

Appendix A: Site Photos

APPENDIX A. PHOTOS

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Photo 8. Facing west, along King Blvd.



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Photo 11. Facing west along the waterline alignment showing depression (old stock pond)



Photo 12. Facing north along Phoenix Rd. showing Well Site 9.



Appendix B.

Water Quality Analysis



**WELL REPORT:
DRILLING, SAMPLING,
CONSTRUCTION, AND TESTING,
CITY OF RIO RANCHO**

WELL 9R

**(NMOSE FILE
NO. RG-26259-POD)**

prepared by



SEPTEMBER 2024

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**WELL REPORT FOR
DRILLING, SAMPLING,
CONSTRUCTION, AND TESTING,
CITY OF RIO RANCHO WELL 9R
(NMOSE FILE NO. RG-26259-POD3)**

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**WELL REPORT FOR DRILLING, SAMPLING, CONSTRUCTION, AND TESTING,
CITY OF RIO RANCHO WELL 9R (NMOSE FILE NO. RG-26259-POD3)**

EXECUTIVE SUMMARY

The City of Rio Rancho Well 9R is permitted under New Mexico Office of the State Engineer RG-26259-POD3. Construction on this well began in July of 2023 and the final well video survey was performed in January of 2024. The well is located on the outskirts of Rio Rancho, northeast of the intersection of Phoenix Road NW and Unicorn Circle NW.

The pilot borehole was drilled to a depth of 2,006 ft bgl and discrete-interval zone sampling was performed in the open borehole to assess arsenic concentrations and other water-quality parameters in the aquifer with depth. The deepest zone sampled was from 1,940 to 1,969 ft bgl, and the shallowest from 1,591 to 1,620 ft bgl. Water-quality results indicated that the arsenic concentration exceeded the NMED DWB standard in each sample, and concentration increased with increasing depth.

In order to minimize the production of arsenic, the well was completed to total depth of 1,885 ft bgl. The well is constructed with 18.625-in. OD high-strength low-alloy steel, 18.625-in. OD Type 304L stainless-steel casing, and Type 304L stainless-steel wire-wrapped screen.

A step-drawdown pumping test was performed on December 23, 2023 at rates of 600, 700, 800, 900, and 1,000 gpm. Specific capacity ranged from 7.36 gpm/ft of drawdown at a pumping rate of 600 gpm, to 7.01 gpm/ft of drawdown at a pumping rate of 1,000 gpm. A constant-rate pumping test was performed from December 28 to 30, 2023 at 950 gpm for about 65 hours with a specific capacity of 6.33 gpm/ft of drawdown. Depth to water at the start of the constant-rate test was 1,095.90 ft bgl.

Laboratory analysis of water quality was performed for all parameters required by the NMED DWB. Of the parameters analyzed, only arsenic exceeded the primary drinking water standard of 0.01 mg/L, having a concentration of 0.048 mg/L. The pH was 8.64 and exceeds the secondary NMED DWB drinking water standard of 8.5: a non-enforceable aesthetic standard. Total dissolved solids concentration was 241 mg/L. E. Coli and total coliform bacteria were absent in the water.

If the pump intake is installed at a depth of about 1,420 ft, the well is capable of producing up to 1,400 gpm for about 5 years if the well is pumped 100 percent of the time. This pumping rate and pumping schedule will allow the City to maximize its water right associated with this point of diversion. If the well is pumped 100 percent of the time for 1 year, the corresponding diversion would be 2,259.8 ac-ft. Greater pumping rates could be obtained if the pump were placed in the blank section from 1,640 to 1,660 ft bgl.

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Appendix A. New Mexico Office of the State Engineer Well Record (RG-26259-POD3),
City of Rio Rancho Well 9R

Appendix B. Site photographs, City of Rio Rancho Well 9R

Appendix C. Descriptions of cuttings samples, City of Rio Rancho Well 9R

Appendix D. Drilling fluid reports, City of Rio Rancho Well 9R

Appendix E. Zone sampling water-quality laboratory reports, City of Rio Rancho Well 9R

Appendix F. Reamed borehole caliper logs, City of Rio Rancho Well 9R

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Appendix H. Well plugging and abandonment report for original City of Rio Rancho
Well 9 (RG-26259)

Appendix I. Water-quality laboratory reports, City of Rio Rancho Well 9R

ABBREVIATIONS

amsl	above mean sea level
API	American Petroleum Institute
ASTM	American Society for Testing Materials
bgl	below ground level
BHA	bottom hole assembly
cfm	cubic feet per minute
cm	centimeters
CRT	constant-rate test
DWB	Drinking Water Bureau
EPA	Environmental Protection Agency
fig.	figure
gpd/ft	gallons per day per foot
gpm	gallons per minute
gpm/ft	gallons per minute per foot
GPS	global positioning system
HSLA	high-strength low-alloy
ID	inside diameter
in. ²	square inches
JSAI	John Shomaker & Associates, Inc.
JWGS	Jet West Geophysical Services, Inc.
km ²	square kilometers
lb(s)	pound(s)
lbs/ft	pounds per foot
m	meters
MCL	maximum contaminant level
mg/L	milligrams per liter
mi ²	square miles
mL	milliliters
µg/L	micrograms per liter
µmhos/cm	micromhos per centimeter
µS/cm	microSiemens per centimeter
NMOSE	New Mexico Office of the State Engineer
NMED	New Mexico Environment Department,
NPSH	net positive suction head
NTU	nephelometric turbidity units
OD	outside diameter
ohm-m	ohm-meters
ppm	parts per million
psi	pounds per square inch
Q	flow rate, generally in gpm
rpm	revolutions per minute
sec	second; section
sec/qt	seconds per quart
SP log	spontaneous potential log
T	transmissivity
temp	temperature
visc	viscosity
yd ³	cubic yards

**WELL REPORT FOR DRILLING, SAMPLING, CONSTRUCTION, AND TESTING,
CITY OF RIO RANCHO WELL 9R (NMOSE FILE NO. RG-26259-POD3)****1.0 INTRODUCTION**

This report summarizes the drilling, sampling, construction, development, and pumping tests of the City of Rio Rancho Well 9R (Well 9R), a municipal supply replacement well. Original Well 9 was completed in October 1984 under New Mexico Office of the State Engineer (NMOSE) File No. RG-26259. Well 9R is about 150 ft northwest of Well 9. Well 9R is permitted as RG-26259-POD3 by the NMOSE. It is located about 7 miles northwest of the City of Rio Rancho, northeast of the intersection of Phoenix Road NW and Unicorn Circle NW (Figs. 1 and 2). A copy of the NMOSE Well Record is included as Appendix A.

Well 9R was drilled by Hydro Resources (Hydro), by the reverse mud-rotary method using a Schramm T-200 drilling rig. Conductor casing was installed and cemented in place on July 21, 2023, drilling the pilot borehole began on August 24, 2023, and final well video survey was performed on January 25, 2024. John Shomaker & Associates, Inc. (JSAI) provided Professional Hydrogeologic Services throughout the project including developing drilling specifications, construction oversight, discrete-interval zone sample collection, geophysical log interpretation, well completion, development, data collection during test pumping, collection of water-quality samples, interpretation of test-pumping and water-quality data. JSAI was subcontracted to Huitt-Zollars, Inc. (HZ), and worked closely with HZ throughout the project. Site photographs from the Well 9R project can be found in Appendix B.

2.0 PLUGGING AND ABANDONMENT ORIGINAL WELL 9 (RG-26259)

Hydro began removing the pump from Well 9 on July 19, 2023. Many of the joints could not be unscrewed and the pipe had to be cut. The well was plugged and abandoned with neat cement using positive displacement methods on July 22, 2023. A total of 84 cubic yards (yd³) of cement was installed (Table 1). JSAI measured the cement weight of each truck.

**Table 1. Quantity and weight of neat cement installed during
plugging and abandonment of original Well 9 (RG-26259)**

quantity, yd ³	weight, lbs/gal	quantity, yd ³	weight, lbs/gal	quantity, yd ³	weight, lbs/gal
8	18.1	6	17.7	6	17.9
8	17.6	6	18.1	6	18.2
8	18.0	6	17.8	2	18.1
8	17.8	6	18.0	total cement installed	84 yd ³
8	18.1	6	18.0		

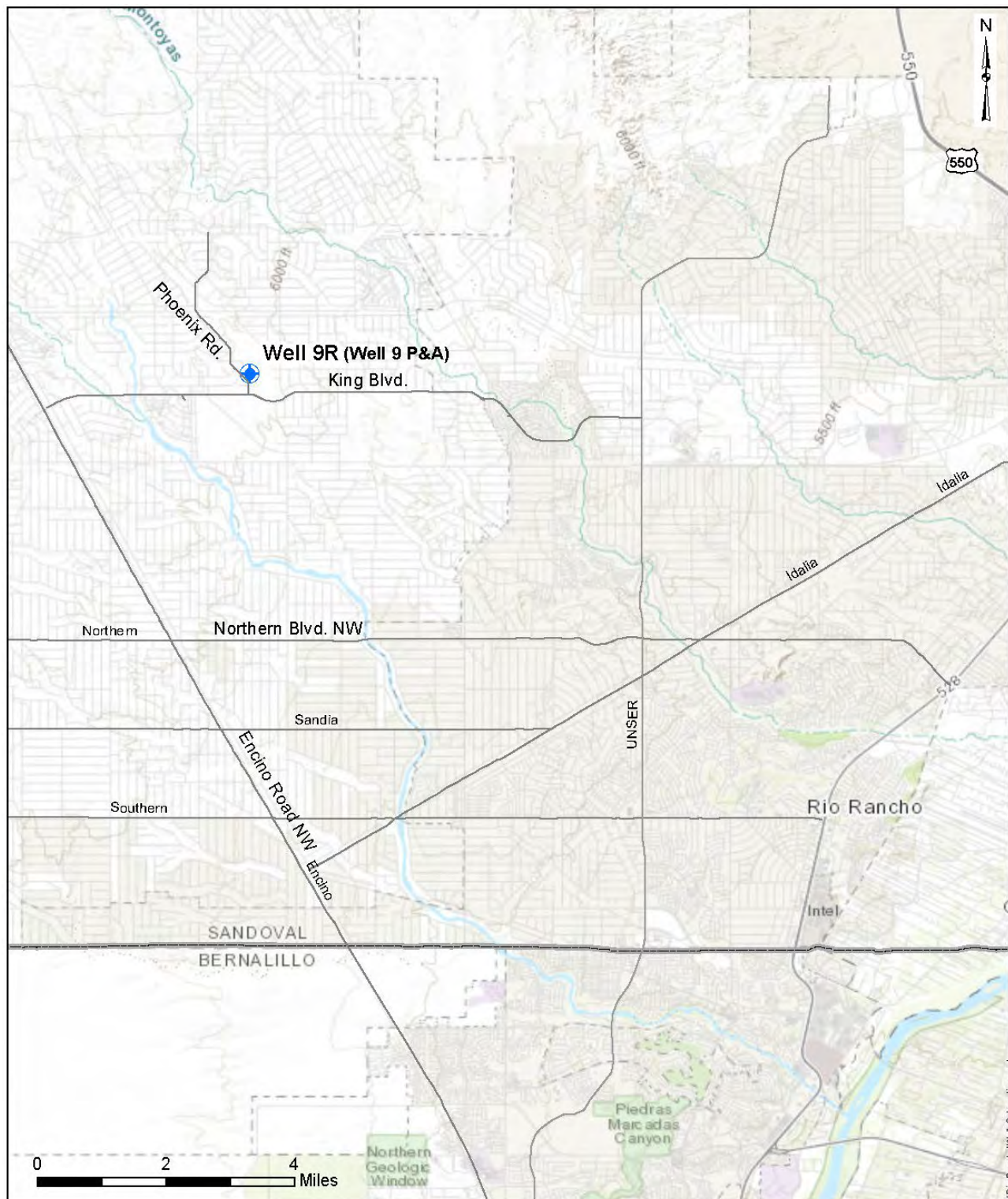


Figure 1. Topographic map showing the locations of Well 9R (RG-26259-POD3), and original Well 9 (RG-26259), City of Rio Rancho, New Mexico.



Figure 2. Aerial photograph showing locations of original Well 9 (RG-26259) and replacement Well 9R (RG-26259-POD3), City of Rio Rancho, New Mexico.

3.0 GEOLOGY AND HYDROGEOLOGY

The pilot borehole for replacement Well 9R was drilled to 2,006 ft below ground level (bgl) in Santa Fe Group sediments, composed of Miocene-age to lower Pleistocene-age alluvial deposits. Well 9R pilot borehole primarily penetrated interbedded layers of red and tan clay, fine to coarse silty sand, and sandy clay. A summarized sample description of drill cuttings collected from the pilot hole is presented as Table 2. Complete sample drill cuttings descriptions are included as Appendix C.

Table 2. Summary of drill cuttings collected from the pilot borehole, City of Rio Rancho Well 9R (RG-26259-POD3)

depth interval, ft bgl	lithologic description
0-280	gravel with interbedded silt and clay
280-410	red clay with interbedded sand and silt, minor gravel
410-610	clay with interbedded sand, minor gravel
610-1,010	sand with interbedded silt and clay, minor gravel
1,010-1,470	clay with interbedded silt and sand
1,470-1,750	sand interbedded with silt, minor clay
1,750-2,005	sand interbedded with silt and clay

ft bgl - feet below ground level

The geologic units penetrated by the borehole, according to Dan Koning (September 2023) with the New Mexico Bureau of Geology and Mineral Resources (NMBGMR), are provided below:

- Ceja Formation 0 to 300 ft bgl: mostly coarse-grained Ceja with a few fine-grained intervals.
- Navajo Draw Member of the Arroyo Ojito Formation 300 to 1,500 ft bgl: mostly clay-rich mud mixed with very-fine to fine-grained sand, with some medium-grained sand.
- Upper Cerro Conejo Formation 1,500 to 2,006 ft bgl (extends below 2,006 ft): upper sandy unit of Cerro Conejo interfingering with some fine-grained Navajo Draw Member tongues

4.0 WELL SUMMARY

(All depths in feet, referred to ground-level datum)

Location:	NE of the intersection of Phoenix Road NW and Unicorn Circle NW		
Elevation:	about 6,070 ft amsl		
Commenced:	July 19, 2023 (begin drilling for conductor casing)		
Completed:	January 25, 2024 (video survey)		
Contractor:	Hydro Resources		
Logs Pilot Borehole:	lithologic samples description		JSAI
	deviation surveys		Hydro Resources
	e-Log, temperature, and gamma ray logs		Jet West Geophysical Services, Inc.
	caliper, deviation, and sonic logs		Jet West Geophysical Services, Inc.
Bits:	36-in. auger bit		0-80
	17-1/2-in. mill-tooth tricone/long-tooth button bit		80-2,005
	28-in. reamer		80-1,950
Conductor Casing:	30-in. OD, 0.375-in. wall, ASTM A-53, Grade B, mild steel		+1.5-80
Blank Casing:	18.625-in. OD, high-strength, low-alloy steel,		
	ASTM A139 blank, 0.375-in. wall, ASTM A606 Type 4		+3.0-1,098
	18.625-in. OD, dielectric coupling		1,098-1,100
	18-in. OD, Type 304L stainless-steel,		
	ASTM A139 blank, 0.375-in. wall, ASTM A778		1,100-1,430
			1,640-1,660
			1,700-1,715
			1,880-1,885
Screen Casing:	18-in. OD Type 304L stainless-steel,		
	Roscoe Moss Wire Wrap screen 0.045-in. slot		1,430-1,640
			1,660-1,700
			1,715-1,880
Gage Lines:	two 1.9-in. OD, schedule 40 mild steel		+2.8-1,128
	two 1.9-in. OD, dielectric coupling		1,128-1,130
	two 1.9-in. OD, Type 304L schedule 40 stainless-steel		1,130-1,711
Gravel Pack:	PW Gillibrand® 8 – 16 gradation silica sand		795-1,890
	1/8- to 3/8-in. rounded well gravel		200-795
Annular Seal:	cement surface seal		1-200
	cement reamed borehole plug		1,890-1,950
Water Level:	1,095.90 ft bgl on December 28, 2023 (prior to constant-rate test)		
Step-Drawdown Test:	Step 1:	600 gpm for 60 minutes, ending Q/s: 7.44 gpm/ft	
	Step 2:	700 gpm for 60 minutes, ending Q/s: 7.19 gpm/ft	
	Step 3:	800 gpm for 60 minutes, ending Q/s: 7.22 gpm/ft	
	Step 4:	900 gpm for 60 minutes, ending Q/s: 7.03 gpm/ft	
	Step 5:	1,000 gpm for 60 minutes, ending Q/s: 7.01 gpm/ft	
Constant-Rate Test:	950 gpm for 3,891 minutes, ending water level 1,238 ft bgl		
Specific Capacity:	6.41 gpm/ft of drawdown at end of constant-rate test		
Temperature of Produced Water During Constant-Rate Test:	~25°C		
Specific Conductance of Produced Water during Constant-Rate Test:	310 µS/cm		
Sand Production (total over entire constant-rate test (~65 hours)):	0.7 mL		

5.0 PROJECT HISTORY

2023-2024

Jul. 19 to 21	Butch's Drilling, auger 36-in. hole to 80 ft bgl. Set and cement 30-in. surface casing to 80 ft bgl.
Jul. 22 to 26	Plug and abandon Original Well 9
Aug. 21 to Aug. 24	Mobilize drill rig and support equipment to site, site preparation, rig up, and mud up.
Aug. 24	Spud 17.5-in. mill-tooth tri-cone bit.
Aug. 24 to Sep. 3	Drill 17.5-in. pilot borehole from 105 to 2,006 ft bgl.
Sep. 4	Pilot borehole geophysical logs by Jet West Geophysical Services, Inc.
Sep. 5 to 22	Discrete-interval zone sample collection.
Oct. 23 to Nov. 5	Ream borehole to 28-in. from 80 to 1,950 ft bgl.
Nov. 7	Caliper and deviation log of reamed borehole by Jet West Geophysical Services, Inc.
Nov. 8	Install cement plug in bottom of reamed borehole.
Nov. 9 to 11	Install 18-in. OD diameter production casing, screen, and 1.9-in. OD gage lines.
Nov. 11 to 13	Install filter pack to 795 ft bgl, and 1/8 to 3/8-in. well gravel to 200 ft bgl.
Nov. 14	Install annular cement seal.
Nov. 15 to 24	Open end air-lift development.
Nov. 25 to 28	Development by swabbing and reverse air-lift pumping.
Nov. 29 to Dec. 2	De-mobilize drilling rig.
Dec. 2 to 3	Mobilize pump rig, rig up.
Dec. 7 to 9	Bailing
Dec. 10	Perform alignment survey.
Dec. 11	Chlorination.
Dec. 15	Install test pump to 1,387 ft bgl.
Dec. 16 to 21	Development by pumping.
Dec. 23	Step-drawdown pumping test.
Dec. 28 to Dec. 30	Constant-rate pumping test.
Jan. 25, 2024	Video survey by Hydro.

6.0 DRILLING, GEOPHYSICAL LOGGING, AND WELL CONSTRUCTION, CITY OF RIO RANCHO WELL 9R

6.1 Conductor Casing

Drilling operations began with auger drilling a borehole for the conductor casing. Hydro sub-contracted Butch's Drilling of Levelland, Texas. Butch's Drilling used an auger rig to drill a 36-in.-diameter borehole to a depth of 80 ft bgl and 30-in.-diameter conductor casing was installed to a depth of 80 ft bgl, and cemented in place. The 0.375-in.-thick wall casing was supplied in 40-ft lengths, and welded with two passes by a certified welder. After centering and aligning the casing, the conductor casing was cemented in place using the positive displacement method, with a sand-cement grout weighing 17.5 pounds per gallon. Conductor casing installation was completed on July 21, 2023.

6.2 Pilot Hole Drilling

Drilling of the 17-1/2-in. pilot hole began on August 24, 2023. Well 9R was drilled by the reverse mud-rotary method using with a Schramm T-200 rig. Drilling fluid consisted of a bentonite-based fluid system with polymeric additives for filtrate control. Drilling fluid was discharged into a 1-stage portable settling pit. The fluid discharged over a shale-shaker prior to entering the pit to remove a majority of the cuttings before the fluid recirculated into the pit and back into the borehole.

The intent of the drilling-fluid program was to create a low-viscosity, low-weight, and low-filtrate fluid system that would stabilize the borehole, allow for adequate borehole cleaning to remove cuttings, and minimize the potential for aquifer damage. Drilling fluid tests were performed during pilot-hole drilling by a certified drilling-fluid Engineer. Drilling fluid properties were mostly maintained within specified limits. The results of these tests are provided as Appendix D. A summary table of basic drilling-fluid properties at selected intervals during drilling of the pilot borehole and reaming is provided as Table 2.

The 17-1/2-in. pilot hole was drilled with a mill-tooth, tri-cone drill bit and a long-tooth button bit to a depth of approximately 2,006 ft bgl. The drilling Contractor operated a drilling-rate recorder during the majority of the project, and monitored rotary speed, air pressure, and the weight on the bit during drilling and reaming. Cuttings samples were collected at 10-ft intervals during pilot hole drilling. Water used in mixing drilling fluid was supplied from frac tanks filled with water supplied by water truck deliveries (PG Enterprises) that obtained water from fire hydrant near the corner of King Boulevard and Rainbow Boulevard.

Table 3. Summary of representative drilling-fluid properties from selected depths, City of Rio Rancho Well 9R (RG-26259-POD3)

date	depth, ft bgl	mud weight, lbs/gal	mud viscosity, sec/qt	filtrate/ water loss, cm ³ /30 min	cake thickness, 32nds	sand content, percent by volume
drilling-fluid properties of the pilot hole						
specification		<9	30 to 40	<10	≤3/32	≤2
8/24/23	80	8.4	29	35.2	1	0.5
8/25/23	331	8.5	30	13.6	1	trace
8/26/23	595	8.8	30	10.4	1	.25
8/27/23	793	8.9	31	10.4	1	.25
8/28/23	1,042	8.9	31	9.6	1	.25
8/29/23	1,157	9.0	30	10.4	1	.50
8/30/23	1,316	8.8	31	8.8	1	.50
8/31/23	1,434	8.8	32	9.6	1	.50
9/1/23	1,686	8.9	31	9.6	1	.50
9/2/23	1,769	8.9	30	8.8	1	.50
9/3/23	1,976	8.8	30	10.6	1	.25
drilling-fluid properties of the reamed hole						
specification		<9	30 to 40	≤13	≤3/32	≤2
10/25/23	355	8.6	31	10.4	1	.25
10/26/23	551	8.8	31	12.0	1	.25
10/27/23	752	8.8	31	11.2	1	.25
10/28/23	938	8.9	32	12.0	1	.25
10/29/23	1,077	8.9	31	12.8	1	.50
10/31/23	1,308	8.8	31	11.2	1	trace
11/1/23	1,425	8.9	32	12.8	1	.50
11/4/23	1,643	8.9	31	12.8	1	.50
11/5/23	1,863	9.0	33	12.8	2	.50

bold indicates above specification

cm³/30 min – centimeters cubed per 30 minutes

ft bgl - feet below ground level

sec/qt - seconds per quart

n/a - not available

6.3 Pilot Hole Deviation Surveys During Drilling

Deviation surveys were taken by the Contractor at intervals of about 60 ft or less to the total pilot borehole depth. The deviation survey results are shown in Table 4. Every survey performed was within the maximum 0.5-degree threshold. Survey results were verified with a wire-line survey taken during geophysical logging after completion of the pilot borehole.

Table 4. Results of deviation surveys performed by the Contractor while drilling the pilot borehole, City of Rio Rancho Well 9R (RG-26259-POD3)

depth ft bgl	deviation in degrees	depth ft bgl	deviation in degrees
110	0.1	1,129	0.2
170	0.1	1,189	0.1
221	0.2	1,249	0.1
281	0.2	1,309	0.2
341	0.1	1,369	0.1
409	0.0	1,429	0.1
470	0.1	1,489	0.1
529	0.2	1,549	0.3
589	0.1	1,609	0.3
650	0.1	1,689	0.4
710	0.1	1,749	0.0
769	0.0	1,809	0.3
829	0.0	1,869	0.1
889	0.0	1,930	0.3
949	0.0	1,990	no survey
1,009	0.0	2,005	no survey
1,069	0.0		

ft bgl - feet below ground level

6.4 Geophysical Logging

On September 4, 2023, Jet West Geophysical Services, Inc. performed geophysical logging of the 17-1/2-in. pilot hole. All geophysical logs were run with the borehole full of drilling fluid, and no problems were noted during the logging. The logging suite included temperature, fluid resistivity, normal resistivity (8-, 16-, 32-, and 64-in.), spontaneous potential (SP), gamma-ray, neutron, caliper, sonic, deviation, and directional alignment. Geophysical logs were used in correlation with other data to determine general lithology, depth to water, and to guide final well construction. A diagram showing geophysical logs collected from the pilot borehole is presented as Figure 3.

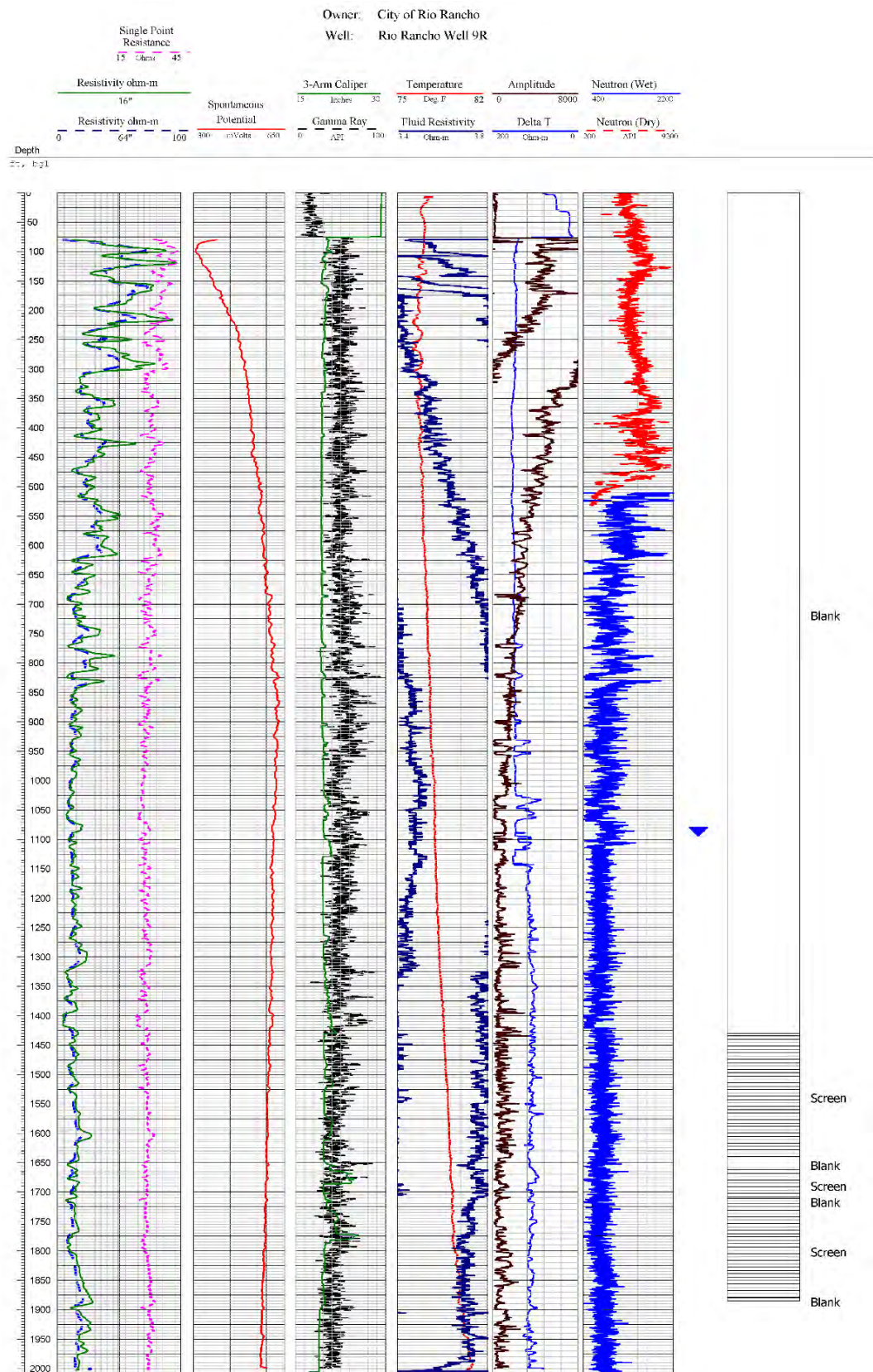


Figure 3. Diagram showing selected geophysical logs for replacement Well 9R (RG-26259-POD3), City of Rio Rancho, New Mexico.

Geophysical logging of the 28-in. diameter reamed borehole was performed by Jet West Geophysical Services, Inc. on November 7, 2023. Logs included caliper, deviation, and directional alignment.

The borehole fluid temperature increased with depth, from approximately 77°F at the surface to 81°F at total depth. The temperature of the water produced during pumping tests was at most 80.6°F. The fluid resistivity (inverse of conductivity) within the saturated zone (below 1,100 ft) increased somewhat with depth, indicating a relative decrease in total dissolved solids concentration with depth.

In this geologic setting, areas with higher resistivity are generally indicative of more coarse-grained sediments. Within the saturated zone, the resistivity log has relatively low resistivity in the range 16 to 18 ohm-meters. Resistivity values of 20 to 25 ohm-meters are indicative of silt to sand-rich intervals. The form of the SP log generally follows that of the resistivity logs.

The natural-gamma-ray log shows gamma response consistently in the range of 30 to 60 counts per second (cps), with peaks up to about 60 cps. The higher readings correspond with low-resistivity interbedded clay-rich beds throughout the section. There are no anomalous high-gamma spikes that would indicate significant sources of radioactivity.

Neutron response ranged from 400 to 2,200 API units, but was consistently between 400 and 1,000 API units below the water table. Higher neutron values generally corresponded with sand-rich zone having higher resistivity values.

The sonic log indicates a depth to water of about 1,140 ft bgl, which is about 40 ft deeper than that documented during the pumping tests. The log does not indicate significant consolidation of the sediments with depth.

The caliper log of the pilot hole indicated the borehole diameter ranged from about 17.25 to 20.5-in. below the conductor casing to a depth of 1,660 ft. A washout (area where the hole is enlarged) of up to about 23.25-in. diameter is present from 1,660 to 1,685 ft, and a washout of up to 22.75-in. diameter is present from 1,760 to 1,780 ft. The caliper log of the reamed borehole indicated that there were washouts of up to 37-in. from 684 to 687 ft, 38.5-in. from 816 to 826, and 32.5-in. from 933 to 940 ft. The reamed caliper log indicated a number of areas where the borehole was under gage. The borehole was as small as 25.5-in from 79 to 88 ft, 24.5-in. from 118 to 122 ft, 26-in. from 127 to 134 ft, 26.5-in at numerous depths down to about 1,780 ft, and 22-in. from 1,804 to 1,828 ft. Hydro cleaned out the borehole with the reaming assembly prior to running casing.

Deviation of the pilot hole was less than the allowable deviation of 0.5 degrees throughout its entire length. The maximum departure from true vertical was 3.5 ft at a depth of 1,750 ft. and the departure from vertical at the bottom of the borehole was 3.0 ft. Deviation of the reamed borehole was less than the allowable deviation of 0.5 degrees throughout its entire length. The maximum departure from vertical was 1.05 ft at a depth of 1,680 ft, and the departure from vertical at 1,880 ft was 0.78 ft.

6.5 Discrete-Interval Zone Sampling

Upon completion of the geophysical logs, the logs and cuttings were reviewed, and four zones were selected for sampling. The screen for the sample tool was 29.2 ft long and was run on drill pipe. The selected zones differed somewhat from the zones sampled due to the limited availability of different lengths of drill pipe. Depths where zone sampling was attempted are shown in Table 5.

Table 5. Zones where discrete interval zone sampling was attempted in the pilot borehole, City of Rio Rancho Well 9R (RG-26259-POD3)

zone	depth, ft bgl
1	1,940 to 1,969
2	1,814 to 1,843
3	1,717 to 1,747
4	1,591 to 1,620

ft bgl - feet below ground level
gpm - gallons per minute

With the exception of the lower-most zone which did not have a lower bentonite seal, the construction of each zone consisted of a bentonite seal below the sample tool, nominal 3/8-in. rounded gravel around the tool screen, and bentonite seal above the gravel (Fig. 4). JSAI representatives determined when the bentonite in the borehole was hydrated by monitoring a sample at the surface that was being hydrated with drilling fluid. Gravel was not placed around the screen until the lower bentonite seal was hydrated. After pumping and sampling of the zone, the tool was pulled up to the next specified depth, the borehole filled with 3/8-in. gravel to the required depth, and the process repeated.

Once the upper bentonite seal was hydrated, 2-7/8-in. steel air-line was staged in 300-ft lengths to a depth of approximately 1,400 ft bgl. After each 300-ft section was installed, the drilling fluid was air-lift pumped out until little or no fluid was produced. Once 1,400 ft of air-line was installed, an attempt was made to air-lift each zone for at least 5 hours, except for Zone 3, which the contractor decided to skip air-lifting and go directly to pumping.

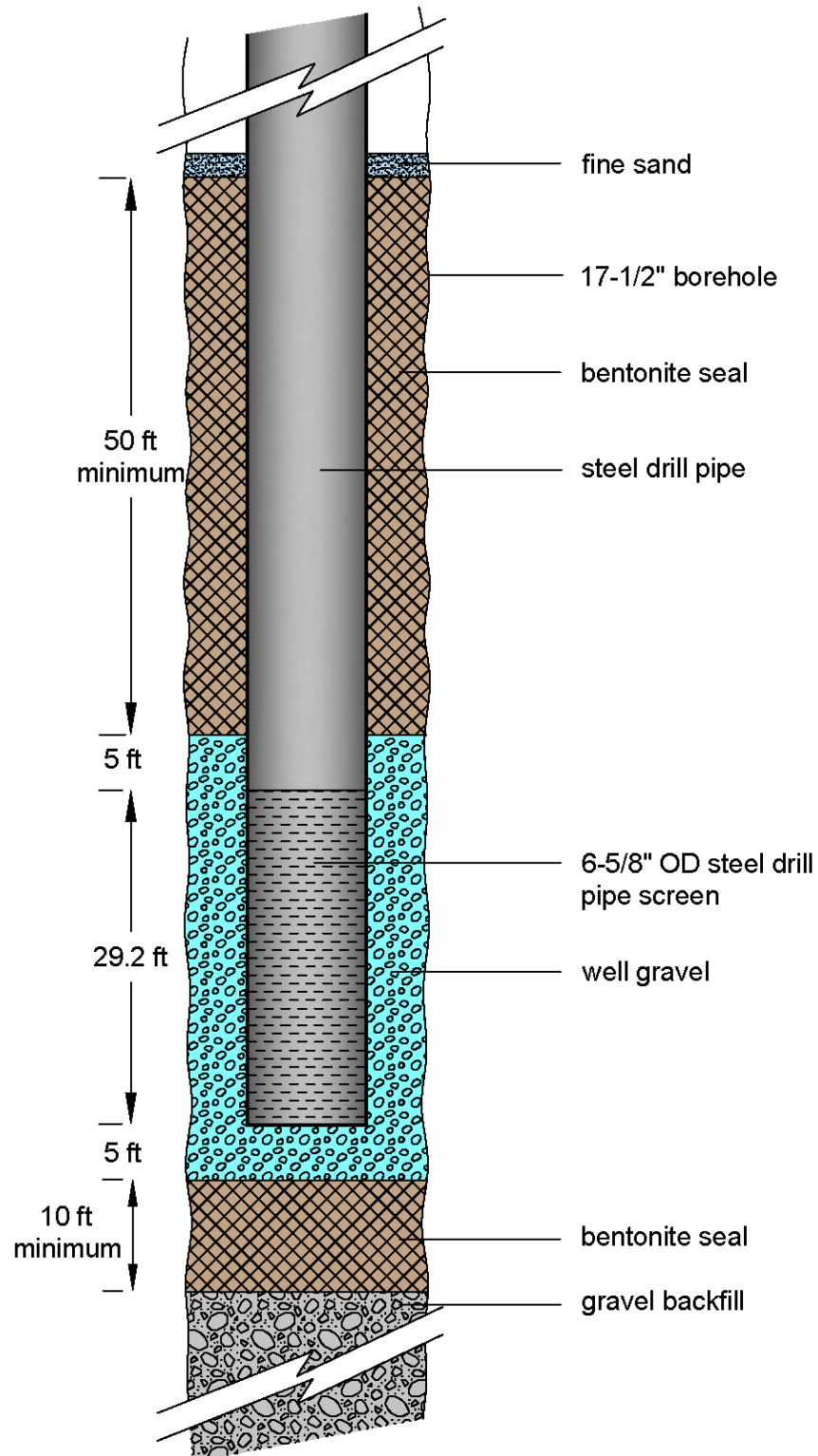


Figure 4. Schematic diagram showing generalized configuration for discrete-interval zone sampling, Well 9R (RG-26259-POD3), City of Rio Rancho, New Mexico.

After air-lift development, a Baker Hughes FSB3DB 66-HP submersible pump was installed to approximately 1,350 ft bgl and purging of the zones began. Purged fluid was monitored for clarity, temperature, pH, and conductance. Pumping rate was monitored using an inline flow meter calibrated for 5 to 40 gpm, and confirmed by time and volume measurements conducted by the Contractor. The zones were pumped until at least 4.5-tool volumes from static water level had been purged, field water-quality parameters stabilized, and no drilling fluid was evident in the produced water. Sample intervals with pumping times, rates, and volume purged are summarized in Table 5.

During pumping, 1 gallon of water was collected every hour to be used as a backup for filling the sample bottles to be submitted to the analytical lab in case the bentonite seals failed. Before the pump was shut off, samples were collected for submission to Hall Environmental Analysis for chemical analysis. The results of these analyses are presented in Table 6; copies of the laboratory zone water-quality results are provided as Appendix E.

During air-lifting and pumping of the zones, the fluid level in the conductor casing was monitored for evidence that the bentonite seals were holding. Representative water-quality samples were collected from Zones 1 and 3. Zone 1 was successfully airlifted, pumped for the required purge volume, and samples were collected for laboratory analysis on September 9, 2023. Zone 3 was developed and purged with a submersible pump, and samples were collected for laboratory analysis on September 17, 2023.

Zones 2 and 4 were not able to be successfully sampled for various reasons. Multiple attempts were made to obtain a competent seal at Zone 2; however, every time the compressor was turned on, the upper seal would fail. The seal for Zone 4 was installed and the zone was developed by air-lift pumping. However, the zone produced excessive amounts of sediment and a representative sample could not be collected due to the pump becoming sand locked.

**Table 6. Discrete-interval sampling zones and purge volumes,
City of Rio Rancho Well 9R (RG-26259-POD3)**

zone	actual depth sampled, ft bgl	air-lift time (air on), min	pumping time, min	nominal pumping rate, gpm	volume purged, gal
1	1,940 to 1,969	272	571	11	7,228
3	1,717 to 1,747	0	678	10	7,224

ft bgl - feet below ground level

gpm - gallons per minute

The high turbidity of the water from Zone 3 biased the sample results with respect to TDS, iron, manganese, and lead concentrations. Field measurements of specific conductance at Zone 3 near the end of purging generally ranged from 360 to 370 micromhos per centimeter ($\mu\text{mhos/cm}$). Per our communication with the laboratory, to potential for the upward bias in concentrations for various parameters was verified.

Table 7. Summary of water-quality data from discrete-interval zone sampling, City of Rio Rancho Well 9R (RG-26259-POD3)

constituent	unit	Zone 1: 1,940-1,969	Zone 3: 1,717-1,747	NMED DWB MCL standard
date of collection		9/9/23, 17:00	9/17/23, 08:00	
pH	pH units	8.78	8.48	6.5 to 8.5 ^a
hardness	mg/L	14	190	no standard
alkalinity	mg/L	111.2	140	no standard
bicarbonate	mg/L	102.2	4	no standard
carbonate	mg/L	8.960	136	no standard
conductivity	µmhos/cm	350	480	no standard
total dissolved solids (TDS)	mg/L	210	1,580	500 ^a
turbidity	NTU	26	2,000	5
chloride	mg/L	5.2	7.7	250 ^a
fluoride	mg/L	0.55	0.92	2 ^a to 4
sulfate	mg/L	41	76	250 ^a
antimony	mg/L	< 0.0010	< 0.0010	0.006
arsenic (total/ dissolved)	mg/L	0.10/0.086	0.017/0.0072	0.010
barium	mg/L	0.046	0.95	2.0
beryllium	mg/L	< 0.00050	0.0038	0.004
cadmium	mg/L	< 0.00050	< 0.00050	0.005
calcium	mg/L	5	49	no standard
chromium	mg/L	0.0066	0.083	0.1
copper	mg/L	0.0066	0.29	1.0 ^a
iron	mg/L	< 0.020	37	0.3 ^a
lead	mg/L	0.00057	0.029	0.015
magnesium	mg/L	< 1	15	no standard
manganese	mg/L	< 0.0010	0.72	0.05 ^a
mercury	mg/L	< 0.00020	< 0.00020	0.002
nickel	mg/L	0.037	0.47	no standard
potassium	mg/L	2	16	no standard
selenium	mg/L	< 0.0010	0.0024	0.05
sodium	mg/L	71	110	no standard
thallium	mg/L	< 0.00025	0.00033	0.002
uranium	mg/L	0.0010	0.0097	0.030
gross alpha	pCi/L	2.40 ± 1.61	41.7 ± 13.4	15
gross beta	pCi/L	1.87 ± 0.873	21.0 ± 6.22	50 ^b
radium-226	pCi/L	0.246 ± 0.580	0.465 ± 0.707	5 (combined)
radium-228	pCi/L	0.0839 ± 0.345	0.702 ± 0.382	

^a - national secondary drinking water standard (non-enforceable guidelines)

^b - NMED DWB defined level below which the equivalent radiation is below

EPA mandated radiation threshold of 4 mrem/year

NMED DWB MCL - NM Environment Dept–Drinking Water Bureau maximum contaminant level

bold exceeds NMED DWB MCL

µmhos/cm - micromhos per centimeter

mg/L - milligrams per liter

pCi/L - picoCuries per liter

6.6 Production Well Final Design

After a review of drill cuttings, geophysical logs, and zone field and laboratory water-quality results, the final recommended design for Well 9R was changed to limit the production of high concentrations of arsenic documented in Zone 1 so that the existing arsenic treatment plant could optimally treat the water. The total depth of the well was shortened from the proposed depth of 2,005 ft bgl to 1,885 ft bgl. Correspondingly, the bottom of the screen interval was raised from the proposed depth of 1,995 ft bgl to 1,880 ft bgl. Figure 5 is completion diagram of the final City of Rio Rancho Well 9R.

6.7 Reaming the Pilot Hole

On October 23, 2023, the Contractor began reaming the 17-1/2-in. pilot hole to 28-in. using a 28-in. diameter mill-tooth tri-cone hole-opener. The drilling equipment, methods, and drilling fluid program were the same as for the pilot hole. Drilling fluid properties were monitored and maintained by the Contractor. The 28-in. diameter reaming pass was completed to a total depth of 1,950 ft bgl on November 5, 2023. A caliper log of the reamed borehole was performed in order to evaluate the condition of the hole and to establish an estimate of the annular volume (copies of caliper and deviation logs of reamed borehole are provided as Appendix F).

A cement seal was installed November 8, 2023 from 1,950 to 1,890 ft bgl to prevent water lower in the aquifer from upwelling in the borehole and increasing arsenic concentration.

6.8 Casing Installation

Casing installation took place from November 9 to 11, 2023. In preparation for casing gravel-pack and cement plug installation, 2-5/8-in. steel tremie tubing was set to 1,858 ft bgl and suspended from the rig floor. Blank casing consisted of 18.625-in. OD, 0.375-in. wall, high-strength low-alloy steel pipe conforming to ASTM A139, and 18-in. OD ASTM A606 Type 4 and Type 304L stainless-steel (ASTM A778) specifications. A dielectric coupling was installed from 1,098 to 1,100 ft bgl between the high-strength low-alloy and stainless-steel casing. Screen consisted of 18 in. nominal diameter Type 304L stainless-steel wire-wrapped screen with a slot width of 0.045 in., and was manufactured and supplied by Roscoe Moss of Los Angeles, California. Casing joints were supplied in nominal 40-ft lengths, with welding collars for field assembly. All welding was performed by certified welders.

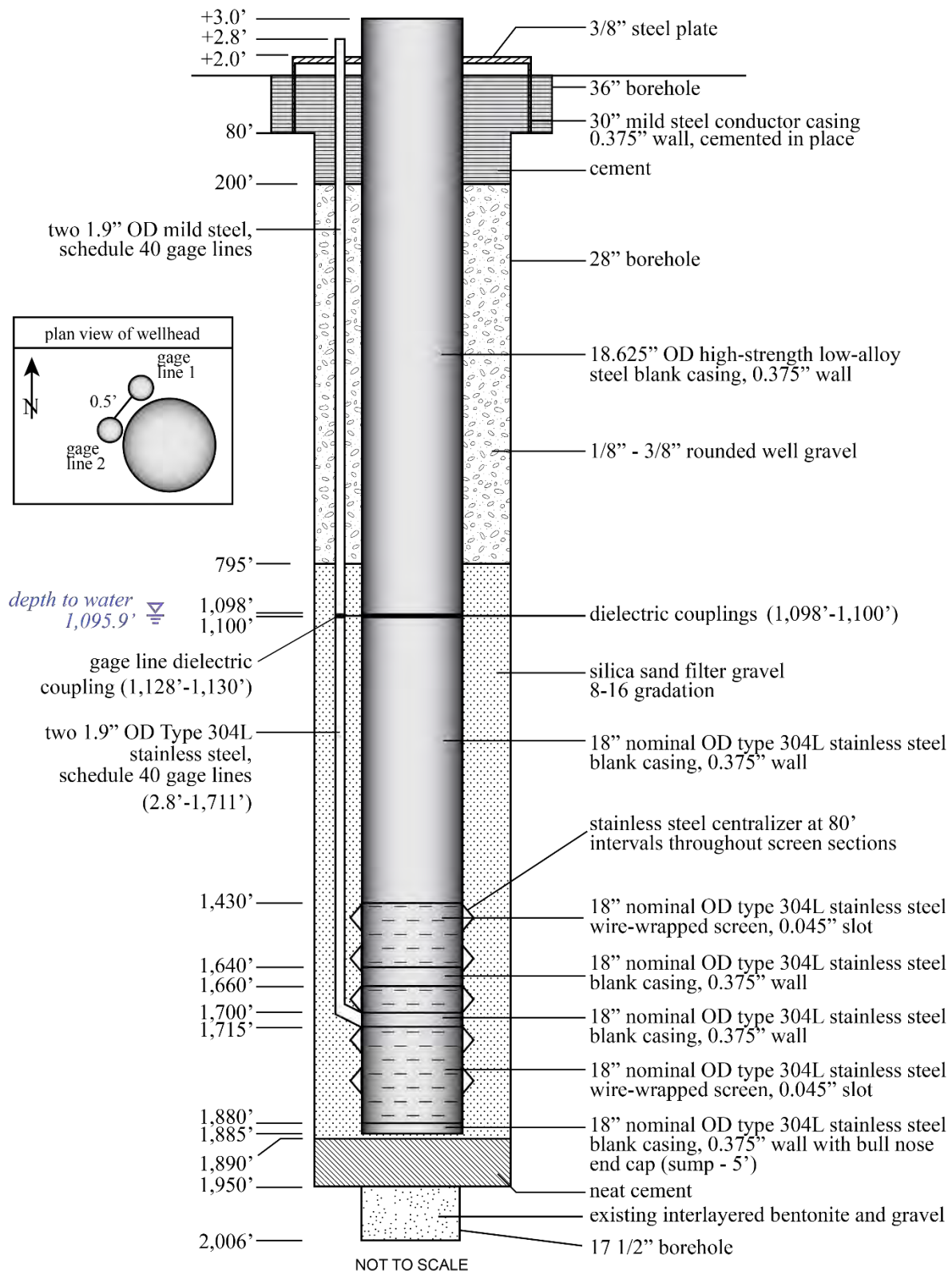


Figure 5. Well completion diagram, City of Rio Rancho Well 9R (RG-26259-POD3), completed November 2023, New Mexico.

During casing installation, centralizers were welded to the perforated section of the casing string every 80 ft to provide standoff from the borehole wall. Two 1.9-in.-diameter gage lines make gradual transitions into the nominal 18-in. casing string between 1,700 to 1,715 ft bgl (see Fig. 5). The upper portion of the gage lines are schedule 40 mild steel, and the lower portion of the gage lines are schedule 40 Type 304L stainless-steel. Dielectric couplings were installed between the two metal types. The gage lines are attached to the casing string by welding each coupling to the outside of the 18-in. casing, or at the casing joint. Total depth to the bottom of the casing string is 1,885 ft bgl.

6.9 Filter Gravel, Gravel Backfill, and Annular Seal Installation

In preparation for filter gravel installation, the borehole fluid was thinned back and conditioned with clear water. Once the viscosity of the drilling fluid reached about 30 sec/qt, gravel packing commenced.

The filter gravel consisted of 8-16 gradation PW Gillibrand® silica sand. Gravel backfill consisted of 1/8- to 3/8-in. diameter silica-based gravel. Both gravels were installed by pumping down the tremie tubing with municipal water. As the annulus filled, the gravel level was monitored by tagging with the tubing. As the annulus was filled with gravel, the tremie tubing would be removed approximately 30 ft at a time. A wire-line tagger was also periodically used to verify depth to gravel.

Total filter gravel pack placed was 82.6 cubic yards, which brought the gravel level up to 795 ft bgl and which represents 93 percent of the theoretical logged annulus volume. Gravel backfill was installed above the filter gravel to a depth of 200 ft bgl. Cement was then placed in the annulus through tremie tubing using positive displacement methods from 196 ft bgl to surface.

6.10 Alignment Survey

To ensure the casing was installed sufficiently and plumb to receive a line-shaft turbine pump, an alignment survey was conducted on December 10, 2023 by the Contractor. The alignment tool was 15-3/4-in. OD and was approximately 44 ft in length. The tool was run the full length of the casing and did not encounter any constrictions.

7.0 WELL DEVELOPMENT

7.1 Air-Lift Pumping

Initial well development consisted of open-ended reverse air-lift pumping with the air-line set progressively deeper in order to slowly remove drilling fluid from the well, limit hydraulic loading on the casing above the water table, and introduce flow into the well.

The next stage of development consisted of zoned swabbing and reverse air-lift pumping. The swab tool consisted of a 22-ft section of drill pipe with openings of approximately 2-in. spaced throughout the pipe, fitted with a rubber swab disc at each end and in the center of the tool. A 1,170-cfm x 350-psi air compressor was used for zoned air-lift pumping development. The development tool was run on drill pipe.

The well was developed by zoned swabbing and reverse air-lift pumping in two complete passes. Initially, the swab tool was set at the top of the screen, and the development proceeded downward to remove drilling fluid and fines from the gravel pack, repair formation damage, and to initiate flow into the well. After completion of the initial pass, the well was developed from the bottom up by swabbing and reverse air-lift pumping. The operational procedure for zoned air-lift development was to initiate discharge with the air compressor, and, as the produced water started to clear, raise and lower the swab tool. This process was repeated until discharge remained relatively clear, at which time, the tool was moved to the next zone.

Specific conductance values of discharged water produced from air-lift pumping ranged from an initial value of 1,040 to a low of 294 microsiemens per centimeter ($\mu\text{S}/\text{cm}$), with pH between 8.9 and 7.0. Specific conductance was generally about 330 $\mu\text{S}/\text{cm}$ with a pH of about 8.4 toward the end of air-lift development.

7.2 Development by Bailing

Well development by bailing was performed using a 9.7 ft long, 14-in. diameter bailer. The general procedure was to repeatedly run the bailer to the bottom of the well, remove the bailer, and empty the fluid out. Bailing speeds were at least 300 ft/min.

7.3 Development by Pumping

During all development and test pumping, water levels, pumping rates, and discharge characteristics were monitored and recorded. Water levels were measured with a Contractor-supplied In-Situ 2,000-ft-long well sounder calibrated to 0.01-ft increments. Pumping for development and aquifer testing was accomplished with a 600-hp submersible pump, set at approximately 1,387 ft bgl. Pumping rates were measured with a McCrometer electromagnetic instantaneous and totalizing flow meter, that was regulated by a variable frequency drive. A gate valve was used to help maintain backpressure on the meter. Sand content was measured with a Rossum centrifugal sand sampler.

Development by pumping and surging consisted of pumping the well, initially at relatively low rates, and as water cleared and sediment production decreased, stopping the pump and allowing water to surge down the drop-pipe through the pump and into the well. Pumping and surging is a development technique used to help break up remaining drilling fluid wall cake, repair formation damage, and promote settling of the gravel pack. Following each surge, the pump was then restarted at the same or a higher rate, and as development continued, the pumping rate was increased. rates ranged from 380 gpm to about 1,150 gpm.

8.0 AQUIFER TESTING

8.1 Aquifer Testing Methods

After well development was complete, the water level in Well 9R was allowed to recover. Pumping tests consisted of a 300-minute step-drawdown test and a constant-rate test of about 65 hours. Results of the pumping tests are described in the sections below. Water levels were measured with a Contractor-supplied In-Situ 2,000-ft well sounder calibrated to 0.01-ft increments, and a 500-psi pressure transducer and data logger.

8.2 Step-Drawdown Test

The first step-drawdown pumping test was attempted on December 22, 2023. The discharge piping was configured to pump to the spillway just outside of the site location. The plan was to pump the well for five pumping steps. Unfortunately, the generator failed immediately after the third pumping step.

The second and final step-drawdown pumping test was performed on December 23, 2023. The pre-pumping water level measured in the well was 1,095.9 ft bgl. There were five, 60-minute steps, at rates that increased in 100-gpm increments from 600 gpm to 1,000 gpm (Fig. 6). Specific capacity at the end of each step ranged from 7.36 gpm/ft of drawdown at 600 gpm, to 7.01 gpm/ft of drawdown at 1,000 gpm.

8.3 Well Efficiency

The yield of the well, in terms of specific capacity, is governed both by the properties of the aquifer and the efficiency of the well. Well efficiency is a measure of the effectiveness of the well in transmitting water from the aquifer to the pump.

Any well is more efficient at a lower pumping rate than it is at a higher rate because a smaller proportion of the drawdown is attributable to turbulent-flow losses that are an exponential function of the pumping rate. Efficiency may be calculated as the ratio between the projected specific capacity at a pumping rate of zero (at which the characteristics of the well have no effect) and at an actual pumping rate (Bierschenk, 1964). Table 7 also provides the calculated efficiency at each of the pumping rates from the step-drawdown test.

Table 8. Summary of December 23, 2023 step-drawdown pumping test data, City of Rio Rancho Well 9R (RG-26259-POD3)

step number	pumping rate, gpm for 60 minutes	maximum drawdown after each step, ft	specific capacity (Q/s), gpm/ft	total sand production during step, ppm	estimated efficiency, percent
starting water level = 1,095.5 ft bgl (December 23, 2023)					
1	600	81.55	7.36	0.9	93.5
2	700	97.38	7.19	0.9	92.5
3	800	112.37	7.12	0.0	91.5
4	900	127.33	7.07	0.0	90.5
5	1,000	142.70	7.01	0.9	89.6

ft bgl - feet below ground level

gpm - gallons per minute

gpm/ft - gallons per minute per foot of drawdown

ppm - parts per million by volume

8.4 Constant-Rate Pumping Test

The objective of the constant-rate test was to pump the well at 950 gpm for 7 days. The first constant-rate pumping test began on December 24, 2023. On December 26 after about 3,440 minutes, the transducer failed and water levels were collected using an In-Situ well sounder, while waiting on another transducer to arrive and be installed. On December 27, the generator failed after 4,338 minutes, and was restarted within about 21 minutes. Per JSAI conversations with the Rio Rancho Utilities, it was decided to continue the test. The generator failed again on December 27 after about 4,445 minutes, and could not be restarted. The transducer had still not arrived at the time of the second failure of the generator.

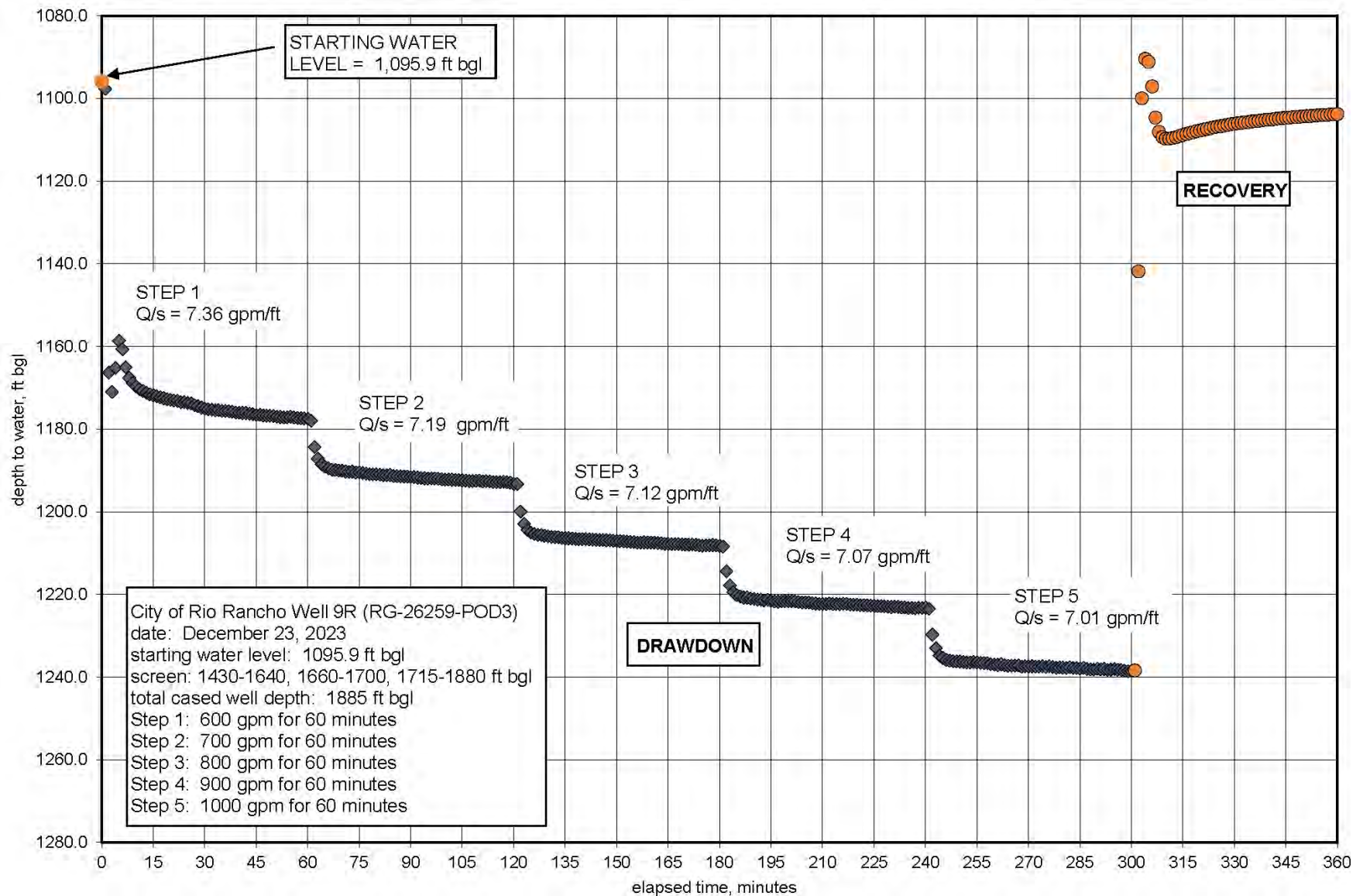


Figure 6. Graph showing transducer-recorded drawdown and partial-recovery data from the step-drawdown pumping test, Well 9R, City of Rio Rancho, New Mexico.

The constant-rate test was restarted on December 28. Prior to starting the test, a new transducer was installed and began recording water-level measurement at 1-minute intervals. The generator that failed during the initial attempt to complete the constant-rate test was removed from the site and two additional generators were setup for the test. One generator was to be used as a backup.

For the second test, the well was pumped at 950 gpm and the test lasted 3,890 minutes. The well had been allowed to recover for approximately 22.5 hours prior to beginning the test. On December 30 after 3,739 minutes of pumping, the primary generator failed. The backup generator was operational within about 15 minutes and pumping continued. On December 30, 2023, 3,890 minutes after the test started, the backup generator failed and recovery water-level measurements were collected.

JSAI and Rio Rancho Utilities discussed the potential of restarting the constant-rate pumping test. Given the difficulties keeping generators operational for extended periods of time on this project, and that the slope of the drawdown data had stabilized prior to the first generator failure, it was decided to continue collecting recovery data and not attempt another test.

Drawdown and recovery data from the pumping test started on December 28 were plotted on a semi-logarithmic plot (Fig. 7), and the data were analyzed using the Cooper-Jacob (1946) “straight-line” method. The calculated transmissivity of the portion of the aquifer open to the well was 3,048 ft²/day from the drawdown curve, and 3,554 ft²/day from the recovery curve. The specific capacity of Well 9R was 6.41 gpm/ft of drawdown for the lowest drawdown recorded over the entire pumping test. A summary of constant-rate pumping test data is provided as Table 8.

Sediment production as measured with a Rossum Sand Tester was low throughout the entire pumping period. In general, sediment production is greatest within the first 20 to 30 minutes of pumping. Cumulative sediment production is summarized in Table 9.

Table 9. Summary from December 28 to 30, 2023 constant-rate pumping test, City of Rio Rancho Well 9R (RG-26259-POD3)

average pumping test rate, gpm	starting water level, ft bgl	lowest water level, ft bgl	total drawdown, ft	specific capacity (Q/s), gpm/ft	transmissivity, pumping, ft ² /day	transmissivity, recovery, ft ² /day
950	1,095.9	1,246.11	143	6.33*	3,048	3,554

* prior to first generator failure at 3,739 mins.
gpm - gallons per minute

ft bgl - feet below ground level
gpm/ft - gallons per minute per foot of drawdown

Table 10. Summary of cumulative sediment production during December 28 to 30, 2023 constant-rate pumping test, City of Rio Rancho Well 9R (RG-26259-POD3)

time since pumping began, mins	cumulative sediment production, ppm	time since pumping began, mins	cumulative sediment production, ppm
20	5.28	1,050	0.25
40	3.3	1,980	0.13
60	2.64	2,460	0.13
190	0.83	2940	0.11
780	0.27	3480	0.09

ppm - parts per million

8.5 Pump Capacity and Setting Depth

The non-pumping water level for the original Well (RG-26259) was 1,082 ft bgl on October 2, 1984 (Denney-Gross, 1984). The non-pumping water level in February 2000 was reported to range from about 1,118 to 1,122 ft below a measuring point of unreported height (Glorieta Geoscience, 2000). Assuming the non-pumping water level in 2000 was 1,120 ft bgl, the decline from October 1984 to February 2000 was 38 ft; an average of about 2.2 ft/yr. The water level in Well 9R was 1,095.90 ft bgl prior to beginning test pumping.

Well 9R has a higher specific capacity compared to original Well 9. For comparison, the specific capacity of Well 9R at a pumping rate of 1,000 gpm was 7.01 gpm/ft of drawdown, and for Well 9 at a pumping rate of 1,016 gpm was about 5.5 gpm/ft of drawdown.

Future pumping water levels were projected using the following assumptions: an aquifer transmissivity of 3,301 ft²/day (24,692 gpd/ft), which is the average of the transmissivity calculated from the pumping and recovery data, and short-term specific capacity as interpolated from the step-test data, and projected specific capacity at higher rates using projections based on Bierschenk. The pumping water levels assume a regional drawdown of 2.5 ft/yr in order to provide a conservative estimate of potential impacts to the aquifer from long-term pumping. Assumptions with the long-term pumping water-level calculations include: no increase or decrease in Rio Grande contribution, no changes in river base level, no change in transmissivity over time, and no change in well efficiency over time.

Projected long-term pumping water levels with the well pumped 70 percent of the time and 100 percent of the time are provided in Table 9. The pumping water levels assume an initial non-pumping water level of 1,096 ft bgl.

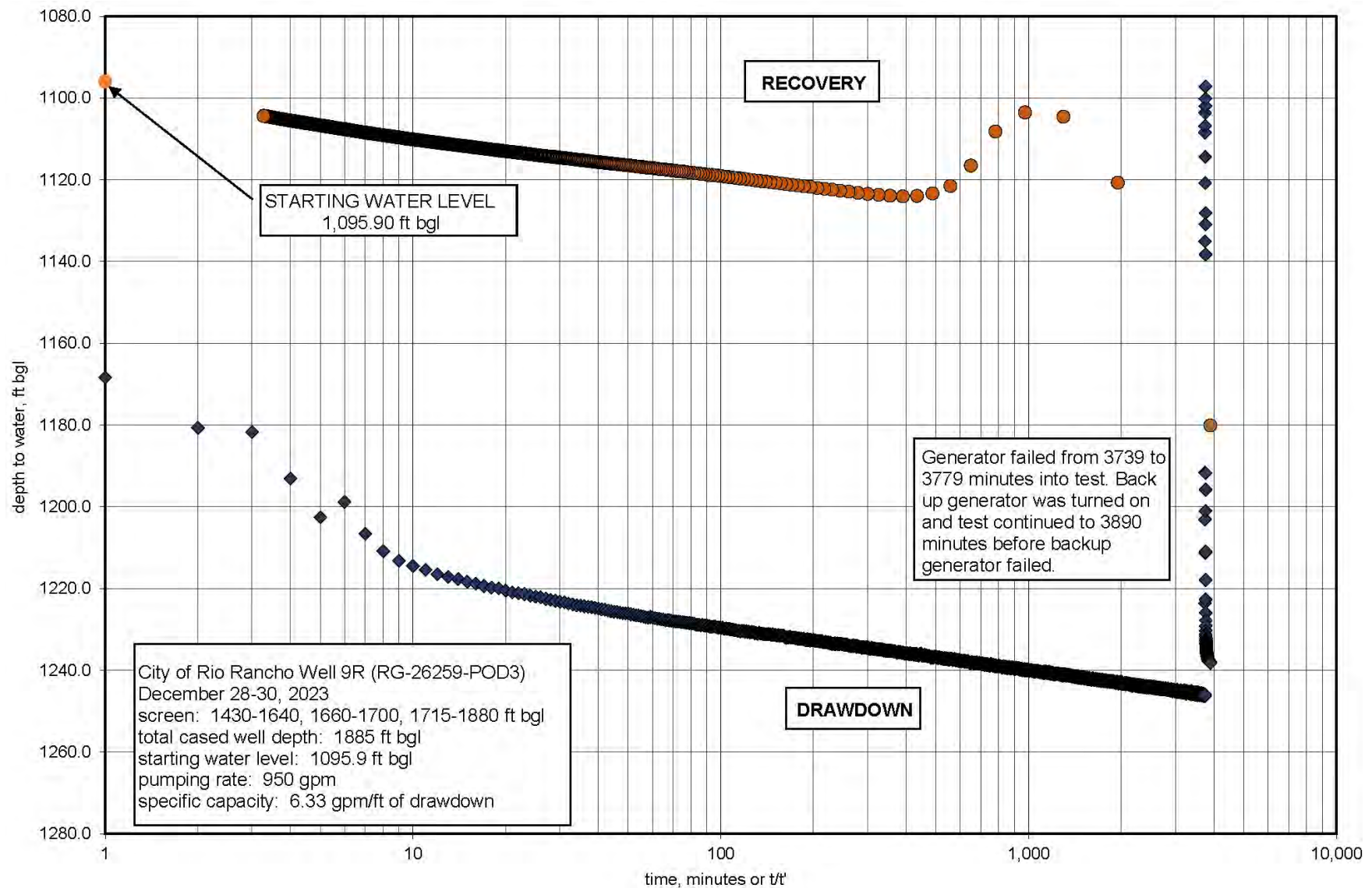


Figure 7. Semi-logarithmic plot of transducer-recorded drawdown and recovery water-level data from the 3,891-min constant-rate pumping test, Well 9R (RG-26259-POD3), City of Rio Rancho, New Mexico.

Table 11. Projected pumping water levels, City of Rio Rancho Well 9R (RG-26259-POD3)

pumping rate, gpm	long-term drawdown due to pumping of well, assuming 70 percent pumping time and a regional drawdown of 2.5 ft/yr, ft			long-term drawdown due to pumping of well, assuming 100 percent pumping time and a regional drawdown of 2.5 ft/yr, ft		
	1 year	10 years	20 years	1 year	10 years	20 years
800	1,233	1,262	1,288	1,243	1,274	1,301
900	1,251	1,280	1,307	1,262	1,294	1,322
1,000	1,269	1,299	1,326	1,281	1,314	1,342
1,100	1,288	1,319	1,346	1,301	1,336	1,364
1,200	1,307	1,338	1,366	1,321	1,357	1,385
1,300	1,327	1,359	1,387	1,342	1,379	1,408
1,400	1,346	1,379	1,408	1,363	1,401	1,430

bold indicates pumping water level too close to pump if pump placed above top of screen
gpm - gallons per minute

Assuming the pump intake is installed at a depth of about 1,420 ft, the well is capable of producing up to 1,400 gpm for at least 5 years if the well is pumped 100 percent of the time. This pumping rate and pumping schedule will allow the City to maximize its water right associated with this point of diversion. If the well is pumped 100 percent of the time for 1 year, the corresponding diversion would be 2,259.8 ac-ft. Greater pumping rates could be obtained if the pump were placed in the blank section from 1,640 to 1,660 ft bgl.

We recommend using variable frequency drive (VFD) to provide operational flexibility and reduced power consumption when pumping at lower quantities. A water-level transducer that will also govern the pump should also be used to ensure that the water level stays above the required NPSH need for safe pump operation.

Once this well is equipped and used to provide water for municipal supplies, JSAI recommends that pumping and non-pumping water levels be collected at least quarterly, including the pumping rate at the time of measurement. This will facilitate in identifying and remedying problems with water production should they occur over time. Data should be reviewed frequently to determine if changes in pumping rate or duration are needed.

8.6 Water Quality

Samples for water-quality analysis were collected by JSAI Staff certified by the NMED to collect samples. Samples were collected on December 27, and 28 in bottles with appropriate preservatives provided by Eurofins Environmental Testing (Eurofins). Samples were collected on

two separate days because Eurofins failed to provide all required sample bottles with the original sample kit. Samples were submitted to Eurofins in Albuquerque for analysis. A summary of field water-quality results is provided as Table 10; laboratory analytical results are provided as Table 11.

The arsenic concentration of 0.048 mg/L is above the NMED DWB primary drinking water standard of 0.010 mg/L. However, water produced from this well will be treated by the existing arsenic treatment plant to reduce the arsenic concentration to below the standard prior to distribution.

The total dissolved solids (TDS) concentration was 241 mg/L, below the NMED DWB secondary drinking water standards. The hardness was 14.106 mg/L, and is considered soft. The turbidity of 14 nephelometric turbidity units was above the NMED DWB primary drinking water standard of 5. The elevated turbidity is surprising given that the sediment produced from the well was very low, suggesting that the turbidity is associated with sediment that is too small to be captured by the Rossum Sand Tester. The pH of 8.64 (unitless) exceeds the secondary NMED DWB drinking water standard of 8.5, and will be adjusted at the arsenic treatment plant. The national secondary drinking water standards are non-enforceable standards.

Water produced from Well 9R had non-detectable concentrations of purgeable organics as determined by EPA method 524, non-detectable concentrations of selected regulated synthetic organic chemicals for public drinking water systems (various EPA methods), carbamates (EPA method 531.2), and non-detectable concentrations of polychlorinated dibenzodioxins and organobromides as determined by high-resolution mass spectrometry (mainly EPA methods 1613B, 504.1, and 524.1). Concentrations of all other water-quality parameters including metals, anions, asbestos, radionuclides (see Table 11) were below NMED DWB drinking water standards. A copy of the complete laboratory reports for Well 9R are included in Appendix I.

**Table 12. Summary of field water-quality results, City of Rio Rancho
Well 9R (RG-26259-POD3)**

parameter	unit	Well 9R	NMED DWB MCL standard
field parameters December 27, 2023			
conductivity	µmhos/cm	310	---
pH	standard units	9.23	6.5 – 8.5 (a)
average temperature	°F	79.2	---

(a) - aesthetic standard, non-enforceable

NMED DWB - New Mexico Environment Dept/Drinking Water Bureau

MCL - maximum contaminant level

bold indicates above the MCL
µmhos/cm - micromhos per centimeter

**Table 13. Summary of water-quality analytical results,
City of Rio Rancho Well 9R (RG-26259-POD3)**

constituent	unit	City of Rio Rancho Well 9R	NMED DWB MCL standard
laboratory parameters: general chemistry, trace metals and radionuclides			
alkalinity (as CaCO ₃)	mg/L	109.4	no standard
color	c.u.	10.0	15 ^a
odor	TON	< 1.0	3 ^a
foaming agents (surfactants)	mg/L	< 0.0500	0.5 ^a
pH	units	8.64	6.5 to 8.5 ^a
total dissolved solids (TDS)	mg/L	241	500 ^a
hardness (calculated)	mg/L	14.106	no standard
bicarbonate	mg/L	102.3	no standard
carbonate	mg/L	7.120	no standard
turbidity	NTU	14	5
chloride	mg/L	4.1	250 ^a
fluoride	mg/L	0.41	2 ^a to 4
nitrate	mg/L	1.6	10
nitrite	mg/L	< 0.10	1
sulfate	mg/L	48	250 ^a
antimony	mg/L	< 0.0010	0.006
arsenic (total)	mg/L	0.048	0.010
aluminum	mg/L	0.37	0.05 to 0.2 ^a
barium	mg/L	0.055	2.0
beryllium	mg/L	< 0.0020	0.004
cadmium	mg/L	< 0.0020	0.005
calcium	mg/L	4.0	no standard
chromium	mg/L	0.0072	0.1
copper	mg/L	0.0065	1.3 (al)
cyanide	mg/L	< 0.0100	0.2
iron	mg/L	0.19	0.3 ^a
lead	mg/L	< 0.00050	0.015 (al)
magnesium	mg/L	< 1.0	no standard
manganese	mg/L	0.0045	0.05 ^a
mercury	mg/L	< 0.00020	0.002
potassium	mg/L	1.7	no standard
selenium	mg/L	0.0011	0.05
silver	mg/L	< 0.0050	0.10 ^a
sodium	mg/L	68	no standard
thallium	mg/L	< 0.00025	0.002

**Table 13. Summary of water-quality analytical results,
City of Rio Rancho Well 9R (RG-26259-POD3) (continued)**

constituent	unit	City of Rio Rancho Well 9R	NMED DWB MCL standard
laboratory parameters: general chemistry, trace metals and radionuclides			
uranium (dissolved)	mg/L	0.0013	0.03
gross alpha	pCi/L	3.59	15
gross beta	pCi/L	2.30	50 ^b
radium-226	pCi/L	0.108	5 (combined)
radium-228	pCi/L	0.715	
laboratory parameters: organic chemicals			
acrylamide	µg/L	< 0.100	TT
alachlor	µg/L	< 0.200	2
atrazine	µg/L	< 0.100	3
benzene	µg/L	< 0.50	5
benzo(a)pyrene (pahs)	µg/L	< 0.0200	0.2
carbofuran	µg/L	< 0.900	40
carbon tetrachloride	µg/L	< 0.50	5
chlordane	µg/L	< 0.200	2
chlorobenzene	µg/L	< 0.50	100
2,4-D	µg/L	0.100	70
dalapon	µg/L	< 1.00	200
1,2-dibromo-3-chloropropane (DBCP)	µg/L	< 0.0200	0.2
o-dichlorobenzene	µg/L	< 0.50	600
p-dichlorobenzene	µg/L	< 0.50	75
1,2-dichloroethane	µg/L	< 0.50	5
1,1-dichloroethylene	µg/L	<0.50	7
cis-1,2-dichloroethylene	µg/L	< 0.50	70
trans-1,2-dichloroethylene	µg/L	< 0.50	100
dichloromethane	µg/L	< 0.50	5
1,2-dichloropropane	µg/L	< 0.50	5
Di(2-ethylhexyl) adipate	µg/L	< 0.600	400
Di(2-ethylhexyl) phthalate	µg/L	< 0.600	6
dinoseb	µg/L	< 0.200	7
dioxin (2,3,7,8-tcdd)	pg/L	< 10	30
diquat	µg/L	< 0.400	20
endothall	µg/L	< 9.00	100
endrin	µg/L	< 0.0100	2
epichlorohydrin	µg/L	< 0.500	TT

**Table 13. Summary of water-quality analytical results,
City of Rio Rancho Well 9R (RG-26259-POD3) (concluded)**

constituent	unit	City of Rio Rancho Well 9R	NMED DWB MCL standard
laboratory parameters: general chemistry, trace metals and radionuclides			
ethylbenzene	µg/L	< 0.50	700
ethylene dibromide	µg/L	< 0.0100	0.05
glyphosate	µg/L	< 5.00	700
heptachlor	µg/L	< 0.0400	0.4
heptachlor epoxide	µg/L	< 0.0200	0.2
hexachlorobenzene	µg/L	< 0.100	1
hexachlorocyclopentadiene	µg/L	< 0.100	50
lindane	µg/L	< 0.0200	0.2
methoxychlor	µg/L	< 0.100	40
oxamyl (vydate)	µg/L	< 2.00	200
polychlorinated biphenyls (pcbs)	µg/L	< 0.500	0.5
pentachlorophenol	µg/L	< 0.0400	1
picloram	µg/L	< 0.100	500
simazine	µg/L	< 0.0700	4
styrene	µg/L	< 0.50	100
tetrachloroethylene	µg/L	< 0.50	5
toluene	µg/L	< 0.50	1000
toxaphene	µg/L	< 1.0	3
2,4,5-TP (silvex)	µg/L	< 0.200	50
1,2,4-trichlorobenzene	µg/L	< 0.50	70
1,1,1-trichloroethane	µg/L	< 0.50	200
1,1,2-trichloroethane	µg/L	< 0.50	5
trichloroethylene	µg/L	< 0.50	5
vinyl chloride	µg/L	< 0.50	2
xylenes (total)	µg/L	< 0.50	10000
laboratory parameters: bacteriological			
E. coli	p-a	a	
total coliform	p-a	a	

^a - national secondary drinking water standard (non-enforceable guidelines)

^b - NM Environment Department Drinking Water Bureau defined level below which the equivalent radiation is below EPA mandated radiation threshold of 4 mrem/yr

TT - Each water system must certify, in writing, to the state (using third-party or manufacturer's certification) that when acrylamide and epichlorohydrin are used to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows:

- Acrylamide = 0.05% dosed at 1 mg/L (or equivalent)
- Epichlorohydrin = 0.01% dosed at 20 mg/L (or equivalent)

(al) - action level that, if exceeded, requires water treatment

NMED DWB - NM Environment Department/Drinking Water Bureau

mg/L - milligrams per liter

µg/L - micrograms per liter

pCi/L - picoCuries per liter

c.u. - concentration units

pg/L - picograms per liter

TON - threshold odor number

µmhos/cm - micromhos per centimeter

NTU - nephelometric turbidity units

p-a - present/absent

MCL - maximum contaminant level

bold indicate exceedance of MCL

9.0 DISINFECTION

The well was disinfected during gravel-pack installation, and during test pumping per AWWA 100-15 and AWWA C654-13. During thinning back of the drilling fluid, prior to gravel-pack installation, the Contractor added about 900 gallons of 10-percent liquid sodium hypochlorite, which was circulated throughout the annulus. The Contractor disinfected the well again following the alignment survey with a solution of calcium chloride and water with a concentration ranging from 200 to 225 mg/L. The solution was used to rinse the casing and gage lines, and was distributed throughout the water column using tremie pipe and then swabbed to distribute the disinfectant. The sodium and calcium hypochlorite were NSF approved.

9.1 Video Survey

On January 25, 2024, Hydro performed a closed-circuit color video inspection of the entire depth of the well. Approximately 26 days passed after development pumping, providing ample time for turbidity in the water column to settle to a large degree. The camera was run the length of the well from ground surface to an observed depth of 1,879.5 ft bgl, where sediment was present in the well. Total length of sediment in the bottom of the well was 5.6 ft, 0.5 ft of which covers the bottom of the screen.

The camera was equipped with a wide-angle (fish eye) lens directed downward, with right-angle (side-scan) capability. The video provides a downward view of the well through the casing, and periodic side-scan views of joints, including the dielectric coupling. A side-scan survey was performed to total depth, with 360-degree rotation at each screen joint, and the blank casing section within the screen where the gage lines enter the well casing. Some intermittent lighting malfunctions and elevated turbidity below the water level for some distance degraded visibility; however, no issues with integrity of the completed well were observed. All welds, casing, gage-line transitions into the casing, and screens looked good. A copy of the video survey is provided as Appendix G.

9.2 Well Completion and Site Cleanup

The casing, gage line, and gravel-feed line were capped at approximately 2 ft above ground level, and may be modified when Well 9R is connected to the City of Rio Rancho distribution system.

10.0 REFERENCES CITED

- Bierschenk, W.H., 1964, Determining well efficiency by multiple step-drawdown tests: International Association of Scientific Hydrology, Publication 64.
- Cooper, H.H., Jr., and Jacob, C.E., 1946, A generalized graphical method for evaluating formation constants and summarizing well-field history: Transactions of the American Geophysical Union, v. 27, pp. 526-534.
- Denney-Gross & Associates, Inc., 1984, Final Well Report Well No. RG 26259, Rio Rancho, New Mexico: consultant's report prepared for the City of Rio Rancho.
- Glorieta Geoscience, Inc., 2000, Rio Rancho Well #9 Testing Report: consultant's report prepared for Wilson Engineering.

APPENDICES

Appendix A.

**New Mexico Office of the State Engineer Well Record (RG-26259-POD3),
City of Rio Rancho Well 9R**



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

2024 JAN 22 AM 9:23

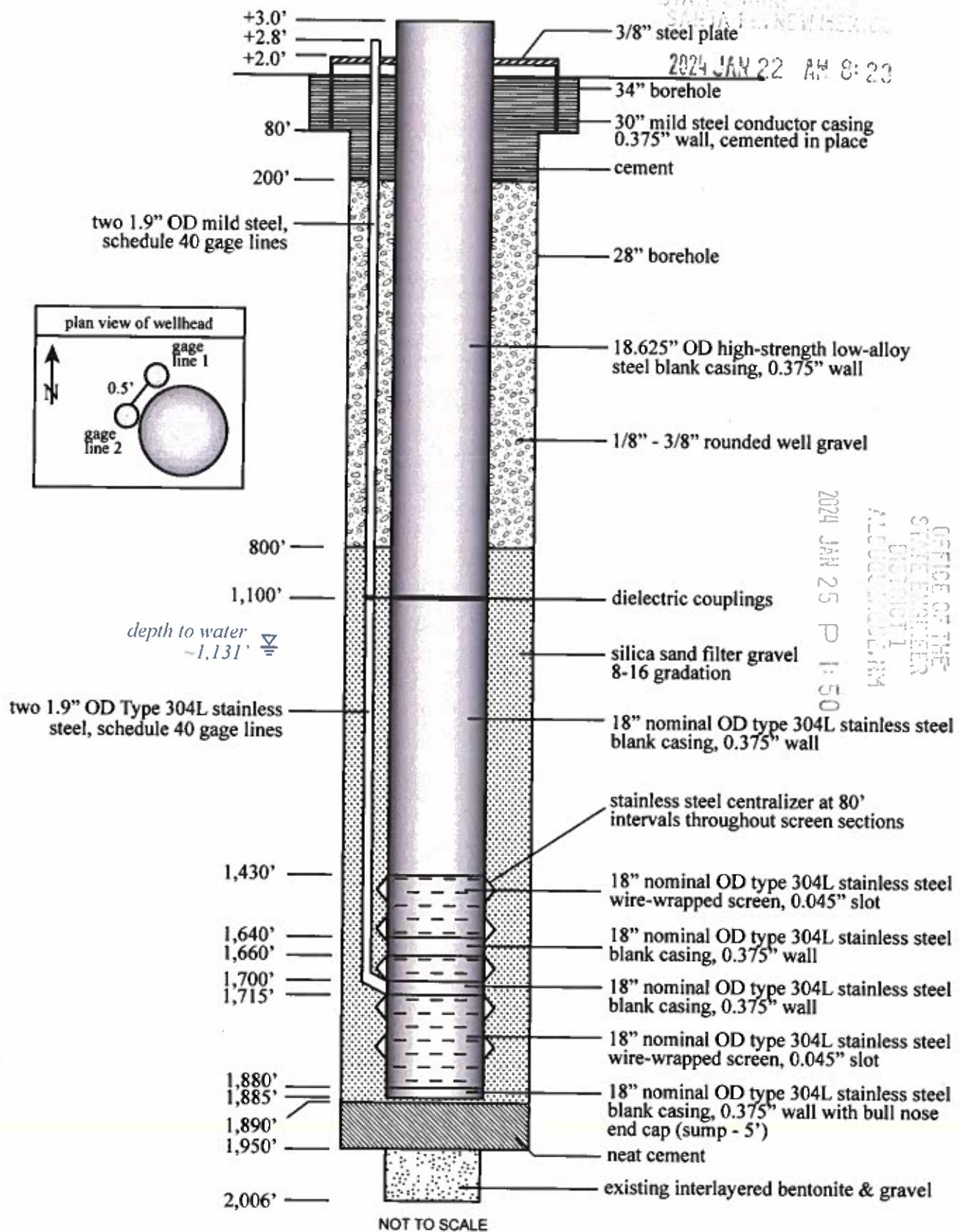
1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) Well-9R		WELL TAG ID NO.		OSE FILE NO(S). RG-26259		
	WELL OWNER NAME(S) City of Rio Rancho				PHONE (OPTIONAL) (505) 891-5000		
	WELL OWNER MAILING ADDRESS 3200 Civic Center Circle				CITY Rio Rancho		
					STATE NM		
					ZIP 87114		
WELL LOCATION (FROM GPS)	DEGREES 35°		MINUTES 19'		SECONDS 23.0334		
	LATITUDE		LONGITUDE		N W		
		106°		47'		6.3054	
* ACCURACY REQUIRED: ONE TENTH OF A SECOND							
* DATUM REQUIRED: WGS 84							
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE 9999 Unicorn Circle, Rio Rancho, NM 87114. Southeast corner of lot.							

2. DRILLING & CASING INFORMATION	LICENSE NO. WD-1726		NAME OF LICENSED DRILLER Jim Hale			NAME OF WELL DRILLING COMPANY Hydro Resources		
	DRILLING STARTED 8/17/2023		DRILLING ENDED 1/4/2024		DEPTH OF COMPLETED WELL (FT) 1,885'			
					BORE HOLE DEPTH (FT) 2,006'			
					DEPTH WATER FIRST ENCOUNTERED (FT) 1,110'			
	COMPLETED WELL IS: ☒ ARTESIAN *add Centralizer info below ☐ DRY HOLE ☐ SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL 1,110'		
						DATE STATIC MEASURED 12/31/2023		
	DRILLING FLUID: ☐ AIR ☒ MUD ADDITIVES - SPECIFY: Polymer/Gel							
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY: Flooded Reverse					CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐		
	DEPTH (feet bgl)		BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
	FROM	TO						
0	80'	34"	A53 Grade B	Welded	29.25"	.375"	N/A	
80'	2,006'	17.5"	Pilot hole	N/A	N/A	N/A	N/A	
80'	1,950'	28"	HSLA	Welded	18"	.375"	N/A	
		28"	304L Stainless Steel	Welded	17.25"	.375"	0.045"	
		28"	Mild Steel & 304L SS	Welded	1.61"	.145"	N/A	

3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL *(if using Centralizers for Artesian wells- indicate the spacing below)	AMOUNT (cubic feet)	METHOD OF PLACEMENT
	FROM	TO				
	0	80'	34"	12 sack Sand/Cement Slurry	189 Cu. Ft.	Pumped through Tremmie
	0	200'	28"	24 Sack Neat Cement	510 Cu. Ft.	Pumped through Tremmie
	200'	800'	28"	1/8" X 3/8" Rounded Pea Gravel	1,933 Cu. Ft.	Pumped through Tremmie
	800'	1,885'	28"	8-16 Silica Sand	3,495 Cu. Ft.	Pumped through Tremmie
	1,885'	1,950'	28"	24 Sack Neat Cement	191 Cu. Ft.	Pumped through Tremmie

FOR OSE INTERNAL USE		WR-20 WELL RECORD & LOG (Version 09/22/2022)	
FILE NO.	POD NO.	TRN NO.	
LOCATION	WELL TAG ID NO.	PAGE 1 OF 2	

[illegible]



OFFICE OF THE
STATE ENGINEER
DISTRICT I
ALBUQUERQUE, NM
2024 JAN 25 P 1:50

October 9, 2023, Revised proposed well completion, City of Rio Rancho Replacement Well 9R, New Mexico.

JOHN SHOMAKER & ASSOCIATES, INC.

DRAFT BOREHOLE LOGGING FORM

page 1 of 9



BOREHOLE SPUD DATE: July 19, 2023

CLIENT: Huitt-Zollars 2024 JAN 22 AM 8:23

PROJECT: Well 9R

LOCATION: Rio Rancho

BOREHOLE NAME: Well 9R

GEOLOGIST: RLP

Contractor: Hydro Resources

Rig: 10031

Drilling bit: 17.5-in. milltooth

Drilling method: Reverse Mud Rotary

Notes: cuttings not washed, recorded wet

except for upper 80 ft which was drilled with

auger methods with some polymer and water

Depth, ft bgl	Description
0-10	<u>Sandy silt</u> : sand, fine; caliche; minor gravel, sub rounded up to 2"
10-20	<u>Sandy silt</u> : silt tan; sand, very fine grained
20-30	<u>Gravel sandy silt</u> : 85% silt, tan; 10% sand, fine-grained, well sorted, tan; 5% gravel ~ 1/4 to 1/2-in., angular; reacts to HCl
30-40	<u>Silty sand</u> : 80% sand, fine grained, well sorted, tan; 20% silt; moist from water-injection; reacts to HCl.
40-50	<u>Gravel silty sandy</u> : 75% sand fine grained, well sorted, tan; 22% silt, 3% gravel ~1/4 to 1/2-in., subangular; reacts to HCl.
50-60	<u>Sandy silty</u> : 75% sand, fine grained, well sorted, tan; 25% silt; reacts to HCl
60-70	<u>Sandy silt</u> : 70% silt, tan; 30% sand, fine grained, well sorted; reacts to HCl, moist from water added during drilling
70-80	<u>Sandy silt</u> : 70% silt, tan; 30% sand, fine grained, well sorted; reacts to HCl, moist from water added during drilling
80-90	<u>Sandy gravel</u> : 85% gravel, up to 1/4 inch, subrounded to subangular, poorly sorted, varying compositions, varying color (red, black, white, tan); 15% sand, fine-med. grained, subrounded; mild reaction to HCl
90-100	<u>Sandy gravel</u> : 85% gravel, up to 1/4 inch, subrounded to subangular, poorly sorted, varying compositions, varying color (red, black, white, tan); 15% sand, fine-med. grained, subrounded; mild reaction to HCl
100-110	<u>Clayey sand</u> : 60% sand, fine grained, tan; 40% clay, high plasticity, tan
110-120	<u>Gravelly sand</u> : 80% sand, coarse, well sorted, subangular to subrounded, mostly quartz, with some mafics/feldspars, dark brown; 20% gravel, moderately sorted, subangular, mostly quartz and feldspar, up to 1/4-in., white/opaque grains
120-140	<u>Clayey sand</u> : 60% sand, fine-grained, tan; 40% clay, high plasticity

DRAFT BOREHOLE LOGGING FORM

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BOREHOLE SPUD DATE: 8/24/2023CLIENT: Huitt-Zollars 2024 JAN 22 AM 8:23PROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud Rotary

Depth, ft bgl	Description
140-190	<u>Gravelly sand</u> : 80% sand, coarse, subrounded to well rounded, moderately sorted, mostly quartz with mafics and feldspars, up to 1/4-in.; 20% gravel, moderately sorted, subrounded, brown to reddish brown, black, gray
190-200	<u>Clayey sand</u> : 60% sand, coarse grained, subangular, moderately sorted, mostly quartz with mafics & feldspars; 40% clay, high plasticity, tan; moderate reaction to HCl.
200-220	<u>Gravelly sand</u> : 80% sand, coarse grained, subrounded to rounded, moderately sorted, mostly quartz with mafics & feldspar; 20% gravel, moderately sorted, subrounded to subangular, tan, black, white, red grains; weak reaction to acid.
220-240	<u>Gravelly sandy clay</u> : 60% clay, high plasticity, brown/tan; 35% sand, subrounded to well rounded, medium to coarse, moderately sorted, mostly quartz with mafics and feldspars; 5% gravel, subangular, moderately sorted, brown, red, black grains; mild reaction to acid.
240-250	<u>Gravelly sand</u> : 80% sand, coarse moderately sorted, sub to well rounded, mostly quartz with some mafics and feldspars, up to 1/4-in.; 20% gravel, subangular to subrounded, moderate sorting, black/red/brown mafics and feldspars present; weak reaction to acid.
250-260	<u>Gravelly sandy clay</u> : 55% clay, high plasticity, tan; 40% sand, medium, moderately sorted, well rounded, mostly quartz with some mafics and feldspars; 5% gravel, subangular to subrounded, moderate sorting, black/red/brown; moderate reaction to acid.
260-270	<u>Gravelly sand</u> : 95% sand, coarse, well sorted, well rounded, mostly quartz with some mafics & feldspars; 5% gravel, subangular, moderate sorting, black/red/brown, mafics and feldspar; moderate reaction to HCl.
270-280	<u>Sandy gravel</u> : 75% gravel, subangular to subrounded, moderate sorting, quartz/feldspar/mafic, up to 1/2-in.; 25% sand, medium, moderate sorting, well rounded to subrounded, mostly quartz with some mafics & feldspars; moderate reaction to acid.
280-300	<u>Gravelly sand</u> : 85% sand, medium to coarse, well sorted, subrounded, mostly quartz with feldspar and some mafics; 15% gravel, subangular, moderate sorting, quartz/mafic/feldspars; mild to moderate reaction with HCl.
300-310	<u>Sandy clay</u> : 70% clay, high plasticity, reddish brown; 30% sand, medium to fine, moderate sorting, subrounded, medium grains, mostly quartz, with feldspar and some mafics; moderate reaction with HCl.
310-340	<u>Sandy clay</u> : 70% clay, high plasticity, tan; 30% sand, fine grained, well sorted, mostly quartz with mafics; moderate reaction with HCl.

DRAFT BOREHOLE LOGGING FORM

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BOREHOLE SPUD DATE: 8/24/2023CLIENT: Huitt-ZollarsPROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud Rotary

Depth, ft bgl	Description
340-350	<u>Sandy clay</u> : 60% clay, tan with occasional red and black streaks, high plasticity; 40% sand, tan with minor black grains, subrounded, fine, moderate to well sorting, mainly quartz; mild reaction to HCl.
350-360	<u>Clayey sand</u> : 55% sand, predominately tan, minor white/black grains, fine to medium, subrounded to rounded, moderately sorted, mostly quartz, minor mafics; 45% clay, tan, high plasticity; mild reaction to HCl.
360-370	<u>Sandy clay</u> : 95% clay, brown with occasional reddish streaks, medium plasticity with many large, dense, low plasticity chunks; 5% sand, very fine to coarse, poorly sorted, tan or black, some mafics; mild reaction to HCl.
370-380	<u>Clayey sand</u> : 70% sand, predominantly tan, minor red/black, fine-medium grained, moderately well sorted, subrounded to rounded, mainly quartz, minor feldspar and mafics; 30% clay, high plasticity, well hydrated, tan with red streaks; mild reaction to acid.
380-390	<u>Clayey sand</u> : 60% sand, mostly tan, moderate red/white/black, fine to coarse grained, poor to moderate sorting, subrounded to rounded, mostly quartz with feldspar and mafics; 40% clay, tan, high plasticity; moderate reaction to HCl.
390-400	<u>Sandy clay</u> : 60% clay, reddish brown, high plasticity; 40% sand, tan and red, with large black grains, poor to moderately sorted, subrounded to rounded, quartz and feldspar, minor mafics; strong reaction with HCl.
400-410	<u>Sandy clay</u> : 65% clay, reddish brown, with some gray lenses, high plasticity; 35% sand, fine grained with few larger pieces, tan and red, moderately sorted, quartz, feldspar and minor mafics; strong reaction with HCl.
420-440	<u>Gravelly clay</u> : 90% clay, high plasticity, tan; 10% gravel, moderately sorted, subrounded, up to 1/4-in., tan; strong reaction with HCl.
440-510	<u>Sandy clay</u> : 75% clay, high plasticity, tan; 25% sand, fine grained, well sorted, tan; strong reaction with HCl.
510-520	<u>Sandy clay</u> : 75% clay, high plasticity, tan; 30% sand-fine grained, well sorted, tan; strong reaction with HCl.
520-530	<u>Sandy clay</u> : 55% clay, high plasticity, tan; 45% sand, fine to coarse grained, poor sorting, subangular to angular, mostly quartz with mafics and feldspars; strong reaction with HCl.
530-540	<u>Sandy clay</u> : 75% clay, high plasticity, tan; 25% sand, fine grained, well sorted, tan; reaction with HCl.
540-550	<u>Gravelly sand</u> : 80% sand, coarse grained, moderately sorted, subrounded to subangular, mostly quartz with mafics and feldspar; 20% gravel, subangular, moderate sorting, up to 1/4-in., black/dark green/red grains; reaction with HCl.

DRAFT BOREHOLE LOGGING FORM

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BOREHOLE SRUD DATE: 8/24/2023CLIENT: Huitt-ZollarsPROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud Rotary

Depth, ft bgl	Description
550-560	<u>Gravelly clayey sand</u> : 55% sand, medium to coarse, moderate sorting, subrounded to subangular, quartz, feldspar and mafic; 40% clay, high plasticity, tan; 5% gravel, moderate sorting, sub angular, black/red/brown; reaction with HCl.
560-580	<u>Sandy clay</u> : 75% clay, high plasticity, tan; 25% sand, fine to medium grained, moderately sorted, subrounded, quartz with mafics and feldspar; reaction with HCl.
580-590	<u>Sandy clay</u> : 75% clay, high plasticity, tan; 25% sand, fine grained, well sorted; reaction with HCl.
590-600	<u>Sandy clay</u> : 60% clay, tan, high plasticity; 40% sand, fine to coarse grained, poorly sorted, subangular to subrounded, mostly tan some red/white/black grains, quartz, feldspar, and mafics; mild reaction to HCl.
600-610	<u>Sandy clay</u> : 60% clay, tan, high plasticity; 40% sand, fine to medium, subrounded, moderately sorted, mostly tan, minor red/white/black, mostly quartz, minor feldspar and mafics; mild reaction to HCl.
610-620	<u>Clayey sand</u> : 70% sand, coarse to very coarse, poorly sorted, subrounded to subangular, mostly tan, minor white/black/red grains, quartz with feldspars and mafics; 30% clay, tan to gray, high plasticity; mild reaction to HCl.
620-630	<u>Sandy clay</u> : 60% clay, tan, high plasticity; 40% sand, fine to medium, subrounded, moderately sorted, mostly tan, minor white/black, mainly quartz, some mafics; moderate reaction to HCl.
630-640	<u>Gravelly clayey sand</u> : 80% sand, fine to very coarse, subangular to subrounded, poorly sorted, tan, red, black grains, varying compositions; 15% clay, medium to low plasticity; 5% sand, varying sized lenses, brown/red, tan, minor gravel, ~1/4-in. varying color; slow reaction with HCl.
640-650	<u>Clay</u> : low plasticity, dense, tan; reaction with HCl.
650-680	<u>Clayey sand</u> : 70% sand, fine grained, well sorted, tan; 30% clay, high plasticity, tan; reaction with HCl.
680-690	<u>Clay</u> : low plasticity, dense, tan; reaction with HCl.
690-720	<u>Clayey sand</u> : 70% sand, fine grained, well sorted, tan; 30% clay, high plasticity, tan; low reaction with HCl.
720-750	<u>Clayey sand</u> : 70% sand, fine to medium grained, moderately sorted, subrounded, quartz with mafics and feldspars; 30% clay, high plasticity, tan; low reaction with HCl.
750-760	<u>Gravelly clayey sand</u> : 65% sand, fine to medium grained, moderately sorted, subrounded to subangular, quartz with mafics and feldspars; 30% clay, high plasticity, tan; 5% gravel, moderately sorted, sub angular, black/red grains; no reaction with HCl for gravel, high reaction with HCl for clay.

DRAFT BOREHOLE LOGGING FORM

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BOREHOLE SPUD DATE: 8/24/2023
 CLIENT: Huitt-Zollars
 PROJECT: Well 9R 2024 JAN 22 AM 8:23
 LOCATION: Rio Rancho
 BOREHOLE NAME: Well 9R
 GEOLOGIST: AKM/ZBC/FGS

Contractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud Rotary

Depth, ft bgl	Description
760-770	<u>Clayey sand</u> : 70% sand, fine grained, well sorted; 30% clay, high plasticity, tan; strong reaction with HCl.
770-780	<u>Clayey sand</u> : 70% sand, fine grained, well sorted; 30% clay, high plasticity, tan; weak reaction with HCl.
780-790	<u>Clayey sand</u> : 75% sand, fine to medium grained, well sorted, rounded to subrounded, mostly rounded quartz with mafics and red/green grains; 25% clay, high plasticity, tan; moderate reaction with HCl.
790-800	<u>Clayey sand</u> : 65% sand, fine grained, well sorted, varying colors white/black/red; 35% clay, high plasticity, tan; strong reaction with HCl.
800-810	<u>Sandy clay</u> : 50% clay tan/red/white, high plasticity; 50% sand, fine grained, round, well sorted, mostly tan, some black, mainly quartz and some mafics; mild reaction to HCl
810-820	<u>Sandy clay</u> : 80% clay, brown, medium-low plasticity; 20% sand, generally very fine w/ occasional larger (medium) black grains, mostly quartz and some mafics; mild reaction to HCl
820-830	<u>Sandy clay</u> : 50% clay, overall tan, high plasticity w/ dense brown low plasticity lenses; 50% sand, fine to medium, subangular to subrounded, moderately sorted, mostly tan w/ some white/red/black, mostly quartz, some feldspar and mafics; reaction to HCl
830-840	<u>Sandy clay</u> : 50% clay, tan w/minor orange, high plasticity; 50% sand, fine w/lesser medium-coarse, moderately sorted, subrounded to subangular, mostly tan, some red/black, mainly quartz, some feldspar and mafics; very weak reaction to HCl
840-850	<u>Gravelly sandy clay</u> : 50% clay, brownish tan, high plasticity w/low plasticity dense lenses; 45% sand, fine to very fine, moderately sorted, mainly quartz, minor mafics; 5% gravel gray, subangular, <1/2", 5%; strong reaction to HCl for gravel and moderate overall
850-860	<u>Sandy clay</u> : 50% clay, tan, high plasticity overall w/large dense lenses; 50% sand, fine-medium, subrounded to subangular, moderately sorted, mostly tan w/some white/red/black, quartz and calcite, feldspar and mafics; strong reaction to HCl
860-890	<u>Clayey sand</u> : 70% sand, mainly fine-medium grained w/occasional coarse, subrounded to subangular, moderately sorted, tan w/some red/black, mainly quartz, some feldspar and mafics; 30% clay gray; mild reaction to HCl
890-990	<u>Clayey sand</u> : 60% sand, fine, well sorted, tan; 40% clay, high plasticity, tan; mild reaction to HCl
990-1000	<u>Clayey sand</u> : 75% sand, fine, well sorted, tan; 25% clay, high plasticity, tan; moderate reaction to HCl
1000-1010	<u>Clayey sand</u> : 55% sand, fine, well sorted, tan; 45% clay, high plasticity, tan; high reaction to HCl

DRAFT BOREHOLE LOGGING FORM

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BOREHOLE SPUD DATE: 8/24/2023

CLIENT: Huitt-ZollarsPROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud Rotary

Depth, ft bgl	Description
1010-1020	<u>Clayey silt: 60% silt; mostly tan, some white; 40% clay, moderate plasticity, tan; moderate reaction to HCl</u>
1020-1030	<u>Silty clay: 70% clay, dense, yellow-tan; 30% silt, yellow-tan; medium reaction to HCl</u>
1030-1040	<u>Silty clay: 90% clay, dense, high plasticity, yellow-tan; 10% silt, yellow-tan; slight rxn to HCl</u>
1040-1050	<u>Silty clay: 80% clay, dense, high plasticity, yellow-tan; 20% silt – yellow-tan w/some white grains; very slight reaction to HCl</u>
1050-1060	<u>Sand silty clay: 80% clay, very dense, moderate plasticity, yellow-tan; 10% silt, yellow-tan; 10% sand, very fine, white/translucent, quartz; slight reaction to HCl</u>
1060-1070	<u>Silty sandy clay: 70% clay, high plasticity, moderately stiff, yellow-tan; 20% sand, very fine, subangular to subrounded, well sorted, mostly quartz, white/translucent; 10% silt, yellow-tan</u>
1070-1080	<u>Clayey silty sand: 50% sand, fine grained, subangular to subrounded, well sorted, mostly quartz and feldspars, tan; 30% silt, tan; 20% clay, moderate plasticity, tan w/some white lenses</u>
1080-1090	<u>Clay: clay light red, dense, high plasticity. Some fine sand grains observed but < 10%</u>
1090-1100	<u>Clay: dense red, tan, high plasticity, moderate reaction to HCl</u>
1100-1110	<u>Clay: dense, yellow tan, high plasticity, moderate reaction to HCl</u>
1110-1120	<u>Silty clay: yellow tan, high plasticity, moderate reaction to HCl</u>
1120-1130	<u>Clay: dense, yellow tan, high plasticity, moderate reaction to HCl</u>
1130-1140	<u>Silty clay: yellowish tan, high plasticity, moderate reaction to HCl</u>
1140-1150	<u>Clayey, silty sand: 40% sand, fine, tan, some white; 30% silt, tan; 30% clay, tan, high plasticity, 30%; slight reaction to HCl</u>
1150-1160	<u>Sandy clay: 60% clay, tan, dense, high plasticity; 40% sand, fine, unconsolidated to moderate consolidation, tan, some white, moderate reaction to HCl</u>
1160-1170	<u>Clay: yellow tan, dense, high plasticity, slight reaction to HCl</u>
1170-1180	<u>Clay: tan, dense, high plasticity; minor silt; slight reaction to HCl</u>
1180-1190	<u>Clay: tan, dense, high plasticity; strong reaction to HCl</u>
1190-1200	<u>Silty clay: 60% clay, grayish brown, high plasticity; 40% silt, grayish brown to white, moderate consolidation; strong reaction to HCl</u>
1200-1210	<u>Clay: dense, tan to reddish brown, high plasticity; moderate reaction to HCl</u>
1210-1220	<u>Silty clay: 60% clay, tan, medium plasticity; 40% silt, moderate consolidation, reddish brown, tan; moderate reaction to HCl</u>
1220-1230	<u>Clayey silty sand: 50% sand, light brown to tan, very fine to fine grained, subangular to subrounded, moderately sorted, quartz, feldspars, few dark lithics; 30% silt, moderately consolidated in lenses, light brown to tan; 20% clay, tan, soft, moderate plasticity</u>

DRAFT BOREHOLE LOGGING FORM

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BOREHOLE SPUD DATE: 8/24/2023CLIENT: Huitt-ZollarsPROJECT: Well 9R 2024 JAN 22 AM 8:23LOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud Rotary

Depth, ft bgl	Description
1230-1240	<u>Clayey silty sand: 70% sand, light brown to tan, very fine to fine grained, subangular to subrounded, moderately sorted, quartz, feldspars, few dark lithics; 20% silt, tan, moderate consolidation; 10% clay, tan, soft; moderate reaction to HCl</u>
1240-1250	<u>Silty sand: 80% sand, tan, very fine to fine grained, subangular to subrounded, moderately sorted, quartz, feldspars, few dark lithics, moderately consolidated; 20% silt, tan, moderately consolidated; moderate reaction to HCl</u>
1250-1260	<u>Silty clay: clay, light brown, moderate density, high plasticity; reacts moderately to HCl</u>
1260-1270	<u>Clayey sandy silt: silt, light brown to tan; <10 sand, quartz, feldspar, medium; strong reaction with HCl;</u>
1270-1280	<u>Silty sand: 60 % sand, medium to coarse grained, quartz, feldspar, lithics, some subrounded, poorly sorted; 40% silt; slight reaction to HCL</u>
1280-1290	<u>Sandy silt: 60 % silt, light brown to tan, not very dense, moderate reaction to HCl; sand 40%, medium to coarse grained, subangular, quartz, feldspar, lithics</u>
1290-1300	<u>Silty sand: 60% sand, subrounded to rounded, fine to medium grained, quartz, feldspar, black lithics; 40% silt, high plasticity, black streaks, mafics of sand slight reaction to HCl,</u>
1300-1310	<u>Silty sand: 60% sand, medium to coarse grained, , quartz, feldspar, lithics; 40% silt, light brown, mafics to sand, medium plasticity, black streaks; reaction to HCl</u>
1310-1320	<u>Silty clay: 70% clay, dense, high plasticity, tan; 30% silt, tan</u>
1320-1330	<u>Silty clay: 75% clay, high plasticity, tan; 25% silt, tan; reacts to HCl</u>
1330-1340	<u>Silty clay: 80% clay, dense, high plasticity, tan; 20% silt; reacts to HCl</u>
1340-1350	<u>Silty clay: 50% clay, high plasticity, tan, dense; 50% silt, tan; reacts to HCl</u>
1350-1360	<u>Sandy clay: 70% clay, high plasticity, tan; 30% silt, tan; reacts to HCl</u>
1360-1370	<u>Silty clay: 70% clay, high plasticity, tan; 30% silt, tan; reacts to HCl</u>
1370-1380	<u>Sandy clay: 80% clay, high plasticity, dense, tan; 20% sand, medium to fine, subangular, well sorted, tan; reacts to HCl</u>
1380-1390	<u>Sandy clay: 75% clay, high plasticity, dense, tan; 25% sand, medium to fine, well sorted, tan; reacts to HCl</u>
1390-1400	<u>Silty clay: 80% clay, high plasticity, dense, tan; 20% silt, tan; reacts to HCl</u>
1400-1410	<u>Silty clay: 90% clay, high plasticity, dense, tan; 10% silt, tan; reacts to HCl</u>
1410-1420	<u>Sandy clay: 65% clay, high plasticity, dense, tan; 35% sand, medium to fine, well sorted, angular to subrounded; reacts to HCl</u>
1420-1430	<u>Silty clay: 90% clay, high plasticity, tan; 10% silt, tan; reacts to HCl</u>
1430-1440	<u>Sandy clay: 70% clay, medium plasticity, tan; 30% sand, angular to subrounded, coarse medium to fine, tan; reacts to HCl</u>

DRAFT BOREHOLE LOGGING FORM

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BOREHOLE SPUD DATE: 8/24/2023CLIENT: Huitt-ZollarsPROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud

Depth, ft bgl	Description
1440-1450	<u>Silty clay: 75% clay, medium plasticity, tan; 25% silt, tan; reacts to HCl</u>
1450-1460	<u>Silty clay: 70% clay, medium plasticity, tan; 30% silt, tan; reacts to HCl</u>
1460-1470	<u>Sandy clay: 60% clay, medium plasticity, tan; 40% sand, coarse to fine, angular to subangular, well sorted, tan; reacts to HCl</u>
1470-1500	<u>Silty sand: 80% sand, fine to medium, moderately sorted, subangular, tan; 20% silt, tan; mild rxn to HCl</u>
1500-1560	<u>Silty sand: 80% sand, medium to coarse, moderately sorted, subangular, tan; 20% silt, tan, mild reaction to HCl</u>
1560-1570	<u>Silty sand: 60% sand, fine, tan; 40% silt, tan; mild reaction to HCl</u>
1570-1610	<u>Sand: medium to coarse, moderately sorted subangular to subrounded, tan, mostly quartz w/ some feldspars and mafics; minor silt, minor reaction to HCl</u>
1610-1640	<u>Silty sand: 80% sand, coarse to medium, well sorted, angular to subangular, tan; 20% silt, tan; reacts to HCl</u>
1640-1670	<u>Sandy clay: 75% clay, medium plasticity, tan; 25% sand, angular to subangular, well sorted, tan; reacts to HCl</u>
1670-1750	<u>Silty sand: 75% sand, fine to medium, subangular to subrounded, tan; 25% silt, tan; mild reaction to HCl</u>
1750-1760	<u>Clay: moderate plasticity, dense, tan</u>
1760-1770	<u>Clayey sand: 60% sand, mostly tan, minor white/black, fine grained, moderately well sorted, subrounded to subangular, mostly quartz, minor mafics, feldspar; 40% clay, tan, high plasticity; mid reaction to HCl</u>
1770-1780	<u>Clayey sand: 55% sand, mostly tan, minor white/black, fine to medium grained, moderately sorted, subrounded to subangular, mostly quartz, minor feldspar; 45% clay, high plasticity, tan; no reaction to HCl</u>
1780-1800	<u>Sandy clay: 50% clay, tan, high plasticity; 50% sand, fine to medium grained, moderately sorted, subrounded to subangular</u>
1800-1810	<u>Clayey sand: 60% sand, fine to medium grained, moderately sorted, subrounded to subangular, mostly quartz; 40% clay, tan, medium plasticity</u>
1810-1830	<u>Clayey sand: 60% sand, fine to coarse, moderately sorted, subrounded to subangular, mostly quartz, minor feldspar; 40% clay, tan, low plasticity</u>
1830-1840	<u>Sand: medium grained, moderately sorted, subrounded to subangular, mostly quartz w/feldspar, chert; minor clay</u>

DRAFT BOREHOLE LOGGING FORM

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BOREHOLE SPUD DATE: 8/24/2023CLIENT: Huitt-ZollarsPROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud

Depth, ft bgl	Description
1840-1850	<u>Sand</u> : medium grained, moderately sorted, subrounded to subangular, mostly quartz w/feldspar and chert
1850-1870	<u>Sand</u> : medium grained, moderately sorted, subrounded to subangular, mostly quartz w/feldspar and chert
1870-1890	<u>Sand</u> : fine to medium grained, moderately sorted, subrounded to subangular, mixed lithology; minor clay
1890-1900	<u>Clay</u> : tan/brown, high plasticity, really slowed drill down; no reaction to HCl
1900-1910	<u>Silty sand</u> : 70% sand, medium to coarse grained, subrounded, moderately sorted, quartz, feldspar, lithics; 30% silt; slight reaction to HCl
1910-1920	<u>Silty sand</u> : 80% sand, medium to coarse grained, subrounded, moderately sorted quartz, feldspar, lithics; 20% silt; slight reaction to HCl
1920-1930	<u>Clayey silty sand</u> : 60% sand, medium to fine grained, subangular to rounded, quartz, feldspar, lithics; 20% silt; 20% clay, low plasticity; strong reaction to HCl
1930-1950	<u>Clayey silty sand</u> : 70% sand, coarse to fine grained, poorly sorted, subangular to rounded, quartz, feldspar, lithics; 20% silt; 10% clay, plastic; slight reaction to HCl
1950-1960	<u>Silty sand</u> : 80% sand, medium to coarse grained, angular to subrounded, mainly quartz, some feldspar and lithics; 20% silt; very strong reaction to HCl
1960-2000	<u>Silty sand</u> : 80% sand, medium to fine grained, subangular to rounded, quartz, feldspar, lithics; 20% silt; reaction to HCl
2000-2005 TD	<u>Silty sand</u> : 80% sand coarse to fine grained, subangular to rounded quartz, feldspar, lithics, small rxn to HCl; 20% silt; slight reaction to HCl



DRILL RIG SUPERVISOR REGISTRATION CARD

STATE ENGINEERS
SANTA FE, NEW MEXICO

2024 JAN 22 AM 8:34

Below is your drill rig supervisor identification card (ID). Please carry the card with you when you are managing the on-site operations at a drill site. When providing onsite supervision of well drilling activities within the state of New Mexico you must have your ID card available for inspection upon request.

A person registered by the office of the state engineer as a drill rig supervisor may provide onsite supervision of well drilling activities. A drill rig supervisor shall work under the direction of a licensed well driller. The licensed well driller is responsible for the actions of each drill rig supervisor they direct to provide onsite supervision of well drilling activities.

To maintain your registration as a drill rig supervisor, you must complete a minimum of eight continuing education hours approved by the state engineer during each two year registration period. At least two hours of the continuing education shall be specific to regulatory requirements regarding well drilling in the state of New Mexico.

Note – Card folds over butterfly style with clean adhesive to create an 11 mil card. Carry this card with you when you are managing the on-site operations or otherwise working at a drill site. The card may be laminated for additional durability.

The person listed on the front of this card is registered as a drill rig supervisor by the Office of the State Engineer and may manage the on-site operations of the drilling site in the well driller's absence. The drill rig supervisor is authorized to perform the drilling activities authorized to the licensed driller.

For additional information contact the Office of the State Engineer at (505) 827-6120 in Santa Fe, or
www.ose.state.nm.us

NEW MEXICO OFFICE OF THE STATE ENGINEER

DRILL RIG SUPERVISOR REGISTRATION

Name: TYLER CURTIS

Expiration: Oct 31, 2025

The person listed above is authorized to work on behalf of:

Company: HYDRO RESOURCES- ROCKY MOUNTAIN INC.

License No: WD-1726

ADDITIONAL INFORMATION ON BACK



WELL DRILLER LICENSE

STATE ENGINEER'S OFFICE
SANTA FE, NEW MEXICO

2024 JAN 22 AM 8:34

Below is your well driller identification card (ID). Please carry your ID when you are managing drilling activities at a drill site. You are required to have your identification card available while conducting well drilling activities for inspection upon request.

You are responsible for the actions of any and all drill rig supervisor that you direct to provide onsite supervision of well drilling activities. Their ID card expiration date coincides with the well driller's license expiration.

To maintain your license as a well driller, you and your drill rig supervisors must complete a minimum of eight continuing education hours approved by the state engineer during each two year license period. At least two hours of the continuing education shall be specific to regulatory requirements regarding well drilling in the state of New Mexico. To view a list of approved courses, please visit: www.ose.state.nm.us

For each well drilled, the well driller shall complete a well record and submit it to the Office of the State Engineer within thirty days of well completion.

Note – Card folds over butterfly style with clean adhesive to create an 11 mil card. Carry this card with you when you are conducting well drilling activities within New Mexico. The card may be laminated for additional durability.

NEW MEXICO OFFICE OF THE STATE ENGINEER

WELL DRILLER LICENSE

Name: **JIM HALE**

Expiration: **Oct 31, 2025**

Company: **HYDRO RESOURCES- ROCKY MOUNTAIN INC.**

License No: **WD-1726**

ADDITIONAL INFORMATION ON BACK

The person listed on the front of this card is licensed to construct the well by the following methods or (if NONE) can perform following all other well drilling activities: MUD ROTARY DRILLING, AIR ROTARY DRILLING, REVERSE CIRCULATION DRILLING

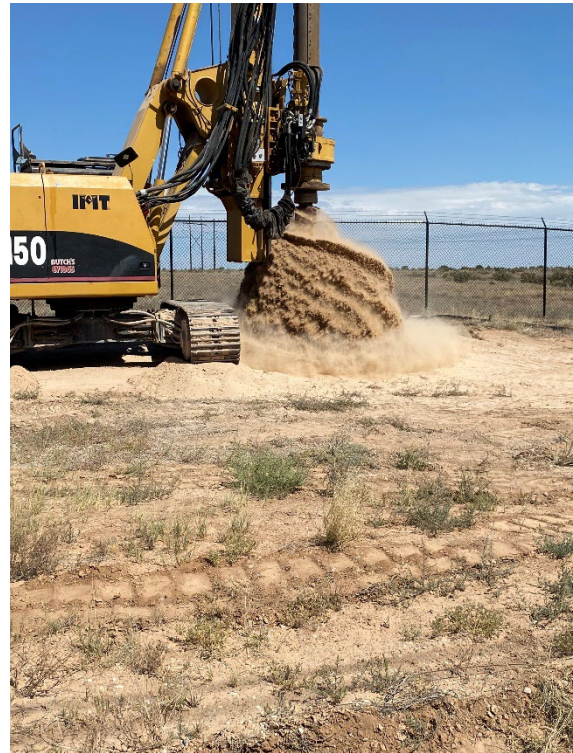
For additional information contact the Office of the State Engineer at (505) 827-6120 in Santa Fe, or www.ose.state.nm.us

Appendix B.

**Site photographs,
City of Rio Rancho Well 9R**



Filling storage tank.



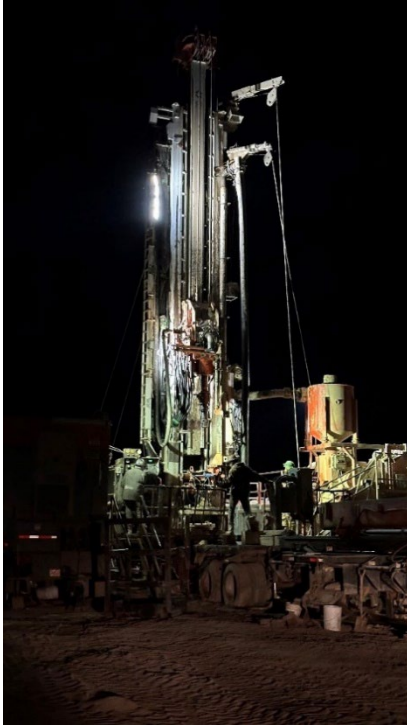
Auger for conductor casing.



Running conductor casing.



Drill bit.



Drill rig at night.



Cuttings on shale shaker.



Caliper logging tool.

Office REPORT

Gearhart Drilling Tools

Geo-Shot Tool
Box S/N 2167 V4.00
Tool S/N 1177 V4.00

Operator: _____
Rig: 10031
Lease: _____
Well Number: R9
API Number: _____
Date: 8-31
Timestamp: 21:58:22

Survey: #1 #2 Checkshot
Time: 21:48:39 21:49:09
Angle: 88.1° 88.1°
Temp: 77.8°F 77.8°F
Depth: 1369

Signature: _____

Gearhart Drilling Tools

Geo-Shot Tool
Box S/N 2167 V4.00
Tool S/N 1177 V4.00

Operator: _____
Rig: 10031
Lease: _____
Well Number: R9
API Number: _____
Date: 8-31
Timestamp: 21:31:18

Survey: #1 #2 Checkshot
Time: 21:22:56 21:23:36
Angle: 88.1° 88.1°
Temp: 88.6°F 88.6°F
Depth: 1,429

Signature: _____

10	2.00	509.71	22.30	1,339.71
	10.04	130.30	999.71	40.30
38	17.47	509.71	23.30	1,369.71
	146.71	14.30	999.71	41.30
DP 1	30	509.71	28.30	1,399.71
	130.71	15.30	1,009.71	42.30
2	30	619.71	29.30	1,429.71
	222.71	18.30	1,039.71	43.30
3	30	649.71	30.30	
	258.71	19.30	1,049.71	

Example borehole deviation.



Running pipe for zone development.



Tripping pipe out.



Bentonite pellets for zone sampling.



Gravel packing for zone sampling.



Monitoring water-quality during zone sampling.



Water sample kits for lab analysis.



Reaming assembly.



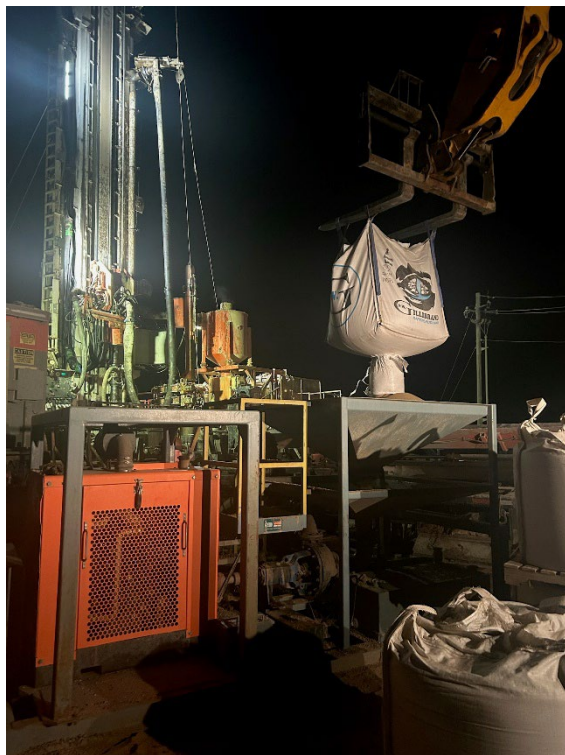
Blank production casing.



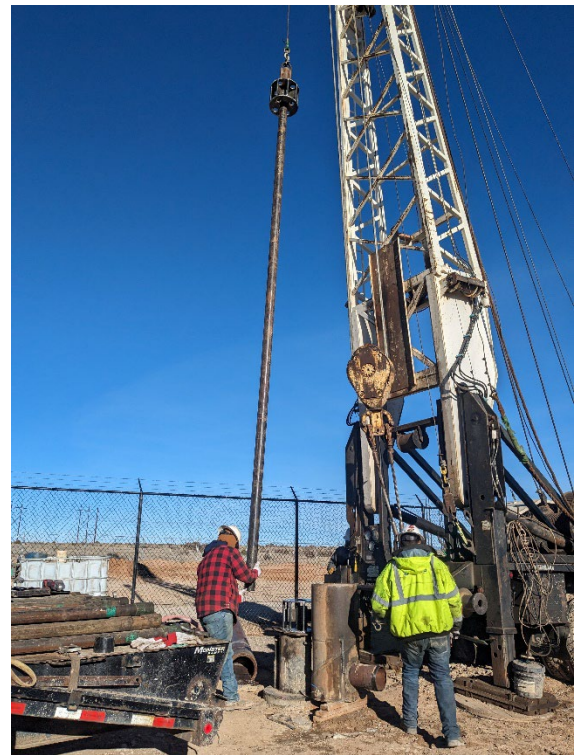
Running in screen.



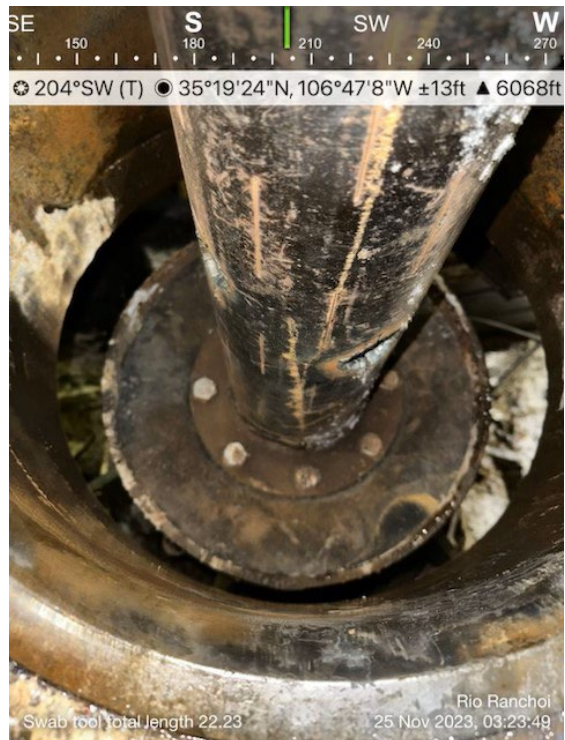
Running in casing and sounding tube.



Gravel packing at night.



Running in the dummy tool.



Swab tool in hole.



Swab tool with scale.



Total sand after 48 hours of pumping.

Appendix C.

**Descriptions of cuttings samples,
City of Rio Rancho Well 9R**

BOREHOLE SPUD DATE: July 19, 2023CLIENT: Huitt-ZollarsPROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: RLPContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031except for upper 80 ft which was drilled withDrilling bit: 17.5-in. milltoothauger methods with some polymer and waterDrilling method: Reverse Mud Rotary

Depth, ft bgl	Description
0-10	<u>Sandy silt</u> : sand, fine; caliche; minor gravel, sub rounded up to 2"
10-20	<u>Sandy silt</u> : silt tan; sand, very fine grained
20-30	<u>Gravel sandy silt</u> : 85% silt, tan; 10% sand, fine-grained, well sorted, tan; 5% gravel ~ ¼ to ½-in., angular; reacts to HCl
30-40	<u>Silty sand</u> : 80% sand, fine grained, well sorted, tan; 20% silt; moist from water-injection; reacts to HCl.
40-50	<u>Gravel silty sandy</u> : 75% sand fine grained, well sorted, tan; 22% silt, 3% gravel ~1/4 to ½-in., subangular; reacts to HCl.
50-60	<u>Sandy silty</u> : 75% sand, fine grained, well sorted, tan; 25% silt; reacts to HCl
60-70	<u>Sandy silt</u> : 70% silt, tan; 30% sand, fine grained, well sorted; reacts to HCl, moist from water added during drilling
70-80	<u>Sandy silt</u> : 70% silt, tan; 30% sand, fine grained, well sorted; reacts to HCl, moist from water added during drilling
80-90	<u>Sandy gravel</u> : 85% gravel, up to ¼ inch, subrounded to subangular, poorly sorted, varying compositions, varying color (red, black, white, tan); 15% sand, fine-med. grained, subrounded; mild reaction to HCl
90-100	<u>Sandy gravel</u> : 85% gravel, up to ¼ inch, subrounded to subangular, poorly sorted, varying compositions, varying color (red, black, white, tan); 15% sand, fine-med. grained, subrounded; mild reaction to HCl
100-110	<u>Clayey sand</u> : 60% sand, fine grained, tan; 40% clay, high plasticity, tan
110-120	<u>Gravelly sand</u> : 80% sand, coarse, well sorted, subangular to subrounded, mostly quartz, with some mafics/feldspars, dark brown; 20% gravel, moderately sorted, subangular, mostly quartz and feldspar, up to ¼-in., white/opaque grains
120-140	<u>Clayey sand</u> : 60% sand, fine-grained, tan; 40% clay, high plasticity

BOREHOLE SPUD DATE: 8/24/2023CLIENT: Huitt-ZollarsPROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud Rotary

Depth, ft bgl	Description
140-190	<u>Gravelly sand</u> : 80% sand, coarse, subrounded to well rounded, moderately sorted, mostly quartz with mafics and feldspars, up to ¼-in.; 20% gravel, moderately sorted, subrounded, brown to reddish brown, black, gray
190-200	<u>Clayey sand</u> : 60% sand, coarse grained, subangular, moderately sorted, mostly quartz with mafics & feldspars; 40% clay, high plasticity, tan; moderate reaction to HCl.
200-220	<u>Gravelly sand</u> : 80% sand, coarse grained, subrounded to rounded, moderately sorted, mostly quartz with mafics & feldspar; 20% gravel, moderately sorted, subrounded to subangular, tan, black, white, red grains; weak reaction to acid.
220-240	<u>Gravelly sandy clay</u> : 60% clay, high plasticity, brown/tan; 35% sand, subrounded to well rounded, medium to coarse, moderately sorted, mostly quartz with mafics and feldspars; 5% gravel, subangular, moderately sorted, brown, red, black grains; mild reaction to acid.
240-250	<u>Gravelly sand</u> : 80% sand, coarse moderately sorted, sub to well rounded, mostly quartz with some mafics and feldspars, up to ¼-in.; 20% gravel, subangular to subrounded, moderate sorting, black/red/brown mafics and feldspars present; weak reaction to acid.
250-260	<u>Gravelly sandy clay</u> : 55% clay, high plasticity, tan; 40% sand, medium, moderately sorted, well rounded, mostly quartz with some mafics and feldspars; 5% gravel, subangular to subrounded, moderate sorting, black/red/brown; moderate reaction to acid.
260-270	<u>Gravelly sand</u> : 95% sand, coarse, well sorted, well rounded, mostly quartz with some mafics & feldspars; 5% gravel, subangular, moderate sorting, black/red/brown, mafics and feldspar; moderate reaction to HCl.
270-280	<u>Sandy gravel</u> : 75% gravel, subangular to subrounded, moderate sorting, quartz/feldspar/mafics, up to ½-in.; 25% sand, medium, moderate sorting, well rounded to subrounded, mostly quartz with some mafics & feldspars; moderate reaction to acid.
280-300	<u>Gravelly sand</u> : 85% sand, medium to coarse, well sorted, subrounded, mostly quartz with feldspar and some mafics; 15% gravel, subangular, moderate sorting, quartz/mafics/feldspars; mild to moderate reaction with HCl.
300-310	<u>Sandy clay</u> : 70% clay, high plasticity, reddish brown; 30% sand, medium to fine, moderate sorting, subrounded, medium grains, mostly quartz, with feldspar and some mafics; moderate reaction with HCl.
310-340	<u>Sandy clay</u> : 70% clay, high plasticity, tan; 30% sand, fine grained, well sorted, mostly quartz with mafics; moderate reaction with HCl.

BOREHOLE SPUD DATE: 8/24/2023CLIENT: Huitt-ZollarsPROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud Rotary

Depth, ft bgl	Description
340-350	<u>Sandy clay</u> : 60% clay, tan with occasional red and black streaks, high plasticity; 40% sand, tan with minor black grains, subrounded, fine, moderate to well sorting, mainly quartz; mild reaction to HCl.
350-360	<u>Clayey sand</u> : 55% sand, predominately tan, minor white/black grains, fine to medium, subrounded to rounded, moderately sorted, mostly quartz, minor mafics; 45% clay, tan, high plasticity; mild reaction to HCl.
360-370	<u>Sandy clay</u> : 95% clay, brown with occasional reddish streaks, medium plasticity with many large, dense, low plasticity chunks; 5% sand, very fine to coarse, poorly sorted, tan or black, some mafics; mild reaction to HCl.
370-380	<u>Clayey sand</u> : 70% sand, predominantly tan, minor red/black, fine-medium grained, moderately well sorted, subrounded to rounded, mainly quartz, minor feldspar and mafics; 30% clay, high plasticity, well hydrated, tan with red streaks; mild reaction to acid.
380-390	<u>Clayey sand</u> : 60% sand, mostly tan, moderate red/white/black, fine to coarse grained, poor to moderate sorting, subrounded to rounded, mostly quartz with feldspar and mafics; 40% clay, tan, high plasticity; moderate reaction to HCl.
390-400	<u>Sandy clay</u> : 60% clay, reddish brown, high plasticity; 40% sand, tan and red, with large black grains, poor to moderately sorted, subrounded to rounded, quartz and feldspar, minor mafics; strong reaction with HCl.
400-410	<u>Sandy clay</u> : 65% clay, reddish brown, with some gray lenses, high plasticity; 35% sand, fine grained with few larger pieces, tan and red, moderately sorted, quartz, feldspar and minor mafics; strong reaction with HCl.
420-440	<u>Gravelly clay</u> : 90% clay, high plasticity, tan; 10% gravel, moderately sorted, subrounded, up to 1/4-in., tan; strong reaction with HCl.
440-510	<u>Sandy clay</u> : 75% clay, high plasticity, tan; 25% sand, fine grained, well sorted, tan; strong reaction with HCl.
510-520	<u>Sandy clay</u> : 75% clay, high plasticity, tan; 30% sand-fine grained, well sorted, tan; strong reaction with HCl.
520-530	<u>Sandy clay</u> : 55% clay, high plasticity, tan; 45% sand, fine to coarse grained, poor sorting, subangular to angular, mostly quartz with mafics and feldspars; strong reaction with HCl.
530-540	<u>Sandy clay</u> : 75% clay, high plasticity, tan; 25% sand, fine grained, well sorted, tan; reaction with HCl.
540-550	<u>Gravelly sand</u> : 80% sand, coarse grained, moderately sorted, subrounded to subangular, mostly quartz with mafics and feldspar; 20% gravel, subangular, moderate sorting, up to 1/4-in., black/dark green/red grains; reaction with HCl.



BOREHOLE SPUD DATE: 8/24/2023

CLIENT: Huitt-Zollars

PROJECT: Well 9R

LOCATION: Rio Rancho

BOREHOLE NAME: Well 9R

GEOLOGIST: AKM/ZBC/FGS

Contractor: Hydro Resources

Notes: cuttings not washed, recorded wet

Rig: 10031

Drilling bit: 17.5-in. milltooth

Drilling method: Reverse Mud Rotary

Depth, ft bgl	Description
550-560	<u>Gravelly clayey sand</u> : 55% sand, medium to coarse, moderate sorting, subrounded to subangular, quartz, feldspar and mafic; 40% clay, high plasticity, tan; 5% gravel, moderate sorting, sub angular, black/red/brown; reaction with HCl.
560-580	<u>Sandy clay</u> : 75% clay, high plasticity, tan; 25% sand, fine to medium grained, moderately sorted, subrounded, quartz with mafics and feldspar; reaction with HCl.
580-590	<u>Sandy clay</u> : 75% clay, high plasticity, tan; 25% sand, fine grained, well sorted; reaction with HCl.
590-600	<u>Sandy clay</u> : 60% clay, tan, high plasticity; 40% sand, fine to coarse grained, poorly sorted, subangular to subrounded, mostly tan some red/white/black grains, quartz, feldspar, and mafics; mild reaction to HCl.
600-610	<u>Sandy clay</u> : 60% clay, tan, high plasticity; 40% sand, fine to medium, subrounded, moderately sorted, mostly tan, minor red/white/black, mostly quartz, minor feldspar and mafics; mild reaction to HCl.
610-620	<u>Clayey sand</u> : 70% sand, coarse to very coarse, poorly sorted, subrounded to subangular, mostly tan, minor white/black/red grains, quartz with feldspars and mafics; 30% clay, tan to gray, high plasticity; mild reaction to HCl.
620-630	<u>Sandy clay</u> : 60% clay, tan, high plasticity; 40% sand, fine to medium, subrounded, moderately sorted, mostly tan, minor white/black, mainly quartz, some mafics; moderate reaction to HCl.
630-640	<u>Gravelly clayey sand</u> : 80% sand, fine to very coarse, subangular to subrounded, poorly sorted, tan, red, black grains, varying compositions; 15% clay, medium to low plasticity; 5% sand, varying sized lenses, brown/red, tan, minor gravel, ~1/4-in. varying color; slow reaction with HCl.
640-650	<u>Clay</u> : low plasticity, dense, tan; reaction with HCl.
650-680	<u>Clayey sand</u> : 70% sand, fine grained, well sorted, tan; 30% clay, high plasticity, tan; reaction with HCl.
680-690	<u>Clay</u> : low plasticity, dense, tan; reaction with HCl.
690-720	<u>Clayey sand</u> : 70% sand, fine grained, well sorted, tan; 30% clay, high plasticity, tan; low reaction with HCl.
720-750	<u>Clayey sand</u> : 70% sand, fine to medium grained, moderately sorted, subrounded, quartz with mafics and feldspars; 30% clay, high plasticity, tan; low reaction with HCl.
750-760	<u>Gravelly clayey sand</u> : 65% sand, fine to medium grained, moderately sorted, subrounded to subangular, quartz with mafics and feldspars; 30% clay, high plasticity, tan; 5% gravel, moderately sorted, sub angular, black/red grains; no reaction with HCl for gravel, high reaction with HCl for clay.

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BOREHOLE SPUD DATE: 8/24/2023CLIENT: Huitt-ZollarsPROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud Rotary

Depth, ft bgl	Description
760-770	<u>Clayey sand</u> : 70% sand, fine grained, well sorted; 30% clay, high plasticity, tan; strong reaction with HCl.
770-780	<u>Clayey sand</u> : 70% sand, fine grained, well sorted; 30% clay, high plasticity, tan; weak reaction with HCl.
780-790	<u>Clayey sand</u> : 75% sand, fine to medium grained, well sorted, rounded to subrounded, mostly rounded quartz with mafics and red/green grains; 25% clay, high plasticity, tan; moderate reaction with HCl.
790-800	<u>Clayey sand</u> : 65% sand, fine grained, well sorted, varying colors white/black/red; 35% clay, high plasticity, tan; strong reaction with HCl.
800-810	<u>Sandy clay</u> : 50% clay tan/red/white, high plasticity; 50% sand, fine grained, round, well sorted, mostly tan, some black, mainly quartz and some mafics; mild reaction to HCl
810-820	<u>Sandy clay</u> : 80% clay, brown, medium-low plasticity; 20% sand, generally very fine w/ occasional larger (medium) black grains, mostly quartz and some mafics; mild reaction to HCl
820-830	<u>Sandy clay</u> : 50% clay, overall tan, high plasticity w/ dense brown low plasticity lenses; 50% sand, fine to medium, subangular to subrounded, moderately sorted, mostly tan w/ some white/red/black, mostly quartz, some feldspar and mafics; reaction to HCl
830-840	<u>Sandy clay</u> : 50% clay, tan w/minor orange, high plasticity; 50% sand, fine w/lesser medium-coarse, moderately sorted, subrounded to subangular, mostly tan, some red/black, mainly quartz, some feldspar and mafics; very weak reaction to HCl
840-850	<u>Gravelly sandy clay</u> : 50% clay, brownish tan, high plasticity w/low plasticity dense lenses; 45% sand, fine to very fine, moderately sorted, mainly quartz, minor mafics; 5% gravel gray, subangular, <1/2", 5%; strong reaction to HCl for gravel and moderate overall
850-860	<u>Sandy clay</u> : 50% clay, tan, high plasticity overall w/large dense lenses; 50% sand, fine-medium, subrounded to subangular, moderately sorted, mostly tan w/some white/red/black, quartz and calcite, feldspar and mafics; strong reaction to HCl
860-890	<u>Clayey sand</u> : 70% sand, mainly fine-medium grained w/occasional coarse, subrounded to subangular, moderately sorted, tan w/some red/black, mainly quartz, some feldspar and mafics; 30% clay gray; mild reaction to HCl
890-990	<u>Clayey sand</u> : 60% sand, fine, well sorted, tan; 40% clay, high plasticity, tan; mild reaction to HCl
990-1000	<u>Clayey sand</u> : 75% sand, fine, well sorted, tan; 25% clay, high plasticity, tan; moderate reaction to HCl
1000-1010	<u>Clayey sand</u> : 55% sand, fine, well sorted, tan; 45% clay, high plasticity, tan; high reaction to HCl

BOREHOLE SPUD DATE: 8/24/2023CLIENT: Huitt-ZollarsPROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud Rotary

Depth, ft bgl	Description
1010-1020	<u>Clayey silt</u> : 60% silt; mostly tan, some white; 40% clay, moderate plasticity, tan; moderate reaction to HCl
1020-1030	<u>Silty clay</u> : 70% clay, dense, yellow-tan; 30% silt, yellow-tan; medium reaction to HCl
1030-1040	<u>Silty clay</u> : 90% clay, dense, high plasticity, yellow-tan; 10% silt, yellow-tan; slight rxn to HCl
1040-1050	<u>Silty clay</u> : 80% clay, dense, high plasticity, yellow-tan; 20% silt – yellow-tan w/some white grains; very slight reaction to HCl
1050-1060	<u>Sand silty clay</u> : 80% clay, very dense, moderate plasticity, yellow-tan; 10% silt, yellow-tan; 10% sand, very fine, white/translucent, quartz; slight reaction to HCl
1060-1070	<u>Silty sandy clay</u> : 70% clay, high plasticity, moderately stiff, yellow-tan; 20% sand, very fine, subangular to subrounded, well sorted, mostly quartz, white/translucent; 10% silt, yellow-tan
1070-1080	<u>Clayey silty sand</u> : 50% sand, fine grained, subangular to subrounded, well sorted, mostly quartz and feldspars, tan; 30% silt, tan; 20% clay, moderate plasticity, tan w/some white lenses
1080-1090	<u>Clay</u> : clay light red, dense, high plasticity. Some fine sand grains observed but < 10%
1090-1100	<u>Clay</u> : dense red, tan, high plasticity, moderate reaction to HCl
1100-1110	<u>Clay</u> : dense, yellow tan, high plasticity, moderate reaction to HCl
1110-1120	<u>Silty clay</u> : yellow tan, high plasticity, moderate reaction to HCl
1120-1130	<u>Clay</u> : dense, yellow tan, high plasticity, moderate reaction to HCl
1130-1140	<u>Silty clay</u> : yellowish tan, high plasticity, moderate reaction to HCl
1140-1150	<u>Clayey, silty sand</u> : 40% sand, fine, tan, some white; 30% silt, tan; 30% clay, tan, high plasticity, 30%; slight reaction to HCl
1150-1160	<u>Sandy clay</u> : 60% clay, tan, dense, high plasticity; 40% sand, fine, unconsolidated to moderate consolidation, tan, some white, moderate reaction to HCl
1160-1170	<u>Clay</u> : yellow tan, dense, high plasticity, slight reaction to HCl
1170-1180	<u>Clay</u> : tan, dense, high plasticity; minor silt; slight reaction to HCl
1180-1190	<u>Clay</u> : tan, dense, high plasticity; strong reaction to HCl
1190-1200	<u>Silty clay</u> : 60% clay, grayish brown, high plasticity; 40% silt, grayish brown to white, moderate consolidation; strong reaction to HCl
1200-1210	<u>Clay</u> : dense, tan to reddish brown, high plasticity; moderate reaction to HCl
1210-1220	<u>Silty clay</u> : 60% clay, tan, medium plasticity; 40% silt, moderate consolidation, reddish brown, tan; moderate reaction to HCl
1220-1230	<u>Clayey silty sand</u> : 50% sand, light brown to tan, very fine to fine grained, subangular to subrounded, moderately sorted, quartz, feldspars, few dark lithics; 30% silt, moderately consolidated in lenses, light brown to tan; 20% clay, tan, soft, moderate plasticity

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BOREHOLE SPUD DATE: 8/24/2023CLIENT: Huitt-ZollarsPROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud Rotary

Depth, ft bgl	Description
1230-1240	<u>Clayey silty sand</u> : 70% sand, light brown to tan, very fine to fine grained, subangular to subrounded, moderately sorted, quartz, feldspars, few dark lithics; 20% silt, tan, moderate consolidation; 10% clay, tan, soft; moderate reaction to HCl
1240-1250	<u>Silty sand</u> : 80% sand, tan, very fine to fine grained, subangular to subrounded, moderately sorted, quartz, feldspars, few dark lithics, moderately consolidated; 20% silt, tan, moderately consolidated; moderate reaction to HCl
1250-1260	<u>Silty clay</u> : clay, light brown, moderate density, high plasticity; reacts moderately to HCl
1260-1270	<u>Clayey sandy silt</u> : silt, light brown to tan; <10 sand, quartz, feldspar, medium; strong reaction with HCl;
1270-1280	<u>Silty sand</u> : 60 % sand, medium to coarse grained, quartz, feldspar, lithics, some subrounded, poorly sorted; 40% silt; slight reaction to HCL
1280-1290	<u>Sandy silt</u> : 60 % silt, light brown to tan, not very dense, moderate reaction to HCl; sand 40%, medium to coarse grained, subangular, quartz, feldspar, lithics
1290-1300	<u>Silty sand</u> : 60% sand, subrounded to rounded, fine to medium grained, quartz, feldspar, black lithics; 40% silt, high plasticity, black streaks, mafics of sand slight reaction to HCl,
1300-1310	<u>Silty sand</u> : 60% sand, medium to coarse grained, , quartz, feldspar, lithics; 40% silt, light brown, mafics to sand, medium plasticity, black streaks; reaction to HCl
1310-1320	<u>Silty clay</u> : 70% clay, dense, high plasticity, tan; 30% silt, tan
1320-1330	<u>Silty clay</u> : 75% clay, high plasticity, tan; 25% silt, tan; reacts to HCl
1330-1340	<u>Silty clay</u> : 80% clay, dense, high plasticity, tan; 20% silt; reacts to HCl
1340-1350	<u>Silty clay</u> : 50% clay, high plasticity, tan, dense; 50% silt, tan; reacts to HCl
1350-1360	<u>Sandy clay</u> : 70% clay, high plasticity, tan; 30% silt, tan; reacts to HCl
1360-1370	<u>Silty clay</u> : 70% clay, high plasticity, tan; 30% silt, tan; reacts to HCl
1370-1380	<u>Sandy clay</u> : 80% clay, high plasticity, dense, tan; 20% sand, medium to fine, subangular, well sorted, tan; reacts to HCl
1380-1390	<u>Sandy clay</u> : 75% clay, high plasticity, dense, tan; 25% sand, medium to fine, well sorted, tan; reacts to HCl
1390-1400	<u>Silty clay</u> : 80% clay, high plasticity, dense, tan; 20% silt, tan; reacts to HCl
1400-1410	<u>Silty clay</u> : 90% clay, high plasticity, dense, tan; 10% silt, tan; reacts to HCl
1410-1420	<u>Sandy clay</u> : 65% clay, high plasticity, dense, tan; 35% sand, medium to fine, well sorted, angular to subrounded; reacts to HCl
1420-1430	<u>Silty clay</u> : 90% clay, high plasticity, tan; 10% silt, tan; reacts to HCl
1430-1440	<u>Sandy clay</u> : 70% clay, medium plasticity, tan; 30% sand, angular to subrounded, coarse medium to fine, tan; reacts to HCl

BOREHOLE SPUD DATE: 8/24/2023CLIENT: Huitt-ZollarsPROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud

Depth, ft bgl	Description
1440-1450	<u>Silty clay</u> : 75% clay, medium plasticity, tan; 25% silt, tan; reacts to HCl
1450-1460	<u>Silty clay</u> : 70% clay, medium plasticity, tan; 30% silt, tan; reacts to HCl
1460-1470	<u>Sandy clay</u> : 60% clay, medium plasticity, tan; 40% sand, coarse to fine, angular to subangular, well sorted, tan; reacts to HCl
1470-1500	<u>Silty sand</u> : 80% sand, fine to medium, moderately sorted, subangular, tan; 20% silt, tan; mild rxn to HCl
1500-1560	<u>Silty sand</u> : 80% sand, medium to coarse, moderately sorted, subangular, tan; 20% silt, tan, mild reaction to HCl
1560-1570	<u>Silty sand</u> : 60% sand, fine, tan; 40% silt, tan; mild reaction to HCl
1570-1610	<u>Sand</u> : medium to coarse, moderately sorted subangular to subrounded, tan, mostly quartz w/ some feldspars and mafics; minor silt, minor reaction to HCl
1610-1640	<u>Silty sand</u> : 80% sand, coarse to medium, well sorted, angular to subangular, tan; 20% silt, tan; reacts to HCl
1640-1670	<u>Sandy clay</u> : 75% clay, medium plasticity, tan; 25% sand, angular to subangular, well sorted, tan; reacts to HCl
1670-1750	<u>Silty sand</u> : 75% sand, fine to medium, subangular to subrounded, tan; 25% silt, tan; mild reaction to HCl
1750-1760	<u>Clay</u> : moderate plasticity, dense, tan
1760-1770	<u>Clayey sand</u> : 60% sand, mostly tan, minor white/black, fine grained, moderately well sorted, subrounded to subangular, mostly quartz, minor mafics, feldspar; 40% clay, tan, high plasticity; mid reaction to HCl
1770-1780	<u>Clayey sand</u> : 55% sand, mostly tan, minor white/black, fine to medium grained, moderately sorted, subrounded to subangular, mostly quartz, minor feldspar; 45% clay, high plasticity, tan; no reaction to HCl
1780-1800	<u>Sandy clay</u> : 50% clay, tan, high plasticity; 50% sand, fine to medium grained, moderately sorted, subrounded to subangular
1800-1810	<u>Clayey sand</u> : 60% sand, fine to medium grained, moderately sorted, subrounded to subangular, mostly quartz; 40% clay, tan, medium plasticity
1810-1830	<u>Clayey sand</u> : 60% sand, fine to coarse, moderately sorted, subrounded to subangular, mostly quartz, minor feldspar; 40% clay, tan, low plasticity
1830-1840	<u>Sand</u> : medium grained, moderately sorted, subrounded to subangular, mostly quartz w/feldspar, chert; minor clay

BOREHOLE SPUD DATE: 8/24/2023CLIENT: Huitt-ZollarsPROJECT: Well 9RLOCATION: Rio RanchoBOREHOLE NAME: Well 9RGEOLOGIST: AKM/ZBC/FGSContractor: Hydro ResourcesNotes: cuttings not washed, recorded wetRig: 10031Drilling bit: 17.5-in. milltoothDrilling method: Reverse Mud

Depth, ft bgl	Description
1840-1850	<u>Sand</u> : medium grained, moderately sorted, subrounded to subangular, mostly quartz w/feldspar and chert
1850-1870	<u>Sand</u> : medium grained, moderately sorted, subrounded to subangular, mostly quartz w/feldspar and chert
1870-1890	<u>Sand</u> : fine to medium grained, moderately sorted, subrounded to subangular, mixed lithology; minor clay
1890-1900	<u>Clay</u> : tan/brown, high plasticity, really slowed drill down; no reaction to HCl
1900-1910	<u>Silty sand</u> : 70% sand, medium to coarse grained, subrounded, moderately sorted, quartz, feldspar, lithics; 30% silt; slight reaction to HCl
1910-1920	<u>Silty sand</u> : 80% sand, medium to coarse grained, subrounded, moderately sorted quartz, feldspar, lithics; 20% silt; slight reaction to HCl
1920-1930	<u>Clayey silty sand</u> : 60% sand, medium to fine grained, subangular to rounded, quartz, feldspar, lithics; 20% silt; 20% clay, low plasticity; strong reaction to HCl
1930-1950	<u>Clayey silty sand</u> : 70% sand, coarse to fine grained, poorly sorted, subangular to rounded, quartz, feldspar, lithics; 20% silt; 10% clay, plastic; slight reaction to HCl
1950-1960	<u>Silty sand</u> : 80% sand, medium to coarse grained, angular to subrounded, mainly quartz, some feldspar and lithics; 20% silt; very strong reaction to HCl
1960-2000	<u>Silty sand</u> : 80% sand, medium to fine grained, subangular to rounded, quartz, feldspar, lithics; 20% silt; reaction to HCl
2000-2005 TD	<u>Silty sand</u> : 80% sand coarse to fine grained, subangular to rounded quartz, feldspar, lithics, small rxn to HCl; 20% silt; slight reaction to HCl

Appendix D.

**Drilling fluid reports,
City of Rio Rancho Well 9R**

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT					1			
												Date		Measured Depth			T.V. Depth			
												08/24/23		80 ft.			80 ft			
												Spud Date		Present Activity			Rig No.			
		Drilling			10031															
OPERATOR:		City of Rio Rancho					CONTRACTOR:		Hydro Resources											
Operator's Representative:							Contractor's Representative:		Ty Curtis											
Well Name & No.		Field:					County, Parish:		Sandoval			State:		New Mexico						
Rio Ranco 9A		Legal:					VOLUMES		PUMP INFORMATION			HYDRAULICS								
BIT DATA		CASING & DRILLING ASSEMBLY					Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY							
Bit Size 17.5		Size 30		set @ 80		Ft		Pipe Capacity x				Drill Pipe 37 ft/min								
Bit Type Milltooth		Size		set @		Ft		2 bbls		6.5 x9		Drill Collar 50 ft/min								
Bit No. 1		Size		set @		Ft		Ann Volume 120 SPM				CIRCULATING PRESSURE								
Jets (32nd)		Size		set @		Ft		10 bbls		3.69 G/ST										
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5		180		Hole Volume 443 GPM				BOT. UP 1 min						
								12 bbls		10.55 BPM		SURF. TO BIT 0.2 min								
				6.875		4.5				Total GPM		Total BPM		TOT. CIR TIME 34 min						
								362 bbls		443		10.55								
Sample Fro ☒ Flowline ☐ Pit		Mud Properties					Calculate Alkalinity ☐ Check		HYDRAULICS											
Flowline Temperature (°F)		x									Jet Velocity		Nozzle Area							
Time Sample Taken		13:45									Horsepower									
Depth (ft)		80									Impact Force		ECD							
Mud Weight (ppg)		8.40									Press Loss at Bit		8.4 ppg							
Mud Gradient (psi/ft)		0.4368									Press Loss at Bit									
Funnel Viscosity @ °F		29					Recommended Equipment													
Plastic Visc.cp @ 75 °F		3					Cntrfuge ☐		Shaker ☒		Desander ☐									
Yield Point (lb/100ft2)		0					Degasser ☐		Desilter ☐		Other ☐									
Gel Strength (lb/100ft2) 10-sec		0					Recommended Mud Properties													
Gel Strength (lb/100ft²) 10-min		0					By Authority of: ☒		Company Representative			☐ Drilling Contractor								
Gel Strength (lb/100ft²) 30-min		x					Mud Wt:		8.4-9.0		Filtrate:		10-12cc		Viscosity: 31-35					
Filtrate API (cm3/30 min)		35.2					LCM:						Excess Lime:		lb/bbl					
Filtrate API HTHP (cm3/30 min)		x					RECOMMENDED TOURLY TREATMENT													
Cake Thickness (/32nds)		1					Finish adding open sx of Platinum Pac													
Solids Content (% by vol)		0.5																		
Water Content (% by Vol.)		99.5																		
Sand Content (% by vol)		Trace																		
Bentonite Content (lb/bbl)		x					Evening shift add 1 bkt of Flopam slowly over shift, if it blinds off screens stop													
pH ☒ Strip ☐ Meter		9.0					adding for 2 hrs and add 1 vis cup at a time													
Alkalinity Mud (Pm) cm3 N/50 Acid		x																		
Alkalinity, Pf / Mf		.30/.65																		
Chloride (mg/l)		140																		
Total Hardness as Calcium (mg/l)		20																		
Oil Content (% by vol)		x																		
LCM (lb/bbl)		x																		
Excess Lime (lb/bbl)		x																		
							DAILY REMARKS													
Solids Analysis																				
L.G. Solids				% ppb		H.G. Solids												% ppb		
L.G. Solids				% ppb		H.G. Solids												% ppb		
Corrected Solids				% Average Sp. Gr.																
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH									
Starting Inventory	192	34	80	40	32	32	240	144	144	0	0									
Chemicals Received																				
Closing Inventory	172	33	74	40	31	32	240	144	144											
Chemicals Used	20	1	6	0	1	0	0	0	0											
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
CHEMICALS																				
Starting Inventory																				
Chemicals Received												Est. Drayage:								
Closing Inventory												Est. Taxes:		\$	-					
Chemicals Used												Est. Daily Cost:		\$	-					
Daily Cost												Est. Cumulative Cost:		\$	-					
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:										
CELL PHONE NO.		303-720-4775			ADDRESS		Ft. Lupton, CO 80621			PHONE:										
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:										
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																				
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																				
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																				

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540											DRILLING MUD REPORT				2		
											Date		Measured Depth		T.V. Depth		
											08/25/23		331 ft.		331 ft		
											Spud Date		Present Activity		Rig No.		
08/24/23		Drilling		10031													
Version 3.75																	
OPERATOR:		City of Rio Rancho					CONTRACTOR:		Hydro Resources								
Operator's Representative:							Contractor's Representative:			Ty Curtis							
Well Name & No.		Field:					County, Parish:		Sandoval			State:		New Mexico			
Rio Ranco 9A		Legal:					VOLUMES		PUMP INFORMATION			HYDRAULICS					
BIT DATA		CASING & DRILLING ASSEMBLY					Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY				
Bit Size	17.5	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe				
Bit Type	Milltooth	Size		set @		Ft	7 bbls		x		x		Drill Collar				
Bit No.	1	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE				
Jets (32nd)		Size		set @		Ft	120 bbls		0.00 G/ST		0.00						
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP				
							127 bbls		BPM				SURF. TO BIT				
				6.875	4.5	151	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME				
							477 bbls										
Sample Fro ☒ Flowline ☐ Pit				Mud Properties			Calculate Alkalinity ☐ Check			HYDRAULICS							
Flowline Temperature (°F)				x									Jet Velocity			Nozzle Area	
Time Sample Taken				07:00									Horsepower				
Depth (ft)				331									Impact Force				
Mud Weight (ppg)				8.5									Press Loss at Bit				
Mud Gradient (psi/ft)				0.442									Press Loss at Bit				
Funnel Viscosity @			°F	30			Recommended Equipment										
Plastic Visc.cp @		75	°F	5			Cntrfuge ☐ Shaker ☒ Desander ☐										
Yield Point (lb/100ft2)				0			Degasser ☐ Desilter ☐ Other ☐										
Gel Strength (lb/100ft2) 10-sec				0			Recommended Mud Properties										
Gel Strength (lb/100ft ²) 10-min				0			By Authority of: ☒ Company Representative ☐ Drilling Contractor										
Gel Strength (lb/100ft ²) 30-min				x			Mud Wt:		8.4-9.0	Filtrate:		10-12cc	Viscosity:		31-34		
Filtrate API (cm3/30 min)		13.6			LCM:						Excess Lime:				lb/bbl		
Filtrate API HTHP (cm3/30 min)				x			RECOMMENDED TOURLY TREATMENT										
Cake Thickness (/32nds)				1			Add open sx of Platinum Pac										
Solids Content (% by vol)				1.3													
Water Content (% by Vol.)				98.7													
Sand Content (% by vol)				Trace													
Bentonite Content (lb/bbl)				x													
pH ☒ Strip ☐ Meter		8.0															
Alkalinity Mud (Pm) cm3 N/50 Acid				x													
Alkalinity, Pf / Mf				.25/.60													
Chloride (mg/l)				140													
Total Hardness as Calcium (mg/l)				20													
Oil Content (% by vol)				x													
LCM (lb/bbl)				x													
Excess Lime (lb/bbl)				x													
							DAILY REMARKS										
Solids Analysis																	
L.G. Solids		%	H.G. Solids		%												
L.G. Solids		ppb	H.G. Solids		ppb												
Corrected Solids		%	Average Sp. Gr.														
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH						
Starting Inventory	172	33	74	40	31	32	240	144	144								
Chemicals Received																	
Closing Inventory	172	32	74	38	31	32	240	144	144								
Chemicals Used	0	1	0	2	0	0	0	0	0								
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0								
CHEMICALS																	
Starting Inventory																	
Chemicals Received												Est. Drayage:					
Closing Inventory												Est. Taxes:		\$	-		
Chemicals Used												Est. Daily Cost:		\$	-		
Daily Cost												Est. Cumulative Cost:		\$	-		
TECHNICAL REP:		Ryan Brooks			WAREHOUSE:		13027 CR 18				NAME:						
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:						
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:						
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																	
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																	
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																	

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT				3					
												Date		Measured Depth		T.V. Depth					
												08/25/23		413 ft.		413 ft					
												Spud Date		Present Activity		Rig No.					
08/24/23		Drilling		10031																	
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources													
Operator's Representative:						Contractor's Representative:		Ty Curtis													
Well Name & No.		Field:						County, Parish:		Sandoval		State:		New Mexico							
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION		HYDRAULICS									
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY									
Bit Size 17.5		Size 30		set @ 80 Ft		Pipe Capacity						Drill Pipe									
Bit Type Milltooth		Size		set @ Ft		8 bbbs		x		x		Drill Collar									
Bit No. 1		Size		set @ Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE									
Jets (32nd)		Size		set @ Ft		143 bbbs		0.00 G/ST		0.00											
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5 180		Hole Volume		GPM				BOT. UP							
						151 bbbs		BPM				SURF. TO BIT									
				6.875		4.5 233		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME							
								501 bbbs													
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS													
Flowline Temperature (°F)		x										Jet Velocity		Nozzle Area							
Time Sample Taken		17:00										Horsepower									
Depth (ft)		413										Impact Force									
Mud Weight (ppg)		8.6										Press Loss at Bit									
Mud Gradient (psi/ft)		0.4472										Press Loss at Bit									
Funnel Viscosity @ °F		30										Recommended Equipment									
Plastic Visc.cp @ 75 °F		5				Cntrfuge ☐		Shaker ☒		Desander ☐											
Yield Point (lb/100ft2)		0				Degasser ☐		Desilter ☐		Other ☐											
Gel Strength (lb/100ft2) 10-sec		0										Recommended Mud Properties									
Gel Strength (lb/100ft²) 10-min		0				By Authority of: ☒		Company Representative		☐ Drilling Contractor											
Gel Strength (lb/100ft²) 30-min		x				Mud Wt: 8.4-9.0		Filtrate:		10-12cc		Viscosity:		31-34							
Filtrate API (cm3/30 min)		11.2				LCM:						Excess Lime:				lb/bbl					
Filtrate API HTHP (cm3/30 min)		x										RECOMMENDED TOURLY TREATMENT									
Cake Thickness (/32nds)		1										Evening shift please add 2 sx of Platinum Pac over your shift									
Solids Content (% by vol)		2.0																			
Water Content (% by Vol.)		98																			
Sand Content (% by vol)		Trace																			
Bentonite Content (lb/bbl)		x																			
pH ☒ Strip ☐ Meter		7.0																			
Alkalinity Mud (Pm) cm3 N/50 Acid		x																			
Alkalinity, Pf / Mf		.20/.50																			
Chloride (mg/l)		140																			
Total Hardness as Calcium (mg/l)		40																			
Oil Content (% by vol)		x																			
LCM (lb/bbl)		x																			
Excess Lime (lb/bbl)		x																			
						DAILY REMARKS															
Solids Analysis																					
L.G. Solids				%												H.G. Solids				%	
L.G. Solids				ppb												H.G. Solids				ppb	
Corrected Solids				%												Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	172	32	74	38	31	32	240	144	144												
Chemicals Received																					
Closing Inventory	172	32	74	38	31	32	240	144	144												
Chemicals Used	0	0	0	0	0	0	0	0	0												
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0												
CHEMICALS																					
Starting Inventory																					
Chemicals Received												Est. Drayage:									
Closing Inventory												Est. Taxes:		\$	-						
Chemicals Used												Est. Daily Cost:		\$	-						
Daily Cost												Est. Cumulative Cost:		\$	-						
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:										
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:										
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:										
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																					
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																					
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																					

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT				4					
												Date		Measured Depth		T.V. Depth					
												08/26/23		595 ft.		595 ft					
												Spud Date		Present Activity		Rig No.					
08/24/23		Drilling		10031																	
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources													
Operator's Representative:						Contractor's Representative:		Ty Curtis													
Well Name & No.		Field:						County, Parish:		Sandoval		State:		New Mexico							
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION		HYDRAULICS									
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY									
Bit Size 17.5		Size 30		set @ 80 Ft		Pipe Capacity						Drill Pipe									
Bit Type Milltooth		Size		set @ Ft		12 bbls		x		x		Drill Collar									
Bit No. 1		Size		set @ Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE									
Jets (32nd)		Size		set @ Ft		194 bbls		0.00 G/ST		0.00											
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5 180		Hole Volume		GPM		BOT. UP									
						206 bbls		BPM		SURF. TO BIT											
				6.875		4.5 415		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME							
								556 bbls													
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS													
Flowline Temperature (°F)		x										Jet Velocity		Nozzle Area							
Time Sample Taken		08:00										Horsepower									
Depth (ft)		595										Impact Force									
Mud Weight (ppg)		8.8										Press Loss at Bit									
Mud Gradient (psi/ft)		0.4576										Press Loss at Bit									
Funnel Viscosity @ °F		30										Recommended Equipment									
Plastic Visc.cp @ 75 °F		5				Cntrfuge ☐		Shaker ☒		Desander ☐											
Yield Point (lb/100ft2)		0				Degasser ☐		Desilter ☐		Other ☐											
Gel Strength (lb/100ft2) 10-sec		0										Recommended Mud Properties									
Gel Strength (lb/100ft²) 10-min		0				By Authority of: ☒		Company Representative		☐ Drilling Contractor											
Gel Strength (lb/100ft²) 30-min		x				Mud Wt:		8.4-9.0		Filtrate:		10-12cc		Viscosity: 31-34							
Filtrate API (cm3/30 min)		10.4				LCM:						Excess Lime:		lb/bbl							
Filtrate API HTHP (cm3/30 min)		x										RECOMMENDED TOURLY TREATMENT									
Cake Thickness (/32nds)		1										Mud looks good at this time, if fresh water is added add 1 sx of Platinum pac									
Solids Content (% by vol)		3.5										for every 50 bbls added									
Water Content (% by Vol.)		96.5																			
Sand Content (% by vol)		.25																			
Bentonite Content (lb/bbl)		x																			
pH ☒ Strip ☐ Meter		7.0																			
Alkalinity Mud (Pm) cm3 N/50 Acid		x																			
Alkalinity, Pf / Mf		.10/.35																			
Chloride (mg/l)		140																			
Total Hardness as Calcium (mg/l)		40																			
Oil Content (% by vol)		x																			
LCM (lb/bbl)		x																			
Excess Lime (lb/bbl)		x																			
						DAILY REMARKS															
Solids Analysis																					
L.G. Solids				%												H.G. Solids				%	
L.G. Solids				ppb												H.G. Solids				ppb	
Corrected Solids				%												Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	172	32	74	38	31	32	240	144	144												
Chemicals Received																					
Closing Inventory	172	32	74	36	31	32	240	144	144												
Chemicals Used	0	0	0	2	0	0	0	0	0												
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0												
CHEMICALS																					
Starting Inventory																					
Chemicals Received											Est. Drayage:										
Closing Inventory											Est. Taxes:		\$	-							
Chemicals Used											Est. Daily Cost:		\$	-							
Daily Cost											Est. Cumulative Cost:		\$	-							
TECHNICAL REP:						WAREHOUSE		13027 CR 18				NAME:									
CELL PHONE NO.						ADDRESS:		Ft. Lupton, CO 80621				PHONE:									
ANS. SERVICE:						PHONE:		(303) 857-4171				PHONE:									
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																					
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																					
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																					

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540 Version 3.75												DRILLING MUD REPORT						5									
												Date			Measured Depth			T.V. Depth									
												08/26/23			649 ft.			649 ft									
												Spud Date			Present Activity			Rig No.									
08/24/23			Drilling			10031																					
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources																			
Operator's Representative:						Contractor's Representative:		Ty Curtis																			
Well Name & No.		Field:				County, Parish:		Sandoval			State:		New Mexico														
Rio Ranco 9A		Legal:				VOLUMES		PUMP INFORMATION			HYDRAULICS																
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY															
Bit Size	17.5	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe														
Bit Type	Milltooth	Size		set @		Ft	13 bbls		x		x		Drill Collar														
Bit No.	1	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE														
Jets (32nd)		Size		set @		Ft	209 bbls		0.00 G/ST		0.00																
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP														
							222 bbls		BPM				SURF. TO BIT														
				6.875	4.5	469	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME														
							572 bbls																				
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS																			
Flowline Temperature (°F)		x										Jet Velocity			Nozzle Area												
Time Sample Taken		17:15										Horsepower															
Depth (ft)		649										Impact Force															
Mud Weight (ppg)		8.8										Press Loss at Bit															
Mud Gradient (psi/ft)		0.4576										Press Loss at Bit															
Funnel Viscosity @		30										Recommended Equipment															
Plastic Visc.cp @		75		°F		5		Cntrfuge ☐		Shaker ☒		Desander ☐															
Yield Point (lb/100ft2)		0						Degasser ☐		Desilter ☐		Other ☐															
Gel Strength (lb/100ft2) 10-sec		0						Recommended Mud Properties																			
Gel Strength (lb/100ft²) 10-min		0						By Authority of: ☒		Company Representative			☐ Drilling Contractor														
Gel Strength (lb/100ft²) 30-min		x						Mud Wt:		8.4-9.0		Filtrate:		10-12cc		Viscosity:		31-34									
Filtrate API (cm3/30 min)		9.6						LCM:						Excess Lime:				lb/bbl									
Filtrate API HTHP (cm3/30 min)		x						RECOMMENDED TOURLY TREATMENT																			
Cake Thickness (/32nds)		1						Evening shift please add 2 sx of Platinum pac slowly over shift																			
Solids Content (% by vol)		3.5																									
Water Content (% by Vol.)		96.5																									
Sand Content (% by vol)		Trace																									
Bentonite Content (lb/bbl)		x																									
pH ☒ Strip ☐ Meter		7.0																									
Alkalinity Mud (Pm) cm3 N/50 Acid		x																									
Alkalinity, Pf / Mf		.10/.30																									
Chloride (mg/l)		140																									
Total Hardness as Calcium (mg/l)		40																									
Oil Content (% by vol)		x																									
LCM (lb/bbl)		x																									
Excess Lime (lb/bbl)		x																									
														DAILY REMARKS													
Solids Analysis																											
L.G. Solids				%				H.G. Solids				%															
L.G. Solids				ppb				H.G. Solids				ppb															
Corrected Solids				%				Average Sp. Gr.																			
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH																
Starting Inventory	172	32	74	36	31	32	240	144	144																		
Chemicals Received																											
Closing Inventory	172	32	74	35	31	32	240	144	144																		
Chemicals Used	0	0	0	1	0	0	0	0	0																		
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																		
CHEMICALS																											
Starting Inventory																											
Chemicals Received												Est. Drayage:															
Closing Inventory												Est. Taxes:		\$		-											
Chemicals Used												Est. Daily Cost:		\$		-											
Daily Cost												Est. Cumulative Cost:		\$		-											
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:																	
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:																	
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:																	
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																											
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																											
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																											

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						6					
												Date			Measured Depth			T.V. Depth					
												08/27/23			793 ft.			793 ft					
												Spud Date			Present Activity			Rig No.					
08/24/23			Drilling			10031																	
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources															
Operator's Representative:						Contractor's Representative:		Ty Curtis															
Well Name & No.		Field:				County, Parish:		Sandoval			State:		New Mexico										
Rio Ranco 9A		Legal:				VOLUMES		PUMP INFORMATION			HYDRAULICS												
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY											
Bit Size	17.5	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe										
Bit Type	Milltooth	Size		set @		Ft	16 bbls		x		x		Drill Collar										
Bit No.	1	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE										
Jets (32nd)		Size		set @		Ft	250 bbls		0.00 G/ST		0.00												
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP										
							266 bbls		BPM				SURF. TO BIT										
				6.875	4.5	613	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME										
							616 bbls																
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS															
Flowline Temperature (°F)		x										Jet Velocity			Nozzle Area								
Time Sample Taken		7:00										Horsepower											
Depth (ft)		793										Impact Force											
Mud Weight (ppg)		8.9										Press Loss at Bit											
Mud Gradient (psi/ft)		0.4628										Press Loss at Bit											
Funnel Viscosity @		31										Recommended Equipment											
Plastic Visc.cp @		75		°F		5		Cntrfuge ☐		Shaker ☒		Desander ☐											
Yield Point (lb/100ft2)		0						Degasser ☐		Desilter ☐		Other ☐											
Gel Strength (lb/100ft2) 10-sec		0						Recommended Mud Properties															
Gel Strength (lb/100ft²) 10-min		0						By Authority of: ☒		Company Representative			☐ Drilling Contractor										
Gel Strength (lb/100ft²) 30-min		x						Mud Wt:		8.4-9.0		Filtrate:		10-12cc		Viscosity:		31-34					
Filtrate API (cm3/30 min)		10.4						LCM:						Excess Lime:				lb/bbl					
Filtrate API HTHP (cm3/30 min)		x						RECOMMENDED TOURLY TREATMENT															
Cake Thickness (/32nds)		1						Please add 2 sx of Platinum pac over shift															
Solids Content (% by vol)		4.3																					
Water Content (% by Vol.)		95.7																					
Sand Content (% by vol)		.25																					
Bentonite Content (lb/bbl)		x																					
pH ☒ Strip ☐ Meter		7.0																					
Alkalinity Mud (Pm) cm3 N/50 Acid		x																					
Alkalinity, Pf / Mf		.10/.30																					
Chloride (mg/l)		140																					
Total Hardness as Calcium (mg/l)		40																					
Oil Content (% by vol)		x																					
LCM (lb/bbl)		x																					
Excess Lime (lb/bbl)		x																					
						DAILY REMARKS																	
Solids Analysis																							
L.G. Solids				%														H.G. Solids				%	
L.G. Solids				ppb														H.G. Solids				ppb	
Corrected Solids				%														Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH												
Starting Inventory	172	32	74	35	31	32	240	144	144														
Chemicals Received																							
Closing Inventory	172	32	74	33	31	32	240	144	144														
Chemicals Used	0	0	0	2	0	0	0	0	0														
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0														
CHEMICALS																							
Starting Inventory																							
Chemicals Received												Est. Drayage:											
Closing Inventory												Est. Taxes:		\$	-								
Chemicals Used												Est. Daily Cost:		\$	-								
Daily Cost												Est. Cumulative Cost:		\$	-								
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:												
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:												
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:												
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																							
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Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540 Version 3.75												DRILLING MUD REPORT				7					
												Date		Measured Depth		T.V. Depth					
												08/27/23		897 ft.		897 ft					
												Spud Date		Present Activity		Rig No.					
08/24/23		Drilling		10031																	
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources													
Operator's Representative:								Contractor's Representative:		Ty Curtis											
Well Name & No.		Field:						County, Parish:		Sandoval		State:		New Mexico							
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION		HYDRAULICS									
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY									
Bit Size	17.5	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe								
Bit Type	Milltooth	Size		set @		Ft	18 bbls		x		x		Drill Collar								
Bit No.	1	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE								
Jets (32nd)		Size		set @		Ft	280 bbls		0.00 G/ST		0.00										
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP								
							298 bbls		BPM				SURF. TO BIT								
				6.875	4.5	717	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME								
							648 bbls														
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS													
Flowline Temperature (°F)		x										Jet Velocity		Nozzle Area							
Time Sample Taken		16:30										Horsepower									
Depth (ft)		897										Impact Force									
Mud Weight (ppg)		8.9										Press Loss at Bit									
Mud Gradient (psi/ft)		0.4628										Press Loss at Bit									
Funnel Viscosity @		32																			
Plastic Visc.cp @		75		°F		5		Cntrfuge ☐		Shaker ☒		Desander ☐									
Yield Point (lb/100ft2)				5		5		Degasser ☐		Desilter ☐		Other ☐									
Gel Strength (lb/100ft2) 10-sec		0						Recommended Mud Properties													
Gel Strength (lb/100ft²) 10-min		1						By Authority of: ☒		Company Representative		☐ Drilling Contractor									
Gel Strength (lb/100ft²) 30-min		x						Mud Wt:		8.4-9.0		Filtrate:		10-12cc		Viscosity: 31-34					
Filtrate API (cm3/30 min)		10.4						LCM:						Excess Lime:		lb/bbl					
Filtrate API HTHP (cm3/30 min)		x						RECOMMENDED TOURLY TREATMENT													
Cake Thickness (/32nds)		1						Continue adding open sx of Platinum Pac													
Solids Content (% by vol)		4.3																			
Water Content (% by Vol.)		95.7						Evening shift please add 2 sx of Platinum Pac UL over shift													
Sand Content (% by vol)		.25																			
Bentonite Content (lb/bbl)		x																			
pH ☒ Strip ☐ Meter		7.0																			
Alkalinity Mud (Pm) cm3 N/50 Acid		x																			
Alkalinity, Pf / Mf		.10/.30																			
Chloride (mg/l)		140																			
Total Hardness as Calcium (mg/l)		40																			
Oil Content (% by vol)		x																			
LCM (lb/bbl)		x																			
Excess Lime (lb/bbl)		x																			
						DAILY REMARKS															
Solids Analysis																					
L.G. Solids				%												H.G. Solids				%	
L.G. Solids				ppb												H.G. Solids				ppb	
Corrected Solids				%												Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	172	32	74	33	31	32	240	144	144												
Chemicals Received																					
Closing Inventory	172	32	72	33	31	32	240	144	144												
Chemicals Used	0	0	2	0	0	0	0	0	0												
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0												
CHEMICALS																					
Starting Inventory																					
Chemicals Received												Est. Drayage:									
Closing Inventory												Est. Taxes:		\$	-						
Chemicals Used												Est. Daily Cost:		\$	-						
Daily Cost												Est. Cumulative Cost:		\$	-						
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:											
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:											
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:											
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																					
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																					
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Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540 Version 3.75						Hydro resources						DRILLING MUD REPORT				8					
												Date		Measured Depth		T.V. Depth					
												08/28/23		1,042 ft.		1042 ft					
												Spud Date		Present Activity		Rig No.					
08/24/23		Drilling		10031																	
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources													
Operator's Representative:						Contractor's Representative:		Ty Curtis													
Well Name & No.		Field:						County, Parish:		Sandoval		State:		New Mexico							
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION		HYDRAULICS									
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY									
Bit Size 17.5		Size 30		set @ 80 Ft		Pipe Capacity						Drill Pipe									
Bit Type Milltooth		Size		set @ Ft		21 bbls		x		x		Drill Collar									
Bit No. 1		Size		set @ Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE									
Jets (32nd)		Size		set @ Ft		320 bbls		0.00 G/ST		0.00											
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5 180		Hole Volume		GPM				BOT. UP							
						341 bbls		BPM				SURF. TO BIT									
				6.875		4.5 862		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME							
								691 bbls													
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS													
Flowline Temperature (°F)		x										Jet Velocity		Nozzle Area							
Time Sample Taken		16:30										Horsepower									
Depth (ft)		1042										Impact Force									
Mud Weight (ppg)		8.9										Press Loss at Bit									
Mud Gradient (psi/ft)		0.4628										Press Loss at Bit									
Funnel Viscosity @ °F		31						Recommended Equipment													
Plastic Visc.cp @ 75 °F		5				Cntrfuge ☐		Shaker ☒		Desander ☐											
Yield Point (lb/100ft2)		5				Degasser ☐		Desilter ☐		Other ☐											
Gel Strength (lb/100ft2) 10-sec		0				Recommended Mud Properties															
Gel Strength (lb/100ft²) 10-min		1				By Authority of: ☒		Company Representative		☐ Drilling Contractor											
Gel Strength (lb/100ft²) 30-min		x				Mud Wt: 8.4-9.0		Filtrate:		10-12cc		Viscosity:		31-34							
Filtrate API (cm3/30 min)		9.6				LCM:						Excess Lime:		lb/bbl							
Filtrate API HTHP (cm3/30 min)		x				RECOMMENDED TOURLY TREATMENT															
Cake Thickness (/32nds)		1																			
Solids Content (% by vol)		4.3				Evening shift please finish adding open sx of Platinum pac and add 1 more over															
Water Content (% by Vol.)		95.7				shift.															
Sand Content (% by vol)		.25																			
Bentonite Content (lb/bbl)		x																			
pH ☒ Strip ☐ Meter		7.0																			
Alkalinity Mud (Pm) cm3 N/50 Acid		x																			
Alkalinity, Pf / Mf		.10/.30																			
Chloride (mg/l)		140																			
Total Hardness as Calcium (mg/l)		40																			
Oil Content (% by vol)		x																			
LCM (lb/bbl)		x																			
Excess Lime (lb/bbl)		x																			
						DAILY REMARKS															
Solids Analysis																					
L.G. Solids				%												H.G. Solids				%	
L.G. Solids				ppb												H.G. Solids				ppb	
Corrected Solids				%												Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	172	32	72	33	31	32	240	144	144												
Chemicals Received																					
Closing Inventory	172	32	70	33	31	32	240	144	144												
Chemicals Used	0	0	2	0	0	0	0	0	0												
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0												
CHEMICALS																					
Starting Inventory																					
Chemicals Received											Est. Drayage:										
Closing Inventory											Est. Taxes:		\$	-							
Chemicals Used											Est. Daily Cost:		\$	-							
Daily Cost											Est. Cumulative Cost:		\$	-							
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:											
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:											
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:											
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																					
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RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																					

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540 Version 3.75												DRILLING MUD REPORT				9					
												Date		Measured Depth		T.V. Depth					
												08/29/23		1,157 ft.		1157 ft					
												Spud Date		Present Activity		Rig No.					
08/24/23		Drilling		10031																	
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources													
Operator's Representative:				Contractor's Representative:				Ty Curtis													
Well Name & No.		Field:		County, Parish:				Sandoval		State:		New Mexico									
Rio Ranco 9A		Legal:		VOLUMES		PUMP INFORMATION				HYDRAULICS											
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY									
Bit Size 17.5		Size 30		set @ 80 Ft		Pipe Capacity						Drill Pipe									
Bit Type Milltooth		Size		set @ Ft		23 bbls		x		x		Drill Collar									
Bit No. 1		Size		set @ Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE									
Jets (32nd)		Size		set @ Ft		353 bbls		0.00 G/ST		0.00											
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5 180		Hole Volume		GPM				BOT. UP							
						376 bbls		BPM				SURF. TO BIT									
				6.875		4.5 977		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME							
								726 bbls													
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS													
Flowline Temperature (°F)		x										Jet Velocity		Nozzle Area							
Time Sample Taken		07:00										Horsepower									
Depth (ft)		1157										Impact Force									
Mud Weight (ppg)		9.0										Press Loss at Bit									
Mud Gradient (psi/ft)		0.468										Press Loss at Bit									
Funnel Viscosity @ °F		30						Recommended Equipment													
Plastic Visc.cp @ 75 °F		5				Cntrfuge ☐		Shaker ☒		Desander ☐											
Yield Point (lb/100ft2)		0				Degasser ☐		Desilter ☐		Other ☐											
Gel Strength (lb/100ft2) 10-sec		0				Recommended Mud Properties															
Gel Strength (lb/100ft²) 10-min		1				By Authority of: ☒		Company Representative		☐ Drilling Contractor											
Gel Strength (lb/100ft²) 30-min		x				Mud Wt: 8.4-9.0		Filtrate:		10-12cc		Viscosity:		31-34							
Filtrate API (cm3/30 min)		10.4				LCM:						Excess Lime:				lb/bbl					
Filtrate API HTHP (cm3/30 min)		x				RECOMMENDED TOURLY TREATMENT															
Cake Thickness (/32nds)		1				Pump off 200 bbls of heavy mud and rebuild volume slowly with fresh water															
Solids Content (% by vol)		5.0				while adding fresh water mix 4 sx of Platinum pac															
Water Content (% by Vol.)		95.0																			
Sand Content (% by vol)		.50																			
Bentonite Content (lb/bbl)		x																			
pH ☒ Strip ☐ Meter		7.0																			
Alkalinity Mud (Pm) cm3 N/50 Acid		x																			
Alkalinity, Pf / Mf		.10/.30																			
Chloride (mg/l)		140																			
Total Hardness as Calcium (mg/l)		40																			
Oil Content (% by vol)		x																			
LCM (lb/bbl)		x																			
Excess Lime (lb/bbl)		x																			
						DAILY REMARKS															
Solids Analysis																					
L.G. Solids				%												H.G. Solids				%	
L.G. Solids				ppb												H.G. Solids				ppb	
Corrected Solids				%												Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	172	32	70	33	31	32	240	144	144												
Chemicals Received																					
Closing Inventory	172	32	70	33	31	32	240	144	144												
Chemicals Used	0	0	0	0	0	0	0	0	0												
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0												
CHEMICALS																					
Starting Inventory																					
Chemicals Received												Est. Drayage:									
Closing Inventory												Est. Taxes:		\$	-						
Chemicals Used												Est. Daily Cost:		\$	-						
Daily Cost												Est. Cumulative Cost:		\$	-						
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:										
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:										
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:										
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																					
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Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						10			
												Date		Measured Depth				T.V. Depth			
												08/29/23		1,238 ft.							
												Spud Date		Present Activity				Rig No.			
08/24/23						10031															
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources													
Operator's Representative:						Contractor's Representative:		Ty Curtis													
Well Name & No.		Field:						County, Parish:		Sandoval				State:		New Mexico					
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION				HYDRAULICS							
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY									
Bit Size	17.5	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe								
Bit Type	Milltooth	Size		set @		Ft	24 bbls		x		x		Drill Collar								
Bit No.	1	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE								
Jets (32nd)		Size		set @		Ft	376 bbls		0.00 G/ST		0.00										
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP								
							400 bbls		BPM				SURF. TO BIT								
				6.875	4.5	1058	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME								
							750 bbls														
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS													
Flowline Temperature (°F)		x										Jet Velocity		Nozzle Area							
Time Sample Taken		17:00										Horsepower									
Depth (ft)		1238										Impact Force									
Mud Weight (ppg)		8.9										Press Loss at Bit									
Mud Gradient (psi/ft)		0.4628										Press Loss at Bit									
Funnel Viscosity @		32										Recommended Equipment									
Plastic Visc.cp @		75		°F		10		Cntrfuge ☐		Shaker ☒		Desander ☐									
Yield Point (lb/100ft2)		5						Degasser ☐		Desilter ☐		Other ☐									
Gel Strength (lb/100ft2) 10-sec		1						Recommended Mud Properties													
Gel Strength (lb/100ft²) 10-min		4						By Authority of: ☒		Company Representative		☐ Drilling Contractor									
Gel Strength (lb/100ft²) 30-min		x						Mud Wt:		8.4-9.0		Filtrate:		10-12cc		Viscosity: 31-34					
Filtrate API (cm3/30 min)		8.8						LCM:						Excess Lime:		lb/bbl					
Filtrate API HTHP (cm3/30 min)		x						RECOMMENDED TOURLY TREATMENT													
Cake Thickness (/32nds)		1						Evening shift: finish adding fresh water and mixing 2 sx of Platinum Pac UL													
Solids Content (% by vol)		4.3																			
Water Content (% by Vol.)		95.7																			
Sand Content (% by vol)		.50																			
Bentonite Content (lb/bbl)		x																			
pH ☒ Strip ☐ Meter		7.0																			
Alkalinity Mud (Pm) cm3 N/50 Acid		x																			
Alkalinity, Pf / Mf		.10/.35																			
Chloride (mg/l)		140																			
Total Hardness as Calcium (mg/l)		40																			
Oil Content (% by vol)		x																			
LCM (lb/bbl)		x																			
Excess Lime (lb/bbl)		x																			
						DAILY REMARKS															
Solids Analysis																					
L.G. Solids		%		H.G. Solids														%			
L.G. Solids		ppb		H.G. Solids														ppb			
Corrected Solids			%	Average Sp. Gr.																	
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	172	32	70	33	31	32	240	144	144												
Chemicals Received																					
Closing Inventory	172	32	70	31	31	32	240	144	144												
Chemicals Used	0	0	0	2	0	0	0	0	0												
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0												
CHEMICALS																					
Starting Inventory																					
Chemicals Received												Est. Drayage:									
Closing Inventory												Est. Taxes:		\$	-						
Chemicals Used												Est. Daily Cost:		\$	-						
Daily Cost												Est. Cumulative Cost:		\$	-						
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:										
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:										
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:										
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																					
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																					
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																					

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540 Version 3.75												DRILLING MUD REPORT				11					
												Date		Measured Depth		T.V. Depth					
												08/30/23		1,316 ft.		1316 ft					
												Spud Date		Present Activity		Rig No.					
08/24/23		Drilling		10031																	
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources													
Operator's Representative:				Contractor's Representative:				Ty Curtis													
Well Name & No.		Field:		County, Parish:				Sandoval		State:		New Mexico									
Rio Ranco 9A		Legal:		VOLUMES				PUMP INFORMATION			HYDRAULICS										
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY									
Bit Size	17.5	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe								
Bit Type	Milltooth	Size		set @		Ft	26 bbls		x		x		Drill Collar								
Bit No.	1	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE								
Jets (32nd)		Size		set @		Ft	398 bbls		0.00 G/ST		0.00										
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP								
							424 bbls		BPM				SURF. TO BIT								
				6.875	4.5	1136	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME								
							774 bbls														
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS													
Flowline Temperature (°F)		x										Jet Velocity			Nozzle Area						
Time Sample Taken		07:00										Horsepower									
Depth (ft)		1316										Impact Force									
Mud Weight (ppg)		8.8										Press Loss at Bit									
Mud Gradient (psi/ft)		0.4576										Press Loss at Bit									
Funnel Viscosity @		31										Recommended Equipment									
Plastic Visc.cp @		75		°F		5		Cntrfuge ☐		Shaker ☒		Desander ☐									
Yield Point (lb/100ft2)				5				Degasser ☐		Desilter ☐		Other ☐									
Gel Strength (lb/100ft2) 10-sec		0						Recommended Mud Properties													
Gel Strength (lb/100ft²) 10-min		0						By Authority of: ☒		Company Representative			☐ Drilling Contractor								
Gel Strength (lb/100ft²) 30-min		x						Mud Wt:		8.4-9.0		Filtrate:		10-12cc		Viscosity: 31-34					
Filtrate API (cm3/30 min)		8.8						LCM:						Excess Lime:		lb/bbl					
Filtrate API HTHP (cm3/30 min)		x						RECOMMENDED TOURLY TREATMENT													
Cake Thickness (/32nds)		1						Mud looks good at this time, no treatment needed													
Solids Content (% by vol)		3.5																			
Water Content (% by Vol.)		96.5																			
Sand Content (% by vol)		.50																			
Bentonite Content (lb/bbl)		x																			
pH ☒ Strip ☐ Meter		7.0																			
Alkalinity Mud (Pm) cm3 N/50 Acid		x																			
Alkalinity, Pf / Mf		.10/.35																			
Chloride (mg/l)		140																			
Total Hardness as Calcium (mg/l)		40																			
Oil Content (% by vol)		x																			
LCM (lb/bbl)		x																			
Excess Lime (lb/bbl)		x																			
						DAILY REMARKS															
Solids Analysis																					
L.G. Solids				%												H.G. Solids				%	
L.G. Solids				ppb												H.G. Solids				ppb	
Corrected Solids				%												Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	172	32	70	31	31	32	240	144	144												
Chemicals Received																					
Closing Inventory	172	32	68	31	31	32	240	144	144												
Chemicals Used	0	0	2	0	0	0	0	0	0												
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0												
CHEMICALS																					
Starting Inventory																					
Chemicals Received											Est. Drayage:										
Closing Inventory											Est. Taxes:		\$	-							
Chemicals Used											Est. Daily Cost:		\$	-							
Daily Cost											Est. Cumulative Cost:		\$	-							
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:											
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:											
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:											
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																					
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																					
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																					

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						12	
												Date		Measured Depth		T.V. Depth			
												08/31/23		1,309 ft.		1328 ft			
												Spud Date		Present Activity		Rig No.			
08/24/23		Working to bottom		10031															
Version 3.75																			
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources											
Operator's Representative:								Contractor's Representative:		Ty Curtis									
Well Name & No.		Field:						County, Parish:		Sandoval			State:		New Mexico				
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION			HYDRAULICS						
BIT DATA		CASING & DRILLING ASSEMBLY						Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY					
Bit Size	17.5	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe						
Bit Type	Milltooth	Size		set @		Ft	26 bbls		x		x		Drill Collar						
Bit No.	2	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE						
Jets (32nd)		Size		set @		Ft	396 bbls		0.00 G/ST		0.00								
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP						
							422 bbls		BPM				SURF. TO BIT						
				6.875	4.5	1129	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME						
							772 bbls												
Sample Fro ☒ Flowline ☐ Pit				Mud Properties			Calculate Alkalinity ☐ Check		HYDRAULICS										
Flowline Temperature (°F)				x									Jet Velocity		Nozzle Area				
Time Sample Taken				07:15									Horsepower						
Depth (ft)				1309									Impact Force						
Mud Weight (ppg)				8.7									Press Loss at Bit						
Mud Gradient (psi/ft)				0.4524									Press Loss at Bit						
Funnel Viscosity @ °F				32			Recommended Equipment												
Plastic Visc.cp @ 75 °F				5			Cntrfuge ☐ Shaker ☒ Desander ☐												
Yield Point (lb/100ft2)				5			Degasser ☐ Desilter ☐ Other ☐												
Gel Strength (lb/100ft2) 10-sec				0			Recommended Mud Properties												
Gel Strength (lb/100ft²) 10-min				0			By Authority of: ☒ Company Representative ☐ Drilling Contractor												
Gel Strength (lb/100ft²) 30-min				x			Mud Wt:				Filtrate:				Viscosity:				
Filtrate API (cm3/30 min)				8.8			LCM:						Excess Lime:				lb/bbl		
Filtrate API HTHP (cm3/30 min)				x			RECOMMENDED TOURLY TREATMENT												
Cake Thickness (/32nds)				1			Mud looks good at this time, no treatment needed												
Solids Content (% by vol)				2.8															
Water Content (% by Vol.)				97.2															
Sand Content (% by vol)				.25															
Bentonite Content (lb/bbl)				x															
pH ☒ Strip ☐ Meter				7.0															
Alkalinity Mud (Pm) cm3 N/50 Acid				x															
Alkalinity, Pf / Mf				.10/.35															
Chloride (mg/l)				140															
Total Hardness as Calcium (mg/l)				40															
Oil Content (% by vol)				x															
LCM (lb/bbl)				x															
Excess Lime (lb/bbl)				x															
DAILY REMARKS																			
Solids Analysis						Crews did a bit trip yesterday													
L.G. Solids		%	H.G. Solids			%													
L.G. Solids		ppb	H.G. Solids			ppb													
Corrected Solids			%	Average Sp. Gr.															
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH								
Starting Inventory	172	32	68	31	31	32	240	144	144										
Chemicals Received																			
Closing Inventory	172	32	68	30	31	32	240	144	144										
Chemicals Used	0	0	0	1	0	0	0	0	0										
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
CHEMICALS																			
Starting Inventory																			
Chemicals Received														Est. Drayage:					
Closing Inventory														Est. Taxes:	\$	-			
Chemicals Used														Est. Daily Cost:	\$	-			
Daily Cost														Est. Cumulative Cost:	\$	-			
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:								
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:								
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:								
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																			
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																			
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																			

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						13					
												Date		Measured Depth				T.V. Depth					
												08/31/23		1,434 ft.				1434 ft					
												Spud Date		Present Activity				Rig No.					
08/24/23		Drilling				10031																	
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources															
Operator's Representative:						Contractor's Representative:		Ty Curtis															
Well Name & No.		Field:						County, Parish:		Sandoval				State:		New Mexico							
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION				HYDRAULICS									
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY											
Bit Size	17.5	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe										
Bit Type	Milltooth	Size		set @		Ft	28 bbls		x		x		Drill Collar										
Bit No.	2	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE										
Jets (32nd)		Size		set @		Ft	431 bbls		0.00 G/ST		0.00												
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP										
							459 bbls		BPM				SURF. TO BIT										
				6.875	4.5	1254	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME										
							809 bbls																
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS															
Flowline Temperature (°F)		x										Jet Velocity		Nozzle Area									
Time Sample Taken		18:00										Horsepower											
Depth (ft)		1434										Impact Force											
Mud Weight (ppg)		8.8										Press Loss at Bit											
Mud Gradient (psi/ft)		0.4576										Press Loss at Bit											
Funnel Viscosity @		32										Recommended Equipment											
Plastic Visc.cp @		75		°F		5		Cntrfuge ☐		Shaker ☒		Desander ☐											
Yield Point (lb/100ft2)						5		Degasser ☐		Desilter ☐		Other ☐											
Gel Strength (lb/100ft2) 10-sec		0						Recommended Mud Properties															
Gel Strength (lb/100ft²) 10-min		1						By Authority of: ☒		Company Representative		☐ Drilling Contractor											
Gel Strength (lb/100ft²) 30-min		x						Mud Wt:		8.4-9.0		Filtrate:		10-12cc		Viscosity: 31-34							
Filtrate API (cm3/30 min)		9.6						LCM:						Excess Lime:		lb/bbl							
Filtrate API HTHP (cm3/30 min)		x						RECOMMENDED TOURLY TREATMENT															
Cake Thickness (/32nds)		1						evening shift add 1 sx of Platinum Pac UL over shift															
Solids Content (% by vol)		3.5																					
Water Content (% by Vol.)		96.5																					
Sand Content (% by vol)		.50																					
Bentonite Content (lb/bbl)		x																					
pH ☒ Strip ☐ Meter		7.0																					
Alkalinity Mud (Pm) cm3 N/50 Acid		x																					
Alkalinity, Pf / Mf		.10/.35																					
Chloride (mg/l)		140																					
Total Hardness as Calcium (mg/l)		40																					
Oil Content (% by vol)		x																					
LCM (lb/bbl)		x																					
Excess Lime (lb/bbl)		x																					
						DAILY REMARKS																	
Solids Analysis																							
L.G. Solids				%														H.G. Solids				%	
L.G. Solids				ppb														H.G. Solids				ppb	
Corrected Solids				%														Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH												
Starting Inventory	172	32	68	30	31	32	240	144	144														
Chemicals Received																							
Closing Inventory	172	32	68	30	31	32	240	144	144														
Chemicals Used	0	0	0	0	0	0	0	0	0														
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0														
CHEMICALS																							
Starting Inventory																							
Chemicals Received												Est. Drayage:											
Closing Inventory												Est. Taxes:		\$	-								
Chemicals Used												Est. Daily Cost:		\$	-								
Daily Cost												Est. Cumulative Cost:		\$	-								
TECHNICAL REP:						WAREHOUSE		13027 CR 18				NAME:											
CELL PHONE NO.						ADDRESS:		Ft. Lupton, CO 80621				PHONE:											
ANS. SERVICE:						PHONE:		(303) 857-4171				PHONE:											
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																							
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																							
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																							

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						14	
												Date		Measured Depth		T.V. Depth			
												09/01/23		1,686 ft.		1686 ft			
												Spud Date		Present Activity		Rig No.			
08/24/23		Drilling		10031															
Version 3.75																			
OPERATOR:			City of Rio Rancho			CONTRACTOR:			Hydro Resources										
Operator's Representative:						Contractor's Representative:			Ty Curtis										
Well Name & No.		Field:				County, Parish:			Sandoval			State:		New Mexico					
Rio Ranco 9A		Legal:				VOLUMES		PUMP INFORMATION			HYDRAULICS								
BIT DATA		CASING & DRILLING ASSEMBLY					Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY						
Bit Size	17.5	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe						
Bit Type	Milltooth	Size		set @		Ft	33 bbls		x		x		Drill Collar						
Bit No.	2	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE						
Jets (32nd)		Size		set @		Ft	502 bbls		0.00 G/ST		0.00								
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP						
							535 bbls		BPM				SURF. TO BIT						
				6.875	4.5	1506	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME						
							885 bbls												
Sample Fro ☒ Flowline ☐ Pit			Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS										
Flowline Temperature (°F)			x										Jet Velocity			Nozzle Area			
Time Sample Taken			16:00										Horsepower						
Depth (ft)			1686										Impact Force						
Mud Weight (ppg)			8.9										Press Loss at Bit						
Mud Gradient (psi/ft)			0.4628										Press Loss at Bit						
Funnel Viscosity @		°F	31				Recommended Equipment												
Plastic Visc.cp @		75	°F	5				Cntrfuge ☐	Shaker ☒	Desander ☐									
Yield Point (lb/100ft2)			5				Degasser ☐	Desilter ☐	Other ☐										
Gel Strength (lb/100ft2) 10-sec			0				Recommended Mud Properties												
Gel Strength (lb/100ft²) 10-min			1				By Authority of: ☒		Company Representative			☐ Drilling Contractor							
Gel Strength (lb/100ft²) 30-min			x				Mud Wt: 8.4-9.0		Filtrate:		10-12cc		Viscosity:		31-34				
Filtrate API (cm3/30 min)			9.6				LCM:						Excess Lime:				lb/bbl		
Filtrate API HTHP (cm3/30 min)			x				RECOMMENDED TOURLY TREATMENT												
Cake Thickness (/32nds)			1																
Solids Content (% by vol)			4.3				Evening shift please add 2 sx of Platinum Pac UI over your shift												
Water Content (% by Vol.)			95.7																
Sand Content (% by vol)			.50																
Bentonite Content (lb/bbl)			x																
pH ☒ Strip ☐ Meter			7.0																
Alkalinity Mud (Pm) cm3 N/50 Acid			x																
Alkalinity, Pf / Mf			.10/.35																
Chloride (mg/l)			140																
Total Hardness as Calcium (mg/l)			40																
Oil Content (% by vol)			x																
LCM (lb/bbl)			x																
Excess Lime (lb/bbl)			x																
DAILY REMARKS																			
Solids Analysis																			
L.G. Solids		%	H.G. Solids															%	
L.G. Solids		ppb	H.G. Solids															ppb	
Corrected Solids			%	Average Sp. Gr.															
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH								
Starting Inventory	172	32	68	30	31	32	240	144	144										
Chemicals Received																			
Closing Inventory	172	32	66	30	31	32	240	144	144										
Chemicals Used	0	0	2	0	0	0	0	0	0										
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
CHEMICALS																			
Starting Inventory																			
Chemicals Received														Est. Drayage:					
Closing Inventory														Est. Taxes:	\$	-			
Chemicals Used														Est. Daily Cost:	\$	-			
Daily Cost														Est. Cumulative Cost:	\$	-			
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:								
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:								
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:								
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																			
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																			
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																			

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						15	
												Date		Measured Depth		T.V. Depth			
												09/02/23		1,769 ft.		1769 ft			
												Spud Date		Present Activity		Rig No.			
08/24/23		Drilling		10031															
Version 3.75																			
OPERATOR:			City of Rio Rancho			CONTRACTOR:			Hydro Resources										
Operator's Representative:						Contractor's Representative:			Ty Curtis										
Well Name & No.		Field:				County, Parish:			Sandoval			State:		New Mexico					
Rio Ranco 9A		Legal:				VOLUMES		PUMP INFORMATION			HYDRAULICS								
BIT DATA		CASING & DRILLING ASSEMBLY					Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY						
Bit Size	17.5	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe						
Bit Type	Milltooth	Size		set @		Ft	35 bbls		x		x		Drill Collar						
Bit No.	2	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE						
Jets (32nd)		Size		set @		Ft	526 bbls		0.00 G/ST		0.00								
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP						
							561 bbls		BPM				SURF. TO BIT						
				6.875	4.5	1589	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME						
							911 bbls												
Sample Fro ☒ Flowline ☐ Pit			Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS										
Flowline Temperature (°F)			x										Jet Velocity			Nozzle Area			
Time Sample Taken			07:00										Horsepower						
Depth (ft)			1769										Impact Force						
Mud Weight (ppg)			8.9										Press Loss at Bit						
Mud Gradient (psi/ft)			0.4628										Press Loss at Bit						
Funnel Viscosity @		°F	30				Recommended Equipment												
Plastic Visc.cp @		75	°F	5				Cntrfuge ☐	Shaker ☒	Desander ☐									
Yield Point (lb/100ft2)			5				Degasser ☐	Desilter ☐	Other ☐										
Gel Strength (lb/100ft2) 10-sec			0				Recommended Mud Properties												
Gel Strength (lb/100ft²) 10-min			1				By Authority of: ☒		Company Representative			Drilling Contractor							
Gel Strength (lb/100ft²) 30-min			x				Mud Wt:		8.4-9.0		Filtrate:		10-12cc		Viscosity:		31-34		
Filtrate API (cm3/30 min)			8.8				LCM:						Excess Lime:				lb/bbl		
Filtrate API HTHP (cm3/30 min)			x				RECOMMENDED TOURLY TREATMENT												
Cake Thickness (/32nds)			1																
Solids Content (% by vol)			4.3																
Water Content (% by Vol.)			95.7																
Sand Content (% by vol)			.50																
Bentonite Content (lb/bbl)			x																
pH ☒ Strip ☐ Meter			7.0																
Alkalinity Mud (Pm) cm3 N/50 Acid			x																
Alkalinity, Pf / Mf			.10/.35																
Chloride (mg/l)			140																
Total Hardness as Calcium (mg/l)			40																
Oil Content (% by vol)			x																
LCM (lb/bbl)			x																
Excess Lime (lb/bbl)			x																
												DAILY REMARKS							
Solids Analysis																			
L.G. Solids		%	H.G. Solids		%														
L.G. Solids		ppb	H.G. Solids		ppb														
Corrected Solids			%	Average Sp. Gr.															
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH								
Starting Inventory	172	32	66	30	31	32	240	144	144										
Chemicals Received																			
Closing Inventory	172	32	66	30	31	32	240	144	144										
Chemicals Used	0	0	0	0	0	0	0	0	0										
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
CHEMICALS																			
Starting Inventory																			
Chemicals Received														Est. Drayage:					
Closing Inventory														Est. Taxes:	\$	-			
Chemicals Used														Est. Daily Cost:	\$	-			
Daily Cost														Est. Cumulative Cost:	\$	-			
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:								
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:								
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:								
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																			
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Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						16			
												Date		Measured Depth		T.V. Depth					
												09/03/23		1,901 ft.		1901 ft					
												Spud Date		Present Activity		Rig No.					
08/24/23		Drilling		10031																	
Version 3.75																					
OPERATOR:			City of Rio Rancho			CONTRACTOR:			Hydro Resources												
Operator's Representative:						Contractor's Representative:			Ty Curtis												
Well Name & No.		Field:				County, Parish:			Sandoval			State:		New Mexico							
Rio Ranco 9A		Legal:				VOLUMES		PUMP INFORMATION			HYDRAULICS										
BIT DATA		CASING & DRILLING ASSEMBLY					Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY								
Bit Size	17.5	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe								
Bit Type	Milltooth	Size		set @		Ft	37 bbls		x		x		Drill Collar								
Bit No.	2	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE								
Jets (32nd)		Size		set @		Ft	563 bbls		0.00 G/ST		0.00										
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP								
							600 bbls		BPM				SURF. TO BIT								
				6.875	4.5	1721	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME								
							950 bbls														
Sample Fro ☒ Flowline ☐ Pit			Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS												
Flowline Temperature (°F)			x										Jet Velocity			Nozzle Area					
Time Sample Taken			07:00										Horsepower								
Depth (ft)			1901										Impact Force								
Mud Weight (ppg)			8.9										Press Loss at Bit								
Mud Gradient (psi/ft)			0.4628										Press Loss at Bit								
Funnel Viscosity @		°F	30				Recommended Equipment														
Plastic Visc.cp @		75	°F	5				Cntrfuge ☐	Shaker ☒	Desander ☐											
Yield Point (lb/100ft2)			5				Degasser ☐	Desilter ☐	Other ☐												
Gel Strength (lb/100ft2) 10-sec			0				Recommended Mud Properties														
Gel Strength (lb/100ft²) 10-min			1				By Authority of: ☒		Company Representative			Drilling Contractor									
Gel Strength (lb/100ft²) 30-min			x				Mud Wt:		8.4-9.0		Filtrate:		10-12cc		Viscosity:		31-34				
Filtrate API (cm3/30 min)			8.8				LCM:						Excess Lime:				lb/bbl				
Filtrate API HTHP (cm3/30 min)			x				RECOMMENDED TOURLY TREATMENT														
Cake Thickness (/32nds)			1				Please add 2 sx of Platinum Pac UL over shift.														
Solids Content (% by vol)			4.3																		
Water Content (% by Vol.)			95.7																		
Sand Content (% by vol)			.25																		
Bentonite Content (lb/bbl)			x																		
pH ☒ Strip ☐ Meter			7.0																		
Alkalinity Mud (Pm) cm3 N/50 Acid			x																		
Alkalinity, Pf / Mf			.10/.35																		
Chloride (mg/l)			140																		
Total Hardness as Calcium (mg/l)			40																		
Oil Content (% by vol)			x																		
LCM (lb/bbl)			x																		
Excess Lime (lb/bbl)			x																		
												DAILY REMARKS									
Solids Analysis																					
L.G. Solids		%	H.G. Solids		%																
L.G. Solids		ppb	H.G. Solids		ppb																
Corrected Solids			%	Average Sp. Gr.																	
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	172	32	66	30	31	32	240	144	144												
Chemicals Received																					
Closing Inventory	172	32	63	30	31	32	240	144	144												
Chemicals Used	0	0	3	0	0	0	0	0	0												
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0												
CHEMICALS																					
Starting Inventory																					
Chemicals Received														Est. Drayage:							
Closing Inventory														Est. Taxes:	\$	-					
Chemicals Used														Est. Daily Cost:	\$	-					
Daily Cost														Est. Cumulative Cost:	\$	-					
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:										
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:										
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:										
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																					
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RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																					

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						17									
												Date		Measured Depth				T.V. Depth									
												09/03/23		1,976 ft.				1976 ft									
												Spud Date		Present Activity				Rig No.									
08/24/23		Drilling				10031																					
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources																			
Operator's Representative:						Contractor's Representative:		Ty Curtis																			
Well Name & No.		Field:						County, Parish:		Sandoval				State:		New Mexico											
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION				HYDRAULICS													
BIT DATA		CASING & DRILLING ASSEMBLY						Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY													
Bit Size 17.5		Size 30		set @ 80		Ft		Pipe Capacity						Drill Pipe													
Bit Type Milltooth		Size		set @		Ft		39 bbls		x		x		Drill Collar													
Bit No. 2		Size		set @		Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE													
Jets (32nd)		Size		set @		Ft		584 bbls		0.00 G/ST		0.00															
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5		180		Hole Volume		GPM				BOT. UP											
								623 bbls		BPM				SURF. TO BIT													
				6.875		4.5		1796		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME											
										973 bbls																	
Sample Fro ☒ Flowline ☐ Pit		Mud Properties						Calculate Alkalinity ☐ Check		HYDRAULICS																	
Flowline Temperature (°F)		x												Jet Velocity				Nozzle Area									
Time Sample Taken		15:30												Horsepower													
Depth (ft)		1976												Impact Force													
Mud Weight (ppg)		8.8												Press Loss at Bit													
Mud Gradient (psi/ft)		0.4576												Press Loss at Bit													
Funnel Viscosity @ °F		30						Recommended Equipment																			
Plastic Visc.cp @ 75 °F		5						Cntrfuge ☐		Shaker ☒		Desander ☐															
Yield Point (lb/100ft2)		5						Degasser ☐		Desilter ☐		Other ☐															
Gel Strength (lb/100ft2) 10-sec		0						Recommended Mud Properties																			
Gel Strength (lb/100ft²) 10-min		1						By Authority of: ☒		Company Representative				☐ Drilling Contractor													
Gel Strength (lb/100ft²) 30-min		x						Mud Wt:		8.4-9.0		Filtrate:		10-14cc		Viscosity:		31-34									
Filtrate API (cm3/30 min)		10.6						LCM:								Excess Lime:											
Filtrate API HTHP (cm3/30 min)		x						RECOMMENDED TOURLY TREATMENT																			
Cake Thickness (/32nds)		1						add 2sx of platinum pac ul, at td circulate cuttings out and then change out screens																			
Solids Content (% by vol)		3.5						to help clean fines out.																			
Water Content (% by Vol.)		96.5																									
Sand Content (% by vol)		.25																									
Bentonite Content (lb/bbl)		x																									
pH ☒ Strip ☐ Meter		7.0																									
Alkalinity Mud (Pm) cm3 N/50 Acid		x																									
Alkalinity, Pf / Mf		.10/35																									
Chloride (mg/l)		140																									
Total Hardness as Calcium (mg/l)		40																									
Oil Content (% by vol)		x																									
LCM (lb/bbl)		x																									
Excess Lime (lb/bbl)		x																									
														DAILY REMARKS													
Solids Analysis																											
L.G. Solids				%				H.G. Solids				%															
L.G. Solids				ppb				H.G. Solids				ppb															
Corrected Solids				%				Average Sp. Gr.																			
CHEMICALS		SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH															
Starting Inventory		172	32	63	30	31	32	240	144	144																	
Chemicals Received																											
Closing Inventory		172	32	62	30	31	32	240	144	144																	
Chemicals Used		0	0	1	0	0	0	0	0	0																	
Daily Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																	
CHEMICALS																											
Starting Inventory																											
Chemicals Received												Est. Drayage:															
Closing Inventory												Est. Taxes:		\$		-											
Chemicals Used												Est. Daily Cost:		\$		-											
Daily Cost												Est. Cumulative Cost:		\$		-											
TECHNICAL REP:		Ryan Brooks				WAREHOUSE		13027 CR 18				NAME:															
CELL PHONE NO.		303-720-4775				ADDRESS:		Ft. Lupton, CO 80621				PHONE:															
ANS. SERVICE:						PHONE:		(303) 857-4171				PHONE:															
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																											
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Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540 Version 3.75												DRILLING MUD REPORT				18					
												Date		Measured Depth		T.V. Depth					
												10/25/23		355 ft.		355 ft					
												Spud Date		Present Activity		Rig No.					
08/24/23		Reaming		10031																	
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources													
Operator's Representative:						Contractor's Representative:		Ty Curtis													
Well Name & No.		Field:						County, Parish:		Sandoval		State:		New Mexico							
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION		HYDRAULICS									
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY									
Bit Size 28		Size 30		set @ 80 Ft		Pipe Capacity						Drill Pipe									
Bit Type Milltooth		Size		set @ Ft		7 bbls		x		x		Drill Collar									
Bit No. 3		Size		set @ Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE									
Jets (32nd)		Size		set @ Ft		267 bbls		0.00 G/ST		0.00											
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11 4.5 180		Hole Volume		GPM				BOT. UP									
						274 bbls		BPM				SURF. TO BIT									
				6.875 4.5 175		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME									
						624 bbls															
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS													
Flowline Temperature (°F)		x										Jet Velocity		Nozzle Area							
Time Sample Taken		07:10										Horsepower									
Depth (ft)		355										Impact Force									
Mud Weight (ppg)		8.6										Press Loss at Bit									
Mud Gradient (psi/ft)		0.4472										Press Loss at Bit									
Funnel Viscosity @ °F		31				Recommended Equipment															
Plastic Visc.cp @ 75 °F		10				Cntrfuge ☐		Shaker ☒		Desander ☐											
Yield Point (lb/100ft2)		5				Degasser ☐		Desilter ☐		Other ☐											
Gel Strength (lb/100ft2) 10-sec		0				Recommended Mud Properties															
Gel Strength (lb/100ft²) 10-min		1				By Authority of: ☒		Company Representative		☐ Drilling Contractor											
Gel Strength (lb/100ft²) 30-min		x				Mud Wt: 8.4-9.0		Filtrate:		10-14cc		Viscosity:		31-34							
Filtrate API (cm3/30 min)		10.4				LCM:						Excess Lime:		lb/bbl							
Filtrate API HTHP (cm3/30 min)		x				RECOMMENDED TOURLY TREATMENT															
Cake Thickness (/32nds)		1				If fresh water is added please add 1 sx of Platinum Pac UL															
Solids Content (% by vol)		2.0																			
Water Content (% by Vol.)		98.0																			
Sand Content (% by vol)		.25																			
Bentonite Content (lb/bbl)		x																			
pH ☒ Strip ☐ Meter		8																			
Alkalinity Mud (Pm) cm3 N/50 Acid		x																			
Alkalinity, Pf / Mf		.25/.50																			
Chloride (mg/l)		140																			
Total Hardness as Calcium (mg/l)		40																			
Oil Content (% by vol)		x																			
LCM (lb/bbl)		x																			
Excess Lime (lb/bbl)		x																			
						DAILY REMARKS															
Solids Analysis																					
L.G. Solids				%												H.G. Solids				%	
L.G. Solids				ppb												H.G. Solids				ppb	
Corrected Solids				%												Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	172	32	62	30	31	32	240	144	144												
Chemicals Received																					
Closing Inventory	130	30	60	30	31	32	240														
Chemicals Used	42	2	2	0	0	0	0														
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0														
CHEMICALS																					
Starting Inventory																					
Chemicals Received											Est. Drayage:										
Closing Inventory											Est. Taxes:		\$	-							
Chemicals Used											Est. Daily Cost:		\$	-							
Daily Cost											Est. Cumulative Cost:		\$	-							
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:											
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:											
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:											
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																					
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RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																					

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						19			
												Date			Measured Depth			T.V. Depth			
												10/25/23			441 ft.			441 ft			
												Spud Date			Present Activity			Rig No.			
08/24/23			Reaming			10031															
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources													
Operator's Representative:						Contractor's Representative:		Ty Curtis													
Well Name & No.		Field:				County, Parish:		Sandoval			State:		New Mexico								
Rio Ranco 9A		Legal:				VOLUMES		PUMP INFORMATION			HYDRAULICS										
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY									
Bit Size 28		Size 30		set @ 80 Ft		Pipe Capacity						Drill Pipe									
Bit Type Milltooth		Size		set @ Ft		9 bbls		x		x		Drill Collar									
Bit No. 3		Size		set @ Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE									
Jets (32nd)		Size		set @ Ft		335 bbls		0.00 G/ST		0.00											
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5 180		Hole Volume		GPM				BOT. UP							
						344 bbls		BPM				SURF. TO BIT									
				6.875		4.5 261		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME							
								694 bbls													
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS													
Flowline Temperature (°F)		x										Jet Velocity			Nozzle Area						
Time Sample Taken		17:00										Horsepower									
Depth (ft)		441										Impact Force									
Mud Weight (ppg)		8.7										Press Loss at Bit									
Mud Gradient (psi/ft)		0.4524										Press Loss at Bit									
Funnel Viscosity @ °F		30						Recommended Equipment													
Plastic Visc.cp @ 75 °F		5				Cntrfuge ☐		Shaker ☒		Desander ☐											
Yield Point (lb/100ft2)		0				Degasser ☐		Desilter ☐		Other ☐											
Gel Strength (lb/100ft2) 10-sec		0				Recommended Mud Properties															
Gel Strength (lb/100ft²) 10-min		0				By Authority of: ☒		Company Representative			☐ Drilling Contractor										
Gel Strength (lb/100ft²) 30-min		x				Mud Wt:		8.4-9.0		Filtrate:		10-14cc		Viscosity:		31-34					
Filtrate API (cm3/30 min)		11.2				LCM:								Excess Lime:		lb/bbl					
Filtrate API HTHP (cm3/30 min)		x				RECOMMENDED TOURLY TREATMENT															
Cake Thickness (/32nds)		1				Night shift please add 2 sx of Platinum Pac															
Solids Content (% by vol)		2.8																			
Water Content (% by Vol.)		97.2																			
Sand Content (% by vol)		.25																			
Bentonite Content (lb/bbl)		x																			
pH ☒ Strip ☐ Meter		8.0																			
Alkalinity Mud (Pm) cm3 N/50 Acid		x																			
Alkalinity, Pf / Mf		.30/.55																			
Chloride (mg/l)		140																			
Total Hardness as Calcium (mg/l)		40																			
Oil Content (% by vol)		x																			
LCM (lb/bbl)		x																			
Excess Lime (lb/bbl)		x																			
						DAILY REMARKS															
Solids Analysis																					
L.G. Solids				%												H.G. Solids				%	
L.G. Solids				ppb												H.G. Solids				ppb	
Corrected Solids				%												Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	130	30	60	30	31	32	240														
Chemicals Received																					
Closing Inventory	130	30	60	30	31	32	240														
Chemicals Used	0	0	0	0	0	0	0														
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0														
CHEMICALS																					
Starting Inventory																					
Chemicals Received												Est. Drayage:									
Closing Inventory												Est. Taxes:		\$	-						
Chemicals Used												Est. Daily Cost:		\$	-						
Daily Cost												Est. Cumulative Cost:		\$	-						
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:										
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:										
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:										
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																					
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																					
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																					

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						20									
												Date		Measured Depth		T.V. Depth											
												10/26/23		551 ft.		551 ft											
												Spud Date		Present Activity		Rig No.											
08/24/23		Reaming		10031																							
Version 3.75																											
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources																			
Operator's Representative:								Contractor's Representative:		Ty Curtis																	
Well Name & No.		Field:						County, Parish:		Sandoval				State:		New Mexico											
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION				HYDRAULICS													
BIT DATA		CASING & DRILLING ASSEMBLY						Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY													
Bit Size	28	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe														
Bit Type	Milltooth	Size		set @		Ft	11 bbls		x		x		Drill Collar														
Bit No.	3	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE														
Jets (32nd)		Size		set @		Ft	423 bbls		0.00 G/ST		0.00																
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP														
							434 bbls		BPM				SURF. TO BIT														
				6.875	4.5	371	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME														
							784 bbls																				
Sample Fro ☒ Flowline ☐ Pit				Mud Properties			Calculate Alkalinity ☐ Check		HYDRAULICS																		
Flowline Temperature (°F)				x									Jet Velocity		Nozzle Area												
Time Sample Taken				08:30									Horsepower														
Depth (ft)				551									Impact Force														
Mud Weight (ppg)				8.8									Press Loss at Bit														
Mud Gradient (psi/ft)				0.4576									Press Loss at Bit														
Funnel Viscosity @ °F				31			Recommended Equipment																				
Plastic Visc.cp @ 75 °F		10			Cntrfuge ☐ Shaker ☒ Desander ☐																						
Yield Point (lb/100ft2)				5			Degasser ☐ Desilter ☐ Other ☐																				
Gel Strength (lb/100ft2) 10-sec				0			Recommended Mud Properties																				
Gel Strength (lb/100ft²) 10-min				1			By Authority of: ☒		Company Representative		☐ Drilling Contractor																
Gel Strength (lb/100ft²) 30-min				x			Mud Wt: 8.4-9.0		Filtrate:		10-14cc		Viscosity:		31-34												
Filtrate API (cm3/30 min)				12.0			LCM:						Excess Lime:		lb/bbl												
Filtrate API HTHP (cm3/30 min)				x			RECOMMENDED TOURLY TREATMENT																				
Cake Thickness (/32nds)				1			Continue to add open sx of Platinum Pac																				
Solids Content (% by vol)				3.5																							
Water Content (% by Vol.)				96.5																							
Sand Content (% by vol)				.25																							
Bentonite Content (lb/bbl)				x																							
pH ☒ Strip ☐ Meter				8.0																							
Alkalinity Mud (Pm) cm3 N/50 Acid				x																							
Alkalinity, Pf / Mf				.30/.50																							
Chloride (mg/l)				140																							
Total Hardness as Calcium (mg/l)				40																							
Oil Content (% by vol)				x																							
LCM (lb/bbl)				x																							
Excess Lime (lb/bbl)				x																							
														DAILY REMARKS													
Solids Analysis																											
L.G. Solids				%		H.G. Solids				%																	
L.G. Solids				ppb		H.G. Solids				ppb																	
Corrected Solids				%		Average Sp. Gr.																					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH																
Starting Inventory	130	30	60	30	31	32	240																				
Chemicals Received																											
Closing Inventory	130	30	60	30	31	32	240																				
Chemicals Used	0	0	0	0	0	0	0																				
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0																				
CHEMICALS																											
Starting Inventory																											
Chemicals Received														Est. Drayage:													
Closing Inventory														Est. Taxes:		\$ -											
Chemicals Used														Est. Daily Cost:		\$ -											
Daily Cost														Est. Cumulative Cost:		\$ -											
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:																
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:																
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:																
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																											
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RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																											

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540						Hydro resources						DRILLING MUD REPORT						21	
												Date		Measured Depth		T.V. Depth			
												10/26/23		615 ft.		615 ft			
												Spud Date		Present Activity		Rig No.			
08/24/23		Reaming		10031															
Version 3.75																			
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources											
Operator's Representative:								Contractor's Representative:		Ty Curtis									
Well Name & No.		Field:						County, Parish:		Sandoval			State:	New Mexico					
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION			HYDRAULICS						
BIT DATA		CASING & DRILLING ASSEMBLY						Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY					
Bit Size	28	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe						
Bit Type	Milltooth	Size		set @		Ft	12 bbls		x		x		Drill Collar						
Bit No.	3	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE						
Jets (32nd)		Size		set @		Ft	474 bbls		0.00 G/ST		0.00								
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP						
							486 bbls		BPM				SURF. TO BIT						
				6.875	4.5	435	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME						
							836 bbls												
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS											
Flowline Temperature (°F)		x										Jet Velocity			Nozzle Area				
Time Sample Taken		16:30										Horsepower							
Depth (ft)		615										Impact Force							
Mud Weight (ppg)		8.8										Press Loss at Bit							
Mud Gradient (psi/ft)		0.4576										Press Loss at Bit							
Funnel Viscosity @				°F		32				Recommended Equipment									
Plastic Visc.cp @		75		°F		10				Cntrfuge ☐		Shaker ☒		Desander ☐					
Yield Point (lb/100ft2)		5										Degasser ☐		Desilter ☐		Other ☐			
Gel Strength (lb/100ft2) 10-sec		0						Recommended Mud Properties											
Gel Strength (lb/100ft²) 10-min		1						By Authority of: ☒		Company Representative			☐ Drilling Contractor						
Gel Strength (lb/100ft²) 30-min		x						Mud Wt:		8.4-9.0		Filtrate:		10-14cc		Viscosity:		31-34	
Filtrate API (cm3/30 min)		12.0						LCM:						Excess Lime:				lb/bbl	
Filtrate API HTHP (cm3/30 min)		x						RECOMMENDED TOURLY TREATMENT											
Cake Thickness (/32nds)		1						Please add 1 sx of Platinum Pac											
Solids Content (% by vol)		3.5																	
Water Content (% by Vol.)		96.5																	
Sand Content (% by vol)		.25																	
Bentonite Content (lb/bbl)		x																	
pH ☒ Strip ☐ Meter		8.0																	
Alkalinity Mud (Pm) cm3 N/50 Acid		x																	
Alkalinity, Pf / Mf		.25/.45																	
Chloride (mg/l)		140																	
Total Hardness as Calcium (mg/l)		40																	
Oil Content (% by vol)		x																	
LCM (lb/bbl)		x																	
Excess Lime (lb/bbl)		x																	
														DAILY REMARKS					
Solids Analysis																			
L.G. Solids				%		H.G. Solids				%									
L.G. Solids				ppb		H.G. Solids				ppb									
Corrected Solids				%		Average Sp. Gr.													
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH								
Starting Inventory	130	30	60	30	31	32	240												
Chemicals Received																			
Closing Inventory	130	30	60	30	31	32	240												
Chemicals Used	0	0	0	0	0	0	0												
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0												
CHEMICALS																			
Starting Inventory																			
Chemicals Received												Est. Drayage:							
Closing Inventory												Est. Taxes:		\$	-				
Chemicals Used												Est. Daily Cost:		\$	-				
Daily Cost												Est. Cumulative Cost:		\$	-				
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:								
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:								
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:								
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																			
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RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																			

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540 Version 3.75						Hydro resources						DRILLING MUD REPORT				22							
												Date		Measured Depth		T.V. Depth							
												10/27/23		752 ft.		752 ft							
												Spud Date		Present Activity		Rig No.							
08/24/23		Reaming		10031																			
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources															
Operator's Representative:						Contractor's Representative:		Ty Curtis															
Well Name & No.		Field:						County, Parish:		Sandoval		State:		New Mexico									
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION		HYDRAULICS											
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY											
Bit Size 28		Size 30		set @ 80 Ft		Pipe Capacity						Drill Pipe											
Bit Type Milltooth		Size		set @ Ft		15 bbls		x		x		Drill Collar											
Bit No. 3		Size		set @ Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE											
Jets (32nd)		Size		set @ Ft		582 bbls		0.00 G/ST		0.00													
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5 180		Hole Volume		GPM				BOT. UP									
						597 bbls		BPM				SURF. TO BIT											
				6.875		4.5 572		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME									
								947 bbls															
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS															
Flowline Temperature (°F)		x										Jet Velocity		Nozzle Area									
Time Sample Taken		08:00										Horsepower											
Depth (ft)		752										Impact Force											
Mud Weight (ppg)		8.8										Press Loss at Bit											
Mud Gradient (psi/ft)		0.4576										Press Loss at Bit											
Funnel Viscosity @ °F		31										Recommended Equipment											
Plastic Visc.cp @ 75 °F		5				Cntrfuge ☐		Shaker ☒		Desander ☐													
Yield Point (lb/100ft2)		0				Degasser ☐		Desilter ☐		Other ☐													
Gel Strength (lb/100ft2) 10-sec		0										Recommended Mud Properties											
Gel Strength (lb/100ft²) 10-min		0				By Authority of: ☒		Company Representative		☐ Drilling Contractor													
Gel Strength (lb/100ft²) 30-min		x				Mud Wt: 8.4-9.0		Filtrate:		10-14cc		Viscosity:		31-34									
Filtrate API (cm3/30 min)		11.2				LCM:						Excess Lime:				lb/bbl							
Filtrate API HTHP (cm3/30 min)		x										RECOMMENDED TOURLY TREATMENT											
Cake Thickness (/32nds)		1										Add 2 sx of Platinum Pac slowly over rest of shift											
Solids Content (% by vol)		3.5																					
Water Content (% by Vol.)		96.5																					
Sand Content (% by vol)		.25																					
Bentonite Content (lb/bbl)		x																					
pH ☒ Strip ☐ Meter		8.0																					
Alkalinity Mud (Pm) cm3 N/50 Acid		x																					
Alkalinity, Pf / Mf		.30/.50																					
Chloride (mg/l)		140																					
Total Hardness as Calcium (mg/l)		40																					
Oil Content (% by vol)		x																					
LCM (lb/bbl)		x																					
Excess Lime (lb/bbl)		x																					
						DAILY REMARKS																	
Solids Analysis																							
L.G. Solids				%														H.G. Solids				%	
L.G. Solids				ppb														H.G. Solids				ppb	
Corrected Solids				%														Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH												
Starting Inventory	130	30	60	30	31	32	240																
Chemicals Received																							
Closing Inventory	130	30	60	30	31	32	240																
Chemicals Used	0	0	0	0	0	0	0																
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0																
CHEMICALS																							
Starting Inventory																							
Chemicals Received												Est. Drayage:											
Closing Inventory												Est. Taxes:		\$	-								
Chemicals Used												Est. Daily Cost:		\$	-								
Daily Cost												Est. Cumulative Cost:		\$	-								
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:													
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:													
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:													
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																							
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																							
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																							

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						23			
												Date			Measured Depth			T.V. Depth			
												10/27/23			835 ft.			835 ft			
												Spud Date			Present Activity			Rig No.			
08/24/23			Drilling			10031															
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources													
Operator's Representative:						Contractor's Representative:		Ty Curtis													
Well Name & No.		Field:				County, Parish:		Sandoval			State:		New Mexico								
Rio Ranco 9A		Legal:				VOLUMES		PUMP INFORMATION			HYDRAULICS										
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY									
Bit Size 28		Size 30		set @ 80 Ft		Pipe Capacity						Drill Pipe									
Bit Type Milltooth		Size		set @ Ft		16 bbls		x		x		Drill Collar									
Bit No. 3		Size		set @ Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE									
Jets (32nd)		Size		set @ Ft		648 bbls		0.00 G/ST		0.00											
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5 180		Hole Volume		GPM		BOT. UP									
						664 bbls		BPM		SURF. TO BIT											
				6.875		4.5 655		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME							
								1014 bbls													
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS													
Flowline Temperature (°F)		x										Jet Velocity		Nozzle Area							
Time Sample Taken		16:30										Horsepower									
Depth (ft)		835										Impact Force									
Mud Weight (ppg)		8.9										Press Loss at Bit									
Mud Gradient (psi/ft)		0.4628										Press Loss at Bit									
Funnel Viscosity @ °F		31										Recommended Equipment									
Plastic Visc.cp @ 75 °F		5				Cntrfuge ☐		Shaker ☒		Desander ☐											
Yield Point (lb/100ft2)		0				Degasser ☐		Desilter ☐		Other ☐											
Gel Strength (lb/100ft2) 10-sec		0										Recommended Mud Properties									
Gel Strength (lb/100ft²) 10-min		0				By Authority of: ☒		Company Representative		☐ Drilling Contractor											
Gel Strength (lb/100ft²) 30-min		x				Mud Wt: 8.4-9.0		Filtrate:		10-14cc		Viscosity: 31-34									
Filtrate API (cm3/30 min)		12				LCM:						Excess Lime:		lb/bbl							
Filtrate API HTHP (cm3/30 min)		x										RECOMMENDED TOURLY TREATMENT									
Cake Thickness (/32nds)		1										Evening shift please add 2 sx of Platinum pac									
Solids Content (% by vol)		4.3																			
Water Content (% by Vol.)		95.7																			
Sand Content (% by vol)		.50																			
Bentonite Content (lb/bbl)		x																			
pH ☒ Strip ☐ Meter		8.0																			
Alkalinity Mud (Pm) cm3 N/50 Acid		x																			
Alkalinity, Pf / Mf		.30/.55																			
Chloride (mg/l)		140																			
Total Hardness as Calcium (mg/l)		60																			
Oil Content (% by vol)		x																			
LCM (lb/bbl)		x																			
Excess Lime (lb/bbl)		x																			
						DAILY REMARKS															
Solids Analysis																					
L.G. Solids				%												H.G. Solids				%	
L.G. Solids				ppb												H.G. Solids				ppb	
Corrected Solids				%												Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	130	30	60	30	31	32	240														
Chemicals Received																					
Closing Inventory	130	30	60	30	31	32	240														
Chemicals Used	0	0	0	0	0	0	0														
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0														
CHEMICALS																					
Starting Inventory																					
Chemicals Received												Est. Drayage:									
Closing Inventory												Est. Taxes:		\$	-						
Chemicals Used												Est. Daily Cost:		\$	-						
Daily Cost												Est. Cumulative Cost:		\$	-						
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:											
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:											
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:											
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																					
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																					
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																					

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						24									
												Date			Measured Depth			T.V. Depth									
												10/28/23			938 ft.			938 ft									
												Spud Date			Present Activity			Rig No.									
08/24/23			Reaming			10031																					
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources																			
Operator's Representative:						Contractor's Representative:		Ty Curtis																			
Well Name & No.		Field:						County, Parish:		Sandoval				State:		New Mexico											
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION				HYDRAULICS													
BIT DATA		CASING & DRILLING ASSEMBLY						Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY													
Bit Size 28		Size 30		set @ 80		Ft		Pipe Capacity						Drill Pipe													
Bit Type Milltooth		Size		set @		Ft		18 bbls		x		x		Drill Collar													
Bit No. 3		Size		set @		Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE													
Jets (32nd)		Size		set @		Ft		730 bbls		0.00 G/ST		0.00															
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5		180		Hole Volume		GPM				BOT. UP											
								748 bbls		BPM				SURF. TO BIT													
				6.875		4.5		758		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME											
										1098 bbls																	
Sample Fro ☒ Flowline ☐ Pit		Mud Properties						Calculate Alkalinity ☐		Check		HYDRAULICS															
Flowline Temperature (°F)		x												Jet Velocity			Nozzle Area										
Time Sample Taken		16:30												Horsepower													
Depth (ft)		938												Impact Force													
Mud Weight (ppg)		8.9												Press Loss at Bit													
Mud Gradient (psi/ft)		0.4628												Press Loss at Bit													
Funnel Viscosity @		32												Recommended Equipment													
Plastic Visc.cp @ 75		10						Cntrfuge ☐		Shaker ☒		Desander ☐															
Yield Point (lb/100ft2)		5						Degasser ☐		Desilter ☐		Other ☐															
Gel Strength (lb/100ft2) 10-sec		1						Recommended Mud Properties																			
Gel Strength (lb/100ft²) 10-min		4						By Authority of: ☒			Company Representative			☐ Drilling Contractor													
Gel Strength (lb/100ft²) 30-min		x						Mud Wt:		8.4-9.0		Filtrate:		10-14cc		Viscosity:		31-34									
Filtrate API (cm3/30 min)		12.0						LCM:						Excess Lime:				lb/bbl									
Filtrate API HTHP (cm3/30 min)		x						RECOMMENDED TOURLY TREATMENT																			
Cake Thickness (/32nds)		1						Evening shift please add 2 sx of Platinum Pac UL over shift																			
Solids Content (% by vol)		4.3																									
Water Content (% by Vol.)		95.7																									
Sand Content (% by vol)		.25																									
Bentonite Content (lb/bbl)		x																									
pH ☒ Strip ☐ Meter		7.5																									
Alkalinity Mud (Pm) cm3 N/50 Acid		x																									
Alkalinity, Pf / Mf		.25/50																									
Chloride (mg/l)		140																									
Total Hardness as Calcium (mg/l)		40																									
Oil Content (% by vol)		x																									
LCM (lb/bbl)		x																									
Excess Lime (lb/bbl)		x																									
														DAILY REMARKS													
Solids Analysis																											
L.G. Solids				%				H.G. Solids				%															
L.G. Solids				ppb				H.G. Solids				ppb															
Corrected Solids				%				Average Sp. Gr.																			
CHEMICALS		SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH															
Starting Inventory		130	30	60	30	31	32	240																			
Chemicals Received																											
Closing Inventory		130	30	60	28	31	32	240																			
Chemicals Used		0	0	0	2	0	0	0																			
Daily Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0																			
CHEMICALS																											
Starting Inventory																											
Chemicals Received												Est. Drayage:															
Closing Inventory												Est. Taxes:		\$		-											
Chemicals Used												Est. Daily Cost:		\$		-											
Daily Cost												Est. Cumulative Cost:		\$		-											
TECHNICAL REP:		Ryan Brooks				WAREHOUSE		13027 CR 18				NAME:															
CELL PHONE NO.		303-720-4775				ADDRESS:		Ft. Lupton, CO 80621				PHONE:															
ANS. SERVICE:						PHONE:		(303) 857-4171				PHONE:															
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																											
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Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540 Version 3.75						Hydro resources						DRILLING MUD REPORT				25					
												Date		Measured Depth		T.V. Depth					
												10/29/23		1,020 ft.		1020 ft					
												Spud Date		Present Activity		Rig No.					
08/24/23		Reaming		10031																	
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources													
Operator's Representative:								Contractor's Representative:		Ty Curtis											
Well Name & No.		Field:						County, Parish:		Sandoval		State:		New Mexico							
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION		HYDRAULICS									
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY									
Bit Size	28	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe								
Bit Type	Milltooth	Size		set @		Ft	20 bbls		x		x		Drill Collar								
Bit No.	3	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE								
Jets (32nd)		Size		set @		Ft	795 bbls		0.00 G/ST		0.00										
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP								
							815 bbls		BPM				SURF. TO BIT								
				6.875	4.5	840	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME								
							1165 bbls														
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS													
Flowline Temperature (°F)		x										Jet Velocity		Nozzle Area							
Time Sample Taken		07:30										Horsepower									
Depth (ft)		1020										Impact Force									
Mud Weight (ppg)		8.9										Press Loss at Bit									
Mud Gradient (psi/ft)		0.4628										Press Loss at Bit									
Funnel Viscosity @		31										Recommended Equipment									
Plastic Visc.cp @		75		°F		10		Cntrfuge ☐		Shaker ☒		Desander ☐									
Yield Point (lb/100ft2)		5						Degasser ☐		Desilter ☐		Other ☐									
Gel Strength (lb/100ft2) 10-sec		0						Recommended Mud Properties													
Gel Strength (lb/100ft²) 10-min		3						By Authority of: ☒		Company Representative		☐ Drilling Contractor									
Gel Strength (lb/100ft²) 30-min		x						Mud Wt:		8.4-9.0		Filtrate:		10-14cc		Viscosity: 31-34					
Filtrate API (cm3/30 min)		12.8						LCM:						Excess Lime:		lb/bbl					
Filtrate API HTHP (cm3/30 min)		x						RECOMMENDED TOURLY TREATMENT													
Cake Thickness (/32nds)		1						Keep a small stream of fresh water running at shaker													
Solids Content (% by vol)		4.3						please mix 2 sx of Platinum Pac over shift													
Water Content (% by Vol.)		95.7																			
Sand Content (% by vol)		.50																			
Bentonite Content (lb/bbl)		x																			
pH ☒ Strip ☐ Meter		7.0																			
Alkalinity Mud (Pm) cm3 N/50 Acid		x																			
Alkalinity, Pf / Mf		.20/.45																			
Chloride (mg/l)		140																			
Total Hardness as Calcium (mg/l)		40																			
Oil Content (% by vol)		x																			
LCM (lb/bbl)		x																			
Excess Lime (lb/bbl)		x																			
						DAILY REMARKS															
Solids Analysis																					
L.G. Solids				%												H.G. Solids				%	
L.G. Solids				ppb												H.G. Solids				ppb	
Corrected Solids				%												Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	130	30	60	28	31	32	240														
Chemicals Received																					
Closing Inventory	130	30	60	28	31	32	240														
Chemicals Used	0	0	0	0	0	0	0														
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0														
CHEMICALS																					
Starting Inventory																					
Chemicals Received												Est. Drayage:									
Closing Inventory												Est. Taxes:		\$	-						
Chemicals Used												Est. Daily Cost:		\$	-						
Daily Cost												Est. Cumulative Cost:		\$	-						
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:											
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:											
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:											
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																					
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Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT				26	
												Date		Measured Depth		T.V. Depth	
												10/29/23		1,077 ft.		1077 ft	
												Spud Date		Present Activity		Rig No.	
08/24/23		Reaming		10031													
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources									
Operator's Representative:						Contractor's Representative:		Ty Curtis									
Well Name & No.		Field:						County, Parish:		Sandoval		State:		New Mexico			
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION		HYDRAULICS					
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY					
Bit Size	28	Size	30	set @		Ft	Pipe Capacity				Drill Pipe						
Bit Type	Milltooth	Size		set @		Ft	21 bbls		x	x	Drill Collar						
Bit No.	1	Size		set @		Ft	Ann Volume		SPM	SPM	CIRCULATING PRESSURE						
Jets (32nd)		Size		set @		Ft	840 bbls		G/ST								
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11			Hole Volume		GPM		BOT. UP						
						861 bbls		BPM		SURF. TO BIT							
				6.875			Total Cir Vol		Total GPM	Total BPM	TOT. CIR TIME						
							1211 bbls										
Sample Fro ☒ Flowline ☐ Pit						Mud Properties		Calculate Alkalinity ☐ Check		HYDRAULICS							
Flowline Temperature (°F)						x					Jet Velocity		Nozzle Area				
Time Sample Taken						16:30					Horsepower						
Depth (ft)						1077					Impact Force						
Mud Weight (ppg)						8.90					Press Loss at Bit						
Mud Gradient (psi/ft)						0.4628					Press Loss at Bit						
Funnel Viscosity @ °F						31		Recommended Equipment									
Plastic Visc.cp @		75		°F		10		Cntrfuge ☐ Shaker ☒ Desander ☐									
Yield Point (lb/100ft2)						5		Degasser ☐ Desilter ☐ Other ☐									
Gel Strength (lb/100ft2) 10-sec						1		Recommended Mud Properties									
Gel Strength (lb/100ft²) 10-min						3		By Authority of: ☒		Company Representative		☐ Drilling Contractor					
Gel Strength (lb/100ft²) 30-min						x		Mud Wt:		8.4-9.0	Filtrate:		10-14cc	Viscosity:		31-34	
Filtrate API (cm3/30 min)						12.8		LCM:						Excess Lime:			lb/bbl
Filtrate API HTHP (cm3/30 min)						x		RECOMMENDED TOURLY TREATMENT									
Cake Thickness (/32nds)						1		Evening shift please add 2 sx of Platinum Pac UL									
Solids Content (% by vol)						4.3		Keep a small stream of fresh water running at shaker									
Water Content (% by Vol.)						95.7											
Sand Content (% by vol)						.50											
Bentonite Content (lb/bbl)						x											
pH ☒ Strip ☐ Meter						7.0											
Alkalinity Mud (Pm) cm3 N/50 Acid						x											
Alkalinity, Pf / Mf						.10/.30											
Chloride (mg/l)						140											
Total Hardness as Calcium (mg/l)						40											
Oil Content (% by vol)						x											
LCM (lb/bbl)						x											
Excess Lime (lb/bbl)						x											
								DAILY REMARKS									
Solids Analysis																	
L.G. Solids			%	H.G. Solids			%										
L.G. Solids			ppb	H.G. Solids			ppb										
Corrected Solids			%	Average Sp. Gr.													
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH						
Starting Inventory	130	30	60	28	31	32	240										
Chemicals Received																	
Closing Inventory	130	30	60	28	31	32	240										
Chemicals Used	0	0	0	0	0	0	0										
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
CHEMICALS																	
Starting Inventory																	
Chemicals Received												Est. Drayage:					
Closing Inventory												Est. Taxes:		\$	-		
Chemicals Used												Est. Daily Cost:		\$	-		
Daily Cost												Est. Cumulative Cost:		\$	-		
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:						
CELL PHONE NO.		303-720-4775			ADDRESS		Ft. Lupton, CO 80621				PHONE:						
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:						
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																	
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Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT				27				
												Date		Measured Depth		T.V. Depth				
												10/31/23		1,308 ft.		1308 ft				
												Spud Date		Present Activity		Rig No.				
08/24/23		Drilling		10031																
OPERATOR:						City of Rio Rancho						CONTRACTOR:		Hydro Resources						
Operator's Representative:												Contractor's Representative:		Ty Curtis						
Well Name & No.			Field:									County, Parish:		Sandoval			State:	New Mexico		
Rio Ranco 9A			Legal:									VOLUMES		PUMP INFORMATION			HYDRAULICS			
BIT DATA		CASING & DRILLING ASSEMBLY					Pit Vol.		350		PUMP #1		PUMP #2		ANNULAR VELOCITY					
Bit Size	28	Size	30	set @	80	Ft	Pipe Capacity								Drill Pipe					
Bit Type	Milltooth	Size		set @		Ft	26 bbls		x		x				Drill Collar					
Bit No.	1	Size		set @		Ft	Ann Volume		0 SPM		0		SPM		CIRCULATING PRESSURE					
Jets (32nd)		Size		set @		Ft	1024 bbls		0.00 G/ST		0.00									
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe	11	4.5	180	Hole Volume		GPM						BOT. UP						
						1050 bbls		BPM						SURF. TO BIT						
			6.875	4.5	1128	Total Cir Vol		Total GPM		Total BPM				TOT. CIR TIME						
						1400 bbls														
Sample Fro ☒ Flowline ☐ Pit						Mud Properties			Calculate Alkalinity ☐ Check			HYDRAULICS								
Flowline Temperature (°F)						x						Jet Velocity			Nozzle Area					
Time Sample Taken						07:30						Horsepower								
Depth (ft)						1308						Impact Force								
Mud Weight (ppg)						8.8						Press Loss at Bit								
Mud Gradient (psi/ft)						0.4576						Press Loss at Bit								
Funnel Viscosity @				°F		31			Recommended Equipment											
Plastic Visc.cp @		75		°F		10			Cntrfuge ☐ Shaker ☒ Desander ☐											
Yield Point (lb/100ft2)						5			Degasser ☐ Desilter ☐ Other ☐											
Gel Strength (lb/100ft2) 10-sec						0			Recommended Mud Properties											
Gel Strength (lb/100ft ²) 10-min						1			By Authority of: ☒ Company Representative			☐ Drilling Contractor								
Gel Strength (lb/100ft ²) 30-min						x			Mud Wt:		8.4-9.0	Filtrate:		10-14cc	Viscosity:		31-34			
Filtrate API (cm3/30 min)						11.2			LCM:						Excess Lime:		lb/bbl			
Filtrate API HTHP (cm3/30 min)						x			RECOMMENDED TOURLY TREATMENT											
Cake Thickness (/32nds)						1			Run a small stream of fresh water at shaker											
Solids Content (% by vol)						3.5			add 2 sx of Platinu,m Pac UL over shift											
Water Content (% by Vol.)						96.5														
Sand Content (% by vol)						Trace														
Bentonite Content (lb/bbl)						x														
pH ☒ Strip ☐ Meter						7.0														
Alkalinity Mud (Pm) cm3 N/50 Acid						x														
Alkalinity, Pf / Mf						.10/.30														
Chloride (mg/l)						140														
Total Hardness as Calcium (mg/l)						40														
Oil Content (% by vol)						x														
LCM (lb/bbl)						x														
Excess Lime (lb/bbl)						x														
						DAILY REMARKS														
Solids Analysis																				
L.G. Solids		%		H.G. Solids																%
L.G. Solids		ppb		H.G. Solids																ppb
Corrected Solids			%	Average Sp. Gr.																
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH									
Starting Inventory	130	30	60	28	31	32	240													
Chemicals Received																				
Closing Inventory	130	30	60	28	31	32	240													
Chemicals Used	0	0	0	0	0	0	0													
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0													
CHEMICALS																				
Starting Inventory																				
Chemicals Received														Est. Drayage:						
Closing Inventory														Est. Taxes:	\$	-				
Chemicals Used														Est. Daily Cost:	\$	-				
Daily Cost														Est. Cumulative Cost:	\$	-				
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:										
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:										
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:										
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Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540 Version 3.75												DRILLING MUD REPORT				28							
												Date		Measured Depth		T.V. Depth							
												10/31/23		1,365 ft.		1365 ft							
												Spud Date		Present Activity		Rig No.							
08/24/23		Reaming		10031																			
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources															
Operator's Representative:				Contractor's Representative:				Ty Curtis															
Well Name & No.		Field:		County, Parish:				Sandoval		State:		New Mexico											
Rio Ranco 9A		Legal:		VOLUMES				PUMP INFORMATION		HYDRAULICS													
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY											
Bit Size 28		Size 30		set @ 80		Ft		Pipe Capacity				Drill Pipe											
Bit Type Milltooth		Size		set @		Ft		27 bbls		x		Drill Collar											
Bit No. 1		Size		set @		Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE									
Jets (32nd)		Size		set @		Ft		1069 bbls		0.00 G/ST		0.00											
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5		180		Hole Volume		GPM		BOT. UP									
								1096 bbls		BPM				SURF. TO BIT									
				6.875		4.5		1185		Total Cir Vol		Total BPM		TOT. CIR TIME									
										1446 bbls													
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS															
Flowline Temperature (°F)		x										Jet Velocity		Nozzle Area									
Time Sample Taken		15:30										Horsepower											
Depth (ft)		1365										Impact Force											
Mud Weight (ppg)		8.8										Press Loss at Bit											
Mud Gradient (psi/ft)		0.4576										Press Loss at Bit											
Funnel Viscosity @		31										Recommended Equipment											
Plastic Visc.cp @		75		°F		20		Cntrfuge ☐		Shaker ☒		Desander ☐											
Yield Point (lb/100ft2)		5						Degasser ☐		Desilter ☐		Other ☐											
Gel Strength (lb/100ft2) 10-sec		2						Recommended Mud Properties															
Gel Strength (lb/100ft²) 10-min		5						By Authority of: ☒		Company Representative		☐ Drilling Contractor											
Gel Strength (lb/100ft²) 30-min		x						Mud Wt:		8.4-9.0		Filtrate:		10-14cc		Viscosity: 31-34							
Filtrate API (cm3/30 min)		11.2						LCM:						Excess Lime:		lb/bbl							
Filtrate API HTHP (cm3/30 min)		x						RECOMMENDED TOURLY TREATMENT															
Cake Thickness (/32nds)		1						Keep a small stream of fresh water running at shaker															
Solids Content (% by vol)		3.5						add 2 sx of Platinum Pac															
Water Content (% by Vol.)		96.5																					
Sand Content (% by vol)		.50																					
Bentonite Content (lb/bbl)		x																					
pH ☒ Strip ☐ Meter		7.0																					
Alkalinity Mud (Pm) cm3 N/50 Acid		x																					
Alkalinity, Pf / Mf		.10/.35																					
Chloride (mg/l)		140																					
Total Hardness as Calcium (mg/l)		40																					
Oil Content (% by vol)		x																					
LCM (lb/bbl)		x																					
Excess Lime (lb/bbl)		x																					
												DAILY REMARKS											
Solids Analysis																							
L.G. Solids				%														H.G. Solids				%	
L.G. Solids				ppb														H.G. Solids				ppb	
Corrected Solids				%														Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH												
Starting Inventory	130	30	60	28	31	32	240																
Chemicals Received																							
Closing Inventory	130	30	60	28	31	32	240																
Chemicals Used	0	0	0	0	0	0	0																
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0																
CHEMICALS																							
Starting Inventory																							
Chemicals Received												Est. Drayage:											
Closing Inventory												Est. Taxes:		\$	-								
Chemicals Used												Est. Daily Cost:		\$	-								
Daily Cost												Est. Cumulative Cost:		\$	-								
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:													
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:													
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:													
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																							
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																							
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																							

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						29			
												Date			Measured Depth			T.V. Depth			
												11/01/23			1,425 ft.			1425 ft			
												Spud Date			Present Activity			Rig No.			
08/24/23			Reaming			10031															
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources													
Operator's Representative:						Contractor's Representative:		Ty Curtis													
Well Name & No.		Field:				County, Parish:		Sandoval			State:		New Mexico								
Rio Ranco 9A		Legal:				VOLUMES		PUMP INFORMATION			HYDRAULICS										
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY									
Bit Size 28		Size 30		set @ 80 Ft		Pipe Capacity						Drill Pipe									
Bit Type Milltooth		Size		set @ Ft		28 bbls		x		x		Drill Collar									
Bit No. 1		Size		set @ Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE									
Jets (32nd)		Size		set @ Ft		1117 bbls		0.00 G/ST		0.00											
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5 180		Hole Volume		GPM				BOT. UP							
						1145 bbls		BPM				SURF. TO BIT									
				6.875		4.5 1245		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME							
								1495 bbls													
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS													
Flowline Temperature (°F)		x										Jet Velocity			Nozzle Area						
Time Sample Taken		07:30										Horsepower									
Depth (ft)		1425										Impact Force									
Mud Weight (ppg)		8.9										Press Loss at Bit									
Mud Gradient (psi/ft)		0.4628										Press Loss at Bit									
Funnel Viscosity @ °F		32										Recommended Equipment									
Plastic Visc.cp @ 75 °F		10				Cntrfuge ☐		Shaker ☐		Desander ☐											
Yield Point (lb/100ft2)		5				Degasser ☐		Desilter ☐		Other ☐											
Gel Strength (lb/100ft2) 10-sec		1										Recommended Mud Properties									
Gel Strength (lb/100ft²) 10-min		5				By Authority of: ☒		Company Representative			☐ Drilling Contractor										
Gel Strength (lb/100ft²) 30-min		x				Mud Wt:		8.4-9.0		Filtrate:		10-14cc		Viscosity:		31-34					
Filtrate API (cm3/30 min)		12.8				LCM:								Excess Lime:		lb/bbl					
Filtrate API HTHP (cm3/30 min)		x												RECOMMENDED TOURLY TREATMENT							
Cake Thickness (/32nds)		1												Keep a small stream of fresh water running at shaker							
Solids Content (% by vol)		4.3												add 2 sx of Platinum Pac UL							
Water Content (% by Vol.)		95.7																			
Sand Content (% by vol)		.50																			
Bentonite Content (lb/bbl)		x																			
pH ☒ Strip ☐ Meter		7.0																			
Alkalinity Mud (Pm) cm3 N/50 Acid		x																			
Alkalinity, Pf / Mf		.10/.30																			
Chloride (mg/l)		140																			
Total Hardness as Calcium (mg/l)		40																			
Oil Content (% by vol)		x																			
LCM (lb/bbl)		x																			
Excess Lime (lb/bbl)		x																			
						DAILY REMARKS															
Solids Analysis																					
L.G. Solids				%												H.G. Solids				%	
L.G. Solids				ppb												H.G. Solids				ppb	
Corrected Solids				%												Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	130	30	60	28	31	32	240														
Chemicals Received																					
Closing Inventory	130	30	60	28	31	32	240														
Chemicals Used	0	0	0	0	0	0	0														
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0														
CHEMICALS																					
Starting Inventory																					
Chemicals Received												Est. Drayage:									
Closing Inventory												Est. Taxes:		\$	-						
Chemicals Used												Est. Daily Cost:		\$	-						
Daily Cost												Est. Cumulative Cost:		\$	-						
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:											
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:											
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:											
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																					
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																					
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																					

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						30		
												Date			Measured Depth			T.V. Depth		
												11/01/23			1,489 ft.			1489 ft		
												Spud Date			Present Activity			Rig No.		
08/24/23			Rreaming			10031														
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources												
Operator's Representative:						Contractor's Representative:		Ty Curtis												
Well Name & No.		Field:						County, Parish:		Sandoval			State:		New Mexico					
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION			HYDRAULICS							
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY								
Bit Size	28	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe							
Bit Type	Milltooth	Size		set @		Ft	29 bbls		x		x		Drill Collar							
Bit No.	1	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE							
Jets (32nd)		Size		set @		Ft	1168 bbls		0.00 G/ST		0.00									
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP							
							1197 bbls		BPM				SURF. TO BIT							
				6.875	4.5	1309	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME							
							1547 bbls													
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS												
Flowline Temperature (°F)		x										Jet Velocity			Nozzle Area					
Time Sample Taken		16:30										Horsepower								
Depth (ft)		1489										Impact Force								
Mud Weight (ppg)		8.9										Press Loss at Bit								
Mud Gradient (psi/ft)		0.4628										Press Loss at Bit								
Funnel Viscosity @		31										Recommended Equipment								
Plastic Visc.cp @		75		°F		5		Cntrfuge ☐		Shaker ☒		Desander ☐								
Yield Point (lb/100ft2)		5						Degasser ☐		Desilter ☐		Other ☐								
Gel Strength (lb/100ft2) 10-sec		0						Recommended Mud Properties												
Gel Strength (lb/100ft²) 10-min		2						By Authority of: ☒		Company Representative			☐ Drilling Contractor							
Gel Strength (lb/100ft²) 30-min		x						Mud Wt:		8.4-9.0		Filtrate:		10-14cc		Viscosity: 31-34				
Filtrate API (cm3/30 min)		12.8						LCM:						Excess Lime:		lb/bbl				
Filtrate API HTHP (cm3/30 min)		x						RECOMMENDED TOURLY TREATMENT												
Cake Thickness (/32nds)		1						Keep a small stream of fresh water running at shaker												
Solids Content (% by vol)		4.3						Evening shift please add 2 sx of Platinum Pac UL over shift												
Water Content (% by Vol.)		95.7																		
Sand Content (% by vol)		.50																		
Bentonite Content (lb/bbl)		x																		
pH ☒ Strip ☐ Meter		7.0																		
Alkalinity Mud (Pm) cm3 N/50 Acid		x																		
Alkalinity, Pf / Mf		.10/.30																		
Chloride (mg/l)		140																		
Total Hardness as Calcium (mg/l)		40																		
Oil Content (% by vol)		x																		
LCM (lb/bbl)		x																		
Excess Lime (lb/bbl)		x																		
						DAILY REMARKS														
Solids Analysis																				
L.G. Solids		%		H.G. Solids												%				
L.G. Solids		ppb		H.G. Solids												ppb				
Corrected Solids			%	Average Sp. Gr.																
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH									
Starting Inventory	130	30	60	28	31	32	240													
Chemicals Received																				
Closing Inventory	130	30	60	28	31	32	240													
Chemicals Used	0	0	0	0	0	0	0													
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0													
CHEMICALS																				
Starting Inventory																				
Chemicals Received												Est. Drayage:								
Closing Inventory												Est. Taxes:		\$	-					
Chemicals Used												Est. Daily Cost:		\$	-					
Daily Cost												Est. Cumulative Cost:		\$	-					
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:										
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:										
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:										
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																				
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																				
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																				

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						31					
												Date		Measured Depth				T.V. Depth					
												11/04/23		1,643 ft.				1643 ft					
												Spud Date		Present Activity				Rig No.					
08/24/23		Reaming				10031																	
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources															
Operator's Representative:						Contractor's Representative:		Ty Curtis															
Well Name & No.		Field:						County, Parish:		Sandoval				State:		New Mexico							
Rio Ranco 9A		Legal:						VOLUMES		PUMP INFORMATION				HYDRAULICS									
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY											
Bit Size 28		Size 30		set @ 80 Ft		Pipe Capacity						Drill Pipe											
Bit Type Milltooth		Size		set @ Ft		32 bbls		x		x		Drill Collar											
Bit No. 1		Size		set @ Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE											
Jets (32nd)		Size		set @ Ft		1290 bbls		0.00 G/ST		0.00													
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5 180		Hole Volume		GPM				BOT. UP									
						1322 bbls		BPM				SURF. TO BIT											
				6.875		4.5 1463		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME									
								1672 bbls															
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS															
Flowline Temperature (°F)		x										Jet Velocity				Nozzle Area							
Time Sample Taken		07:20										Horsepower											
Depth (ft)		1643										Impact Force											
Mud Weight (ppg)		8.9										Press Loss at Bit											
Mud Gradient (psi/ft)		0.4628										Press Loss at Bit											
Funnel Viscosity @ °F		31										Recommended Equipment											
Plastic Visc.cp @ 75 °F		5				Cntrfuge ☐		Shaker ☒		Desander ☐													
Yield Point (lb/100ft2)		5				Degasser ☐		Desilter ☐		Other ☐													
Gel Strength (lb/100ft2) 10-sec		0										Recommended Mud Properties											
Gel Strength (lb/100ft²) 10-min		0				By Authority of: ☒		Company Representative		☐ Drilling Contractor													
Gel Strength (lb/100ft²) 30-min		x				Mud Wt: 8.4-9.0		Filtrate:		10-14cc		Viscosity:		31-34									
Filtrate API (cm3/30 min)		12.8				LCM:						Excess Lime:				lb/bbl							
Filtrate API HTHP (cm3/30 min)		x										RECOMMENDED TOURLY TREATMENT											
Cake Thickness (/32nds)		1										Keep a small stream of fresh water running at shaker											
Solids Content (% by vol)		4.3										add 1 sx of Platinum Pac slowly over shift											
Water Content (% by Vol.)		95.7																					
Sand Content (% by vol)		.50																					
Bentonite Content (lb/bbl)		x																					
pH ☒ Strip ☐ Meter		7.0																					
Alkalinity Mud (Pm) cm3 N/50 Acid		x																					
Alkalinity, Pf / Mf		.10/.30																					
Chloride (mg/l)		140																					
Total Hardness as Calcium (mg/l)		40																					
Oil Content (% by vol)		x																					
LCM (lb/bbl)		x																					
Excess Lime (lb/bbl)		x																					
						DAILY REMARKS																	
Solids Analysis																							
L.G. Solids				%														H.G. Solids				%	
L.G. Solids				ppb														H.G. Solids				ppb	
Corrected Solids				%														Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH												
Starting Inventory	130	30	60	28	31	32	240																
Chemicals Received																							
Closing Inventory	130	30	60	28	31	32	240																
Chemicals Used	0	0	0	0	0	0	0																
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0																
CHEMICALS																							
Starting Inventory																							
Chemicals Received												Est. Drayage:											
Closing Inventory												Est. Taxes:		\$	-								
Chemicals Used												Est. Daily Cost:		\$	-								
Daily Cost												Est. Cumulative Cost:		\$	-								
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:												
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:												
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:												
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																							
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RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																							

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540 Version 3.75												DRILLING MUD REPORT						32					
												Date			Measured Depth			T.V. Depth					
												11/04/23			1,701 ft.			1701 ft					
												Spud Date			Present Activity			Rig No.					
08/24/23			Reaming			10031																	
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources															
Operator's Representative:						Contractor's Representative:		Ty Curtis															
Well Name & No.		Field:				County, Parish:		Sandoval			State:		New Mexico										
Rio Ranco 9A		Legal:				VOLUMES		PUMP INFORMATION			HYDRAULICS												
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY											
Bit Size 28		Size 30		set @ 80 Ft		Pipe Capacity						Drill Pipe											
Bit Type Milltooth		Size		set @ Ft		33 bbls		x		x		Drill Collar											
Bit No. 1		Size		set @ Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE											
Jets (32nd)		Size		set @ Ft		1336 bbls		0.00 G/ST		0.00													
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5 180		Hole Volume		GPM				BOT. UP									
								1369 bbls		BPM				SURF. TO BIT									
				6.875		4.5 1521		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME									
								1719 bbls															
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS															
Flowline Temperature (°F)		x										Jet Velocity			Nozzle Area								
Time Sample Taken		16:30										Horsepower											
Depth (ft)		1701										Impact Force											
Mud Weight (ppg)		8.9										Press Loss at Bit											
Mud Gradient (psi/ft)		0.4628										Press Loss at Bit											
Funnel Viscosity @ °F		32										Recommended Equipment											
Plastic Visc.cp @ 75 °F		10				Cntrfuge ☐		Shaker ☒		Desander ☐													
Yield Point (lb/100ft2)		5				Degasser ☐		Desilter ☐		Other ☐													
Gel Strength (lb/100ft2) 10-sec		1										Recommended Mud Properties											
Gel Strength (lb/100ft²) 10-min		3				By Authority of: ☒		Company Representative		☐ Drilling Contractor													
Gel Strength (lb/100ft²) 30-min		x				Mud Wt: 8.4-9.0		Filtrate:		10-14cc		Viscosity:		31-34									
Filtrate API (cm3/30 min)		12.0				LCM:						Excess Lime:				lb/bbl							
Filtrate API HTHP (cm3/30 min)		x										RECOMMENDED TOURLY TREATMENT											
Cake Thickness (/32nds)		2										Keep a small stream of fresh water running at shaker											
Solids Content (% by vol)		4.3										evening shift please add 2 sx of Platinum Pac UL over shift											
Water Content (% by Vol.)		95.7																					
Sand Content (% by vol)		.50																					
Bentonite Content (lb/bbl)		x																					
pH ☒ Strip ☐ Meter		7.0																					
Alkalinity Mud (Pm) cm3 N/50 Acid		x																					
Alkalinity, Pf / Mf		.10/.30																					
Chloride (mg/l)		140																					
Total Hardness as Calcium (mg/l)		40																					
Oil Content (% by vol)		x																					
LCM (lb/bbl)		x																					
Excess Lime (lb/bbl)		x																					
						DAILY REMARKS																	
Solids Analysis																							
L.G. Solids				%														H.G. Solids				%	
L.G. Solids				ppb														H.G. Solids				ppb	
Corrected Solids				%														Average Sp. Gr.					
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH												
Starting Inventory	130	30	60	28	31	32	240																
Chemicals Received																							
Closing Inventory	130	30	60	28	31	32	240																
Chemicals Used	0	0	0	0	0	0	0																
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0																
CHEMICALS																							
Starting Inventory																							
Chemicals Received												Est. Drayage:											
Closing Inventory												Est. Taxes:		\$	-								
Chemicals Used												Est. Daily Cost:		\$	-								
Daily Cost												Est. Cumulative Cost:		\$	-								
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:													
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:													
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:													
IN CONSIDERATION OF THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, IT IS AGREED THAT NO RECOMMENDATIONS MADE HEREON SHALL BE CONSTRUED AS																							
AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND IT IS AGREED THAT SHALL NOT BE LIABLE FOR ANY DAMAGES																							
RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																							

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540												DRILLING MUD REPORT						33			
												Date		Measured Depth		T.V. Depth					
												11/05/23		1,815 ft.		1815 ft					
												Spud Date		Present Activity		Rig No.					
08/24/23		Reaming		10031																	
Version 3.75																					
OPERATOR:			City of Rio Rancho			CONTRACTOR:			Hydro Resources												
Operator's Representative:						Contractor's Representative:			Ty Curtis												
Well Name & No.		Field:				County, Parish:			Sandoval			State:		New Mexico							
Rio Ranco 9A		Legal:				VOLUMES		PUMP INFORMATION			HYDRAULICS										
BIT DATA		CASING & DRILLING ASSEMBLY					Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY								
Bit Size	28	Size	30	set @	80	Ft	Pipe Capacity						Drill Pipe								
Bit Type	Milltooth	Size		set @		Ft	36 bbls		x		x		Drill Collar								
Bit No.	1	Size		set @		Ft	Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE								
Jets (32nd)		Size		set @		Ft	1427 bbls		0.00 G/ST		0.00										
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11	4.5	180	Hole Volume		GPM				BOT. UP								
							1463 bbls		BPM				SURF. TO BIT								
				6.875	4.5	1635	Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME								
							1813 bbls														
Sample Fro ☒ Flowline ☐ Pit			Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS												
Flowline Temperature (°F)			x										Jet Velocity			Nozzle Area					
Time Sample Taken			07:00										Horsepower								
Depth (ft)			1815										Impact Force								
Mud Weight (ppg)			8.9										Press Loss at Bit								
Mud Gradient (psi/ft)			0.4628										Press Loss at Bit								
Funnel Viscosity @		°F	32				Recommended Equipment														
Plastic Visc.cp @		75	°F	10				Cntrfuge ☐	Shaker ☒	Desander ☐											
Yield Point (lb/100ft2)			5				Degasser ☐	Desilter ☐	Other ☐												
Gel Strength (lb/100ft2) 10-sec			1				Recommended Mud Properties														
Gel Strength (lb/100ft²) 10-min			4				By Authority of: ☒		Company Representative			☐ Drilling Contractor									
Gel Strength (lb/100ft²) 30-min			x				Mud Wt:		8.4-9.0		Filtrate:		10-14cc		Viscosity:		31-34				
Filtrate API (cm3/30 min)			12.8				LCM:						Excess Lime:				lb/bbl				
Filtrate API HTHP (cm3/30 min)			x				RECOMMENDED TOURLY TREATMENT														
Cake Thickness (/32nds)			2				Keep a small stream of fresh water running at shaker														
Solids Content (% by vol)			4.3				Add 2 sx of Platinum Pac UL over shift														
Water Content (% by Vol.)			95.7																		
Sand Content (% by vol)			.50																		
Bentonite Content (lb/bbl)			x																		
pH ☒ Strip ☐ Meter			7.0																		
Alkalinity Mud (Pm) cm3 N/50 Acid			x																		
Alkalinity, Pf / Mf			.10/.30																		
Chloride (mg/l)			140																		
Total Hardness as Calcium (mg/l)			40																		
Oil Content (% by vol)			x																		
LCM (lb/bbl)			x																		
Excess Lime (lb/bbl)			x																		
												DAILY REMARKS									
Solids Analysis																					
L.G. Solids		%	H.G. Solids		%																
L.G. Solids		ppb	H.G. Solids		ppb																
Corrected Solids			%	Average Sp. Gr.																	
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH										
Starting Inventory	130	30	60	28	31	32	240														
Chemicals Received																					
Closing Inventory	130	30	60	28	31	32	240														
Chemicals Used	0	0	0	0	0	0	0														
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0														
CHEMICALS																					
Starting Inventory																					
Chemicals Received												Est. Drayage:									
Closing Inventory												Est. Taxes:		\$ -							
Chemicals Used												Est. Daily Cost:		\$ -							
Daily Cost												Est. Cumulative Cost:		\$ -							
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18				NAME:										
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621				PHONE:										
ANS. SERVICE:					PHONE:		(303) 857-4171				PHONE:										
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RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																					

Hydro Resources 13027 County Rd 18 FT Lupton, CO 80621 Phone: 303-857-7540 Version 3.75												DRILLING MUD REPORT						34		
												Date			Measured Depth			T.V. Depth		
												11/05/23			1,863 ft.			1863 ft		
												Spud Date			Present Activity			Rig No.		
08/24/23			Reaming			10031														
OPERATOR:		City of Rio Rancho				CONTRACTOR:		Hydro Resources												
Operator's Representative:						Contractor's Representative:		Ty Curtis												
Well Name & No.		Field:				County, Parish:		Sandoval			State:		New Mexico							
Rio Ranco 9A		Legal:				VOLUMES		PUMP INFORMATION			HYDRAULICS									
BIT DATA		CASING & DRILLING ASSEMBLY				Pit Vol. 350		PUMP #1		PUMP #2		ANNULAR VELOCITY								
Bit Size 28		Size 30		set @ 80 Ft		Pipe Capacity						Drill Pipe								
Bit Type Milltooth		Size		set @ Ft		37 bbls		x		x		Drill Collar								
Bit No. 1		Size		set @ Ft		Ann Volume		0 SPM		0 SPM		CIRCULATING PRESSURE								
Jets (32nd)		Size		set @ Ft		1465 bbls		0.00 G/ST		0.00										
		Drill Collar Drill Collar Drill Pipe H.W. Drill Pipe		11		4.5 180		Hole Volume		GPM				BOT. UP						
						1502 bbls		BPM				SURF. TO BIT								
				6.875		4.5 1683		Total Cir Vol		Total GPM		Total BPM		TOT. CIR TIME						
								1852 bbls												
Sample Fro ☒ Flowline ☐ Pit		Mud Properties				Calculate Alkalinity ☐ Check		HYDRAULICS												
Flowline Temperature (°F)		x										Jet Velocity			Nozzle Area					
Time Sample Taken		15:45										Horsepower								
Depth (ft)		1863										Impact Force								
Mud Weight (ppg)		9.0										Press Loss at Bit								
Mud Gradient (psi/ft)		0.468										Press Loss at Bit								
Funnel Viscosity @ °F		33										Recommended Equipment								
Plastic Visc.cp @ 75 °F		10				Cntrfuge ☐		Shaker ☒		Desander ☐										
Yield Point (lb/100ft2)		5				Degasser ☐		Desilter ☐		Other ☐										
Gel Strength (lb/100ft2) 10-sec		2										Recommended Mud Properties								
Gel Strength (lb/100ft²) 10-min		6				By Authority of: ☒		Company Representative		☐ Drilling Contractor										
Gel Strength (lb/100ft²) 30-min		x				Mud Wt: 8.4-9.0		Filtrate:		10-14cc		Viscosity:		31-34						
Filtrate API (cm3/30 min)		12.8				LCM:						Excess Lime:				lb/bbl				
Filtrate API HTHP (cm3/30 min)		x										RECOMMENDED TOURLY TREATMENT								
Cake Thickness (/32nds)		2										Keep a 1" stream of fresh water running at the shaker								
Solids Content (% by vol)		5.0										Evening shift please add 3 sx of Platinum Pac UL over shift								
Water Content (% by Vol.)		95.0																		
Sand Content (% by vol)		.50																		
Bentonite Content (lb/bbl)		x																		
pH ☒ Strip ☐ Meter		7.0																		
Alkalinity Mud (Pm) cm3 N/50 Acid		x																		
Alkalinity, Pf / Mf		.10/.30																		
Chloride (mg/l)		140																		
Total Hardness as Calcium (mg/l)		40																		
Oil Content (% by vol)		x																		
LCM (lb/bbl)		x																		
Excess Lime (lb/bbl)		x																		
														DAILY REMARKS						
Solids Analysis																				
L.G. Solids				%		H.G. Solids				%										
L.G. Solids				ppb		H.G. Solids				ppb										
Corrected Solids				%		Average Sp. Gr.														
CHEMICALS	SUPER GEL X	SODA ASH	PLATINUM PAC UL	PLATINUM PAC	FLOPAM	DF202 O	HOLE PLUG	PEL PLUG 30	PEL PLUG 60	NW-220	BLEACH									
Starting Inventory	130	30	60	28	31	32	240													
Chemicals Received																				
Closing Inventory	130	30	60	26	31	32	240													
Chemicals Used	0	0	0	2	0	0	0													
Daily Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0													
CHEMICALS																				
Starting Inventory																				
Chemicals Received												Est. Drayage:								
Closing Inventory												Est. Taxes:		\$	-					
Chemicals Used												Est. Daily Cost:		\$	-					
Daily Cost												Est. Cumulative Cost:		\$	-					
TECHNICAL REP:		Ryan Brooks			WAREHOUSE		13027 CR 18			NAME:										
CELL PHONE NO.		303-720-4775			ADDRESS:		Ft. Lupton, CO 80621			PHONE:										
ANS. SERVICE:					PHONE:		(303) 857-4171			PHONE:										
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RESULTING FROM THE FURNISHING OF THIS REPORT AND ORAL SUGGESTIONS, AND IS TO BE HELD HARMLESS.																				

Appendix E.

**Zone sampling water-quality laboratory reports,
City of Rio Rancho Well 9R**



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

September 25, 2023

Tyler Curtis

Hydro Resources RM
13207 County Road 18, Unit C
Fort Lupton, CO 80621
TEL: (303) 857-7540
FAX: (505) 856-6501

RE: Rio Rancho Well 9R

OrderNo.: 2309474

Dear Tyler Curtis:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/11/2023 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,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2309474

Date Reported: 9/25/2023

CLIENT: Hydro Resources RM

Client Sample ID: Zone 1

Project: Rio Rancho Well 9R

Collection Date: 9/9/2023 4:55:00 PM

Lab ID: 2309474-001

Matrix: AQUEOUS

Received Date: 9/11/2023 10:51:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: bcv
Arsenic	0.086	0.0025	*	mg/L	5	9/18/2023 2:36:22 PM	B99768
EPA 200.8: METALS							Analyst: bcv
Antimony	ND	0.0010		mg/L	1	9/15/2023 1:32:16 PM	77455
Arsenic	0.10	0.0025	*	mg/L	5	9/19/2023 1:10:46 PM	77455
Barium	0.046	0.0010		mg/L	1	9/15/2023 1:32:16 PM	77455
Beryllium	ND	0.00050		mg/L	1	9/15/2023 1:32:16 PM	77455
Cadmium	ND	0.00050		mg/L	1	9/15/2023 1:32:16 PM	77455
Chromium	0.0066	0.0010		mg/L	1	9/15/2023 1:32:16 PM	77455
Copper	0.0066	0.00050		mg/L	1	9/15/2023 1:32:16 PM	77455
Iron	ND	0.020		mg/L	1	9/15/2023 1:32:16 PM	77455
Lead	0.00057	0.00050		mg/L	1	9/15/2023 1:32:16 PM	77455
Manganese	ND	0.0010		mg/L	1	9/15/2023 1:32:16 PM	77455
Nickel	0.037	0.00050		mg/L	1	9/15/2023 1:32:16 PM	77455
Selenium	ND	0.0010		mg/L	1	9/15/2023 1:32:16 PM	77455
Thallium	ND	0.00025		mg/L	1	9/15/2023 1:32:16 PM	77455
Uranium	0.0010	0.00050		mg/L	1	9/15/2023 1:32:16 PM	77455
SM2340B: HARDNESS							Analyst: JRR
Hardness as CaCO ₃	14	6.6		mg/L	1	9/14/2023	R99698
EPA METHOD 180.1: TURBIDITY							Analyst: KS
Turbidity	26	0.50	*	NTU	1	9/11/2023 12:20:00 PM	R99588
EPA METHOD 300.0: ANIONS							Analyst: SNS
Fluoride	0.55	0.50		mg/L	5	9/12/2023 2:05:28 PM	R99646
Chloride	5.2	2.5		mg/L	5	9/12/2023 2:05:28 PM	R99646
Sulfate	41	2.5		mg/L	5	9/12/2023 2:05:28 PM	R99646
SM2510B: SPECIFIC CONDUCTANCE							Analyst: RBC
Conductivity	350	10		µmhos/c	1	9/12/2023 3:35:31 PM	R99643
SM2320B: ALKALINITY							Analyst: RBC
Bicarbonate (As CaCO ₃)	102.2	20.00		mg/L Ca	1	9/12/2023 3:35:31 PM	R99643
Carbonate (As CaCO ₃)	8.960	2.000		mg/L Ca	1	9/12/2023 3:35:31 PM	R99643
Total Alkalinity (as CaCO ₃)	111.2	20.00		mg/L Ca	1	9/12/2023 3:35:31 PM	R99643
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MCA
Total Dissolved Solids	210	100	D	mg/L	1	9/15/2023 8:13:00 AM	77481
SM4500-H+B / 9040C: PH							Analyst: RBC
pH	8.78		*H	pH units	1	9/12/2023 3:35:31 PM	R99643
EPA METHOD 200.7: METALS							Analyst: JRR

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **2309474**

Date Reported: 9/25/2023

CLIENT: Hydro Resources RM

Client Sample ID: Zone 1

Project: Rio Rancho Well 9R

Collection Date: 9/9/2023 4:55:00 PM

Lab ID: 2309474-001

Matrix: AQUEOUS

Received Date: 9/11/2023 10:51:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: METALS							Analyst: JRR
Calcium	5.0	1.0		mg/L	1	9/14/2023 11:26:16 AM	77455
Magnesium	ND	1.0		mg/L	1	9/14/2023 11:26:16 AM	77455
Potassium	2.0	1.0		mg/L	1	9/14/2023 11:26:16 AM	77455
Sodium	71	1.0		mg/L	1	9/14/2023 11:26:16 AM	77455
EPA METHOD 245.1: MERCURY							Analyst: tem
Mercury	ND	0.00020		mg/L	1	9/19/2023 4:05:44 PM	77563

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		



September 20, 2023

Andy Freeman
Hall Environmental
4901 Hawkins NE
Albuquerque, NM 87109

RE: Project: 2309474
Pace Project No.: 30621494

Dear Andy Freeman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 12, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carla Cmar
carla.cmar@pacelabs.com
(724)850-5600
Project Manager

Enclosures

cc: Ms. Jackie Ball, Hall Environmental
Michelle Garcia, Hall Environmental
1845-Hall Reporting



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 2309474

Pace Project No.: 30621494

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

ANABISO/IEC 17025:2017 Rad Cert#: L24170

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 2950

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA010

Louisiana DEQ/TNI Certification #: 04086

Maine Certification #: 2023021

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572023-03

New Hampshire/TNI Certification #: 297622

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-015

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN02867

Texas/TNI Certification #: T104704188-22-18

Utah/TNI Certification #: PA014572223-14

USDA Soil Permit #: 525-23-67-77263

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 2309474
Pace Project No.: 30621494

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30621494001	2309474-001D_Zone 1	Water	09/09/23 04:55	09/12/23 10:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 2309474
Pace Project No.: 30621494

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30621494001	2309474-001D_Zone 1	EPA 900.0	KET	2	PASI-PA
		EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 2309474
Pace Project No.: 30621494

Method: EPA 900.0
Description: 900.0 Gross Alpha/Beta
Client: Hall Environmental
Date: September 20, 2023

General Information:

1 sample was analyzed for EPA 900.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 2309474
Pace Project No.: 30621494

Method: EPA 903.1
Description: 903.1 Radium 226
Client: Hall Environmental
Date: September 20, 2023

General Information:

1 sample was analyzed for EPA 903.1 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 2309474
Pace Project No.: 30621494

Method: EPA 904.0
Description: 904.0 Radium 228
Client: Hall Environmental
Date: September 20, 2023

General Information:

1 sample was analyzed for EPA 904.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 2309474
Pace Project No.: 30621494

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Hall Environmental

Date: September 20, 2023

General Information:

1 sample was analyzed for Total Radium Calculation by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2309474

Pace Project No.: 30621494

Sample: 2309474-001D_Zone 1 Lab ID: 30621494001 Collected: 09/09/23 04:55 Received: 09/12/23 10:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Gross Alpha	EPA 900.0	2.40 ± 1.61 (2.66) C:NA T:NA	pCi/L	09/19/23 08:26	12587-46-1	
Gross Beta	EPA 900.0	1.87 ± 0.873 (1.34) C:NA T:NA	pCi/L	09/19/23 08:26	12587-47-2	
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.246 ± 0.580 (1.08) C:NA T:93%	pCi/L	09/20/23 12:15	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.0839 ± 0.345 (0.783) C:80% T:83%	pCi/L	09/20/23 11:28	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.330 ± 0.925 (1.86)	pCi/L	09/20/23 15:20	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2309474
Pace Project No.: 30621494

QC Batch:	615393	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
		Laboratory:	Pace Analytical Services - Greensburg
Associated Lab Samples:	30621494001		
METHOD BLANK:	2996877	Matrix:	Water
Associated Lab Samples:	30621494001		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.180 ± 0.275 (0.442) C:NA T:88%	pCi/L	09/20/23 12:15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2309474
Pace Project No.: 30621494

QC Batch:	615397	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30621494001

METHOD BLANK: 2996886 Matrix: Water

Associated Lab Samples: 30621494001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.181 ± 0.334 (0.733) C:82% T:81%	pCi/L	09/20/23 11:27	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2309474
Pace Project No.: 30621494

QC Batch:	615146	Analysis Method:	EPA 900.0
QC Batch Method:	EPA 900.0	Analysis Description:	900.0 Gross Alpha/Beta
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30621494001

METHOD BLANK: 2995418 Matrix: Water

Associated Lab Samples: 30621494001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	1.17 ± 1.03 (1.85) C:NA T:NA	pCi/L	09/18/23 08:39	
Gross Beta	-0.225 ± 0.635 (1.59) C:NA T:NA	pCi/L	09/18/23 08:39	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 2309474
Pace Project No.: 30621494

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

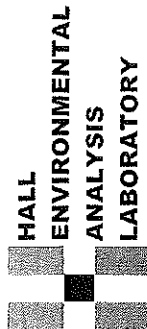
Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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CHAIN OF CUSTODY RECORD

PAGE: 1	OF: 1
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Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3973
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRACTOR: Pace-Greensburg		COMPANY: Pace Analytical Services, Inc.		PHONE: (724) 850-5600	FAX: (724) 850-5601
ADDRESS: 1638 Roseytown Rd Ste 2,3,4		ACCOUNT #:			
CITY, STATE, ZIP: Greensburg, PA 15601					
ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE
1	2309474-001D Zone 1		11LHDPEHNO	Aqueous	9/9/2023 4:55:00 PM
			# CONTAINERS	4	
ANALYTICAL COMMENTS					
Gross Alpha, Gross Beta, Ra 226/228- ** 3 DAY TAT **					

WO#: 30621494



30621494

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 9/11/2023	Time: 11:27 AM	Received By:	Date: 9/12/23	Time: 2:00 PM
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
TAT: Standard ☐			Next BD ☐ 2nd BD ☐ 3rd BD ☐		
			RUSH		
REPORT TRANSMITTAL DESIRED: ☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE					
FOR LAB USE ONLY					
Temp of samples _____ °C Attempt to Cool? <u>N</u>					
Comments: _____					

	DC#_Title: ENV-FRM-GBUR-0088 v05_Sample Condition Upon Receipt Pittsburgh	WO#: 30621494 PM: CMC Due Date: 10/03/23 CLIENT: HALL ENVIRON
	Effective Date: 07/06/2023	
Client Name: <u>Hall Environmental</u>		

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other

Tracking Number: 7733 7405 9327

Initial / Date

Examined By: LA 9/13/23

Custody Seal on Cooler/Box Present: ☐ Yes ☒ No

Seals Intact:

☐ Yes ☒ No

Thermometer Used: —

Type of Ice: Wet Blue None

Labeled By: LA 9/13/23

Temped By: —

Cooler Temperature: Observed Temp — °C Correction Factor: — °C Final Temp: — °C

Temp should be above freezing to 6°C

Comments:	Yes	No	NA	pH paper Lot# <u>1010831</u>	D.P.D. Residual Chlorine Lot #
Chain of Custody Present	☒			1.	
Chain of Custody Filled Out:	☒			2.	
-Were client corrections present on COC		☒			
Chain of Custody Relinquished	☒			3.	
Sampler Name & Signature on COC:		☒		4.	
Sample Labels match COC:	☒			5.	
-Includes date/time/ID					
Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	☒			6.	
Short Hold Time Analysis (<72hr remaining):		☒		7.	
Rush Turn Around Time Requested:	☒			8. <u>3 day TAT</u>	
Sufficient Volume:	☒			9.	
Correct Containers Used:	☒			10.	
-Pace Containers Used		☒			
Containers Intact:	☒			11.	
Orthophosphate field filtered:			☒	12.	
Hex Cr Aqueous samples field filtered:			☒	13.	
Organic Samples checked for dechlorination			☒	14.	
Filtered volume received for dissolved tests:			☒	15.	
All containers checked for preservation:	☒			16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, non-aqueous matrix					
All containers meet method preservation requirements:	☒			Initial when completed <u>LA</u>	Date/Time of Preservation
				Lot# of added Preservative	
8260C/D: Headspace in VOA Vials (> 6mm)			☒	17.	
624.1: Headspace in VOA Vials (0mm)			☒	18.	
Trip Blank Present:			☒	Trip blank custody seal present? YES or NO	
Rad Samples Screened <0.5 mrem/hr.	☒			Initial when completed <u>JS</u>	Date: <u>9/12/23</u> Survey Meter SN: <u>1563</u>
Comments:					

Note: For NC compliance samples with discrepancies, a copy of this form must be sent to the DEHNR Certification office.
PM Review is documented electronically in LIMS through the SRF Review schedule in the Workorder Edit Screen.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2309474

25-Sep-23

Client: Hydro Resources RM

Project: Rio Rancho Well 9R

Sample ID: MB-77455		SampType: MBLK		TestCode: EPA Method 200.7: Metals						
Client ID: PBW		Batch ID: 77455		RunNo: 99675						
Prep Date: 9/12/2023		Analysis Date: 9/13/2023		SeqNo: 3641351		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: LCSLL-77455		SampType: LCSLL		TestCode: EPA Method 200.7: Metals						
Client ID: BatchQC		Batch ID: 77455		RunNo: 99675						
Prep Date: 9/12/2023		Analysis Date: 9/13/2023		SeqNo: 3641352			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	95.0	50	150			
Magnesium	ND	1.0	0.5000	0	98.5	50	150			
Potassium	ND	1.0	0.5000	0	66.8	50	150			
Sodium	ND	1.0	0.5000	0	94.8	50	150			

Sample ID: LCS-77455		SampType: LCS			TestCode: EPA Method 200.7: Metals					
Client ID: LCSW		Batch ID: 77455			RunNo: 99675					
Prep Date: 9/12/2023		Analysis Date: 9/13/2023			SeqNo: 3641353		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	48	1.0	50.00	0	96.7	85	115			
Magnesium	49	1.0	50.00	0	97.5	85	115			
Potassium	49	1.0	50.00	0	97.1	85	115			
Sodium	49	1.0	50.00	0	97.2	85	115			

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 Quantitative 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#: 2309474

25-Sep-23

Client: Hydro Resources RM

Project: Rio Rancho Well 9R

Sample ID: MB-77455		SampType: MBLK		TestCode: EPA 200.8: Metals						
Client ID: PBW		Batch ID: 77455		RunNo: 99752						
Prep Date: 9/12/2023		Analysis Date: 9/15/2023		SeqNo: 3646088		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Antimony	ND	0.0010
Barium	ND	0.0010
Beryllium	ND	0.00050
Cadmium	ND	0.00050
Chromium	ND	0.0010
Copper	ND	0.00050
Lead	ND	0.00050
Nickel	ND	0.00050
Selenium	ND	0.0010
Thallium	ND	0.00025
Uranium	ND	0.00050

Sample ID: MSLCSLL-77455											SampType: LCSLL			TestCode: EPA 200.8: Metals				
Client ID: BatchQC				Batch ID: 77455				RunNo: 99752										
Prep Date: 9/12/2023				Analysis Date: 9/15/2023				SeqNo: 3646089			Units: mg/L							
Analyte				Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				

Antimony	0.0011	0.0010	0.001000	0	110	50	150
Barium	ND	0.0010	0.001000	0	92.5	50	150
Cadmium	ND	0.00050	0.0005000	0	82.0	50	150
Chromium	ND	0.0010	0.001000	0	95.5	50	150
Lead	ND	0.00050	0.0005000	0	99.1	50	150
Selenium	0.0012	0.0010	0.001000	0	123	50	150
Uranium	ND	0.00050	0.0005000	0	97.7	50	150

Sample ID: MSLCSLL-TL-77455		SampType: LCSLL		TestCode: EPA 200.8: Metals						
Client ID: BatchQC		Batch ID: 77455		RunNo: 99752						
Prep Date: 9/12/2023		Analysis Date: 9/15/2023		SeqNo: 3646090			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Beryllium	ND	0.00050	0.0005000	0	63.0	50	150
Copper	0.00059	0.00050	0.0005000	0	118	50	150
Nickel	ND	0.00050	0.0005000	0	94.3	50	150
Thallium	0.00026	0.00025	0.0002500	0	103	50	150

Sample ID: MSLCS-77455		SampType: LCS		TestCode: EPA 200.8: Metals						
Client ID: LCSW		Batch ID: 77455			RunNo: 99752					
Prep Date: 9/12/2023		Analysis Date: 9/15/2023			SeqNo: 3646091		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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 Quantitative 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#: 2309474

25-Sep-23

Client: Hydro Resources RM

Project: Rio Rancho Well 9R

Sample ID: MSLCS-77455	SampType: LCS		TestCode: EPA 200.8: Metals							
Client ID: LCSW	Batch ID: 77455		RunNo: 99752							
Prep Date: 9/12/2023	Analysis Date: 9/15/2023		SeqNo: 3646091		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.025	0.0010	0.02500	0	98.8	85	115			
Barium	0.025	0.0010	0.02500	0	100	85	115			
Beryllium	0.024	0.00050	0.02500	0	96.1	85	115			
Cadmium	0.012	0.00050	0.01250	0	97.5	85	115			
Chromium	0.023	0.0010	0.02500	0	93.5	85	115			
Copper	0.024	0.00050	0.02500	0	94.9	85	115			
Lead	0.012	0.00050	0.01250	0	97.3	85	115			
Nickel	0.023	0.00050	0.02500	0	93.4	85	115			
Selenium	0.027	0.0010	0.02500	0	107	85	115			
Thallium	0.012	0.00025	0.01250	0	98.4	85	115			
Uranium	0.012	0.00050	0.01250	0	97.6	85	115			

Sample ID: MB-77455	SampType: MBLK		TestCode: EPA 200.8: Metals							
Client ID: PBW	Batch ID: 77455		RunNo: 99806							
Prep Date: 9/12/2023	Analysis Date: 9/19/2023		SeqNo: 3648663		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.00050								

Sample ID: MSLCSLL-TL-77455	SampType: LCSLL		TestCode: EPA 200.8: Metals							
Client ID: BatchQC	Batch ID: 77455		RunNo: 99806							
Prep Date: 9/12/2023	Analysis Date: 9/19/2023		SeqNo: 3648664		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.00050	0.0005000	0	64.2	50	150			

Sample ID: MSLCS-77455	SampType: LCS		TestCode: EPA 200.8: Metals							
Client ID: LCSW	Batch ID: 77455		RunNo: 99806							
Prep Date: 9/12/2023	Analysis Date: 9/19/2023		SeqNo: 3648665		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.00050	0.02500	0	97.7	85	115			

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 Quantitative 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#: 2309474

25-Sep-23

Client: Hydro Resources RM

Project: Rio Rancho Well 9R

Sample ID: MB	SampType: MBLK		TestCode: EPA 200.8: Dissolved Metals							
Client ID: PBW	Batch ID: B99768		RunNo: 99768							
Prep Date:	Analysis Date: 9/18/2023		SeqNo: 3646419		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.00050								

Sample ID: LCSLLB	SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals							
Client ID: BatchQC	Batch ID: B99768		RunNo: 99768							
Prep Date:	Analysis Date: 9/18/2023		SeqNo: 3646421		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.00050	0.0005000	0	94.8	50	150			

Sample ID: LCS	SampType: LCS		TestCode: EPA 200.8: Dissolved Metals							
Client ID: LCSW	Batch ID: B99768		RunNo: 99768							
Prep Date:	Analysis Date: 9/18/2023		SeqNo: 3646422		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.00050	0.02500	0	94.6	85	115			

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 Quantitative 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#: 2309474

25-Sep-23

Client: Hydro Resources RM

Project: Rio Rancho Well 9R

Sample ID: MB-77563	SampType: MBLK	TestCode: EPA Method 245.1: Mercury								
Client ID: PBW	Batch ID: 77563	RunNo: 99815								
Prep Date: 9/18/2023	Analysis Date: 9/19/2023	SeqNo: 3648939	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LCSLL-77563	SampType: LCSLL	TestCode: EPA Method 245.1: Mercury								
Client ID: BatchQC	Batch ID: 77563	RunNo: 99815								
Prep Date: 9/18/2023	Analysis Date: 9/19/2023	SeqNo: 3648940	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020	0.0001500	0	58.9	50	150			

Sample ID: LCS-77563	SampType: LCS	TestCode: EPA Method 245.1: Mercury								
Client ID: LCSW	Batch ID: 77563	RunNo: 99815								
Prep Date: 9/18/2023	Analysis Date: 9/19/2023	SeqNo: 3648941	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	101	85	115			

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 Quantitative 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#: 2309474

25-Sep-23

Client: Hydro Resources RM

Project: Rio Rancho Well 9R

Sample ID: MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R99646		RunNo: 99646							
Prep Date:	Analysis Date: 9/12/2023		SeqNo: 3640219		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R99646		RunNo: 99646							
Prep Date:	Analysis Date: 9/12/2023		SeqNo: 3640227		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	94.9	90	110			
Chloride	4.6	0.50	5.000	0	92.0	90	110			
Sulfate	9.3	0.50	10.00	0	93.2	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2309474

25-Sep-23

Client: Hydro Resources RM

Project: Rio Rancho Well 9R

Sample ID: LCS-1 98.7uS eC	SampType: LCS		TestCode: SM2510B: Specific Conductance							
Client ID: LCSW	Batch ID: R99643		RunNo: 99643							
Prep Date:	Analysis Date: 9/12/2023		SeqNo: 3640094		Units: µmhos/cm					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	98.70	0	102	85	115			

Sample ID: LCS-2 98.7uS eC	SampType: LCS		TestCode: SM2510B: Specific Conductance							
Client ID: LCSW	Batch ID: R99643		RunNo: 99643							
Prep Date:	Analysis Date: 9/12/2023		SeqNo: 3640120		Units: µmhos/cm					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	98.70	0	102	85	115			

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 Quantitative 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#: 2309474

25-Sep-23

Client: Hydro Resources RM

Project: Rio Rancho Well 9R

Sample ID: MB-1 Alk	SampType: MBLK		TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R99643		RunNo: 99643							
Prep Date:	Analysis Date: 9/12/2023		SeqNo: 3640045		Units: mg/L CaCO3					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: LCS-1 Alk	SampType: LCS		TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R99643		RunNo: 99643							
Prep Date:	Analysis Date: 9/12/2023		SeqNo: 3640046		Units: mg/L CaCO3					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.80	20.00	80.00	0	98.5	90	110			

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 Quantitative 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#: 2309474

25-Sep-23

Client: Hydro Resources RM

Project: Rio Rancho Well 9R

Sample ID: MB-77481	SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids							
Client ID: PBW	Batch ID: 77481		RunNo: 99712							
Prep Date: 9/13/2023	Analysis Date: 9/15/2023		SeqNo: 3643693		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	50.0								

Sample ID: LCS-77481	SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids							
Client ID: LCSW	Batch ID: 77481		RunNo: 99712							
Prep Date: 9/13/2023	Analysis Date: 9/15/2023		SeqNo: 3643694		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	50.0	1000	0	101	80	120			

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 Quantitative 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#: 2309474

25-Sep-23

Client: Hydro Resources RM

Project: Rio Rancho Well 9R

Sample ID: MB	SampType: MBLK			TestCode: EPA Method 180.1: Turbidity						
Client ID: PBW	Batch ID: R99588			RunNo: 99588						
Prep Date:	Analysis Date: 9/11/2023			SeqNo: 3637532		Units: NTU				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Turbidity	ND	0.50								

Sample ID: 2309474-001ADUP	SampType: DUP			TestCode: EPA Method 180.1: Turbidity						
Client ID: Zone 1	Batch ID: R99588			RunNo: 99588						
Prep Date:	Analysis Date: 9/11/2023			SeqNo: 3637534		Units: NTU				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Turbidity	26	0.50						2.32	20	*

Qualifiers:

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

Work Order Number: 2309474

RcptNo: 1

Received By: Nancy Proctor

9/11/2023 10:51:00 AM

Completed By: Desiree Dominguez

9/11/2023 11:04:46 AM

Reviewed By: *wa*

9/11/23

ID3

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐

2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐

4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°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: *6*

(<2 or >12 unless noted)
Adjusted? *NO*

Checked by: *wa/11/23*

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Not Present	Yogi		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

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.

DAILY FIELD LOG



GEOLGIST:

ACTIVITY:

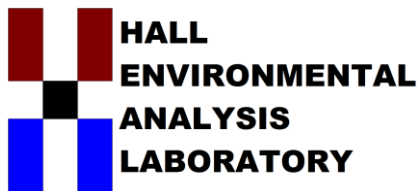
PROJECT:

CLIENT:

DATE: _____

Zone 1 - Rio Rancho Well 9B Analyses

Calcium	Hardness as CaCO_3	Magnesium	Alkalinity as CaCO_3
Sodium	Alkalinity	Potassium	Bicarbonate alkalinity
Iron		Manganese	
Chloride		Sulfate	
Electrical Conductivity		pH	
Total dissolved solids (TDS)		total hardness	
Fluoride		barium	
Arsenic (total & dissolved)		Cadmium	
Beryllium		Mercury	
Chromium		Selenium	
Nickel		Lead	
Thallium		Vanadium	
Copper			gross alpha and beta
Radium 226-228			



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

October 01, 2023

Tyler Curtis

Hydro Resources RM
13207 County Road 18, Unit C
Fort Lupton, CO 80621
TEL: (303) 857-7540
FAX: (505) 856-6501

RE: Rio Ranch Well 9R

OrderNo.: 2309974

Dear Tyler Curtis:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/18/2023 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,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2309974

Date Reported: 10/1/2023

CLIENT: Hydro Resources RM

Client Sample ID: Zone 3

Project: Rio Ranch Well 9R

Collection Date: 9/17/2023 8:12:00 AM

Lab ID: 2309974-001

Matrix: AQUEOUS

Received Date: 9/18/2023 9:18:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: bcv
Arsenic	0.0072	0.00050		mg/L	1	9/25/2023 4:18:54 PM	B99993
EPA 200.8: METALS							Analyst: bcv
Antimony	ND	0.0010		mg/L	1	9/22/2023 12:22:01 PM	77619
Arsenic	0.017	0.00050	*	mg/L	1	9/22/2023 12:22:01 PM	77619
Barium	0.95	0.050		mg/L	50	9/26/2023 10:55:01 AM	77619
Beryllium	0.0038	0.00050		mg/L	1	9/22/2023 12:22:01 PM	77619
Cadmium	ND	0.00050		mg/L	1	9/22/2023 12:22:01 PM	77619
Chromium	0.083	0.0050		mg/L	5	9/26/2023 10:43:22 AM	77619
Copper	0.29	0.0050		mg/L	10	9/26/2023 10:52:06 AM	77619
Iron	37	1.0		mg/L	50	9/26/2023 10:55:01 AM	77619
Lead	0.029	0.0025	*	mg/L	5	9/26/2023 10:43:22 AM	77619
Manganese	0.72	0.050		mg/L	50	9/26/2023 10:55:01 AM	77619
Nickel	0.47	0.010	*	mg/L	20	9/27/2023 4:59:59 PM	77777
Selenium	0.0024	0.0010		mg/L	1	9/22/2023 12:22:01 PM	77619
Thallium	0.00033	0.00025		mg/L	1	9/22/2023 12:22:01 PM	77619
Uranium	0.0097	0.00050		mg/L	1	9/22/2023 12:22:01 PM	77619
SM2340B: HARDNESS							Analyst: JRR
Hardness as CaCO ₃	190	6.6		mg/L	1	9/21/2023	R99904
EPA METHOD 180.1: TURBIDITY							Analyst: KS
Turbidity	2000	50	*D	NTU	100	9/18/2023 7:03:00 PM	R99778
EPA METHOD 300.0: ANIONS							Analyst: SNS
Fluoride	0.92	0.50		mg/L	5	9/19/2023 11:21:43 AM	R99826
Chloride	7.7	2.5		mg/L	5	9/19/2023 11:21:43 AM	R99826
Sulfate	76	2.5		mg/L	5	9/19/2023 11:21:43 AM	R99826
SM2510B: SPECIFIC CONDUCTANCE							Analyst: RBC
Conductivity	480	10		µmhos/c	1	9/20/2023 2:42:36 PM	R99871
SM2320B: ALKALINITY							Analyst: RBC
Bicarbonate (As CaCO ₃)	136.0	20.00		mg/L Ca	1	9/20/2023 2:42:36 PM	R99871
Carbonate (As CaCO ₃)	4.000	2.000		mg/L Ca	1	9/20/2023 2:42:36 PM	R99871
Total Alkalinity (as CaCO ₃)	140.0	20.00		mg/L Ca	1	9/20/2023 2:42:36 PM	R99871
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MCA
Total Dissolved Solids	1580	500	*D	mg/L	1	9/21/2023 3:28:00 PM	77640
SM4500-H+B / 9040C: PH							Analyst: RBC
pH	8.48		H	pH units	1	9/20/2023 2:42:36 PM	R99871
EPA METHOD 200.7: METALS							Analyst: JRR

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2309974

Date Reported: 10/1/2023

CLIENT: Hydro Resources RM

Client Sample ID: Zone 3

Project: Rio Ranch Well 9R

Collection Date: 9/17/2023 8:12:00 AM

Lab ID: 2309974-001

Matrix: AQUEOUS

Received Date: 9/18/2023 9:18:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: METALS							Analyst: JRR
Calcium	49	1.0		mg/L	1	9/21/2023 1:39:45 PM	77619
Magnesium	15	1.0		mg/L	1	9/21/2023 1:39:45 PM	77619
Potassium	16	5.0		mg/L	5	9/22/2023 2:51:20 PM	77619
Sodium	110	5.0		mg/L	5	9/25/2023 1:04:29 PM	77619
EPA METHOD 245.1: MERCURY							Analyst: tem
Mercury	ND	0.00020		mg/L	1	9/28/2023 1:55:02 PM	77794

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		



September 29, 2023

Andy Freeman
Hall Environmental
4901 Hawkins NE
Albuquerque, NM 87109

RE: Project: 2309974
Pace Project No.: 30623589

Dear Andy Freeman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 20, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carla Cmar
carla.cmar@pacelabs.com
(724)850-5600
Project Manager

Enclosures

cc: Ms. Jackie Ball, Hall Environmental
Michelle Garcia, Hall Environmental
1845-Hall Reporting



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 2309974

Pace Project No.: 30623589

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

ANABISO/IEC 17025:2017 Rad Cert#: L24170

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 2950

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA010

Louisiana DEQ/TNI Certification #: 04086

Maine Certification #: 2023021

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572023-03

New Hampshire/TNI Certification #: 297622

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-015

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN02867

Texas/TNI Certification #: T104704188-22-18

Utah/TNI Certification #: PA014572223-14

USDA Soil Permit #: 525-23-67-77263

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 2309974
Pace Project No.: 30623589

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30623589001	2309974-001D Zone 3	Water	09/17/23 08:12	09/20/23 09:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 2309974
Pace Project No.: 30623589

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30623589001	2309974-001D Zone 3	EPA 900.0	REH1	2	PASI-PA
		EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 2309974

Pace Project No.: 30623589

Method: EPA 900.0

Description: 900.0 Gross Alpha/Beta

Client: Hall Environmental

Date: September 29, 2023

General Information:

1 sample was analyzed for EPA 900.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 2309974
Pace Project No.: 30623589

Method: EPA 903.1
Description: 903.1 Radium 226
Client: Hall Environmental
Date: September 29, 2023

General Information:

1 sample was analyzed for EPA 903.1 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 2309974

Pace Project No.: 30623589

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Hall Environmental

Date: September 29, 2023

General Information:

1 sample was analyzed for EPA 904.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2309974

Pace Project No.: 30623589

Sample: 2309974-001D Zone 3 Lab ID: 30623589001 Collected: 09/17/23 08:12 Received: 09/20/23 09:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Gross Alpha	EPA 900.0	41.7 ± 13.4 (15.0) C:NA T:NA	pCi/L	09/27/23 18:51	12587-46-1	
Gross Beta	EPA 900.0	21.0 ± 6.22 (5.54) C:NA T:NA	pCi/L	09/27/23 18:51	12587-47-2	
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.465 ± 0.707 (1.22) C:NA T:91%	pCi/L	09/26/23 12:24	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.702 ± 0.382 (0.661) C:79% T:81%	pCi/L	09/27/23 11:05	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2309974
Pace Project No.: 30623589

QC Batch:	617447	Analysis Method:	EPA 900.0
QC Batch Method:	EPA 900.0	Analysis Description:	900.0 Gross Alpha/Beta
		Laboratory:	Pace Analytical Services - Greensburg
Associated Lab Samples:	30623589001		
METHOD BLANK:	3007458	Matrix:	Water
Associated Lab Samples:	30623589001		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	0.482 ± 0.954 (2.20) C:NA T:NA	pCi/L	09/29/23 08:08	
Gross Beta	0.217 ± 0.808 (1.89) C:NA T:NA	pCi/L	09/29/23 08:08	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2309974
Pace Project No.: 30623589

QC Batch:	617090	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30623589001

METHOD BLANK: 3005523 Matrix: Water

Associated Lab Samples: 30623589001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.200 ± 0.347 (0.620) C:NA T:87%	pCi/L	09/26/23 12:10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2309974
Pace Project No.: 30623589

QC Batch:	617091	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30623589001

METHOD BLANK: 3005526 Matrix: Water

Associated Lab Samples: 30623589001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.301 ± 0.264 (0.695) C:77% T:83%	pCi/L	09/27/23 11:02	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 2309974
Pace Project No.: 30623589

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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

SUB CONTRACTOR: Pace-Greensburg		COMPANY: Pace Analytical Services, Inc.		PHONE: (724) 850-5600	FAX: (724) 850-5601
ADDRESS: 1638 Roseytown Rd Ste 2,3,4				ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Greensburg, PA 15601					
ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE
1	2309974-001D Zone 3		1LHDPEHNO	Aqueous	9/17/2023 8:12:00 AM
					# CONTAINERS: 4
					Gross Alpha, Gross Beta, Ra 226/228- ** 5 DAY TAT **
					ANALYTICAL COMMENTS
					601

WO# : 30623589



Received by Pace Greensburg
Therm ID Corr Factor ±.1
Receipt Temp
Corrected Temp
Correct Preservation YN

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: <u>IPB</u>	Date: <u>9/18/2023</u>	Time: <u>4:06 PM</u>	Received By: <u>Phyllis</u>	Date: <u>9/18/23</u>	Time: <u>9:20</u>
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
TAT: Standard ☐		RUSH ☒		Next BD ☐ 2nd BD ☐ 3rd BD ☐	
Temp of samples: <u> </u> °C Attempt to Cool? <u> </u> Comments: <u> </u>					

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

	DC#_Title: ENV-FRM-GBUR-0088 v05_Sample Condition Upon Receipt-Pittsburgh			WO# : 30623589	
	Effective Date: 07/06/2023			PM: CMC Due Date: 09/27/23	
Client Name: <u>Hall</u> CLIENT: HALL ENVIRON					
Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Tracking Number: <u>7734 6808 1197</u>					
Custody Seal on Cooler/Box Present: ☒ Yes ☐ No Seals Intact: ☒ Yes ☐ No Thermometer Used: _____ Type of Ice: Wet Blue <u>None</u>			Examined By: <u>ps 9/20/23</u> Labeled By: <u>ps 9/20/23</u> Temped By: _____		
Cooler Temperature: Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C Temp should be above freezing to 6°C					

Comments:	Yes	No	NA	pH paper Lot# <u>1003121</u>	D.P.D. Residual Chlorine Lot # _____
Chain of Custody Present	✓			1.	
Chain of Custody Filled Out:	✓			2.	
-Were client corrections present on COC		✓			
Chain of Custody Relinquished	✓			3.	
Sampler Name & Signature on COC:		✓		4.	
Sample Labels match COC:	✓			5.	
-Includes date/time/ID					
Matrix:			WT		
Samples Arrived within Hold Time:	✓			6.	
Short Hold Time Analysis (<72hr remaining):		✓		7.	
Rush Turn Around Time Requested:	✓	✓		8. <u>9/20/23</u>	
Sufficient Volume:	✓			9.	
Correct Containers Used:	✓			10.	
-Pace Containers Used		✓			
Containers Intact:	✓			11.	
Orthophosphate field filtered:			✓	12.	
Hex Cr Aqueous samples field filtered:			✓	13.	
Organic Samples checked for dechlorination			✓	14.	
Filtered volume received for dissolved tests:			✓	15.	
All containers checked for preservation:	✓			16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, non-aqueous matrix					
All containers meet method preservation requirements:	✓			Initial when completed <u>PS</u>	Date/Time of Preservation
				Lot# of added Preservative	
8260C/D: Headspace in VOA Vials (> 6mm)			✓	17.	
624.1: Headspace in VOA Vials (0mm)			✓	18.	
Trip Blank Present:			✓	Trip blank custody seal present? YES or NO	
Rad Samples Screened <0.5 mrem/hr.	✓			Initial when completed <u>PS</u>	Date: <u>9/20/23</u> Survey Meter SN: <u>1563</u>
Comments:					

Note: For NC compliance samples with discrepancies, a copy of this form must be sent to the DEHNR Certification office.
 PM Review is documented electronically in LIMS through the SRF Review schedule in the Workorder Edit Screen.

Client

Site

2309974

Page 1 of 1

Profile Number

Notes

528

[illegible]

Container Codes

Glass			
GJN	1 Gallon Jug with HNO3	DG9S	40mL amber VOA vial H2SO4
AG5U	100mL amber glass unpreserved	VG9U	40mL clear VOA vial
AG5T	100mL amber glass Na Thiosulfate	VG9T	40mL clear VOA vial Na Thiosulfate
GJN	1 Gallon Jug	VG9H	40mL clear VOA vial HCl
AG1S	1L amber glass H2SO4	JGFU	4oz amber wide jar
AG1H	1L amber glass HCl	WGFU	4oz wide jar unpreserved
AG1T	1L amber glass NA Thiosulfate	BG2U	500mL clear glass unpreserved
BG1U	1L clear glass unpreserved		
AG3S	250mL amber glass H2SO		
AG3U	250mL amber glass unpreserved		

W0# : 30623589

WO#: 30623589

PM: CMC

Due Date: 09/27/23

CLIENT: HALL ENVIRON

Plastic/Misc.		
GCUB	1 gallon cubitainer	EZI 5g Encore
12GN	1/2 gallon cubitainer	VOAK Kit Volatile Solid
SP5T	120mL coliform Na Thiosulfate	I Wipe/Swab
BP1N	1L plastic HNO3	ZPLC Siploc Bag
BP1U	1L plastic unpreserved	
BP3S	250mL plastic H2SO4	WT Water
BP3N	250mL plastic HNO3	SL Solid
BP3U	250mL plastic unpreserved	OL Non-Aq Liquid
BP3C	250mL plastic NaOH	WP Wipe
BP2S	500mL plastic H2SO4	
BP2U	500mL plastic unpreserved	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2309974

01-Oct-23

Client: Hydro Resources RM

Project: Rio Ranch Well 9R

Sample ID: MB-77619	SampType: MBLK	TestCode: EPA Method 200.7: Metals								
Client ID: PBW	Batch ID: 77619	RunNo: 99904								
Prep Date: 9/19/2023	Analysis Date: 9/21/2023	SeqNo: 3653342 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								

Sample ID: LCSLL-77619	SampType: LCSLL	TestCode: EPA Method 200.7: Metals								
Client ID: BatchQC	Batch ID: 77619	RunNo: 99904								
Prep Date: 9/19/2023	Analysis Date: 9/21/2023	SeqNo: 3653343 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	98.2	50	150			
Magnesium	ND	1.0	0.5000	0	100	50	150			

Sample ID: LCS-77619	SampType: LCS	TestCode: EPA Method 200.7: Metals								
Client ID: LCSW	Batch ID: 77619	RunNo: 99904								
Prep Date: 9/19/2023	Analysis Date: 9/21/2023	SeqNo: 3653344 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	97.2	85	115			
Magnesium	49	1.0	50.00	0	97.4	85	115			

Sample ID: MB-77619	SampType: MBLK	TestCode: EPA Method 200.7: Metals								
Client ID: PBW	Batch ID: 77619	RunNo: 99942								
Prep Date: 9/19/2023	Analysis Date: 9/22/2023	SeqNo: 3655543 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	ND	1.0								

Sample ID: LCSLL-77619	SampType: LCSLL	TestCode: EPA Method 200.7: Metals								
Client ID: BatchQC	Batch ID: 77619	RunNo: 99942								
Prep Date: 9/19/2023	Analysis Date: 9/22/2023	SeqNo: 3655544 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	ND	1.0	0.5000	0	118	50	150			

Sample ID: LCS-77619	SampType: LCS	TestCode: EPA Method 200.7: Metals								
Client ID: LCSW	Batch ID: 77619	RunNo: 99942								
Prep Date: 9/19/2023	Analysis Date: 9/22/2023	SeqNo: 3655545 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	53	1.0	50.00	0	106	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2309974

01-Oct-23

Client: Hydro Resources RM

Project: Rio Ranch Well 9R

Sample ID: MB-77619	SampType: MBLK	TestCode: EPA 200.8: Metals								
Client ID: PBW	Batch ID: 77619	RunNo: 99925								
Prep Date: 9/19/2023	Analysis Date: 9/22/2023	SeqNo: 3654419 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.00050								
Barium	ND	0.0010								
Beryllium	ND	0.00050								
Cadmium	ND	0.00050								
Copper	ND	0.00050								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Thallium	ND	0.00025								
Uranium	ND	0.00050								

Sample ID: MSLCSLL-77619	SampType: LCSLL	TestCode: EPA 200.8: Metals								
Client ID: BatchQC	Batch ID: 77619	RunNo: 99925								
Prep Date: 9/19/2023	Analysis Date: 9/22/2023	SeqNo: 3654420 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0011	0.0010	0.001000	0	109	50	150			
Barium	ND	0.0010	0.001000	0	87.2	50	150			
Cadmium	ND	0.00050	0.0005000	0	80.9	50	150			
Lead	ND	0.00050	0.0005000	0	99.6	50	150			
Selenium	0.0010	0.0010	0.001000	0	103	50	150			
Uranium	0.00052	0.00050	0.0005000	0	103	50	150			

Sample ID: MSLCSLL-TL-77619	SampType: LCSLL	TestCode: EPA 200.8: Metals								
Client ID: BatchQC	Batch ID: 77619	RunNo: 99925								
Prep Date: 9/19/2023	Analysis Date: 9/22/2023	SeqNo: 3654421 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.00050	0.0005000	0	80.9	50	150			
Beryllium	0.00058	0.00050	0.0005000	0	115	50	150			
Copper	0.00053	0.00050	0.0005000	0	106	50	150			
Thallium	0.00026	0.00025	0.0002500	0	103	50	150			

Sample ID: MSLCS-77619	SampType: LCS	TestCode: EPA 200.8: Metals								
Client ID: LCSW	Batch ID: 77619	RunNo: 99925								
Prep Date: 9/19/2023	Analysis Date: 9/22/2023	SeqNo: 3654422 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.025	0.0010	0.02500	0	98.3	85	115			
Arsenic	0.025	0.00050	0.02500	0	98.2	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2309974

01-Oct-23

Client: Hydro Resources RM

Project: Rio Ranch Well 9R

Sample ID: MSLCS-77619	SampType: LCS		TestCode: EPA 200.8: Metals							
Client ID: LCSW	Batch ID: 77619		RunNo: 99925							
Prep Date: 9/19/2023	Analysis Date: 9/22/2023		SeqNo: 3654422		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.025	0.0010	0.02500	0	99.7	85	115			
Beryllium	0.023	0.00050	0.02500	0	93.2	85	115			
Cadmium	0.012	0.00050	0.01250	0	94.0	85	115			
Copper	0.024	0.00050	0.02500	0	95.5	85	115			
Lead	0.012	0.00050	0.01250	0	96.9	85	115			
Selenium	0.024	0.0010	0.02500	0	95.6	85	115			
Thallium	0.012	0.00025	0.01250	0	97.5	85	115			
Uranium	0.012	0.00050	0.01250	0	98.6	85	115			

Sample ID: MB-77619	SampType: MBLK		TestCode: EPA 200.8: Metals							
Client ID: PBW	Batch ID: 77619		RunNo: 100025							
Prep Date: 9/19/2023	Analysis Date: 9/26/2023		SeqNo: 3659700		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0010								
Iron	ND	0.020								
Manganese	ND	0.0010								

Sample ID: MSLCSLL-77619	SampType: LCSLL		TestCode: EPA 200.8: Metals							
Client ID: BatchQC	Batch ID: 77619		RunNo: 100025							
Prep Date: 9/19/2023	Analysis Date: 9/26/2023		SeqNo: 3659701		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0010	0.001000	0	99.0	50	150			
Iron	0.020	0.020	0.02000	0	102	50	150			
Manganese	ND	0.0010	0.001000	0	76.9	50	150			

Sample ID: MSLCS-77619	SampType: LCS		TestCode: EPA 200.8: Metals							
Client ID: LCSW	Batch ID: 77619		RunNo: 100025							
Prep Date: 9/19/2023	Analysis Date: 9/26/2023		SeqNo: 3659705		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.024	0.0010	0.02500	0	96.3	85	115			
Iron	0.48	0.020	0.5000	0	96.8	85	115			
Manganese	0.025	0.0010	0.02500	0	100	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2309974

01-Oct-23

Client: Hydro Resources RM

Project: Rio Ranch Well 9R

Sample ID: MB-77777	SampType: MBLK	TestCode: EPA 200.8: Metals
Client ID: PBW	Batch ID: 77777	RunNo: 100045
Prep Date: 9/26/2023	Analysis Date: 9/27/2023	SeqNo: 3661065 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Nickel	ND	0.00050

Sample ID: MSLCSLL-TL-77777	SampType: LCSLL	TestCode: EPA 200.8: Metals
Client ID: BatchQC	Batch ID: 77777	RunNo: 100045
Prep Date: 9/26/2023	Analysis Date: 9/27/2023	SeqNo: 3661067 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Nickel	ND	0.00050 0.0005000 0 67.4 50 150

Sample ID: MSLCS-77777	SampType: LCS	TestCode: EPA 200.8: Metals
Client ID: LCSW	Batch ID: 77777	RunNo: 100045
Prep Date: 9/26/2023	Analysis Date: 9/27/2023	SeqNo: 3661068 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Nickel	0.023	0.00050 0.02500 0 91.7 85 115

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 Quantitative 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#: 2309974

01-Oct-23

Client: Hydro Resources RM

Project: Rio Ranch Well 9R

Sample ID: MB	SampType: MBLK	TestCode: EPA 200.8: Dissolved Metals								
Client ID: PBW	Batch ID: B99993	RunNo: 99993								
Prep Date:	Analysis Date: 9/25/2023	SeqNo: 3657703 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.00050								

Sample ID: LCSLL2	SampType: LCSLL	TestCode: EPA 200.8: Dissolved Metals								
Client ID: BatchQC	Batch ID: B99993	RunNo: 99993								
Prep Date:	Analysis Date: 9/25/2023	SeqNo: 3657705 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.00050	0.0005000	0	97.5	50	150			

Sample ID: LCS	SampType: LCS	TestCode: EPA 200.8: Dissolved Metals								
Client ID: LCSW	Batch ID: B99993	RunNo: 99993								
Prep Date:	Analysis Date: 9/25/2023	SeqNo: 3657706 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.00050	0.02500	0	100	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2309974

01-Oct-23

Client: Hydro Resources RM

Project: Rio Ranch Well 9R

Sample ID: MB-77794	SampType: MBLK	TestCode: EPA Method 245.1: Mercury								
Client ID: PBW	Batch ID: 77794	RunNo: 100077								
Prep Date: 9/27/2023	Analysis Date: 9/28/2023	SeqNo: 3661825 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LCSLL-77794	SampType: LCSLL	TestCode: EPA Method 245.1: Mercury								
Client ID: BatchQC	Batch ID: 77794	RunNo: 100077								
Prep Date: 9/27/2023	Analysis Date: 9/28/2023	SeqNo: 3661826 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020	0.0001500	0	77.3	50	150			

Sample ID: LCS-77794	SampType: LCS	TestCode: EPA Method 245.1: Mercury								
Client ID: LCSW	Batch ID: 77794	RunNo: 100077								
Prep Date: 9/27/2023	Analysis Date: 9/28/2023	SeqNo: 3661827 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0047	0.00020	0.005000	0	94.8	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2309974

01-Oct-23

Client: Hydro Resources RM

Project: Rio Ranch Well 9R

Sample ID: MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R99826		RunNo: 99826							
Prep Date:	Analysis Date: 9/19/2023		SeqNo: 3649581		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R99826		RunNo: 99826							
Prep Date:	Analysis Date: 9/19/2023		SeqNo: 3649587		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	96.1	90	110			
Chloride	4.5	0.50	5.000	0	90.9	90	110			
Sulfate	9.3	0.50	10.00	0	93.3	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 Quantitative 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#: 2309974

01-Oct-23

Client: Hydro Resources RM

Project: Rio Ranch Well 9R

Sample ID: LCS-1 99.5uS eC	SampType: LCS		TestCode: SM2510B: Specific Conductance							
Client ID: LCSW	Batch ID: R99871		RunNo: 99871							
Prep Date:	Analysis Date: 9/20/2023		SeqNo: 3651649		Units: µmhos/cm					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	99.50	0	103	85	115			

Sample ID: 2309974-001A DUP	SampType: DUP		TestCode: SM2510B: Specific Conductance							
Client ID: Zone 3	Batch ID: R99871		RunNo: 99871							
Prep Date:	Analysis Date: 9/20/2023		SeqNo: 3651652		Units: µmhos/cm					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	480	10						0.229	20	

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 Quantitative 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#: 2309974

01-Oct-23

Client: Hydro Resources RM

Project: Rio Ranch Well 9R

Sample ID: 2309974-001A DUP		SampType: DUP		TestCode: SM4500-H+B / 9040C: pH						
Client ID: Zone 3		Batch ID: R99871		RunNo: 99871						
Prep Date:		Analysis Date: 9/20/2023		SeqNo: 3651672		Units: pH units				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.51									*H

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 Quantitative 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#: 2309974

01-Oct-23

Client: Hydro Resources RM

Project: Rio Ranch Well 9R

Sample ID: MB-1 Alk	SampType: MBLK		TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R99871		RunNo: 99871							
Prep Date:	Analysis Date: 9/20/2023		SeqNo: 3651614		Units: mg/L CaCO3					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: LCS-1 Alk	SampType: LCS		TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R99871		RunNo: 99871							
Prep Date:	Analysis Date: 9/20/2023		SeqNo: 3651615		Units: mg/L CaCO3					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.56	20.00	80.00	0	99.4	90	110			

Sample ID: 2309974-001A DUP	SampType: DUP		TestCode: SM2320B: Alkalinity							
Client ID: Zone 3	Batch ID: R99871		RunNo: 99871							
Prep Date:	Analysis Date: 9/20/2023		SeqNo: 3651623		Units: mg/L CaCO3					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	140.4	20.00						0.228	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2309974

01-Oct-23

Client: Hydro Resources RM

Project: Rio Ranch Well 9R

Sample ID: MB-77640	SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids							
Client ID: PBW	Batch ID: 77640		RunNo: 99894							
Prep Date: 9/20/2023	Analysis Date: 9/21/2023		SeqNo: 3652827		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	50.0								

Sample ID: LCS-77640	SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids							
Client ID: LCSW	Batch ID: 77640		RunNo: 99894							
Prep Date: 9/20/2023	Analysis Date: 9/21/2023		SeqNo: 3652828		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	50.0	1000	0	104	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2309974

01-Oct-23

Client: Hydro Resources RM

Project: Rio Ranch Well 9R

Sample ID: MB	SampType: MBLK		TestCode: EPA Method 180.1: Turbidity							
Client ID: PBW	Batch ID: R99778		RunNo: 99778							
Prep Date:	Analysis Date: 9/18/2023		SeqNo: 3647126		Units: NTU					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Turbidity	ND	0.50								

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 Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Sample Log-In Check List

Client Name: Hydro Resources RM

Work Order Number: 2309974

RcptNo: 1

Received By: Steve McQuiston 9/18/2023 9:18:00 AM

Completed By: Desiree Dominguez 9/18/2023 4:02:21 PM

Reviewed By: *7/24/18/23*

Handwritten signatures

Chain of Custody

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

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? Yes ☒ No ☐
(Note discrepancies on chain of custody)
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? Yes ☒ No ☐
(If no, notify customer for authorization.)

of preserved
bottles checked
for pH:

(<6 or >12 unless noted)

Adjusted? *NO*

Checked by: *SCM 9/18/23*

Special Handling (if applicable)

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

Person Notified: Tyler Curtis

Date: 9/18/2023

By Whom:

Via: ☒ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

All Client information is not provided on COC.

Client Instructions:

16. Additional remarks:

17. Cooler Information

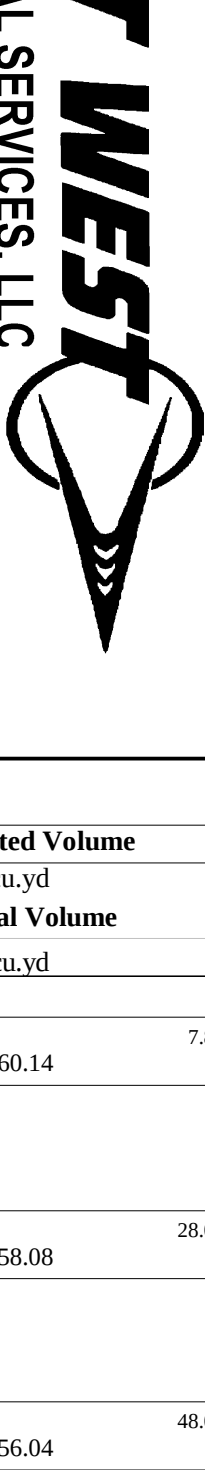
Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Not Present	Morty		

DAILY FIELD LOGACTIVITY: Zone 3 Analytes
GEOLOGIST: _____DATE: _____
CLIENT: _____
PROJECT: _____

<u>calcium</u>	<u>cadmium</u>
<u>sodium</u>	<u>mercury</u>
<u>iron</u>	<u>selenium</u>
<u>hardness as CaCO_3</u>	<u>lead</u>
<u>carbonate alkalinity</u>	<u>uranium</u>
<u>chloride</u>	<u>gross alpha and beta</u>
<u>electrical conductivity</u>	
<u>TDS</u>	
<u>fluoride</u>	
<u>arsenic - total and dissolved</u>	
<u>beryllium</u>	
<u>chromium</u>	
<u>nickel</u>	
<u>thallium</u>	
<u>copper</u>	
<u>radium 226-228</u>	
<u>magnesium</u>	
<u>potassium</u>	
<u>manganese</u>	
<u>alkalinity as CaCO_3</u>	
<u>bicarbonate alkalinity</u>	
<u>sulfate</u>	
<u>pH</u>	
<u>turbidity</u>	
<u>antimony</u>	
<u>barium</u>	

Appendix F.

**Reamed borehole caliper logs,
City of Rio Rancho Well 9R**



COMPANY
City of Rio Rancho

WELL ID
Well 98

FIELD
Rio Rancho

COUNTY
Sandoval

STATE
New Mexico

GPS
TYPE OF LOG: Ream Hole 3 Arm Caliper
Deviation Survey

NAD: Northing
Easting:
LOCATION: GPS
Lat: 35.3256 N
Long: 106.7850 W

PERMANENT DATUM
Ground Level
ELEVATION
K.B.

LOG MEAS. FROM
Ground Level
ABOVE PERM. DATUM
T.O.C.

DRILLING MEAS. FROM
Ground Level
C.L.
Drilling Mud

DATE
11-7-2023
TYPE FLUID IN HOLE
SALINITY

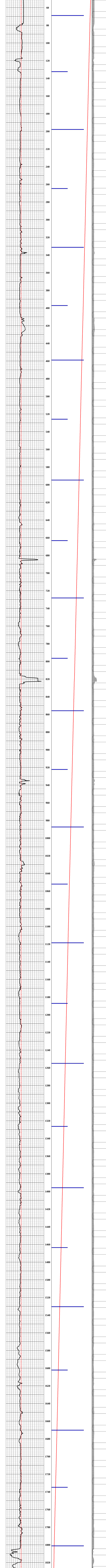
RUN No.
4th
DENSITY
31.6 BBL

TYPE LOG
L.T.R.
100 ft
MAX REC. TEMP
0.2 ft

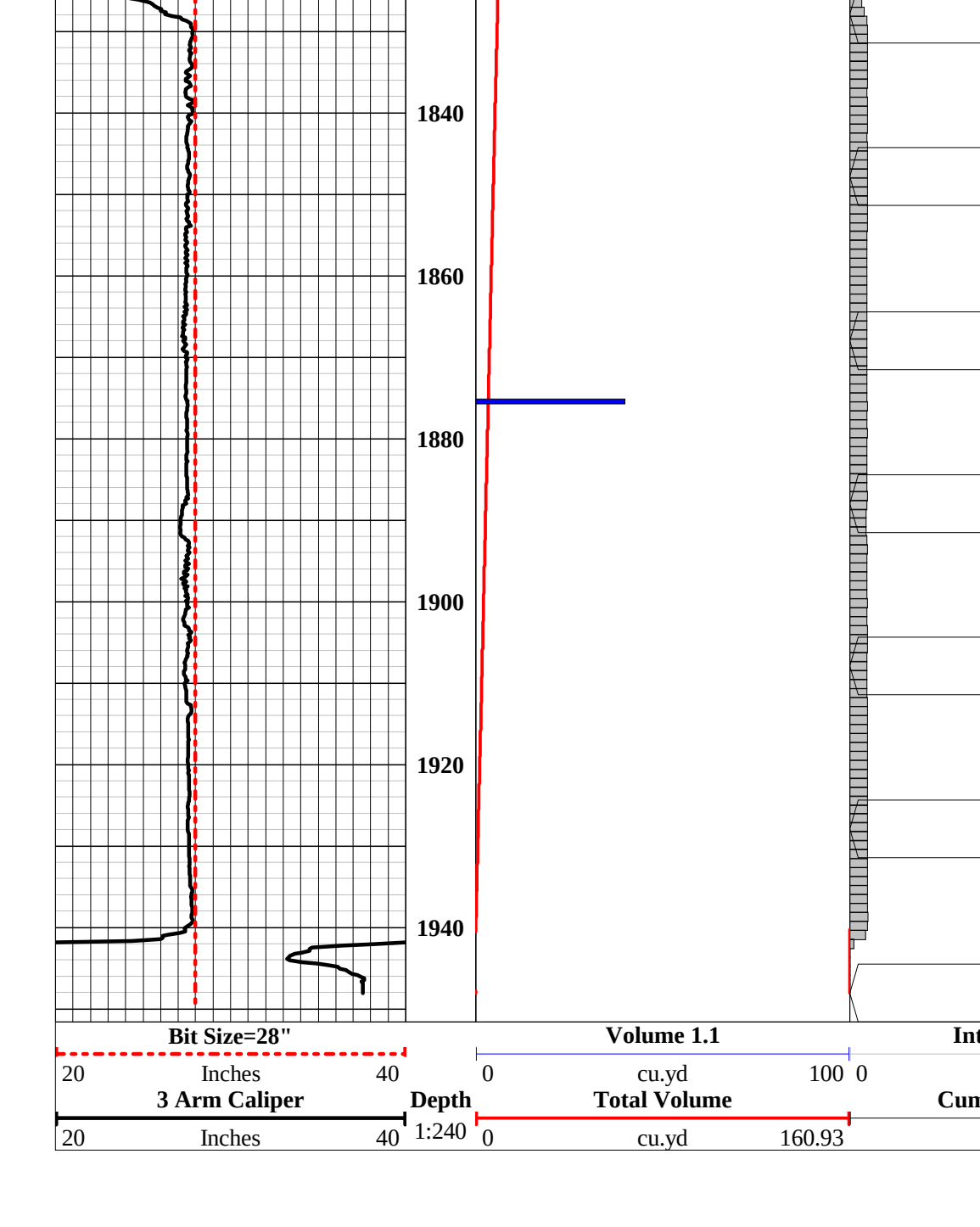
DEPTH
100 ft
MAX REC. TEMP
0.2 ft

TOP LOGGED INTERVAL
1948 ft
BOTTOM LOGGED INTERVAL
1950 ft
DIGITIZED INTERVAL
0.2 ft

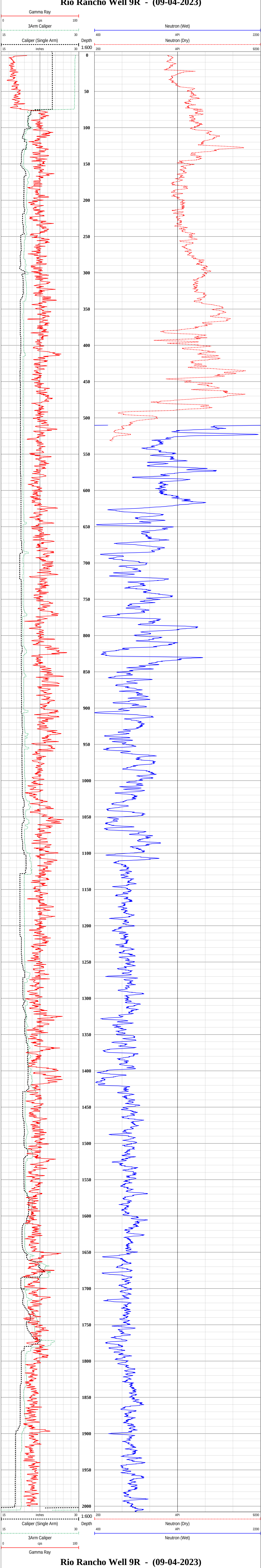
Cumulated Volume	
cu.yd	Interval Volume
0	2
160.93	7.89
160.14	28.05
158.08	48.01
156.04	67.97
154.00	87.92
152.23	107.88
150.37	128.04
148.71	148.00
147.08	167.96
145.44	187.92
143.78	207.87
142.06	228.03
140.40	247.99
138.77	267.95
137.14	287.91
135.54	307.87
133.90	328.02
132.17	347.98
130.43	367.94
128.77	387.90
127.15	407.86
125.53	428.02
123.51	447.97
121.80	467.93
120.15	487.89
118.49	507.85
116.87	528.01
115.22	547.97
113.64	567.92
112.05	587.88
110.44	608.04
108.85	628.00
107.24	647.96
105.63	667.92
104.03	687.87
102.23	708.03
100.56	727.99
98.92	747.95
97.28	767.91
95.70	787.87
94.11	808.02
92.47	827.98
90.20	847.94
88.58	867.90
86.90	887.86
85.30	908.02
83.59	927.97
81.93	947.93
80.17	967.89
78.52	987.85
76.87	1008.01
75.19	1027.97
73.51	1047.92
71.74	1067.88
70.04	1088.04
68.39	1108.00
66.70	1127.96
65.14	1147.92
63.54	1167.88
61.91	1188.03
60.32	1207.99
58.73	1227.95
57.06	1247.91
55.48	1267.87
53.92	1288.02
52.38	1307.98
50.84	1327.94
49.28	1347.90
47.72	1367.86
46.12	1388.02
44.53	1407.97
42.90	1427.93
41.28	1447.89
39.69	1467.85
38.05	1488.01
36.40	1507.97
34.72	1527.93
33.10	1547.88
31.53	1568.04
29.92	1588.00
28.40	1607.96
26.95	1627.92
25.39	1647.88
23.76	1668.03
22.08	1687.99
20.40	1707.95
18.70	1727.91
16.99	1747.87
15.34	1768.02
13.70	1787.98
12.02	1807.94
10.45	1827.90
9.33	1847.86
7.66	1868.02
6.00	1887.97
4.35	1907.93
2.72	1927.89
1.06	1948.05
0	1968.01



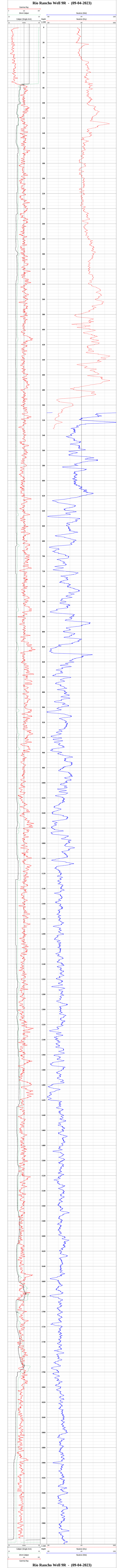
Cumulated Volume	
cu.yd	Interval Volume
0	2
160.93	7.89
160.14	28.05
158.08	48.01
156.04	67.97
154.00	87.92
152.23	107.88
150.37	128.04
148.71	148.00
147.08	167.96
145.44	187.92
143.78	207.87
142.06	228.03
140.40	247.99
138.77	267.95
137.14	287.91
135.54	307.87
133.90	328.02
132.17	347.98
130.43	367.94
128.77	387.90
127.15	407.86
125.53	428.02
123.51	447.97
121.80	467.93
120.15	487.89
118.49	507.85
116.87	528.01
115.22	547.97
113.64	567.92
112.05	587.88
110.44	608.04
108.85	628.00
107.24	647.96
105.63	667.92
104.03	687.87
102.23	708.03
100.56	727.99
98.92	747.95
97.28	767.91
95.70	787.87
94.11	808.02
92.47	827.98
90.20	847.94
88.58	867.90
86.90	887.86
85.30	908.02
83.59	927.97
81.93	947.93
80.17	967.89
78.52	987.85
76.87	1008.01
75.19	1027.97
73.51	1047.92
71.74	1067.88
70.04	1088.04
68.39	1108.00
66.70	1127.96
65.14	1147.92
63.54	1167.88
61.91	1188.03
60.32	1207.99
58.73	1227.95
57.06	1247.91
55.48	1267.87
53.92	1288.02
52.38	1307.98
50.84	1327.94
49.28	1347.90
47.72	1367.86
46.12	1388.02
44.53	1407.97
42.90	1427.93
41.28	1447.89
39.69	1467.85
38.05	1488.01
36.40	1507.97
34.72	1527.93
33.10	1547.88
31.53	1568.04
29.92	1588.00
28.40	1607.96
26.95	1627.92
25.39	1647.88
23.76	1668.03
22.08	1687.99
20.40	1707.95
18.70	1727.91
16.99	1747.87
15.34	1768.02
13.70	1787.98
12.02	1807.94
10.45	1827.90
9.33	1847.86
7.66	1868.02
6.00	1887.97
4.35	1907.93
2.72	1927.89
1.06	1948.05
0	1968.01



JET WEST GEOPHYSICAL SERVICES, LLC.				COMPANYCity of Rio Rancho WELL IDWell 9R FIELDRio Rancho COUNTYSandoval STATENew Mexico			
NAD:GPS Northing: Easting:				PERMANENT DATUMGround Level LOG MEAS. FROMGround Level DRILLING MEAS. FROMGround Level		ELEVATION ABOVE PERM. DATUM G.L.	
TYPE OF LOG: Neutron, Calipers Gamma				OTHER SERVICES Deviation Survey Full Waveform Sonic Electrics Temp. Fluid Res.		API No.	
LOCATION: GPS Lat: 35.32356 N Long: 106.78560 W				SEC TWP		RCE	
DATE09-04-2018				TYPE LOG Poly QLS		TYPE FLUID IN HOLE Drilling Mud	
RUN No. 1, 2, 4				DEPTH-DRILLER 2005 ft.		DEPTH-LOGGER 2005 ft.	
DEPTH-DRILLER 2005 ft.				DEPTH-LOGGER 2005 ft.		LEVEL MAX. REG. TEMP	
BTM LOGGED INTERVAL 2006.4 ft.				TOP LOGGED INTERVAL Surface		OPERATING RIG TIME 0.4, 0.2 ft.	
DRILLER - RIG Hydro Resources				DRILLER T. Curtis		RECORDED BY T. Stantz	
WITNESSED BY C. Cravens / Z. Chavez				FIRM Shomaker & Assoc.			
RUN BOREHOLE RECORD NO. BITFROMTO 136 in.-5 ft.80 ft. 217.5 in.85 ft.2005 ft. 3				CASING RECORD NO. BITFROMTO 136 in.-5 ft.80 ft. 217.5 in.85 ft. 3			
REMARKS:							



Rio Rancho Well 9R - (09-04-2023)



Rio Rancho Well 9R - (09-04-2023)

Appendix G.

Video Survey, City of Rio Rancho Well 9R

Appendix H.

**Well plugging and abandonment report for
original City of Rio Rancho Well 9 (RG-26259)**



PLUGGING RECORD



NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: RG26259

Well owner: City of Rio Rancho

Phone No.: (505) 891-5000

Mailing address: 3200 Civic Center Circle

City: Rio Rancho

State: New Mexico

Zip code: 87114

II. WELL PLUGGING INFORMATION:

- 1) Name of well drilling company that plugged well: Hydro Resources
- 2) New Mexico Well Driller License No.: WD-1726 Expiration Date: 10/31/2025
- 3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Tyler Curtis
- 4) Date well plugging began: 7/22/2023 Date well plugging concluded: 7/26/2023
- 5) GPS Well Location: Latitude: 34 deg, 19 min, 24.1 sec
Longitude: 106 deg, 47 min, 05.8 sec, WGS 84
- 6) Depth of well confirmed at initiation of plugging as: 1,540 ft below ground level (bgl),
by the following manner: Run in temmie pipe
- 7) Static water level measured at initiation of plugging: 1,110 ft bgl
- 8) Date well plugging plan of operations was approved by the State Engineer: 5/10/2023
- 9) Were all plugging activities consistent with an approved plugging plan? Yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

Pumped cement according to the Plugging Plan

2024 FEB - 9 A 11: 57

- 10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
	HolcimType 1L cement 14.5 Sack 1,363 Cement 1,363 Sand 84 Gallons Water	1,500' - Pumped 2019 Gallons	1,690 Gallons	Tremmie Pipe	Screen Sections 1,220' - 1,315'
		1,372' - Pumped 2,019 Gallons	1,690 Gallons		1,340' - 1,360'
		1,244' - Pumped 2,019 Gallons	2,106 Gallons		1,370' - 1,395'
		1,084' - Pumped 2,019 Gallons	1,690 Gallons		1,415' - 1,520'
		956' - Pumped 2,019 Gallons	1,690 Gallons		
		828' - Pumped 2,019 Gallons	2,106 Gallons		
		668' - Pumped 2,019 Gallons	1,690 Gallons		
		540' - Pumped 2,019 Gallons	1,690 Gallons		
		380' - Pumped 2,019 Gallons	1,690 Gallons		
		220' - Pumped 2,019 Gallons	2,106 Gallons		

MULTIPLY	BY	AND OBTAIN
cubic feet x 7.4805	=	gallons
cubic yards x 201.97	=	gallons

III. SIGNATURE:

I, Jim Hale, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

Jim Hale

Signature of Well Driller

2/2/2024

Date

Appendix I.

**Water-quality laboratory reports,
City of Rio Rancho Well 9R**

February 05, 2024

Jacob Gallagher

Hydro Resources RM

13207 County Road 18, Unit C

Fort Lupton, CO 80621

TEL: (303) 857-7540

FAX:

RE: Rio Rancho

OrderNo.: 2312E31

Dear Jacob Gallagher:

Eurofins Environment Testing South Central, LLC received 1 sample(s) on 12/27/2023 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 do not hesitate to contact Eurofins Albuquerque 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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2312E31

Date Reported: 2/5/2024

CLIENT: Hydro Resources RM

Client Sample ID: RR9R

Project: Rio Rancho

Collection Date: 12/27/2023 1:14:00 PM

Lab ID: 2312E31-001

Matrix: AQUEOUS

Received Date: 12/27/2023 2:40:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Antimony	ND	0.0010		mg/L	1	1/12/2024 4:45:57 PM	79799
Arsenic	0.048	0.00050	*	mg/L	1	1/5/2024 3:51:45 PM	79718
Copper	0.0065	0.00050		mg/L	1	1/4/2024 3:26:44 PM	79718
Lead	ND	0.00050		mg/L	1	1/4/2024 3:26:44 PM	79718
Selenium	0.0011	0.0010		mg/L	1	1/4/2024 3:26:44 PM	79718
Thallium	ND	0.00025		mg/L	1	1/4/2024 3:26:44 PM	79718
Uranium	0.0013	0.00050		mg/L	1	1/4/2024 3:26:44 PM	79718
SM 9223B TOTAL COLIFORM							Analyst: KH
Total Coliform	Absent	0		P/A	1	12/28/2023 11:55:00 AM	79632
E. Coli	Absent	0		P/A	1	12/28/2023 11:55:00 AM	79632
EPA METHOD 180.1: TURBIDITY							Analyst: KS
Turbidity	14	0.50	*	NTU	1	12/28/2023 5:00:00 PM	R102127
EPA METHOD 300.0: ANIONS							Analyst: RBC
Fluoride	0.41	0.10		mg/L	1	12/27/2023 5:22:59 PM	R102147
Chloride	4.1	0.50		mg/L	1	12/27/2023 5:22:59 PM	R102147
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	12/27/2023 5:22:59 PM	R102147
Nitrogen, Nitrate (As N)	1.6	0.10		mg/L	1	12/27/2023 5:22:59 PM	R102147
Sulfate	48	10		mg/L	20	12/27/2023 5:38:09 PM	R102147
SM 2540 C: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	241	50.0		mg/L	1	1/4/2024 4:38:00 PM	79716
SM2320B: ALKALINITY							Analyst: RBC
Bicarbonate (As CaCO3)	102.3	20.00		mg/L Ca	1	12/28/2023 6:56:47 PM	R102142
Carbonate (As CaCO3)	7.120	2.000		mg/L Ca	1	12/28/2023 6:56:47 PM	R102142
Total Alkalinity (as CaCO3)	109.4	20.00		mg/L Ca	1	12/28/2023 6:56:47 PM	R102142
SM4500-H+B / 9040C: PH							Analyst: RBC
pH	8.64		*H	pH units	1	12/28/2023 6:56:47 PM	R102142
EPA METHOD 200.7: METALS							Analyst: JRR
Aluminum	0.37	0.020	*	mg/L	1	1/4/2024 4:56:13 PM	79718
Barium	0.055	0.0030		mg/L	1	1/4/2024 4:56:13 PM	79718
Beryllium	ND	0.0020		mg/L	1	1/4/2024 4:56:13 PM	79718
Cadmium	ND	0.0020		mg/L	1	1/4/2024 4:56:13 PM	79718
Calcium	4.0	1.0		mg/L	1	1/4/2024 4:56:13 PM	79718
Chromium	0.0072	0.0060		mg/L	1	1/4/2024 4:56:13 PM	79718
Iron	0.19	0.050		mg/L	1	1/4/2024 4:56:13 PM	79718
Magnesium	ND	1.0		mg/L	1	1/4/2024 4:56:13 PM	79718
Manganese	0.0045	0.0020		mg/L	1	1/4/2024 4:56:13 PM	79718

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2312E31

Date Reported: 2/5/2024

CLIENT: Hydro Resources RM

Client Sample ID: RR9R

Project: Rio Rancho

Collection Date: 12/27/2023 1:14:00 PM

Lab ID: 2312E31-001

Matrix: AQUEOUS

Received Date: 12/27/2023 2:40:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: METALS							Analyst: JRR
Potassium	1.7	1.0		mg/L	1	1/4/2024 4:56:13 PM	79718
Silver	ND	0.0050		mg/L	1	1/4/2024 4:56:13 PM	79718
Sodium	68	1.0		mg/L	1	1/4/2024 4:56:13 PM	79718
Zinc	ND	0.010		mg/L	1	1/4/2024 4:56:13 PM	79718
EPA METHOD 245.1: MERCURY							Analyst: tem
Mercury	ND	0.00020		mg/L	1	1/17/2024 3:41:04 PM	79910
PURGEABLE ORGANICS BY EPA 524							Analyst: RAA
Benzene	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
Carbon tetrachloride	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
Chlorobenzene	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
cis-1,2-Dichloroethene	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
1,2-Dichlorobenzene	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
1,4-Dichlorobenzene	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
1,2-Dichloroethane	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
1,1-Dichloroethene	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
1,2-Dichloropropane	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
Ethylbenzene	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
Methylene chloride	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
Styrene	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
Tetrachloroethene	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
Toluene	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
trans-1,2-Dichloroethene	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
1,1,1-Trichloroethane	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
1,1,2-Trichloroethane	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
Trichloroethene	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
Vinyl chloride	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
Total Xylenes	ND	0.50		µg/L	1	1/3/2024 2:40:00 PM	R102225
Surr: 1,2-Dichlorobenzene-d4	94.6	70-130		%Rec	1	1/3/2024 2:40:00 PM	R102225
Surr: 4-Bromofluorobenzene	99.3	70-130		%Rec	1	1/3/2024 2:40:00 PM	R102225

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Anatek Labs, Inc.

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Lab Federal ID#:	See Below	Lab/Sample Number:	MDL0888-01
Date Received:	12/28/2023	Date Reported by Lab:	02/02/2024
Compliance Sample:	Yes	Replacement Sample:	No
Collect Date:	12/27/2023	Collection Time:	13:14
Sample Type:			
PWS#:		PWS Name:	Hall Environmental Analysis Lab
Sample Point/ Location:	2312E31-001F (RR9R)	Tag#/Facility ID:	
Contact Name:	Andy Freeman	Contact Phone:	<i>See Signature Page</i>
Lab Federal ID#:	ID00013		

Public Drinking Water System Analysis Report

Inorganic Chemical (IOC) Analysis Report:

FRDS	Analyte	Result	Units	MCL	MRL	Analyzed	Analyst	Method	Qualifier
	Color	10.0 @ pH 8.51	Color Units	15	5.00	12/28/23 16:00	CC	SM 2120 B	
1920	Odor (threshold #)	ND	T.O.N.	3	1.00	12/28/23 16:00	CC	SM 2150 B	

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Lab Federal ID#:	See Below	Lab/Sample Number:	MDL0888-02
Date Received:	12/28/2023	Date Reported by Lab:	02/02/2024
Compliance Sample:	Yes	Replacement Sample:	No
Collect Date:	12/27/2023	Collection Time:	13:14
Sample Type:			
PWS#:		PWS Name:	Hall Environmental Analysis Lab
Sample Point/ Location:	2312E31-001G (RR9R)	Tag#/Facility ID:	
Contact Name:	Andy Freeman	Contact Phone:	<i>See Signature Page</i>
Lab Federal ID#:	ID00013		

Public Drinking Water System Analysis Report

Inorganic Chemical (IOC) Analysis Report:

FRDS	Analyte	Result	Units	MCL	MRL	Analyzed	Analyst	Method	Qualifier
1927	Alkalinity as CaCO ₃	114 to pH 4.5	mg CaCO ₃ /L		2.00	1/5/24 14:03	CC	SM 2320 B	
1016	Calcium	4.24	mg/L		0.100	1/15/24 14:52	TEC	EPA 200.7	
1997	Langlier Index	-0.724			-20.0	1/5/24 14:03	CC	Calculation	
1925	pH	8.15 @ 21.3°C	pH Units			1/5/24 14:03	CC	SM 4500-H-B	H5
1930	Total Dissolved Solids	229	mg/L		50.0	12/29/23 15:04	CC	SM 2540 C	
2905	Surfactants	ND	mg/L 342.4MW LAS		0.0500	12/29/23 10:00	DTA	SM 5540 C	

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Lab Federal ID#:	See Below	Lab/Sample Number:	MDL0888-03
Date Received:	12/28/2023	Date Reported by Lab:	02/02/2024
Compliance Sample:	Yes	Replacement Sample:	No
Collect Date:	12/27/2023	Collection Time:	13:14
Sample Type:			
PWS#:		PWS Name:	Hall Environmental Analysis Lab
Sample Point/ Location:	2312E31-001H (RR9R)	Tag#/Facility ID:	
Contact Name:	Andy Freeman	Contact Phone:	<i>See Signature Page</i>
Lab Federal ID#:	ID00013		

Public Drinking Water System Analysis Report

Volatile Organic Chemical (VOC) Analysis Report:

FRDS	Analyte	Result	Units	MCL	MRL	Analyzed	Analyst	Method	Qualifier
2931	DBCP	ND	ug/L	0.2	0.0200	1/3/24 23:17	TAZ	EPA 504.1	
2946	EDB	ND	ug/L	0.05	0.0100	1/3/24 23:17	TAZ	EPA 504.1	

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Lab Federal ID#:	See Below	Lab/Sample Number:	MDL0888-04
Date Received:	12/28/2023	Date Reported by Lab:	02/02/2024
Compliance Sample:	Yes	Replacement Sample:	No
Collect Date:	12/27/2023	Collection Time:	13:14
Sample Type:			
PWS#:		PWS Name:	Hall Environmental Analysis Lab
Sample Point/ Location:	2312E31-001I (RR9R)	Tag#/Facility ID:	
Contact Name:	Andy Freeman	Contact Phone:	<i>See Signature Page</i>
Lab Federal ID#:	ID00013		

Public Drinking Water System Analysis Report

Synthetic Organic Chemical (SOC) Analysis Report:

FRDS	Analyte	Result	Units	MCL	MRL	Analyzed	Analyst	Method	Qualifier
2034	Glyphosate	ND	ug/L	700	5.00	1/8/24 20:26	BKP	EPA 547	
2005	Endrin	ND	ug/L	2	0.0100	1/8/24 17:57	GPB	EPA 505	
2010	Lindane (BHC-Gamma)	ND	ug/L	0.2	0.0200	1/8/24 17:57	GPB	EPA 505	
2015	Methoxychlor	ND	ug/L	40	0.100	1/8/24 17:57	GPB	EPA 505	
2020	Toxaphene	ND	ug/L	3	1.00	1/8/24 17:57	GPB	EPA 505	
2065	Heptachlor	ND	ug/L	0.4	0.0400	1/8/24 17:57	GPB	EPA 505	
2067	Heptachlor epoxide	ND	ug/L	0.2	0.0200	1/8/24 17:57	GPB	EPA 505	
2383	PCBs	ND	ug/L	0.5	0.500	1/8/24 17:57	GPB	EPA 505	
2959	Chlordane	ND	ug/L	2	0.200	1/8/24 17:57	GPB	EPA 505	

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Lab Federal ID#:	See Below	Lab/Sample Number:	MDL0888-05
Date Received:	12/28/2023	Date Reported by Lab:	02/02/2024
Compliance Sample:	Yes	Replacement Sample:	No
Collect Date:	12/27/2023	Collection Time:	13:14
Sample Type:			
PWS#:		PWS Name:	Hall Environmental Analysis Lab
Sample Point/ Location:	2312E31-001J (RR9R)	Tag#/Facility ID:	
Contact Name:	Andy Freeman	Contact Phone:	<i>See Signature Page</i>
Lab Federal ID#:	ID00013		

Public Drinking Water System Analysis Report

Synthetic Organic Chemical (SOC) Analysis Report:

FRDS	Analyte	Result	Units	MCL	MRL	Analyzed	Analyst	Method	Qualifier
2036	Oxamyl (Vydate)	ND	ug/L	200	2.00	1/23/24 23:01	BKP	EPA 531.2	
2046	Carbofuran	ND	ug/L	40	0.900	1/23/24 23:01	BKP	EPA 531.2	

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Lab Federal ID#:	See Below	Lab/Sample Number:	MDL0888-06
Date Received:	12/28/2023	Date Reported by Lab:	02/02/2024
Compliance Sample:	Yes	Replacement Sample:	No
Collect Date:	12/27/2023	Collection Time:	13:14
Sample Type:			
PWS#:		PWS Name:	Hall Environmental Analysis Lab
Sample Point/ Location:	2312E31-001K (RR9R)	Tag#/Facility ID:	
Contact Name:	Andy Freeman	Contact Phone:	<i>See Signature Page</i>
Lab Federal ID#:	ID00013		

Public Drinking Water System Analysis Report

Synthetic Organic Chemical (SOC) Analysis Report:

FRDS	Analyte	Result	Units	MCL	MRL	Analyzed	Analyst	Method	Qualifier
2035	Di(2-ethylhexyl)adipate	ND	ug/L	400	0.600	1/9/24 22:37	BMM	EPA 525.2	
2037	Simazine	ND	ug/L	4	0.0700	1/9/24 22:37	BMM	EPA 525.2	
2039	Di(2-ethylhexyl)phthalate	ND	ug/L	6	0.600	1/9/24 22:37	BMM	EPA 525.2	
2042	Hexachlorocyclopentadiene	ND	ug/L	50	0.100	1/9/24 22:37	BMM	EPA 525.2	
2050	Atrazine	ND	ug/L	3	0.100	1/9/24 22:37	BMM	EPA 525.2	
2051	Alachlor (Lasso)	ND	ug/L	2	0.200	1/9/24 22:37	BMM	EPA 525.2	
2274	Hexachlorobenzene	ND	ug/L	1	0.100	1/9/24 22:37	BMM	EPA 525.2	
2306	Benzo[a]pyrene	ND	ug/L	0.2	0.0200	1/9/24 22:37	BMM	EPA 525.2	

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Lab Federal ID#:	See Below	Lab/Sample Number:	MDL0888-07
Date Received:	12/28/2023	Date Reported by Lab:	02/02/2024
Compliance Sample:	Yes	Replacement Sample:	No
Collect Date:	12/27/2023	Collection Time:	13:14
Sample Type:			
PWS#:		PWS Name:	Hall Environmental Analysis Lab
Sample Point/ Location:	2312E31-001L (RR9R)	Tag#/Facility ID:	
Contact Name:	Andy Freeman	Contact Phone:	<i>See Signature Page</i>
Lab Federal ID#:	ID00013		

Public Drinking Water System Analysis Report

Synthetic Organic Chemical (SOC) Analysis Report:

FRDS	Analyte	Result	Units	MCL	MRL	Analyzed	Analyst	Method	Qualifier
2033	Endothall	ND	ug/L	100	9.00	1/11/24 18:52	GPB	EPA 548.1	
2031	Dalapon	ND	ug/L	200	1.00	1/17/24 2:59	tgt	EPA 515.4	
2040	Picloram	ND	ug/L	500	0.100	1/17/24 2:24	tgt	EPA 515.4	
2041	Dinoseb	ND	ug/L	7	0.200	1/17/24 2:24	tgt	EPA 515.4	
2105	2,4-D	ND	ug/L	70	0.100	1/17/24 2:24	tgt	EPA 515.4	
2110	2,4,5-TP (Silvex)	ND	ug/L	50	0.200	1/17/24 2:24	tgt	EPA 515.4	
2326	Pentachlorophenol	ND	ug/L	1	0.0400	1/17/24 2:24	tgt	EPA 515.4	

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Lab Federal ID#:	See Below	Lab/Sample Number:	MDL0888-08
Date Received:	12/28/2023	Date Reported by Lab:	02/02/2024
Compliance Sample:	Yes	Replacement Sample:	No
Collect Date:	12/27/2023	Collection Time:	13:14
Sample Type:			
PWS#:		PWS Name:	Hall Environmental Analysis Lab
Sample Point/ Location:	2312E31-001M (RR9R)	Tag#/Facility ID:	
Contact Name:	Andy Freeman	Contact Phone:	<i>See Signature Page</i>
Lab Federal ID#:	ID00013		

Public Drinking Water System Analysis Report

Synthetic Organic Chemical (SOC) Analysis Report:

FRDS	Analyte	Result	Units	MCL	MRL	Analyzed	Analyst	Method	Qualifier
2032	Diquat	ND	ug/L	20	0.400	1/5/24 17:14	taz	EPA 549.2	

Anatek Labs, Inc.

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Lab Federal ID#:	See Below	Lab/Sample Number:	MDL0888-09
Date Received:	12/28/2023	Date Reported by Lab:	02/02/2024
Compliance Sample:	Yes	Replacement Sample:	No
Collect Date:	12/27/2023	Collection Time:	13:14
Sample Type:			
PWS#:		PWS Name:	Hall Environmental Analysis Lab
Sample Point/ Location:	2312E31-001M (RR9R)	Tag#/Facility ID:	
Contact Name:	Andy Freeman	Contact Phone:	<i>See Signature Page</i>
Lab Federal ID#:	ID00013		

Public Drinking Water System Analysis Report

Inorganic Chemical (IOC) Analysis Report:

FRDS	Analyte	Result	Units	MCL	MRL	Analyzed	Analyst	Method	Qualifier
1024	Cyanide	ND	mg/L	0.2	0.0100	1/4/24 10:43	MMC	EPA 335.4	

Andy Freeman
Hall Environmental Analysis Lab
4901 Hawkins NE Suite D
Albuquerque, NM 87109
505-345-3975

Authorized Signature,



Justin Doty For Todd Taruscio, Laboratory Manager

H5	This test is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.
R1	RPD/RSD exceeded the method acceptance limit
R2	RPD/RSD exceeded the laboratory acceptance limit.
MRL	Minimum Reporting Level
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a certified analyte
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was spiked or duplicated.

This report shall not be reproduced except in full, without the written approval of the laboratory
The results reported related only to the samples indicated.

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Eurofins

MDL0888



Due: 01/11/24

SUB CONTRACTOR	Anatek ID	COMPANY	Anatek Labs, Inc.	PHONE:	(208) 883-2839	FAX:	(208) 882-9246
ADDRESS	1282 Alturas Dr			ACCOUNT #			
CITY, STATE, ZIP	Moscow, ID 83843			EMAIL:			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2312E31-001F	RR9R	1Lamber	Aqueous	12/27/2023 1:14:00 PM	1	Color, Odor
2	2312E31-001G	RR9R	500HDPE	Aqueous	12/27/2023 1:14:00 PM	1	Corrosivity, Surfactants
3	2312E31-001H	RR9R	VOANNA2S20	Aqueous	12/27/2023 1:14:00 PM	2	Full SOC w/ EDB/DBCP
4	2312E31-001I	RR9R	VOANNA2S20	Aqueous	12/27/2023 1:14:00 PM	2	Full SOC w/ EDB/DBCP
5	2312E31-001J	RR9R	VOAC6H7KO	Aqueous	12/27/2023 1:14:00 PM	2	Full SOC w/ EDB/DBCP
6	2312E31-001K	RR9R	1LAMGNA50	Aqueous	12/27/2023 1:14:00 PM	2	Full SOC w/ EDB/DBCP
7	2312E31-001L	RR9R	500AMBNA2	Aqueous	12/27/2023 1:14:00 PM	1	Full SOC w/ EDB/DBCP
8	2312E31-001M	RR9R	250 HDPE	Aqueous	12/27/2023 1:14:00 PM	1	Full SOC w/ EDB/DBCP
9	2312E31-001O	RR9R	500AMBHDP	Aqueous	12/27/2023 1:14:00 PM	1	Total Cyanide

SPECIAL INSTRUCTIONS / COMMENTS:

Include the LAB ID and CLIENT SAMPLE ID on final reports. Email results to Hall.Lab@et.eurofinsus.com. For Questions email Hall.samplecontrol@et.eurofinsus.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
<i>cm</i>	12/27/2023	3:09 PM	<i>SM</i>	12/28/23	11:00
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
TAT: Standard ☒ RUSH ☐ Next BD ☐ 2nd BD ☐ 3rd BD ☐					
REPORT TRANSMITTAL DESIRED: ☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE FOR LAB USE ONLY Temp of samples _____ °C Attempt to Cool? _____ Comments: _____					



Anatek Labs, Inc.

Sample Receipt and Preservation Form

Client Name: HallTAT: Normal RUSH: _____ daysSamples Received From: FedEx UPS USPS Client Courier Other: _____Custody Seal on Cooler/Box: Yes No Custody Seals Intact: Yes No N/ANumber of Coolers/Boxes: 1 Type of Ice: Wet Ice Ice Packs Dry Ice NonePacking Material: Bubble Wrap Bags Foam/Peanuts Paper None Other: _____Cooler Temp As Read (°C): 0.3 Cooler Temp Corrected (°C): _____ Thermometer Used: 125

Samples Received Intact? Yes No N/A
Chain of Custody Present/Complete? Yes No N/A
Labels and Chains Agree? Yes No N/A
Samples Received Within Hold Time? Yes No N/A
Correct Containers Received? Yes No N/A
Anatek Bottles Used? Yes No Unknown
Total Number of Sample Bottles Received: 12

Comments:

Samples Properly Preserved? Yes No N/A*If No, record preservation and pH-after details*

VOC Vials Free of Headpace (<6mm)? Yes No N/A
VOC Trip Blanks Present? Yes No N/A

Initial pH:

pH Paper ID:

<2 or

Record preservatives (and lot numbers, if known) for containers below:

G1L - Color, Odor P250 - ST - Diquat
P500 - Corrosivity, Surfactants P500 - NaOH - CN
G44 - ST - EDB x2
G44 - ST - Pest / Glyph x2
G44 - Carb x2
G1L - SS/HCl - 525
G500 - ST - Herb/Endo

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

Received/Inspected By: SMDate/Time: 12/28/2311:00

Form F19.01 - Eff 1 Dec 2022

Page 1 of 1



Contact: Andy Freeman
Company: Eurofins Albuquerque, NM
Address: 4901 Hawkins NE,
Albuquerque, NM 87109

Project / Location: NA
PO Number: NA
ALS Work Order: 23121083

NARRATIVE: Analysis performed on FEI Tecnai TEM equipped with EDAX Octane T Plus Silicon Drift Detector and Z2 Analyzer. Fiber morphology, selected area electron diffraction (SAED), and energy dispersive x-ray analysis (EDXA) used to determine species. All sample collection is performed outside of ALS Cincinnati is therefore the sole responsibility of the client. Contact your local authority for information on method selection, sampling instructions, and reporting requirements prior to submission.

NOTICE: All US EPA Public Water System (PWS) drinking water compliance samples must be filtered by the laboratory within 48 hours of sampling. ALS cannot report analytical results directly to the EPA unless all of the information required by the state EPA agency is provided via the COC at the time of receipt. Report revisions resulting from failure to provide this information via the COC will result in additional administrative fees. ALS is not responsible for late or inaccurate EPA reporting as a result of client sample collection errors or sample information omissions. Water samples originating from outside the United States do not fall under the US EPA drinking water guidelines and are therefore not required to meet the 48 hour hold and are not reported to any agency.

METHOD CODES: "EPA 100.2" refers only to drinking (potable) PWS samples for EPA compliance which are required to be filtered within 48 hours of sampling and are analyzed at >10,000x for asbestos fibers >10µm long. "ENV 005" refers to a modified version of EPA 100.2 developed for all other non-potable, non-compliance, and non-US waters which are also analyzed at >10,000x for asbestos fibers >10µm long but are not required to meet the 48 hour hold time. "EPA 100.1" refers to waters analyzed by a modified version of the method for asbestos fibers of any size. All excess water is disposed immediately following adequate filtration. All filtered samples are disposed after 60 day archive. All TEM grids analyzed are archived for a minimum of 3 years. Results apply only to portions of samples analyzed.

SUMMARY: An AS of <0.2 MFL is desired for drinking (potable) waters, and an AS of <7 MFL is generally acceptable for non-potable waters. Whenever possible, a sufficient volume is analyzed to yield the desired AS based on the detection of 1 confirmed asbestos fiber in the total area analyzed. However, waters containing excessive solids may require filtration of volumes too low to achieve the desired AS. In any case, a minimum of 4 and maximum of 10 grid openings are analyzed regardless of the AS reached or the asbestos concentration detected. Representative EDXA spectra and/or photomicrographs are available upon request for an additional fee. NA=Not Applicable, AS=Analytical Sensitivity, MFL=Millions of Fibers per Liter, MRL=Method Reporting Limit

ALS Cincinnati accredited by NY ELAP for Asbestos in Water by EPA 100.2

OH State Lab No.: 4077, OH Analyst Nos.: 2268 (P. Hizar), 3431 (A. Sohn)

PA State Lab No.: 68-01320, PA Certification No.: 003

WA State Lab No.: 211

NY State Lab No.: 11371

Pamela M. Hizar

Pamela M. Hizar

ALS Asbestos Technical Lead & Microscopy Department Manager

IDENTIFICATION

2312E31-001E /

Client ID: RR9R

ALS ID: 23121083-01A

Method: EPA 100.2

MRL: <0.2MFL

Collection: 12/27/23 1:14 PM

Filtration: 12/28/23 9:45 AM

Elapsed: 0days18hrs31mins

Sample Comments: NONE

ANALYSIS

Analyst: Pamela Hizar

Completed: 1/5/24 9:00 AM

Volume (L): 0.15

Avg. Opening Area (mm²): 0.0102

No. Openings Analyzed: 4

AS (MFL): 0.18

COUNT

Chrysotile: 0

Amosite: 0

Crocidolite: 0

Actinolite: 0

Tremolite: 0

Anthophyllite: 0

Total Asbestos: 0

CONCENTRATION (MFL)

Chrysotile: <AS

Amosite: <AS

Crocidolite: <AS

Actinolite: <AS

Tremolite: <AS

Anthophyllite: <AS

Total Asbestos: <AS

Analysis Comments: NONE

ANALYTICAL REPORT

PREPARED FOR

Attn: Data Submittal
EET South Central Hall Environmental Analysis Laboratory
4901 Hawkins NE
Suite D
Albuquerque, New Mexico 87109

Generated 1/25/2024 2:15:40 PM

JOB DESCRIPTION

Standard Rad Analysis
2312E31

JOB NUMBER

160-52697-1

Eurofins St. Louis

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

Authorization



Generated
1/25/2024 2:15:40 PM

Authorized for release by
Erika Jordan, Project Manager
erika.jordan@et.eurofinsus.com
(314)298-8566



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Case Narrative

Client: EET South Central Hall Environmental Analysis Laboratory
Project: Standard Rad Analysis

Job ID: 160-52697-1

Job ID: 160-52697-1

Eurofins St. Louis

CASE NARRATIVE

Client: Hall Environmental Analysis Laboratory

Project: 2312E31

Report Number: 160-52697-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition, all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method.

Eurofins Environment Testing attests to the validity of the laboratory data generated by Eurofins facilities reported herein. All analyses performed by Eurofins Environment Testing facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins Environment Testing's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Proper preservation was noted for the methods performed on these samples, unless otherwise detailed below.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

The matrix for the Method Blank and LCS/LCSD is as close to the samples as can be reasonably achieved. Detailed information can be found in the most current revision of the associated SOP.

The method blank (MB) z-score is within limits, unless stated otherwise below.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.

Reference the chain of custody and receipt report for any variations on receipt conditions.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

Receipt

The sample was received on 12/28/2023 9:10 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved. The temperature of the cooler at receipt time was 11.0°C

Method 900.0 - Gross Alpha and Gross Beta Radioactivity

Sample 2312E31-001N/RR9R (52697-1) was analyzed for Gross Alpha and Gross Beta Radioactivity. The sample was prepared on 1/2/2024 and analyzed on 1/18/2024.

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

Method 903.0 - Radium-226 (GFPC)

Sample 2312E31-001N/RR9R (52697-1) was analyzed for Radium-226 (GFPC). The sample was prepared on 1/2/2024 and analyzed on 1/24/2024.

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

Method 904.0 - Radium-228 (GFPC)

Eurofins St. Louis

Case Narrative

Client: EET South Central Hall Environmental Analysis Laboratory
Project: Standard Rad Analysis

Job ID: 160-52697-1

Job ID: 160-52697-1 (Continued)

Eurofins St. Louis

Sample 2312E31-001N/RR9R (52697-1) was analyzed for Radium-228 (GFPC). The sample was prepared on 1/2/2024 and analyzed on 1/18/2024 and 1/24/2024.

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

Eurofins St. Louis



Environment Testing

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRACTOR	Eurofins St. Louis	COMPANY	Eurofins TestAmerica	PHONE	(314) 298-8566	FAX	(314) 298-8757
ADDRESS	13715 Rider Trail North						
CITY, STATE, ZIP	Earth City, MO 63045						
ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	ANALYTICAL COMMENTS	
1	2312E31-001N RR9R		11LHDPEHNO	Aqueous	12/27/2023 1:14:00 PM	4 Gross Alpha/Beta, Ra226/228 -Pease Apply ICO Pricing-	



160-52697 Chain of Custody

SPECIAL INSTRUCTIONS / COMMENTS:

Include the LAB ID and CLIENT SAMPLE ID on final reports. Email results to Hall.Lab@et.eurofins.com. For Questions email Hall.samplecontrol@et.eurofins.com. Please return all coolers and blue ice. Thank you.

Relinquished By	<i>Cmy</i>	Date	12/27/2023	Time	3:10 PM	Received By	<i>[Signature]</i>	Date	12/27/23	Time	0910
Relinquished By		Date		Time		Received By		Date		Time	
Relinquished By		Date		Time		Received By		Date		Time	
TAT:	Standard ☒	RUSH	Next BD ☐	2nd BD ☐	3rd BD ☐						

REPORT TRANSMITTAL DESIRED:			
☐ HARD COPY (extra cost)	☐ FAX	☐ EMAIL	☐ ONLINE
FOR LAB USE ONLY			
Temp of samples	C	Attempt to Cool?	
Comments			

Login Sample Receipt Checklist

Client: EET South Central Hall Environmental Analysis Laboratory

Job Number: 160-52697-1

SDG Number: 2312E31

Login Number: 52697

List Number: 1

Creator: Thornley, Richard W

List Source: Eurofins St. Louis

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

Definitions/Glossary

Client: EET South Central Hall Environmental Analysis Laboratory
Project/Site: Standard Rad Analysis

Job ID: 160-52697-1
SDG: 2312E31

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

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

Method Summary

Client: EET South Central Hall Environmental Analysis Laboratory
Project/Site: Standard Rad Analysis

Job ID: 160-52697-1
SDG: 2312E31

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: EET South Central Hall Environmental Analysis Laboratory
Project/Site: Standard Rad Analysis

Job ID: 160-52697-1
SDG: 2312E31

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-52697-1	2312E31-001N/RR9R	Water	12/27/23 13:14	12/28/23 09:10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

Client Sample Results

Client: EET South Central Hall Environmental Analysis Laboratory
Project/Site: Standard Rad Analysis

Job ID: 160-52697-1
SDG: 2312E31

Client Sample ID: 2312E31-001N/RR9R

Lab Sample ID: 160-52697-1

Date Collected: 12/27/23 13:14

Matrix: Water

Date Received: 12/28/23 09:10

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	3.59		1.63	1.68	3.00	1.99	pCi/L	01/02/24 09:08	01/18/24 11:23	1
Gross Beta	2.30		0.725	0.760	4.00	0.878	pCi/L	01/02/24 09:08	01/18/24 11:23	1

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.108	U	0.0961	0.0966	1.00	0.146	pCi/L	01/02/24 11:10	01/24/24 11:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	76.9		30 - 110					01/02/24 11:10	01/24/24 11:49	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.715		0.439	0.443	1.00	0.638	pCi/L	01/02/24 11:14	01/18/24 11:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	76.9		30 - 110					01/02/24 11:14	01/18/24 11:38	1
Y Carrier	77.0		30 - 110					01/02/24 11:14	01/18/24 11:38	1

QC Sample Results

Client: EET South Central Hall Environmental Analysis Laboratory
Project/Site: Standard Rad Analysis

Job ID: 160-52697-1
SDG: 2312E31

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-642691/1-A
Matrix: Water
Analysis Batch: 644701

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 642691

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	-0.3283	U	0.379	0.381	3.00	0.901	pCi/L	01/02/24 09:08	01/18/24 07:41	1
Gross Beta	0.5801	U	0.508	0.512	4.00	0.812	pCi/L	01/02/24 09:08	01/18/24 07:41	1

Lab Sample ID: LCS 160-642691/2-A
Matrix: Water
Analysis Batch: 644701

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 642691

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Gross Alpha	49.3	57.24		8.23	3.00	1.73	pCi/L	116	75 - 125

Lab Sample ID: LCSB 160-642691/3-A
Matrix: Water
Analysis Batch: 644701

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 642691

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Gross Beta	72.1	71.37		7.67	4.00	0.878	pCi/L	99	75 - 125

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-642705/1-A
Matrix: Water
Analysis Batch: 645440

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 642705

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.03135	U	0.0829	0.0829	1.00	0.176	pCi/L	01/02/24 11:10	01/24/24 11:53	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.1		30 - 110					01/02/24 11:10	01/24/24 11:53	1

Lab Sample ID: LCS 160-642705/2-A
Matrix: Water
Analysis Batch: 645441

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 642705

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	11.3	11.30		1.19	1.00	0.155	pCi/L	100	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	87.6		30 - 110						

QC Sample Results

Client: EET South Central Hall Environmental Analysis Laboratory
Project/Site: Standard Rad Analysis

Job ID: 160-52697-1
SDG: 2312E31

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 160-52697-1 DU
Matrix: Water
Analysis Batch: 645441

Client Sample ID: 2312E31-001N/RR9R
Prep Type: Total/NA
Prep Batch: 642705

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.108	U	0.03291	U	0.0735	1.00	0.134	pCi/L	0.44	1
Carrier	%Yield	DU Qualifier	DU	Limits						
Ba Carrier	82.6			30 - 110						

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-642707/1-A
Matrix: Water
Analysis Batch: 644701

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 642707

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.05854	U	0.310	0.310	1.00	0.565	pCi/L	01/02/24 11:14	01/18/24 11:38	1
Carrier	%Yield	MB Qualifier	MB	Limits						
Ba Carrier	87.1			30 - 110						
Y Carrier	78.9			30 - 110						

Lab Sample ID: LCS 160-642707/2-A
Matrix: Water
Analysis Batch: 644701

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 642707

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	9.29	10.58		1.41	1.00	0.505	pCi/L	114	75 - 125
Carrier	%Yield	LCS Qualifier	LCS	Limits					
Ba Carrier	87.6			30 - 110					
Y Carrier	79.6			30 - 110					

Lab Sample ID: 160-52697-1 DU
Matrix: Water
Analysis Batch: 644701

Client Sample ID: 2312E31-001N/RR9R
Prep Type: Total/NA
Prep Batch: 642707

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.715		0.3176	U	0.342	1.00	0.552	pCi/L	0.51	1
Carrier	%Yield	DU Qualifier	DU	Limits						
Ba Carrier	82.6			30 - 110						
Y Carrier	76.3			30 - 110						

QC Association Summary

Client: EET South Central Hall Environmental Analysis Laboratory
Project/Site: Standard Rad Analysis

Job ID: 160-52697-1
SDG: 2312E31

Rad

Prep Batch: 642691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-52697-1	2312E31-001N/RR9R	Total/NA	Water	Evaporation	
MB 160-642691/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-642691/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-642691/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Prep Batch: 642705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-52697-1	2312E31-001N/RR9R	Total/NA	Water	PrecSep-21	
MB 160-642705/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-642705/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-52697-1 DU	2312E31-001N/RR9R	Total/NA	Water	PrecSep-21	

Prep Batch: 642707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-52697-1	2312E31-001N/RR9R	Total/NA	Water	PrecSep_0	
MB 160-642707/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-642707/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-52697-1 DU	2312E31-001N/RR9R	Total/NA	Water	PrecSep_0	

Tracer/Carrier Summary

Client: EET South Central Hall Environmental Analysis Laboratory
Project/Site: Standard Rad Analysis

Job ID: 160-52697-1
SDG: 2312E31

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	
160-52697-1	2312E31-001N/RR9R	76.9	
160-52697-1 DU	2312E31-001N/RR9R	82.6	
LCS 160-642705/2-A	Lab Control Sample	87.6	
MB 160-642705/1-A	Method Blank	87.1	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
160-52697-1	2312E31-001N/RR9R	76.9	77.0
160-52697-1 DU	2312E31-001N/RR9R	82.6	76.3
LCS 160-642707/2-A	Lab Control Sample	87.6	79.6
MB 160-642707/1-A	Method Blank	87.1	78.9
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2312E31

05-Feb-24

Client: Hydro Resources RM

Project: Rio Rancho

Sample ID: MB-79718	SampType: MBLK		TestCode: EPA Method 200.7: Metals							
Client ID: PBW	Batch ID: 79718		RunNo: 102271							
Prep Date: 1/3/2024	Analysis Date: 1/4/2024		SeqNo: 3775776		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0030								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Iron	ND	0.050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.010								

Sample ID: LCSLL-79718	SampType: LCSLL		TestCode: EPA Method 200.7: Metals							
Client ID: BatchQC	Batch ID: 79718		RunNo: 102271							
Prep Date: 1/3/2024	Analysis Date: 1/4/2024		SeqNo: 3775777		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	129	50	150			
Barium	ND	0.0030	0.002000	0	85.0	50	150			
Beryllium	ND	0.0020	0.002000	0	99.6	50	150			
Cadmium	0.0020	0.0020	0.002000	0	102	50	150			
Calcium	ND	1.0	0.5000	0	96.1	50	150			
Chromium	ND	0.0060	0.006000	0	86.4	50	150			
Iron	ND	0.050	0.02000	0	106	50	150			
Magnesium	ND	1.0	0.5000	0	100	50	150			
Manganese	ND	0.0020	0.002000	0	95.6	50	150			
Potassium	ND	1.0	0.5000	0	117	50	150			
Silver	ND	0.0050	0.005000	0	89.2	50	150			
Sodium	ND	1.0	0.5000	0	93.3	50	150			
Zinc	0.021	0.010	0.01000	0	214	50	150			S

Sample ID: LCS-79718	SampType: LCS		TestCode: EPA Method 200.7: Metals							
Client ID: LCSW	Batch ID: 79718		RunNo: 102271							
Prep Date: 1/3/2024	Analysis Date: 1/4/2024		SeqNo: 3775778		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.53	0.020	0.5000	0	106	85	115			
Barium	0.50	0.0030	0.5000	0	99.8	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of 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#: 2312E31

05-Feb-24

Client: Hydro Resources RM

Project: Rio Rancho

Sample ID: LCS-79718	SampType: LCS		TestCode: EPA Method 200.7: Metals							
Client ID: LCSW	Batch ID: 79718		RunNo: 102271							
Prep Date: 1/3/2024	Analysis Date: 1/4/2024		SeqNo: 3775778		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.51	0.0020	0.5000	0	101	85	115			
Cadmium	0.49	0.0020	0.5000	0	97.1	85	115			
Calcium	49	1.0	50.00	0	98.8	85	115			
Chromium	0.48	0.0060	0.5000	0	96.9	85	115			
Iron	0.50	0.050	0.5000	0	99.5	85	115			
Magnesium	50	1.0	50.00	0	101	85	115			
Manganese	0.48	0.0020	0.5000	0	96.8	85	115			
Potassium	49	1.0	50.00	0	97.8	85	115			
Silver	0.096	0.0050	0.1000	0	95.6	85	115			
Sodium	48	1.0	50.00	0	96.3	85	115			
Zinc	0.51	0.010	0.5000	0	102	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2312E31

05-Feb-24

Client: Hydro Resources RM

Project: Rio Rancho

Sample ID: 2312E31-001DMSLL		SampType: MS		TestCode: EPA 200.8: Metals						
Client ID: RR9R		Batch ID: 79718			RunNo: 102245					
Prep Date: 1/3/2024		Analysis Date: 1/4/2024			SeqNo: 3774730		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.031	0.00050	0.02500	0.006517	99.7	70	130			
Lead	0.012	0.00050	0.01250	0.0001191	92.7	70	130			
Selenium	0.023	0.0010	0.02500	0.001065	88.2	70	130			
Thallium	0.012	0.00025	0.01250	0	92.6	70	130			
Uranium	0.013	0.00050	0.01250	0.001276	91.6	70	130			

Sample ID: 2312E31-001DMSDL		SampType: MSD		TestCode: EPA 200.8: Metals						
Client ID: RR9R		Batch ID: 79718		RunNo: 102245						
Prep Date: 1/3/2024		Analysis Date: 1/4/2024		SeqNo: 3774731		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.032	0.00050	0.02500	0.006517	102	70	130	1.91	20	
Lead	0.012	0.00050	0.01250	0.0001191	93.4	70	130	0.733	20	
Selenium	0.024	0.0010	0.02500	0.001065	91.8	70	130	3.82	20	
Thallium	0.012	0.00025	0.01250	0	93.8	70	130	1.33	20	
Uranium	0.013	0.00050	0.01250	0.001276	92.6	70	130	0.925	20	

Sample ID: MB-79718		SampType: MBLK			TestCode: EPA 200.8: Metals					
Client ID: PBW		Batch ID: 79718			RunNo: 102245					
Prep Date: 1/3/2024		Analysis Date: 1/4/2024			SeqNo: 3774762		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.00050								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Thallium	ND	0.00025								
Uranium	ND	0.00050								

Sample ID: MSLCSLL-79718	SampType: LCSLL			TestCode: EPA 200.8: Metals						
Client ID: BatchQC	Batch ID: 79718			RunNo: 102245						
Prep Date: 1/3/2024	Analysis Date: 1/4/2024			SeqNo: 3774764			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050	0.0005000	0	98.4	50	150			
Selenium	0.0011	0.0010	0.001000	0	106	50	150			
Uranium	ND	0.00050	0.0005000	0	92.0	50	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2312E31

05-Feb-24

Client: Hydro Resources RM

Project: Rio Rancho

Sample ID: MSLCS-79718	SampType: LCS		TestCode: EPA 200.8: Metals							
Client ID: LCSW	Batch ID: 79718		RunNo: 102245							
Prep Date: 1/3/2024	Analysis Date: 1/4/2024		SeqNo: 3774765		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.024	0.00050	0.02500	0	96.5	85	115			
Lead	0.012	0.00050	0.01250	0	96.4	85	115			
Selenium	0.023	0.0010	0.02500	0	92.8	85	115			
Thallium	0.012	0.00025	0.01250	0	98.4	85	115			
Uranium	0.012	0.00050	0.01250	0	93.8	85	115			

Sample ID: MSLCSLL-TL-79718	SampType: LCSLL		TestCode: EPA 200.8: Metals							
Client ID: BatchQC	Batch ID: 79718		RunNo: 102245							
Prep Date: 1/3/2024	Analysis Date: 1/4/2024		SeqNo: 3774767		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.00050	0.0005000	0	82.4	50	150			
Thallium	ND	0.00025	0.0002500	0	97.9	50	150			

Sample ID: MB-79718	SampType: MBLK		TestCode: EPA 200.8: Metals							
Client ID: PBW	Batch ID: 79718		RunNo: 102283							
Prep Date: 1/3/2024	Analysis Date: 1/5/2024		SeqNo: 3776402		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.00050								

Sample ID: MSLCS-79718	SampType: LCS		TestCode: EPA 200.8: Metals							
Client ID: LCSW	Batch ID: 79718		RunNo: 102283							
Prep Date: 1/3/2024	Analysis Date: 1/5/2024		SeqNo: 3776404		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.00050	0.02500	0	100	85	115			

Sample ID: MSLCSLL-TL-79718	SampType: LCSLL		TestCode: EPA 200.8: Metals							
Client ID: BatchQC	Batch ID: 79718		RunNo: 102283							
Prep Date: 1/3/2024	Analysis Date: 1/5/2024		SeqNo: 3776405		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.00050	0.0005000	0	82.8	50	150			

Sample ID: MB-79799	SampType: MBLK		TestCode: EPA 200.8: Metals							
Client ID: PBW	Batch ID: 79799		RunNo: 102417							
Prep Date: 1/9/2024	Analysis Date: 1/12/2024		SeqNo: 3783177		Units: mg/L					
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 Quantitative 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#: 2312E31

05-Feb-24

Client: Hydro Resources RM

Project: Rio Rancho

Sample ID: MB-79799	SampType: MBLK		TestCode: EPA 200.8: Metals							
Client ID: PBW	Batch ID: 79799		RunNo: 102417							
Prep Date: 1/9/2024	Analysis Date: 1/12/2024		SeqNo: 3783177		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								

Sample ID: MSLCSLL-79799	SampType: LCSLL		TestCode: EPA 200.8: Metals							
Client ID: BatchQC	Batch ID: 79799		RunNo: 102417							
Prep Date: 1/9/2024	Analysis Date: 1/12/2024		SeqNo: 3783178		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0011	0.0010	0.001000	0	106	50	150			

Sample ID: MSLCS-79799	SampType: LCS		TestCode: EPA 200.8: Metals							
Client ID: LCSW	Batch ID: 79799		RunNo: 102417							
Prep Date: 1/9/2024	Analysis Date: 1/12/2024		SeqNo: 3783179		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.026	0.0010	0.02500	0	102	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2312E31

05-Feb-24

Client: Hydro Resources RM

Project: Rio Rancho

Sample ID: MB-79910	SampType: MBLK	TestCode: EPA Method 245.1: Mercury								
Client ID: PBW	Batch ID: 79910	RunNo: 102509								
Prep Date: 1/15/2024	Analysis Date: 1/17/2024	SeqNo: 3786575 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LCSLL-79910	SampType: LCSLL	TestCode: EPA Method 245.1: Mercury								
Client ID: BatchQC	Batch ID: 79910	RunNo: 102509								
Prep Date: 1/15/2024	Analysis Date: 1/17/2024	SeqNo: 3786576 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020	0.0001500	0	90.1	50	150			

Sample ID: LCS-79910	SampType: LCS	TestCode: EPA Method 245.1: Mercury								
Client ID: LCSW	Batch ID: 79910	RunNo: 102509								
Prep Date: 1/15/2024	Analysis Date: 1/17/2024	SeqNo: 3786577 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.9	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2312E31

05-Feb-24

Client: Hydro Resources RM

Project: Rio Rancho

Sample ID: MB-79716	SampType: MBLK	TestCode: SM 2540 C: Total Dissolved Solids								
Client ID: PBW	Batch ID: 79716	RunNo: 102240								
Prep Date: 1/3/2024	Analysis Date: 1/4/2024	SeqNo: 3774356 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	50.0								

Sample ID: LCS-79716	SampType: LCS	TestCode: SM 2540 C: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 79716	RunNo: 102240								
Prep Date: 1/3/2024	Analysis Date: 1/4/2024	SeqNo: 3774357 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	996	50.0	1000	0	99.6	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2312E31

05-Feb-24

Client: Hydro Resources RM

Project: Rio Rancho

Sample ID: MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R102147		RunNo: 102147							
Prep Date:	Analysis Date: 12/27/2023		SeqNo: 3770289		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R102147		RunNo: 102147							
Prep Date:	Analysis Date: 12/27/2023		SeqNo: 3770290		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.2	90	110			
Chloride	4.9	0.50	5.000	0	97.1	90	110			
Nitrogen, Nitrite (As N)	0.99	0.10	1.000	0	99.2	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	102	90	110			
Sulfate	9.8	0.50	10.00	0	98.4	90	110			

Sample ID: 2312E31-001CMS	SampType: MS		TestCode: EPA Method 300.0: Anions							
Client ID: RR9R	Batch ID: R102147		RunNo: 102147							
Prep Date:	Analysis Date: 12/27/2023		SeqNo: 3770311		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.85	0.10	0.5000	0.4062	87.9	70	130			
Chloride	9.1	0.50	5.000	4.127	99.6	80	120			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	95.5	80	120			
Nitrogen, Nitrate (As N)	4.2	0.10	2.500	1.646	104	80	120			

Sample ID: 2312E31-001CMSD	SampType: MSD		TestCode: EPA Method 300.0: Anions							
Client ID: RR9R	Batch ID: R102147		RunNo: 102147							
Prep Date:	Analysis Date: 12/27/2023		SeqNo: 3770312		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.85	0.10	0.5000	0.4062	88.7	70	130	0.431	20	
Chloride	9.1	0.50	5.000	4.127	100	80	120	0.484	20	
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	95.8	80	120	0.291	20	
Nitrogen, Nitrate (As N)	4.3	0.10	2.500	1.646	105	80	120	0.455	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2312E31

05-Feb-24

Client: Hydro Resources RM

Project: Rio Rancho

Sample ID: 62.5ng lcs	SampType: LCS		TestCode: PURGEABLE ORGANICS by EPA 524							
Client ID: LCSW	Batch ID: R102225		RunNo: 102225							
Prep Date:	Analysis Date: 1/3/2024		SeqNo: 3773814		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	2.5	0.50	2.500	0	102	70	130			
Carbon tetrachloride	2.7	0.50	2.500	0	107	70	130			
Chlorobenzene	2.4	0.50	2.500	0	97.7	70	130			
cis-1,2-Dichloroethene	2.6	0.50	2.500	0	104	70	130			
1,2-Dichlorobenzene	2.6	0.50	2.500	0	103	70	130			
1,4-Dichlorobenzene	2.6	0.50	2.500	0	106	70	130			
1,2-Dichloroethane	2.2	0.50	2.500	0	87.0	70	130			
1,1-Dichloroethene	2.6	0.50	2.500	0	106	70	130			
1,2-Dichloropropane	2.4	0.50	2.500	0	94.9	70	130			
Ethylbenzene	2.4	0.50	2.500	0	96.1	70	130			
Methylene chloride	2.5	0.50	2.500	0	102	70	130			
Styrene	2.3	0.50	2.500	0	91.1	70	130			
Tetrachloroethene	2.9	0.50	2.500	0	118	70	130			
Toluene	2.4	0.50	2.500	0	94.9	70	130			
trans-1,2-Dichloroethene	2.7	0.50	2.500	0	109	70	130			
1,2,4-Trichlorobenzene	2.3	0.50	2.500	0	92.9	70	130			
1,1,1-Trichloroethane	2.7	0.50	2.500	0	106	70	130			
1,1,2-Trichloroethane	2.3	0.50	2.500	0	90.1	70	130			
Trichloroethene	2.7	0.50	2.500	0	108	70	130			
Vinyl chloride	2.8	0.50	2.500	0	111	70	130			
Total Xylenes	7.6	0.50	7.500	0	101	70	130			
Surr: 1,2-Dichlorobenzene-d4	2.1		2.000		105	70	130			
Surr: 4-Bromofluorobenzene	2.3		2.000		116	70	130			

Sample ID: mb	SampType: MBLK		TestCode: PURGEABLE ORGANICS by EPA 524							
Client ID: PBW	Batch ID: R102225		RunNo: 102225							
Prep Date:	Analysis Date: 1/3/2024		SeqNo: 3773815		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
Carbon tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
cis-1,2-Dichloroethene	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
1,2-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
Ethylbenzene	ND	0.50								

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 Quantitative 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#: 2312E31

05-Feb-24

Client: Hydro Resources RM

Project: Rio Rancho

Sample ID: mb	SampType: MBLK		TestCode: PURGEABLE ORGANICS by EPA 524							
Client ID: PBW	Batch ID: R102225		RunNo: 102225							
Prep Date:	Analysis Date: 1/3/2024		SeqNo: 3773815		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methylene chloride	ND	0.50								
Styrene	ND	0.50								
Tetrachloroethene	ND	0.50								
Toluene	ND	0.50								
trans-1,2-Dichloroethene	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene	ND	0.50								
Vinyl chloride	ND	0.50								
Total Xylenes	ND	0.50								
Surr: 1,2-Dichlorobenzene-d4	1.8		2.000		89.2	70	130			
Surr: 4-Bromofluorobenzene	1.8		2.000		90.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2312E31

05-Feb-24

Client: Hydro Resources RM

Project: Rio Rancho

Sample ID: MB-79632	SampType: MBLK	TestCode: SM 9223B Total Coliform								
Client ID: PBW	Batch ID: 79632	RunNo: 102133								
Prep Date: 12/27/2023	Analysis Date: 12/28/2023	SeqNo: 3769543	Units: P/A							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Coliform	Absent	0								
E. Coli	Absent	0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2312E31

05-Feb-24

Client: Hydro Resources RM

Project: Rio Rancho

Sample ID: MB-1 Alk	SampType: MBLK			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R102142			RunNo: 102142						
Prep Date:	Analysis Date: 12/28/2023			SeqNo: 3769911		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: LCS-1 Alk	SampType: LCS			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R102142			RunNo: 102142						
Prep Date:	Analysis Date: 12/28/2023			SeqNo: 3769912		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.76	20.00	80.00	0	97.2	90	110			

Sample ID: MB-2 Alk	SampType: MBLK			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R102142			RunNo: 102142						
Prep Date:	Analysis Date: 12/28/2023			SeqNo: 3769934		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: LCS-2 Alk	SampType: LCS			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R102142			RunNo: 102142						
Prep Date:	Analysis Date: 12/28/2023			SeqNo: 3769935		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.32	20.00	80.00	0	97.9	90	110			

Sample ID: MB-3 Alk	SampType: MBLK			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R102142			RunNo: 102142						
Prep Date:	Analysis Date: 12/28/2023			SeqNo: 3769956		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: LCS-3 Alk	SampType: LCS			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R102142			RunNo: 102142						
Prep Date:	Analysis Date: 12/28/2023			SeqNo: 3769957		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.40	20.00	80.00	0	98.0	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2312E31

05-Feb-24

Client: Hydro Resources RM

Project: Rio Rancho

Sample ID: MB	SampType: MBLK		TestCode: EPA Method 180.1: Turbidity							
Client ID: PBW	Batch ID: R102127		RunNo: 102127							
Prep Date:	Analysis Date: 12/28/2023		SeqNo: 3769427		Units: NTU					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Turbidity	ND	0.50								

Sample ID: 2312E31-001CDUP	SampType: DUP		TestCode: EPA Method 180.1: Turbidity							
Client ID: RR9R	Batch ID: R102127		RunNo: 102127							
Prep Date:	Analysis Date: 12/28/2023		SeqNo: 3769429		Units: NTU					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Turbidity	]	0.50						7.56	20	*

Qualifiers:

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

Sample Log-In Check List

Client Name: **Hydro Resources RM**

Work Order Number: **2312E31**

RcptNo: **1**

Received By: **Juan Rojas**

12/27/2023 2:40:00 PM

Juan Rojas

Completed By: **Cheyenne Cason**

12/27/2023 2:52:24 PM

Cheyenne Cason

Reviewed By: **DAD**

12/27/23 @ 15:25

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C Yes ☐ No ☒ NA ☐
- Samples were collected the same day and chilled.**
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: 7 1

(<2 or >12 unless noted)

Adjusted? no

Checked by: ame 12/27/23

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	17.2	Good	Not Present	Morty		

Desiree Dominguez

From: Rocio Mancillas <rmancillas@shomaker.com>
Sent: Wednesday, December 27, 2023 8:31 AM
To: Desiree Dominguez
Subject: RE: Bottle Kit

You don't often get email from rmancillas@shomaker.com. [Learn why this is important](#)

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.

Do not click on links or open attachments unless you recognise the sender and are certain that the content is safe.

Desiree,

This is what the specs call for:

microorganism/turbidity	
contaminant	MCL (mg/L)
total coliforms	zero
E. coli	zero
fecal coliform	zero
turbidity	n/a

inorganic chemicals	
contaminant	MCL (mg/L)
antimony	0.006
arsenic	0
asbestos (fiber > 10 micrometers)	7 million fibers per liter (MFL)
barium	2
beryllium	0.004
cadmium	0.005
chromium (total)	0.1
copper	1.3
cyanide (as free cyanide)	0.2
fluoride	4.0
lead	zero
mercury (inorganic)	0.002

radionuclides	
contaminant	MCL (mg/L)
alpha particles	15 picocuries per Liter (pCi/L)
beta particles and photon emitters	4 millirems per year
radium 226 and Radium 228 (combined)	5 pCi/L
uranium	30 ug/L as of 12/08/03

other parameters	
contaminant	secondary standard
aluminum	0.05 to 0.2 mg/L
alkalinity	none
bicarbonate	none
calcium	none
chloride	250 mg/L
color	15 (color units)
copper	1.0 mg/L
corrosivity	noncorrosive
fluoride	2.0 mg/L
foaming agents	0.5 mg/L
iron	0.3 mg/L
magnesium	none
manganese	0.05 mg/L
odor	3 threshold odor number
potassium	none
pH	6.5-8.5
silver	0.10 mg/L
sodium	none
sulfate	250 mg/L
total dissolved solids	500 mg/L
zinc	5 mg/L

MCL - maximum contaminant level
mg/L - milligrams per liter

We only have 1 cooler with

- 1) 4 amber bottles

Appendix C.
Species List



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
Phone: (505) 346-2525 Fax: (505) 346-2542



In Reply Refer To:

02/17/2025 18:56:45 UTC

Project Code: 2025-0057408

Project Name: Well 9R King BLVD

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Thank you for your recent request for information on federally listed species and important wildlife habitats that may occur in your project area. The U.S. Fish and Wildlife Service (Service) has responsibility for certain species of New Mexico wildlife under the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 *et seq.*), the Migratory Bird Treaty Act as amended (16 USC 701-715), and the Bald and Golden Eagle Protection Act as amended (16 USC 668-668(c)). We are providing the following guidance to assist you in determining which federally imperiled species may or may not occur within your project area, and to recommend some conservation measures that can be included in your project design.

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the ESA of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the ESA is to provide a means whereby threatened and endangered species and

the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the ESA and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (NEPA; 42 USC 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at <https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>.

Candidate Species and Other Sensitive Species

A list of candidate and other sensitive species in your area is also attached. Candidate species and other sensitive species are species that have no legal protection under the ESA, although we recommend that candidate and other sensitive species be included in your surveys and considered for planning purposes. The Service monitors the status of these species. If significant declines occur, these species could potentially be listed. Therefore, actions that may contribute to their decline should be avoided.

Lists of sensitive species including State-listed endangered and threatened species are compiled by New Mexico State agencies. These lists, along with species information, can be found at the following websites.

Biota Information System of New Mexico (BISON-M): www.bison-m.org

New Mexico State Forestry. The New Mexico Endangered Plant Program:
<https://www.emnrd.nm.gov/sfd/rare-plants/>

New Mexico Rare Plant Technical Council, New Mexico Rare Plants: nmrareplants.unm.edu

Natural Heritage New Mexico, online species database: nhnm.unm.edu

WETLANDS AND FLOODPLAINS

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their natural and beneficial values. These habitats should be conserved through avoidance, or mitigated to ensure that there would be no net loss of wetlands function and value.

We encourage you to use the National Wetland Inventory (NWI) maps in conjunction with ground-truthing to identify wetlands occurring in your project area. The Service's NWI program website, www.fws.gov/wetlands/Data/Mapper.html, integrates digital map data with other resource information. We also recommend you contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands.

MIGRATORY BIRDS

In addition to responsibilities to protect threatened and endangered species under the ESA, there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the Service (50 CFR 10.12 and 16 USC 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a Federal nexus) or a Bird/Eagle Conservation Plan (when there is no Federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>. We also recommend review of the Birds of Conservation Concern list (<https://www.fws.gov/media/birds-conservation-concern-2021>) to fully evaluate the effects to the birds at your site. This list identifies migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent top conservation priorities for the Service, and are potentially threatened by disturbance, habitat impacts, or other project development activities.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 thereby provides additional protection for both migratory birds and migratory bird habitat. Please visit <https://www.fws.gov/partner/council-conservation-migratory-birds> for information regarding the implementation of Executive Order 13186.

We suggest you contact the New Mexico Department of Game and Fish, and the New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division for information regarding State protected and at-risk species fish, wildlife, and plants.

For further consultation with the Service we recommend submitting inquiries or assessments electronically to our incoming email box at nmesfo@fws.gov, where it will be more promptly routed to the appropriate biologist for review.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New Mexico Ecological Services Field Office

2105 Osuna Road Ne
Albuquerque, NM 87113-1001
(505) 346-2525

PROJECT SUMMARY

Project Code: 2025-0057408

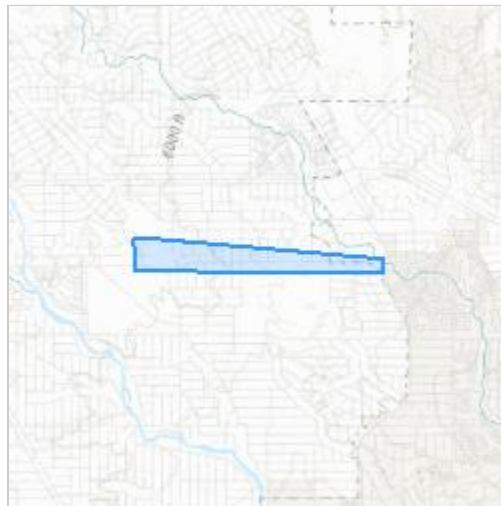
Project Name: Well 9R King BLVD

Project Type: Water Supply Pipeline - New Constr - Below Ground

Project Description: The project involves PH II Well equipping, arsenic treatment, and construction of a waterline extension between Well 9R and the intersection of King Blvd. and Rainbow Blvd. in southern Sandoval county.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@35.322118,-106.77195586393651,14z>



Counties: Sandoval County, New Mexico

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Mexican Wolf <i>Canis lupus baileyi</i> Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3916	Endangered
New Mexico Meadow Jumping Mouse <i>Zapus hudsonius luteus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7965	Endangered

BIRDS

NAME	STATUS
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Suckley's Cuckoo Bumble Bee <i>Bombus suckleyi</i> Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10885	Proposed Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: John Searles
Address: P.O. BOX 45193
City: RIO RANCHO
State: NM
Zip: 87174
Email: searles@rockymountainecology.com
Phone: 5053217676

SPECIES STATUS REPORT

Taxonomic Group

Birds

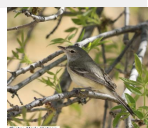
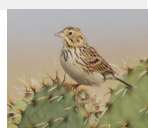
Species

7

Taxonomic Group

Species

TOTAL SPECIES: 7

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGF</u>	<u>US FWS</u>	<u>Critical Habitat</u>	<u>SGCN</u>	<u>Photo</u>
Costa's Hummingbird	Calypte costae	T			Y	
Bald Eagle	Haliaeetus leucocephalus	T			Y	
Peregrine Falcon	Falco peregrinus	T			Y	
Northern Beardless-Tyrannulet	Camptostoma imberbe ridgwayi	E			Y	
Bell's Vireo	Vireo bellii	T			Y	
Gray Vireo	Vireo vicinior	T			Y	
Baird's Sparrow	Centronyx bairdii	T			Y	

Appendix D.

Cultural Resources

Per 54 U.S.C. § 307103, cultural resources locations are confidential. Maps and other locational information are redacted from this document.



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, ALBUQUERQUE DISTRICT
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NM 87109-3435

HPD Log #125263
Received 4/22/2025

April 22, 2025

Planning, Project and Program Management Division
Planning Branch
Environmental Resources Section

Michelle M. Ensey
State Historic Preservation Officer
New Mexico Department of Cultural Affairs
Historic Preservation Division
Bataan Memorial Building
407 Galisteo Street, Suite 236
Santa Fe, New Mexico 87501

Dear Ms. Ensey:

Pursuant to 36 CFR Part 800, the U.S. Army Corps of Engineers, Albuquerque District (USACE, the Corps) seeks your concurrence on a determination of **No Historic Properties Affected** for the proposed installation of a new waterline and repairs to a municipal well along King Blvd in Rio Rancho, New Mexico (Enclosure 1).

USACE in cooperation with, and at the request of the City of Rio Rancho (CoRR), is planning the Replacement Well 9R – PH II Well Equipping, Arsenic Treatment, and King Blvd Waterline Extension (Project) to improve critical water supply infrastructure to the CoRR. The work would be conducted under Section 595 of the Water Resources Development Act of 1999 (Public Law 106-53) as amended. The Act authorizes the Corps to provide aid in the form of design and construction for water-related environmental infrastructure, resource protection, and development projects in Idaho, Montana, rural Nevada, New Mexico, and rural Utah.

The proposed project area is located in Rio Rancho, Sandoval County, New Mexico. The project is located west of the Northern Meadows neighborhood in western Rio Rancho. Well 9 occurs approximately 3.4 miles west of the intersection of King and Rainbow Blvd, and is where the water tank and well improvements would occur. The new waterline would be placed within the King Blvd right of way and extend from Well 9 to the King/Rainbow Blvd intersection (Enclosure 1). All project elements remain within the CoRR municipal boundary, and access can be gained from the Unser/King Blvd intersection. The legal description for the project area is Township 13N; Range 1E; Section 25, and Township 13N; Range 1E; Sections 28 – 31, and 33. The site was developed in the mid 1980's. The current facilities are over 30 years old and are deteriorating. Well 9 was never equipped to meet its permit limits, and the well hole is not straight, resulting in maintenance issues. The well has seen a decrease in production due to sanding and is susceptible to power outages.

The CoRR planned the design and construction of overall project improvements required for Well 9 in three phases over a minimum of five years. Upgrades began with Phase I (new 3 MG Reservoir only) completed in April 2023. Phase II - Geohydrology / Well Re-drilling began in October 2022 and was completed in January

2024. Construction on this well began in July of 2023 and the final well video survey was performed in January of 2024.

Phase III (Proposed Action) consists of re-equipping the new well, arsenic treatment, and a new Water Transmission Main in King Blvd. Design of Phase III began in January 2025 with an anticipated construction start early in 2026. The CoRR proposed to install a new section of waterline between a newly redrilled Well 9 and an existing water system (Enclosure 1). The proposed waterline would extend from the newly redrilled Well 9 in Section 25 of Township 13 North, Range 1 east south and then east, passing through Section 31, 30, 29, 28 and 33 to join existing water infrastructure at the end of the currently paved portion of King Blvd. NW in Rio Rancho. Except for a 600 m long segment in Section 25 and 24, it will be installed within the beds of three existing unpaved roads (King Blvd NW, Serenade St. NW, and Phoenix Rd. NW.). The total area of disturbance would be 33.4 acres and the trench for the pipe would be excavated with heavy machinery at a depth of at least 3 ft. Construction activities related to the Proposed Action would be conducted with standard equipment including, but not limited to backhoes, excavators, a front-end loader, trenchers, compaction equipment, and water trucks. Land ownership includes CoRR land within the existing Well 9, as well as the recently acquired adjacent lands for site expansion.

An Environmental Assessment has been completed by Rocky Mountain Ecology LLC in February 2025 and Tribal scoping letters were sent to all consulting parties listed below. A pedestrian cultural resources survey (NMCRIIS #157812) was performed in January 2025 by Aspen Cultural Resource Management, where two historic sites were identified: historic artifact scatter (LA 206047) and a historic earthen tank (HCPI 55122) were located (Enclosures 3 & 4). The survey report provided by Aspen, "Archaeological Survey of Proposed Waterline Extension, Rio Rancho, Sandoval County, New Mexico", is attached to the email with this letter. CoRR will be submitting updated attachments to NMCRIIS. The NIAF is provided as Enclosure 5 to this letter. Neither one of these resources meet eligibility requirements for the National Register of Historic Places. No archaeological resources were located during the survey. Therefore, USACE determines that the proposed undertaking would result in **No Historic Properties Affected**.

USACE will send consultation letters to your office and the following tribes: Comanche Nation of Oklahoma, Jicarilla Apache Nation, Kewa Pueblo, Navajo Nation, Ohkay Owingeh, Pueblo de Cochiti, Pueblo of Isleta, Pueblo of Jemez, Pueblo of Laguna, Pueblo of San Felipe, Pueblo of San Ildefonso, Pueblo of Sandia, Pueblo of Santa Ana, Pueblo of Santa Clara, Pueblo of Tesuque, Pueblo of Zia, and The Hopi Tribe.

If you have any questions or require additional information, please contact Corps Albuquerque District archaeologist Kaitlyn Fuqua at kaitlyn.n.fuqua@usace.army.mil, or me at danielle.a.galloway@usace.army.mil or at (505) 342-3661. Thank you very much for your attention to this matter.

Sincerely:

Danielle A. Galloway

Danielle Galloway
Chief, Environmental Resources Section

Concur, No Historic Properties Affected

for the New Mexico State Historic
Preservation Officer

Enclosures



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, ALBUQUERQUE DISTRICT
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NM 87109-3435

March 28, 2025

Planning, Project and Program Management Division
Planning Branch
Environmental Resources Section

Chairman Mark Woommavovah
Comanche Nation of Oklahoma
Post Office Box 908
Lawton, Oklahoma 73502

Dear Chairman Woommavovah:

The United States Army Corps of Engineers (USACE), Albuquerque District in cooperation with, and at the request of the City of Rio Rancho (CoRR), is planning the Replacement Well 9R – PH II Well Equipping, Arsenic Treatment, and King Blvd Waterline Extension (Project) to improve critical water supply infrastructure to the CoRR. The work would be conducted under Section 595 of the Water Resources Development Act of 1999 (Public Law 106-53) as amended. The Act authorizes the Corps to provide aid in the form of design and construction for water-related environmental infrastructure, resource protection, and development projects in Idaho, Montana, rural Nevada, New Mexico, and rural Utah.

The proposed project area is located in Rio Rancho, Sandoval County, New Mexico. The project is located west of the Northern Meadows neighborhood in western Rio Rancho. Well 9 occurs approximately 3.4 miles west of the intersection of King and Rainbow Blvd, and is where the water tank and well improvements would occur. The new waterline would be placed within the King Blvd right of way and extend from Well 9 to the King/Rainbow Blvd intersection (Enclosure 1). All project elements remain within the CoRR municipal boundary, and access can be gained from the Unser/King Blvd intersection. The legal description for the project area is Township 13N; Range 1E; Section 25, and Township 13N; Range 1E; Sections 28 – 31, and 33. The site was developed in the mid 1980's. The current facilities are over 30 years old and are deteriorating. Well 9 was never equipped to meet its permit limits, and the well hole is not straight, resulting in maintenance issues. The well has seen a decrease in production due to sanding and is susceptible to power outages.

The CoRR planned the design and construction of overall project improvements required for Well 9 in three phases over a minimum of five years. Upgrades began with Phase I (new 3 MG Reservoir only) completed in April 2023. Phase II - Geohydrology / Well Re-drilling began in October 2022 and was completed in January 2024. Construction on this well began in July of 2023 and the final well video survey was performed in January of 2024.

Phase III (Proposed Action) consists of re-equipping the new well, arsenic treatment, and a new Water Transmission Main in King Blvd. Design of Phase III began in January 2025 with an anticipated construction start early in 2026. The CoRR proposed to install a new section of waterline between a newly redrilled Well 9 and an existing water system (Enclosure 1). The proposed waterline would extend from the newly redrilled Well 9 in Section 25 of Township 13 North, Range 1 east south and then east, passing through Section 31, 30, 29, 28 and 33 to join existing water infrastructure at the end of the currently paved portion of King Blvd. NW in Rio Rancho. Except for a 600 m long segment in Section 25 and 24, it will be installed within the beds of three existing unpaved roads (King Blvd NW, Serenade St. NW, and Phoenix Rd. NW.). The total

area of disturbance would be 33.4 acres and the trench for the pipe would be excavated with heavy machinery at a depth of at least 3 ft. Construction activities related to the Proposed Action would be conducted with standard equipment including, but not limited to backhoes, excavators, a front-end loader, trenchers, compaction equipment, and water trucks. Land ownership includes CoRR land within the existing Well 9, as well as the recently acquired adjacent lands for site expansion.

An Environmental Assessment has been completed by Rocky Mountain Ecology LLC in February 2025 and scoping letters were sent to all consulting parties listed below. A pedestrian cultural resources survey was performed in January 2025 by Aspen Cultural Resource Management, where a historic artifact scatter and a historic earthen tank were located (Enclosures 3 & 4). Neither one of these resources meet eligibility requirements for the National Register of Historic Places. No archaeological resources were located during the survey. Therefore, USACE determines that the proposed undertaking would result in **No Historic Properties Affected**.

The purpose of this scoping letter is to provide you with the opportunity to submit concerns or comments regarding potential effects. Specifically, we welcome any comments you may have regarding the environmental such as natural, biological, or cultural resources; wildlife, vegetation, and special status species; air, water, or sound quality; aesthetics; health and safety; Traditional Cultural Properties; or Indian Trust Assets that may occur within or adjacent to the project area.

USACE will send consultation letters to the New Mexico State Historic Preservation Office and the following tribes: Comanche Nation of Oklahoma, Jicarilla Apache Nation, Kewa Pueblo, Navajo Nation, Ohkay Owingeh, Pueblo de Cochiti, Pueblo of Isleta, Pueblo of Jemez, Pueblo of Laguna, Pueblo of San Felipe, Pueblo of San Ildefonso, Pueblo of Sandia, Pueblo of Santa Ana, Pueblo of Santa Clara, Pueblo of Tesuque, Pueblo of Zia, and The Hopi Tribe.

If you have any questions or require additional information, please contact Corps Albuquerque District archaeologist Kaitlyn Fuqua at kaitlyn.n.fuqua@usace.army.mil, or me at danielle.a.galloway@usace.army.mil or at (505) 342-3661. Thank you very much for your attention to this matter.

Sincerely:



Danielle Galloway
Chief, Environmental Resources Section

Enclosures

From: [Greg Kaufman](#)
To: [Fuqua, Kaitlyn N CIV USARMY CESPA \(USA\)](#); [Shannon Montoya](#)
Subject: [Non-DoD Source] RE: USACE Rio Rancho King Blvd Well and Waterline Consultation: Pueblo of Sandia
Date: Wednesday, March 26, 2025 3:28:39 PM
Attachments: [image001.png](#)

Kaitlyn –

The Pueblo of Sandia has no objection to the waterline project and does not require further consultation.

Thanks,
Greg



Greg Kaufman
Environment Director
Pueblo of Sandia
481 Sandia Loop
Bernalillo, NM 87004
gkaufman@sandiapueblo.nsn.us
Office: 505-771-5080
Cell: 505-340-7616

From: Fuqua, Kaitlyn N CIV USARMY CESPA (USA) <Kaitlyn.N.Fuqua@usace.army.mil>
Sent: Wednesday, March 26, 2025 12:37 PM
To: Shannon Montoya <snmontoya@sandiapueblo.nsn.us>
Cc: Greg Kaufman <gkaufman@sandiapueblo.nsn.us>
Subject: USACE Rio Rancho King Blvd Well and Waterline Consultation: Pueblo of Sandia

The U.S. Army Corps of Engineers (Corps), Albuquerque District, is planning the Replacement Well 9R – PH II Well Equipping, Arsenic Treatment, and King Blvd Waterline Extension to improve critical water supply infrastructure to the City of Rio Rancho. The proposed project area is located in Rio Rancho, Sandoval County, New Mexico. The project is located west of the Northern Meadows neighborhood in western Rio Rancho. Well 9 occurs approximately 3.4 miles west of the intersection of King and Rainbow Blvd, and is where the water tank and well improvements would occur. . The new waterline would be placed within the King Blvd right of way and extend from Well 9 to the King/Rainbow Blvd intersection. The purpose of this scoping

letter is to provide you with the opportunity to submit concerns or comments regarding potential effects. The Corps respectfully requests that comments be submitted by **April 28, 2025**. Please feel free to contact me with any questions or comments regarding this project.

Kaitlyn Fuqua

Archaeologist

U.S. Army Corps of Engineers

Albuquerque District

4101 Jefferson Plaza, NE

Albuquerque, NM 87109

Kaitlyn.N.Fuqua@usace.army.mil

From: [Fuqua, Kaitlyn N CIV USARMY CESPA \(USA\)](#)
To: pstout@sfpueblo.com; rtortiz@sfpueblo.com
Cc: lortiz@sfpueblo.com
Subject: RE: replacement Well9R-PH II Well, Equipping Arsenic Treatment, and King BLVD Waterline Extension
Date: Monday, April 14, 2025 12:44:00 PM
Attachments: [image001.png](#)

Hello Mr. Stout and Mr. Ortiz,

Thank you for responding to the request for consultation for the Replacement of Well9R-PH II and King Blvd waterline extension project in Rio Rancho. What kind of additional information about the project can I provide? Additionally, do you have any concerns or comments about the project? Feel free to reach out to me for any information, we can also arrange a time this week for a phone call, if you prefer.

Thank you,

Kaitlyn Fuqua

Archaeologist

U.S. Army Corps of Engineers

Albuquerque District

4101 Jefferson Plaza, NE

Albuquerque, NM 87109

Kaitlyn.N.Fuqua@usace.army.mil

From: Clayton P. Bowers <bowers@rockymountaineecology.com>
Sent: Monday, April 14, 2025 10:46 AM
To: Fuqua, Kaitlyn N CIV USARMY CESPA (USA) <Kaitlyn.N.Fuqua@usace.army.mil>
Subject: [Non-DoD Source] Fw: replacement Well9R-PH II Well, Equipping Arsenic Treatment, and King BLVD Waterline Extension

Hi Kaitlyn,

We received this message from the Pueblo of San Felipe. I imagine you also reached out to them as part of your tribal consultation but wanted to pass this along.

Thanks!

Clay

From: Leon Ortiz <lortiz@sfpueblo.com>
Sent: Friday, April 11, 2025 16:32
To: Clayton P. Bowers <bowers@rockymountaineecology.com>
Cc: Pinu'u Stout <pstout@sfpueblo.com>; Ricardo Ortiz <ROrtiz@sfpueblo.com>
Subject: replacement Well9R-PH II Well, Equipping Arsenic Treatment, and King BLVD Waterline Extension

Good Afternoon,

The Pueblo of San Felipe has received your letter that was dated February 19th, 2025, regarding construction of the 3 MG Steel Reservoir, and drilling and equipping a new well, including a new Arsenic Treatment Facility and water Transmission Main. We are interested to consult and to be involved in the planning process.

Thank you for reaching out to the Pueblo of San Felipe.
We require additional information and communication on this project.

Please contact Pinu'u Stout, Natural Resources Director and Ricardo Ortiz, Tribal Historic Preservation Officer, both cc'd here.

Thank you



Leon Ortiz
THPO Monitor
127 Hagen Road
San Felipe Pueblo, NM 87001



Pueblo of Cochiti
PO Box 70
Cochiti Pueblo, NM 87072

February 18, 2025

RE: Replacement Well 9R – PH II Well Equipping, Arsenic Treatment, and King BLVD Waterline Extension

To Whom It May Concern:

The City of Rio Rancho is seeking funding assistance to update and expand Well Site 9. Rio Rancho has identified this site as a critical facility for existing and future operations. We are gathering information for an environmental review of the referenced project. The project location is depicted on the attached maps.

Site 9 currently includes a well, reservoir, and arsenic treatment facility. The project area is located in Sandoval County, west of the City limits, adjacent to and north of King Boulevard. The City intends to design and construct the overall project improvements required for Site 9 in three phases over a minimum of five years. The City does not have any outstanding debt related to any aspect of the Site 9 proposed improvements. The City self-funded the engineering and land acquisition for Phase 1 and procured a loan from the United States Army Corps of Engineers for the construction of the 3 MG steel reservoir. The City has committed to a loan to finance the design and construction of Phases II and III through the United States Army Corps of Engineers for the construction. Phases II and III consist of drilling and equipping a new well, including a new arsenic treatment facility and water transmission main.

The City has contracted with Huitt-Zollars, Inc. (HZI) for design of this system. Rocky Mountain Ecology, LLC (RME) is preparing an environmental assessment to comply with the National Environmental Policy Act. RME is gathering information for an environmental review of the proposed project, which requires coordination with stakeholders. This letter initiates the Section 106 consultation process to determine whether the proposed project has the potential to disturb areas considered important or culturally significant. Culturally significant areas might include traditional plant use areas, traditional mineral areas, shrines or important geologic formations, archeological sites, or any areas deemed culturally significant. We would appreciate your determination whether there are religious or cultural ties to the project area. We also need to know if you have any concerns regarding any potential impacts that may result from the proposed project.

Surveys for cultural and biological resources were conducted during February of 2025. We have made an initial determination that this project will not have a significant environmental impact within the context of the National Environmental Policy Act. Please provide your comments by completing and returning a copy of the acknowledgement via email to: bowers@rockymountaineecology.com, or by mail at P.O. Box 45193, Rio Rancho, NM 87174.

To provide verbal comments or for more information, please contact me at 575.639.3883 or by email.

Clayton Bowers, Director - Rocky Mountain Ecology LLC

ACKNOWLEDGEMENT:

As a representative for the referenced organization, the undersigned acknowledges receipt of this request for comment, and having reviewed the attached project summary and additional information, if provided,

☐ concurs with the initial determination, or, ☐ has no comments.

Signature: _____ Date: _____

Name: _____ Title: _____

PUEBLO OF ISLETA

FEB 28 2025

Cultural & Historic
Preservation

RECEIVED

FEB 24 2025

Pueblo of Isleta
Governor's Office

Pueblo of Isleta
PO Box 1270
Isleta Pueblo, NM 87022

Environmental Consulting &
Applied Restoration Services



February 19, 2025

RE: Replacement Well 9R - PH II Well Equipping, Arsenic Treatment, and King BLVD Waterline Extension

To Whom It May Concern:

The City of Rio Rancho is seeking funding assistance to update and expand Well Site 9. Rio Rancho has identified this site as a critical facility for existing and future operations. We are gathering information for an environmental review of the referenced project. The project location is depicted on the attached maps.

Site 9 currently includes a well, reservoir, and arsenic treatment facility. The project area is located in Sandoval County, west of the City limits, adjacent to and north of King Boulevard. The City intends to design and construct the overall project improvements required for Site 9 in three phases over a minimum of five years. The City does not have any outstanding debt related to any aspect of the Site 9 proposed improvements. The City self-funded the engineering and land acquisition for Phase 1 and procured a loan from the United States Army Corps of Engineers for the construction of the 3 MG steel reservoir. The City has committed to a loan to finance the design and construction of Phases II and III through the United States Army Corps of Engineers for the construction. Phases II and III consist of drilling and equipping a new well, including a new arsenic treatment facility and water transmission main.

The City has contracted with Huitt-Zollars, Inc. (HZI) for design of this system. Rocky Mountain Ecology, LLC (RME) is preparing an environmental assessment to comply with the National Environmental Policy Act. RME is gathering information for an environmental review of the proposed project, which requires coordination with stakeholders. This letter initiates the Section 106 consultation process to determine whether the proposed project has the potential to disturb areas considered important or culturally significant. Culturally significant areas might include traditional plant use areas, traditional mineral areas, shrines or important geologic formations, archeological sites, or any areas deemed culturally significant. We would appreciate your determination whether there are religious or cultural ties to the project area. We also need to know if you have any concerns regarding any potential impacts that may result from the proposed project.

Surveys for cultural and biological resources were conducted during February of 2025. We have made an initial determination that this project will not have a significant environmental impact within the context of the National Environmental Policy Act. Please provide your comments by completing and returning a copy of the acknowledgement via email to: bowers@rockymountaineecology.com, or by mail at P.O. Box 45193, Rio Rancho, NM 87174.

To provide verbal comments or for more information, please contact me at 575.639.3883 or by email.

Clayton Bowers, Director - Rocky Mountain Ecology LLC

ACKNOWLEDGEMENT:

As a representative for the referenced organization, the undersigned acknowledges receipt of this request for comment, and having reviewed the attached project summary and additional information, if provided,

☒ concurs with the initial determination, or, ☒ has no comments.

Signature: Date: 3/11/2025

Name: Henry Walt Title: Pueblo of Isleta THPO

COMANCHE NATION



Rocky Mountain Ecology
Environmental Consulting &
Applied Restoration Services
Attn: Mr. Clayton Bowers
P.O. Box 45193
New Mexico 87

March 11, 2025

Re: The City of Rio Rancho, New Mexico – Replacement Well 9R – PH 11 Well
Equipping, Arsenic Treatment, and King Blvd Waterline Extension

Dear Mr. Bowers:

In response to your request, the above reference project has been reviewed by staff of this office to identify areas that may potentially contain prehistoric or historic archeological materials. The location of your project has been cross referenced with the Comanche Nation site files, where an indication of ***“No Properties”*** have been identified. (IAW 36 CFR 800.4(d)(1)).

Please contact this office at (580) 492-1153 if you require additional information on this project.

This review is performed in order to identify and preserve the Comanche Nation and State cultural heritage, in conjunction with the State Historic Preservation Office.

Regards

Comanche Nation Historic Preservation Office
Theodore E. Villicana , Technician
#6 SW “D” Avenue, Suite C
Lawton, OK. 73502



ROCKY MOUNTAIN ECOLOGY

ENVIRONMENTAL CONSULTING | APPLIED RESTORATION SERVICES

Pueblo of Sandia
481 Sandia Loop
Bernalillo, NM 87004

March 24, 2020

RE: Construction of a New Water Storage Tank located at Well Site 9 Project

To Whom It May Concern:

The City of Rio Rancho has received funding for the Construction of a New Water Storage Tank located at Well Site 9 Project. We are gathering information for an environmental review of the referenced project. The project is described in the attached project summary sheet and the location is depicted on the attached maps.

Reservoir 9 is filled by Well 9 which was constructed in 1984. Reservoir 9 is located west of City Center, outside City limits, off King Boulevard, in Sandoval County. Over the years, Well 9 has seen decreased production, and the existing 200,000-gallon ground storage tank has recently been inspected and is recommended for replacement. Therefore, it is proposed that 1) the existing Tank 9 be replaced with a new tank sized to provide adequate storage capacity and redundancy, working in conjunction with Tank 13; 2) re-drill Well 9 and increase its yield up to permitted limits; and 3) adding additional arsenic treatment capacity to the existing treatment facility, if required.

The City has contracted with Huitt-Zollars, Inc. (HZI) for design of this system. Rocky Mountain Ecology, LLC (RME) is preparing an environmental information document to comply with the National Environmental Policy Act (NEPA). RME is gathering information for an environmental review of the proposed project, which requires coordination with stakeholders. This letter initiates the Section 106 consultation process to determine whether the proposed project has the potential to disturb areas considered important or culturally significant. Culturally significant areas might include traditional plant use areas, traditional mineral areas, shrines or important geologic formations, archeological sites, or any areas deemed culturally significant. We would appreciate your determination whether there are religious or cultural ties to the project area. We also need to know if you have any concerns regarding any potential impacts that may result from the proposed project.

Surveys for cultural and biological resources were conducted during March of 2020. We have made an initial determination that this project will not have a significant environmental impact within the context of the NEPA. Please provide your comments by completing and returning a copy of the acknowledgement via email to: knox@rockymountainecology.com, or by mail at P.O. Box 45193, Rio Rancho, NM 87174.

To provide verbal comments or for more information, please contact me at 505.992.6150 or by email.

Shawn C. Knox, Principal - Rocky Mountain Ecology LLC

ACKNOWLEDGEMENT:

As a representative for the referenced organization, the undersigned acknowledges receipt of this request for comment, and having reviewed the attached project summary and additional information, if provided,

☐ concurs with the initial determination, or, ☐ has no comments.

Signature: _____ Date: _____

Name: _____ Title: _____

P.O. Box 45193
Rio Rancho, NM 87174

(505) 992-6150
knox@rockymountainecology.com

Subject Fwd: Rocky Mountain Ecology-Construction of a New Water Storage Tank located at Well Site 9 Project
From Shawn C. Knox <knox@rockymountaineecology.com>
To Clay Bowers <bowers@rockymountaineecology.com>
Date 2020-04-08 11:29



- image002.png (~7 KB)
- 20200408-Rocky Mountain Ecology-Construction of a New Water Storage Tank located at Well Site 9 Project-966320200408.pdf (~1.2 MB)

Shawn C. Knox
www.rockymountaineecology.com
505.992.6150

Begin forwarded message:

From: "Richard M. Begay" <r.begay@navajo-nsn.gov>
Date: April 8, 2020 at 1:16:27 PM EDT
To: "knox@rockymountaineecology.com" <knox@rockymountaineecology.com>
Cc: Timothy Begay <tbegay@navajo-nsn.gov>
Subject: FW: Rocky Mountain Ecology-Construction of a New Water Storage Tank located at Well Site 9 Project

Good morning sir,

I reviewed the information for the proposed undertaking and do not have any concerns or questions. Please proceed with the project without further consultation with the Navajo Nation.

Thank you,

Richard M Begay, THPO

NN Heritage and Historic Preservation Dep't

From: Brian Begaye <bbegaye@navajo-nsn.gov>
Sent: Wednesday, April 8, 2020 10:36 AM
To: Richard M. Begay <r.begay@navajo-nsn.gov>; Rudolph R. Shebala <rudyshebala@navajo-nsn.gov>
Cc: Jonathan Nez <jonathannez@navajo-nsn.gov>; Myron Lizer <myronlizer@navajo-nsn.gov>; Paulson Chaco <paulsonchaco@navajo-nsn.gov>; Milton Bluehouse Jr. <mbluehouse@navajo-nsn.gov>; James J. Davis, Jr <jjdavisjr@navajo-nsn.gov>; Christopher T. Bahe <cbahe@navajo-nsn.gov>; Sharon Yazzie <shyazzie@navajo-nsn.gov>; Brenda Yazzie <brendayazzie@navajo-nsn.gov>; Sarah L. Woodie-Jackson

<swoodie-jackson@navajo-nsn.gov>; Ettie Anderson <eanderson@navajo-nsn.gov>

Subject: Rocky Mountain Ecology-Construction of a New Water Storage Tank located at Well Site 9 Project

FWD: NN Division of Natural Resources.

File attached.

Ahéhee',

(Thank you)

Brian Begaye II

Administrative Assistant

THE NAVAJO NATION

Office of the President & Vice President

P.O. Box 7440 | 100 Parkway | Window Rock, AZ 86515

Office: (928) 871-7000 | Facsimile: (928) 871-4025

E-mail: bbegaye@navajo-nsn.gov

This message is intended only for the use of the Addressee and may contain information that is PRIVILEGED and CONFIDENTIAL. If you are not the intended recipient, please delete the email and inform the sender immediately. Thank you.

Please consider the environment before printing this document.



image002.png~7 KB [Show](#) [Download](#)

Appendix E.

Environmental Data Resources (EDR) Radius Map Report

Corr Well 9

King Blvd

Rio Rancho, NM 87144

Inquiry Number: 7931293.2s

March 19, 2025

The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527 - 21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E2247 - 16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E1528 - 22) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

KING BLVD
RIO RANCHO, NM 87144

COORDINATES

Latitude (North): 35.3200200 - 35° 19' 12.07"
Longitude (West): 106.7618380 - 106° 45' 42.61"
Universal Transverse Mercator: Zone 13
UTM X (Meters): 339845.6
UTM Y (Meters): 3909758.2
Elevation: 5917 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 14565935 ARROYO DE LAS CALABACILLAS, NM
Version Date: 2020

East Map: 14565981 LOMA MACHETE, NM
Version Date: 2020

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: 20200608
Source: USDA

MAPPED SITES SUMMARY

Target Property Address:
KING BLVD
RIO RANCHO, NM 87144

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	RIO RANCHO WELL 9R	UNICORN CIRCLE NW	ECHO	Higher	79, 0.015, West
A2	KAFB PBR NO.2, TARGE		UXO	Higher	6165, 1.168, NNW
A3	PBR-2 TARGET N-5		FUDS	Higher	6165, 1.168, NNW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL..... National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY..... Federal Facility Site Information listing
SEMS..... Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS..... Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-VSQG..... RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System

EXECUTIVE SUMMARY

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROLS..... Institutional Controls Sites List

Federal ERNS list

ERNS..... Emergency Response Notification System

Lists of state- and tribal hazardous waste facilities

SCS..... State Cleanup Sites Listing
SHWS..... This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF..... Solid Waste Facilities

Lists of state and tribal leaking storage tanks

LUST..... Leaking Underground Storage Tank Prioritization Database
LAST..... Leaking Aboveground Storage Tank Sites
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land
LTANKS..... Leaking Storage Tank Listing

Lists of state and tribal registered storage tanks

FEMA UST..... Underground Storage Tank Listing
UST..... Listing of Underground Storage Tanks
AST..... Aboveground Storage Tanks List
INDIAN UST..... Underground Storage Tanks on Indian Land
TANKS..... Storage Tank Facility Listing

State and tribal institutional control / engineering control registries

INST CONTROL..... Sites with Institutional Controls

Lists of state and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing
VCP..... Voluntary Remediation Program Sites

Lists of state and tribal brownfield sites

BROWNFIELDS..... Brownfields Site Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY..... Recycling Facility Listing

EXECUTIVE SUMMARY

INDIAN ODI.....	Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9.....	Torres Martinez Reservation Illegal Dump Site Locations
ODI.....	Open Dump Inventory
IHS OPEN DUMPS.....	Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL.....	Delisted National Clandestine Laboratory Register
CDL.....	Clandestine Drug Laboratory Listing
US CDL.....	National Clandestine Laboratory Register

Local Land Records

LIENS 2.....	CERCLA Lien Information
--------------	-------------------------

Records of Emergency Release Reports

HMIRS.....	Hazardous Materials Information Reporting System
SPILLS.....	Spill Data

Other Ascertainable Records

RCRA NonGen / NLR.....	RCRA - Non Generators / No Longer Regulated
DOD.....	Department of Defense Sites
SCRD DRYCLEANERS.....	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR.....	Financial Assurance Information
EPA WATCH LIST.....	EPA WATCH LIST
2020 COR ACTION.....	2020 Corrective Action Program List
TSCA.....	Toxic Substances Control Act
TRIS.....	Toxic Chemical Release Inventory System
SSTS.....	Section 7 Tracking Systems
ROD.....	Records Of Decision
RMP.....	Risk Management Plans
RAATS.....	RCRA Administrative Action Tracking System
PRP.....	Potentially Responsible Parties
PADS.....	PCB Activity Database System
ICIS.....	Integrated Compliance Information System
FTTS.....	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS.....	Material Licensing Tracking System
COAL ASH DOE.....	Steam-Electric Plant Operation Data
COAL ASH EPA.....	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER.....	PCB Transformer Registration Database
RADINFO.....	Radiation Information Database
HIST FTTS.....	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS.....	Incident and Accident Data
CONSENT.....	Superfund (CERCLA) Consent Decrees
INDIAN RESERV.....	Indian Reservations
FUSRAP.....	Formerly Utilized Sites Remedial Action Program
UMTRA.....	Uranium Mill Tailings Sites
LEAD SMELTERS.....	Lead Smelter Sites
US AIRS.....	Aerometric Information Retrieval System Facility Subsystem
US MINES.....	Mines Master Index File
MINES MRDS.....	Mineral Resources Data System
ABANDONED MINES.....	Abandoned Mines

EXECUTIVE SUMMARY

FINDS.....	Facility Index System/Facility Registry System
DOCKET HWC.....	Hazardous Waste Compliance Docket Listing
FUELS PROGRAM.....	EPA Fuels Program Registered Listing
PFAS NPL.....	Superfund Sites with PFAS Detections Information
PFAS FEDERAL SITES.....	Federal Sites PFAS Information
PFAS TRIS.....	List of PFAS Added to the TRI
PFAS TSCA.....	PFAS Manufacture and Imports Information
PFAS RCRA MANIFEST.....	PFAS Transfers Identified In the RCRA Database Listing
PFAS ATSDR.....	PFAS Contamination Site Location Listing
PFAS WQP.....	Ambient Environmental Sampling for PFAS
PFAS NPDES.....	Clean Water Act Discharge Monitoring Information
PFAS PROJECT.....	NORTHEASTERN UNIVERSITY PFAS PROJECT
PFAS ECHO.....	Facilities in Industries that May Be Handling PFAS Listing
PFAS ECHO FIRE TRAIN.....	Facilities in Industries that May Be Handling PFAS Listing
PFAS PT 139 AIRPORT.....	All Certified Part 139 Airports PFAS Information Listing
AQUEOUS FOAM NRC.....	Aqueous Foam Related Incidents Listing
BIOSOLIDS.....	ICIS-NPDES Biosolids Facility Data
UST FINDER.....	UST Finder Database
UST FINDER RELEASE.....	UST Finder Releases Database
E MANIFEST.....	Hazardous Waste Electronic Manifest System
PFAS.....	Per- and Polyfluoroalkyl Substances (PFAS) Data
AIRS.....	Airs Information
ASBESTOS.....	List of Asbestos Demolition and Renovations Jobs
DRYCLEANERS.....	Drycleaner Facility Listing
Financial Assurance.....	Financial Assurance Information
MINES.....	Coal Mine Permits Database
NPDES.....	List of Discharge Permits
UIC.....	Underground Injection Control Listing

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP.....	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto.....	EDR Exclusive Historical Auto Stations
EDR Hist Cleaner.....	EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF.....	Recovered Government Archive Solid Waste Facilities List
RGA LUST.....	Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property. Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

FUDS: The Listing includes locations of Formerly Used Defense Sites Properties where the US Army Corps Of Engineers is actively working or will take necessary cleanup actions.

A review of the FUDS list, as provided by EDR, and dated 10/01/2024 has revealed that there is 1 FUDS site within approximately 1.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
PBR-2 TARGET N-5		NNW 1 - 2 (1.168 mi.)	A3	8

UXO: A listing of unexploded ordnance site locations

A review of the UXO list, as provided by EDR, and dated 09/06/2023 has revealed that there is 1 UXO site within approximately 1.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
KAFB PBR NO.2, TARGE		NNW 1 - 2 (1.168 mi.)	A2	8

ECHO: ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

A review of the ECHO list, as provided by EDR, and dated 12/21/2024 has revealed that there is 1 ECHO site within approximately 0.5 miles of the target property.

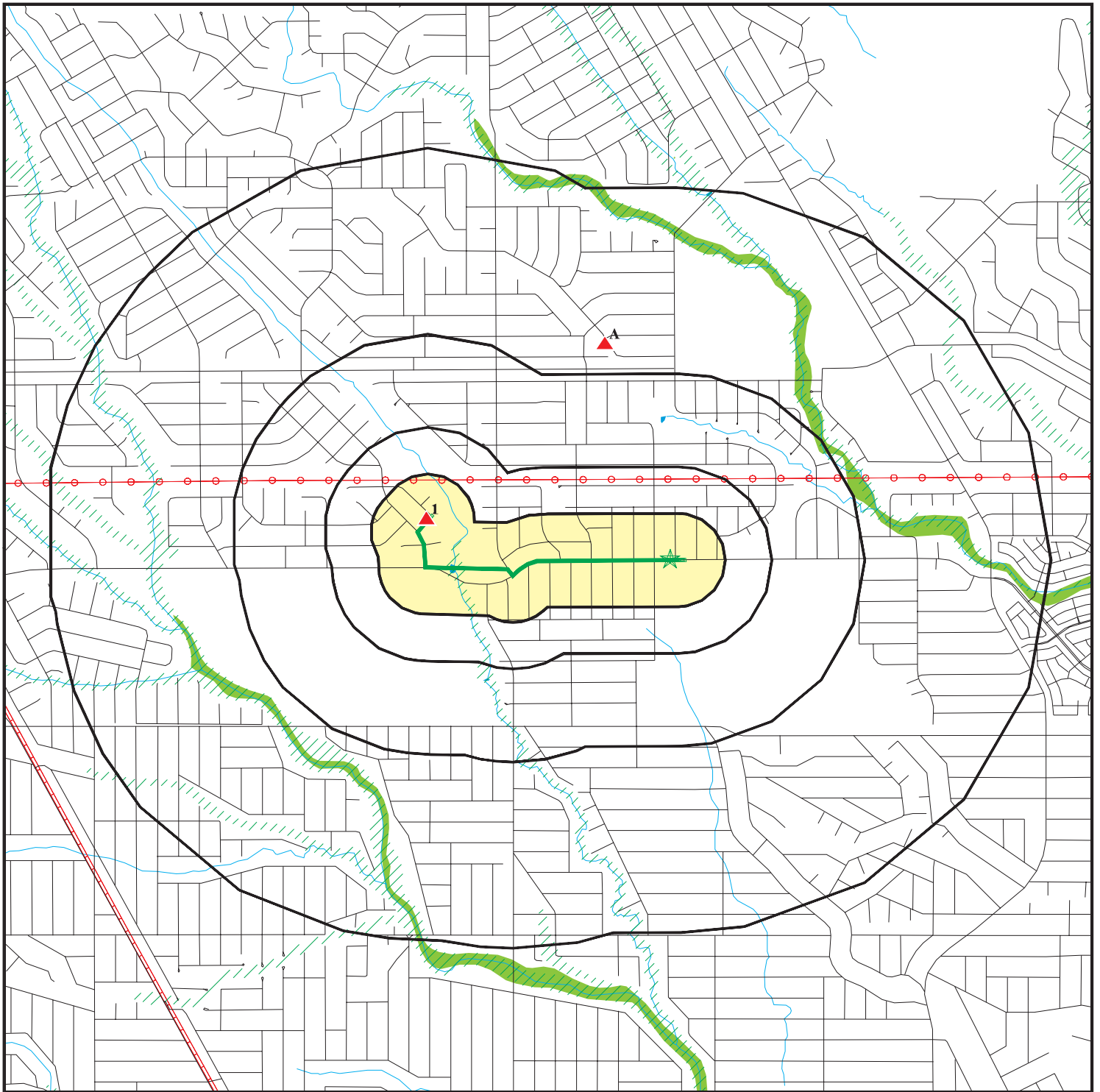
<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
RIO RANCHO WELL 9R Registry ID: 110071369521	UNICORN CIRCLE NW	W 0 - 1/8 (0.015 mi.)	1	8

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 8 records.

<u>Site Name</u>	<u>Database(s)</u>
UNM, CENTENNIAL ENGINEERING BLDG.	SCS
KAFB HANGAR 1002	SCS
KAFB BFF WELL DEVELOPMENT WATER KA	SCS
VISTA DEL NORTE	SCS
PROSPERITY & BROADWAY OIL SPILL	SEMS
WELL NO. 9 IMPROVEMENTS AND 3 MG R	FINDS, ECHO
3 MG RESERVOIR AND WELL 9 SITE IMP	FINDS, ECHO
WELL 9 REHABILITATION - WA 2164	ECHO

OVERVIEW MAP - 7931293.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Pipelines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands

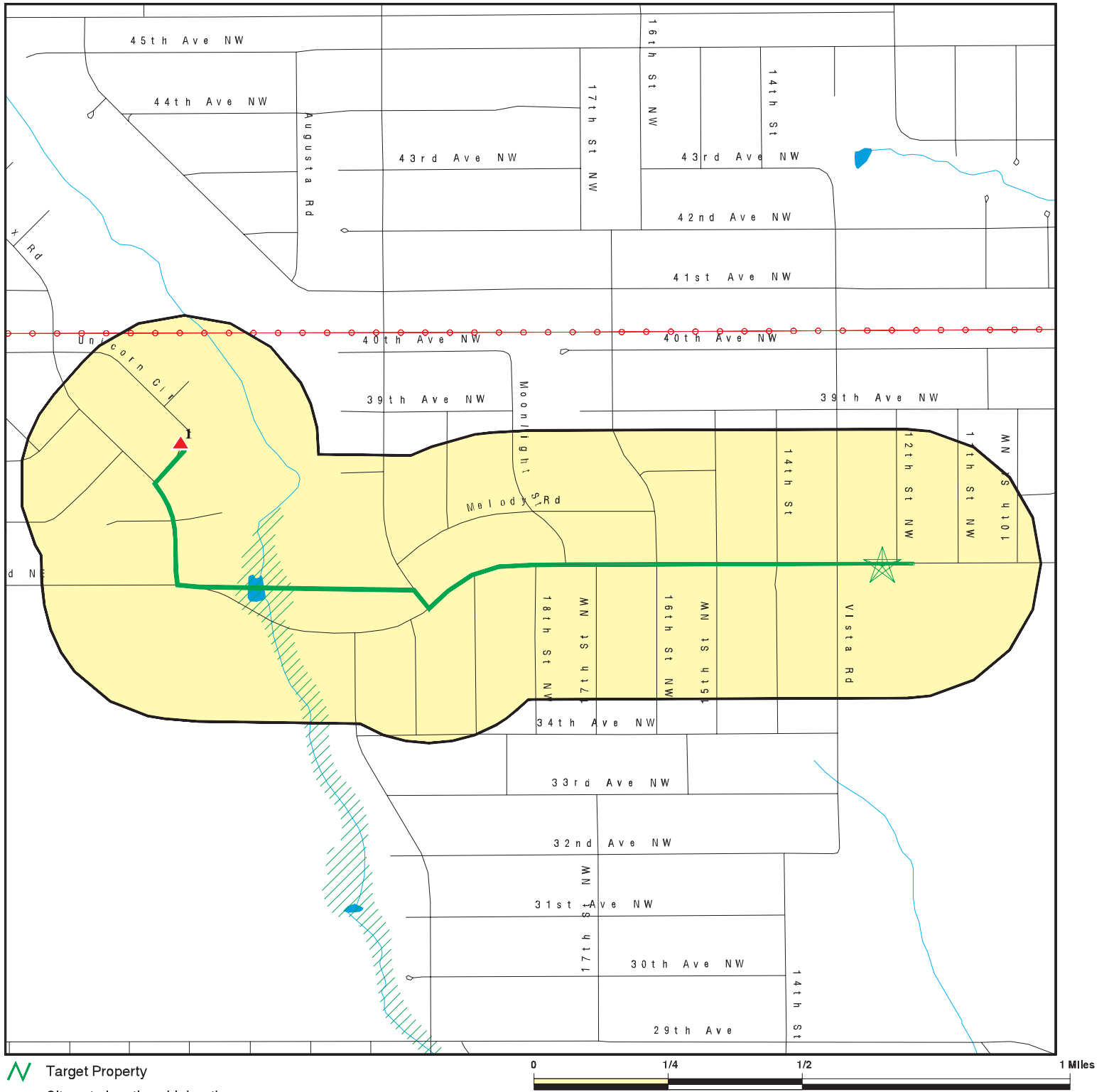


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Corr Well 9
 ADDRESS: King Blvd
 Rio Rancho NM 87144
 LAT/LONG: 35.32002 / 106.761838

CLIENT: Rocky Mountain Ecology, LLC
 CONTACT: Clay Benton
 INQUIRY #: 7931293.2s
 DATE: March 19, 2025 12:36 pm

DETAIL MAP - 7931293.2S



-  Target Property
-  Sites at elevations higher than or equal to the target property
-  Sites at elevations lower than the target property
-  Manufactured Gas Plants
-  Sensitive Receptors
-  National Priority List Sites
-  Dept. Defense Sites

-  Indian Reservations BIA
-  Power transmission lines
-  Special Flood Hazard Area (1%)
-  0.2% Annual Chance Flood Hazard

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Corr Well 9
 ADDRESS: King Blvd
 Rio Rancho NM 87144
 LAT/LONG: 35.32002 / 106.761838

CLIENT: Rocky Mountain Ecology, LLC
 CONTACT: Clay Benton
 INQUIRY #: 7931293.2s
 DATE: March 19, 2025 12:36 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Lists of Federal NPL (Superfund) sites</i>								
NPL	1.500		0	0	0	0	0	0
Proposed NPL	1.500		0	0	0	0	0	0
NPL LIENS	1.500		0	0	0	0	0	0
<i>Lists of Federal Delisted NPL sites</i>								
Delisted NPL	1.500		0	0	0	0	0	0
<i>Lists of Federal sites subject to CERCLA removals and CERCLA orders</i>								
FEDERAL FACILITY	1.000		0	0	0	0	NR	0
SEMS	1.000		0	0	0	0	NR	0
<i>Lists of Federal CERCLA sites with NFRAP</i>								
SEMS-ARCHIVE	1.000		0	0	0	0	NR	0
<i>Lists of Federal RCRA facilities undergoing Corrective Action</i>								
CORRACTS	1.500		0	0	0	0	0	0
<i>Lists of Federal RCRA TSD facilities</i>								
RCRA-TSDF	1.000		0	0	0	0	NR	0
<i>Lists of Federal RCRA generators</i>								
RCRA-LQG	0.750		0	0	0	0	NR	0
RCRA-SQG	0.750		0	0	0	0	NR	0
RCRA-VSQG	0.750		0	0	0	0	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
LUCIS	1.000		0	0	0	0	NR	0
US ENG CONTROLS	1.000		0	0	0	0	NR	0
US INST CONTROLS	1.000		0	0	0	0	NR	0
<i>Federal ERNS list</i>								
ERNS	0.500		0	0	0	NR	NR	0
<i>Lists of state- and tribal hazardous waste facilities</i>								
SCS	1.500		0	0	0	0	0	0
SHWS	N/A		N/A	N/A	N/A	N/A	N/A	N/A
<i>Lists of state and tribal landfills and solid waste disposal facilities</i>								
SWF/LF	1.000		0	0	0	0	NR	0
<i>Lists of state and tribal leaking storage tanks</i>								
LUST	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LAST	1.000		0	0	0	0	NR	0
INDIAN LUST	1.000		0	0	0	0	NR	0
LTANKS	1.000		0	0	0	0	NR	0
<i>Lists of state and tribal registered storage tanks</i>								
FEMA UST	0.750		0	0	0	0	NR	0
UST	0.750		0	0	0	0	NR	0
AST	0.750		0	0	0	0	NR	0
INDIAN UST	0.750		0	0	0	0	NR	0
TANKS	0.750		0	0	0	0	NR	0
<i>State and tribal institutional control / engineering control registries</i>								
INST CONTROL	1.000		0	0	0	0	NR	0
<i>Lists of state and tribal voluntary cleanup sites</i>								
INDIAN VCP	1.000		0	0	0	0	NR	0
VCP	1.000		0	0	0	0	NR	0
<i>Lists of state and tribal brownfield sites</i>								
BROWNFIELDS	1.000		0	0	0	0	NR	0
<u>ADDITIONAL ENVIRONMENTAL RECORDS</u>								
<i>Local Brownfield lists</i>								
US BROWNFIELDS	1.000		0	0	0	0	NR	0
<i>Local Lists of Landfill / Solid Waste Disposal Sites</i>								
SWRCY	1.000		0	0	0	0	NR	0
INDIAN ODI	1.000		0	0	0	0	NR	0
DEBRIS REGION 9	1.000		0	0	0	0	NR	0
ODI	1.000		0	0	0	0	NR	0
IHS OPEN DUMPS	1.000		0	0	0	0	NR	0
<i>Local Lists of Hazardous waste / Contaminated Sites</i>								
US HIST CDL	0.500		0	0	0	NR	NR	0
CDL	0.500		0	0	0	NR	NR	0
US CDL	0.500		0	0	0	NR	NR	0
<i>Local Land Records</i>								
LIENS 2	0.500		0	0	0	NR	NR	0
<i>Records of Emergency Release Reports</i>								
HMIRS	0.500		0	0	0	NR	NR	0
SPILLS	0.500		0	0	0	NR	NR	0
<i>Other Ascertainable Records</i>								
RCRA NonGen / NLR	0.750		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FUDS	1.500		0	0	0	0	1	1
DOD	1.500		0	0	0	0	0	0
SCRD DRYCLEANERS	1.000		0	0	0	0	NR	0
US FIN ASSUR	0.500		0	0	0	NR	NR	0
EPA WATCH LIST	0.500		0	0	0	NR	NR	0
2020 COR ACTION	0.750		0	0	0	0	NR	0
TSCA	0.500		0	0	0	NR	NR	0
TRIS	0.500		0	0	0	NR	NR	0
SSTS	0.500		0	0	0	NR	NR	0
ROD	1.500		0	0	0	0	0	0
RMP	0.500		0	0	0	NR	NR	0
RAATS	0.500		0	0	0	NR	NR	0
PRP	0.500		0	0	0	NR	NR	0
PADS	0.500		0	0	0	NR	NR	0
ICIS	0.500		0	0	0	NR	NR	0
FTTS	0.500		0	0	0	NR	NR	0
MLTS	0.500		0	0	0	NR	NR	0
COAL ASH DOE	0.500		0	0	0	NR	NR	0
COAL ASH EPA	1.000		0	0	0	0	NR	0
PCB TRANSFORMER	0.500		0	0	0	NR	NR	0
RADINFO	0.500		0	0	0	NR	NR	0
HIST FTTS	0.500		0	0	0	NR	NR	0
DOT OPS	0.500		0	0	0	NR	NR	0
CONSENT	1.500		0	0	0	0	0	0
INDIAN RESERV	1.500		0	0	0	0	0	0
FUSRAP	1.500		0	0	0	0	0	0
UMTRA	1.000		0	0	0	0	NR	0
LEAD SMELTERS	0.500		0	0	0	NR	NR	0
US AIRS	0.500		0	0	0	NR	NR	0
US MINES	0.750		0	0	0	0	NR	0
MINES MRDS	0.500		0	0	0	NR	NR	0
ABANDONED MINES	0.750		0	0	0	0	NR	0
FINDS	0.500		0	0	0	NR	NR	0
UXO	1.500		0	0	0	0	1	1
ECHO	0.500		1	0	0	NR	NR	1
DOCKET HWC	0.500		0	0	0	NR	NR	0
FUELS PROGRAM	0.750		0	0	0	0	NR	0
PFAS NPL	0.750		0	0	0	0	NR	0
PFAS FEDERAL SITES	0.750		0	0	0	0	NR	0
PFAS TRIS	0.750		0	0	0	0	NR	0
PFAS TSCA	0.750		0	0	0	0	NR	0
PFAS RCRA MANIFEST	0.750		0	0	0	0	NR	0
PFAS ATSDR	0.750		0	0	0	0	NR	0
PFAS WQP	0.750		0	0	0	0	NR	0
PFAS NPDES	0.750		0	0	0	0	NR	0
PFAS PROJECT	0.250		0	0	NR	NR	NR	0
PFAS ECHO	0.750		0	0	0	0	NR	0
PFAS ECHO FIRE TRAIN	0.750		0	0	0	0	NR	0
PFAS PT 139 AIRPORT	0.750		0	0	0	0	NR	0
AQUEOUS FOAM NRC	0.750		0	0	0	0	NR	0
BIOSOLIDS	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UST FINDER	0.750		0	0	0	0	NR	0
UST FINDER RELEASE	1.000		0	0	0	0	NR	0
E MANIFEST	0.750		0	0	0	0	NR	0
PFAS	0.750		0	0	0	0	NR	0
AIRS	0.500		0	0	0	NR	NR	0
ASBESTOS	0.500		0	0	0	NR	NR	0
DRYCLEANERS	0.750		0	0	0	0	NR	0
Financial Assurance	0.500		0	0	0	NR	NR	0
MINES	0.750		0	0	0	0	NR	0
NPDES	0.500		0	0	0	NR	NR	0
UIC	0.500		0	0	0	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.500		0	0	0	0	0	0
EDR Hist Auto	0.625		0	0	0	0	NR	0
EDR Hist Cleaner	0.625		0	0	0	0	NR	0

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	0.500		0	0	0	NR	NR	0
RGA LUST	0.500		0	0	0	NR	NR	0

- Totals --		0	1	0	0	0	2	3
-------------	--	---	---	---	---	---	---	---

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

N/A = This State does not maintain a SHWS list. See the Federal CERCLIS list.

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

1
West
< 1/8
0.015 mi.
79 ft.

RIO RANCHO WELL 9R
UNICORN CIRCLE NW
RIO RANCHO, NM 87144

ECHO **1027617750**
N/A

Relative:
Higher
Actual:
6055 ft.

ECHO:
Envid: 1027617750
Registry ID: 110071369521

[DFR URL:](#)
Name: RIO RANCHO WELL 9R
Address: UNICORN CIRCLE NW
City,State,Zip: RIO RANCHO, NM 87144

A2
NNW
> 1
1.168 mi.
6165 ft.

KAFB PBR NO.2, TARGET N-5
RIO RANCHO, NM
Site 1 of 2 in cluster A

UXO **1024714010**
N/A

Relative:
Higher
Actual:
5923 ft.

UXO:
DoD Component: FUDS
Installation Name: PBR-2 TARGET N-5
Name: KAFB PBR NO.2, TARGET N-5
Address: Not reported
Address 2: Not reported
City,State,Zip: RIO RANCHO, NM
Site ID: 01OEW
Site Type: Air to Land
Latitude: 35.336944
Longitude: -106.770556

A3
NNW
> 1
1.168 mi.
6165 ft.

PBR-2 TARGET N-5
ALBUQUERQUE, NM
Site 2 of 2 in cluster A

FUDS **1024904413**
N/A

Relative:
Higher
Actual:
5923 ft.

FUDS:
EPA Region: 06
Installation ID: NM69799F902800
Congressional District Number: 3
Name: PBR-2 TARGET N-5
FUDS Number: K06NM0611
City: ALBUQUERQUE
State: NM
County: BERNALILLO
Object ID: 1080
USACE Division: spd
USACE District: spl
Status: Properties with projects
Current Owner: PRIV: PRIVATE LIVESTOCK GRAZING

[EMS Map Link:](#)
Eligibility: Eligible
Has Projects: yes
NPL Status: Not on the NPL

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PBR-2 TARGET N-5 (Continued)

1024904413

Project Required: yes
Feature Description: In 1942 The Dod Acquired This Land From The State, For Use As A Practice Bombing Range. In 1946 The Site Was Considered Surplus And Sold To A Private Party. This Property Is Known Or Suspected To Contain Military Munitions And Explosives Of Concern (E.G., Unexploded Ordnance) And Therefore May Present An Explosive Hazard.
Latitude: 35.336944
Longitude: -106.768056

FUDS Detail as of Jan 2015:

Fiscal Year: 2013
Federal Facility ID: NM9799F9028
RAB: Not reported
NPL Status: Not Listed
Description: This 640-acre site is located approximately 18 miles northwest of Albuquerque, New Mexico. Construction on this site includes improvements in connection with training operations. Currently, the land is privately owned for livestock grazing; however, it is located close to an area that is undergoing intensive residential development.
History: In 1942 the DoD acquired this land from the State, for use as a practice bombing range. In 1946 the site was considered surplus and sold to a private party. This property is known or suspected to contain military munitions and explosives of concern (e.g., unexploded ordnance) and therefore may present an explosive hazard.
CTC: 2961.5
Current Program: Not reported
Future Program: Not reported
Institutional ID: 55624

MRA:

Inst ID: 55624
FUDS Number: K06NM0611
Facility Name: PBR-2 TARGET N-5
PHASE: 4
ARC: Y
DIST: SPL
MMRP: Y
MRA ID: K06NM061101R01

MRS:

Inst ID: 55624
FUDS Number: K06NM0611
Facility Name: PBR-2 TARGET N-5
PHASE: 4
Site ID: 01
DIST: SPL
MMRP: Y
MRA ID: K06NM061101R01
PROJ NO: K06NM061101

Count: 8 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
ALBUQUERQUE	S109096200	UNM, CENTENNIAL ENGINEERING BLDG.	CEC BLDG., NEAR MARTIN LUTHER		SCS
ALBUQUERQUE	S126112643	KAFB HANGAR 1002	SW OF RANDOLPH DRIVE AND SAN M		SCS
ALBUQUERQUE	1007490818	PROSPERITY & BROADWAY OIL SPILL	PROSPERITY & BROADWAY OIL SPIL		SEMS
ALBUQUERQUE	S122978890	KAFB BFF WELL DEVELOPMENT WATER KA	RIDGECREST DRIVE SE JUST EAST		SCS
ALBUQUERQUE	S109096213	VISTA DEL NORTE	TRACK T-4, VISTA DEL NORTE, AT		SCS
RIO RANCHO	1027130670	WELL NO. 9 IMPROVEMENTS AND 3 MG R	NW CORNER OF PHOENIX RD AND UN	87144	FINDS, ECHO
RIO RANCHO	1027621081	WELL 9 REHABILITATION - WA 2164	NW CORNER OF PHOENIX RD AND UN	87144	ECHO
RIO RANCHO	1027130354	3 MG RESERVOIR AND WELL 9 SITE IMP	VIC INTERSECTION UNICORN CIRCL	87144	FINDS, ECHO

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/19/2024	Source: EPA
Date Data Arrived at EDR: 01/02/2025	Telephone: N/A
Date Made Active in Reports: 01/21/2025	Last EDR Contact: 03/03/2025
Number of Days to Update: 19	Next Scheduled EDR Contact: 04/07/2025
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/19/2024	Source: EPA
Date Data Arrived at EDR: 01/02/2025	Telephone: N/A
Date Made Active in Reports: 01/21/2025	Last EDR Contact: 03/03/2025
Number of Days to Update: 19	Next Scheduled EDR Contact: 04/07/2025
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/19/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/21/2025
Number of Days to Update: 19

Source: EPA
Telephone: N/A
Last EDR Contact: 03/03/2025
Next Scheduled EDR Contact: 04/07/2025
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/20/2024
Date Data Arrived at EDR: 12/18/2024
Date Made Active in Reports: 12/20/2024
Number of Days to Update: 2

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 12/18/2024
Next Scheduled EDR Contact: 04/07/2025
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly known as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 12/19/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/21/2025
Number of Days to Update: 19

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/03/2025
Next Scheduled EDR Contact: 04/21/2025
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 12/19/2024	Source: EPA
Date Data Arrived at EDR: 01/02/2025	Telephone: 800-424-9346
Date Made Active in Reports: 01/21/2025	Last EDR Contact: 03/03/2025
Number of Days to Update: 19	Next Scheduled EDR Contact: 04/21/2025
	Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 02/17/2025	Source: EPA
Date Data Arrived at EDR: 02/19/2025	Telephone: 800-424-9346
Date Made Active in Reports: 03/06/2025	Last EDR Contact: 03/18/2025
Number of Days to Update: 15	Next Scheduled EDR Contact: 06/30/2025
	Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 02/17/2025	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/19/2025	Telephone: 214-665-6444
Date Made Active in Reports: 03/06/2025	Last EDR Contact: 03/18/2025
Number of Days to Update: 15	Next Scheduled EDR Contact: 06/30/2025
	Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/17/2025	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/19/2025	Telephone: 214-665-6444
Date Made Active in Reports: 03/06/2025	Last EDR Contact: 03/18/2025
Number of Days to Update: 15	Next Scheduled EDR Contact: 06/30/2025
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 02/17/2025	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/19/2025	Telephone: 214-665-6444
Date Made Active in Reports: 03/06/2025	Last EDR Contact: 03/18/2025
Number of Days to Update: 15	Next Scheduled EDR Contact: 06/30/2025
	Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/17/2025	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/19/2025	Telephone: 214-665-6444
Date Made Active in Reports: 03/06/2025	Last EDR Contact: 03/18/2025
Number of Days to Update: 15	Next Scheduled EDR Contact: 06/30/2025
	Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 11/11/2024	Source: Department of the Navy
Date Data Arrived at EDR: 11/25/2024	Telephone: 843-820-7326
Date Made Active in Reports: 02/18/2025	Last EDR Contact: 03/04/2025
Number of Days to Update: 85	Next Scheduled EDR Contact: 05/19/2025
	Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 11/04/2024	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/15/2024	Telephone: 703-603-0695
Date Made Active in Reports: 02/11/2025	Last EDR Contact: 02/18/2025
Number of Days to Update: 88	Next Scheduled EDR Contact: 12/02/2024
	Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 11/04/2024	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/15/2024	Telephone: 703-603-0695
Date Made Active in Reports: 02/11/2025	Last EDR Contact: 02/18/2025
Number of Days to Update: 88	Next Scheduled EDR Contact: 06/02/2025
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/03/2024

Date Data Arrived at EDR: 12/11/2024

Date Made Active in Reports: 02/18/2025

Number of Days to Update: 69

Source: National Response Center, United States Coast Guard

Telephone: 202-267-2180

Last EDR Contact: 03/18/2025

Next Scheduled EDR Contact: 06/30/2025

Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

SCS: State Cleanup Sites Listing

State cleanup sites that fall under the state's Water Quality Control Commission Regulations.

Date of Government Version: 01/12/2023

Date Data Arrived at EDR: 01/13/2023

Date Made Active in Reports: 03/30/2023

Number of Days to Update: 76

Source: Environment Department

Telephone: 505-827-2855

Last EDR Contact: 01/09/2025

Next Scheduled EDR Contact: 04/21/2025

Data Release Frequency: Varies

SHWS: This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: N/A

Date Data Arrived at EDR: N/A

Date Made Active in Reports: N/A

Number of Days to Update: N/A

Source: Department of the Environment

Telephone: 505-827-2918

Last EDR Contact: 03/13/2025

Next Scheduled EDR Contact: 06/30/2025

Data Release Frequency: N/A

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF: Solid Waste Facilities

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 09/27/2022

Date Data Arrived at EDR: 10/31/2022

Date Made Active in Reports: 02/02/2023

Number of Days to Update: 94

Source: New Mexico Environment Department

Telephone: 505-827-0347

Last EDR Contact: 01/30/2025

Next Scheduled EDR Contact: 05/12/2025

Data Release Frequency: Annually

Lists of state and tribal leaking storage tanks

LUST: Leaking Underground Storage Tank Priorization Database

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 08/01/2006

Date Data Arrived at EDR: 10/06/2006

Date Made Active in Reports: 11/08/2006

Number of Days to Update: 33

Source: New Mexico Environment Department

Telephone: 505-476-4397

Last EDR Contact: 03/13/2025

Next Scheduled EDR Contact: 06/30/2025

Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LAST: Leaking Aboveground Storage Tank Sites

A listing of leaking aboveground storage tank sites.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/01/2006
Date Made Active in Reports: 06/05/2006
Number of Days to Update: 35

Source: Environment Department
Telephone: 505-476-4397
Last EDR Contact: 03/13/2025
Next Scheduled EDR Contact: 06/30/2025
Data Release Frequency: No Update Planned

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/11/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 05/07/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 05/07/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 05/07/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 05/07/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 05/07/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 05/07/2024	Source: EPA Region 10
Date Data Arrived at EDR: 05/30/2024	Telephone: 206-553-2857
Date Made Active in Reports: 08/28/2024	Last EDR Contact: 01/16/2025
Number of Days to Update: 90	Next Scheduled EDR Contact: 04/28/2025
	Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 05/07/2024	Source: EPA Region 1
Date Data Arrived at EDR: 05/30/2024	Telephone: 617-918-1313
Date Made Active in Reports: 08/28/2024	Last EDR Contact: 01/16/2025
Number of Days to Update: 90	Next Scheduled EDR Contact: 04/28/2025
	Data Release Frequency: Varies

LTANKS: Leaking Storage Tank Listing
A listing of leaking storage tank site locations.

Date of Government Version: 06/27/2024	Source: Environment Department
Date Data Arrived at EDR: 07/02/2024	Telephone: 505-476-4390
Date Made Active in Reports: 09/26/2024	Last EDR Contact: 12/23/2024
Number of Days to Update: 86	Next Scheduled EDR Contact: 04/07/2025
	Data Release Frequency: Annually

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 08/12/2024	Source: FEMA
Date Data Arrived at EDR: 10/30/2024	Telephone: 202-646-5797
Date Made Active in Reports: 01/14/2025	Last EDR Contact: 12/23/2024
Number of Days to Update: 76	Next Scheduled EDR Contact: 04/14/2025
	Data Release Frequency: Varies

UST: Listing of Underground Storage Tanks
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 08/01/2006	Source: New Mexico Environment Department
Date Data Arrived at EDR: 09/27/2006	Telephone: 505-476-4397
Date Made Active in Reports: 10/23/2006	Last EDR Contact: 02/12/2025
Number of Days to Update: 26	Next Scheduled EDR Contact: 06/02/2025
	Data Release Frequency: No Update Planned

AST: Aboveground Storage Tanks List
Aboveground tanks that have been inspected by the State Fire Marshal.

Date of Government Version: 08/01/2006	Source: Environment Department
Date Data Arrived at EDR: 09/27/2006	Telephone: 505-476-4397
Date Made Active in Reports: 10/20/2006	Last EDR Contact: 02/12/2025
Number of Days to Update: 23	Next Scheduled EDR Contact: 06/02/2025
	Data Release Frequency: No Update Planned

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/14/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/11/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 05/14/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 05/14/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 05/14/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 05/14/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/14/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 05/14/2024
Date Data Arrived at EDR: 05/30/2024
Date Made Active in Reports: 08/28/2024
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

TANKS: Storage Tank Facility Listing

A listing of aboveground and underground storage tank site locations.

Date of Government Version: 02/20/2025
Date Data Arrived at EDR: 02/21/2025
Date Made Active in Reports: 02/25/2025
Number of Days to Update: 4

Source: Environment Department
Telephone: 505-476-4390
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 06/02/2025
Data Release Frequency: Semi-Annually

State and tribal institutional control / engineering control registries

INST CONTROL: Sites with Institutional Controls

Sites included in the Voluntary Cleanup listing that have Institutional Controls in place.

Date of Government Version: 06/30/2024
Date Data Arrived at EDR: 10/08/2024
Date Made Active in Reports: 12/23/2024
Number of Days to Update: 76

Source: Environment Department
Telephone: 505-827-2754
Last EDR Contact: 01/07/2025
Next Scheduled EDR Contact: 04/21/2025
Data Release Frequency: Semi-Annually

Lists of state and tribal voluntary cleanup sites

VCP: Voluntary Remediation Program Sites

Sites involved in the Voluntary Remediation Program.

Date of Government Version: 06/30/2024
Date Data Arrived at EDR: 10/08/2024
Date Made Active in Reports: 12/23/2024
Number of Days to Update: 76

Source: Environment Department
Telephone: 505-827-2754
Last EDR Contact: 01/07/2025
Next Scheduled EDR Contact: 04/21/2025
Data Release Frequency: Semi-Annually

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/12/2025
Next Scheduled EDR Contact: 06/30/2025
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Brownfields Site Listing

A listing of targeted brownfields assessment.

Date of Government Version: 06/30/2024
Date Data Arrived at EDR: 07/30/2024
Date Made Active in Reports: 10/21/2024
Number of Days to Update: 83

Source: New Mexico Environment
Telephone: 505-827-0171
Last EDR Contact: 01/28/2025
Next Scheduled EDR Contact: 05/12/2025
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 09/09/2024
Date Data Arrived at EDR: 09/11/2024
Date Made Active in Reports: 12/06/2024
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/12/2025
Next Scheduled EDR Contact: 06/23/2025
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: Recycling Facility Listing

A listing of recycling facility locations.

Date of Government Version: 09/21/2022
Date Data Arrived at EDR: 10/31/2022
Date Made Active in Reports: 01/19/2023
Number of Days to Update: 80

Source: Environment Department
Telephone: 505-827-0197
Last EDR Contact: 01/30/2025
Next Scheduled EDR Contact: 05/12/2025
Data Release Frequency: Annually

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 05/05/2025
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/23/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 02/07/2024
Date Data Arrived at EDR: 11/13/2024
Date Made Active in Reports: 11/19/2024
Number of Days to Update: 6

Source: Department of Health & Human Services, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 12/09/2024
Next Scheduled EDR Contact: 05/05/2025
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 05/20/2024
Date Data Arrived at EDR: 08/19/2024
Date Made Active in Reports: 10/09/2024
Number of Days to Update: 51

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 06/02/2025
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Laboratory Listing

A listing of clandestine drug labs, such as illegal methamphetamine labs.

Date of Government Version: 05/17/2018
Date Data Arrived at EDR: 07/18/2018
Date Made Active in Reports: 08/14/2018
Number of Days to Update: 27

Source: Environment Department
Telephone: 505-476-6000
Last EDR Contact: 01/09/2025
Next Scheduled EDR Contact: 04/21/2025
Data Release Frequency: Varies

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/20/2024
Date Data Arrived at EDR: 08/19/2024
Date Made Active in Reports: 10/09/2024
Number of Days to Update: 51

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 06/02/2025
Data Release Frequency: Quarterly

Local Land Records

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 12/19/2024	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/02/2025	Telephone: 202-564-6023
Date Made Active in Reports: 01/21/2025	Last EDR Contact: 03/03/2025
Number of Days to Update: 19	Next Scheduled EDR Contact: 04/07/2025
	Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/10/2024	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 12/11/2024	Telephone: 202-366-4555
Date Made Active in Reports: 02/27/2025	Last EDR Contact: 03/18/2025
Number of Days to Update: 78	Next Scheduled EDR Contact: 06/30/2025
	Data Release Frequency: Quarterly

SPILLS: Spill Data

Hazardous materials spills data.

Date of Government Version: 06/20/2024	Source: Environment Department
Date Data Arrived at EDR: 06/20/2024	Telephone: 505-827-0166
Date Made Active in Reports: 09/12/2024	Last EDR Contact: 02/20/2025
Number of Days to Update: 84	Next Scheduled EDR Contact: 06/02/2025
	Data Release Frequency: Semi-Annually

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 02/17/2025	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/19/2025	Telephone: 214-665-6444
Date Made Active in Reports: 03/06/2025	Last EDR Contact: 03/18/2025
Number of Days to Update: 15	Next Scheduled EDR Contact: 06/30/2025
	Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 10/01/2024	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 11/12/2024	Telephone: 202-528-4285
Date Made Active in Reports: 01/21/2025	Last EDR Contact: 02/11/2025
Number of Days to Update: 70	Next Scheduled EDR Contact: 05/26/2025
	Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/07/2025
Next Scheduled EDR Contact: 04/21/2025
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 12/30/2024
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 07/30/2021
Date Data Arrived at EDR: 02/03/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/03/2025
Next Scheduled EDR Contact: 05/19/2025
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 02/17/2025
Date Data Arrived at EDR: 02/19/2025
Date Made Active in Reports: 03/06/2025
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/18/2025
Next Scheduled EDR Contact: 06/30/2025
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA Watch List

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 01/27/2025
Next Scheduled EDR Contact: 05/12/2025
Data Release Frequency: No Update Planned

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 01/30/2025
Next Scheduled EDR Contact: 05/12/2025
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 283

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/10/2025
Next Scheduled EDR Contact: 06/23/2025
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 02/11/2025
Date Made Active in Reports: 02/18/2025
Number of Days to Update: 7

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/11/2025
Next Scheduled EDR Contact: 05/26/2025
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 10/15/2024
Date Data Arrived at EDR: 10/16/2024
Date Made Active in Reports: 01/14/2025
Number of Days to Update: 90

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/15/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 01/29/2025
Date Data Arrived at EDR: 02/03/2025
Date Made Active in Reports: 02/27/2025
Number of Days to Update: 24

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/03/2025
Next Scheduled EDR Contact: 06/09/2025
Data Release Frequency: Annually

RMP: Risk Management Plans

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 10/01/2024	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/23/2024	Telephone: 202-564-8600
Date Made Active in Reports: 01/14/2025	Last EDR Contact: 01/09/2025
Number of Days to Update: 83	Next Scheduled EDR Contact: 04/28/2025
	Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 06/02/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 09/01/2008
	Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 09/19/2023	Source: EPA
Date Data Arrived at EDR: 10/03/2023	Telephone: 202-564-6023
Date Made Active in Reports: 10/19/2023	Last EDR Contact: 03/03/2025
Number of Days to Update: 16	Next Scheduled EDR Contact: 05/12/2025
	Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2024	Source: EPA
Date Data Arrived at EDR: 10/02/2024	Telephone: 202-566-0500
Date Made Active in Reports: 01/10/2025	Last EDR Contact: 01/02/2025
Number of Days to Update: 100	Next Scheduled EDR Contact: 04/14/2025
	Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/23/2016	Telephone: 202-564-2501
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 12/23/2024
Number of Days to Update: 79	Next Scheduled EDR Contact: 04/14/2025
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/12/2024
Date Data Arrived at EDR: 10/17/2024
Date Made Active in Reports: 11/19/2024
Number of Days to Update: 33

Source: Nuclear Regulatory Commission
Telephone: 301-415-0717
Last EDR Contact: 01/09/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 10/16/2024
Date Made Active in Reports: 01/14/2025
Number of Days to Update: 90

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 02/24/2025
Next Scheduled EDR Contact: 06/09/2025
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 02/24/2025
Next Scheduled EDR Contact: 06/09/2025
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/30/2025
Next Scheduled EDR Contact: 05/12/2025
Data Release Frequency: Varies

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 12/17/2024
Next Scheduled EDR Contact: 04/07/2025
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 10/04/2024
Date Data Arrived at EDR: 10/16/2024
Date Made Active in Reports: 12/06/2024
Number of Days to Update: 51

Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/22/2025
Next Scheduled EDR Contact: 05/05/2025
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2024
Date Data Arrived at EDR: 10/09/2024
Date Made Active in Reports: 01/10/2025
Number of Days to Update: 93

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 12/30/2024
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 02/19/2025
Date Made Active in Reports: 03/07/2025
Number of Days to Update: 16

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/18/2025
Next Scheduled EDR Contact: 06/30/2025
Data Release Frequency: Biennially

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 12/30/2024
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 03/03/2023
Date Data Arrived at EDR: 03/03/2023
Date Made Active in Reports: 06/09/2023
Number of Days to Update: 98

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 01/23/2025
Next Scheduled EDR Contact: 05/12/2025
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 02/12/2025
Date Data Arrived at EDR: 02/12/2025
Date Made Active in Reports: 02/27/2025
Number of Days to Update: 15

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/06/2025
Next Scheduled EDR Contact: 05/26/2025
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 12/19/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/21/2025
Number of Days to Update: 19

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 03/03/2025
Next Scheduled EDR Contact: 04/07/2025
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 10/01/2024
Date Data Arrived at EDR: 10/02/2024
Date Made Active in Reports: 10/09/2024
Number of Days to Update: 7

Source: DOL, Mine Safety & Health Admini
Telephone: 202-693-9424
Last EDR Contact: 02/19/2025
Next Scheduled EDR Contact: 06/02/2025
Data Release Frequency: Quarterly

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/01/2024
Date Data Arrived at EDR: 11/18/2024
Date Made Active in Reports: 02/11/2025
Number of Days to Update: 85

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/18/2025
Next Scheduled EDR Contact: 06/02/2025
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/02/2024
Date Data Arrived at EDR: 08/20/2024
Date Made Active in Reports: 10/09/2024
Number of Days to Update: 50

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 06/02/2025
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 06/02/2025
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/10/2024
Date Data Arrived at EDR: 12/11/2024
Date Made Active in Reports: 02/18/2025
Number of Days to Update: 69

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/12/2025
Next Scheduled EDR Contact: 06/16/2025
Data Release Frequency: Quarterly

MINES MRDS: Mineral Resources Data System Mineral Resources Data System

Date of Government Version: 06/04/2024
Date Data Arrived at EDR: 11/22/2024
Date Made Active in Reports: 02/18/2025
Number of Days to Update: 88

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 06/02/2025
Data Release Frequency: Varies

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/11/2024
Date Data Arrived at EDR: 11/20/2024
Date Made Active in Reports: 02/18/2025
Number of Days to Update: 90

Source: EPA
Telephone: (214) 665-2200
Last EDR Contact: 02/25/2025
Next Scheduled EDR Contact: 06/09/2025
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 02/12/2025
Next Scheduled EDR Contact: 06/02/2025
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/06/2023
Date Data Arrived at EDR: 09/13/2023
Date Made Active in Reports: 12/11/2023
Number of Days to Update: 89

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 01/06/2025
Next Scheduled EDR Contact: 04/21/2025
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 12/21/2024
Date Data Arrived at EDR: 12/27/2024
Date Made Active in Reports: 01/10/2025
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 12/27/2024
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/08/2024
Date Data Arrived at EDR: 11/08/2024
Date Made Active in Reports: 01/14/2025
Number of Days to Update: 67

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/13/2025
Next Scheduled EDR Contact: 05/26/2025
Data Release Frequency: Quarterly

PFAS NPL: Superfund Sites with PFAS Detections Information

EPA's Office of Land and Emergency Management and EPA Regional Offices maintain data describing what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment.

Date of Government Version: 12/30/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/10/2025
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 703-603-8895
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Varies

PFAS FEDERAL SITES: Federal Sites PFAS Information

Several federal entities, such as the federal Superfund program, Department of Defense, National Aeronautics and Space Administration, Department of Transportation, and Department of Energy provided information for sites with known or suspected detections at federal facilities.

Date of Government Version: 12/30/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/10/2025
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Varies

PFAS TRIS: List of PFAS Added to the TRI

Section 7321 of the National Defense Authorization Act for Fiscal Year 2020 (NDAA) immediately added certain per- and polyfluoroalkyl substances (PFAS) to the list of chemicals covered by the Toxics Release Inventory (TRI) under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) and provided a framework for additional PFAS to be added to TRI on an annual basis.

Date of Government Version: 12/30/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/10/2025
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-566-0250
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Varies

PFAS TSCA: PFAS Manufacture and Imports Information

EPA issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. EPA publishes non-confidential business information (non-CBI) and includes descriptive information about each site, corporate parent, production volume, other manufacturing information, and processing and use information.

Date of Government Version: 12/30/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/10/2025
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Varies

PFAS RCRA MANIFEST: PFAS Transfers Identified In the RCRA Database Listing

To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: PFAS, PFOA, PFOS, PERFL, AFFF, GENX, GEN-X (plus the VT waste codes). These keywords were searched for in the following text fields: Manifest handling instructions (MANIFEST_HANDLING_INSTR), Non-hazardous waste description (NON_HAZ_WASTE_DESCRIPTION), DOT printed information (DOT_PRINTED_INFORMATION), Waste line handling instructions (WASTE_LINE_HANDLING_INSTR), Waste residue comments (WASTE_RESIDUE_COMMENTS).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/30/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/10/2025
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Varies

PFAS ATSDR: PFAS Contamination Site Location Listing

PFAS contamination site locations from the Department of Health & Human Services, Center for Disease Control & Prevention. ATSDR is involved at a number of PFAS-related sites, either directly or through assisting state and federal partners. As of now, most sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film-forming firefighting foam (AFFF) was regularly used.

Date of Government Version: 06/24/2020
Date Data Arrived at EDR: 03/17/2021
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 601

Source: Department of Health & Human Services
Telephone: 202-741-5770
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 05/05/2025
Data Release Frequency: Varies

PFAS WQP: Ambient Environmental Sampling for PFAS

The Water Quality Portal (WQP) is a part of a modernized repository storing ambient sampling data for all environmental media and tissue samples. A wide range of federal, state, tribal and local governments, academic and non-governmental organizations and individuals submit project details and sampling results to this public repository. The information is commonly used for research and assessments of environmental quality.

Date of Government Version: 12/13/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/10/2025
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Varies

PFAS PROJECT: NORTHEASTERN UNIVERSITY PFAS PROJECT

The PFAS Contamination Site Tracker records qualitative and quantitative data from each site in a chart, specifically examining discovery, contamination levels, government response, litigation, health impacts, media coverage, and community characteristics. All data presented in the chart were extracted from government websites, such as state health departments or the Environmental Protection Agency, and news articles.

Date of Government Version: 05/19/2023
Date Data Arrived at EDR: 04/05/2024
Date Made Active in Reports: 06/06/2024
Number of Days to Update: 62

Source: Social Science Environmental Health Research Institute
Telephone: N/A
Last EDR Contact: 03/06/2025
Next Scheduled EDR Contact: 06/16/2025
Data Release Frequency: Varies

PFAS NPDES: Clean Water Act Discharge Monitoring Information

Any discharger of pollutants to waters of the United States from a point source must have a National Pollutant Discharge Elimination System (NPDES) permit. The process for obtaining limits involves the regulated entity (permittee) disclosing releases in a NPDES permit application and the permitting authority (typically the state but sometimes EPA) deciding whether to require monitoring or monitoring with limits. Caveats and Limitations: Less than half of states have required PFAS monitoring for at least one of their permittees and fewer states have established PFAS effluent limits for permittees. New rulemakings have been initiated that may increase the number of facilities monitoring for PFAS in the future.

Date of Government Version: 12/30/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/14/2025
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/02/2025
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Varies

PFAS ECHO: Facilities in Industries that May Be Handling PFAS Listing

Regulators and the public have expressed interest in knowing which regulated entities may be using PFAS. EPA has developed a dataset from various sources that show which industries may be handling PFAS. Approximately 120,000 facilities subject to federal environmental programs have operated or currently operate in industry sectors with processes that may involve handling and/or release of PFAS.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/30/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/10/2025
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Varies

PFAS ECHO FIRE TRAIN: Facilities in Industries that May Be Handling PFAS Listing

A list of fire training sites was added to the Industry Sectors dataset using a keyword search on the permitted facility's name to identify sites where fire-fighting foam may have been used in training exercises. Additionally, you may view an example spreadsheet of the subset of fire training facility data, as well as the keywords used in selecting or deselecting a facility for the subset. as well as the keywords used in selecting or deselecting a facility for the subset. These keywords were tested to maximize accuracy in selecting facilities that may use fire-fighting foam in training exercises, however, due to the lack of a required reporting field in the data systems for designating fire training sites, this methodology may not identify all fire training sites or may potentially misidentify them.

Date of Government Version: 12/30/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/10/2025
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Varies

PFAS PT 139 AIRPORT: All Certified Part 139 Airports PFAS Information Listing

Since July 1, 2006, all certified part 139 airports are required to have fire-fighting foam onsite that meet military specifications (MIL-F-24385) (14 CFR 139.317). To date, these military specification fire-fighting foams are fluorinated and have been historically used for training and extinguishing. The 2018 FAA Reauthorization Act has a provision stating that no later than October 2021, FAA shall not require the use of fluorinated AFFF. This provision does not prohibit the use of fluorinated AFFF at Part 139 civilian airports; it only prohibits FAA from mandating its use. The Federal Aviation Administration's document AC 150/5210-6D - Aircraft Fire Extinguishing Agents provides guidance on Aircraft Fire Extinguishing Agents, which includes Aqueous Film Forming Foam (AFFF).

Date of Government Version: 12/30/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/10/2025
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Varies

AQUEOUS FOAM NRC: Aqueous Foam Related Incidents Listing

The National Response Center (NRC) serves as an emergency call center that fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. The spreadsheets posted to the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency. Response center calls from 1990 to the most recent complete calendar year where there was indication of Aqueous Film Forming Foam (AFFF) usage are included in this dataset. NRC calls may reference AFFF usage in the ?Material Involved? or ?Incident Description? fields.

Date of Government Version: 12/30/2024
Date Data Arrived at EDR: 01/02/2025
Date Made Active in Reports: 01/10/2025
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-267-2675
Last EDR Contact: 02/20/2025
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Varies

PCS ENF: Enforcement data

No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 12/23/2024
Next Scheduled EDR Contact: 04/14/2025
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 12/16/2016

Date Data Arrived at EDR: 01/06/2017

Date Made Active in Reports: 03/10/2017

Number of Days to Update: 63

Source: EPA, Office of Water

Telephone: 202-564-2496

Last EDR Contact: 12/23/2024

Next Scheduled EDR Contact: 04/14/2025

Data Release Frequency: No Update Planned

BIOSOLIDS: ICIS-NPDES Biosolids Facility Data

The data reflects compliance information about facilities in the biosolids program.

Date of Government Version: 10/13/2024

Date Data Arrived at EDR: 10/16/2024

Date Made Active in Reports: 10/23/2024

Number of Days to Update: 7

Source: Environmental Protection Agency

Telephone: 202-564-4700

Last EDR Contact: 01/14/2025

Next Scheduled EDR Contact: 04/28/2025

Data Release Frequency: Varies

UST FINDER RELEASE: UST Finder Releases Database

US EPA's UST Finder data is a national composite of leaking underground storage tanks. This data contains information about, and locations of, leaking underground storage tanks. Data was collected from state sources and standardized into a national profile by EPA's Office of Underground Storage Tanks, Office of Research and Development, and the Association of State and Territorial Solid Waste Management Officials.

Date of Government Version: 06/08/2023

Date Data Arrived at EDR: 10/31/2023

Date Made Active in Reports: 01/18/2024

Number of Days to Update: 79

Source: Environmental Protection Agency

Telephone: 202-564-0394

Last EDR Contact: 02/06/2025

Next Scheduled EDR Contact: 05/19/2025

Data Release Frequency: Semi-Annually

UST FINDER: UST Finder Database

EPA developed UST Finder, a web map application containing a comprehensive, state-sourced national map of underground storage tank (UST) and leaking UST (LUST) data. It provides the attributes and locations of active and closed USTs, UST facilities, and LUST sites from states and from Tribal lands and US territories. UST Finder contains information about proximity of UST facilities and LUST sites to: surface and groundwater public drinking water protection areas; estimated number of private domestic wells and number of people living nearby; and flooding and wildfires.

Date of Government Version: 06/08/2023

Date Data Arrived at EDR: 10/04/2023

Date Made Active in Reports: 01/18/2024

Number of Days to Update: 106

Source: Environmental Protection Agency

Telephone: 202-564-0394

Last EDR Contact: 02/06/2025

Next Scheduled EDR Contact: 05/19/2025

Data Release Frequency: Varies

E MANIFEST: Hazardous Waste Electronic Manifest System

EPA established a national system for tracking hazardous waste shipments electronically. This system, known as e-Manifest, will modernize the nation's cradle-to-grave hazardous waste tracking process while saving valuable time, resources, and dollars for industry and states.

Date of Government Version: 02/17/2025

Date Data Arrived at EDR: 02/19/2025

Date Made Active in Reports: 03/14/2025

Number of Days to Update: 23

Source: Environmental Protection Agency

Telephone: 833-501-6826

Last EDR Contact: 03/18/2025

Next Scheduled EDR Contact: 06/30/2025

Data Release Frequency: Varies

PFAS: Per- and Polyfluoroalkyl Substances (PFAS) Data

Site locations where Per- and Polyfluoroalkyl Substances (PFAS) contamination has been detected.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 07/11/2024
Date Made Active in Reports: 07/11/2024
Number of Days to Update: 0

Source: New Mexico Environment Department
Telephone: 505-827-2919
Last EDR Contact: 01/09/2025
Next Scheduled EDR Contact: 04/21/2025
Data Release Frequency: Varies

AIRS: Airs Information

A listing of facilities with Air Quality Bureau permits.

Date of Government Version: 10/16/2024
Date Data Arrived at EDR: 10/17/2024
Date Made Active in Reports: 01/07/2025
Number of Days to Update: 82

Source: New Mexico Environment Department
Telephone: 505-476-4339
Last EDR Contact: 01/23/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Annually

ASBESTOS: List of Asbestos Demolition and Renovations Jobs

Asbestos is a common fibrous rock found worldwide which has been used in various products for over 4500 years. It has been used in over 3000 different products such as textiles, paper, ropes, wicks, stoves, filters, floor tiles, roofing shingles, clutch facings, water pipe, cements, fillers, felt, fireproof clothing, gaskets, battery boxes, clapboard, wallboard, fire doors, fire curtains, insulation, brake linings, etc.

Date of Government Version: 10/16/2024
Date Data Arrived at EDR: 10/22/2024
Date Made Active in Reports: 01/09/2025
Number of Days to Update: 79

Source: New Mexico Environment Department
Telephone: 505-827-1494
Last EDR Contact: 01/09/2025
Next Scheduled EDR Contact: 04/28/2025
Data Release Frequency: Semi-Annually

DRYCLEANERS: Drycleaner Facility Listing

A listing of drycleaner facility locations. The listing may contain facilities that are no longer there, or under different management.

Date of Government Version: 01/06/2010
Date Data Arrived at EDR: 01/07/2010
Date Made Active in Reports: 02/04/2010
Number of Days to Update: 28

Source: Environment Department
Telephone: 505-222-9507
Last EDR Contact: 03/13/2025
Next Scheduled EDR Contact: 06/30/2025
Data Release Frequency: No Update Planned

FIN ASSURANCE 1: Financial Assurance Information

Information for underground solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 12/03/2012
Date Data Arrived at EDR: 01/04/2013
Date Made Active in Reports: 01/10/2013
Number of Days to Update: 6

Source: Environment Department
Telephone: 505-827-0197
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 05/05/2025
Data Release Frequency: Varies

FIN ASSURANCE 2: Financial Assurance Information

Information for underground hazardous waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 10/30/2024
Date Data Arrived at EDR: 11/06/2024
Date Made Active in Reports: 01/30/2025
Number of Days to Update: 85

Source: Environment Department
Telephone: 505-476-6018
Last EDR Contact: 01/16/2025
Next Scheduled EDR Contact: 05/05/2025
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL MINES 2: Coal Permit Boundaries

ESRI ArcView shapefile depicting New Mexico coal mines permitted under the Surface Mining Control and Reclamation Act of 1977 (SMCRA), by either the NM Mining & Minerals Division (MMD), or by the federal DOI Office of Surface Mining, Reclamation & Enforcement.

Date of Government Version: 12/06/2024	Source: Mining & Minerals Division
Date Data Arrived at EDR: 12/06/2024	Telephone: 505-476-3417
Date Made Active in Reports: 02/25/2025	Last EDR Contact: 03/11/2025
Number of Days to Update: 81	Next Scheduled EDR Contact: 06/23/2025
	Data Release Frequency: Varies

COAL MINES: Coal Mine Permits Database

New Mexico coal mines permitted under the Surface Mining Control and Reclamation Act of 1977 (SMCRA), by either the NM Mining & Minerals Division (MMD), or by the federal DOI Office of Surface Mining, Reclamation & Enforcement.

Date of Government Version: 12/06/2024	Source: Bureau of Geology and Mineral Resources
Date Data Arrived at EDR: 12/06/2024	Telephone: 505-476-3402
Date Made Active in Reports: 02/25/2025	Last EDR Contact: 03/11/2025
Number of Days to Update: 81	Next Scheduled EDR Contact: 06/23/2025
	Data Release Frequency: Varies

NPDES: List of Discharge Permits

General information regarding NPDES (National Pollutant Discharge Elimination System) permits.

Date of Government Version: 08/31/2023	Source: Environment Department
Date Data Arrived at EDR: 10/11/2023	Telephone: 505-827-2918
Date Made Active in Reports: 01/03/2024	Last EDR Contact: 01/09/2025
Number of Days to Update: 84	Next Scheduled EDR Contact: 04/21/2025
	Data Release Frequency: Semi-Annually

UIC: Underground Injection Control Listing

The listing includes Discharge Permits (DP) with Underground Injection Control Wells, located in New Mexico.

Date of Government Version: 09/25/2024	Source: New Mexico Environment Department
Date Data Arrived at EDR: 10/08/2024	Telephone: 505-827-2936
Date Made Active in Reports: 12/23/2024	Last EDR Contact: 01/07/2025
Number of Days to Update: 76	Next Scheduled EDR Contact: 04/21/2025
	Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the New Mexico Environment Department in New Mexico.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/16/2014
Number of Days to Update: 199

Source: New Mexico Environment Department
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the New Mexico Environment Department in New Mexico.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 186

Source: New Mexico Environment Department
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 11/30/2023
Date Made Active in Reports: 12/01/2023
Number of Days to Update: 1

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 01/23/2025
Next Scheduled EDR Contact: 05/05/2025
Data Release Frequency: Quarterly

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 02/26/2025
Next Scheduled EDR Contact: 06/16/2025
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: Endeavor Business Media

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data

Source: Endeavor Business Media

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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health
Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics
Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics
Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Child Day Care Providers

Source: Office of Child Development
Telephone: 505-827-7946

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory

Source: US Fish & Wildlife Service

Telephone: 505-248-6660

Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CORR WELL 9
KING BLVD
RIO RANCHO, NM 87144

TARGET PROPERTY COORDINATES

Latitude (North):	35.32002 - 35° 19' 12.07"
Longitude (West):	106.761838 - 106° 45' 42.62"
Universal Tranverse Mercator:	Zone 13
UTM X (Meters):	339845.6
UTM Y (Meters):	3909758.2
Elevation:	5917 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	14565935 ARROYO DE LAS CALABACILLAS, NM
Version Date:	2020
East Map:	14565981 LOMA MACHETE, NM
Version Date:	2020

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

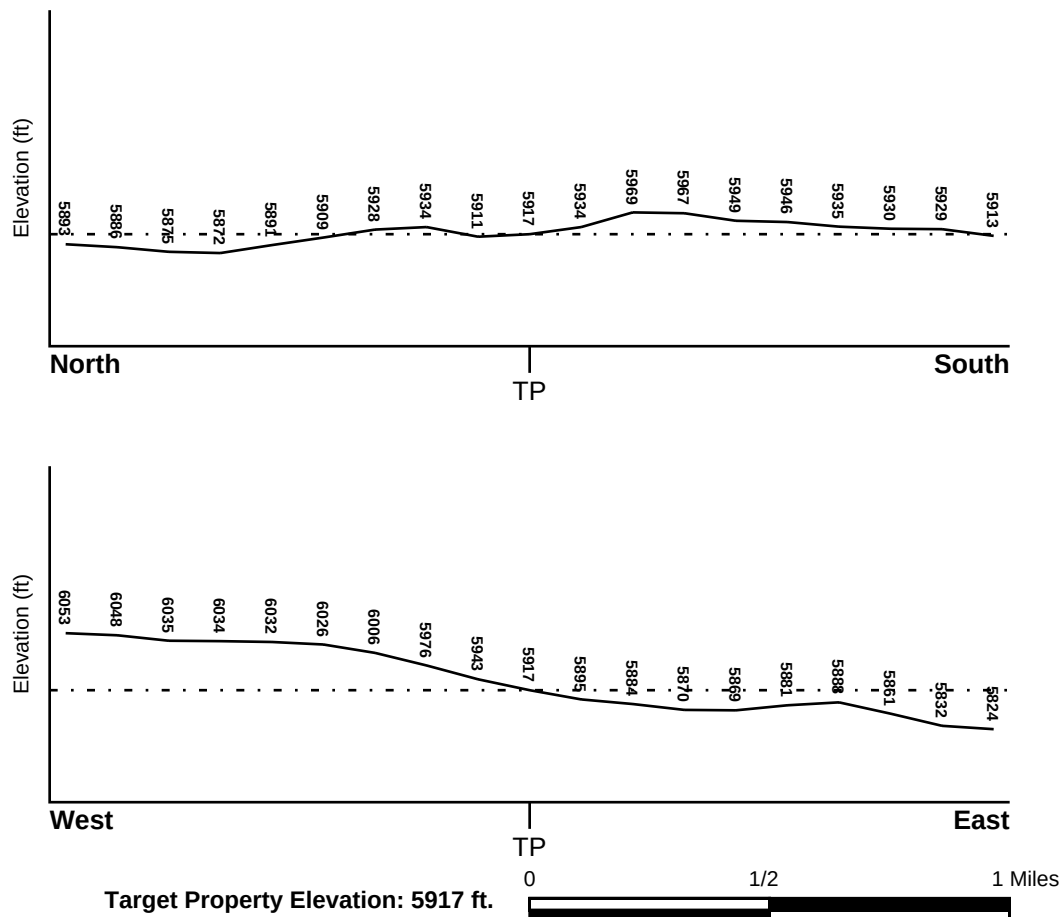
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General ENE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

<u>Flood Plain Panel at Target Property</u>	<u>FEMA Source Type</u>
35043C1875D	FEMA FIRM Flood data
<u>Additional Panels in search area:</u>	<u>FEMA Source Type</u>
35043C1900D	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

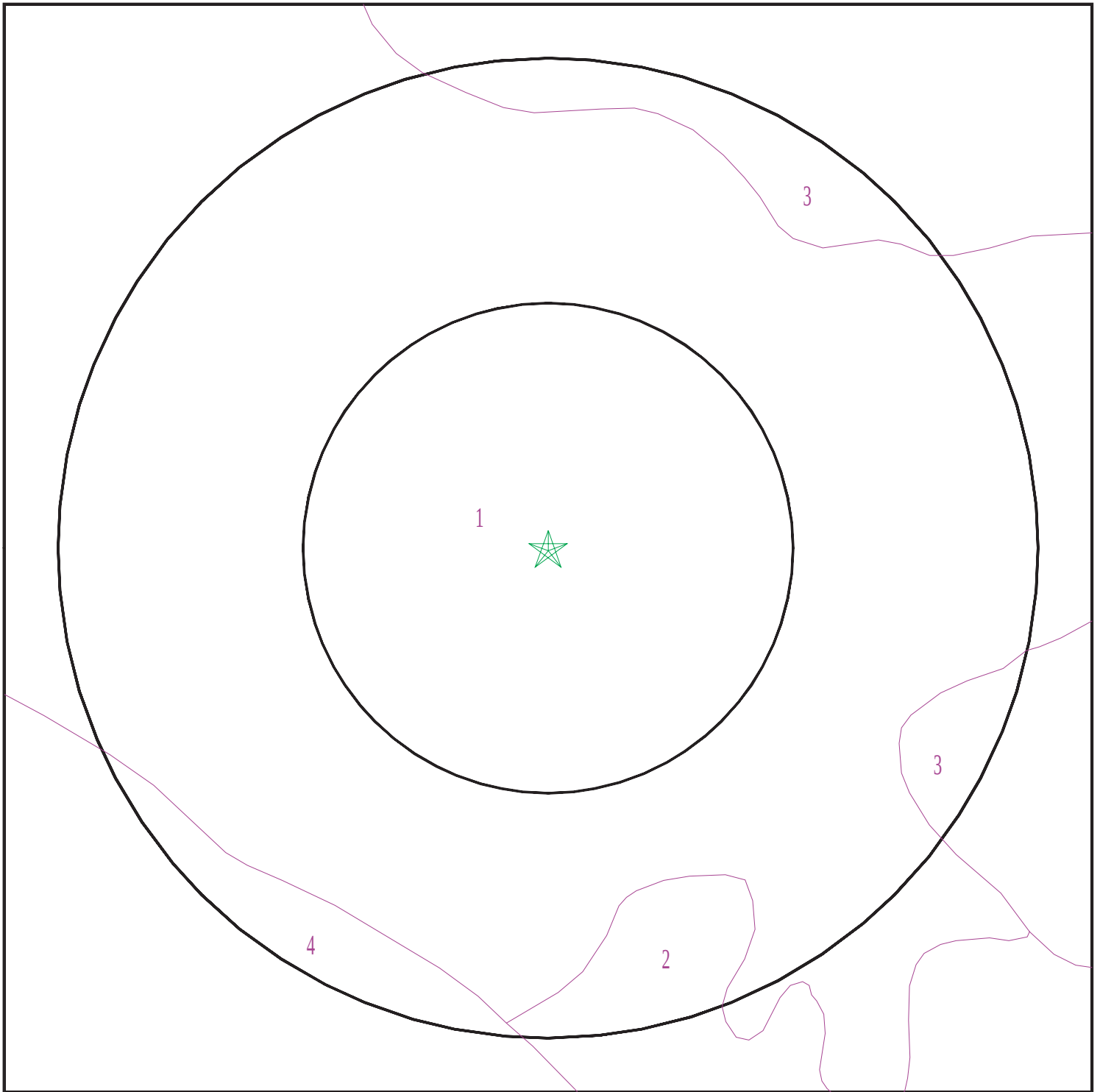
Era:	Cenozoic
System:	Tertiary
Series:	Pliocene
Code:	Tpc (<i>decoded above as Era, System & Series</i>)

GEOLOGIC AGE IDENTIFICATION

Category: Continental Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7931293.2s



- ★ Target Property
- ∕ SSURGO Soil
- ∕ Water

0 1/16 1/8 1/4 Miles



SITE NAME: Corr Well 9
ADDRESS: King Blvd
Rio Rancho NM 87144
LAT/LONG: 35.32002 / 106.761838

CLIENT: Rocky Mountain Ecology, LLC
CONTACT: Clay Benton
INQUIRY #: 7931293.2s
DATE: March 19, 2025 12:36 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Zia

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	5 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42.34 Min: 14.11	Max: 7.8 Min: 7.4
2	46 inches	59 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42.34 Min: 14.11	Max: 7.8 Min: 7.4
3	33 inches	46 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42.34 Min: 14.11	Max: 7.8 Min: 7.4

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
4	14 inches	33 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42.34 Min: 14.11	Max: 7.8 Min: 7.4
5	5 inches	14 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42.34 Min: 14.11	Max: 7.8 Min: 7.4

Soil Map ID: 2

Soil Component Name: Sheppard

Soil Surface Texture: loamy fine sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	3 inches	loamy fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141.14 Min: 42.34	Max: 8.4 Min: 7.9

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	44 inches	59 inches	loamy fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141.14 Min: 42.34	Max: 8.4 Min: 7.9
3	3 inches	44 inches	loamy fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141.14 Min: 42.34	Max: 8.4 Min: 7.9

Soil Map ID: 3

Soil Component Name: Grieta

Soil Surface Texture: loamy fine sand

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	loamy fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 4.23	Max: 8.4 Min: 7.9

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	7 inches	14 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 4.23	Max: 8.4 Min: 7.9
3	50 inches	59 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 4.23	Max: 8.4 Min: 7.9
4	38 inches	50 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 4.23	Max: 8.4 Min: 7.9
5	20 inches	38 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 4.23	Max: 8.4 Min: 7.9
6	14 inches	20 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 4.23	Max: 8.4 Min: 7.9

Soil Map ID: 4

Soil Component Name: Grieta

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	3 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 4.23	Max: 8.4 Min: 7.4
2	3 inches	11 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 4.23	Max: 8.4 Min: 7.4
3	33 inches	48 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 4.23	Max: 8.4 Min: 7.4
4	48 inches	59 inches	loamy sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 4.23	Max: 8.4 Min: 7.4
5	11 inches	33 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 4.23	Max: 8.4 Min: 7.4

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

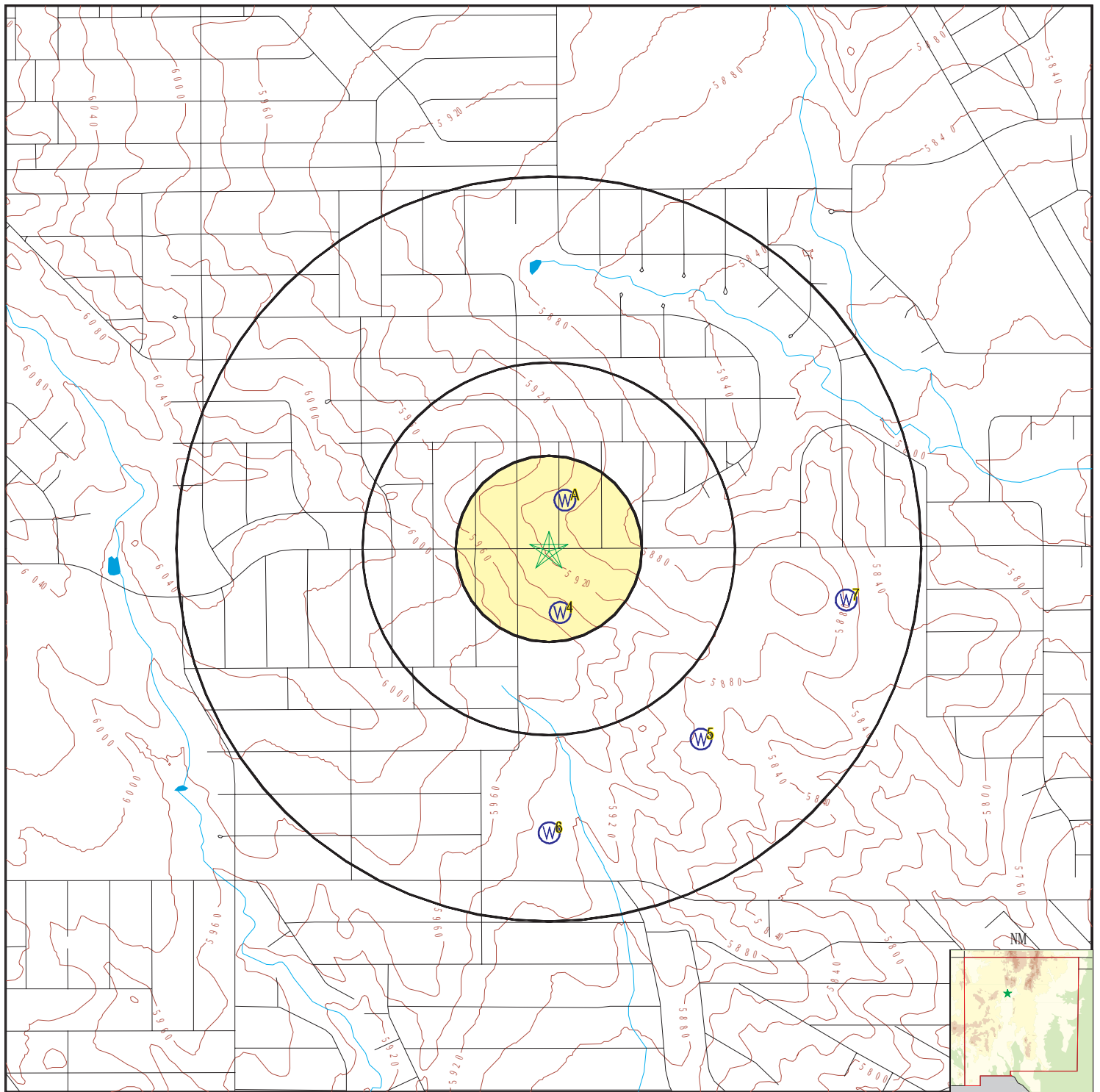
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
A1	NM70000000156790	0 - 1/8 Mile NNE
A2	NM70000000116291	1/8 - 1/4 Mile North
A3	NM70000000006520	1/8 - 1/4 Mile NNE
4	NM70000000174724	1/8 - 1/4 Mile South
5	NM70000000174667	1/2 - 1 Mile SE
6	NM70000000174727	1/2 - 1 Mile South
7	NM70000000174725	1/2 - 1 Mile East

PHYSICAL SETTING SOURCE MAP - 7931293.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME: Corr Well 9
 ADDRESS: King Blvd
 Rio Rancho NM 87144
 LAT/LONG: 35.32002 / 106.761838

CLIENT: Rocky Mountain Ecology, LLC
 CONTACT: Clay Benton
 INQUIRY #: 7931293.2s
 DATE: March 19, 2025 12:36 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

A1
NNE
0 - 1/8 Mile
Lower

NM WELLS NM7000000156790

WELLS:

Well Name:	Not Reported		
Well Use:	72-12-1 livestock watering		
Water Rights Status:	Permit	Water Rights Use:	Not Reported
POD Basin:	Rio Grande	POD #:	60187
POD Suffix:	POD2	Land Grant:	Not Reported
Drilling Started:	Not Reported	Plug Date:	Not Reported
Elevation:	0	Well Depth (ft):	1100
Well Schedule Date:	Not Reported	Pump Type:	Not Reported
Discharge Pipe Size:	Not Reported	Aquifer:	Not Reported
POD Status:	Pending	OSE Well Tag:	Not Reported
Basin:	Rio Grande	Sub Basin:	Middle Rio Grande
Diversion Amt Allowed (acre-ft):	3	Max Diversion Allowed:	0
Well Completed:	Not Reported	Completion Proved:	Not Reported
Groundwater Source:	Not Reported	% Shallow:	0
Depth to Water (ft):	0	OSE Filing Date:	Not Reported
Pump Serial #:	Not Reported	Surface Water Diversion:	0
Estimated Yield:	0	Casing Size (in):	4.5
POD Sub Basin:	Middle Rio Grande		
Static Level:	0		
Water Rights Summary URL:	http://nmwrrs.ose.state.nm.us/ReportDispatcher?type=WRHTML&name=WaterRightSummaryHTML.jrxmI&basin=RG&nbr=60187&suffix=		

A2
North
1/8 - 1/4 Mile
Lower

NM WELLS NM7000000116291

WELLS:

Well Name:	Not Reported		
Well Use:	72-12-1 domestic one household		
Water Rights Status:	Permit	Water Rights Use:	Not Reported
POD Basin:	Rio Grande	POD #:	76340
POD Suffix:	Not Reported	Land Grant:	Not Reported
Drilling Started:	30-JUL-01	Plug Date:	Not Reported
Elevation:	0	Well Depth (ft):	1020
Well Schedule Date:	Not Reported	Pump Type:	Not Reported
Discharge Pipe Size:	Not Reported	Aquifer:	Not Reported
POD Status:	Active	OSE Well Tag:	Not Reported
Basin:	Rio Grande	Sub Basin:	Middle Rio Grande
Diversion Amt Allowed (acre-ft):	3	Max Diversion Allowed:	0
Well Completed:	02-AUG-01	Completion Proved:	Not Reported
Groundwater Source:	Shallow	% Shallow:	100
Depth to Water (ft):	870	OSE Filing Date:	07-AUG-01
Pump Serial #:	Not Reported	Surface Water Diversion:	0
Estimated Yield:	25	Casing Size (in):	4
POD Sub Basin:	Middle Rio Grande		
Static Level:	0		
Water Rights Summary URL:	http://nmwrrs.ose.state.nm.us/ReportDispatcher?type=WRHTML&name=WaterRightSummaryHTML.jrxmI&basin=RG&nbr=76340&suffix=		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

A3
NNE
1/8 - 1/4 Mile
Lower

NM WELLS NM7000000006520

WELLS:

Well Name:	Not Reported	POD #:	60187
Well Use:	72-12-1 livestock watering	Land Grant:	Not Reported
Water Rights Status:	Permit	Plug Date:	Not Reported
Water Rights Use:	72-12-1 livestock watering	Well Depth (ft):	980
POD Basin:	Rio Grande	Pump Type:	Not Reported
POD Suffix:	POD1	Aquifer:	Not Reported
Drilling Started:	19-AUG-05	OSE Well Tag:	Not Reported
Elevation:	0	Sub Basin:	Middle Rio Grande
Well Schedule Date:	Not Reported	Max Diversion Allowed:	0
Discharge Pipe Size:	Not Reported	Completion Proved:	Not Reported
POD Status:	Active	% Shallow:	100
Basin:	Rio Grande	OSE Filing Date:	08-FEB-06
Diversion Amt Allowed (acre-ft):	3	Surface Water Diversion:	0
Well Completed:	17-JAN-06	Casing Size (in):	4.5
Groundwater Source:	Shallow		
Depth to Water (ft):	870		
Pump Serial #:	Not Reported		
Estimated Yield:	4		
POD Sub Basin:	Middle Rio Grande		
Static Level:	0		
Water Rights Summary URL:	http://nmwrrs.ose.state.nm.us/ReportDispatcher?type=WRHTML&name=WaterRightSummaryHTML.jrxmI&basin=RG&nbr=60187&suffix=		

4
South
1/8 - 1/4 Mile
Higher

NM WELLS NM7000000174724

WELLS:

Well Name:	Not Reported	POD Basin:	Rio Grande
Well Use:	Municipal - city or county supplied water	POD Suffix:	POD34
Water Rights Status:	Notice of Intention	Drilling Started:	Not Reported
Water Rights Use:	Not Reported	Elevation:	0
POD #:	91265	Well Schedule Date:	Not Reported
Land Grant:	Not Reported	Discharge Pipe Size:	Not Reported
Plug Date:	Not Reported	POD Status:	Not Reported
Well Depth (ft):	10000	Basin:	Rio Grande
Pump Type:	Not Reported	Diversion Amt Allowed (acre-ft):	0
Aquifer:	72-12-25	Well Completed:	Not Reported
OSE Well Tag:	Not Reported	Groundwater Source:	Not Reported
Sub Basin:	Rio Puerco	Depth to Water (ft):	0
Max Diversion Allowed:	0	Pump Serial #:	Not Reported
Completion Proved:	Not Reported	Estimated Yield:	0
% Shallow:	0	POD Sub Basin:	Middle Rio Grande
OSE Filing Date:	Not Reported		
Surface Water Diversion:	0		
Casing Size (in):	0		
Static Level:	0		
Water Rights Summary URL:	http://nmwrrs.ose.state.nm.us/ReportDispatcher?type=WRHTML&name=WaterRightSummaryHTML.jrxmI&basin=RG&nbr=91265&suffix=		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

5
SE
1/2 - 1 Mile
Lower

NM WELLS NM7000000174667

WELLS:

Well Name:	Not Reported	POD Basin:	Rio Grande
Well Use:	Municipal - city or county supplied water	POD Suffix:	POD1
Water Rights Status:	Notice of Intention	Drilling Started:	Not Reported
Water Rights Use:	Not Reported	Elevation:	0
POD #:	91311	Well Schedule Date:	Not Reported
Land Grant:	Not Reported	Discharge Pipe Size:	Not Reported
Plug Date:	Not Reported	POD Status:	Not Reported
Well Depth (ft):	0	Basin:	Rio Grande
Pump Type:	Not Reported		
Aquifer:	72-12-25		
OSE Well Tag:	Not Reported		
Sub Basin:	Middle Rio Grande		
Diversion Amt Allowed (acre-ft):	0	Max Diversion Allowed:	0
Well Completed:	Not Reported	Completion Proved:	Not Reported
Groundwater Source:	Not Reported	% Shallow:	0
Depth to Water (ft):	0	OSE Filing Date:	Not Reported
Pump Serial #:	Not Reported	Surface Water Diversion:	0
Estimated Yield:	0	Casing Size (in):	0
POD Sub Basin:	Middle Rio Grande		
Static Level:	0		
Water Rights Summary URL:	http://nmwrrs.ose.state.nm.us/ReportDispatcher?type=WRHTML&name=WaterRightSummaryHTML.jrxmI&basin=RG&nbr=91311&suffix=		

6
South
1/2 - 1 Mile
Higher

NM WELLS NM7000000174727

WELLS:

Well Name:	Not Reported	POD Basin:	Rio Grande
Well Use:	Municipal - city or county supplied water	POD Suffix:	POD37
Water Rights Status:	Notice of Intention	Drilling Started:	Not Reported
Water Rights Use:	Not Reported	Elevation:	0
POD #:	91265	Well Schedule Date:	Not Reported
Land Grant:	Not Reported	Discharge Pipe Size:	Not Reported
Plug Date:	Not Reported	POD Status:	Not Reported
Well Depth (ft):	10000	Basin:	Rio Grande
Pump Type:	Not Reported	Diversion Amt Allowed (acre-ft):	0
Aquifer:	72-12-25	Well Completed:	Not Reported
OSE Well Tag:	Not Reported	Groundwater Source:	Not Reported
Sub Basin:	Rio Puerco	Depth to Water (ft):	0
Max Diversion Allowed:	0	Pump Serial #:	Not Reported
Completion Proved:	Not Reported	Estimated Yield:	0
% Shallow:	0	POD Sub Basin:	Middle Rio Grande
OSE Filing Date:	Not Reported		
Surface Water Diversion:	0		
Casing Size (in):	0		
Static Level:	0		
Water Rights Summary URL:	http://nmwrrs.ose.state.nm.us/ReportDispatcher?type=WRHTML&name=WaterRightSummaryHTML.jrxmI&basin=RG&nbr=91265&suffix=		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

7
East
1/2 - 1 Mile
Lower

NM WELLS NM7000000174725

WELLS:

Well Name:	Not Reported	POD Basin:	Rio Grande
Well Use:	Municipal - city or county supplied water	POD Suffix:	POD35
Water Rights Status:	Notice of Intention	Drilling Started:	Not Reported
Water Rights Use:	Not Reported	Elevation:	0
POD #:	91265	Well Schedule Date:	Not Reported
Land Grant:	Not Reported	Discharge Pipe Size:	Not Reported
Plug Date:	Not Reported	POD Status:	Not Reported
Well Depth (ft):	10000	Basin:	Rio Grande
Pump Type:	Not Reported	Diversion Amt Allowed (acre-ft):	0
Aquifer:	72-12-25	Well Completed:	Not Reported
OSE Well Tag:	Not Reported	Groundwater Source:	Not Reported
Sub Basin:	Rio Puerco	Depth to Water (ft):	0
Max Diversion Allowed:	0	Pump Serial #:	Not Reported
Completion Proved:	Not Reported	Estimated Yield:	0
% Shallow:	0	POD Sub Basin:	Middle Rio Grande
OSE Filing Date:	Not Reported		
Surface Water Diversion:	0		
Casing Size (in):	0		
Static Level:	0		
Water Rights Summary URL:	http://nmwrrs.ose.state.nm.us/ReportDispatcher?type=WRHTML&name=WaterRightSummaryHTML.jrxmI&basin=RG&nbr=91265&suffix=		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for SANDOVAL County: 2

Note: Zone 1 indoor average level > 4 pCi/L.

: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.

: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for SANDOVAL COUNTY, NM

Number of sites tested: 140

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	3.371 pCi/L	87%	11%	1%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	5.425 pCi/L	50%	50%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory

Source: US Fish & Wildlife Service

Telephone: 505-248-6660

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database

Source: Office of the State Engineer

Telephone: 505-827-6175

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Locations

Source: New Mexico Institute of Mining and Technology

Telephone: 505-835-5142

RADON

State Database: NM Radon

Source: Environment Department

Telephone: 505-827-1093

Radon Test Results

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRRA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Appendix F.
Public Scoping

In accordance with 42 U.S.C § 4332 the USACE initiated public involvement and agency scoping activities to solicit input on the 2025 draft EA King Blvd Waterline Extension, Sandoval County, New Mexico. The public was provided a Notice of Availability for a 30-day review period of the draft EA from August 17, 2025, to September 15 2025. A hardcopy of the draft EA was made available for public review at the Loma Colorado Main Library, Rio Rancho NM, during the public review period. Section 106 Consultation Letters to Tribes and SHPO concurrence letter can be found in the Cultural Appendix D.

An electronic copy of the draft EA was made available in the following USACE webpage, which also contains the final EA post public review:

<https://www.spa.usace.army.mil/Missions/Environmental/Environmental-Compliance-Documents/Environmental-Assessments-FONSI/>

The Notice of Availability was published in the Rio Rancho Observer prior to the start of the public review period. Agencies and entities that were contacted in preparation of this EA include:

Shawn Sartorius
New Mexico Ecological Services Field Office
U.S. Fish and Wildlife Service

Mark Horner
New Mexico Ecological Services Field Office
U.S. Fish and Wildlife Service

Erin Salano
New Mexico Department of Game and Fish
Conservation Services Division

Jack Marchetti
Fisheries Management Division
New Mexico Department of Game and Fish

Laura McCarthy
New Mexico Forestry
New Mexico Energy Minerals and Natural Resources Department

Toby Velasquez
New Mexico State Parks Director
New Mexico Energy Minerals and Natural Resources Department

Joey Fleming
New Mexico State Park Division
New Mexico Energy Minerals and Natural Resources Department

Dana Vackar Strang
Surface Resources Division
New Mexico State Land Office

Eli Martinez
Office of Communities, Tribes and Environmental Assessment
U.S. Environmental Protection Agency

Michelle M. Ensey
State Historic Preservation Officer
Historic Preservation Division

Comments during the 30-day public review period of the draft EA from August 17, 2025, to September 15, 2025, were received from Agencies and SHPO. A comment response table is provided below:

Commenter	Comment	Response
New Mexico Energy Minerals and Natural Resources Department	The two State parcels directly adjacent to the project are owned by the State Land Office (SLO). We did not see SLO listed as a consulted agency in the draft EA, so we would like to recommend that USACE contact SLO directly for comment if you have not already. We can provide relevant contact info if this would be helpful.	Concur, and contacted SLO to take part of the 30-day Public Review period.
New Mexico Department of Game and Fish	• Due to the large amounts of soil proposed for removal, in addition to the burrowing owl and prairie dog surveys recommended in the NMERT-generated report, the Department recommends surveying the project area for any burrowing wildlife species prior to the initiation of any soil moving activities. If disturbance of any detected burrowing wildlife cannot be avoided, then a qualified biologist should be engaged to capture and move any such wildlife. • For post-construction reclamation of the project area, the Department recommends that only native plant species are used in the reclamation seed mix	Concur, and incorporated these comments into the EA's list of BMPs.

	and that the mix is designed to enhance local pollinator habitat. The Department also recommends that the seed mix and mulch be certified weed-free to avoid inadvertently introducing non-native species to the reclamation site. Any alternate plant species, used to substitute for primary plant species that are unavailable at the time of reclamation, should also be native. When possible, the Department recommends using seeds that are sourced from the same region and habitat type as the reclamation site and suggests including seeds from a region that represents potential future climatic conditions at the site.	
State Historic Preservation Office	SHPO concurs with the determination of No Historic Properties affected by the project.	Noted

Comments during a previous public outreach event in March 2024 were received from USFWS, BOR, OSE, and SHPO. A comment response table is provided below:

Commenter	Comment	Response
U.S. Fish and Wildlife Service	The USFWS requests that impacts to Bendire’s thrasher be included in the NEPA analysis.	Bendire’s thrasher has been included in Section 3.3.3 of the EA.
U.S. Bureau of Reclamation	The BOR has no comments.	Noted
NM Office of the State Engineer/Interstate Stream Commission	The OSE recommends to properly identify the subject well as “RG-26259 POD3”, rather than “Well 9R”. The OSE advises that other federal, state, county and city agencies may want to review the existing OSE permit for the subject well.	Noted
State Historic Preservation Office	SHPO concurs with the determination of No Historic Properties Affected by the project.	Noted

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PO NUMBER:

PUB DATE	DESCRIPTION	AMOUNT
08/17/25	Rio Rancho Observer 1.00 x 0.00	97.94
SUBTOTAL		\$97.94
TAX		7.28
TECH FEE		0.00
PAYMENT		0.00
TOTAL DUE		\$105.22

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J. Rodrigo Seden

8/11/2025

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RIO RANCHO OBSERVER

VALENCIA COUNTY **News-Bulletin**

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Name: **U.S. Army Corps of Engineers, Alb Dist**
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Address: **4101 JEFFERSON PLAZA
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Telephone: **(505)342-3378**

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Description:
Run Dates: **08/17/2025 - 08/17/2025**
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Lines: **86**
Agate Lines: **123**
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Rio Rancho Observer	08/17/2025	08/17/2025	1	97.94

**Notice of Availability
Draft Environmental
Assessment King Blvd
Waterline Extension, San-
doval County, New Mexico**

The U.S. Army Corps of Engineers, Albuquerque District (USACE), has prepared a draft Environmental Assessment (DEA) for the installation of a new section of waterline in Rio Rancho, Sandoval County, New Mexico.

The DEA titled King Blvd Waterline Extension, Sandoval County, New Mexico evaluates alternatives that ensure the management of natural and cultural resources within the project footprint adhere to applicable environmental laws and regulations. The proposed action would install a new section of waterline between a newly redrilled Well 9 to join existing water infrastructure at the end of the currently paved portion of King Blvd NW in Rio Rancho, NM.

A hard copy of the "draft Environmental Assessment for the King Blvd Waterline Extension" can be sent upon request, and is available electronically at the USACE Albuquerque District website (under "FONSI/Environmental Assessment") at:

<https://www.spa.usace.army.mil/Missions/Environmental/Environmental-Compliance-Documents/>

USACE is soliciting comments from concerned agencies and members of the public, per the National Environmental Policy Act directives. The DEA will be available for public review from August 17th 2025, to September 15th 2025.

Written comments may be emailed to: jorge.r.sedeno@usace.army.mil
Or mailed to: U.S. Army Corps of Engineers, Albuquerque District
Environmental Resources Section
Attn: CESPA-PM-LE (Mr. Jorge Rodrigo Sedeno)
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109

The USACE would appreciate receiving comments or any type of feedback no later than **September 15th 2025**, that way comments can be addressed, and revisions made to the DEA in a timely manner.

Hard copies of the DEA are also available for review at:

· Loma Colorado Main Library
755 Loma Colorado Blvd NE,
Rio Rancho, NM, 87124

Observer: August 17, 2025

From: [Marchetti, Jack, DGF](#)
To: [Sedeno, J Rodrigo CIV USARMY CESPA \(USA\)](#)
Cc: [DGF-EFP-TG](#)
Subject: [Non-DoD Source] RE: [EXTERNAL] Public Review: draft Environmental Assessment - Rio Rancho King blvd Waterline Extension, Sandoval County, NM
Date: Friday, August 22, 2025 12:59:41 PM
Attachments: [image001.png](#)
[image002.png](#)
[project_report_king_blvd_waterline_extensi_40190_40300.pdf](#)

Hello Rodrigo,

I have reviewed the King Blvd Waterline Extension Project (Project) draft EA and entered it into the New Mexico Environmental Review Tool (NMERT; project number NMERT-5014). Upon entering your project into the NMERT, an auto-generated project report was created (attached here). Please consider the recommendations and Best Management Practices in the project report as well as those mentioned below as the Department's official comments regarding the Project and the draft EA.

Due to the large amounts of soil proposed for removal, in addition to the burrowing owl and prairie dog surveys recommended in the NMERT-generated report, the Department recommends surveying the project area for any burrowing wildlife species prior to the initiation of any soil moving activities. If disturbance of any detected burrowing wildlife cannot be avoided, then a qualified biologist should be engaged to capture and move any such wildlife.

For post-construction reclamation of the project area, the Department recommends that only native plant species are used in the reclamation seed mix and that the mix is designed to enhance local pollinator habitat. The Department also recommends that the seed mix and mulch be certified weed-free to avoid inadvertently introducing non-native species to the reclamation site. Any alternate plant species, used to substitute for primary plant species that are unavailable at the time of reclamation, should also be native. When possible, the Department recommends using seeds that are sourced from the same region and habitat type as the reclamation site and suggests including seeds from a region that represents potential future climatic conditions at the site.

Thank you for the opportunity to review the draft EA for the Project. Please contact me with any questions.

Sincerely,

Jack Marchetti (he/him)
Aquatic/Riparian Habitat Specialist
Fisheries Management Division
New Mexico Department of Game and Fish
Cell: 505-479-1269
jack.marchetti@dgf.nm.gov

From: Sedeno, J Rodrigo CIV USARMY CESPA (USA) <Jorge.R.Sedeno@usace.army.mil>
Sent: Tuesday, August 19, 2025 1:00 PM
To: Salano, Erin, DGF <erin.salano@dgf.nm.gov>
Cc: Marchetti, Jack, DGF <jack.marchetti@dgf.nm.gov>
Subject: RE: [EXTERNAL] Public Review: draft Environmental Assessment - Rio Rancho King blvd Waterline Extension, Sandoval County, NM

You don't often get email from jorge.r.sedeno@usace.army.mil. [Learn why this is important](#)

Hola!

Great, Thank you Erin and Jack!

-Rodrigo

Rodrigo Sedeno

Biologist

505-342-3168 (w)
US Army Corps of Engineers
4101 Jefferson Plaza N. E.
Albuquerque, NM. 87109



From: Salano, Erin, DGF <erin.salano@dgf.nm.gov>
Sent: Tuesday, August 19, 2025 12:56 PM
To: Sedeno, J Rodrigo CIV USARMY CESPA (USA) <Jorge.R.Sedeno@usace.army.mil>
Cc: Marchetti, Jack, DGF <jack.marchetti@dgf.nm.gov>
Subject: [Non-DoD Source] Re: [EXTERNAL] Public Review: draft Environmental Assessment - Rio Rancho King blvd Waterline Extension, Sandoval County, NM

Hola Rodrigo!

I was instructed to forward this project to my riparian habitat counterpart Jack Marchetti (CCd), to have him be the lead/do the review since it is a water line project. He is typically the one assigned for water line projects and things coming from ACOE and BOR.

Best,



Erin Salano (She/Her)
Terrestrial Habitat Specialist

Phone 505.321.5485 **Email** erin.salano@dgf.nm.gov
1 Wildlife Way, Santa Fe, NM 87507

Conserving New Mexico's Wildlife for Future Generations.

CONFIDENTIALITY NOTICE: This e-mail, including all attachments, is for the sole use of the intended recipient[s] and may contain confidential and/or privileged information. Any unauthorized review, use, copying, disclosure, or distribution is prohibited unless specifically provided under the New Mexico Inspection of Public Records Act. If you are not the intended recipient, please contact the sender at once and destroy all copies of this message.

From: Sedeno, J Rodrigo CIV USARMY CESPA (USA) <Jorge.R.Sedeno@usace.army.mil>
Sent: Tuesday, August 19, 2025 9:52 AM
To: Salano, Erin, DGF <erin.salano@dgf.nm.gov>
Subject: [EXTERNAL] Public Review: draft Environmental Assessment - Rio Rancho King blvd Waterline Extension, Sandoval County, NM

You don't often get email from jorge.r.sedeno@usace.army.mil. [Learn why this is important](#)

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

Hello Erin,

I trust all is well!

The US Army Corps of Engineers Albuquerque District is starting the public review period for the Draft Environmental Assessment (DEA) for the Rio Rancho King blvd Waterline Extension in Sandoval County, New Mexico [NMERT Project ID: 4884]. Public review runs from August 17 – September 15, 2025. The DEA and appendices are uploaded to our Environmental Compliance Documents web page:

<https://www.spa.usace.army.mil/Missions/Environmental/Environmental-Compliance-Documents/Environmental-Assessments-FONSI/>

We would be happy to send these documents as hard copies if you prefer.

Thanks for all the attention!

-Rodrigo

Rodrigo Sedeno

Biologist

Environmental Resources Section

Planning & Program Management Division

505-342-3168 (w)

US Army Corps of Engineers

4101 Jefferson Plaza N. E.

Albuquerque, NM. 87109



From: [Fleming, Joseph, EMNRD](#)
To: [Sedeno, J Rodrigo CIV USARMY CESPA \(USA\)](#)
Cc: [Velasquez, Toby, EMNRD](#); [Baker, Colleen, EMNRD](#); [Darr, Ryan, EMNRD](#)
Subject: [Non-DoD Source] RE: [EXTERNAL] RE: Public Review: draft Environmental Assessment - Rio Rancho King blvd Waterline Extension, Sandoval County, NM
Date: Wednesday, August 27, 2025 8:41:24 AM
Attachments: [image002.png](#)
[image003.png](#)

Good morning, Rodrigo,
Sure thing, happy to help. Please see the info below for each agency:

Like NM State Parks, **NM Forestry** is a division of the Energy, Minerals and Natural Resources Department, and has their own Director, Director Laura McCarthy (laura.mccarthy@emnrd.nm.gov), and so you may consider sending your request to her to be routed accordingly. The project is in their Bernalillo District (District 6). Here is the district's contact info and a link to the [NM Forestry District 6 Staff Directory](#):

District 6 - Bernalillo
5105 Santa Fe Hills Blvd NE
Rio Rancho, NM 87144
[505-205-0343](tel:505-205-0343)

For **NM State Land Office**, consider contacting Dana Vackar Strang, Assistant Commissioner of Surface Resources (dvstrang@nmslo.gov) or their Surface Resources Division at (505) 827-5729. This Division has their Environmental Compliance Office and Agricultural Leasing Staff. Here's a link to their [Surface Resources Staff directory](#) for individual contact info. The project is in their Albuquerque District:

District Office – Albuquerque
700 Lomas NE, Suite 101
Albuquerque, NM 87102
[\(505\) 539-5763](tel:505-539-5763)

Thank you,
-Joey

From: Sedeno, J Rodrigo CIV USARMY CESPA (USA) <Jorge.R.Sedeno@usace.army.mil>
Sent: Tuesday, August 26, 2025 9:52 AM
To: Fleming, Joseph, EMNRD <Joseph.Fleming@emnrd.nm.gov>
Cc: Velasquez, Toby, EMNRD <toby.velasquez@emnrd.nm.gov>; Darr, Ryan, EMNRD <Ryan.Darr@emnrd.nm.gov>; Baker, Colleen, EMNRD <Colleen.Baker@emnrd.nm.gov>
Subject: [EXTERNAL] RE: Public Review: draft Environmental Assessment - Rio Rancho King blvd Waterline Extension, Sandoval County, NM

Some people who received this message don't often get email from jorge.r.sedeno@usace.army.mil. [Learn why this is important](#)

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

Hello Joey,

Thank you for your thorough review of the draft EA.

USACE did contact NMDGF, but did not contact SLO or EMNRD-Forestry Division. Could you please provide a contact for SLO and a contact for EMNRD-Forestry Division.

Thank you for recommending contacting the above partner state agencies, I think their review and input would greatly improve this waterline extension project.

Cheers,

-Rodrigo

Rodrigo Sedenó

Biologist

Environmental Resources Section
Planning & Program Management Division
505-342-3168 (w)

US Army Corps of Engineers

4101 Jefferson Plaza N. E.
Albuquerque, NM. 87109



From: Fleming, Joseph, EMNRD <Joseph.Fleming@emnrd.nm.gov>

Sent: Thursday, August 21, 2025 2:33 PM

To: Sedenó, J Rodrigo CIV USARMY CESPA (USA) <Jorge.R.Sedenó@usace.army.mil>

Cc: Velasquez, Toby, EMNRD <toby.velasquez@emnrd.nm.gov>; Darr, Ryan, EMNRD <Ryan.Darr@emnrd.nm.gov>; Baker, Colleen, EMNRD <Colleen.Baker@emnrd.nm.gov>

Subject: [Non-DoD Source] Public Review: draft Environmental Assessment - Rio Rancho King blvd Waterline Extension, Sandoval County, NM

Good afternoon, Mr. Sedenó,

Thank you for contacting NM State Parks about the public review period for the Draft Environmental Assessment (DEA) for the Rio Rancho King blvd Waterline Extension in Sandoval County, New Mexico. We have reviewed the draft EA and do not have any comments related to NM State Parks on the draft EA or appendices. We would like to share two notes related to partner state agencies:

- The two State parcels directly adjacent to the project are owned by the State Land Office (SLO). We did not see SLO listed as a consulted agency in the draft EA, so we would like to recommend that USACE contact SLO directly for comment if you have not already. We can

provide relevant contact info if this would be helpful.

- USACE has likely already contacted EMNRD – Forestry Division, which is responsible for state-listed plant species, and for NMDGF, which is responsible for state-listed wildlife species, for their review of the draft EA. If not, we can also provide contact information for these agencies if this would be helpful.

Thank you again for contacting us and have a nice day,

Joey Fleming (He/Him) | Park Planner

(505) 469-6317

New Mexico State Parks Division





DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE NM 87109-3435

August 12, 2025

Planning, Project, and Program Management Division
Planning Branch
Environmental Resources Section

Mr. Eli Martinez
Office of Communities, Tribes and Environmental Assessment
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500 (ORACN)
Dallas, Texas 75270-2102

Dear Mr. Martinez:

The U.S. Army Corps of Engineers, Albuquerque District (USACE), has prepared a draft Environmental Assessment (DEA) for the installation of a new section of waterline in Rio Rancho, Sandoval County, New Mexico (Enclosure 1).

The DEA titled *King Blvd Waterline Extension, Sandoval County, New Mexico* evaluates alternatives that ensure the management of natural and cultural resources within the project footprint adhere to applicable environmental laws and regulations. The proposed action would install a new section of waterline between a newly redrilled Well 9 to join existing water infrastructure at the end of the currently paved portion of King Blvd NW in Rio Rancho, New Mexico (Enclosure 2). Construction is anticipated to start in January 2026, with an estimated duration of 4 months.

A hard copy of the “**draft Environmental Assessment for the King Blvd Waterline Extension, Sandoval County, New Mexico**” can be sent upon request, and is available electronically at the USACE Albuquerque District website (under “FONSI/Environmental Assessment”) at:

<https://www.spa.usace.army.mil/Missions/Environmental/Environmental-Compliance-Documents/>

The USACE is soliciting comments from members of the public and concerned agencies in compliance with the National Environmental Policy Act. The DEA will be available for public review from August 17th 2025 until September 15th 2025.

Written comments may be emailed to: jorge.r.sedeno@usace.army.mil

Or mailed to: U.S. Army Corps of Engineers, Albuquerque District
Environmental Resources Section
Attn: CESPA-PM-LE (Mr. Jorge Rodrigo Sedenó)
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109

The USACE would appreciate receiving comments no later than **September 15th 2025**, that way comments can be addressed, and revisions made to the DEA in a timely manner.

If you have any questions or need additional information, please consider the following contacts:

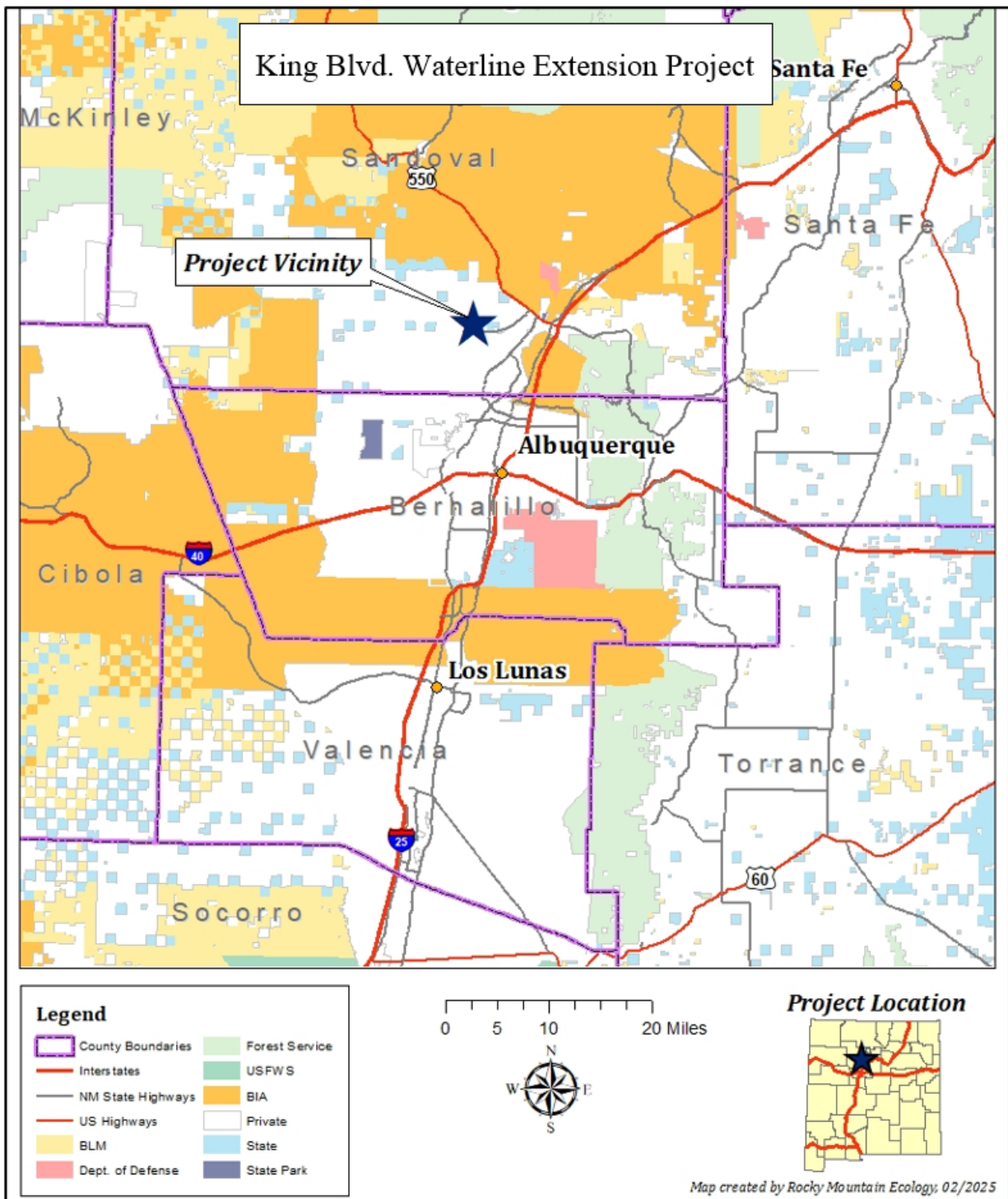
- Ms. Kaitlyn Fuqua, Archeologist,
e-mail: kaitlyn.n.fuqua@usace.army.mil
- Mr. Jorge Rodrigo Seden, Biologist,
e-mail: jorge.r.seden@usace.army.mil

Sincerely,

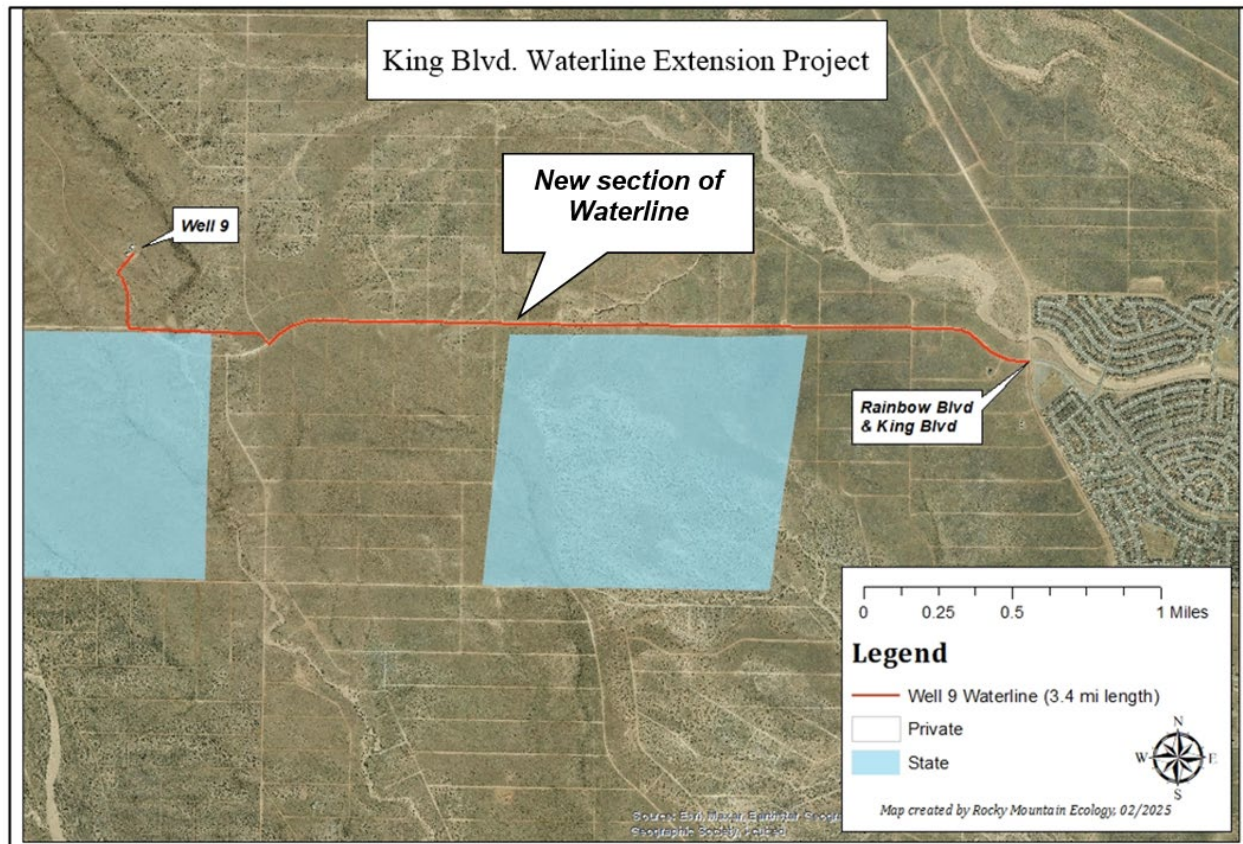
Danielle A. Galloway

Danielle A. Galloway
Chief, Environmental Resources Section

Enclosure 1: King Blvd Waterline Extension Project Location



Enclosure 2: King Blvd. Waterline Extension Project Location with aerial imagery





DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE NM 87109-3435

August 12, 2025

**Planning, Project, and Management Division
Planning Branch
Environmental Resources Section**

Loma Colorado Main Library
755 Loma Colorado Blvd NE,
Rio Rancho, NM. 87124

Dear Librarian:

We kindly request to make the enclosed copy of the Draft Environmental Assessment, titled ***“Environmental Assessment – King Blvd Waterline Extension, Rio Rancho, Sandoval County, New Mexico”*** available for a 30-day public review period beginning on August 17th 2025 and concluding on September 15th 2025.

Following this public review period, you may destroy the document or keep for your records. We appreciate your attention and cooperation in this regard, and if you have any questions or concerns, please contact Mr. Rodrigo Sedeno at (505) 342-3168, email: jorge.r.sedeno@usace.army.mil

Thank you.

Sincerely,

Danielle A. Galloway

Danielle A. Galloway
Chief, Environmental Resources Section



DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE NM 87109-3435

August 12, 2025

Planning, Project, and Program Management Division
Planning Branch
Environmental Resources Section

Ms. Erin Solano
New Mexico Department of Game and Fish
One Wildlife Way
Santa Fe, NM 87507

Dear Erin Solano:

The U.S. Army Corps of Engineers, Albuquerque District (USACE), has prepared a draft Environmental Assessment (DEA) for the installation of a new section of waterline in Rio Rancho, Sandoval County, New Mexico (Enclosure 1).

The DEA titled *King Blvd Waterline Extension, Sandoval County, New Mexico* [NMERT Project ID: 4884] evaluates alternatives that ensure the management of natural and cultural resources within the project footprint adhere to applicable environmental laws and regulations. The proposed action would install a new section of waterline between a newly redrilled Well 9 to join existing water infrastructure at the end of the currently paved portion of King Blvd NW in Rio Rancho, New Mexico (Enclosure 2). Construction is anticipated to start in January 2026, with an estimated duration of 4 months.

A hard copy of the “**draft Environmental Assessment for the King Blvd Waterline Extension, Sandoval County, New Mexico**” can be sent upon request, and is available electronically at the USACE Albuquerque District website (under “FONSI/Environmental Assessment”) at:

<https://www.spa.usace.army.mil/Missions/Environmental/Environmental-Compliance-Documents/>

Fish and wildlife resources including State-listed species are addressed in Sections 3.3 [Biological Environment] and 3.3.3 [Special Status Species] of the DEA. The USACE determined that the recommended plan would have a No-Effect on State-listed species or designated critical habitat.

USACE is soliciting comments from members of the public and concerned agencies in compliance with the National Environmental Policy Act. The DEA will be available for public review from August 17th 2025 until September 15th 2025.

Written comments may be emailed to: jorge.r.sedeno@usace.army.mil

Or mailed to: U.S. Army Corps of Engineers, Albuquerque District
Environmental Resources Section
Attn: CESP-PM-LE (Mr. Jorge Rodrigo Seden)
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109

USACE would appreciate receiving comments no later than **September 15th 2025**, that way comments can be addressed, and revisions made to the DEA in a timely manner.

If you have any questions or need additional information, please consider the following contacts:

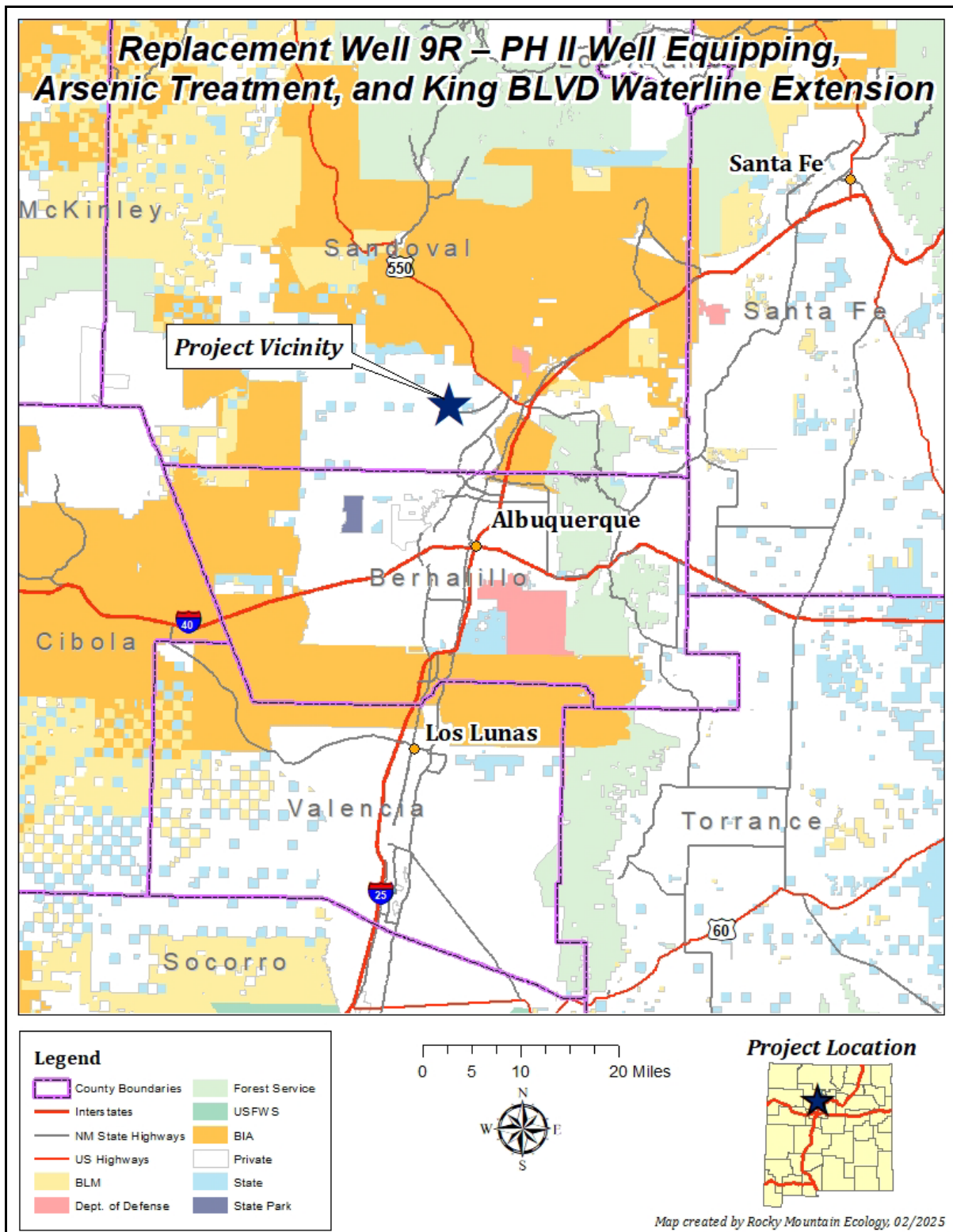
- Ms. Kaitlyn Fuqua, Archeologist,
e-mail: kaitlyn.n.fuqua@usace.army.mil
- Mr. Jorge Rodrigo Seden, Biologist,
e-mail: jorge.r.sedeno@usace.army.mil

Sincerely,

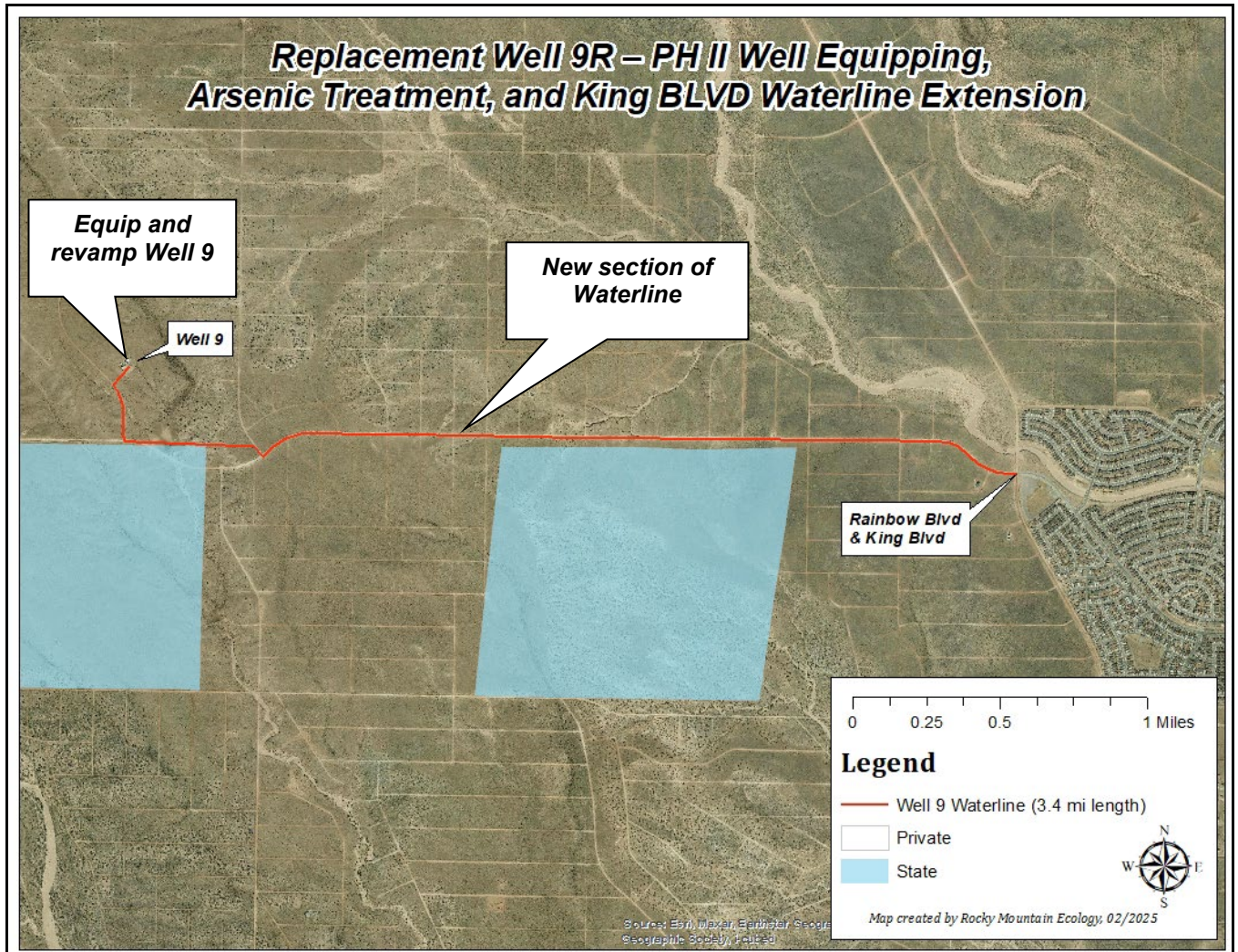
Danielle A. Galloway

Danielle A. Galloway
Chief, Environmental Resources

Enclosure 1: Location of Project



Enclosure 2: Proposed Action





DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE NM 87109-3435

August 12, 2025

Planning, Project, and Program Management Division
Planning Branch
Environmental Resources Section

Mr. Toby Velasquez
New Mexico State Parks Director
1220 S. St. Francis Drive, Santa Fe, NM 87505

Dear Mr. Velasquez,

The U.S. Army Corps of Engineers, Albuquerque District (USACE), has prepared a draft Environmental Assessment (DEA) for the installation of a new section of waterline in Rio Rancho, Sandoval County, New Mexico (Enclosure 1).

The DEA titled *King Blvd Waterline Extension, Sandoval County, New Mexico* [NMERT Project ID: 4884], evaluates alternatives that ensure the management of natural and cultural resources within the project footprint adhere to applicable environmental laws and regulations. The proposed action would install a new section of waterline between a newly redrilled Well 9 to join existing water infrastructure at the end of the currently paved portion of King Blvd NW in Rio Rancho, New Mexico (Enclosure 2). Construction is anticipated to start in January 2026, with an estimated duration of 4 months.

A hard copy of the “**draft Environmental Assessment for the King Blvd Waterline Extension, Sandoval County, New Mexico**” can be sent upon request, and is available electronically at the USACE Albuquerque District website (under “FONSI/Environmental Assessment”) at:

<https://www.spa.usace.army.mil/Missions/Environmental/Environmental-Compliance-Documents/>

Fish and wildlife resources including federal and state listed species are addressed in Sections 3.3 [Biological Environment], 3.3.3 [Special Status Species] and 3.4 [Cultural Resources] of the DEA. Pursuant to Section 7 of the Endangered Species Act of 1973, as amended, USACE determined that the recommended plan would have a No-Effect on state and federally listed species or designated critical habitat.

The USACE is soliciting comments from members of the public and concerned agencies in compliance with the National Environmental Policy Act. The DEA will be available for public review from August 17th 2025 until September 15th 2025.

Written comments may be emailed to: jorge.r.sedeno@usace.army.mil
Or mailed to: U.S. Army Corps of Engineers, Albuquerque District
Environmental Resources Section
Attn: CESPA-PM-LE (Mr. Jorge Rodrigo Sedeno)
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109

The USACE would appreciate receiving comments no later than **September 15th 2025**, that way comments can be addressed, and revisions made to the DEA in a timely manner.

If you have any questions or need additional information, please consider the following contacts:

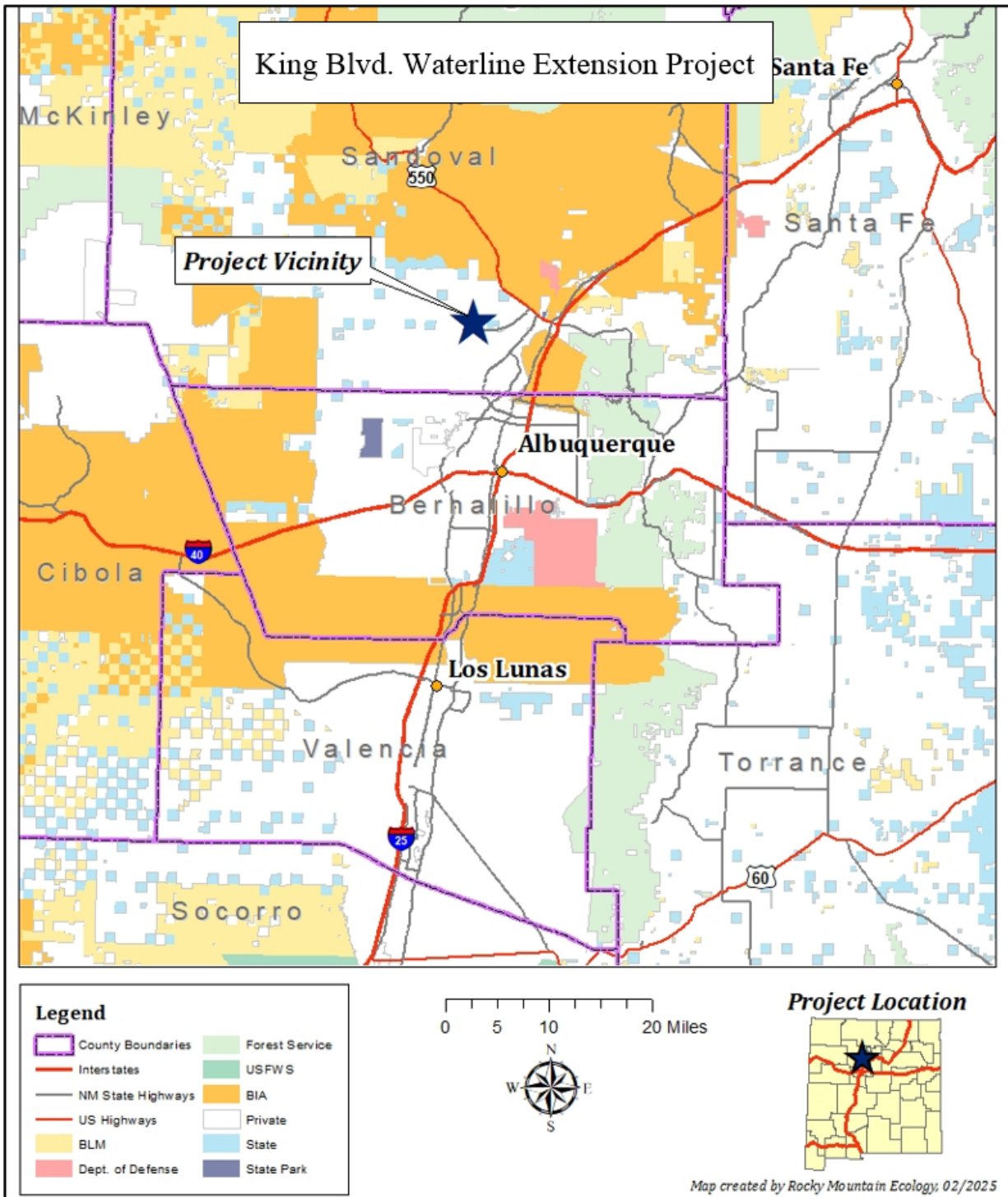
- Ms. Kaitlyn Fuqua, Archeologist,
e-mail: kaitlyn.n.fuqua@usace.army.mil
- Mr. Jorge Rodrigo Sedeno, Biologist,
e-mail: jorge.r.sedeno@usace.army.mil

Sincerely,

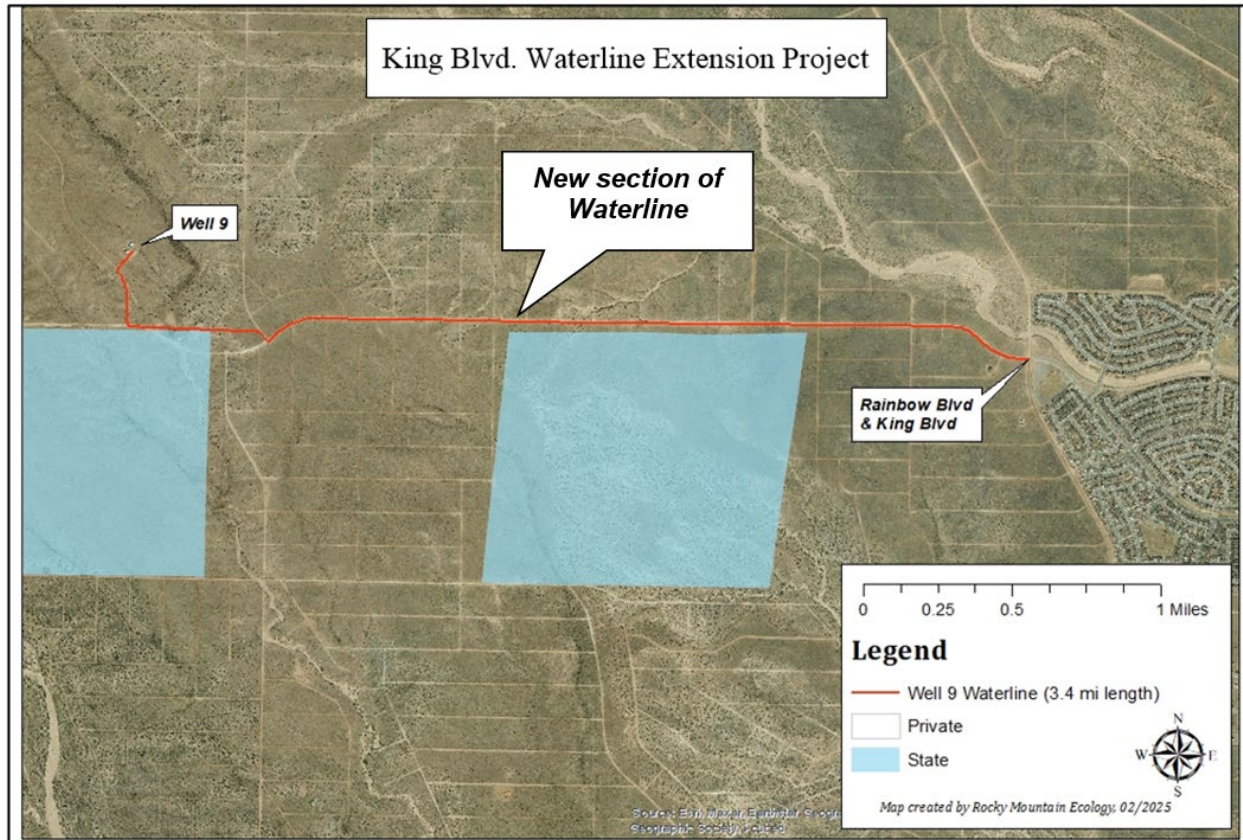
Danielle A. Galloway

Danielle A. Galloway
Chief, Environmental Resources

Enclosure 1: King Blvd Waterline Extension Project Location



Enclosure 2: King Blvd. Waterline Extension Project Location with aerial imagery





DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE NM 87109-3435

August 12, 2025

Planning, Project, and Program Management Division
Planning Branch
Environmental Resources Section

Mr. Shawn Sartorius
U. S. Fish and Wildlife Service
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, NM 87113-1001

Dear Mr. Shawn Sartorius,

The U.S. Army Corps of Engineers, Albuquerque District (USACE), has prepared a draft Environmental Assessment (DEA) for the installation of a new section of waterline in Rio Rancho, Sandoval County, New Mexico (Enclosure 1).

The DEA titled *King Blvd Waterline Extension, Sandoval County, New Mexico* evaluates alternatives that ensure the management of natural and cultural resources within the project footprint adhere to applicable environmental laws and regulations. The proposed action would install a new section of waterline between a newly redrilled Well 9 to join existing water infrastructure at the end of the currently paved portion of King Blvd NW in Rio Rancho, New Mexico (Enclosure 2). Construction is anticipated to start in January 2026, with an estimated duration of 4 months.

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<https://www.spa.usace.army.mil/Missions/Environmental/Environmental-Compliance-Documents/>

Fish and wildlife resources including listed species are addressed in Sections 3.3 [Biological Environment] and 3.3.3 [Special Status Species] of the DEA. Pursuant to Section 7 of the Endangered Species Act of 1973, as amended, USACE determined that the recommended plan would have a No-Effect on federally listed species or designated critical habitat.

The USACE is soliciting comments from members of the public and concerned agencies in compliance with the National Environmental Policy Act. The DEA will be available for public review from August 17th 2025 until September 15th 2025.

Written comments may be emailed to: jorge.r.sedeno@usace.army.mil

Or mailed to: U.S. Army Corps of Engineers, Albuquerque District
Environmental Resources Section
Attn: CESPAPM-LE (Mr. Jorge Rodrigo Seden)
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109

The USACE would appreciate receiving comments no later than **September 15th 2025**, that way comments can be addressed, and revisions made to the DEA in a timely manner.

If you have any questions or need additional information, please consider the following contacts:

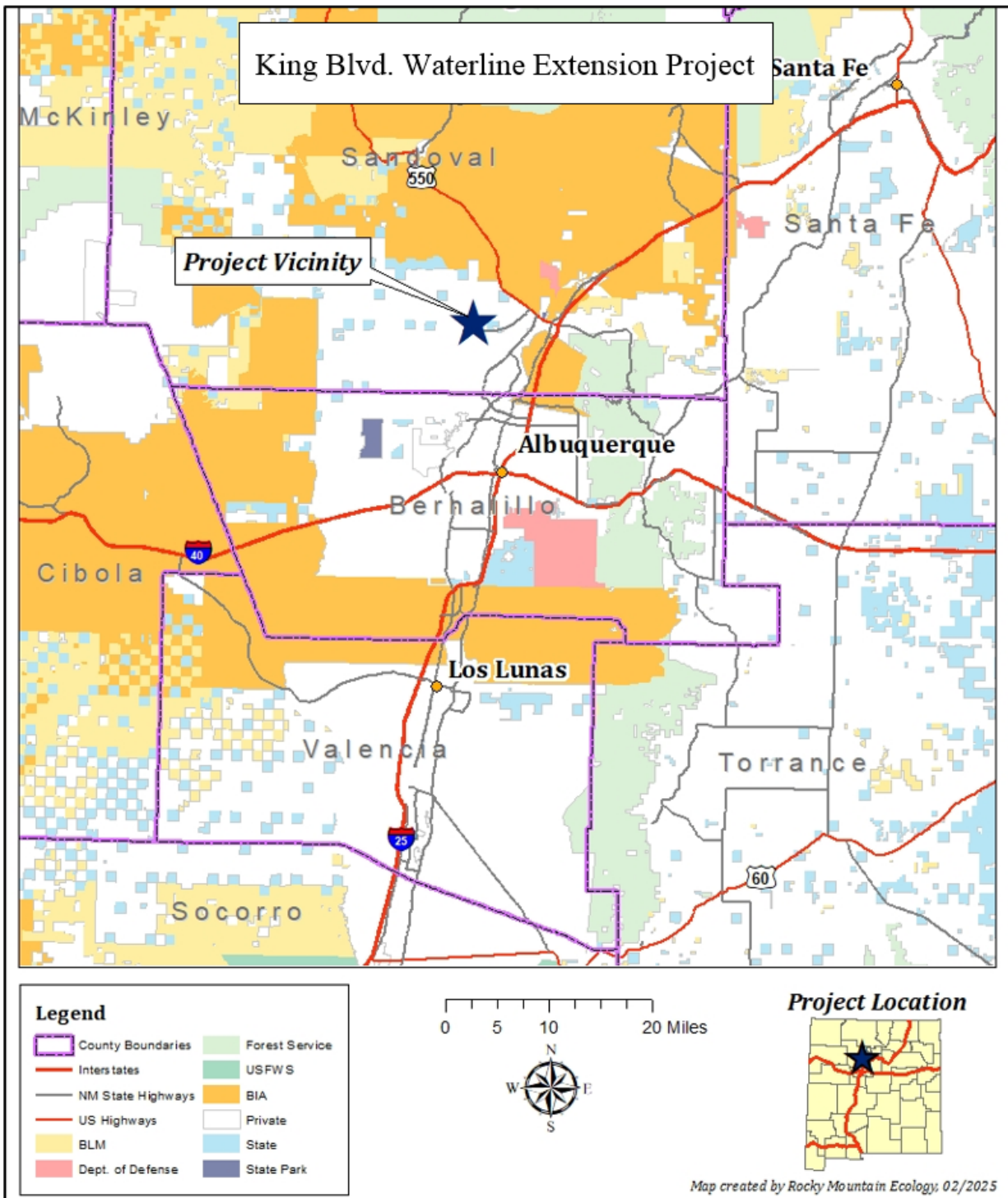
- Ms. Kaitlyn Fuqua, Archeologist,
e-mail: kaitlyn.n.fuqua@usace.army.mil
- Mr. Jorge Rodrigo Seden, Biologist,
e-mail: jorge.r.sedeno@usace.army.mil

Sincerely,

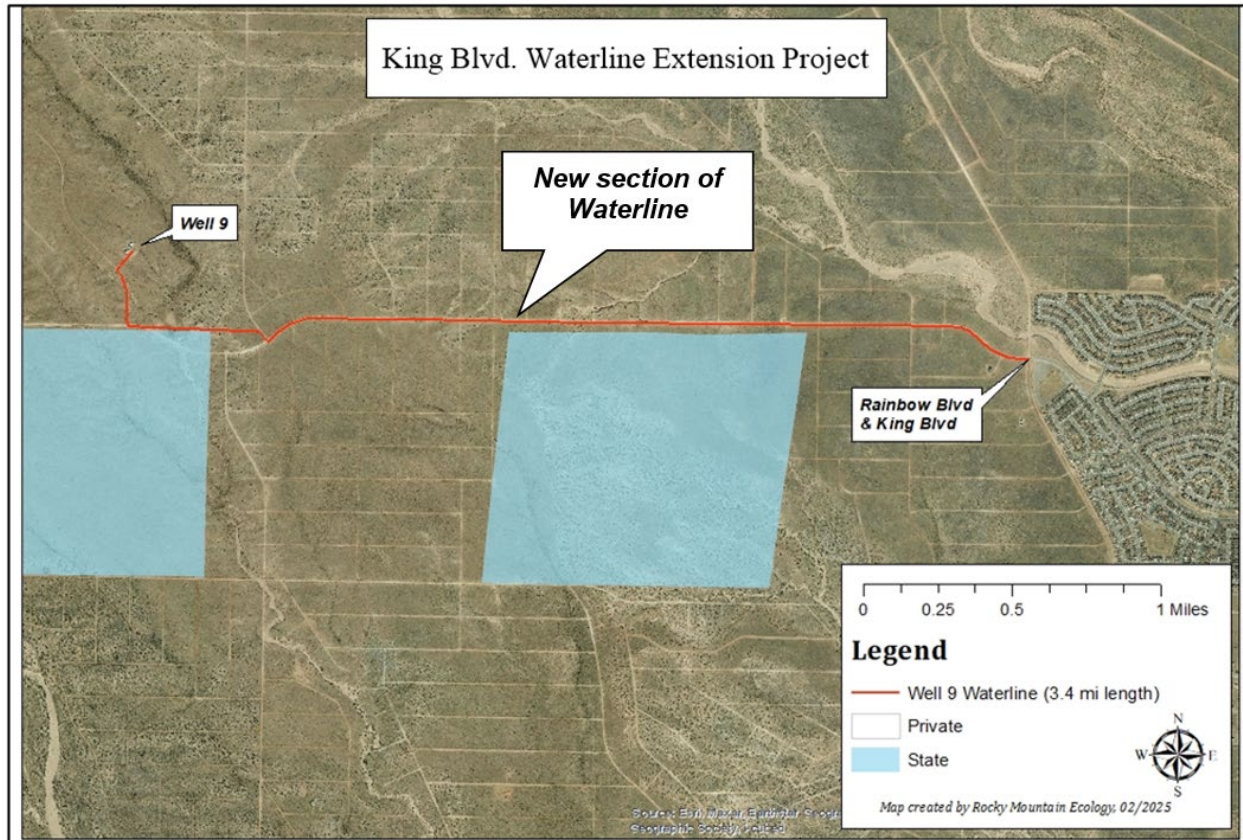
Danielle A. Galloway

Danielle A. Galloway
Chief, Environmental Resources

Enclosure 1: King Blvd Waterline Extension Project Location



Enclosure 2: King Blvd. Waterline Extension Project Location with aerial imagery





DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE NM 87109-3435

August 12, 2025

Planning, Project, and Program Management Division
Planning Branch
Environmental Resources Section

Dear Neighbors and Community Members:

The U.S. Army Corps of Engineers, Albuquerque District (USACE), has prepared a draft Environmental Assessment (DEA) for the installation of a new section of waterline in Rio Rancho, Sandoval County, New Mexico (Enclosure 1).

The DEA titled *King Blvd Waterline Extension, Sandoval County, New Mexico* evaluates alternatives that ensure the management of natural and cultural resources within the project footprint adhere to applicable environmental laws and regulations. The proposed action would install a new section of waterline between a newly redrilled Well 9 to join existing water infrastructure at the end of the currently paved portion of King Blvd NW in Rio Rancho, New Mexico (Enclosure 2). Construction is anticipated to start in January 2026, with an estimated duration of 4 months.

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A hard copy of the DEA is also available for review at:

- Loma Colorado Main Library
755 Loma Colorado Blvd NE,
Rio Rancho, NM. 87124

The USACE is soliciting comments from members of the public and concerned agencies in compliance with the National Environmental Policy Act. The DEA will be available for public review from August 17th 2025 until September 15th 2025.

Written comments may be emailed to: jorge.r.sedeno@usace.army.mil

Or mailed to: U.S. Army Corps of Engineers, Albuquerque District
Environmental Resources Section
Attn: CESP-PM-LE (Mr. Jorge Rodrigo Sedeno)
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109

The USACE would appreciate receiving comments no later than **September 15th 2025**, that way comments can be addressed, and revisions made to the DEA in a timely manner.

If you have any questions or need additional information, please consider the following contacts:

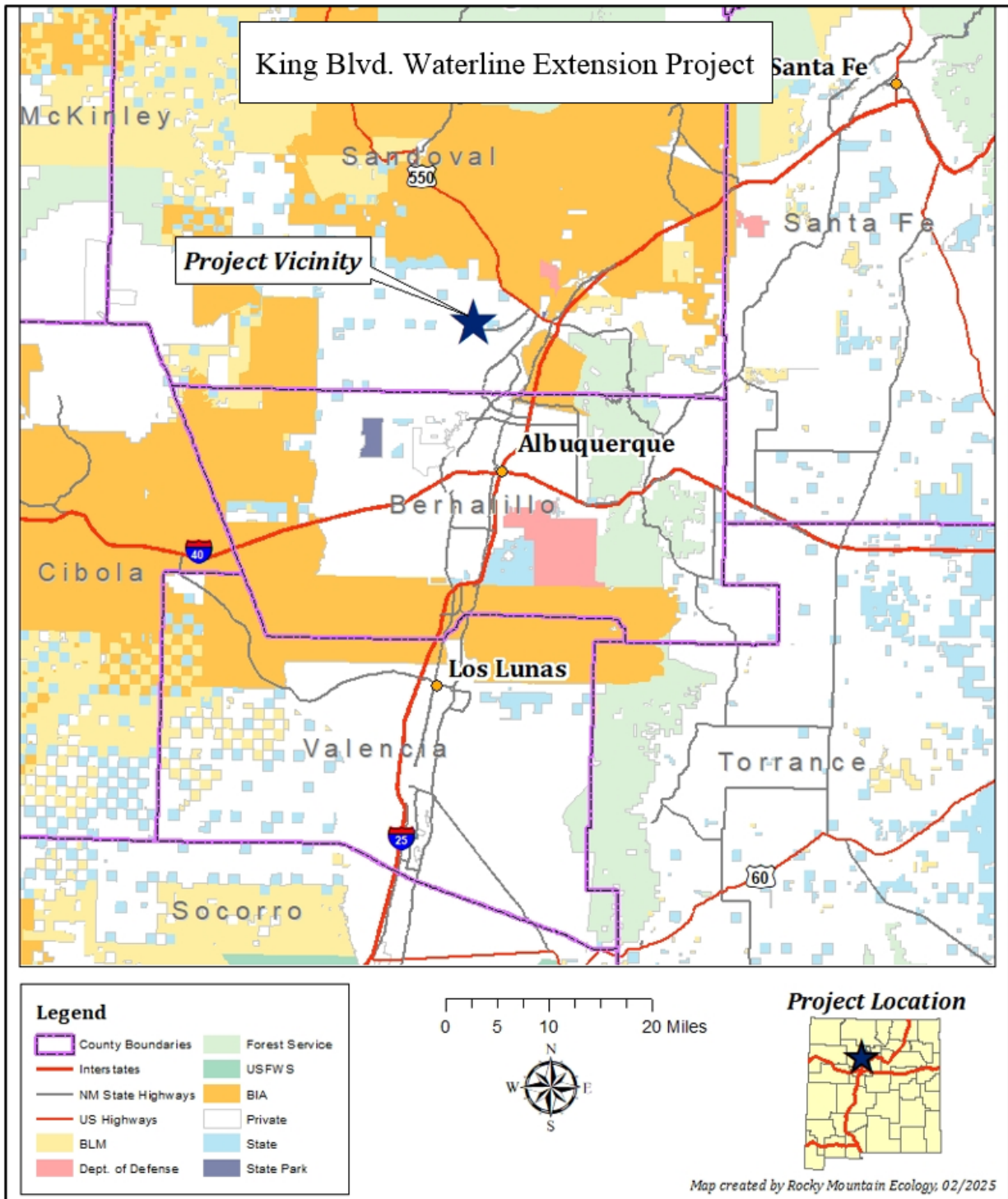
- Ms. Kaitlyn Fuqua, Archeologist,
e-mail: kaitlyn.n.fuqua@usace.army.mil
- Mr. Jorge Rodrigo Seden, Biologist,
e-mail: jorge.r.seden@usace.army.mil

Sincerely,

Danielle A. Galloway

Danielle A. Galloway
Chief, Environmental Resources Section

Enclosure 1: King Blvd Waterline Extension Project Location



King Blvd. Waterline Extension Project

Well 9

New section of Waterline

Rainbow Blvd & King Blvd

0 0.25 0.5 1 Miles

Legend

- Well 9 Waterline (3.4 mi length)
- Private
- State

Map created by Rocky Mountain Ecology: 02/2025



PROJECT INFORMATION

Project Title: King Blvd Waterline Extension - draft EA

Project Type: WATER MANAGEMENT, WATER DELIVERY (PIPELINES, WATER LINES), WATER LINES-NEW CONSTRUCTION

Latitude/Longitude (DMS): 35.319918 / -106.760888

County(s): SANDOVAL

Project Description: The U.S. Army Corps of Engineers, Albuquerque District (USACE), has prepared a draft Environmental Assessment (DEA) for the installation of a new section of waterline in Rio Rancho, Sandoval County, New Mexico. The DEA titled King Blvd Waterline Extension, Sandoval County, New Mexico [NMERT Project ID: 4884] evaluates alternatives that ensure the management of natural and cultural resources within the project footprint adhere to applicable environmental laws and regulations. The proposed action would install a new section of waterline between a newly redrilled Well 9 to join existing water infrastructure at the end of the currently paved portion of King Blvd NW in Rio Rancho, New Mexico. Construction is anticipated to start in January 2026, with an estimated duration of 4 months.

REQUESTOR INFORMATION

Project Organization:

Contact Name: Jack Marchetti

Email Address: jack.marchetti@dgf.nm.gov

Organization: New Mexico Department of Game and Fish

Address: 1 Wildlife Way, Santa Fe NM 87507

Phone: 5054791269

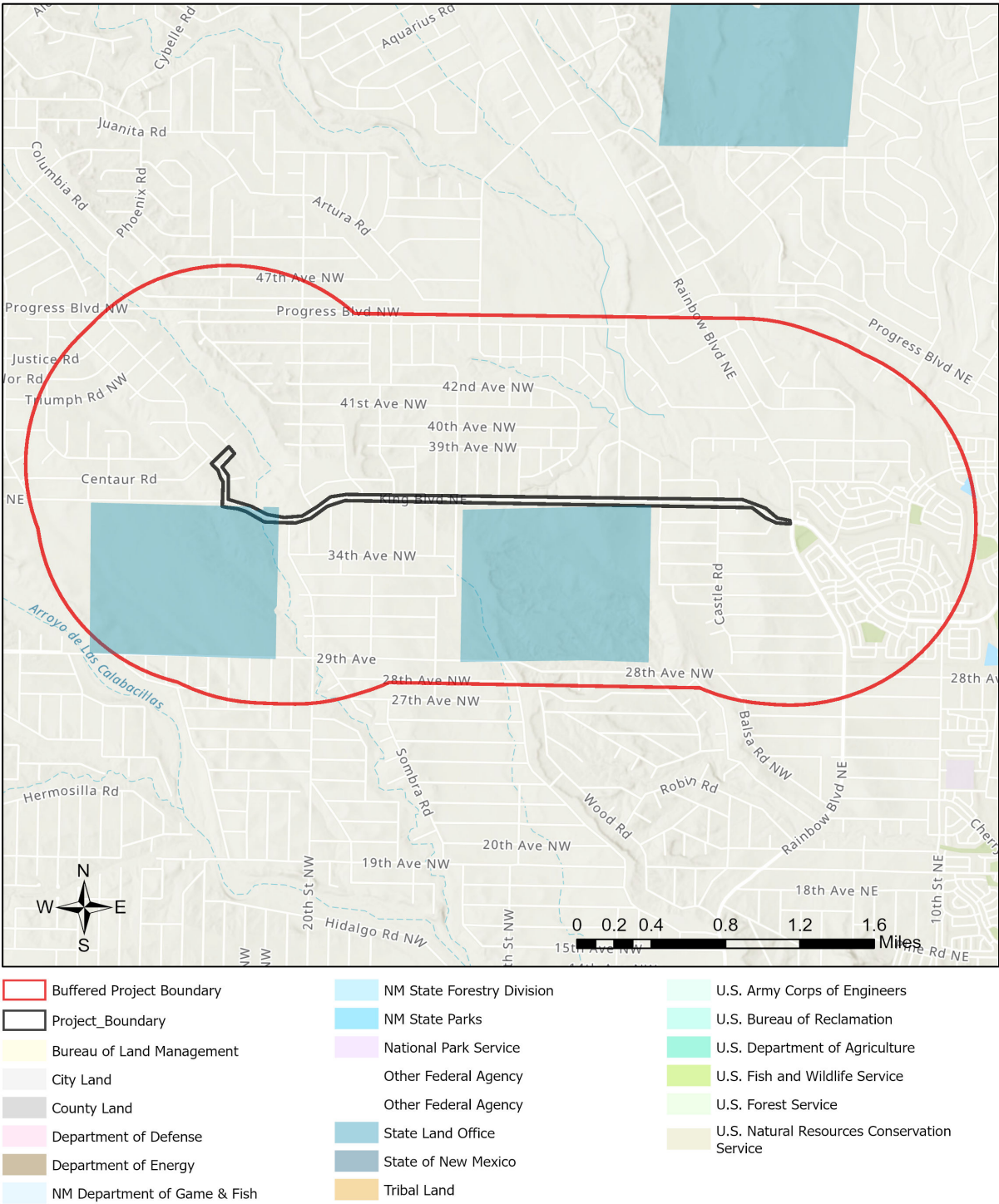
OVERALL STATUS

This report contains an initial list of recommendations regarding potential impacts to wildlife or wildlife habitats from the proposed project; see the Project Recommendations section below for further details. Your project proposal is being forwarded to a New Mexico Department of Game and Fish (Department) biologist for review to determine whether there are any additional recommendations regarding the proposed actions. A Department biologist will be in touch within 30 days if there are further recommendations regarding this project proposal.

About this report:

- This environmental review is based on the project description and location that was entered. The report must be updated if the project type, area, or operational components are modified.
- This is a preliminary environmental screening assessment and report. It is not a substitute for the potential wildlife knowledge gained by having a biologist conduct a field survey of the project area. Federal status and plant data are provided as a courtesy to users. The review is also not intended to replace consultation required under the federal Endangered Species Act (ESA), including impact analyses for federal resources from the U.S. Fish and Wildlife Service (USFWS) using their [Information for Planning and Consultation tool](#).
- This report contains information on wildlife species protected under the ESA and the [Wildlife Conservation Act \(WCA\)](#), [Species of Greatest Conservation Need \(SGCN\)](#), and Species of Economic and Recreational Importance (SERI). Species listed under the ESA are protected from take at the federal level and under the WCA are protected from take at the state level. SGCN are identified in the [State Wildlife Action Plan \(SWAP\) for New Mexico](#); all of these species are considered to be of conservation concern but not all of them are protected from take at the state or federal level. The harvest of all SERI is regulated at the state level. The Department has no authority to designate critical habitat for species listed under the WCA; only the USFWS can designate critical habitat for species listed under the ESA.
- The New Mexico Environmental Review Tool (ERT) utilizes species observation locations and species habitat suitability models, both of which are subject to ongoing change and refinement. Inclusion or omission of a species within a report cannot guarantee species presence or absence within your project area. To determine occurrence of any species listed in this report, or other wildlife that may be present within your project area, onsite surveys conducted by a qualified biologist during appropriate, species-specific survey timelines may be necessary.
- The Department encourages use of the ERT to modify proposed projects for avoidance, minimization, or mitigation of wildlife impacts. However, the ERT is not intended to be used in a repeatedly iterative fashion to adjust project attributes until a previously determined recommendation is generated. The ERT serves to assess impacts once project details are developed. The [New Mexico Crucial Habitat Assessment Tool](#), the data layers from which are included in the ERT, is the appropriate system for advising early-stage project planning and design to avoid areas of anticipated wildlife concerns and associated regulatory requirements.

King Blvd Waterline Extension - draft EA



NHNM, USGS, USFS, US Census Bureau, NMDGF
City of Rio Rancho, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS
Esri, NASA, NGA, USGS

Special Status Animal Species Potentially within 1 Miles of Project Area

Common Name	Scientific Name	USFWS (ESA)	NMDGF (WCA)	NMDGF SGCN/SERI	USFS	USFS SCC	BLM
Boreal Chorus Frog	Pseudacris maculata			SGCN			
American Bittern	Botaurus lentiginosus			SGCN			BLM WATCH
Aplomado Falcon	Falco femoralis		E	SGCN			
Peregrine Falcon	Falco peregrinus		T	SGCN			BLM WATCH
Mountain Plover	Charadrius montanus			SGCN	Sensitive Species		BLM WATCH
Flammulated Owl	Otus flammeolus			SGCN			BLM WATCH
Western Burrowing Owl	Athene cunicularia hypugaea			SGCN	Sensitive Species	USFS R3 SCC	BLM SENSITIVE
Common Nighthawk	Chordeiles minor			SGCN			
Lewis's Woodpecker	Melanerpes lewis			SGCN		USFS R3 SCC	BLM WATCH
Red-Headed Woodpecker	Melanerpes erythrocephalus			SGCN			
Williamson's Sapsucker	Sphyrapicus thyroideus			SGCN			
Olive-Sided Flycatcher	Contopus cooperi			SGCN			
Bank Swallow	Riparia riparia			SGCN			
Pinyon Jay	Gymnorhinus cyanocephalus			SGCN		USFS R3 SCC	BLM SENSITIVE
Clark's Nutcracker	Nucifraga columbiana			SGCN			
Pygmy Nuthatch	Sitta pygmaea			SGCN			
Western Bluebird	Sialia mexicana			SGCN			
Mountain Bluebird	Sialia currucoides			SGCN			
Bendire's Thrasher	Toxostoma bendirei			SGCN		USFS R3 SCC	BLM SENSITIVE
Loggerhead Shrike	Lanius ludovicianus			SGCN		USFS R3 SCC	BLM WATCH
Black-Throated Gray Warbler	Setophaga nigrescens			SGCN			BLM WATCH
Grace's Warbler	Setophaga graciae			SGCN		USFS R3 SCC	BLM WATCH
Painted Redstart	Myioborus pictus			SGCN			
Black-Chinned Sparrow	Spizella atrogularis			SGCN			BLM WATCH

Special Status Animal Species Potentially within 1 Miles of Project Area

Common Name	Scientific Name	USFWS (ESA)	NMDGF (WCA)	NMDGF SGCN/SERI	USFS	USFS SCC	BLM
Thick-billed Longspur	Rhynchophanes mccownii			SGCN			BLM SENSITIVE
Chestnut-Collared Longspur	Calcarius ornatus			SGCN			BLM SENSITIVE
Cassin's Finch	Haemorhous cassinii			SGCN			BLM WATCH
Evening Grosbeak	Coccothraustes vespertinus			SGCN			
Spotted Bat	Euderma maculatum		T	SGCN	Sensitive Species	USFS R3 SCC	BLM SENSITIVE
Pale Townsend's Big-Eared Bat	Corynorhinus townsendii pallescens			SGCN	Sensitive Species	USFS R3 SCC	BLM SENSITIVE
Black-Tailed Prairie Dog	Cynomys ludovicianus			SGCN	Sensitive Species		BLM SENSITIVE
Gunnison's Prairie Dog	Cynomys gunnisoni			SGCN	Sensitive Species		BLM SENSITIVE
New Mexican Meadow Jumping Mouse	Zapus hudsonius luteus	LE	E	SGCN	Sensitive Species		BLM SENSITIVE
Mountain Lion	Puma concolor			SERI			
Elk	Cervus canadensis			SERI			
Mule Deer	Odocoileus hemionus			SERI			
Pronghorn	Antilocapra americana			SERI			
Desert Massasauga	Sistrurus catenatus edwardsii			SGCN			

Common Name hyperlink takes you to species account in [bison-m.org](https://www.bison-m.org/); Scientific Name hyperlink takes you to information in [NatureServe Explorer](#); ESA = Endangered Species Act, C = Candidate, LE = Listed Endangered, LT = Listed Threatened, XN = Non-essential Experimental Population, for other ESA codes see this [website](#); WCA = Wildlife Conservation Act, E = Endangered, T = Threatened; SERI = Species of Economic and Recreational Importance; SGCN = Species of Greatest Conservation Need; USFS = U.S. Forest Service, Sensitive Species = A species likely to occur on USFS lands that is of concern for a potential reduction in population viability; SCC = Species of Conservation Concern; BLM = Bureau of Land Management, BLM SENSITIVE = A species that occurs on BLM lands and whose viability is at risk, BLM WATCH = Species that may be added to the sensitive species list in future pending new information regarding species status.

Project Recommendations

Open trenches excavated for underground water or oil and gas pipelines, powerlines, or fiber optic communication lines can unintentionally entrap and cause the unnecessary mortality of amphibians, reptiles, and small mammals, and can cause injury to large mammals. Trapped animals can die from exposure, starvation, crushing from pipe-laying, entombment from trenching backfilling, drowning, and predation. This unnecessary wildlife mortality can be avoided by implementing conservation measures including: concurrent trenching, pipe-laying, and backfilling operations to minimize the amount of trench left open overnight or longer; construction escape ramps; and employing biological monitors to remove trapped animals. Periods of highest activity for amphibians and reptiles vulnerable to entrapment include summer months and wet weather, and they can be active both day and night. Small mammals subject to entrapment are active year-round and generally most active at night.

Implementing the general trenching conservation measures outlined in the Department's [Trenching Project Guidelines](#) will help minimize unnecessary mortality of wildlife. Best management practices should include, at minimum, the following mitigation measures.

- Whenever possible, locate trenching activities within previously disturbed areas, such as existing road or pipeline right-of-ways. To the extent possible, avoid trenching in undisturbed habitat.
- Trench during the cooler months (October – March).
- Utilize concurrent trenching, pipe- or cable-laying, and backfilling. Keep trenching, pipe- or cable-laying, and backfilling crews as close together as possible to minimize the amount of open trench at any given time. When trenching activities are temporarily halted (e.g., overnight, weekends, holidays, weather shutdowns), protect wildlife from accessing any open trench between digging and backfilling operations by using one or more of the methods described below.
- Avoid leaving trenches open overnight. When trenches cannot be backfilled immediately, escape ramps should be constructed at least every 90 meters and preferably 30 meters. Escape ramps can be constructed parallel or perpendicular to the existing trench. The escape ramp slope should be less than 45 degrees (1:1). If pipe or cable has been installed but backfilling has not occurred, escape ramps may need to be constructed on both sides of the trench, since, unless the pipe is elevated enough to allow animals to move underneath it, the pipe or cable may block access of amphibians, reptiles, and small mammals to the ramps if only constructed on one side.
- Trenches that have been left open overnight should be inspected the following day by a qualified biological monitor and trapped animals removed as soon as possible, especially where state- or federally-listed threatened or endangered amphibians, reptiles, or small mammals occur. Untrained personnel should not attempt to remove trapped wildlife because of the potential to injure animals and the possibility of injury from venomous snakes. Required tools for removal will include snake tongs for removing snakes and a dip net for capturing and removing amphibians and small mammals. Many animals trapped in a trench will burrow under loose soil. To the extent possible, the biological monitor should disturb loose soil in the trench to uncover and remove trapped animals. Animals should be relocated at least 50 meters away from the open trench in undisturbed habitat.
- When pipe has been laid in the trench, end caps should be placed on the open end(s) of the pipe to preclude animals from entering. Pipe staged outside the trench should be capped until placed in the trench or checked for wildlife before being placed into the trench.
- Most wildlife can be protected by constructing silt fence completely around the open trench. Silt fence should be supported from sagging by t-posts, rebar, or stakes and buried at the base to preclude animals from moving below the fence. If construction of a silt fence is a required best management practice for erosion control, then, to preclude the need for a biological monitor, escape ramps, and concurrent backfilling, the guidelines for silt fence installation and maintenance in the [Trenching Project Guidelines](#) should be followed.

Your proposed project activities may require a custom review for assessment of potential effects to wildlife. See the "OVERALL STATUS" section above to determine the likelihood that your project will be reviewed further based on its location. A Department biologist will confirm whether any additional conservation measures are needed. You should expect to receive any additional project recommendations within 30 days of your project submission. If the "OVERALL STATUS" section indicates that no further consultation with the Department is required based on its location, then you will only receive additional project feedback from the Department if a biologist deems it necessary.

Your project could affect important components of habitat for large mammals, including important and sensitive seasonal areas, stopover sites, or movement corridors for elk, mule deer, or pronghorn. Mitigation measures should be implemented as appropriate in these high use sites and movement areas that were identified based on data gathered and analyzed by the New Mexico Department of Game and Fish (Department) and partners. Management recommendations within these areas may include the following (as relevant to the proposed project).

- Restrictions on noise-generating activities during wintering and calving/fawning seasons. These seasons are November 15-April 30 for wintering and May 15-June 30 for calving fawning in northern New Mexico; specific timing differs for southern New Mexico. These activities include oil and gas well pad development and operations that expose wildlife to loud noises from drilling, compressors, and pumping stations within 400 feet of the source.
- Avoid new fence construction where possible and modify unavoidable fences along high use areas to make them wildlife friendly and facilitate large animal movement. Where possible, divide larger fenced sites into smaller fenced areas with movement corridors in between.
- Avoid siting facilities within important habitats such as critical seasonal ranges or parturition sites.
- To minimize surface disturbance, implement directional drilling and co-locate drill holes on a single pad in the least suitable areas for wildlife.
- Avoid construction or development activities during important times, like parturition (May 15 – June 30 in northern New Mexico).
- Where feasible, coordinate with the Department on collection of pre- and post-construction observational or GPS collar data to quantify responses of big game herds to project implementation.

Burrowing owl (*Athene cunicularia*) may occur within your project area. Burrowing owls are protected from take by the Migratory Bird Treaty Act and under New Mexico state statute. Before any ground disturbing activities occur, the Department recommends that a preliminary burrowing owl survey be conducted by a qualified biologist using the Department's [Burrowing Owl Survey Protocol](#). Should burrowing owls be documented in the project area, please contact the Department or USFWS for further recommendations regarding relocation or avoidance of impacts.

Prairie dog colonies may occur within the vicinity of your project area. Both black-tailed prairie dogs (*Cynomys ludovicianus*) and Gunnison's prairie dogs (*Cynomys gunnisoni*) are designated as New Mexico SGCN, and their colonies provide important habitat for other grassland wildlife. Wherever possible, occupied prairie dog colonies should be left undisturbed, and all project activities should be directed off the colony. Any burrows that are located on the project site should be surveyed by a qualified biologist to determine whether burrows are active or inactive and whether burrowing owls may be utilizing the site. Colonies within the range of the black-tailed prairie dog can be surveyed by a qualified biologist diurnally, year-round using binoculars. Colonies within the range of the Gunnison's prairie dog can be surveyed by a qualified biologist diurnally, using binoculars during the warmer months from April through October and by searching for fairly fresh scat and lack of cobwebs or debris at the mouths of burrows during the cold months (November through March). If ground-disturbing activities cannot be relocated off the prairie dog colony, or if project activities involve control of prairie dogs, the Department recommends live-trapping and relocation of prairie dogs. The Department can provide recommendations regarding suitability of potential translocation areas and procedures.

Disclaimers regarding recommendations:

- The Department provides technical guidance to support the persistence of all protected species of native fish and wildlife, including game and nongame wildlife species. Species listed within this report include those that have been documented to occur within the project area, and others that may not have been documented but are projected to occur within the project vicinity.
- Recommendations are provided by the Department under the authority of § 17-1-5.1 New Mexico Statutes Annotated 1978, to provide "communication and consultation with federal and other state agencies, local governments and communities, private organizations and affected interests responsible for habitat, wilderness, recreation, water quality and environmental protection to ensure comprehensive conservation services for hunters, anglers and nonconsumptive wildlife users".
- The Department has no authority for management of plants or Important Plant Areas. The [New Mexico Endangered Plant Program](#), under the Energy, Minerals, and Natural Resources Department's Forestry Division, identifies and develops conservation measures necessary to ensure the survival of plant species within New Mexico. Plant status information is provided within this report as a courtesy to users. Recommendations provided within the ERT may not be sufficient to preclude impacts to rare or sensitive plants, unless conservation measures are identified in coordination with the Endangered Plant Program.
- Additional coordination and/or consultation may also be necessary under the federal ESA or National Environmental Policy Act (NEPA). Further site-specific mitigation recommendations may be proposed during ESA consultation and/or NEPA analyses or through coordination with affected federal agencies.