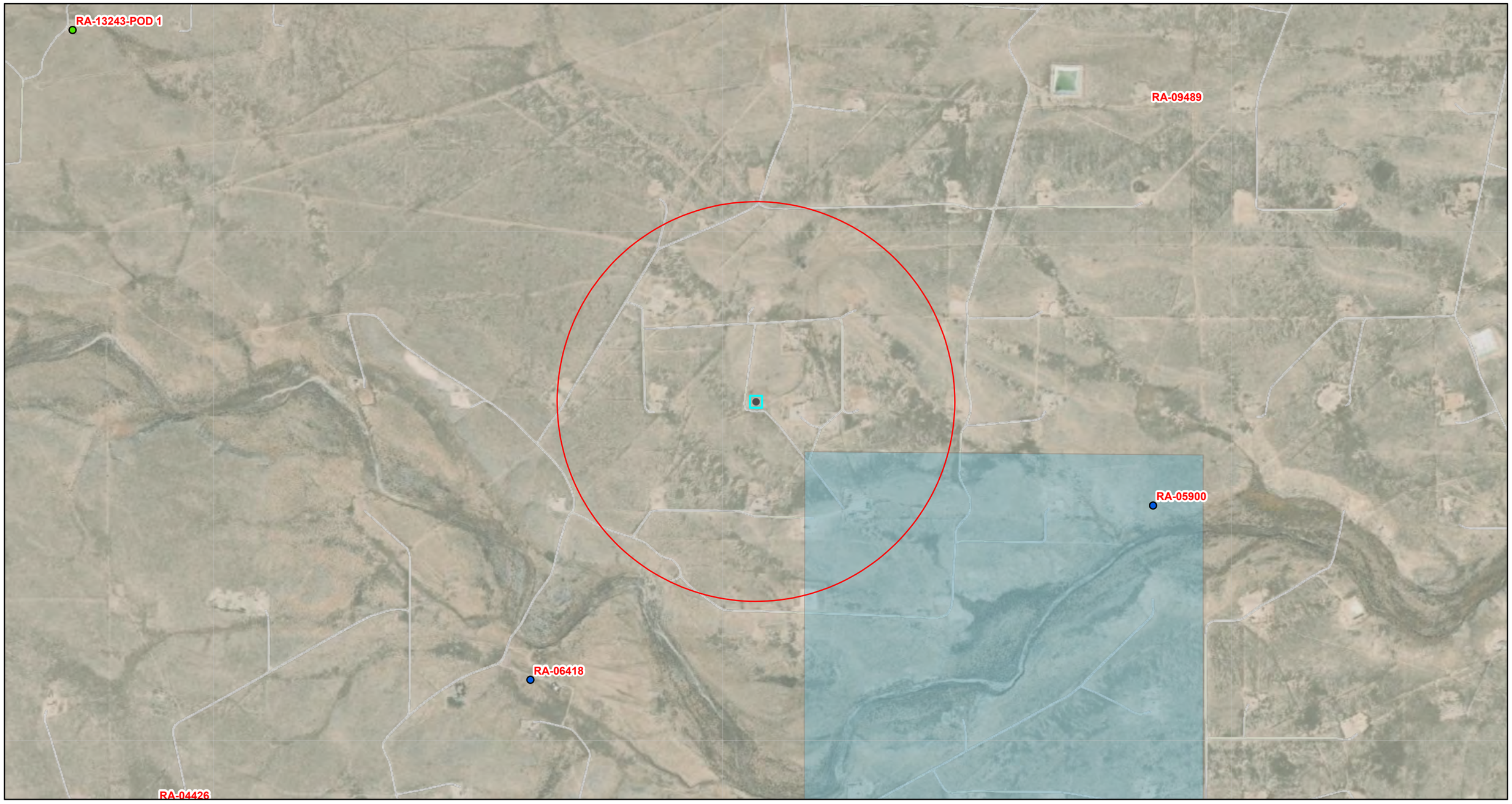
Inspector: Sally Carttar

Signature:



ATTACHMENT 5

OSE POD 0.5 mile



10/29/2022, 7:12:50 PM

GIS WATERS PODs
- Active
- Pending

OSE District Boundary

Water Right Regulations
- Closure Area

New Mexico State Trust Lands
- Both Estates
- SiteBoundaries

1:18,056

0 0.17 0.35 0.7 mi

0 0.3 0.6 1.2 km

Esri, HERE, GeoTechnologies, Inc., Esri, HERE, Garmin, GeoTechnologies, Inc., U.S. Department of Energy Office of Legacy Management, Maxar

Web Generated Map
Map is generated by web users.

USGS 324041104294801

Well location

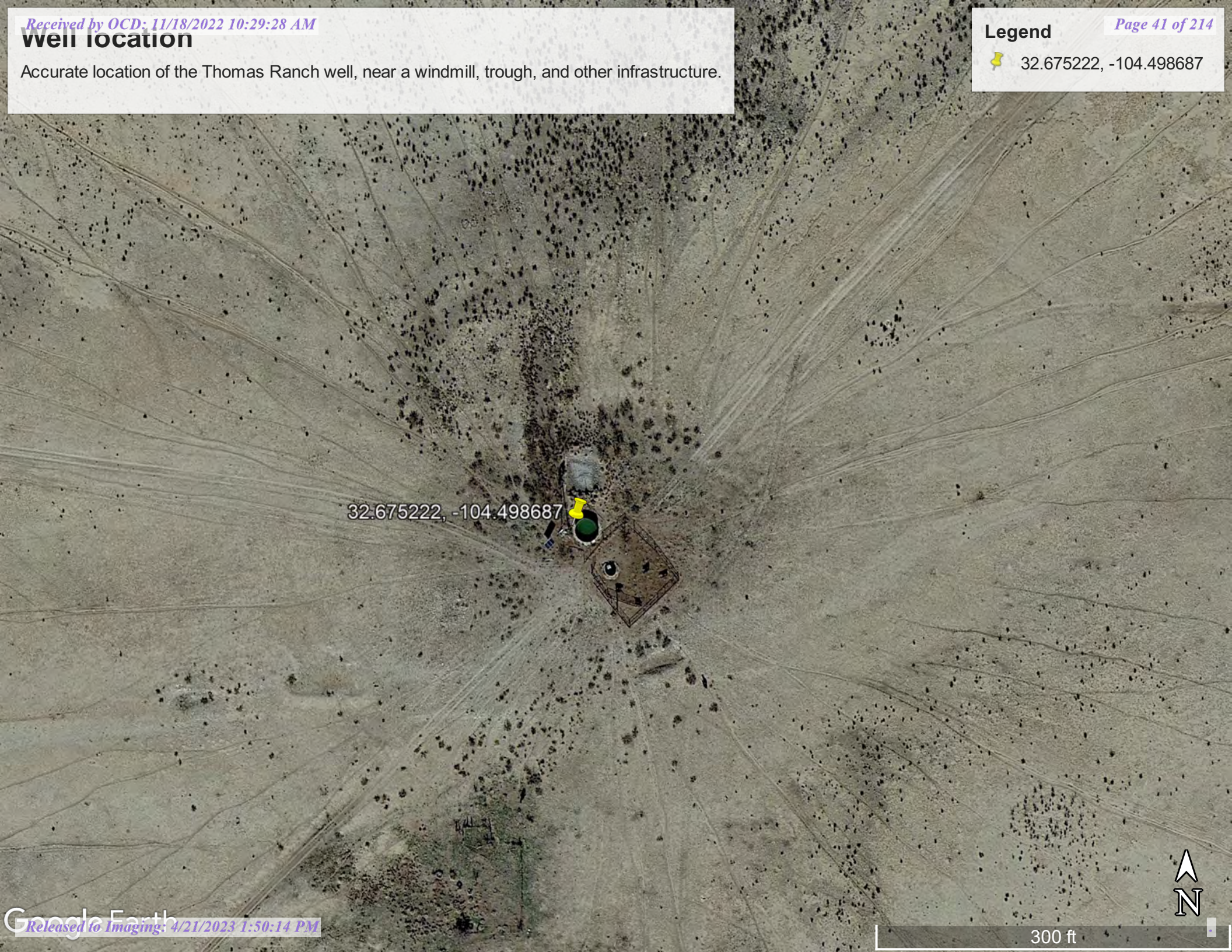
As marked on USGS website
No evidence of well activity on imagery from 2019.

Legend

32°40'41", -104°29'48"

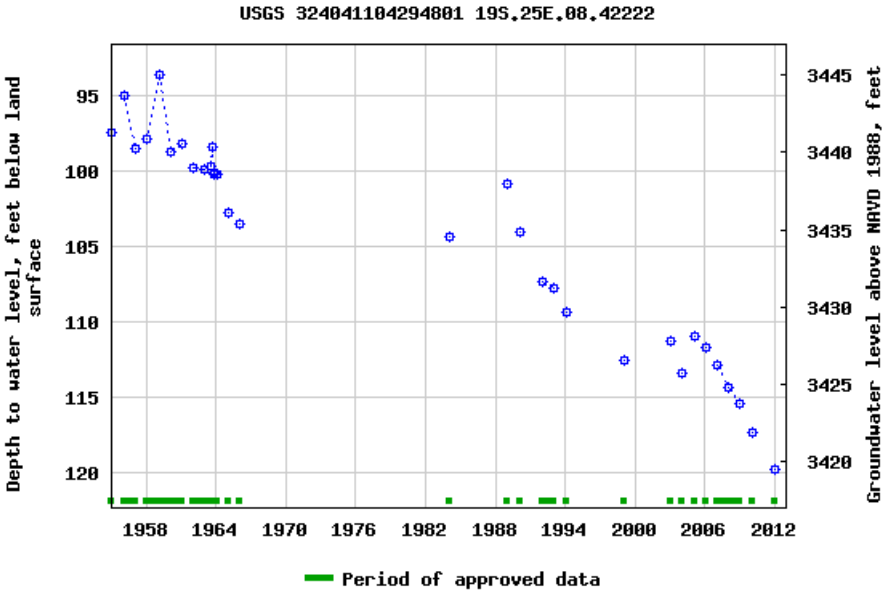
Well location

Accurate location of the Thomas Ranch well, near a windmill, trough, and other infrastructure.



Roy AET #5 DTGW Well

Distance to accurate coordinates 0.37 mi (1,953 feet)
DTGW 119 feet



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

Click to hideNews Bulletins

- Effective October 24, 2022 hyperlinks to legacy Current Condition pages will automatically redirect users to the corresponding Monitoring Location page. Please see the Water Data For The Nation Blog for full details, including how to navigate back to the legacy Current Condition page, if desired.
- Explore the *NEW* USGS National Water Dashboard interactive map to access real-time water data from over 13,500 stations nationwide.
- Full News

Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 324041104294801

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 324041104294801 19S.25E.08.42222

Eddy County, New Mexico
Latitude 32°40'41", Longitude 104°29'48" NAD27
Land-surface elevation 3,539 feet above NAVD88
The depth of the well is 142 feet below land surface.
This well is completed in the Roswell Basin aquifer system (S400RSWLBS) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source of measurement	? Water-level approval status
1955-01-04		D	62610		3439.96	NGVD29	1	Z			A
1955-01-04		D	62611		3441.54	NAVD88	1	Z			A
1955-01-04		D	72019	97.46			1	Z			A
1956-01-18		D	62610		3442.37	NGVD29	1	Z			A
1956-01-18		D	62611		3443.95	NAVD88	1	Z			A
1956-01-18		D	72019	95.05			1	Z			A
1957-01-15		D	62610		3438.89	NGVD29	1	Z			A
1957-01-15		D	62611		3440.47	NAVD88	1	Z			A
1957-01-15		D	72019	98.53			1	Z			A
1958-01-30		D	62610		3439.55	NGVD29	1	Z			A
1958-01-30		D	62611		3441.13	NAVD88	1	Z			A
1958-01-30		D	72019	97.87			1	Z			A
1959-01-26		D	62610		3443.72	NGVD29	1	Z			A
1959-01-26		D	62611		3445.30	NAVD88	1	Z			A
1959-01-26		D	72019	93.70			1	Z			A
1960-01-26		D	62610		3438.66	NGVD29	P	Z			A
1960-01-26		D	62611		3440.24	NAVD88	P	Z			A
1960-01-26		D	72019	98.76			P	Z			A
1961-01-23		D	62610		3439.22	NGVD29	1	Z			A
1961-01-23		D	62611		3440.80	NAVD88	1	Z			A
1961-01-23		D	72019	98.20			1	Z			A
1962-01-29		D	62610		3437.62	NGVD29	1	Z			A
1962-01-29		D	62611		3439.20	NAVD88	1	Z			A
1962-01-29		D	72019	99.80			1	Z			A
1963-01-07		D	62610		3437.47	NGVD29	1	Z			A
1963-01-07		D	62611		3439.05	NAVD88	1	Z			A
1963-01-07		D	72019	99.95			1	Z			A
1963-07-23		D	62610		3437.76	NGVD29	1	Z			A
1963-07-23		D	62611		3439.34	NAVD88	1	Z			A
1963-07-23		D	72019	99.66			1	Z			A
1963-09-04		D	62610		3439.02	NGVD29	1	Z			A

1963-09-04	D	62611		3440.60	NAVD88	1	Z	A
1963-09-04	D	72019	98.40			1	Z	A
1963-10-11	D	62610		3437.15	NGVD29	1	Z	A
1963-10-11	D	62611		3438.73	NAVD88	1	Z	A
1963-10-11	D	72019	100.27			1	Z	A
1963-11-19	D	62610		3437.27	NGVD29	1	Z	A
1963-11-19	D	62611		3438.85	NAVD88	1	Z	A
1963-11-19	D	72019	100.15			1	Z	A
1964-01-10	D	62610		3437.13	NGVD29	1	Z	A
1964-01-10	D	62611		3438.71	NAVD88	1	Z	A
1964-01-10	D	72019	100.29			1	Z	A
1965-01-13	D	62610		3434.62	NGVD29	1	Z	A
1965-01-13	D	62611		3436.20	NAVD88	1	Z	A
1965-01-13	D	72019	102.80			1	Z	A
1966-01-27	D	62610		3433.83	NGVD29	P	Z	A
1966-01-27	D	62611		3435.41	NAVD88	P	Z	A
1966-01-27	D	72019	103.59			P	Z	A
1984-02-06	D	62610		3433.03	NGVD29	1	Z	A
1984-02-06	D	62611		3434.61	NAVD88	1	Z	A
1984-02-06	D	72019	104.39			1	Z	A
1989-02-01	D	62610		3436.56	NGVD29	1	Z	A
1989-02-01	D	62611		3438.14	NAVD88	1	Z	A
1989-02-01	D	72019	100.86			1	Z	A
1990-02-26	D	62610		3433.39	NGVD29	1	S	A
1990-02-26	D	62611		3434.97	NAVD88	1	S	A
1990-02-26	D	72019	104.03			1	S	A
1992-02-05	D	62610		3430.01	NGVD29	1	S	A
1992-02-05	D	62611		3431.59	NAVD88	1	S	A
1992-02-05	D	72019	107.41			1	S	A
1993-02-03	D	62610		3429.63	NGVD29	1	S	A
1993-02-03	D	62611		3431.21	NAVD88	1	S	A

1993-02-03		D	72019	107.79			1	S			A
1994-02-21		D	62610		3428.05	NGVD29	1	S			A
1994-02-21		D	62611		3429.63	NAVD88	1	S			A
1994-02-21		D	72019	109.37			1	S			A
1999-01-14		D	62610		3424.80	NGVD29	1	S	NM001	A	A
1999-01-14		D	62611		3426.38	NAVD88	1	S	NM001	A	A
1999-01-14		D	72019	112.62			1	S	NM001	A	A
2003-01-25		D	62610		3426.14	NGVD29	1	S	NM001	A	A
2003-01-25		D	62611		3427.72	NAVD88	1	S	NM001	A	A
2003-01-25		D	72019	111.28			1	S	NM001	A	A
2004-02-04		D	62610		3423.97	NGVD29	1	S	NM001	A	A
2004-02-04		D	62611		3425.55	NAVD88	1	S	NM001	A	A
2004-02-04		D	72019	113.45			1	S	NM001	A	A
2005-02-08	15:50 UTC	m	62610		3426.42	NGVD29	1	S	USGS	S	A
2005-02-08	15:50 UTC	m	62611		3428.00	NAVD88	1	S	USGS	S	A
2005-02-08	15:50 UTC	m	72019	111.00			1	S	USGS	S	A
2006-02-08	19:45 UTC	m	62610		3425.72	NGVD29	1	S	USGS	S	A
2006-02-08	19:45 UTC	m	62611		3427.30	NAVD88	1	S	USGS	S	A
2006-02-08	19:45 UTC	m	72019	111.70			1	S	USGS	S	A
2007-02-13	18:30 UTC	m	62610		3424.52	NGVD29	1	S	USGS	S	A
2007-02-13	18:30 UTC	m	62611		3426.10	NAVD88	1	S	USGS	S	A
2007-02-13	18:30 UTC	m	72019	112.90			1	S	USGS	S	A
2008-01-14	16:55 UTC	m	62610		3423.04	NGVD29	1	S	NM001	A	A
2008-01-14	16:55 UTC	m	62611		3424.62	NAVD88	1	S	NM001	A	A
2008-01-14	16:55 UTC	m	72019	114.38			1	S	NM001	A	A
2009-01-06	20:30 UTC	m	62610		3421.98	NGVD29	1	S	NM001	A	A
2009-01-06	20:30 UTC	m	62611		3423.56	NAVD88	1	S	NM001	A	A
2009-01-06	20:30 UTC	m	72019	115.44			1	S	NM001	A	A
2010-01-20	21:20 UTC	m	62610		3420.06	NGVD29	1	S	NM001	A	A
2010-01-20	21:20 UTC	m	62611		3421.64	NAVD88	1	S	NM001	A	A
2010-01-20	21:20 UTC	m	72019	117.36			1	S	NM001	A	A

2012-01-05	17:35 UTC	m	62610		3417.59	NGVD29	1	S	NM001	A	A
2012-01-05	17:35 UTC	m	62611		3419.17	NAVD88	1	S	NM001	A	A
2012-01-05	17:35 UTC	m	72019	119.83			1	S	NM001	A	A

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level date-time accuracy	m	Date is accurate to the Minute
Parameter code	62610	Groundwater level above NGVD 1929, feet
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Status	P	Pumping
Method of measurement	S	Steel-tape measurement.
Method of measurement	Z	Other.
Measuring agency		Not determined
Measuring agency	NM001	New Mexico State Engineers Office
Measuring agency	USGS	U.S. Geological Survey
Source of measurement		Not determined
Source of measurement	A	Reported by another government agency (do not use "A" if reported by owner, use "O").
Source of measurement	S	Measured by personnel of reporting agency.
Water-level approval status	A	Approved for publication -- Processing and review completed.

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Explanation of terms
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Accessibility FOIA Privacy Policies and Notices

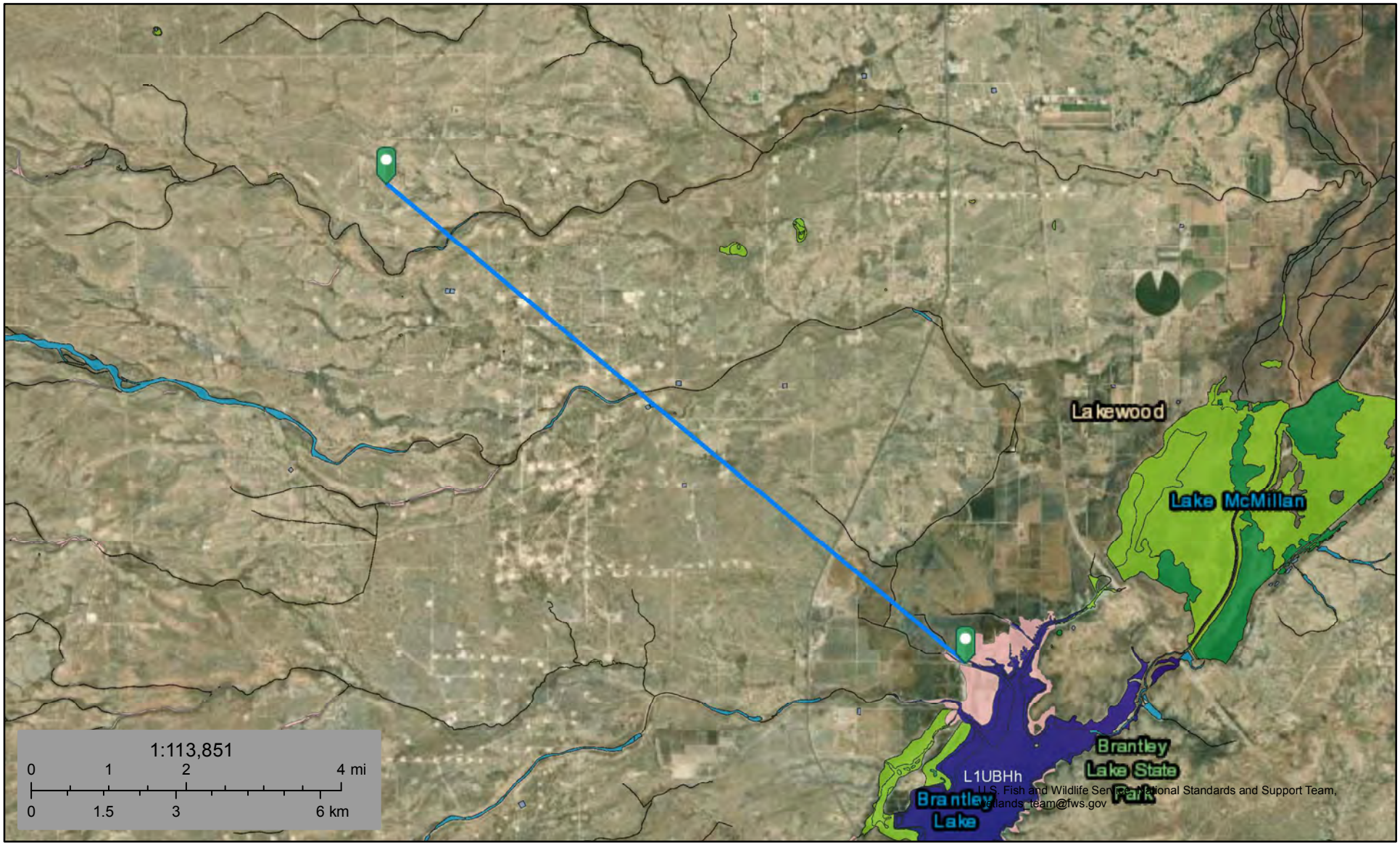
U.S. Department of the Interior | U.S. Geological Survey

Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2022-10-26 12:35:12 EDT
0.41 0.36 nadww01

U.S. Fish and Wildlife Service
National Wetlands Inventory

Roy AET #5



October 28, 2022

Wetlands

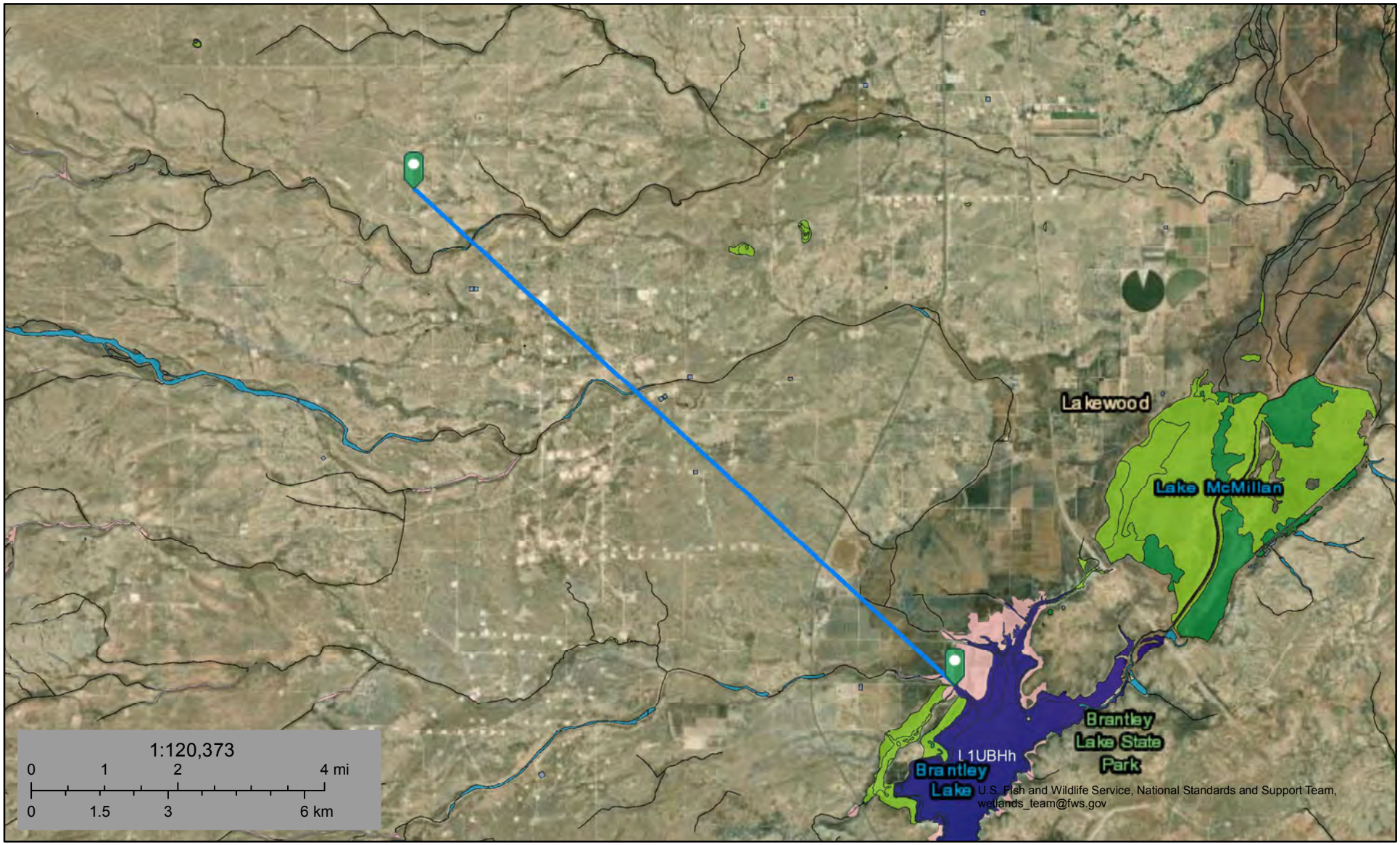
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

U.S. Fish and Wildlife Service
National Wetlands Inventory

Lake, 44,470 feet



October 30, 2022

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.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Roy AET #005


Legend
Feature 1
Residence: 0.83 miles (4,386 feet)
ROY AET #005
Residence
N
2000 ft
Google Earth

New Mexico Office of the State Engineer

Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Twn	Rng	X	Y
	RA 06418	1	2	3	17	19S	25E	545925	3613710*

Driller License: 406 **Driller Company:** TIDWELL, CLYDE J.

Driller Name:

Drill Start Date: 12/11/1978 **Drill Finish Date:** 12/18/1978 **Plug Date:**

Log File Date: 12/26/1978 **PCW Rcv Date:** **Source:** Shallow

Pump Type: **Pipe Discharge Size:** **Estimated Yield:**

Casing Size: 7.00 **Depth Well:** 120 feet **Depth Water:** 72 feet

Water Bearing Stratifications:	Top	Bottom	Description
	72	75	Shallow Alluvium/Basin Fill
	106	112	Shallow Alluvium/Basin Fill

Casing Perforations:	Top	Bottom
	51	109

***UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer
Water Right Summary

WR File Number: RA 06418 **Subbasin:** RA **Cross Reference:** -

Primary Purpose: STK 72-12-1 LIVESTOCK WATERING

Primary Status: PMT PERMIT

Total Acres: **Subfile:** - **Header:** -

Total Diversion: 3 **Cause/Case:** -

Owner: JAMES H. & BETTY R. HOWELL REVOCABLE TRUST

Contact: ALAN HOWELL

x

Documents on File

Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
527424	COWNF	2013-05-06	CHG	PRC	RA 06418	T		3	
252200	COWNF	1996-05-23	CHG	PRC	RA 06418	T		3	
252195	72121	1978-12-07	PMT	LOG	RA 06418	T		3	

x

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
RA 06418		Shallow	1	2	3	17	19S	25E	545925	3613710*	

***An (*) after northing value indicates UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer
Active & Inactive Points of Diversion
(with Ownership Information)

(acre ft per annum)

(R=POD has been replaced and no longer serves this file, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q 64	q 16	q 4	Sec	Tws	Rng	X	Y	Distance
RA 06418	RA	STK	3	JAMES H. & BETTY R. HOWELL REVOCABLE TRUST	ED	RA 06418				Shallow	1	2	3	17	19S	25E	545925	3613710*	1444
RA 05900	RA	STK	3	JAMES H AND BETTY R HOWELL REVOCABLE TRUST	ED	RA 05900				Shallow		2	2	16	19S	25E	548442	3614424*	1661
RA 05333	RA	PRO	3	JAMES H. AND BETTY R. HOWELL REVOCABLE TRUST	ED	RA 05333				Shallow		2	2	09	19S	25E	548430	3616046*	2005
RA 09489	RA	PRO	0	YATES PETROLEUM	ED	RA 09489						2	2	09	19S	25E	548430	3616046*	2005
RA 05331	RA	PRO	3	JAMES H. AND BETTY R. HOWELL REVOCABLE TRUST	ED	RA 05331				Shallow	1	1	4	05	19S	25E	546308	3616955*	2184
RA 08977	RA	DOL	3	JAMES H. AND BETTY R. HOWELL REVOCABLE TRUST	ED	RA 08977						2	4	4	18	19S	25E	545298	3613190	2247
					ED	RA 08977 POD2						4	4	4	18	19S	25E	545298	3613190	2247
RA 11938	RA	PRO	0	YATES PETROLEUM CORPORATION	ED	RA 08977						2	4	4	18	19S	25E	545298	3613190	2247
					ED	RA 08977 POD2						4	4	4	18	19S	25E	545298	3613190	2247
RA 11939	RA	PRO	0	YATES PETROLEUM CORPORATION	ED	RA 08977						2	4	4	18	19S	25E	545298	3613190	2247
					ED	RA 08977 POD2						4	4	4	18	19S	25E	545298	3613190	2247
RA 11940	RA	PRO	0	YATES PETROLEUM CORPORATION	ED	RA 08977						2	4	4	18	19S	25E	545298	3613190	2247
					ED	RA 08977 POD2						4	4	4	18	19S	25E	545298	3613190	2247
RA 13183	RA	MON	0	HARRISON & COOPER INC	ED	RA 13183 POD2	NA					4	4	1	05	19S	25E	546179	3617084	2343
RA 13122	RA	MON	0	WHITE DRILLING COMPANY INC	ED	RA 13122 POD1	NA					1	3	2	21	19S	25E	547935	3612424	2650
					ED	RA 13122 POD2				Shallow		3	3	2	21	19S	25E	547996	3612385	2710
RA 04426	RA	OBS	0	STATE ENGINEER OF NM	CH	RA 04426							4	3	18	19S	25E	544412	3613201*	2919
RA 11654	RA	STK	3	RONALD HOUGHTALING	ED	RA 11654 POD1							3	2	19	19S	25E	544959	3612514	2981
RA 13243	RA	EXP	0	EOG RESOURCES INC	ED	RA 13243 POD 1	NA					4	3	3	06	19S	25E	544060	3616318	3143
RA 05286	RA	PRO	3	EOG Y RESOURCES INC	ED	RA 05286 (2A)				Shallow				06	19S	25E	544587	3617042*	3148
RA 04726	RA	DOM	3	RONALD HOUGHTALING	ED	RA 04726				Shallow		3	2	19	19S	25E	544825	3612390*	3162
RA 03959	RA	STK	3	JAMES H AND BETTY R HOWELL REVOCABLE TRUST	ED	RA 03959						2	4	12	19S	24E	543589	3615225*	3266
RA 13183	RA	MON	0	EOG RESOURCES INC	ED	RA 13183 POD1	NA					4	4	2	06	19S	25E	545284	3617757	3307
RA 05450	RA	STK	0	LEATHERWOOD DRILLING CO.	CH	RA 05450				Shallow		4	2	15	19S	25E	550057	3614015*	3327
RA 12221	RA	EXP	0	RONALD DEAN HOUGHTALING	ED	RA 12221 POD1						2	4	4	19	19S	25E	545280	3611733	3466
					ED	RA 12221 POD2						2	4	4	19	19S	25E	545280	3611733	3466
					ED	RA 12221 POD3						2	4	4	19	19S	25E	545280	3611733	3466
					ED	RA 12221 POD4						2	4	4	19	19S	25E	545280	3611733	3466
					ED	RA 12221 POD5						2	4	4	19	19S	25E	545280	3611733	3466
RA 02909	RA	DOM	3	TAYLOR ROSS	ED	RA 02909				Shallow			1	3	22	19S	25E	548864	3611989*	3496
RA 06436	RA	STK	43.5	JAMES H & BETTY R HOWELL REVOCABLE TRUST	ED	RA 06436				Shallow	3	1	4	12	19S	24E	543083	3615122*	3760
RA 04208	RA	PRO	0	LEE DRILLING CO.	ED	RA 04208				Shallow		2	4	03	19S	25E	550036	3616845*	3782
RA 08986	RA	PRO	0	YATES PETROLEUM CORP.	ED	RA 08986				Shallow	1	3	3	22	19S	25E	548824	3611507	3877
RA 11839	RA	PRO	0	YATES PETROLEUM CORPORATION	ED	RA 08986				Shallow	1	3	3	22	19S	25E	548824	3611507	3877
RA 08899	RA	PRO	0	CATHY HOUGHTALING	ED	RA 08899				Shallow	3	2	2	30	19S	25E	545138	3611084*	4114
RA 09959	RA	PRO	0	YATES PETROLEUM	ED	RA 08899				Shallow	3	2	2	30	19S	25E	545138	3611084*	4114
RA 04236	RA	PRO	0	LEE DRILLING COMPANY	CH	RA 04236				Shallow	3	3	1	02	19S	25E	550335	3617145*	4196
RA 12492	RA	STK	3	DAVID WILSON	ED	RA 12492 POD1						4	3	4	34	18S	25E	549767	3617883	4232
RA 12222	RA	EXP	0	CATHY HOUGHTALING	ED	RA 12222 POD1						2	4	2	30	19S	25E	545284	3610884	4242
RA 07950	RA	STK	2	RALPH SCHAFER	ED	RA 07950							3	4	34	18S	25E	549620	3618059*	4263
RA 12222	RA	EXP	0	ATKINS ENGR ASSOC INC	ED	RA 12222 POD2						2	4	2	30	19S	25E	545279	3610853	4272
					ED	RA 12222 POD3						2	4	2	30	19S	25E	545279	3610853	4272
					ED	RA 12222 POD4						2	4	2	30	19S	25E	545279	3610853	4272
					ED	RA 12222 POD5						2	4	2	30	19S	35E	545279	3610853	4272
RA 04722	RA	DOM	3	MARK B. KINCAID	ED	RA 04722							3	1	02	19S	25E	550436	3617246*	4336
RA 13238	RA	EXP	0	EOG RESOURCES INC	ED	RA 13238 POD1	NA					2	3	2	01	19S	24E	543237	3617424	4430
RA 03304	RA	DOM	3	S. W. STOCKTON	ED	RA 03304				Shallow			1	27	19S	25E	549081	3610973*	4468
RA 07951	RA	STK	2	RALPH SCHAFER	ED	RA 07951							4	4	34	18S	25E	550024	3618057*	4536
RA 04335	RA	STK	3	YATES RANCH PROPERTY LLP	CH	RA 04335				Shallow		1	1	32	18S	25E	545580	3619275*	4614

RA 05040	RA	STK	3	BEVERLY WILBANKS	ED	RA 05040			2	4	30	19S	25E	545242	3610378*		4731
RA 13117	RA	MON	0	WHITE DRILLING INC	ED	RA 13117 POD1	NA	Shallow	3	4	1	24	19S	24E	542742	3612369		4774
RA 13230	RA	EXP	0	RANGER ENVIRONMENTAL SERVICES	ED	RA 13230 POD 1	NA		4	2	2	14	19S	24E	542086	3614287		4777
RA 13117	RA	MON	0	WHITE DRILLING INC	ED	RA 13117 POD2	NA	Shallow	3	4	1	24	19S	24E	542729	3612364		4788
RA 08146	RA	STK	3	YATES RANCH PROPERTY LLP	ED	RA 08146			4	4	3	28	18S	25E	547693	3619576*		4819
RA 03942	RA	OBS	0	S.P. YATES DRILLING CO	ED	RA 03942		Shallow	3	2	4	30	19S	25E	545141	3610277*		4860
RA 13231	RA	MON	0	RANGER ENVIRONMENTAL SERVICES	ED	RA 13231 POD1	NA		2	3	2	34	18S	25E	549625	3618894		4928

Record Count: 56

UTMNAD83 Radius Search (in meters):

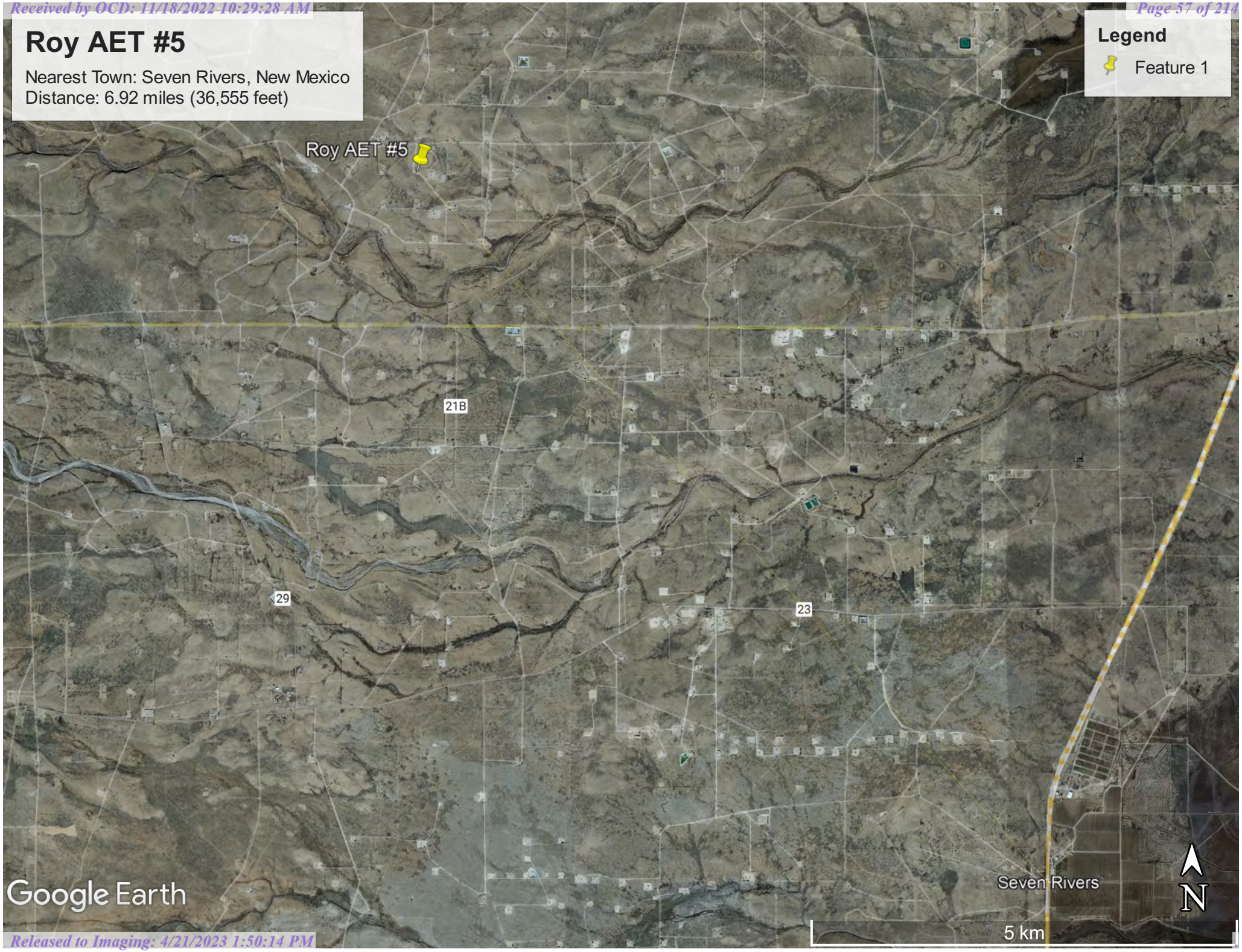
Easting (X): 546832 **Northing (Y):** 3614834 **Radius:** 5000

Sorted by: Distance

***UTM location was derived from PLSS - see Help**

Roy AET #5

Nearest Town: Seven Rivers, New Mexico
Distance: 6.92 miles (36,555 feet)



Legend
Feature 1

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetland, 6288 feet

October 30, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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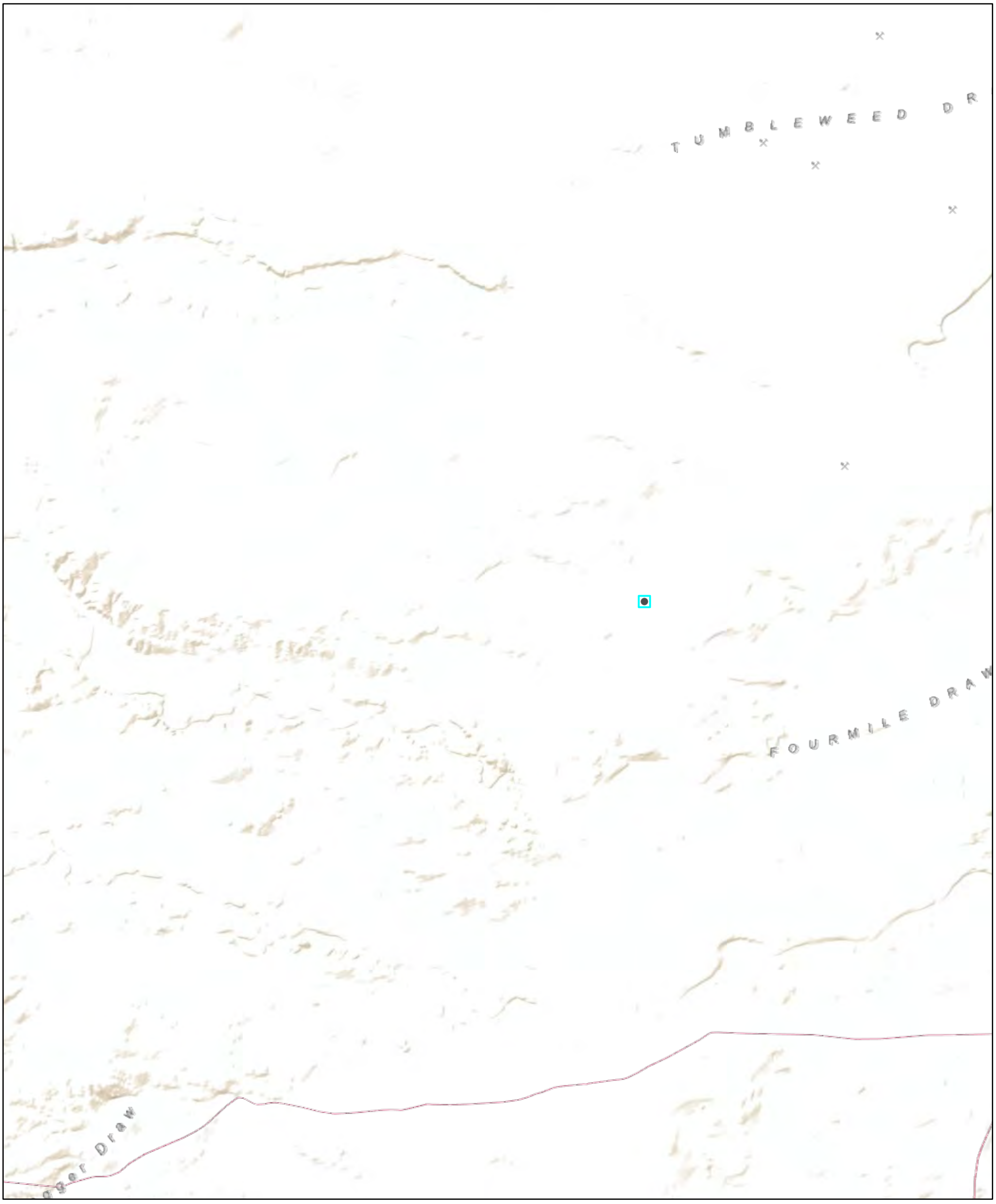
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Active Mines in New Mexico



8/21/2022, 9:06:33 AM

Registered Mines

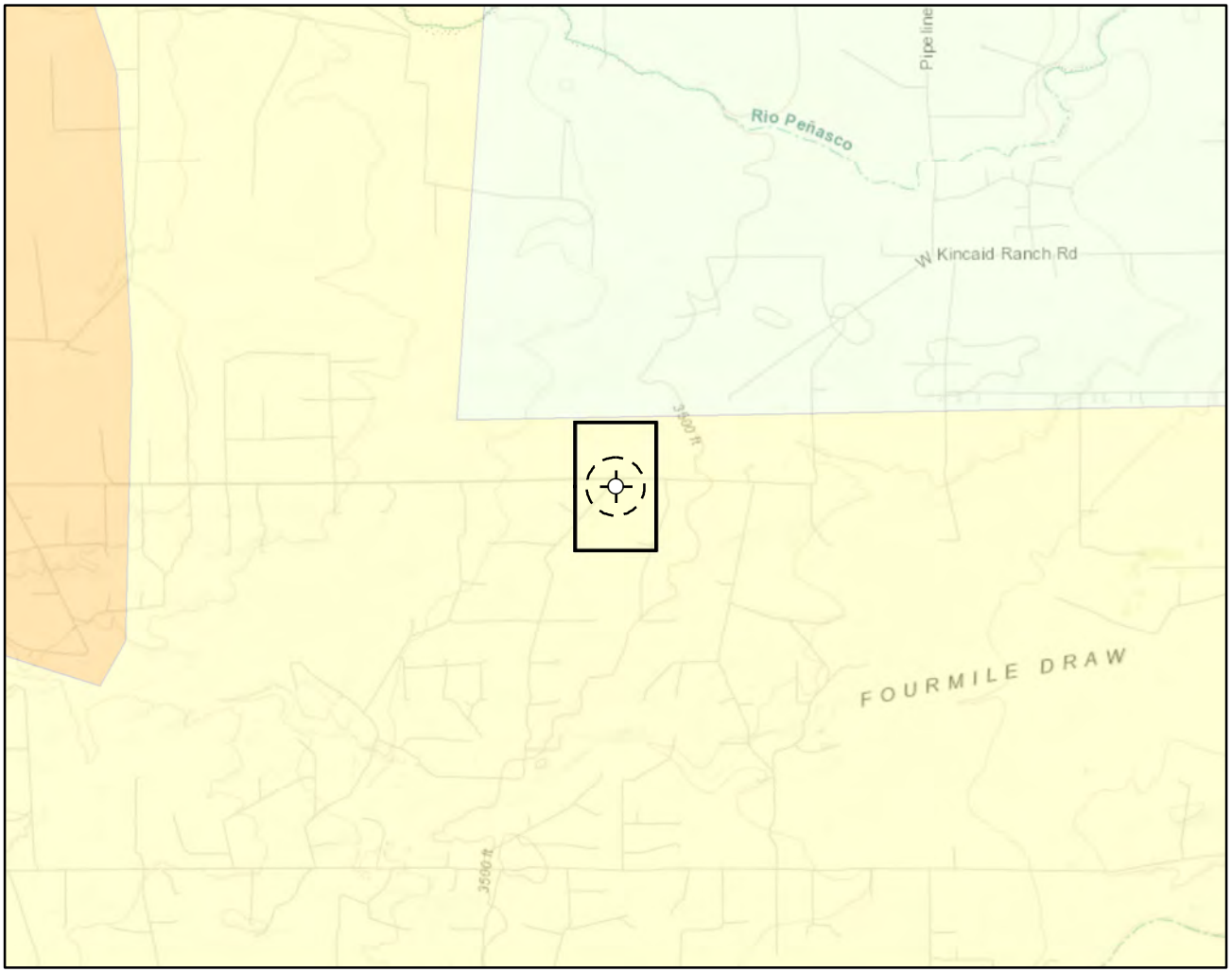
- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Aggregate, Stone etc.

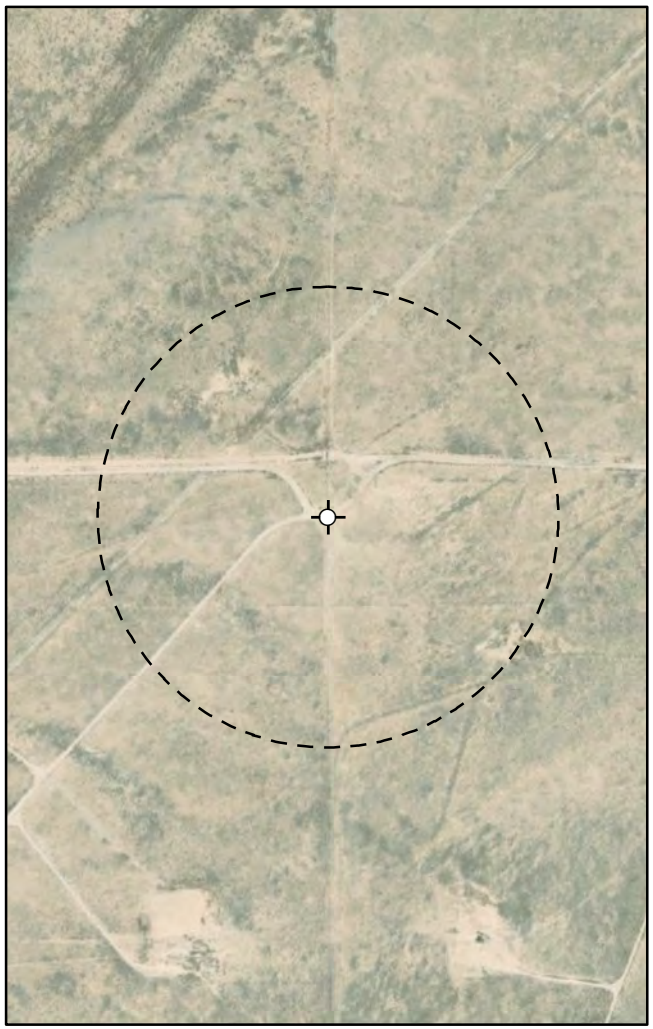
1:72,224

0 0.5 1 2 mi

0 1 2 4 km

Sources: Esri, USGS, NOAA, Sources: Esri, Garmin, USGS, NPS





Karst Potential

- Critical
- High
- Medium
- Low

Site Location

Site Buffer (1,000 ft.)

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft.

VERTEX

Map Center:
Lat/Long: 32.689967, -104.481656

NAD 1983 UTM Zone 13N
Date: Aug 26/22

N

Karst Potential
Roy #5 Well Pad

FIGURE:
X

eogresources

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Inset Map, ESRI 2021; Overview Map: ESRI World Topographic. Karst potential data sourced from Rosswell Field Office, Bureau of Land Management, 2020 or United States Department of the Interior, Bureau of Land Management. (2018). Karst Potential.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\EOG Resources Inc\22E-00716 (Howell Ranch Reclamation Projects)\007 - Roy #5 Well Pad\Figure X Karst Potential (Roy #5 Well Pad).mxd

National Flood Hazard Layer FIRMette

FEMA

104°29'13"W 32°41'39"N

104°28'35"W 32°41'9"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/21/2022 at 11:14 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Eddy Area, New Mexico

August 21, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:873 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 40 80 160 240

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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 17, Sep 12, 2021

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

Date(s) aerial images were photographed: Feb 27, 2020—Feb 28, 2020

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
RE	Reagan-Upton association, 0 to 9 percent slopes	3.0	100.0%
Totals for Area of Interest		**3.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Eddy Area, New Mexico

RE—Reagan-Upton association, 0 to 9 percent slopes

Map Unit Setting

National map unit symbol: 1w5d
Elevation: 1,100 to 5,400 feet
Mean annual precipitation: 6 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 180 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Reagan and similar soils: 70 percent
Upton and similar soils: 25 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reagan

Setting

Landform: Fan remnants, alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 60 inches: loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R070DY153NM - Loamy
Hydric soil rating: No

Description of Upton

Setting

Landform: Ridges, fans
Landform position (three-dimensional): Side slope, rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

H1 - 0 to 9 inches: gravelly loam
H2 - 9 to 13 inches: gravelly loam
H3 - 13 to 21 inches: cemented
H4 - 21 to 60 inches: very gravelly loam

Properties and qualities

Slope: 0 to 9 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 75 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R070DY159NM - Shallow Loamy
Hydric soil rating: No

Minor Components

Atoka

Percent of map unit: 3 percent
Ecological site: R042XC007NM - Loamy
Hydric soil rating: No

Pima

Percent of map unit: 2 percent
Ecological site: R042XC017NM - Bottomland
Hydric soil rating: No

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ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site Name: Loamy

Site ID: R070DY153NM

Major Land Resource Area: 070D - Southern Desert Foothills

Physiographic Features

This site occurs on level to gently sloping plains and terraces at elevations ranging from 4,000 to 7,000 feet above sea level. Slopes vary from 0 to 9 percent but average less than 5 percent.

Land Form: (1) Plain
(2) Terrace

	Minimum	Maximum
Elevation (feet):	4000	7000
Slope (percent):	0	9
Water Table Depth (inches):		
Flooding:		
Frequency:		
Duration:	None	None
Ponding:		
Depth (inches):		
Frequency:		

Duration:	None	None
Runoff Class:	Negligible	Medium
Aspect:	No Influence on this site	

Climatic Features

The climate of this area is â€œsemi-arid continental.â€

Annual average precipitation ranges from 11 to 19 inches. Variations of 5 inches, more or less, are not uncommon. Approximately 70 percent of the precipitation occurs from May through October. Most of the summer rain comes in the form of high-intensity, short- uration thunderstorms. Winter moisture is usually negligible.

Temperatures are characterized by distinct seasonal changes and large diurnal temperature changes. The average annual temperature ranges from 55 degrees F to 60 degrees F, with extremes of 20 degrees F below zero in the winter to 110 degrees F in the summer not uncommon.

The average frost-free season is 170 to 189 days. The last killing frost is in early April and the first killing frost is in mid October.

Both temperature and precipitation favor warm-season perennial plant communities. At higher elevations, 40 percent of the precipitation is favorable for cool-season growth. Strong winds from the west and southwest blow from February through June. This accelerates the drying of the soil during a critical growth period for most cool-season plants.

Climate data was obtained from http://www.wrcc.sage.dri.edu/summary/climsmnm.html web site.
Data interpreted utilizing NM NRCS Climate Summarizer spreadsheet.

	Minimum	Maximum
Frost-free period (days):	170	189
Freeze-free period (days):	192	211
Mean annual precipitation (inches):	11.0	19.0

Monthly precipitation (inches) and temperature (Â°F):

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Precip. Min.	0.08	0.12	0.08	0.07	0.38	0.45	1.13	1.5	0.85	0.34	0.01	0.08
Precip. Max.	0.78	0.82	0.75	0.85	1.98	2.11	3.49	3.97	3.8	2.07	0.87	0.86
Temp. Min.	24.5	27.0	31.9	38.9	47.3	55.5	59.5	58.4	52.0	42.1	31.0	24.9
Temp. Max.	55.6	59.5	65.7	73.6	80.8	88.6	88.3	86.4	81.2	73.9	64.0	56.6

Climate Stations: (1) 292865, Elk 2E. Period of record 1895 - 2007
(2) 294112, Hope. Period of record 1919 - 2007

Influencing Water Features

This site is not influenced by water from a wetland or stream.

Wetland Description: System	Subsystem	Class
(Cowardin System) None	N/A	N/A

Representative Soil Features

The soils on this site are moderately deep to deep, well drained. The surface textures are loam, silt loams, silty clay loams and fine sandy loams. Permeability is slow to moderately rapid and available water-holding capacity is medium to high with surface runoff medium. The water and wind erosion hazard is high.

Predominant Parent Materials:
Kind: Alluvium
Origin:

Surface Texture: (1) Loam
(2) Silt loam
(3) Silty clay loam

Subsurface Texture Group: Clayey

	Minimum	Maximum
Surface Fragments <=3" (% Cover):		
Surface Fragments > 3" (% Cover):		
Subsurface Fragments <=3" (% Volume):		
Subsurface Fragments > 3" (% Volume):		

Drainage Class: Well drained To Well drained

Permeability Class: Slow To Moderately rapid

	Minimum	Maximum
Depth (inches):	20	40
Electrical Conductivity (mmhos/cm):	0	2
Sodium Absorption Ratio:		
Calcium Carbonate Equivalent (percent):		
Soil Reaction (1:1 Water):	7.4	8.4
Soil Reaction (0.01M CaCl2):		
Available Water Capacity (inches):	6.0	12.0

Plant Communities

Ecological Dynamics of the Site

Overview

This site is associated with Limestone Hills and Shallow sites. Loamy sites in CP-4 typically

occur as elongated units on valley terraces and fans below Limestone Hills, or adjacent to, but topographically lower than Shallow sites. The historic plant community of the Loamy site has the aspect of a grassland with a few shrubs and succulents scattered across the site. Composition and production vary with elevation. In the historic plant community, blue grama, black grama, and tobosa are the dominant grasses. This site is susceptible to encroachment by shrubs, especially juniper and broom snakeweed. Dispersal of shrub seeds, loss of grass cover and resulting competition for resources by shrubs, and a decrease in natural fire frequency may facilitate the transition to a state that is dominated by shrubs. Persistent loss of grass cover, increased overland water flow, and resulting erosion may cause the transition to a Gullied State.

Historic Climax Plant Community

Grassland: At lower elevations blue grama, black grama, and tobosa are the dominant grasses, with sideoats grama, vine mesquite, and plains lovegrass as sub-dominants. At higher elevations, blue grama, sideoats grama, and western wheatgrass dominate, with vine mesquite, plains lovegrass, black grama, and tobosa as sub-dominants. Continuous heavy grazing will cause a decrease in sideoats grama, western wheatgrass, black grama, vine mesquite, and fourwing saltbush. At higher elevations this may result in a community dominated by blue grama. At lower elevations, tobosa and threeawns may dominate. A community of perennial grasses with broom snakeweed as the sub-dominant component may occur in response to overgrazing, or as a result of late fall/early spring moisture following drought. 6 Shrubs and succulents common to the site include yucca, fourwing saltbush, sumac species, juniper, broom snakeweed, and cholla.

Diagnosis: Grass cover is uniform and evenly distributed. Litter cover is high, averaging 25 percent. Shrub/succulent cover is low averaging only 2 percent. Evidence of erosion such as large water flow patterns, rills and gullies are infrequent.

Other grasses which would appear on this site include:
bottlebrush squirreltail, galleta, alkali sacaton, hairy grama, mat muhly, ring muhly, green sprangletop, Hallâ€™s panicum, plains bristlegrass, little bluestem, silver bluestem, Indiangrass, fluffgrass, buffalograss, wolftail, tridens spp., and needle grass.

Other shrubs include:
cholla, juniper, pinyon, creosotebush, oak spp., broom baccharis, pricklypear, Apacheplume, dalea spp., winterfat, and algerita.

Other forbs include:
wooly loco, wooly Indianwheat, cudweed, thistles, annual sunflowers, mullin, wildbuckwheat spp., nightshade spp., milkweed spp., and bladderpod.

Historic Climax Plant Community Plant Species Composition:

Grass/Grasslike			Annual Production in Pounds Per Acre	
Group	Group Name	Common Name	Scientific Name	Low	High
1				58	403
		blue grama	Bouteloua gracilis	58	403
2				58	173
		sideoats grama	Bouteloua curtipendula	58	173
3				115	403
		black grama	Bouteloua eriopoda	115	403
4				115	403
		tobosagrass	Pleuraphis mutica	115	403
5				35	58
		sand dropseed	Sporobolus cryptandrus	35	58
6				58	115
		vine mesquite	Panicum obtusum	58	115
7				115	173
		western wheatgrass	Pascopyrum smithii	115	173
8				35	58
		threeawn	Aristida	35	58
9				35	58
		burrograss	Scleropogon brevifolius	35	58
10				58	115
		plains lovegrass	Eragrostis intermedia	58	115
11				35	58
		Graminoid (grass or grass-like)		35	58

Forb			Annual Production in Pounds Per Acre	
Group	Group Name	Common Name	Scientific Name	Low	High
12				12	35
		dwarf desertpeony	Acourtia nana	12	35
13				35	58
		croton	Croton	35	58

	rabbitbush	Ericameria bloomeri	35	58
	ragwort	Senecio	35	58
	globemallow	Sphaeralcea	35	58
14			12	35
	Forb (herbaceous, not grass nor grass-like)		12	35

Shrub/Vine Group			Annual Production in Pounds Per Acre	
Group	Common Name	Scientific Name	Low	High
15			35	58
	yucca	Yucca	35	58
16			35	58
	fourwing saltbush	Atriplex canescens	35	58
17			23	58
	catclaw acacia	Acacia greggii	23	58
18			23	58
19			23	58
	broom snakeweed	Gutierrezia sarothrae	23	58
20			12	35
	Shrub, deciduous		12	35

Annual Production by Plant Type:

	Annual Production (lbs/AC)		
Plant Type	Low	Representative Value	High
Forb	64	92	120
Grass/Grasslike	624	897	1170
Total:	688	989	1290

Structure and Cover:

Ground Cover (%)

Vegetative Cover						Non-Vegetative Cover					
Grass/ Grasslike	Forb	Shrub / Vine	Tree	Non-Vascular Plants	Biological Crust	Litter	Surface Fragments > 1/4 & <= 3"	Surface Fragments > 3"	Bedrock	Water	Bare Ground

						25 to 25					32 to 32

Plant Growth Curve:
Growth Curve Number: NM4603
Growth Curve Name: HCPC
Growth Curve Description: Mixed short/mid warm-season grassland with scattered shrubs and half-shrubs and a fluctuating forb component.

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	3	5	10	10	25	30	12	5	0	0

Shrub-Dominated

Additional States:

Shrub Dominated: This state is characterized by the predominance of shrubs with perennial grasses as the subordinate component. Grass cover varies inversely with shrub density. Typically juniper and broom snakeweed are the dominant shrubs. Juniper tends to dominate at mid-to upper elevations with blue grama as the subordinate grass component. Broom snakeweed may come to dominate across most elevation ranges with either blue grama or tobosa as the subordinate grass species.

Diagnosis: Shrubs are found at increased densities relative to the Grassland State. Grass cover is variable ranging from fairly uniform to patchy with large connected bare areas present. Blue grama or tobosa are the dominant grasses, and threeawns, ring muhly, cholla and prickly pear typically increase in representation.

Transition to Shrub Dominated State (1a): Seed dispersal of shrubs, loss of grass cover, resource competition between shrubs and grasses, and lack of fire are all believed to facilitate the 12 encroachment of shrubs. Wildlife and livestock (especially birds and sheep) are instrumental in the dispersal of juniper seed. 3, 4 Broom snakeweed produces abundant light seed and the dispersal mechanism is mainly wind.5 Sites that receive above-average late fall/early spring moisture following drought,6 or that have been overgrazed 7may be quickly invaded by broom snakeweed. Drought is detrimental to grasses and the establishment of juniper seedlings, but larger, established trees may gain a competitive edge facilitating juniper dominance. Competition is an important constraint on the establishment of shrub seedlings, because grass roots preempt resources, such as water.2 However, during wet years shrub seedlings may establish in good stands of grass due to reduced moisture competition. Once shrub seedlings become established, and if their roots are capable of extending below this zone, competition for soil moisture declines.2 Overgrazing may facilitate the establishment of shrub seedlings by providing competition free areas, but livestock exclusion alone would not prevent shrub expansion. Historically, periodic fire may have helped to suppress shrubs by completely killing some species, disrupting seed production cycles, and suppressing the establishment of shrub seedlings.1

Key indicators of approach to transition:
* Decrease or change in composition or distribution of grass cover.
* Increase in size and frequency of bare patches.
* Increase in amount of shrub seedlings.

Transition back to Grassland (1b) Brush control is necessary to initiate the transition back to the grassland state. Prescribed grazing will help ensure adequate rest following brush control and will assist in the establishment and maintenance of grass cover. Once the transition back to the Grassland State is achieved, prescribed fire may help in maintaining grass dominance.

Guillied State

Gullied State: Loss of grass cover, accelerated erosion, and gully formation characterize this state. Blue grama or tobosa are typically the dominant grasses. Shrub densities reflect either those of the Grassland State or The Shrub-Dominated State, depending on the transition pathway.

Diagnosis: Grass cover is patchy with large bare areas present. Erosion is evident by the presence of water flow patterns, rills and gullies.

Transition to Gullied State (2,3a): Transitions to the Gullied State occur in response to the loss of grass cover, and subsequent erosion. As grass cover is reduced, organic matter, infiltration, and soil surface stability decrease.

Key indicators of approach to transition:
* Reduction in grass cover (on site, or on surrounding uplands).
* Increase in size and frequency of bare patches.
* Presence of litter dams, water flow patterns, rills and gullies.

Transition back to Grassland (3b) Erosion control structures or shaping and filling gullies may help regain natural flow patterns and allow natural revegetation to take place. Prescribed grazing will help ensure proper forage utilization and reduce grass loss due to overgrazing. Brush control will be necessary if from transition (2).

Ecological Site Interpretations

Animal Community:
Habitat for Wildlife:
This site provides habitat which supports a resident animal community that is characterized by pronghorn antelope, sparrow hawk, badger, black-tailed jackrabbit, black- tailed prairie dog, Bottaâ€™s pocket gopher, burrowing owl, roadrunner, cactus wren, coyote, bobcat, scaled quail, horned lark, great plains toad, and horned lizard. Mule deer use this site seasonally as do mourning dove.

Plant Preference by Animal Kind:

Animal Kind: mature antelope Antelope

Common Name	Scientific Name	Plant Part	J	F	M	A	M	J	J	A	S	O	N	D
fourwing saltbush	Atriplex canescens	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
globemallow	Sphaeralcea	Entire plant	U	U	D	D	D	D	D	D	U	U	U	U

Animal Kind: mature cow Cattle

Common Name	Scientific Name	Plant Part	J	F	M	A	M	J	J	A	S	O	N	D
fourwing saltbush	Atriplex canescens	Leaves	P	P	P	P	P	D	D	D	D	D	D	P
sideoats grama	Bouteloua curtipendula	Entire plant	P	P	P	P	P	P	P	P	P	P	P	P
blue grama	Bouteloua gracilis	Entire plant	D	D	D	D	P	P	P	P	P	D	D	D
vine mesquite	Panicum obtusum	Entire plant	D	D	D	D	D	D	D	D	D	D	D	D
western wheatgrass	Pascopyrum smithii	Entire plant	D	D	P	P	P	D	D	D	D	D	D	D

Animal Kind: mature sheep Sheep

Common Name	Scientific Name	Plant Part	J	F	M	A	M	J	J	A	S	O	N	D
fourwing saltbush	Atriplex canescens	Leaves	P	P	P	P	P	D	D	D	D	D	D	P
sideoats grama	Bouteloua curtipendula	Entire plant	P	P	P	P	P	P	P	P	P	P	P	P
black grama	Bouteloua eriopoda	Entire plant	P	P	P	D	D	D	D	D	D	D	P	P
blue grama	Bouteloua gracilis	Entire plant	D	D	D	D	P	P	P	P	P	D	D	D
western wheatgrass	Pascopyrum smithii	Entire plant	U	U	D	D	D	D	D	D	D	D	D	U

Legend: P = Preferred D = Desirable U = Undesirable N = Not consumed E = Emergency T = Toxic X = Used, but degree of utilization unknown

Hydrology Functions:
The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

Hydrologic Interpretations

Soil Series-------Hydrologic Group
Ancho----------B
Cale----------B
Cuevoland----------B
Gabaldon----------B
Jarita----------C
Kerrick----------B
La Fonda----------B
Montecito----------C
Pena----------B
Reeves Variant----------B
Ruidoso----------C
Rumuda----------C
Shanta----------B
Shanta Variant----------B

Recreational Uses:
Recreation potential is limited largely by the lack of water and firewood. It is fairly suited for camping, hiking, and picnicking. The wide-open spaces and many colorful wildflowers that bloom during years of good moisture enhance esthetic appeal. Antelope, quail, dove and varmint hunting is good. Trapping for fur-bearing animals is good.

Wood Products:
At higher elevations pinyon and juniper offers firewood and fencing materials. Century plant and cholla skeletons are used for ornamental purposes.

Other Products:
Grazing:
This site is suited for grazing by all kinds and classes of livestock during all seasons of the year. However, because of the large percentage of grass in the potential plant community, this site is best suited for some type of cattle operation. Continuous yearlong or growing season grazing will cause a decrease in sideoats grama, black grama, vine-mesquite, and fourwing saltbush. A corresponding increase in broom snakeweed, cholla, sand dropseed, threeawns, burrograss, and forbs will follow. This site will respond well to a planned grazing system that rotates the season of use. Under retrogression, an increase in woody plants at lower elevations and forbs will cause a decrease in total ground cover. This can cause severe wind and water erosion, both rill and gully. In severe cases of gully erosion, expensive structural measures will be required to restore this site.

Other Information:
Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity----------Index Ac/AUM
100 - 76----------2.0 â€“ 4.5
75 â€“ 51----------3.5 â€“ 6.0
50 â€“ 26----------5.0 â€“ 9.0

25 â€“ 0----------10.0+

Supporting Information

Associated Sites:

Site Name	Site ID	Site Narrative

Similar Sites:

Site Name	Site ID	Site Narrative

State Correlation:
This site has been correlated with the following states:
NM

Inventory Data References:
Data collection for this site was done in
conjunction with the progressive soil surveys
within the Pecos-Canadian Plains and Valleys Major Land Resource Area of New Mexico (MLRA 70).

This site has been mapped and correlated with soils in the following soil surveys:
Otero, Eddy, Chaves, Lincoln

Type Locality:

Relationship to Other Established Classifications:

Other References:
References

1. Brooks, M.L. and D.A. Pyke. 2001. Invasive plants and fire in the deserts of North America.Pages 1â€“14 in K.E.M. Galley and T.P. Wilson (eds.). Proceedings of the Invasive Species Workshop: the Role of Fire in the Control and Spread of Invasive Species.

2. Johnsen, T. N., Jr. 1962. One-seeded juniper invasion of northern Arizona grasslands. Ecological Monographs. 32:187-207.

3. Parker, K. W. 1945. Juniper comes to the grassland. American Cattle Producer. 27: 12- 14.

4. Phillips, Frank J. 1910. The dissemination of junipers by birds. Forestry Quarterly. 8: 60-73. (From Expt. Sta. Rec. 22: 644.)

Site Description Approval:

Author	Date	Approval	Date
Don Sylvester	2/2/1982	Donald H. Fulton	3/3/1982

Site Description Revision Approval:

Author	Date	Approval	Date
John Tunberg	4/22/2008	John Tunberg	4/22/2008
David Trujillo	10/29/2003	George Chavez	10/29/2003
Elizabeth Wright	7/10/2002	George Chavez	10/29/2003

Reference Sheet

Author(s)/participant(s):

Contact for lead author:

Date: **MLRA:** 070D **Ecological Site:** Loamy R070DY153NM This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community cannot be used to identify the ecological site.

Composition (indicators 10 and 12) based on: Annual Production, Foliar Cover, Biomass

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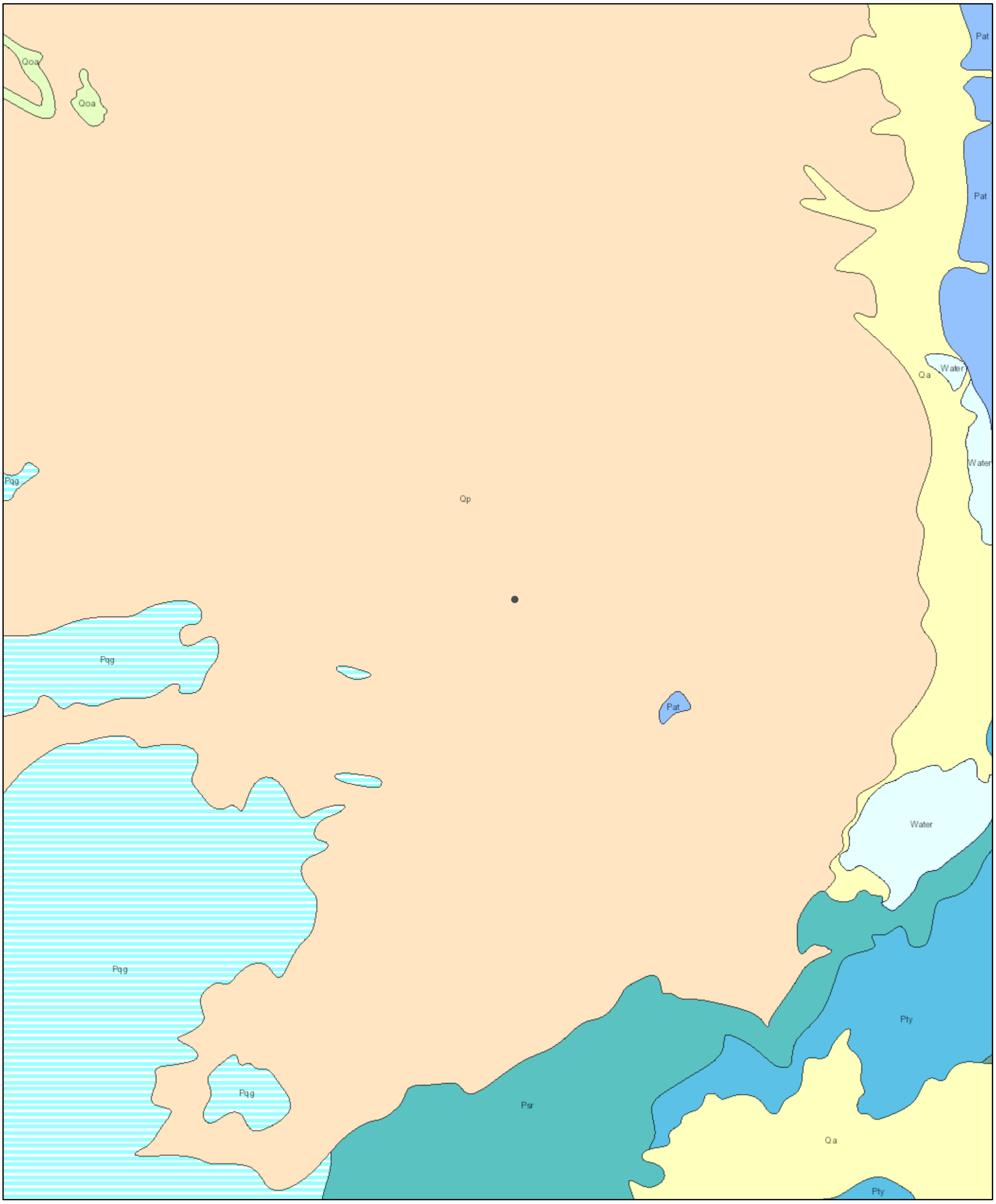
Indicators. For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years for **each** community and natural disturbance regimes within the reference state, when appropriate and (3) cite data. Continue descriptions on separate sheet.

1. **Number and extent of rills:**
2. **Presence of water flow patterns:**
3. **Number and height of erosional pedestals or terracettes:**
4. **Bare ground from Ecological Site Description or other studies (rock, litter, standing dead, lichen, moss, plant canopy are not bare ground):**
5. **Number of gullies and erosion associated with gullies:**
6. **Extent of wind scoured, blowouts and/or depositional areas:**

ArcGIS Web Map



8/21/2022, 9:33:13 AM

Lithologic Units

- Playa——Alluvium and evaporite deposits (Holocene)
- Water——Perenial standing water
- Qa——Alluvium (Holocene to upper Pleistocene)

1:144,448

0 1.25 2.5 5 mi

0 2.25 4.5 9 km

Esri, NASA, NGA, USGS, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census

ArcGIS Web AppBuilder

ATTACHMENT 6

Sally Carttar

From: Tina Huerta <Tina_Huerta@eogresources.com>
Sent: October 20, 2022 10:13 AM
To: ocd.enviro@emnrd.nm.gov; Alan & Cheryl ; Austin Weyant
Cc: Andrea Felix; Katie Jamison; Michael Yemm; Terrence Gant
Subject: Roy AET 5 (nAPP2228654422) Sampling Notification

Good Morning,

EOG Resources, Inc. respectfully submits notification of sampling to be conducted at the below location.

Roy AET 5
P-8-19S-25E
Eddy County, NM
nAPP2228654422

Sampling will begin at 8:00 a.m. on Wednesday, October 26, 2022 and will continue through Friday, October 28, 2022.

Thank you,

Tina Huerta
Regulatory Specialist
Direct: 575.748.4168
Cell: 575.703.3121
Email: tina_huerta@eogresources.com

eog resources
Artesia Division

Sally Carttar

From: Chase Settle <Chase_Settle@eogresources.com>
Sent: October 31, 2022 1:35 PM
To: Michael Moffitt
Cc: Sally Carttar
Subject: FW: Roy AET 5 (nAPP228654422) Sampling Notification

From: Tina Huerta <Tina_Huerta@eogresources.com>
Sent: Monday, October 31, 2022 1:32 PM
To: ocd.enviro@emnrd.nm.gov; Alan & Cheryl <ahowell@pvtn.net>; Austin Weyant <austin@atkinseng.com>
Cc: Andrea Felix <Andrea_Felix@eogresources.com>; Katie Jamison <Katie_Jamison@eogresources.com>; Michael Yemm <Michael_Yemm@eogresources.com>; Terrence Gant <Terry_Gant@eogresources.com>
Subject: Roy AET 5 (nAPP228654422) Sampling Notification

Good afternoon,

EOG Resources, Inc. respectfully submits notification of sampling to be conducted at the below location.

Roy AET 5
P-8-19S-25E
Eddy County, NM
nAPP2228654422

Sampling will begin at 8:00 a.m. on Thursday, November 3, 2022 and will continue through Friday, November 4, 2022.

Thank you,

Tina Huerta
Regulatory Specialist
Direct: 575.748.4168
Cell: 575.703.3121
Email: tina_huerta@eogresources.com

eog resources
Artesia Division

ATTACHMENT 7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

August 19, 2022

Monica Peppin

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX:

RE: Roy AET 005 OrderNo.: 2208695

Dear Monica Peppin:

Hall Environmental Analysis Laboratory received 30 sample(s) on 8/11/2022 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 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-01 0'
Project: Roy AET 005
Collection Date: 8/9/2022 9:45:00 AM
Lab ID: 2208695-001 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	8/15/2022 6:29:54 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/15/2022 6:29:54 PM
Surr: DNOP	94.1	21-129		%Rec	1	8/15/2022 6:29:54 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	8/16/2022 10:21:38 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	8/15/2022 7:42:15 PM
Toluene	ND	0.048		mg/Kg	1	8/15/2022 7:42:15 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/15/2022 7:42:15 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/15/2022 7:42:15 PM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	8/15/2022 7:42:15 PM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	8/15/2022 7:42:15 PM
Surr: Dibromofluoromethane	127	70-130		%Rec	1	8/15/2022 7:42:15 PM
Surr: Toluene-d8	99.3	70-130		%Rec	1	8/15/2022 7:42:15 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/15/2022 7:42:15 PM
Surr: BFB	120	70-130		%Rec	1	8/15/2022 7:42:15 PM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-01 2'
Project: Roy AET 005
Collection Date: 8/9/2022 12:10:00 PM
Lab ID: 2208695-002 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/15/2022 6:54:30 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/15/2022 6:54:30 PM
Surr: DNOP	100	21-129		%Rec	1	8/15/2022 6:54:30 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	730	60		mg/Kg	20	8/16/2022 10:33:59 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	8/15/2022 9:08:21 PM
Toluene	ND	0.050		mg/Kg	1	8/15/2022 9:08:21 PM
Ethylbenzene	ND	0.050		mg/Kg	1	8/15/2022 9:08:21 PM
Xylenes, Total	ND	0.10		mg/Kg	1	8/15/2022 9:08:21 PM
Surr: 1,2-Dichloroethane-d4	115	70-130		%Rec	1	8/15/2022 9:08:21 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	8/15/2022 9:08:21 PM
Surr: Dibromofluoromethane	126	70-130		%Rec	1	8/15/2022 9:08:21 PM
Surr: Toluene-d8	100	70-130		%Rec	1	8/15/2022 9:08:21 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/15/2022 9:08:21 PM
Surr: BFB	122	70-130		%Rec	1	8/15/2022 9:08:21 PM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-01 4'
Project: Roy AET 005
Collection Date: 8/9/2022 12:15:00 PM
Lab ID: 2208695-003 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	8/15/2022 7:19:07 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/15/2022 7:19:07 PM
Surr: DNOP	105	21-129		%Rec	1	8/15/2022 7:19:07 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	610	60		mg/Kg	20	8/16/2022 10:46:20 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	8/15/2022 9:36:59 PM
Toluene	ND	0.049		mg/Kg	1	8/15/2022 9:36:59 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/15/2022 9:36:59 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/15/2022 9:36:59 PM
Surr: 1,2-Dichloroethane-d4	115	70-130		%Rec	1	8/15/2022 9:36:59 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	8/15/2022 9:36:59 PM
Surr: Dibromofluoromethane	128	70-130		%Rec	1	8/15/2022 9:36:59 PM
Surr: Toluene-d8	101	70-130		%Rec	1	8/15/2022 9:36:59 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/15/2022 9:36:59 PM
Surr: BFB	119	70-130		%Rec	1	8/15/2022 9:36:59 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-02 0'
Project: Roy AET 005
Collection Date: 8/9/2022 9:50:00 AM
Lab ID: 2208695-004 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	16	14		mg/Kg	1	8/15/2022 7:43:36 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/15/2022 7:43:36 PM
Surr: DNOP	91.5	21-129		%Rec	1	8/15/2022 7:43:36 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	59		mg/Kg	20	8/16/2022 10:58:39 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	8/15/2022 10:05:35 PM
Toluene	ND	0.047		mg/Kg	1	8/15/2022 10:05:35 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/15/2022 10:05:35 PM
Xylenes, Total	ND	0.095		mg/Kg	1	8/15/2022 10:05:35 PM
Surr: 1,2-Dichloroethane-d4	114	70-130		%Rec	1	8/15/2022 10:05:35 PM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	8/15/2022 10:05:35 PM
Surr: Dibromofluoromethane	126	70-130		%Rec	1	8/15/2022 10:05:35 PM
Surr: Toluene-d8	102	70-130		%Rec	1	8/15/2022 10:05:35 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/15/2022 10:05:35 PM
Surr: BFB	120	70-130		%Rec	1	8/15/2022 10:05:35 PM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-02 2'
Project: Roy AET 005
Collection Date: 8/9/2022 11:35:00 AM
Lab ID: 2208695-005 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/15/2022 8:08:12 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/15/2022 8:08:12 PM
Surr: DNOP	72.0	21-129		%Rec	1	8/15/2022 8:08:12 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	8/16/2022 11:11:00 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	8/15/2022 10:34:12 PM
Toluene	ND	0.049		mg/Kg	1	8/15/2022 10:34:12 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/15/2022 10:34:12 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/15/2022 10:34:12 PM
Surr: 1,2-Dichloroethane-d4	112	70-130		%Rec	1	8/15/2022 10:34:12 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	8/15/2022 10:34:12 PM
Surr: Dibromofluoromethane	129	70-130		%Rec	1	8/15/2022 10:34:12 PM
Surr: Toluene-d8	100	70-130		%Rec	1	8/15/2022 10:34:12 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/15/2022 10:34:12 PM
Surr: BFB	119	70-130		%Rec	1	8/15/2022 10:34:12 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-02 4'
Project: Roy AET 005
Collection Date: 8/9/2022 11:40:00 AM
Lab ID: 2208695-006 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	8/15/2022 8:32:35 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/15/2022 8:32:35 PM
Surr: DNOP	78.1	21-129		%Rec	1	8/15/2022 8:32:35 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	380	60		mg/Kg	20	8/17/2022 12:25:46 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.023		mg/Kg	1	8/15/2022 11:02:52 PM
Toluene	ND	0.046		mg/Kg	1	8/15/2022 11:02:52 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/15/2022 11:02:52 PM
Xylenes, Total	ND	0.091		mg/Kg	1	8/15/2022 11:02:52 PM
Surr: 1,2-Dichloroethane-d4	113	70-130		%Rec	1	8/15/2022 11:02:52 PM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	8/15/2022 11:02:52 PM
Surr: Dibromofluoromethane	126	70-130		%Rec	1	8/15/2022 11:02:52 PM
Surr: Toluene-d8	100	70-130		%Rec	1	8/15/2022 11:02:52 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/15/2022 11:02:52 PM
Surr: BFB	118	70-130		%Rec	1	8/15/2022 11:02:52 PM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-03 0'
Project: Roy AET 005
Collection Date: 8/9/2022 9:55:00 AM
Lab ID: 2208695-007 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/15/2022 8:57:10 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/15/2022 8:57:10 PM
Surr: DNOP	70.6	21-129		%Rec	1	8/15/2022 8:57:10 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	8/17/2022 1:03:00 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	8/15/2022 11:31:33 PM
Toluene	ND	0.049		mg/Kg	1	8/15/2022 11:31:33 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/15/2022 11:31:33 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/15/2022 11:31:33 PM
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	1	8/15/2022 11:31:33 PM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	8/15/2022 11:31:33 PM
Surr: Dibromofluoromethane	127	70-130		%Rec	1	8/15/2022 11:31:33 PM
Surr: Toluene-d8	103	70-130		%Rec	1	8/15/2022 11:31:33 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/15/2022 11:31:33 PM
Surr: BFB	123	70-130		%Rec	1	8/15/2022 11:31:33 PM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-03 2'
Project: Roy AET 005 **Collection Date:** 8/9/2022 11:55:00 AM
Lab ID: 2208695-008 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/15/2022 9:21:31 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/15/2022 9:21:31 PM
Surr: DNOP	65.5	21-129		%Rec	1	8/15/2022 9:21:31 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	1300	60		mg/Kg	20	8/17/2022 1:15:24 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	8/16/2022 12:00:08 AM
Toluene	ND	0.049		mg/Kg	1	8/16/2022 12:00:08 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/16/2022 12:00:08 AM
Xylenes, Total	ND	0.098		mg/Kg	1	8/16/2022 12:00:08 AM
Surr: 1,2-Dichloroethane-d4	115	70-130		%Rec	1	8/16/2022 12:00:08 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	8/16/2022 12:00:08 AM
Surr: Dibromofluoromethane	123	70-130		%Rec	1	8/16/2022 12:00:08 AM
Surr: Toluene-d8	103	70-130		%Rec	1	8/16/2022 12:00:08 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/16/2022 12:00:08 AM
Surr: BFB	122	70-130		%Rec	1	8/16/2022 12:00:08 AM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-03 4'
Project: Roy AET 005 **Collection Date:** 8/9/2022 12:00:00 PM
Lab ID: 2208695-009 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/15/2022 9:46:10 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/15/2022 9:46:10 PM
Surr: DNOP	68.0	21-129		%Rec	1	8/15/2022 9:46:10 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	1100	60		mg/Kg	20	8/17/2022 2:41:09 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	8/16/2022 12:28:49 AM
Toluene	ND	0.048		mg/Kg	1	8/16/2022 12:28:49 AM
Ethylbenzene	ND	0.048		mg/Kg	1	8/16/2022 12:28:49 AM
Xylenes, Total	ND	0.097		mg/Kg	1	8/16/2022 12:28:49 AM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	8/16/2022 12:28:49 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	8/16/2022 12:28:49 AM
Surr: Dibromofluoromethane	123	70-130		%Rec	1	8/16/2022 12:28:49 AM
Surr: Toluene-d8	103	70-130		%Rec	1	8/16/2022 12:28:49 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/16/2022 12:28:49 AM
Surr: BFB	118	70-130		%Rec	1	8/16/2022 12:28:49 AM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-04 0'
Project: Roy AET 005
Collection Date: 8/9/2022 10:00:00 AM
Lab ID: 2208695-010 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/15/2022 10:10:40 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/15/2022 10:10:40 PM
Surr: DNOP	77.5	21-129		%Rec	1	8/15/2022 10:10:40 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	8/17/2022 2:53:34 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.023		mg/Kg	1	8/16/2022 12:57:29 AM
Toluene	ND	0.046		mg/Kg	1	8/16/2022 12:57:29 AM
Ethylbenzene	ND	0.046		mg/Kg	1	8/16/2022 12:57:29 AM
Xylenes, Total	ND	0.092		mg/Kg	1	8/16/2022 12:57:29 AM
Surr: 1,2-Dichloroethane-d4	113	70-130		%Rec	1	8/16/2022 12:57:29 AM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	8/16/2022 12:57:29 AM
Surr: Dibromofluoromethane	128	70-130		%Rec	1	8/16/2022 12:57:29 AM
Surr: Toluene-d8	101	70-130		%Rec	1	8/16/2022 12:57:29 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/16/2022 12:57:29 AM
Surr: BFB	116	70-130		%Rec	1	8/16/2022 12:57:29 AM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-04 2'
Project: Roy AET 005 **Collection Date:** 8/9/2022 10:30:00 AM
Lab ID: 2208695-011 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/15/2022 10:35:16 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/15/2022 10:35:16 PM
Surr: DNOP	76.3	21-129		%Rec	1	8/15/2022 10:35:16 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	690	60		mg/Kg	20	8/17/2022 3:05:58 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	8/16/2022 3:49:23 AM
Toluene	ND	0.047		mg/Kg	1	8/16/2022 3:49:23 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/16/2022 3:49:23 AM
Xylenes, Total	ND	0.094		mg/Kg	1	8/16/2022 3:49:23 AM
Surr: 1,2-Dichloroethane-d4	112	70-130		%Rec	1	8/16/2022 3:49:23 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	8/16/2022 3:49:23 AM
Surr: Dibromofluoromethane	123	70-130		%Rec	1	8/16/2022 3:49:23 AM
Surr: Toluene-d8	99.4	70-130		%Rec	1	8/16/2022 3:49:23 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/16/2022 3:49:23 AM
Surr: BFB	115	70-130		%Rec	1	8/16/2022 3:49:23 AM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-04 4'
Project: Roy AET 005
Collection Date: 8/9/2022 10:35:00 AM
Lab ID: 2208695-012 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/15/2022 10:59:56 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/15/2022 10:59:56 PM
Surr: DNOP	74.8	21-129		%Rec	1	8/15/2022 10:59:56 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	160	60		mg/Kg	20	8/17/2022 3:18:22 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	8/16/2022 4:18:01 AM
Toluene	ND	0.049		mg/Kg	1	8/16/2022 4:18:01 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/16/2022 4:18:01 AM
Xylenes, Total	ND	0.099		mg/Kg	1	8/16/2022 4:18:01 AM
Surr: 1,2-Dichloroethane-d4	111	70-130		%Rec	1	8/16/2022 4:18:01 AM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	8/16/2022 4:18:01 AM
Surr: Dibromofluoromethane	122	70-130		%Rec	1	8/16/2022 4:18:01 AM
Surr: Toluene-d8	101	70-130		%Rec	1	8/16/2022 4:18:01 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/16/2022 4:18:01 AM
Surr: BFB	119	70-130		%Rec	1	8/16/2022 4:18:01 AM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-05 0'
Project: Roy AET 005
Collection Date: 8/9/2022 11:20:00 AM
Lab ID: 2208695-013 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	8/15/2022 11:24:32 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/15/2022 11:24:32 PM
Surr: DNOP	71.8	21-129		%Rec	1	8/15/2022 11:24:32 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	8/17/2022 3:55:37 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.023		mg/Kg	1	8/16/2022 4:46:34 AM
Toluene	ND	0.047		mg/Kg	1	8/16/2022 4:46:34 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/16/2022 4:46:34 AM
Xylenes, Total	ND	0.093		mg/Kg	1	8/16/2022 4:46:34 AM
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	1	8/16/2022 4:46:34 AM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	8/16/2022 4:46:34 AM
Surr: Dibromofluoromethane	119	70-130		%Rec	1	8/16/2022 4:46:34 AM
Surr: Toluene-d8	100	70-130		%Rec	1	8/16/2022 4:46:34 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/16/2022 4:46:34 AM
Surr: BFB	119	70-130		%Rec	1	8/16/2022 4:46:34 AM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-05 2'
Project: Roy AET 005
Collection Date: 8/9/2022 1:10:00 PM
Lab ID: 2208695-014 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/15/2022 11:49:08 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/15/2022 11:49:08 PM
Surr: DNOP	76.7	21-129		%Rec	1	8/15/2022 11:49:08 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	990	60		mg/Kg	20	8/17/2022 4:08:01 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	8/16/2022 5:15:09 AM
Toluene	ND	0.049		mg/Kg	1	8/16/2022 5:15:09 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/16/2022 5:15:09 AM
Xylenes, Total	ND	0.098		mg/Kg	1	8/16/2022 5:15:09 AM
Surr: 1,2-Dichloroethane-d4	112	70-130		%Rec	1	8/16/2022 5:15:09 AM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	8/16/2022 5:15:09 AM
Surr: Dibromofluoromethane	124	70-130		%Rec	1	8/16/2022 5:15:09 AM
Surr: Toluene-d8	101	70-130		%Rec	1	8/16/2022 5:15:09 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/16/2022 5:15:09 AM
Surr: BFB	114	70-130		%Rec	1	8/16/2022 5:15:09 AM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-05 4'
Project: Roy AET 005
Collection Date: 8/9/2022 1:15:00 PM
Lab ID: 2208695-015 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/16/2022 12:13:45 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/16/2022 12:13:45 AM
Surr: DNOP	76.0	21-129		%Rec	1	8/16/2022 12:13:45 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	190	60		mg/Kg	20	8/17/2022 5:10:04 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	8/16/2022 5:43:50 AM
Toluene	ND	0.050		mg/Kg	1	8/16/2022 5:43:50 AM
Ethylbenzene	ND	0.050		mg/Kg	1	8/16/2022 5:43:50 AM
Xylenes, Total	ND	0.099		mg/Kg	1	8/16/2022 5:43:50 AM
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	1	8/16/2022 5:43:50 AM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	8/16/2022 5:43:50 AM
Surr: Dibromofluoromethane	122	70-130		%Rec	1	8/16/2022 5:43:50 AM
Surr: Toluene-d8	102	70-130		%Rec	1	8/16/2022 5:43:50 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/16/2022 5:43:50 AM
Surr: BFB	121	70-130		%Rec	1	8/16/2022 5:43:50 AM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-06 0'
Project: Roy AET 005
Collection Date: 8/9/2022 1:40:00 PM
Lab ID: 2208695-016 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	24	14		mg/Kg	1	8/16/2022 12:38:28 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/16/2022 12:38:28 AM
Surr: DNOP	87.1	21-129		%Rec	1	8/16/2022 12:38:28 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	8/17/2022 2:10:22 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	8/16/2022 6:12:25 AM
Toluene	ND	0.048		mg/Kg	1	8/16/2022 6:12:25 AM
Ethylbenzene	ND	0.048		mg/Kg	1	8/16/2022 6:12:25 AM
Xylenes, Total	ND	0.097		mg/Kg	1	8/16/2022 6:12:25 AM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	8/16/2022 6:12:25 AM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	8/16/2022 6:12:25 AM
Surr: Dibromofluoromethane	124	70-130		%Rec	1	8/16/2022 6:12:25 AM
Surr: Toluene-d8	103	70-130		%Rec	1	8/16/2022 6:12:25 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/16/2022 6:12:25 AM
Surr: BFB	120	70-130		%Rec	1	8/16/2022 6:12:25 AM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-06 2'
Project: Roy AET 005
Collection Date: 8/9/2022 1:45:00 PM
Lab ID: 2208695-017 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/16/2022 1:03:04 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/16/2022 1:03:04 AM
Surr: DNOP	79.9	21-129		%Rec	1	8/16/2022 1:03:04 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	1200	60		mg/Kg	20	8/17/2022 2:22:42 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	8/16/2022 6:40:56 AM
Toluene	ND	0.049		mg/Kg	1	8/16/2022 6:40:56 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/16/2022 6:40:56 AM
Xylenes, Total	ND	0.097		mg/Kg	1	8/16/2022 6:40:56 AM
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	8/16/2022 6:40:56 AM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	8/16/2022 6:40:56 AM
Surr: Dibromofluoromethane	118	70-130		%Rec	1	8/16/2022 6:40:56 AM
Surr: Toluene-d8	98.9	70-130		%Rec	1	8/16/2022 6:40:56 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/16/2022 6:40:56 AM
Surr: BFB	119	70-130		%Rec	1	8/16/2022 6:40:56 AM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-06 4'
Project: Roy AET 005
Collection Date: 8/9/2022 1:50:00 PM
Lab ID: 2208695-018 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/16/2022 1:27:33 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/16/2022 1:27:33 AM
Surr: DNOP	80.8	21-129		%Rec	1	8/16/2022 1:27:33 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	470	60		mg/Kg	20	8/17/2022 2:59:44 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	8/16/2022 7:09:24 AM
Toluene	ND	0.049		mg/Kg	1	8/16/2022 7:09:24 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/16/2022 7:09:24 AM
Xylenes, Total	ND	0.099		mg/Kg	1	8/16/2022 7:09:24 AM
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	8/16/2022 7:09:24 AM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	8/16/2022 7:09:24 AM
Surr: Dibromofluoromethane	118	70-130		%Rec	1	8/16/2022 7:09:24 AM
Surr: Toluene-d8	101	70-130		%Rec	1	8/16/2022 7:09:24 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/16/2022 7:09:24 AM
Surr: BFB	120	70-130		%Rec	1	8/16/2022 7:09:24 AM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-07 0'
Project: Roy AET 005 **Collection Date:** 8/9/2022 2:05:00 PM
Lab ID: 2208695-019 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/16/2022 10:37:02 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/16/2022 10:37:02 PM
Surr: DNOP	57.7	21-129		%Rec	1	8/16/2022 10:37:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/15/2022 8:42:29 PM
Surr: BFB	85.1	37.7-212		%Rec	1	8/15/2022 8:42:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	8/15/2022 8:42:29 PM
Toluene	ND	0.050		mg/Kg	1	8/15/2022 8:42:29 PM
Ethylbenzene	ND	0.050		mg/Kg	1	8/15/2022 8:42:29 PM
Xylenes, Total	ND	0.10		mg/Kg	1	8/15/2022 8:42:29 PM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	8/15/2022 8:42:29 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	8/17/2022 3:12:04 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-07 2'
Project: Roy AET 005 **Collection Date:** 8/9/2022 2:10:00 PM
Lab ID: 2208695-020 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/16/2022 10:52:46 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/16/2022 10:52:46 PM
Surr: DNOP	70.7	21-129		%Rec	1	8/16/2022 10:52:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/15/2022 9:53:32 PM
Surr: BFB	88.7	37.7-212		%Rec	1	8/15/2022 9:53:32 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	8/15/2022 9:53:32 PM
Toluene	ND	0.049		mg/Kg	1	8/15/2022 9:53:32 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/15/2022 9:53:32 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/15/2022 9:53:32 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	8/15/2022 9:53:32 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	8/17/2022 3:24:25 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-07 4'
Project: Roy AET 005 **Collection Date:** 8/9/2022 2:15:00 PM
Lab ID: 2208695-021 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/16/2022 11:08:32 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/16/2022 11:08:32 PM
Surr: DNOP	81.8	21-129		%Rec	1	8/16/2022 11:08:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/15/2022 11:04:21 PM
Surr: BFB	86.3	37.7-212		%Rec	1	8/15/2022 11:04:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	8/15/2022 11:04:21 PM
Toluene	ND	0.050		mg/Kg	1	8/15/2022 11:04:21 PM
Ethylbenzene	ND	0.050		mg/Kg	1	8/15/2022 11:04:21 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/15/2022 11:04:21 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/15/2022 11:04:21 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	310	59		mg/Kg	20	8/17/2022 3:36:47 PM

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	Estimated value
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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-08 0'
Project: Roy AET 005 **Collection Date:** 8/9/2022 2:35:00 PM
Lab ID: 2208695-022 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/16/2022 11:24:27 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/16/2022 11:24:27 PM
Surr: DNOP	71.1	21-129		%Rec	1	8/16/2022 11:24:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/15/2022 11:28:07 PM
Surr: BFB	84.9	37.7-212		%Rec	1	8/15/2022 11:28:07 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	8/15/2022 11:28:07 PM
Toluene	ND	0.049		mg/Kg	1	8/15/2022 11:28:07 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/15/2022 11:28:07 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/15/2022 11:28:07 PM
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	1	8/15/2022 11:28:07 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	8/17/2022 3:49:08 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-08 2'
Project: Roy AET 005 **Collection Date:** 8/9/2022 2:40:00 PM
Lab ID: 2208695-023 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/16/2022 11:39:59 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/16/2022 11:39:59 PM
Surr: DNOP	85.5	21-129		%Rec	1	8/16/2022 11:39:59 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/15/2022 11:51:42 PM
Surr: BFB	88.2	37.7-212		%Rec	1	8/15/2022 11:51:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	8/15/2022 11:51:42 PM
Toluene	ND	0.050		mg/Kg	1	8/15/2022 11:51:42 PM
Ethylbenzene	ND	0.050		mg/Kg	1	8/15/2022 11:51:42 PM
Xylenes, Total	ND	0.10		mg/Kg	1	8/15/2022 11:51:42 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/15/2022 11:51:42 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	720	60		mg/Kg	20	8/17/2022 4:01:28 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-08 4'
Project: Roy AET 005 **Collection Date:** 8/9/2022 2:45:00 PM
Lab ID: 2208695-024 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/16/2022 11:55:48 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/16/2022 11:55:48 PM
Surr: DNOP	72.8	21-129		%Rec	1	8/16/2022 11:55:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/16/2022 12:15:16 AM
Surr: BFB	85.1	37.7-212		%Rec	1	8/16/2022 12:15:16 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	8/16/2022 12:15:16 AM
Toluene	ND	0.049		mg/Kg	1	8/16/2022 12:15:16 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/16/2022 12:15:16 AM
Xylenes, Total	ND	0.098		mg/Kg	1	8/16/2022 12:15:16 AM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	8/16/2022 12:15:16 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	1200	61		mg/Kg	20	8/17/2022 4:13:49 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-09 0'
Project: Roy AET 005
Collection Date: 8/9/2022 3:05:00 PM
Lab ID: 2208695-025 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/17/2022 12:11:23 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/17/2022 12:11:23 AM
Surr: DNOP	66.4	21-129		%Rec	1	8/17/2022 12:11:23 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/16/2022 12:38:49 AM
Surr: BFB	85.4	37.7-212		%Rec	1	8/16/2022 12:38:49 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	8/16/2022 12:38:49 AM
Toluene	ND	0.050		mg/Kg	1	8/16/2022 12:38:49 AM
Ethylbenzene	ND	0.050		mg/Kg	1	8/16/2022 12:38:49 AM
Xylenes, Total	ND	0.10		mg/Kg	1	8/16/2022 12:38:49 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	8/16/2022 12:38:49 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	8/17/2022 4:50:50 PM

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	Estimated value
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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-09 2'
Project: Roy AET 005
Collection Date: 8/9/2022 3:10:00 PM
Lab ID: 2208695-026 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/17/2022 12:27:34 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/17/2022 12:27:34 AM
Surr: DNOP	73.3	21-129		%Rec	1	8/17/2022 12:27:34 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/16/2022 1:02:29 AM
Surr: BFB	84.2	37.7-212		%Rec	1	8/16/2022 1:02:29 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	8/16/2022 1:02:29 AM
Toluene	ND	0.050		mg/Kg	1	8/16/2022 1:02:29 AM
Ethylbenzene	ND	0.050		mg/Kg	1	8/16/2022 1:02:29 AM
Xylenes, Total	ND	0.099		mg/Kg	1	8/16/2022 1:02:29 AM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	8/16/2022 1:02:29 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	560	60		mg/Kg	20	8/17/2022 5:52:34 PM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-09 4'
Project: Roy AET 005
Collection Date: 8/9/2022 3:20:00 PM
Lab ID: 2208695-027 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/17/2022 12:42:58 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/17/2022 12:42:58 AM
Surr: DNOP	67.8	21-129		%Rec	1	8/17/2022 12:42:58 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/16/2022 1:26:09 AM
Surr: BFB	85.4	37.7-212		%Rec	1	8/16/2022 1:26:09 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	8/16/2022 1:26:09 AM
Toluene	ND	0.050		mg/Kg	1	8/16/2022 1:26:09 AM
Ethylbenzene	ND	0.050		mg/Kg	1	8/16/2022 1:26:09 AM
Xylenes, Total	ND	0.10		mg/Kg	1	8/16/2022 1:26:09 AM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	8/16/2022 1:26:09 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	1300	60		mg/Kg	20	8/17/2022 6:04:55 PM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-10 0'
Project: Roy AET 005
Collection Date: 8/9/2022 3:35:00 PM
Lab ID: 2208695-028 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/17/2022 12:58:42 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/17/2022 12:58:42 AM
Surr: DNOP	62.8	21-129		%Rec	1	8/17/2022 12:58:42 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/16/2022 1:49:41 AM
Surr: BFB	86.4	37.7-212		%Rec	1	8/16/2022 1:49:41 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	8/16/2022 1:49:41 AM
Toluene	ND	0.049		mg/Kg	1	8/16/2022 1:49:41 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/16/2022 1:49:41 AM
Xylenes, Total	ND	0.097		mg/Kg	1	8/16/2022 1:49:41 AM
Surr: 4-Bromofluorobenzene	99.1	70-130		%Rec	1	8/16/2022 1:49:41 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	8/17/2022 6:17:16 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-10 2'
Project: Roy AET 005 **Collection Date:** 8/9/2022 3:40:00 PM
Lab ID: 2208695-029 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/17/2022 1:14:34 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/17/2022 1:14:34 AM
Surr: DNOP	73.4	21-129		%Rec	1	8/17/2022 1:14:34 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/16/2022 2:36:44 AM
Surr: BFB	85.2	37.7-212		%Rec	1	8/16/2022 2:36:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	8/16/2022 2:36:44 AM
Toluene	ND	0.049		mg/Kg	1	8/16/2022 2:36:44 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/16/2022 2:36:44 AM
Xylenes, Total	ND	0.099		mg/Kg	1	8/16/2022 2:36:44 AM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	8/16/2022 2:36:44 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	8/17/2022 6:29:36 PM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2208695**
Date Reported: **8/19/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-10 4'
Project: Roy AET 005 **Collection Date:** 8/9/2022 3:45:00 PM
Lab ID: 2208695-030 **Matrix:** SOIL **Received Date:** 8/11/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/17/2022 1:30:31 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/17/2022 1:30:31 AM
Surr: DNOP	74.7	21-129		%Rec	1	8/17/2022 1:30:31 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/16/2022 3:00:18 AM
Surr: BFB	87.5	37.7-212		%Rec	1	8/16/2022 3:00:18 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	8/16/2022 3:00:18 AM
Toluene	ND	0.050		mg/Kg	1	8/16/2022 3:00:18 AM
Ethylbenzene	ND	0.050		mg/Kg	1	8/16/2022 3:00:18 AM
Xylenes, Total	ND	0.10		mg/Kg	1	8/16/2022 3:00:18 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	8/16/2022 3:00:18 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	290	60		mg/Kg	20	8/17/2022 6:41:57 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2208695**

19-Aug-22

Client: Vertex Resources Services, Inc.

Project: Roy AET 005

Sample ID: **MB-69543**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **69543**	RunNo: **90330**								
Prep Date: **8/16/2022**	Analysis Date: **8/16/2022**	SeqNo: **3222397**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-69543**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **69543**	RunNo: **90330**								
Prep Date: **8/16/2022**	Analysis Date: **8/16/2022**	SeqNo: **3222398**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.1	90	110			

Sample ID: **MB-69570**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **69570**	RunNo: **90338**								
Prep Date: **8/17/2022**	Analysis Date: **8/17/2022**	SeqNo: **3223889**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-69570**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **69570**	RunNo: **90338**								
Prep Date: **8/17/2022**	Analysis Date: **8/17/2022**	SeqNo: **3223890**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.7	90	110			

Sample ID: **MB-69557**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **69557**	RunNo: **90334**								
Prep Date: **8/17/2022**	Analysis Date: **8/17/2022**	SeqNo: **3224202**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-69557**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **69557**	RunNo: **90334**								
Prep Date: **8/17/2022**	Analysis Date: **8/17/2022**	SeqNo: **3224203**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.4	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2208695**

19-Aug-22

Client: Vertex Resources Services, Inc.

Project: Roy AET 005

Sample ID: **2208695-007AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BH22-03 0'**	Batch ID: **69557**	RunNo: **90334**
Prep Date: **8/17/2022**	Analysis Date: **8/17/2022**	SeqNo: **3224229** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	60	30.00	0	0	57.5	166	0	20	S

Sample ID: **MB-69576**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **69576**	RunNo: **90334**
Prep Date: **8/17/2022**	Analysis Date: **8/17/2022**	SeqNo: **3224234** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-69576**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **69576**	RunNo: **90334**
Prep Date: **8/17/2022**	Analysis Date: **8/17/2022**	SeqNo: **3224235** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.3	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2208695**

19-Aug-22

Client: Vertex Resources Services, Inc.

Project: Roy AET 005

Sample ID: **LCS-69472** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **69472** RunNo: **90270**
Prep Date: **8/12/2022** Analysis Date: **8/15/2022** SeqNo: **3220670** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	15	50.00	0	90.7	64.4	127			
Surr: DNOP	4.3		5.000		86.4	21	129			

Sample ID: **MB-69472** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **69472** RunNo: **90270**
Prep Date: **8/12/2022** Analysis Date: **8/15/2022** SeqNo: **3220673** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		109	21	129			

Sample ID: **MB-69473** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **69473** RunNo: **90276**
Prep Date: **8/12/2022** Analysis Date: **8/16/2022** SeqNo: **3221171** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.3		10.00		83.1	21	129			

Sample ID: **LCS-69473** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **69473** RunNo: **90276**
Prep Date: **8/12/2022** Analysis Date: **8/16/2022** SeqNo: **3221173** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.3		5.000		86.6	21	129			

Sample ID: **MB-69512** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **69512** RunNo: **90276**
Prep Date: **8/15/2022** Analysis Date: **8/16/2022** SeqNo: **3222536** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.7		10.00		86.8	21	129			

Sample ID: **LCS-69512** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **69512** RunNo: **90276**
Prep Date: **8/15/2022** Analysis Date: **8/16/2022** SeqNo: **3222537** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2208695**

19-Aug-22

Client: Vertex Resources Services, Inc.

Project: Roy AET 005

Sample ID: **LCS-69512**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **69512**	RunNo: **90276**
Prep Date: **8/15/2022**	Analysis Date: **8/16/2022**	SeqNo: **3222537** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	15	50.00	0	85.9	64.4	127			
Surr: DNOP	4.0		5.000		80.3	21	129			

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2208695**

19-Aug-22

Client: Vertex Resources Services, Inc.

Project: Roy AET 005

Sample ID: **mb-69442**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **69442**	RunNo: **90279**
Prep Date: **8/11/2022**	Analysis Date: **8/16/2022**	SeqNo: **3220352** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	830		1000		83.3	37.7	212			

Sample ID: **lcs-69442**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **69442**	RunNo: **90279**
Prep Date: **8/11/2022**	Analysis Date: **8/15/2022**	SeqNo: **3220353** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	91.1	72.3	137			
Surr: BFB	1800		1000		176	37.7	212			

Sample ID: **2208695-019ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH22-07 0'**	Batch ID: **69442**	RunNo: **90279**
Prep Date: **8/11/2022**	Analysis Date: **8/15/2022**	SeqNo: **3220355** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.9	24.49	0	88.5	70	130			
Surr: BFB	1700		979.4		176	37.7	212			

Sample ID: **2208695-019amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH22-07 0'**	Batch ID: **69442**	RunNo: **90279**
Prep Date: **8/11/2022**	Analysis Date: **8/15/2022**	SeqNo: **3220356** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	24.90	0	89.6	70	130	2.98	20	
Surr: BFB	1700		996.0		172	37.7	212	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2208695**

19-Aug-22

Client: Vertex Resources Services, Inc.

Project: Roy AET 005

Sample ID: **mb-69442**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **69442**	RunNo: **90279**
Prep Date: **8/11/2022**	Analysis Date: **8/16/2022**	SeqNo: **3220382** Units: **mg/Kg**

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	1.0		1.000		102	70	130			

Sample ID: **LCS-69442**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **69442**	RunNo: **90279**
Prep Date: **8/11/2022**	Analysis Date: **8/15/2022**	SeqNo: **3220383** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	1.000	0	99.4	80	120			
Toluene	1.0	0.050	1.000	0	102	80	120			
Ethylbenzene	1.0	0.050	1.000	0	103	80	120			
Xylenes, Total	3.1	0.10	3.000	0	103	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	70	130			

Sample ID: **2208695-020ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH22-07 2'**	Batch ID: **69442**	RunNo: **90279**
Prep Date: **8/11/2022**	Analysis Date: **8/15/2022**	SeqNo: **3220386** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	0.9980	0	91.8	68.8	120			
Toluene	0.96	0.050	0.9980	0	96.3	73.6	124			
Ethylbenzene	0.97	0.050	0.9980	0	97.1	72.7	129			
Xylenes, Total	2.9	0.10	2.994	0.01885	95.9	75.7	126			
Surr: 4-Bromofluorobenzene	1.0		0.9980		103	70	130			

Sample ID: **2208695-020amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH22-07 2'**	Batch ID: **69442**	RunNo: **90279**
Prep Date: **8/11/2022**	Analysis Date: **8/15/2022**	SeqNo: **3220387** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.025	0.9901	0	88.7	68.8	120	4.28	20	
Toluene	0.91	0.050	0.9901	0	92.3	73.6	124	5.07	20	
Ethylbenzene	0.92	0.050	0.9901	0	93.3	72.7	129	4.80	20	
Xylenes, Total	2.8	0.099	2.970	0.01885	92.2	75.7	126	4.68	20	
Surr: 4-Bromofluorobenzene	1.0		0.9901		104	70	130	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2208695**

19-Aug-22

Client: Vertex Resources Services, Inc.

Project: Roy AET 005

Sample ID: **2208695-001ams** SampType: **MS4** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **BH22-01 0'** Batch ID: **69440** RunNo: **90312**

Prep Date: **8/11/2022** Analysis Date: **8/15/2022** SeqNo: **3221539** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.024	0.9775	0	105	75.8	123			
Toluene	0.95	0.049	0.9775	0	97.4	68.3	130			
Ethylbenzene	0.94	0.049	0.9775	0	96.0	76.6	132			
Xylenes, Total	3.0	0.098	2.933	0	102	74.7	132			
Surr: 1,2-Dichloroethane-d4	0.54		0.4888		111	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.4888		103	70	130			
Surr: Dibromofluoromethane	0.62		0.4888		127	70	130			
Surr: Toluene-d8	0.50		0.4888		101	70	130			

Sample ID: **2208695-001amsd** SampType: **MSD4** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **BH22-01 0'** Batch ID: **69440** RunNo: **90312**

Prep Date: **8/11/2022** Analysis Date: **8/15/2022** SeqNo: **3221540** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.024	0.9794	0	102	75.8	123	2.71	20	
Toluene	0.93	0.049	0.9794	0	95.3	68.3	130	2.02	20	
Ethylbenzene	0.93	0.049	0.9794	0	95.0	76.6	132	0.894	20	
Xylenes, Total	2.9	0.098	2.938	0	98.7	74.7	132	3.20	20	
Surr: 1,2-Dichloroethane-d4	0.56		0.4897		114	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.51		0.4897		105	70	130	0	0	
Surr: Dibromofluoromethane	0.64		0.4897		130	70	130	0	0	
Surr: Toluene-d8	0.50		0.4897		102	70	130	0	0	

Sample ID: **lcs-69440** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **BatchQC** Batch ID: **69440** RunNo: **90312**

Prep Date: **8/11/2022** Analysis Date: **8/15/2022** SeqNo: **3221558** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	104	80	120			
Toluene	0.92	0.050	1.000	0	91.6	80	120			
Ethylbenzene	0.90	0.050	1.000	0	89.5	80	120			
Xylenes, Total	2.8	0.10	3.000	0	94.2	80	120			
Surr: 1,2-Dichloroethane-d4	0.56		0.5000		113	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		104	70	130			
Surr: Dibromofluoromethane	0.68		0.5000		136	70	130			S
Surr: Toluene-d8	0.49		0.5000		97.6	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2208695**

19-Aug-22

Client: Vertex Resources Services, Inc.

Project: Roy AET 005

Sample ID: **mb-69440**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS**	Batch ID: **69440**	RunNo: **90312**
Prep Date: **8/11/2022**	Analysis Date: **8/15/2022**	SeqNo: **3221559** Units: **mg/Kg**

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: 1,2-Dichloroethane-d4	0.55		0.5000		111	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		102	70	130			
Surr: Dibromofluoromethane	0.64		0.5000		127	70	130			
Surr: Toluene-d8	0.49		0.5000		98.7	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2208695**

19-Aug-22

Client: Vertex Resources Services, Inc.

Project: Roy AET 005

Sample ID: **lcs-69440**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **69440**	RunNo: **90312**
Prep Date: **8/11/2022**	Analysis Date: **8/15/2022**	SeqNo: **3221536** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	85.1	70	130			
Surr: BFB	540		500.0		109	70	130			

Sample ID: **mb-69440**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **69440**	RunNo: **90312**
Prep Date: **8/11/2022**	Analysis Date: **8/15/2022**	SeqNo: **3221537** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	570		500.0		114	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: Vertex Resources Services, Inc.

Work Order Number: 2208695

RcptNo: 1

Received By: Juan Rojas 8/11/2022 7:10:00 AM

Completed By: Sean Livingston 8/11/2022 8:19:59 AM

Reviewed By: JR 8/11/22

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° C to 6.0°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. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
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: SLL 8/11/22

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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.1	Good				

Chain-of-Custody Record

Client: [redacted] Vertex
EOG (Chase Settle

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☑ Rush 5 DAY

Project Name:
Roy AGT #006 [redacted]

Project #:
22E-00716-07

Project Manager:
Marion Reppon

Sampler: L. Pullman

On Ice: ☒ Yes ☐ No

# of Coolers:

Cooler Temp(including CF): 4.1-0=4.1 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2208695	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
8-9-22	09:45	Soil	BH22-01 0'	1 Jar		001	X	X					X			
8-9-22	12:10	Soil	BH22-01 2'	1 Jar		002	X	X					X			
8-9-22	12:15	Soil	BH22-01 4'	1 Jar		003	X	X					X			
	09:50		BH22-02 0'			004										
	11:35		BH22-02 2'			005										
	11:40		BH22-02 4'			006										
	09:55		BH22-03 0'			007										
	11:55		BH22-03 2'			008										
	12:00		BH22-03 4'			009										
	10:00		BH22-04 0'			010										
	10:30		BH22-04 2'			011										
	10:35		BH22-04 4'			012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
8-10-22	0630	Jake Pullman	[redacted]		8/10/22	1130
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
8/11/22	1900	[redacted]		courier	8/11/22	710

Remarks:
Direct b.H to EOG, Chase Settle
cc. M. Reppon for Final Report

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.

Chain-of-Custody Record

Client: Vertex (EOG, Chase Settle)

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☑ Rush 5 Day

Project Name: Roy AGT #005

Project #: 22E-00716-07

Project Manager: Monica Peppin

Sampler: L. Pullman

On Ice: ☐ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.1-0=4.1 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
8-9-22	11:20	Soil	BH22-05 0'	1 Jar		013	X	X					X			
8-9-22	13:10	Soil	BH22-05 2'	1 Jar		014	X	X					X			
8-9-22	13:15	Soil	BH22-05 4'	1 Jar		015	X	X					X			
	13:40		BH22-06 0'			016										
	13:45		BH22-06 2'			017										
	13:50		BH22-06 4'			018										
	14:05		BH22-07 0'			019										
	14:10		BH22-07 2'			020										
	14:15		BH22-07 4'			021										
	14:35		BH22-08 0'			022										
	14:40		BH22-08 2'			023										
	14:45		BH22-08 4'			024										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
8-10-22	0630	L. Pullman			8/10/22	1630
8/10/22	1911			courier	8/11/22	7:10

Remarks:
Direct Bill to EOG, Chase Settle
cc: M. Peppin for final Report

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.

Chain-of-Custody Record

Client: Vertex (EOG, Chase Settle)

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☒ Rush 5 Day

Project Name: Ray AET #005

Project #: 22E-00729-07

Project Manager: Monica Peppin

Sampler: L. Fullman

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.1-0=4.1 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
9-22	15:05	Soil	BH22-09 0'	1 Jar		025	X	X					X			
9-22	15:10	Soil	BH22-09 2'	1 Jar		026	X	X					X			
9-22	15:20	Soil	BH22-09 4'	1 Jar		027	X	X					X			
	15:35		BH22-10 0'			028										
	15:40		BH22-10 2'			029										
	15:45		BH22-10 4'			030										

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
10-22	06:30	Luke Fullman	ACummings		8/10/22	0630
10/22	1100	ACummings	Courier		8/11/22	7:10

Remarks:
Direct bill to EOG, Chase Settle
cc. M. Peppin for Final Report.

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

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

September 08, 2022

Monica Peppin

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX:

RE: Roy 5 Well Pad OrderNo.: 2208H95

Dear Monica Peppin:

Hall Environmental Analysis Laboratory received 3 sample(s) on 8/31/2022 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 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2208H95**
Date Reported: **9/8/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-11 0ft
Project: Roy 5 Well Pad
Collection Date: 8/24/2022 12:30:00 PM
Lab ID: 2208H95-001 **Matrix:** SOIL
Received Date: 8/31/2022 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	9/2/2022 8:12:51 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/2/2022 8:12:51 PM
Surr: DNOP	96.8	21-129		%Rec	1	9/2/2022 8:12:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/1/2022 6:45:00 PM
Surr: BFB	93.6	37.7-212		%Rec	1	9/1/2022 6:45:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	9/1/2022 6:45:00 PM
Toluene	ND	0.048		mg/Kg	1	9/1/2022 6:45:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/1/2022 6:45:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/1/2022 6:45:00 PM
Surr: 4-Bromofluorobenzene	90.3	70-130		%Rec	1	9/1/2022 6:45:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	9/2/2022 11:28:24 PM

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	Estimated value
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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference

Analytical Report
Lab Order **2208H95**
Date Reported: **9/8/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-11 2ft
Project: Roy 5 Well Pad
Collection Date: 8/24/2022 12:40:00 PM
Lab ID: 2208H95-002 **Matrix:** SOIL
Received Date: 8/31/2022 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	9/2/2022 8:46:13 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/2/2022 8:46:13 PM
Surr: DNOP	83.2	21-129		%Rec	1	9/2/2022 8:46:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/1/2022 7:45:00 PM
Surr: BFB	98.3	37.7-212		%Rec	1	9/1/2022 7:45:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	9/1/2022 7:45:00 PM
Toluene	ND	0.048		mg/Kg	1	9/1/2022 7:45:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/1/2022 7:45:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	9/1/2022 7:45:00 PM
Surr: 4-Bromofluorobenzene	90.2	70-130		%Rec	1	9/1/2022 7:45:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	160	60		mg/Kg	20	9/4/2022 3:22:37 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2208H95**
Date Reported: **9/8/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-11 4ft
Project: Roy 5 Well Pad
Collection Date: 8/24/2022 12:50:00 PM
Lab ID: 2208H95-003 **Matrix:** SOIL
Received Date: 8/31/2022 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	9/2/2022 8:57:19 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/2/2022 8:57:19 PM
Surr: DNOP	92.7	21-129		%Rec	1	9/2/2022 8:57:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/1/2022 8:44:00 PM
Surr: BFB	92.2	37.7-212		%Rec	1	9/1/2022 8:44:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	9/1/2022 8:44:00 PM
Toluene	ND	0.048		mg/Kg	1	9/1/2022 8:44:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/1/2022 8:44:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/1/2022 8:44:00 PM
Surr: 4-Bromofluorobenzene	87.3	70-130		%Rec	1	9/1/2022 8:44:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	650	60		mg/Kg	20	9/4/2022 3:59:50 PM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2208H95**
08-Sep-22

Client: Vertex Resources Services, Inc.
Project: Roy 5 Well Pad

Sample ID: **MB-69960**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **69960**	RunNo: **90825**							
Prep Date: **9/4/2022**	Analysis Date: **9/4/2022**	SeqNo: **3247629**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-69960**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **69960**	RunNo: **90825**							
Prep Date: **9/4/2022**	Analysis Date: **9/4/2022**	SeqNo: **3247630**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.2	90	110			

Sample ID: **MB-69956**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **69956**	RunNo: **90776**							
Prep Date: **9/2/2022**	Analysis Date: **9/2/2022**	SeqNo: **3247738**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-69956**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **69956**	RunNo: **90776**							
Prep Date: **9/2/2022**	Analysis Date: **9/2/2022**	SeqNo: **3247739**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	98.6	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2208H95**

08-Sep-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Well Pad

Sample ID: **MB-69901**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **69901**	RunNo: **90793**
Prep Date: **8/31/2022**	Analysis Date: **9/3/2022**	SeqNo: **3245546** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	7.9		10.00		79.0	21	129			

Sample ID: **LCS-69901**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **69901**	RunNo: **90793**
Prep Date: **8/31/2022**	Analysis Date: **9/3/2022**	SeqNo: **3245547** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.6		5.000		72.8	21	129			

Sample ID: **2208H95-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH22-11 0ft**	Batch ID: **69899**	RunNo: **90763**
Prep Date: **8/31/2022**	Analysis Date: **9/2/2022**	SeqNo: **3246688** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	15	48.97	0	91.2	36.1	154			
Surr: DNOP	4.6		4.897		93.5	21	129			

Sample ID: **2208H95-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH22-11 0ft**	Batch ID: **69899**	RunNo: **90763**
Prep Date: **8/31/2022**	Analysis Date: **9/2/2022**	SeqNo: **3246689** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	14	46.64	0	91.1	36.1	154	4.98	33.9	
Surr: DNOP	3.9		4.664		82.9	21	129	0	0	

Sample ID: **LCS-69899**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **69899**	RunNo: **90763**
Prep Date: **8/31/2022**	Analysis Date: **9/2/2022**	SeqNo: **3246702** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	15	50.00	0	108	64.4	127			
Surr: DNOP	5.7		5.000		114	21	129			

Sample ID: **MB-69899**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **69899**	RunNo: **90763**
Prep Date: **8/31/2022**	Analysis Date: **9/2/2022**	SeqNo: **3246703** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2208H95**
08-Sep-22

Client: Vertex Resources Services, Inc.
Project: Roy 5 Well Pad

Sample ID: **MB-69899**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **69899**	RunNo: **90763**							
Prep Date: **8/31/2022**	Analysis Date: **9/2/2022**	SeqNo: **3246703**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		105	21	129			

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2208H95**
08-Sep-22

Client: Vertex Resources Services, Inc.
Project: Roy 5 Well Pad

Sample ID: **lcs-69889** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **69889** RunNo: **90749**
Prep Date: **8/31/2022** Analysis Date: **9/1/2022** SeqNo: **3243822** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	72.3	137			
Surr: BFB	2100		1000		213	37.7	212			S

Sample ID: **mb-69889** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **69889** RunNo: **90749**
Prep Date: **8/31/2022** Analysis Date: **9/1/2022** SeqNo: **3243823** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	940		1000		94.0	37.7	212			

Sample ID: **2208h95-001ams** SampType: **MS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH22-11 0ft** Batch ID: **69889** RunNo: **90749**
Prep Date: **8/31/2022** Analysis Date: **9/1/2022** SeqNo: **3243825** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	4.8	24.20	0	111	70	130			
Surr: BFB	2100		968.1		218	37.7	212			S

Sample ID: **2208h95-001amsd** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH22-11 0ft** Batch ID: **69889** RunNo: **90749**
Prep Date: **8/31/2022** Analysis Date: **9/1/2022** SeqNo: **3243826** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	4.8	23.99	0	112	70	130	0.0781	20	
Surr: BFB	2200		959.7		228	37.7	212	0	0	S

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2208H95**

08-Sep-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Well Pad

Sample ID: **lcs-69889**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **69889**	RunNo: **90749**
Prep Date: **8/31/2022**	Analysis Date: **9/1/2022**	SeqNo: **3243870** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.025	1.000	0	87.9	80	120			
Toluene	0.91	0.050	1.000	0	90.9	80	120			
Ethylbenzene	0.91	0.050	1.000	0	91.0	80	120			
Xylenes, Total	2.7	0.10	3.000	0	90.5	80	120			
Surr: 4-Bromofluorobenzene	0.90		1.000		90.3	70	130			

Sample ID: **mb-69889**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **69889**	RunNo: **90749**
Prep Date: **8/31/2022**	Analysis Date: **9/1/2022**	SeqNo: **3243871** Units: **mg/Kg**

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	0.89		1.000		89.5	70	130			

Sample ID: **2208h95-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH22-11 2ft**	Batch ID: **69889**	RunNo: **90749**
Prep Date: **8/31/2022**	Analysis Date: **9/1/2022**	SeqNo: **3243874** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.024	0.9488	0	95.1	68.8	120			
Toluene	0.93	0.047	0.9488	0	98.5	73.6	124			
Ethylbenzene	0.96	0.047	0.9488	0	101	72.7	129			
Xylenes, Total	2.9	0.095	2.846	0	101	75.7	126			
Surr: 4-Bromofluorobenzene	0.85		0.9488		90.1	70	130			

Sample ID: **2208h95-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH22-11 2ft**	Batch ID: **69889**	RunNo: **90749**
Prep Date: **8/31/2022**	Analysis Date: **9/1/2022**	SeqNo: **3243875** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.024	0.9588	0	95.7	68.8	120	1.69	20	
Toluene	0.95	0.048	0.9588	0	99.1	73.6	124	1.69	20	
Ethylbenzene	0.97	0.048	0.9588	0	101	72.7	129	0.740	20	
Xylenes, Total	2.9	0.096	2.876	0	100	75.7	126	0.437	20	
Surr: 4-Bromofluorobenzene	0.86		0.9588		89.8	70	130	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: Vertex Resources Services, Inc.

Work Order Number: 2208H95

RcptNo: 1

Received By: Juan Rojas 8/31/2022 7:40:00 AM

Completed By: Tracy Casarrubias 8/31/2022 8:03:59 AM

Reviewed By: WRA 8.31.22

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° C to 6.0°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. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
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: JN 8/31/22

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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.4	Good	Yes			

Chain-of-Custody Record

Client: EOG Resources (Vertex)

Mailing Address: On file

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☒ Rush 5 day

Project Name: Roy #5 well Pad

Project #: 22E-00716-07

Project Manager: Monica Peppin

Sampler: Fernando Rodriguez

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 0.4-0.2=0.2 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2208H95	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
8/24	12:30	Soil	BH22-11 0ft	4oz Jar	Ice	001	✓	✓					✓			
8/24	12:40	Soil	BH22-11 2ft	4oz Jar	Ice	002	✓	✓					✓			
8/24	12:50	Soil	BH22-11 4ft	4oz Jar	Ice	003	✓	✓					✓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8/24	17:30				8/30/22	945
8/30/22	1900			courier	8/31/22	7:40

Remarks:

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

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

September 30, 2022

Michael Moffitt

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX:

RE: Roy 5 Well Pad OrderNo.: 2209B60

Dear Michael Moffitt:

Hall Environmental Analysis Laboratory received 10 sample(s) on 9/22/2022 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 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2209B60**
Date Reported: **9/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-12 0'
Project: Roy 5 Well Pad
Collection Date: 9/20/2022 9:55:00 AM
Lab ID: 2209B60-001 **Matrix:** SOIL **Received Date:** 9/22/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	9/26/2022 3:07:06 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/26/2022 3:07:06 PM
Surr: DNOP	81.0	21-129		%Rec	1	9/26/2022 3:07:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/23/2022 5:13:00 PM
Surr: BFB	102	37.7-212		%Rec	1	9/23/2022 5:13:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	9/23/2022 5:13:00 PM
Toluene	ND	0.049		mg/Kg	1	9/23/2022 5:13:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/23/2022 5:13:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/23/2022 5:13:00 PM
Surr: 4-Bromofluorobenzene	87.6	70-130		%Rec	1	9/23/2022 5:13:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	61		mg/Kg	20	9/27/2022 6:53:56 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2209B60**
Date Reported: **9/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-12 1'
Project: Roy 5 Well Pad
Collection Date: 9/20/2022 9:55:00 AM
Lab ID: 2209B60-002 **Matrix:** SOIL **Received Date:** 9/22/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	9/26/2022 3:17:54 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	9/26/2022 3:17:54 PM
Surr: DNOP	85.1	21-129		%Rec	1	9/26/2022 3:17:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/23/2022 5:33:00 PM
Surr: BFB	103	37.7-212		%Rec	1	9/23/2022 5:33:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	9/23/2022 5:33:00 PM
Toluene	ND	0.048		mg/Kg	1	9/23/2022 5:33:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/23/2022 5:33:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/23/2022 5:33:00 PM
Surr: 4-Bromofluorobenzene	85.7	70-130		%Rec	1	9/23/2022 5:33:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	9/27/2022 7:06:16 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2209B60**
Date Reported: **9/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-12 2'
Project: Roy 5 Well Pad **Collection Date:** 9/20/2022 10:00:00 AM
Lab ID: 2209B60-003 **Matrix:** SOIL **Received Date:** 9/22/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	9/26/2022 3:28:40 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/26/2022 3:28:40 PM
Surr: DNOP	85.8	21-129		%Rec	1	9/26/2022 3:28:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/23/2022 5:52:00 PM
Surr: BFB	108	37.7-212		%Rec	1	9/23/2022 5:52:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	9/23/2022 5:52:00 PM
Toluene	ND	0.049		mg/Kg	1	9/23/2022 5:52:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/23/2022 5:52:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/23/2022 5:52:00 PM
Surr: 4-Bromofluorobenzene	88.7	70-130		%Rec	1	9/23/2022 5:52:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	380	60		mg/Kg	20	9/27/2022 7:18:37 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2209B60**
Date Reported: **9/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-12 3'
Project: Roy 5 Well Pad
Collection Date: 9/20/2022 10:00:00 AM
Lab ID: 2209B60-004 **Matrix:** SOIL
Received Date: 9/22/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	9/26/2022 3:39:24 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/26/2022 3:39:24 PM
Surr: DNOP	81.6	21-129		%Rec	1	9/26/2022 3:39:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/23/2022 6:12:00 PM
Surr: BFB	101	37.7-212		%Rec	1	9/23/2022 6:12:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	9/23/2022 6:12:00 PM
Toluene	ND	0.050		mg/Kg	1	9/23/2022 6:12:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/23/2022 6:12:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/23/2022 6:12:00 PM
Surr: 4-Bromofluorobenzene	86.0	70-130		%Rec	1	9/23/2022 6:12:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	720	59		mg/Kg	20	9/27/2022 7:30:58 PM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2209B60**
Date Reported: **9/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-12 4'
Project: Roy 5 Well Pad
Collection Date: 9/20/2022 10:05:00 AM
Lab ID: 2209B60-005 **Matrix:** SOIL
Received Date: 9/22/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	9/26/2022 3:50:09 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/26/2022 3:50:09 PM
Surr: DNOP	71.7	21-129		%Rec	1	9/26/2022 3:50:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/23/2022 6:51:00 PM
Surr: BFB	101	37.7-212		%Rec	1	9/23/2022 6:51:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	9/23/2022 6:51:00 PM
Toluene	ND	0.050		mg/Kg	1	9/23/2022 6:51:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/23/2022 6:51:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/23/2022 6:51:00 PM
Surr: 4-Bromofluorobenzene	86.6	70-130		%Rec	1	9/23/2022 6:51:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	630	60		mg/Kg	20	9/27/2022 7:43:18 PM

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	Estimated value
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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference

Analytical Report
Lab Order **2209B60**
Date Reported: **9/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-13 0'
Project: Roy 5 Well Pad
Collection Date: 9/20/2022 10:05:00 AM
Lab ID: 2209B60-006 **Matrix:** SOIL **Received Date:** 9/22/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	9/26/2022 4:00:54 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/26/2022 4:00:54 PM
Surr: DNOP	83.7	21-129		%Rec	1	9/26/2022 4:00:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/23/2022 7:11:00 PM
Surr: BFB	102	37.7-212		%Rec	1	9/23/2022 7:11:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	9/23/2022 7:11:00 PM
Toluene	ND	0.049		mg/Kg	1	9/23/2022 7:11:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/23/2022 7:11:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/23/2022 7:11:00 PM
Surr: 4-Bromofluorobenzene	88.5	70-130		%Rec	1	9/23/2022 7:11:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	9/28/2022 11:20:50 AM

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	Estimated value
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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference

Analytical Report
Lab Order **2209B60**
Date Reported: **9/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-13 1'
Project: Roy 5 Well Pad
Collection Date: 9/20/2022 10:10:00 AM
Lab ID: 2209B60-007 **Matrix:** SOIL
Received Date: 9/22/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	9/26/2022 4:11:36 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/26/2022 4:11:36 PM
Surr: DNOP	79.6	21-129		%Rec	1	9/26/2022 4:11:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/23/2022 7:30:00 PM
Surr: BFB	106	37.7-212		%Rec	1	9/23/2022 7:30:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	9/23/2022 7:30:00 PM
Toluene	ND	0.048		mg/Kg	1	9/23/2022 7:30:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/23/2022 7:30:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/23/2022 7:30:00 PM
Surr: 4-Bromofluorobenzene	90.0	70-130		%Rec	1	9/23/2022 7:30:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	920	60		mg/Kg	20	9/28/2022 11:33:10 AM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2209B60**
Date Reported: **9/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-13 2'
Project: Roy 5 Well Pad
Collection Date: 9/20/2022 10:10:00 AM
Lab ID: 2209B60-008 **Matrix:** SOIL
Received Date: 9/22/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	9/26/2022 4:22:18 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/26/2022 4:22:18 PM
Surr: DNOP	80.6	21-129		%Rec	1	9/26/2022 4:22:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/23/2022 7:50:00 PM
Surr: BFB	100	37.7-212		%Rec	1	9/23/2022 7:50:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	9/23/2022 7:50:00 PM
Toluene	ND	0.050		mg/Kg	1	9/23/2022 7:50:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/23/2022 7:50:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/23/2022 7:50:00 PM
Surr: 4-Bromofluorobenzene	89.7	70-130		%Rec	1	9/23/2022 7:50:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	900	60		mg/Kg	20	9/28/2022 11:45:31 AM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2209B60**
Date Reported: **9/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-13 3'
Project: Roy 5 Well Pad
Collection Date: 9/20/2022 10:15:00 AM
Lab ID: 2209B60-009 **Matrix:** SOIL
Received Date: 9/22/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	9/26/2022 4:32:58 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/26/2022 4:32:58 PM
Surr: DNOP	72.0	21-129		%Rec	1	9/26/2022 4:32:58 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/23/2022 8:10:00 PM
Surr: BFB	100	37.7-212		%Rec	1	9/23/2022 8:10:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	9/23/2022 8:10:00 PM
Toluene	ND	0.048		mg/Kg	1	9/23/2022 8:10:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/23/2022 8:10:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/23/2022 8:10:00 PM
Surr: 4-Bromofluorobenzene	86.6	70-130		%Rec	1	9/23/2022 8:10:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	530	60		mg/Kg	20	9/28/2022 11:57:53 AM

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	Estimated value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2209B60**
Date Reported: **9/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-13 4'
Project: Roy 5 Well Pad
Collection Date: 9/20/2022 10:15:00 AM
Lab ID: 2209B60-010 **Matrix:** SOIL
Received Date: 9/22/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	9/26/2022 4:43:40 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/26/2022 4:43:40 PM
Surr: DNOP	75.3	21-129		%Rec	1	9/26/2022 4:43:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/23/2022 8:29:00 PM
Surr: BFB	104	37.7-212		%Rec	1	9/23/2022 8:29:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	9/23/2022 8:29:00 PM
Toluene	ND	0.050		mg/Kg	1	9/23/2022 8:29:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/23/2022 8:29:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/23/2022 8:29:00 PM
Surr: 4-Bromofluorobenzene	86.4	70-130		%Rec	1	9/23/2022 8:29:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	250	60		mg/Kg	20	9/28/2022 1:11:56 PM

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2209B60**

30-Sep-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Well Pad

Sample ID: **MB-70435**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **70435**	RunNo: **91365**
Prep Date: **9/27/2022**	Analysis Date: **9/27/2022**	SeqNo: **3270670** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-70435**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **70435**	RunNo: **91365**
Prep Date: **9/27/2022**	Analysis Date: **9/27/2022**	SeqNo: **3270671** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.4	90	110			

Sample ID: **MB-70452**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **70452**	RunNo: **91368**
Prep Date: **9/28/2022**	Analysis Date: **9/28/2022**	SeqNo: **3272046** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-70452**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **70452**	RunNo: **91368**
Prep Date: **9/28/2022**	Analysis Date: **9/28/2022**	SeqNo: **3272047** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	98.4	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2209B60**

30-Sep-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Well Pad

Sample ID: **LCS-70374**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **70374**	RunNo: **91307**
Prep Date: **9/23/2022**	Analysis Date: **9/26/2022**	SeqNo: **3267734** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	33	15	50.00	0	65.7	64.4	127			
Surr: DNOP	3.3		5.000		66.4	21	129			

Sample ID: **MB-70374**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **70374**	RunNo: **91307**
Prep Date: **9/23/2022**	Analysis Date: **9/26/2022**	SeqNo: **3267736** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.3		10.00		82.8	21	129			

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2209B60**

30-Sep-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Well Pad

Sample ID: **lcs-70362**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **70362**	RunNo: **91291**
Prep Date: **9/22/2022**	Analysis Date: **9/23/2022**	SeqNo: **3266709** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.5	72.3	137			
Surr: BFB	2100		1000		213	37.7	212			S

Sample ID: **mb-70362**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **70362**	RunNo: **91291**
Prep Date: **9/22/2022**	Analysis Date: **9/23/2022**	SeqNo: **3266710** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		102	37.7	212			

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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2209B60**

30-Sep-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Well Pad

Sample ID: **lcs-70362**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **70362**	RunNo: **91291**
Prep Date: **9/22/2022**	Analysis Date: **9/23/2022**	SeqNo: **3266729** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.2	80	120			
Toluene	0.91	0.050	1.000	0	90.8	80	120			
Ethylbenzene	0.93	0.050	1.000	0	92.9	80	120			
Xylenes, Total	2.7	0.10	3.000	0	91.3	80	120			
Surr: 4-Bromofluorobenzene	0.90		1.000		90.2	70	130			

Sample ID: **mb-70362**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **70362**	RunNo: **91291**
Prep Date: **9/22/2022**	Analysis Date: **9/23/2022**	SeqNo: **3266730** Units: **mg/Kg**

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	0.88		1.000		87.6	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: **Vertex Resources Services, Inc.** Work Order Number: **2209B60** RcptNo: **1**

Received By: **Juan Rojas** **9/22/2022 7:30:00 AM**

Completed By: **Cheyenne Cason** **9/22/2022 8:54:00 AM**

Reviewed By: KPA 9.22.22 KPA 9.22.22

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° C to 6.0°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. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
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: JN 9/22/22

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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Not Present			

Chain-of-Custody Record

Client: Vertex (EOG)

Mailing Address: on file

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☒ Rush 5 Day

Project Name: Roy #5 Well Pad

Project #: 22E-00716

Project Manager: Michael Moffitt

Sampler: SPC

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 0.8+0.1=0.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2209B60	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
9/20	9:55	Soil	BH22-12 0'	1 4oz jar	ice	001	✓	✓					✓			
	9:55		BH22-12 1'			002										
	10:00		BH22-12 2'			003										
	10:00		BH22-12 3'			004										
	10:05		BH22-12 4'			005										
	10:05		BH22-13 0'			006										
	10:10		BH22-13 1'			007										
	10:10		BH22-13 2'			008										
	10:15		BH22-13 3'			009										
	10:15		BH22-13 4'			010										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
9/20	15:31	Sally Carttar				
9/21/22	1900			courier	9/22/22	7:30

Remarks: direct bill EOG

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

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

November 02, 2022

Michael Moffitt

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX:

RE: Roy 5 Wellpad OrderNo.: 2210E18

Dear Michael Moffitt:

Hall Environmental Analysis Laboratory received 3 sample(s) on 10/28/2022 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 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2210E18**
Date Reported: **11/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** WES22-01 0-4'
Project: Roy 5 Wellpad **Collection Date:** 10/26/2022 12:30:00 PM
Lab ID: 2210E18-001 **Matrix:** MEOH (SOIL) **Received Date:** 10/28/2022 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/28/2022 5:28:20 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/28/2022 5:28:20 PM
Surr: DNOP	107	21-129		%Rec	1	10/28/2022 5:28:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.1		mg/Kg	1	10/28/2022 9:47:41 AM
Surr: BFB	89.7	37.7-212		%Rec	1	10/28/2022 9:47:41 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.020		mg/Kg	1	10/28/2022 9:47:41 AM
Toluene	ND	0.041		mg/Kg	1	10/28/2022 9:47:41 AM
Ethylbenzene	ND	0.041		mg/Kg	1	10/28/2022 9:47:41 AM
Xylenes, Total	ND	0.082		mg/Kg	1	10/28/2022 9:47:41 AM
Surr: 4-Bromofluorobenzene	95.1	70-130		%Rec	1	10/28/2022 9:47:41 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	350	60		mg/Kg	20	10/28/2022 11:06:04 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2210E18**
Date Reported: **11/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** WES22-02 0-4'
Project: Roy 5 Wellpad **Collection Date:** 10/26/2022 12:35:00 PM
Lab ID: 2210E18-002 **Matrix:** MEOH (SOIL) **Received Date:** 10/28/2022 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/28/2022 5:49:38 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/28/2022 5:49:38 PM
Surr: DNOP	98.0	21-129		%Rec	1	10/28/2022 5:49:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	3.9		mg/Kg	1	10/28/2022 10:11:13 AM
Surr: BFB	88.0	37.7-212		%Rec	1	10/28/2022 10:11:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.019		mg/Kg	1	10/28/2022 10:11:13 AM
Toluene	ND	0.039		mg/Kg	1	10/28/2022 10:11:13 AM
Ethylbenzene	ND	0.039		mg/Kg	1	10/28/2022 10:11:13 AM
Xylenes, Total	ND	0.077		mg/Kg	1	10/28/2022 10:11:13 AM
Surr: 4-Bromofluorobenzene	94.4	70-130		%Rec	1	10/28/2022 10:11:13 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	110	60		mg/Kg	20	10/28/2022 11:18:25 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2210E18**
Date Reported: **11/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** WES22-03 0-4'
Project: Roy 5 Wellpad **Collection Date:** 10/26/2022 12:40:00 PM
Lab ID: 2210E18-003 **Matrix:** MEOH (SOIL) **Received Date:** 10/28/2022 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/28/2022 6:00:19 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/28/2022 6:00:19 PM
Surr: DNOP	93.8	21-129		%Rec	1	10/28/2022 6:00:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	10/28/2022 10:34:44 AM
Surr: BFB	88.7	37.7-212		%Rec	1	10/28/2022 10:34:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	10/28/2022 10:34:44 AM
Toluene	ND	0.046		mg/Kg	1	10/28/2022 10:34:44 AM
Ethylbenzene	ND	0.046		mg/Kg	1	10/28/2022 10:34:44 AM
Xylenes, Total	ND	0.091		mg/Kg	1	10/28/2022 10:34:44 AM
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	1	10/28/2022 10:34:44 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	610	60		mg/Kg	20	10/28/2022 11:30:45 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210E18**

02-Nov-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Wellpad

Sample ID: **MB-71147**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **71147**	RunNo: **92199**
Prep Date: **10/28/2022**	Analysis Date: **10/28/2022**	SeqNo: **3310623** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-71147**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **71147**	RunNo: **92199**
Prep Date: **10/28/2022**	Analysis Date: **10/28/2022**	SeqNo: **3310624** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.3	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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210E18**

02-Nov-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Wellpad

Sample ID: **LCS-71141**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **71141**	RunNo: **92172**
Prep Date: **10/28/2022**	Analysis Date: **10/28/2022**	SeqNo: **3310032** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	15	50.00	0	98.1	64.4	127			
Surr: DNOP	5.3		5.000		107	21	129			

Sample ID: **MB-71141**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **71141**	RunNo: **92172**
Prep Date: **10/28/2022**	Analysis Date: **10/28/2022**	SeqNo: **3310036** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.5		10.00		94.6	21	129			

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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210E18**

02-Nov-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Wellpad

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G92156**	RunNo: **92156**
Prep Date:	Analysis Date: **10/28/2022**	SeqNo: **3309636** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	870		1000		86.9	37.7	212			

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G92156**	RunNo: **92156**
Prep Date:	Analysis Date: **10/28/2022**	SeqNo: **3309637** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.5	72.3	137			
Surr: BFB	1800		1000		184	37.7	212			

Sample ID: **2210e18-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **WES22-01 0-4'**	Batch ID: **G92156**	RunNo: **92156**
Prep Date:	Analysis Date: **10/28/2022**	SeqNo: **3309641** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.1	20.49	0	99.1	70	130			
Surr: BFB	1500		819.7		186	37.7	212			

Sample ID: **2210e18-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **WES22-01 0-4'**	Batch ID: **G92156**	RunNo: **92156**
Prep Date:	Analysis Date: **10/28/2022**	SeqNo: **3309642** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.1	20.49	0	100	70	130	1.04	20	
Surr: BFB	1600		819.7		191	37.7	212	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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210E18**

02-Nov-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Wellpad

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B92156**	RunNo: **92156**
Prep Date:	Analysis Date: **10/28/2022**	SeqNo: **3309697** Units: **mg/Kg**

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	0.94		1.000		93.8	70	130			

Sample ID: **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B92156**	RunNo: **92156**
Prep Date:	Analysis Date: **10/28/2022**	SeqNo: **3309698** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	101	80	120			
Toluene	1.0	0.050	1.000	0	101	80	120			
Ethylbenzene	1.0	0.050	1.000	0	101	80	120			
Xylenes, Total	3.0	0.10	3.000	0	100	80	120			
Surr: 4-Bromofluorobenzene	0.97		1.000		96.7	70	130			

Sample ID: **2210e18-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **WES22-02 0-4'**	Batch ID: **B92156**	RunNo: **92156**
Prep Date:	Analysis Date: **10/28/2022**	SeqNo: **3309702** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.81	0.019	0.7704	0	106	68.8	120			
Toluene	0.82	0.039	0.7704	0	106	73.6	124			
Ethylbenzene	0.81	0.039	0.7704	0	105	72.7	129			
Xylenes, Total	2.4	0.077	2.311	0	105	75.7	126			
Surr: 4-Bromofluorobenzene	0.78		0.7704		101	70	130			

Sample ID: **2210e18-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **WES22-02 0-4'**	Batch ID: **B92156**	RunNo: **92156**
Prep Date:	Analysis Date: **10/28/2022**	SeqNo: **3309703** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.74	0.019	0.7704	0	96.0	68.8	120	9.50	20	
Toluene	0.75	0.039	0.7704	0	97.1	73.6	124	8.71	20	
Ethylbenzene	0.76	0.039	0.7704	0	98.2	72.7	129	6.41	20	
Xylenes, Total	2.2	0.077	2.311	0	97.3	75.7	126	7.41	20	
Surr: 4-Bromofluorobenzene	0.75		0.7704		96.9	70	130	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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: Vertex Resources Services, Inc.

Work Order Number: 2210E18

RcptNo: 1

Received By: Juan Rojas 10/28/2022 7:15:00 AM

Completed By: Tracy Casarrubias 10/28/2022 7:34:41 AM

Reviewed By: 10-28-22

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° C to 6.0°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. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
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: jn 10/28/22

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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.8	Good	Yes			

Chain-of-Custody Record

Client: Vertex (EOG)

Mailing Address: on file

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 24hr

Project Name: Roy #5 Wellpad

Project #: 22E-00716-07

Project Manager: Michael Moffitt

Sampler: SPC

On Ice: ☐ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 0.9-0.1=0.8 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 22I0E18	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
10/26	12:30	Soil	WES22-01 0-4'	4oz jar	ice	001	✓	✓					✓			
1	12:35	1	WES22-02 0-4'	1	1	002	1	1					1			
1	12:40	1	WES22-03 0-4'	1	1	003	1	1					1			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
10/26	17:28	Sally Carthar	ACummings		10/27/22	1100
10/27/22	1900	ACummings				

Remarks: direct bill EOG
cc scarthar@vertex.ca

10/28/22 7:15

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

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

October 31, 2022

Michael Moffitt

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX:

RE: Roy 5 Wellpad OrderNo.: 2210E56

Dear Michael Moffitt:

Hall Environmental Analysis Laboratory received 17 sample(s) on 10/29/2022 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 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** WES22-04 0-4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 12:35:00 PM
Lab ID: 2210E56-001 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/31/2022 9:00:50 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/31/2022 9:00:50 AM
Surr: DNOP	90.2	21-129		%Rec	1	10/31/2022 9:00:50 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	3.6		mg/Kg	1	10/29/2022 4:29:07 PM
Surr: BFB	96.4	37.7-212		%Rec	1	10/29/2022 4:29:07 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.018		mg/Kg	1	10/29/2022 4:29:07 PM
Toluene	ND	0.036		mg/Kg	1	10/29/2022 4:29:07 PM
Ethylbenzene	ND	0.036		mg/Kg	1	10/29/2022 4:29:07 PM
Xylenes, Total	ND	0.072		mg/Kg	1	10/29/2022 4:29:07 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	10/29/2022 4:29:07 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	370	60		mg/Kg	20	10/30/2022 4:25:05 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** WES22-05 0-4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 12:40:00 PM
Lab ID: 2210E56-002 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/31/2022 9:11:13 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/31/2022 9:11:13 AM
Surr: DNOP	85.3	21-129		%Rec	1	10/31/2022 9:11:13 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	3.9		mg/Kg	1	10/29/2022 5:39:38 PM
Surr: BFB	95.4	37.7-212		%Rec	1	10/29/2022 5:39:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.020		mg/Kg	1	10/29/2022 5:39:38 PM
Toluene	ND	0.039		mg/Kg	1	10/29/2022 5:39:38 PM
Ethylbenzene	ND	0.039		mg/Kg	1	10/29/2022 5:39:38 PM
Xylenes, Total	ND	0.079		mg/Kg	1	10/29/2022 5:39:38 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	10/29/2022 5:39:38 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	330	60		mg/Kg	20	10/30/2022 5:02:19 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** WES22-06 0-4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 12:45:00 PM
Lab ID: 2210E56-003 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/31/2022 9:21:39 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/31/2022 9:21:39 AM
Surr: DNOP	79.0	21-129		%Rec	1	10/31/2022 9:21:39 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.3		mg/Kg	1	10/29/2022 6:50:18 PM
Surr: BFB	94.5	37.7-212		%Rec	1	10/29/2022 6:50:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.022		mg/Kg	1	10/29/2022 6:50:18 PM
Toluene	ND	0.043		mg/Kg	1	10/29/2022 6:50:18 PM
Ethylbenzene	ND	0.043		mg/Kg	1	10/29/2022 6:50:18 PM
Xylenes, Total	ND	0.087		mg/Kg	1	10/29/2022 6:50:18 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	10/29/2022 6:50:18 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	710	60		mg/Kg	20	10/30/2022 5:14:44 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** WES22-07 0-4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 2:00:00 PM
Lab ID: 2210E56-004 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/31/2022 9:32:07 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/31/2022 9:32:07 AM
Surr: DNOP	82.1	21-129		%Rec	1	10/31/2022 9:32:07 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.3		mg/Kg	1	10/29/2022 7:13:47 PM
Surr: BFB	92.8	37.7-212		%Rec	1	10/29/2022 7:13:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.021		mg/Kg	1	10/29/2022 7:13:47 PM
Toluene	ND	0.043		mg/Kg	1	10/29/2022 7:13:47 PM
Ethylbenzene	ND	0.043		mg/Kg	1	10/29/2022 7:13:47 PM
Xylenes, Total	ND	0.085		mg/Kg	1	10/29/2022 7:13:47 PM
Surr: 4-Bromofluorobenzene	99.4	70-130		%Rec	1	10/29/2022 7:13:47 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	79	60		mg/Kg	20	10/30/2022 5:27:09 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BES22-01 4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 3:00:00 PM
Lab ID: 2210E56-005 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/31/2022 9:42:36 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/31/2022 9:42:36 AM
Surr: DNOP	82.9	21-129		%Rec	1	10/31/2022 9:42:36 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.4		mg/Kg	1	10/29/2022 7:37:18 PM
Surr: BFB	87.1	37.7-212		%Rec	1	10/29/2022 7:37:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.022		mg/Kg	1	10/29/2022 7:37:18 PM
Toluene	ND	0.044		mg/Kg	1	10/29/2022 7:37:18 PM
Ethylbenzene	ND	0.044		mg/Kg	1	10/29/2022 7:37:18 PM
Xylenes, Total	ND	0.089		mg/Kg	1	10/29/2022 7:37:18 PM
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	1	10/29/2022 7:37:18 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	640	60		mg/Kg	20	10/30/2022 5:39:33 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BES22-02 4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 3:05:00 PM
Lab ID: 2210E56-006 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/31/2022 9:53:07 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/31/2022 9:53:07 AM
Surr: DNOP	78.3	21-129		%Rec	1	10/31/2022 9:53:07 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	3.8		mg/Kg	1	10/29/2022 8:00:42 PM
Surr: BFB	93.2	37.7-212		%Rec	1	10/29/2022 8:00:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.019		mg/Kg	1	10/29/2022 8:00:42 PM
Toluene	ND	0.038		mg/Kg	1	10/29/2022 8:00:42 PM
Ethylbenzene	ND	0.038		mg/Kg	1	10/29/2022 8:00:42 PM
Xylenes, Total	ND	0.075		mg/Kg	1	10/29/2022 8:00:42 PM
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	1	10/29/2022 8:00:42 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	1200	60		mg/Kg	20	10/30/2022 5:51:58 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BES22-03 4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 3:10:00 PM
Lab ID: 2210E56-007 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/31/2022 8:25:07 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/31/2022 8:25:07 AM
Surr: DNOP	85.6	21-129		%Rec	1	10/31/2022 8:25:07 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	3.7		mg/Kg	1	10/29/2022 8:24:19 PM
Surr: BFB	92.7	37.7-212		%Rec	1	10/29/2022 8:24:19 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.019		mg/Kg	1	10/29/2022 8:24:19 PM
Toluene	ND	0.037		mg/Kg	1	10/29/2022 8:24:19 PM
Ethylbenzene	ND	0.037		mg/Kg	1	10/29/2022 8:24:19 PM
Xylenes, Total	ND	0.075		mg/Kg	1	10/29/2022 8:24:19 PM
Surr: 4-Bromofluorobenzene	98.2	70-130		%Rec	1	10/29/2022 8:24:19 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	830	60		mg/Kg	20	10/30/2022 6:29:11 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BES22-04 4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 3:15:00 PM
Lab ID: 2210E56-008 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/31/2022 8:38:25 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/31/2022 8:38:25 AM
Surr: DNOP	66.5	21-129		%Rec	1	10/31/2022 8:38:25 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	3.6		mg/Kg	1	10/29/2022 8:47:54 PM
Surr: BFB	91.3	37.7-212		%Rec	1	10/29/2022 8:47:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.018		mg/Kg	1	10/29/2022 8:47:54 PM
Toluene	ND	0.036		mg/Kg	1	10/29/2022 8:47:54 PM
Ethylbenzene	ND	0.036		mg/Kg	1	10/29/2022 8:47:54 PM
Xylenes, Total	ND	0.071		mg/Kg	1	10/29/2022 8:47:54 PM
Surr: 4-Bromofluorobenzene	96.9	70-130		%Rec	1	10/29/2022 8:47:54 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	480	60		mg/Kg	20	10/30/2022 6:41:35 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BES22-05 4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 3:20:00 PM
Lab ID: 2210E56-009 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/31/2022 8:51:36 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/31/2022 8:51:36 AM
Surr: DNOP	57.9	21-129		%Rec	1	10/31/2022 8:51:36 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.1		mg/Kg	1	10/29/2022 9:11:24 PM
Surr: BFB	93.9	37.7-212		%Rec	1	10/29/2022 9:11:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.020		mg/Kg	1	10/29/2022 9:11:24 PM
Toluene	ND	0.041		mg/Kg	1	10/29/2022 9:11:24 PM
Ethylbenzene	ND	0.041		mg/Kg	1	10/29/2022 9:11:24 PM
Xylenes, Total	ND	0.082		mg/Kg	1	10/29/2022 9:11:24 PM
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	10/29/2022 9:11:24 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	680	60		mg/Kg	20	10/30/2022 6:54:00 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BES22-06 4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 3:25:00 PM
Lab ID: 2210E56-010 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/31/2022 9:05:12 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/31/2022 9:05:12 AM
Surr: DNOP	58.2	21-129		%Rec	1	10/31/2022 9:05:12 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	3.7		mg/Kg	1	10/29/2022 9:34:43 PM
Surr: BFB	97.9	37.7-212		%Rec	1	10/29/2022 9:34:43 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.019		mg/Kg	1	10/29/2022 9:34:43 PM
Toluene	ND	0.037		mg/Kg	1	10/29/2022 9:34:43 PM
Ethylbenzene	ND	0.037		mg/Kg	1	10/29/2022 9:34:43 PM
Xylenes, Total	ND	0.074		mg/Kg	1	10/29/2022 9:34:43 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	10/29/2022 9:34:43 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	650	60		mg/Kg	20	10/30/2022 7:06:25 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BES22-07 4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 3:30:00 PM
Lab ID: 2210E56-011 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/31/2022 9:18:40 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/31/2022 9:18:40 AM
Surr: DNOP	57.8	21-129		%Rec	1	10/31/2022 9:18:40 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.1		mg/Kg	1	10/29/2022 10:45:18 PM
Surr: BFB	93.2	37.7-212		%Rec	1	10/29/2022 10:45:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.021		mg/Kg	1	10/29/2022 10:45:18 PM
Toluene	ND	0.041		mg/Kg	1	10/29/2022 10:45:18 PM
Ethylbenzene	ND	0.041		mg/Kg	1	10/29/2022 10:45:18 PM
Xylenes, Total	ND	0.083		mg/Kg	1	10/29/2022 10:45:18 PM
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	1	10/29/2022 10:45:18 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	690	60		mg/Kg	20	10/30/2022 7:18:49 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BES22-08 4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 3:35:00 PM
Lab ID: 2210E56-012 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	49	15		mg/Kg	1	10/31/2022 9:32:05 AM
Motor Oil Range Organics (MRO)	97	49		mg/Kg	1	10/31/2022 9:32:05 AM
Surr: DNOP	48.9	21-129		%Rec	1	10/31/2022 9:32:05 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.3		mg/Kg	1	10/29/2022 11:08:50 PM
Surr: BFB	90.9	37.7-212		%Rec	1	10/29/2022 11:08:50 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.021		mg/Kg	1	10/29/2022 11:08:50 PM
Toluene	ND	0.043		mg/Kg	1	10/29/2022 11:08:50 PM
Ethylbenzene	ND	0.043		mg/Kg	1	10/29/2022 11:08:50 PM
Xylenes, Total	ND	0.085		mg/Kg	1	10/29/2022 11:08:50 PM
Surr: 4-Bromofluorobenzene	97.1	70-130		%Rec	1	10/29/2022 11:08:50 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	840	60		mg/Kg	20	10/30/2022 7:31:13 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BES22-09 4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 3:40:00 PM
Lab ID: 2210E56-013 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/31/2022 9:52:10 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/31/2022 9:52:10 AM
Surr: DNOP	86.3	21-129		%Rec	1	10/31/2022 9:52:10 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	3.9		mg/Kg	1	10/29/2022 11:32:20 PM
Surr: BFB	89.3	37.7-212		%Rec	1	10/29/2022 11:32:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.020		mg/Kg	1	10/29/2022 11:32:20 PM
Toluene	ND	0.039		mg/Kg	1	10/29/2022 11:32:20 PM
Ethylbenzene	ND	0.039		mg/Kg	1	10/29/2022 11:32:20 PM
Xylenes, Total	ND	0.079		mg/Kg	1	10/29/2022 11:32:20 PM
Surr: 4-Bromofluorobenzene	96.2	70-130		%Rec	1	10/29/2022 11:32:20 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	690	60		mg/Kg	20	10/30/2022 7:43:38 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BES22-10 4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 3:45:00 PM
Lab ID: 2210E56-014 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/31/2022 8:16:26 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/31/2022 8:16:26 AM
Surr: DNOP	61.9	21-129		%Rec	1	10/31/2022 8:16:26 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	3.8		mg/Kg	1	10/29/2022 11:55:54 PM
Surr: BFB	90.9	37.7-212		%Rec	1	10/29/2022 11:55:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.019		mg/Kg	1	10/29/2022 11:55:54 PM
Toluene	ND	0.038		mg/Kg	1	10/29/2022 11:55:54 PM
Ethylbenzene	ND	0.038		mg/Kg	1	10/29/2022 11:55:54 PM
Xylenes, Total	ND	0.076		mg/Kg	1	10/29/2022 11:55:54 PM
Surr: 4-Bromofluorobenzene	97.3	70-130		%Rec	1	10/29/2022 11:55:54 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	480	60		mg/Kg	20	10/30/2022 7:56:03 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BES22-11 4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 3:50:00 PM
Lab ID: 2210E56-015 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/31/2022 8:40:06 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/31/2022 8:40:06 AM
Surr: DNOP	61.0	21-129		%Rec	1	10/31/2022 8:40:06 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.3		mg/Kg	1	10/30/2022 12:19:24 AM
Surr: BFB	92.8	37.7-212		%Rec	1	10/30/2022 12:19:24 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.021		mg/Kg	1	10/30/2022 12:19:24 AM
Toluene	ND	0.043		mg/Kg	1	10/30/2022 12:19:24 AM
Ethylbenzene	ND	0.043		mg/Kg	1	10/30/2022 12:19:24 AM
Xylenes, Total	ND	0.085		mg/Kg	1	10/30/2022 12:19:24 AM
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	10/30/2022 12:19:24 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	570	60		mg/Kg	20	10/30/2022 8:08:27 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BES22-12 4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 3:55:00 PM
Lab ID: 2210E56-016 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/31/2022 9:03:53 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/31/2022 9:03:53 AM
Surr: DNOP	70.2	21-129		%Rec	1	10/31/2022 9:03:53 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	3.8		mg/Kg	1	10/30/2022 12:42:57 AM
Surr: BFB	88.0	37.7-212		%Rec	1	10/30/2022 12:42:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.019		mg/Kg	1	10/30/2022 12:42:57 AM
Toluene	ND	0.038		mg/Kg	1	10/30/2022 12:42:57 AM
Ethylbenzene	ND	0.038		mg/Kg	1	10/30/2022 12:42:57 AM
Xylenes, Total	ND	0.076		mg/Kg	1	10/30/2022 12:42:57 AM
Surr: 4-Bromofluorobenzene	93.8	70-130		%Rec	1	10/30/2022 12:42:57 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	280	60		mg/Kg	20	10/30/2022 8:20:52 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2210E56**
Date Reported: **10/31/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BES22-13 4'
Project: Roy 5 Wellpad **Collection Date:** 10/27/2022 4:00:00 PM
Lab ID: 2210E56-017 **Matrix:** MEOH (SOIL) **Received Date:** 10/29/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/31/2022 9:27:42 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/31/2022 9:27:42 AM
Surr: DNOP	69.1	21-129		%Rec	1	10/31/2022 9:27:42 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	3.7		mg/Kg	1	10/30/2022 1:06:27 AM
Surr: BFB	93.6	37.7-212		%Rec	1	10/30/2022 1:06:27 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.019		mg/Kg	1	10/30/2022 1:06:27 AM
Toluene	ND	0.037		mg/Kg	1	10/30/2022 1:06:27 AM
Ethylbenzene	ND	0.037		mg/Kg	1	10/30/2022 1:06:27 AM
Xylenes, Total	ND	0.074		mg/Kg	1	10/30/2022 1:06:27 AM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	10/30/2022 1:06:27 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	660	60		mg/Kg	20	10/30/2022 8:58:07 PM

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210E56**

31-Oct-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Wellpad

Sample ID: **MB-71168**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **71168**	RunNo: **92194**
Prep Date: **10/30/2022**	Analysis Date: **10/30/2022**	SeqNo: **3310206** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-71168**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **71168**	RunNo: **92194**
Prep Date: **10/30/2022**	Analysis Date: **10/30/2022**	SeqNo: **3310207** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.5	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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210E56**

31-Oct-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Wellpad

Sample ID: **2210E56-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **WES22-04 0-4'** Batch ID: **71170** RunNo: **92198**

Prep Date: **10/31/2022** Analysis Date: **10/31/2022** SeqNo: **3310596** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	14	47.48	0	91.3	36.1	154			
Surr: DNOP	3.4		4.748		72.0	21	129			

Sample ID: **2210E56-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **WES22-04 0-4'** Batch ID: **71170** RunNo: **92198**

Prep Date: **10/31/2022** Analysis Date: **10/31/2022** SeqNo: **3310597** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	15	49.21	0	91.2	36.1	154	3.39	33.9	
Surr: DNOP	3.3		4.921		67.7	21	129	0	0	

Sample ID: **LCS-71170** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **71170** RunNo: **92198**

Prep Date: **10/31/2022** Analysis Date: **10/31/2022** SeqNo: **3310603** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	15	50.00	0	94.9	64.4	127			
Surr: DNOP	5.3		5.000		105	21	129			

Sample ID: **MB-71170** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **71170** RunNo: **92198**

Prep Date: **10/31/2022** Analysis Date: **10/31/2022** SeqNo: **3310604** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.2		10.00		92.4	21	129			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210E56**

31-Oct-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Wellpad

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **A92186**	RunNo: **92186**
Prep Date:	Analysis Date: **10/29/2022**	SeqNo: **3309758** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	940		1000		94.0	37.7	212			

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **A92186**	RunNo: **92186**
Prep Date:	Analysis Date: **10/29/2022**	SeqNo: **3309759** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	105	72.3	137			
Surr: BFB	2000		1000		203	37.7	212			

Sample ID: **2210e56-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **WES22-04 0-4'**	Batch ID: **A92186**	RunNo: **92186**
Prep Date:	Analysis Date: **10/29/2022**	SeqNo: **3309780** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	19	3.6	18.00	0	106	70	130			
Surr: BFB	1400		719.9		200	37.7	212			

Sample ID: **2210e56-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **WES22-04 0-4'**	Batch ID: **A92186**	RunNo: **92186**
Prep Date:	Analysis Date: **10/29/2022**	SeqNo: **3309781** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	19	3.6	18.00	0	103	70	130	2.98	20	
Surr: BFB	1400		719.9		199	37.7	212	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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210E56**

31-Oct-22

Client: Vertex Resources Services, Inc.

Project: Roy 5 Wellpad

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **C92186**	RunNo: **92186**
Prep Date:	Analysis Date: **10/29/2022**	SeqNo: **3309797** Units: **mg/Kg**

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	0.99		1.000		98.7	70	130			

Sample ID: **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **C92186**	RunNo: **92186**
Prep Date:	Analysis Date: **10/29/2022**	SeqNo: **3309798** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	105	80	120			
Toluene	1.1	0.050	1.000	0	105	80	120			
Ethylbenzene	1.0	0.050	1.000	0	104	80	120			
Xylenes, Total	3.1	0.10	3.000	0	105	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		102	70	130			

Sample ID: **2210e56-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **WES22-05 0-4'**	Batch ID: **C92186**	RunNo: **92186**
Prep Date:	Analysis Date: **10/29/2022**	SeqNo: **3309928** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.75	0.020	0.7899	0	94.9	68.8	120			
Toluene	0.77	0.039	0.7899	0	97.4	73.6	124			
Ethylbenzene	0.78	0.039	0.7899	0	98.7	72.7	129			
Xylenes, Total	2.3	0.079	2.370	0.01461	98.2	75.7	126			
Surr: 4-Bromofluorobenzene	0.74		0.7899		93.6	70	130			

Sample ID: **2210e56-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **WES22-05 0-4'**	Batch ID: **C92186**	RunNo: **92186**
Prep Date:	Analysis Date: **10/29/2022**	SeqNo: **3309929** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.81	0.020	0.7899	0	102	68.8	120	7.20	20	
Toluene	0.81	0.039	0.7899	0	103	73.6	124	5.20	20	
Ethylbenzene	0.82	0.039	0.7899	0	104	72.7	129	5.05	20	
Xylenes, Total	2.5	0.079	2.370	0.01461	103	75.7	126	4.54	20	
Surr: 4-Bromofluorobenzene	0.82		0.7899		103	70	130	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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: Vertex Resources Services, Inc.

Work Order Number: 2210E56

RcptNo: 1

Received By: Tracy Casarrubias 10/29/2022 8:45:00 AM

Completed By: Tracy Casarrubias 10/29/2022 9:14:32 AM

Reviewed By:

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° C to 6.0°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. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
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: TME 10/29/22

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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.5	Good	Yes			

Chain-of-Custody Record

Client: Vertex (EOG1)

Mailing Address: on file

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush Same-day

Project Name: Roy #5 Wellpad

Project #: 22E-00716-07

Project Manager: Moffitt

Sampler: SPC

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(Including CF): 5.4 +0.1=5.5 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2210E56	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
10/27	12:35	soil	WES22-04 0-4'	4oz jar	ICE	001	✓	✓					✓			
	12:40		WES22-05 0-4'			002										
	12:45		WES22-06 0-4'			003										
	14:00		WES22-07 0-4'			004										
	15:00		BES22-01 4'			005										
	15:05		BES22-02 4'			006										
	15:10		BES22-03 4'			007										
	15:15		BES22-04 4'			008										
	15:20		BES22-05 4'			009										
	15:25		BES22-06 4'			010										
	15:30		BES22-07 4'			011										
	15:35		BES22-08 4'			012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
10/27	17:27	Sally Carttar			10/28/22	930
10/28/22	1900			Calm	10/29/22	8:45

Remarks: page 1/2
direct bill EOG1
CC scarttar@vertex.ca

Chain-of-Custody Record

Client: Vertex (EOG)

Mailing Address: on file

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush Same-day

Project Name: Roy #5 Wellpad

Project #: 22E-00716-07

Project Manager: Moffitt

Sampler: SPC

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(Including CF): 5.4 +0.1 = 5.5 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2210E516	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
10/27	15:40	Soil	BES22-09 4'	4oz jar	ice	013	✓	✓					✓			
	15:45		BES22-10 4'			014										
	15:50		BES22-11 4'			015										
	15:55		BES22-12 4'			016										
	16:00		BES22-13 4'			017										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
10/27	17:27	Sally Carttar			10/28/22	930
10/28/22	900				10/29/22	8:45

Remarks: direct bill EOG page 2/2
cc scarttar@vertex.ca

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

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

November 09, 2022

Mike Moffitt

EOG
105 South Fourth Street
Artesia, NM 88210
TEL:
FAX:

RE: Roy 5 Well Pad OrderNo.: 2211298

Dear Mike Moffitt:

Hall Environmental Analysis Laboratory received 5 sample(s) on 11/5/2022 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 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2211298**
Date Reported: **11/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EOG **Client Sample ID:** WES22-03 0-4'
Project: Roy 5 Well Pad **Collection Date:** 11/3/2022 11:20:00 AM
Lab ID: 2211298-001 **Matrix:** MEOH (SOIL) **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JTT**	
Chloride	310	60		mg/Kg	20	11/7/2022 6:52:25 PM	71352
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**	
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/7/2022 10:57:03 AM	71317
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/7/2022 10:57:03 AM	71317
Surr: DNOP	99.0	21-129		%Rec	1	11/7/2022 10:57:03 AM	71317
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.1		mg/Kg	1	11/7/2022 9:47:51 AM	G92384
Surr: BFB	90.9	37.7-212		%Rec	1	11/7/2022 9:47:51 AM	G92384
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.020		mg/Kg	1	11/7/2022 9:47:51 AM	B92384
Toluene	ND	0.041		mg/Kg	1	11/7/2022 9:47:51 AM	B92384
Ethylbenzene	ND	0.041		mg/Kg	1	11/7/2022 9:47:51 AM	B92384
Xylenes, Total	ND	0.081		mg/Kg	1	11/7/2022 9:47:51 AM	B92384
Surr: 4-Bromofluorobenzene	93.8	70-130		%Rec	1	11/7/2022 9:47:51 AM	B92384

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211298**
Date Reported: **11/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EOG **Client Sample ID:** WES22-06 0-4'
Project: Roy 5 Well Pad **Collection Date:** 11/3/2022 10:45:00 AM
Lab ID: 2211298-002 **Matrix:** MEOH (SOIL) **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JTT**	
Chloride	130	60		mg/Kg	20	11/7/2022 7:04:45 PM	71352
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**	
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/7/2022 12:19:30 PM	71317
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/7/2022 12:19:30 PM	71317
Surr: DNOP	98.7	21-129		%Rec	1	11/7/2022 12:19:30 PM	71317
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.0		mg/Kg	1	11/7/2022 10:11:17 AM	G92384
Surr: BFB	87.7	37.7-212		%Rec	1	11/7/2022 10:11:17 AM	G92384
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.015		mg/Kg	1	11/7/2022 10:11:17 AM	B92384
Toluene	ND	0.030		mg/Kg	1	11/7/2022 10:11:17 AM	B92384
Ethylbenzene	ND	0.030		mg/Kg	1	11/7/2022 10:11:17 AM	B92384
Xylenes, Total	ND	0.059		mg/Kg	1	11/7/2022 10:11:17 AM	B92384
Surr: 4-Bromofluorobenzene	92.5	70-130		%Rec	1	11/7/2022 10:11:17 AM	B92384

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211298**
Date Reported: **11/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EOG **Client Sample ID:** WES22-08 0-4'
Project: Roy 5 Well Pad **Collection Date:** 11/3/2022 9:30:00 AM
Lab ID: 2211298-003 **Matrix:** MEOH (SOIL) **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JTT**	
Chloride	97	60		mg/Kg	20	11/7/2022 7:41:48 PM	71352
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**	
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/7/2022 12:30:08 PM	71317
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/7/2022 12:30:08 PM	71317
Surr: DNOP	102	21-129		%Rec	1	11/7/2022 12:30:08 PM	71317
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.5		mg/Kg	1	11/7/2022 10:34:43 AM	G92384
Surr: BFB	86.4	37.7-212		%Rec	1	11/7/2022 10:34:43 AM	G92384
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	11/7/2022 10:34:43 AM	B92384
Toluene	ND	0.045		mg/Kg	1	11/7/2022 10:34:43 AM	B92384
Ethylbenzene	ND	0.045		mg/Kg	1	11/7/2022 10:34:43 AM	B92384
Xylenes, Total	ND	0.091		mg/Kg	1	11/7/2022 10:34:43 AM	B92384
Surr: 4-Bromofluorobenzene	91.4	70-130		%Rec	1	11/7/2022 10:34:43 AM	B92384

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211298**
Date Reported: **11/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EOG **Client Sample ID:** BES22-14 4'
Project: Roy 5 Well Pad **Collection Date:** 11/3/2022 11:25:00 AM
Lab ID: 2211298-004 **Matrix:** MEOH (SOIL) **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JTT**	
Chloride	870	60		mg/Kg	20	11/7/2022 7:54:08 PM	71352
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**	
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/7/2022 12:40:48 PM	71317
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/7/2022 12:40:48 PM	71317
Surr: DNOP	106	21-129		%Rec	1	11/7/2022 12:40:48 PM	71317
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.0		mg/Kg	1	11/7/2022 10:58:15 AM	G92384
Surr: BFB	87.9	37.7-212		%Rec	1	11/7/2022 10:58:15 AM	G92384
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.020		mg/Kg	1	11/7/2022 10:58:15 AM	B92384
Toluene	ND	0.040		mg/Kg	1	11/7/2022 10:58:15 AM	B92384
Ethylbenzene	ND	0.040		mg/Kg	1	11/7/2022 10:58:15 AM	B92384
Xylenes, Total	ND	0.080		mg/Kg	1	11/7/2022 10:58:15 AM	B92384
Surr: 4-Bromofluorobenzene	92.6	70-130		%Rec	1	11/7/2022 10:58:15 AM	B92384

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211298**
Date Reported: **11/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EOG **Client Sample ID:** BES22-15 4'
Project: Roy 5 Well Pad **Collection Date:** 11/3/2022 11:30:00 AM
Lab ID: 2211298-005 **Matrix:** MEOH (SOIL) **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JTT**	
Chloride	630	60		mg/Kg	20	11/7/2022 8:06:29 PM	71352
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**	
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/7/2022 12:51:26 PM	71317
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/7/2022 12:51:26 PM	71317
Surr: DNOP	102	21-129		%Rec	1	11/7/2022 12:51:26 PM	71317
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.7		mg/Kg	1	11/7/2022 11:21:52 AM	G92384
Surr: BFB	85.3	37.7-212		%Rec	1	11/7/2022 11:21:52 AM	G92384
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.018		mg/Kg	1	11/7/2022 11:21:52 AM	B92384
Toluene	ND	0.037		mg/Kg	1	11/7/2022 11:21:52 AM	B92384
Ethylbenzene	ND	0.037		mg/Kg	1	11/7/2022 11:21:52 AM	B92384
Xylenes, Total	ND	0.073		mg/Kg	1	11/7/2022 11:21:52 AM	B92384
Surr: 4-Bromofluorobenzene	90.8	70-130		%Rec	1	11/7/2022 11:21:52 AM	B92384

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	Above Quantitation Range/Estimated Value
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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2211298**

09-Nov-22

Client: EOG

Project: Roy 5 Well Pad

Sample ID: **MB-71352**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **71352**	RunNo: **92399**
Prep Date: **11/7/2022**	Analysis Date: **11/7/2022**	SeqNo: **3320666** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-71352**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **71352**	RunNo: **92399**
Prep Date: **11/7/2022**	Analysis Date: **11/7/2022**	SeqNo: **3320667** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	99.5	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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2211298**

09-Nov-22

Client: EOG

Project: Roy 5 Well Pad

Sample ID: **LCS-71317**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **71317**	RunNo: **92379**
Prep Date: **11/7/2022**	Analysis Date: **11/7/2022**	SeqNo: **3319806** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	15	50.00	0	90.0	64.4	127			
Surr: DNOP	5.3		5.000		105	21	129			

Sample ID: **MB-71317**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **71317**	RunNo: **92379**
Prep Date: **11/7/2022**	Analysis Date: **11/7/2022**	SeqNo: **3319807** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.3		10.00		93.0	21	129			

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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2211298**

09-Nov-22

Client: EOG

Project: Roy 5 Well Pad

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G92384**	RunNo: **92384**
Prep Date:	Analysis Date: **11/7/2022**	SeqNo: **3319924** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	890		1000		88.7	37.7	212			

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G92384**	RunNo: **92384**
Prep Date:	Analysis Date: **11/7/2022**	SeqNo: **3319925** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	89.4	72.3	137			
Surr: BFB	1800		1000		177	37.7	212			

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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2211298**

09-Nov-22

Client: EOG

Project: Roy 5 Well Pad

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B92384**	RunNo: **92384**
Prep Date:	Analysis Date: **11/7/2022**	SeqNo: **3319972** Units: **mg/Kg**

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	0.93		1.000		92.9	70	130			

Sample ID: **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B92384**	RunNo: **92384**
Prep Date:	Analysis Date: **11/7/2022**	SeqNo: **3319973** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	93.9	80	120			
Toluene	0.96	0.050	1.000	0	96.1	80	120			
Ethylbenzene	0.95	0.050	1.000	0	95.3	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.6	80	120			
Surr: 4-Bromofluorobenzene	0.94		1.000		94.4	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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: EOG | Work Order Number: 2211298 | RcptNo: 1

Received By: **Andy Freeman** 11/5/2022 2:10:00 PM

Completed By: **Juan Rojas** 11/7/2022 6:57:38 AM

Reviewed By: 11-7-22

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° C to 6.0°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. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
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: JR 11/7/22

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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.5	Good				
2	4.4	Good				
3	2.8	Good				

Chain-of-Custody Record

Client: EOG (Vertex)

Mailing Address: on file

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 24 hr

Project Name:
* Roy #5 Well pad

Project #:
22E-00716-07

Project Manager:
Michael Moffitt

Sampler: SPC

On Ice: ☒ Yes ☐ No

# of Coolers: 3

Cooler Temp(including CF): (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2211C98	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
11/3/22	11:20	Soil	WES22-03 0-4'	4oz jar	ice	-001	✓	✓					✓			
"	10:45	"	WES22-06 0-4'	"	"	-002	"	"					"			
"	9:30	"	WES22-08 0-4'	"	"	-003	"	"					"			
"	11:25	"	BES22-14 4'	"	"	-004	"	"					"			
"	11:30	"	BES22-15 4'	"	"	-005	"	"					"			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
11/3/22	13:50	Sally Carttar	Cummins		11/4/22	1030
11/4/22	1900	Cummins			11/5/22	1410

Remarks: 3.6 - 0.1 = 3.5, 4.5 - 0.1 = 4.4, 2.9 - 0.1 = 2.8 °C
direct bill EOG
cc scarttar@vertex.ca

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.

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 160040

CONDITIONS

Operator: EOG RESOURCES INC P.O. Box 2267 Midland, TX 79702	OGRID: 7377
	Action Number: 160040
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your closure report and final C-141 for Incident #NAPP2228654422 ROY AET #5, thank you. This closure is approved.	4/21/2023