

Report of Monitoring Well 5-04 ALL Abandonment and Replacement

McKinley County, New Mexico, USA



Prepared for:
Rio Algom Mining LLC

Prepared by:



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February 2023

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Acronyms and Abbreviations

ags	above ground surface
ALWM	Ambrosia Lake West Mill
bgs	below ground surface
DP	discharge permit
ft	feet
INTERA	INTERA Incorporated
LTSM	long-term surveillance and maintenance
NMED	New Mexico Environment Department
NMOSE	New Mexico Office of the State Engineer
NRC	Nuclear Regulatory Commission
P&A	plug and abandon/plugged and abandoned/plugging and abandoning
PVC	polyvinyl chloride
RAML	Rio Algom Mining LLC
Site	Property owned by RAML located in the Ambrosia Lake Mining District, 19 miles northwest of Grants, McKinley County, New Mexico
SSA	solid-stem auger
YJD	Yellow Jacket Drilling

1.0 Introduction

This report describes the field activities to install the 5-04 ALL-R replacement monitoring well and plug and abandon (P&A) the damaged well 5-04 ALL at Rio Algom Mining LLC's (RAML) Ambrosia Lake West Mill (ALWM) Facility in McKinley County, New Mexico (Site). Field activities were conducted between December 16, 2022, and January 12, 2023. Well drilling, installation, development, and abandonment activities were conducted in accordance with the RAML and INTERA SOPs and NMED guidelines.

This report is divided into the following sections: Section 2 describes the Site and provides historical perspective on the need for this well replacement task; Section 3 presents each aspect of the project including well drilling and completion, well development, and well abandonment. The figures are provided in a separate section and consist of a Site location map (Figure 1) and a Site map showing the location of the replacement monitoring wells (Figure 2).

Appendices include:

- Appendix A Lithologic Log and Completion Diagram
- Appendix B Well Development Form
- Appendix C New Mexico Office of the State Engineer Documentation
- Appendix D Field Notes
- Appendix E Photo Log

2.0 Well History

The ALWM Site is located in the Ambrosia Lake Mining District, 19 miles northwest of Grants, McKinley County, New Mexico. Monitoring well 5-04 ALL is an alluvial well within the proposed Long-Term Surveillance and Maintenance (LTSM) boundary at the Site. Monitoring and reporting requirements for this location are defined by the SUA-1473 Radioactive Materials License and New Mexico Environment Department (NMED) Discharge Permit (DP)-169.

A flash flood occurred in and around Ambrosia Lake in August 2021 and one well, 5-04 ALL, was affected, resulting in approximately 30 feet of mud in the well casing. RAML attempted to redevelop this well in December 2021; however, it was found that the well casing had collapsed approximately 5 feet below the top of the well housing. RAML has been unable to sample well 5-04 ALL since the first semi-annual monitoring event in 2021. The damage to well 5-04 ALL and RAML's intent to repair or replace the well was noted in RAML's semi-annual monitoring reports under SUA-1473 and DP-169 since the event occurred. A license amendment request dated May 27, 2022 (ML22147A179) proposing the replacement of this well was submitted to the United States Nuclear Regulatory Commission (NRC) and NMED (RAML, 2022).

3.0 Well Replacement and Abandonment Activities

Prior to performing drilling activities at the Site, INTERA obtained permits from the New Mexico Office of the State Engineer (NMOSE) to drill a replacement groundwater monitoring well and to P&A the groundwater monitoring well that was being replaced. A copy of the permits can be found in Appendix C. INTERA and RAML personnel also prepared equipment, schedules, and subcontractor technical services agreements; identified Site utilities; and attended RAML Site health and safety training.

In accordance with the RAML SOPs, drilling, sampling, and development equipment were decontaminated prior to drilling. Drill cuttings generated during drilling activities were placed in Super Sacks for scanning and disposal. Copies of field notes are provided in Appendix D.

3.1 Replacement of Monitoring Well

From January 9 through January 12, INTERA oversaw the drilling, installation, and development of the 5-04 ALL-R replacement groundwater monitoring well. The addition of the letter “R” at the end of the well name denotes that the new well is a “replacement.” The alluvial well was drilled using solid-stem auger (SSA) drilling methods. The replacement well was placed approximately 20 ft to the northwest from the original 5-04 ALL well.

Well drilling, installation, development, and abandonment activities were conducted in accordance with the INTERA and RAML SOPs and NMOSE permits, and with consideration of NMED monitoring well construction and abandonment guidelines (NMED, 2011). The well drilling, installation, and development activities were performed by Yellow Jacket Drilling (YJD) of Phoenix, Arizona. Field supervision of drilling, geologic logging, well installation, well development, and well abandonment was provided by INTERA geologists. The location of the groundwater replacement well is provided in Figure 2. The lithologic log and completion diagram, including construction details, is presented in Appendix A. A survey of the new well location coordinates and elevation is pending.

3.1.1 Well Drilling and Completion

Replacement well 5-04 ALL-R was drilled on January 10 and 11 using a CME-95 drilling rig equipped with 10-inch augers and a center bit. To determine the total depth (TD) of the alluvium, the boring was over-drilled until refusal into the Tres Hermanos B Sandstone unit. Drill cuttings and investigation-derived waste (IDW) was placed into a single 1 yard Super Sack.

While advancing the boring, samples were collected from the auger flights for lithologic logging. Samples from drill cuttings were collected approximately every 5 ft, starting from ground surface to TD. TD for 5-04 ALL-R was 39.2 ft bgs. The water level while drilling was noted at 25.0 ft bgs. This water level during well development was recorded to be 27.9 ft bgs on January 11, 2023. Based on visual observations of samples collected from the alluvial borehole, the subsurface geology consists of poorly graded fine sands with silt or clay, lean clays, or clay with fine sand.

The well was constructed using 4-inch, flush-joint threaded, polyvinyl chloride (PVC) schedule 40 casing and well screen. The well was installed with a 20-ft section of 0.020-inch slotted screen from 18.8 ft bgs to 38.8 ft bgs with a 4-inch PVC schedule 40 end cap. Blank casing was placed from the top of the screen at 18.8 ft bgs to 2.36 ft above ground surface (ags). The well was constructed using a 12/20 silica sand filter pack from the TD of 39.2 ft bgs to 16 ft bgs. Above the filter pack, a 4-ft bentonite pellet seal was installed to 12 ft bgs, followed by neat cement grout with 5% bentonite mixture to 2 ft bgs. Surface completion consisted of an above-ground, sloped, 3-ft square by 4-inch thick concrete pad, with an 8-inch protective steel locking monument set in the pad to a height of 2.8 ft ags. A well construction and completion diagram is provided in Appendix A and the NMOSE record for the new well is provided in Appendix C.

3.1.2 Well Development

INTERA oversaw well development of 5-04 ALL-R on January 11 and 12. Development consisted of surging and pumping. Water quality parameters (pH, conductivity, temperature, and visual turbidity) were recorded during development.

Prior to development, the static water level was measured in the well. The well was initially developed by surging the well screen from bottom to top using a surge block. The surge block was lowered to the bottom of the well on a wire line and was then raised up and down throughout the well screen to sort and capture loose sediment around the screen. The well was surged to settle the sand pack, which started at a depth of 16 ft bgs and after surging remained at 16 ft bgs. With surging complete, a monsoon pump was used to remove approximately nine casing volumes of water. Water quality parameters (pH, specific conductance, and temperature) were measured until they had stabilized over three consecutive readings, while turbidity steadily cleared up during development but only reached approximately 550 nephelometric turbidity unit (NTUs) at the completion. The well development form is provided in Appendix B.

3.2 Plugging And Abandonment

On January 11, INTERA oversaw P&A activities of 5-04 ALL. The well was P&A due to structural damage of the well casing and flood damage from August 2021, which caused the well to fill with sediment to approximately 30 ft bgs. Abandonment procedures began with a surface excavation of the collapsed casing to access the borehole on December 16, 2022. An excavator was used to expose the damaged casing down to approximately 5 ft bgs. The collapsed casing was removed by hand and a temporary casing was secured to the existing casing extending the casing above ground surface to allow for further P&A procedures. The excavation around the well was backfilled around the temporary casing. On January 11, INTERA geologist supervised the airlifting of the sediment from the well to the original TD of 70 ft bgs. Air-lifted IDW sediments were collected in a 55-gallon drum for disposal. Once the well was clear of sediment, a mixture of 5% bentonite and Portland cement was pumped into the well through a tremie

pipe from TD to ground surface. The temporary extension casing was removed. The well was P&A according to NMOSE requirements as described in the permit.

Prior to P&A activities, a “Well Plugging Plan of Operations” form was completed and submitted to the NMOSE. In addition, upon completion of P&A activities, a “Well Plugging Record” was submitted to the NMOSE by the drilling contractor. Copies of these forms are provided in Appendix C.

3.3 Future Sampling Plans

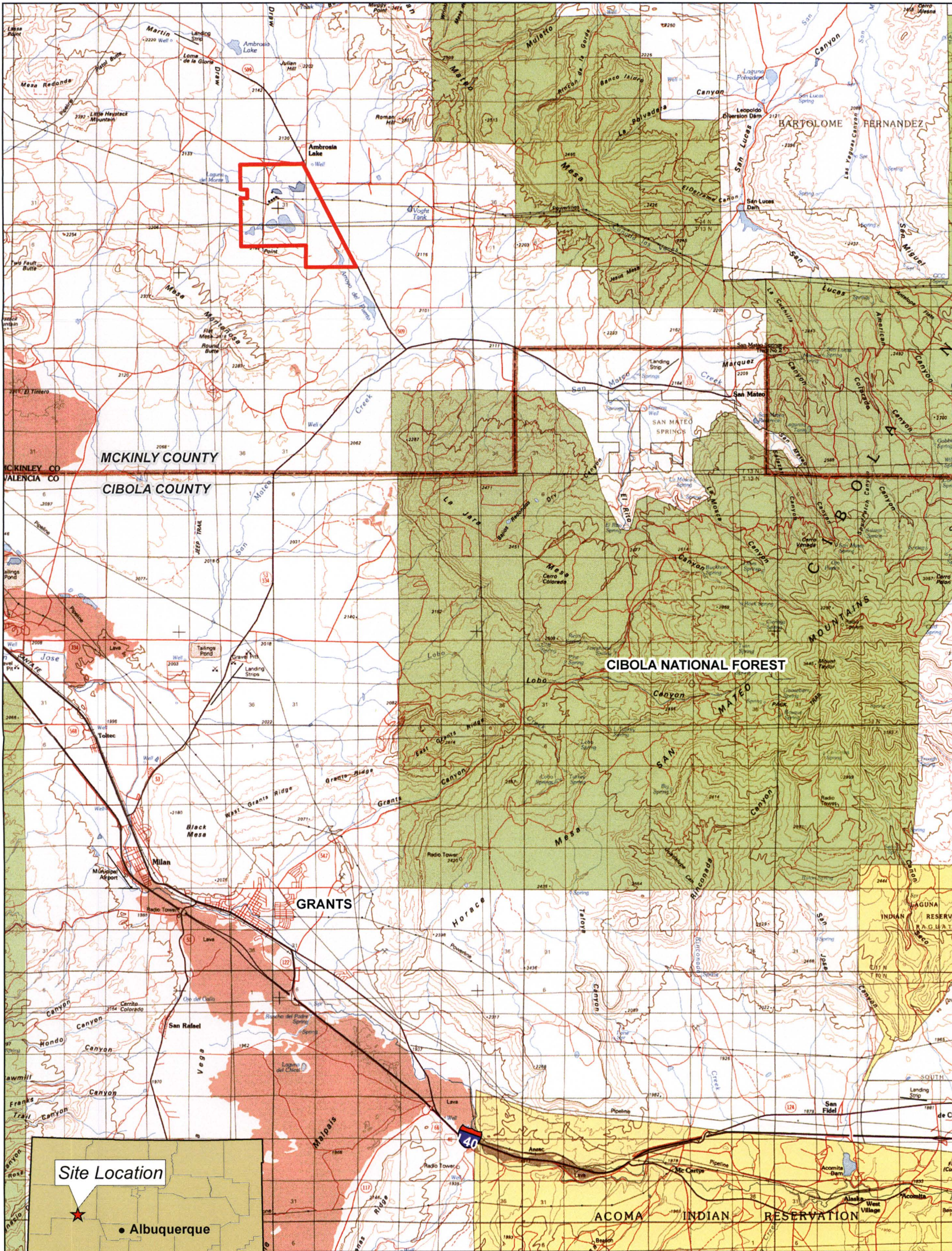
Groundwater sampling at replacement well 5-04 ALL-R will be performed quarterly for the first 2 years (8 quarters) starting in Q1 2023 in accordance with SUA-1473 License Condition 34. After 2 years, the interval will move to semi-annual sampling events, per the License and DP-169. Sampling results will be included in the routine groundwater monitoring reports submitted to NRC and NMED for SUA-1473 and DP-169, respectively.

On February 8, 2023, RAML measured the depth to water in well 5-04 ALL-R to be 28.09 ft bgs, with a 10.71-foot water column above the bottom of the screened interval (38.8 ft bgs). RAML will install a new dedicated bladder pump in well 5-04 ALL-R with the pump intake set at 33.5 ft bgs, which is approximately the middle of the water column. RAML will sample well 5-04 ALL-R with the new bladder pump during the first quarter 2023 monitoring event in February 2023.

4.0 References

- New Mexico Environmental Department (NMED). 2011. Monitoring Well Construction and Abandonment Guidelines. Prepared by the Ground Water Quality Bureau. Revision 1.1, March 2011. Available at www.env.nm.gov/gwqb/permits
- Rio Algom Mining LLC (RAML). 2022. Re: Rio Algom Mining LLC – Ambrosia Lake West Mill License SUA-1473, Docket No. 40-8905 Request for Amendment to SUA-1473 Regarding the Replacement of Alluvial Monitoring Well 5-04 ALL. Letter to Mr. Tom Lancaster, United States Nuclear Regulatory Commission. May 27.

Figures



Site Location

Albuquerque
New Mexico

USGS 100k Topographic Map:
Grants Quadrangle, 1978;
Contour Interval 50 Meters



0 6,000 12,000 24,000
Feet

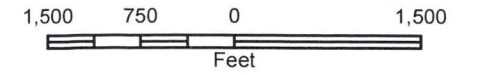
Proposed Long-Term
Surveillance
Maintenance (LTSM)
Boundary



Figure 1
Location Map for Ambrosia Lake Facility
Rio Algom Mining LLC



Data source(s):
Topo - Terrain Navigator Pro



Background is NAIP imagery from 2022

Legend

-  Alluvial Well
-  Site Roads
-  LTSM Boundary

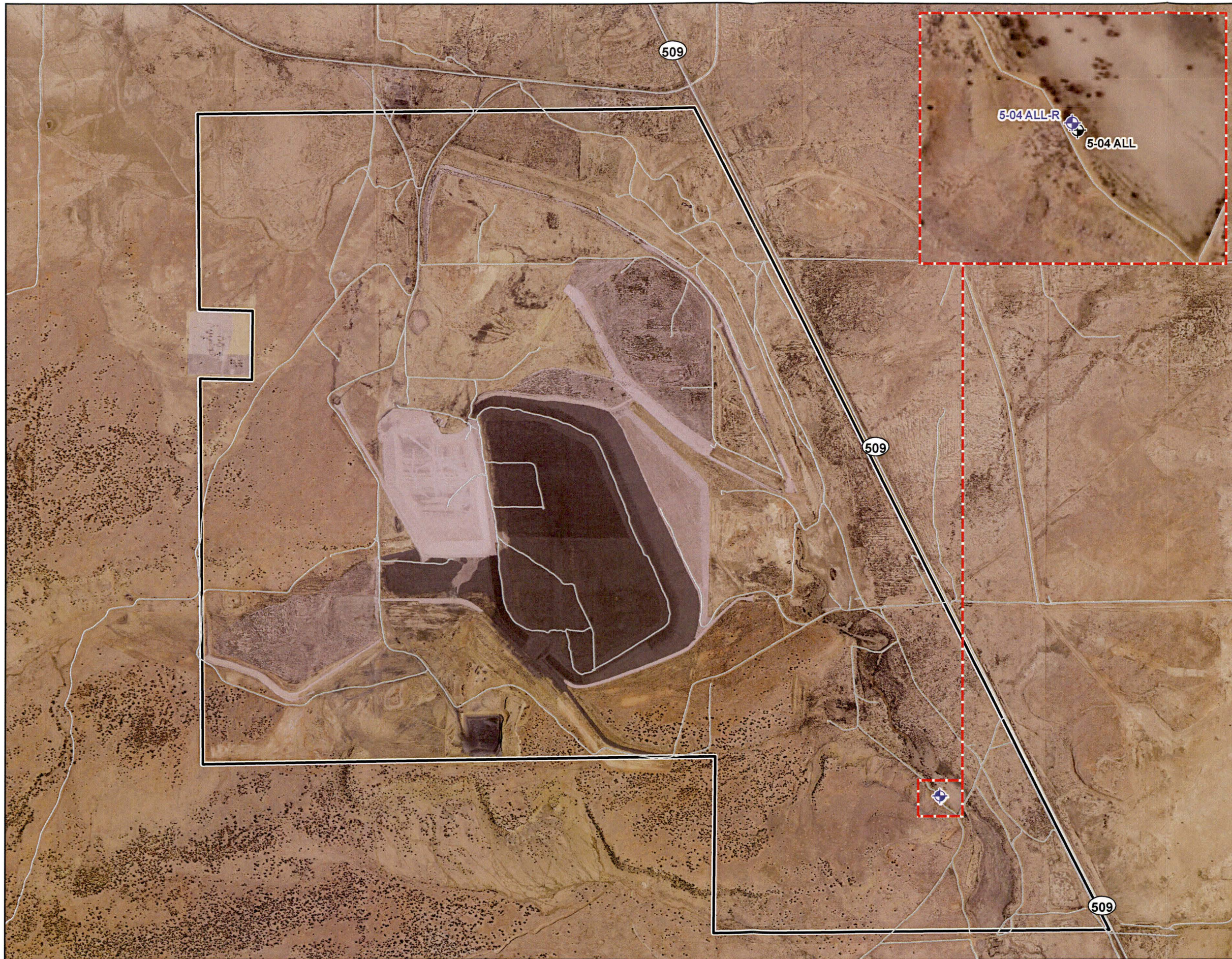


Figure 2
Replacement Well Location
5-04 ALL-R
Rio Algom Mining LLC

Appendix A

Lithologic Log and Completion Diagram



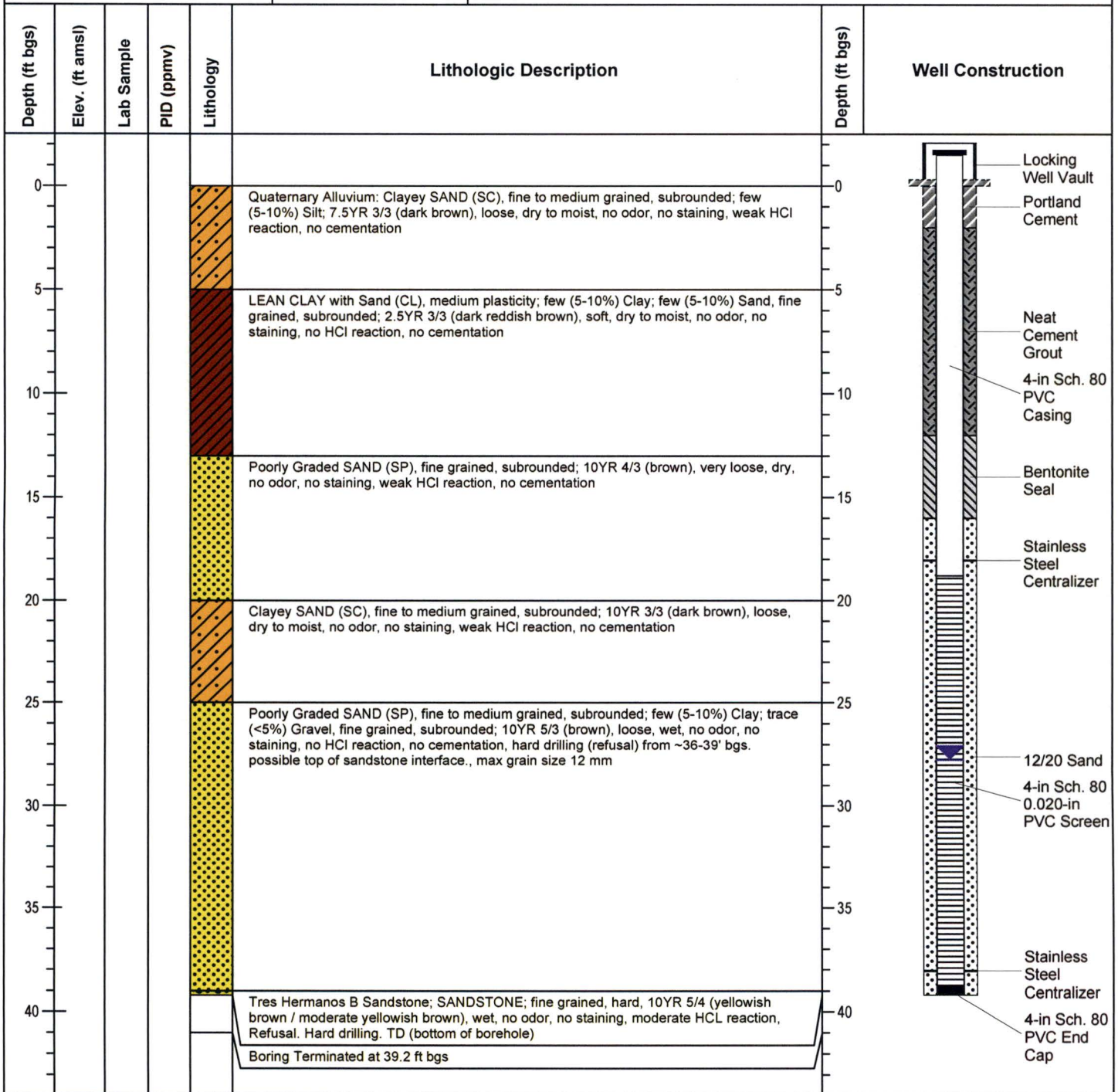
LOG OF BORING:

Date Started: 01-10-2023
 Date Completed: 01-10-2023
 Drilling Method: Solid stem auger
 Sampling Method: Cuttings
 Drilling Company: Yellow Jacket Drilling
 Driller: S. Lara
 Logged By: B. Archuleta

DTW (ft bgs): 27.9
 Boring Depth (ft bgs): 39.20
 Boring Diameter (in): 10.00
 TOC Elevation (ft amsl):
 Northing†:
 Easting†:

Project Name:
Ambrosia Lake

Project #:
RIOAL.M001.FY23-AL



Top of Monument = 2.8', Top of casing = 2.36', Screen Interval 18.8 ft bgs to 38.8 ft bgs.

ft = foot or feet, bgs = below ground surface, in = inches, DTW = depth to water, TOC = top of casing, amsl = above mean sea level,

Appendix B

Well Development Form

PROJECT NAME: Ambrosia Lake WELL NO.: S-04 ALL-R
PROJECT NO.: R10AL.M001.FY23 DATE: 1/11-12/23 FORM COMPLETED BY: B. Archuleta

WELL CONSTRUCTION

TOTAL DEPTH BELOW MEASURING POINT (BMP) (FT): 37.1 BOREHOLE DIAMETER (IN): _____
TOTAL DEPTH BELOW LAND SURFACE (FT BLS): _____ WELL DIAMETER INSIDE (IN): _____
WELL PROTECTOR: YES NO PADLOCK NO.: _____ WELL DIAMETER OUTSIDE (IN): _____
SAND PACK INTERVAL (BLS) (FT): _____ SCREEN INTERVAL (BLS) (FT): _____

WATER VOLUME CALCULATION

DATE/TIME OF MEASUREMENT: 1/11/23 0900
MEASURING POINT: B.L. ELEV.: _____
WATER LEVEL INSTRUMENT USED: Solinet
INITIAL WATER LEVEL (BMP) (FT): 27.9
LINEAR FEET OF WATER: 11.2
LINEAR FEET SATURATED GRAVEL PACK: 11.2

ITEM	WATER VOLUME	
	FT ³	GAL
Well Casing		<u>7.39</u>
Sand Pack		
Drilling Fluids		
TOTAL		

NOTE: Quantities are to be calculated prior to development.

DEVELOPMENT CRITERIA

METHOD OF DEVELOPMENT: Surge (Swab) + pump
WATER VOLUME TO BE REMOVED (GAL): 22.2 WATER VOLUME ACTUALLY REMOVED (GAL): _____
TIME DEVELOPMENT STARTED: 1/11/23 0946 TIME DEVELOPMENT COMPLETED: _____

NOTE: Development is to be performed in accordance with Standard Operating Procedure No. 8.

WATER QUALITY INSTRUMENTS

INSTRUMENT	SERIAL NO.	TIME CALIBRATION PERFORMED	TECH	COMMENTS
<u>YSI Pro Plus</u>		<u>1030 1/12/23</u>	<u>BA</u>	<u>pH, Sp. Cond. 1413</u>

WATER QUALITY READINGS DURING DEVELOPMENT

DATE/TIME	TOTAL WATER PURGED (gal)	TEMP (°C)	CONDUCTIVITY (µS/cm)	TURB (NTU)*	pH	TECH	COMMENTS
<u>1/11/23 0946</u>	<u>0</u>						<u>Start surging/swabbing to help settle sand pack. Pre-seal.</u>
							<u>Initial top of sand = 16' bgs.</u>
<u>1/12/23 1045</u>	<u>5 (2.5 gpd)</u>	<u>13.4</u>	<u>7436</u>	<u>++</u>	<u>7.15</u>	<u>BA</u>	<u>Turbid Brown</u>
<u>1047</u>	<u>5</u>	<u>13.5</u>	<u>7181</u>	<u>++</u>	<u>7.12</u>	<u>BA</u>	<u>Turbid Brown</u>
<u>1050</u>	<u>12.5</u>	<u>13.5</u>	<u>7181</u>	<u>++</u>	<u>7.08</u>	<u>BA</u>	<u>"</u>
<u>1053</u>	<u>20.0</u>	<u>13.4</u>	<u>7472</u>	<u>++</u>	<u>7.06</u>	<u>BA</u>	<u>"</u>
<u>1056</u>	<u>27.5</u>	<u>13.4</u>	<u>7378</u>	<u>++</u>	<u>7.05</u>	<u>BA</u>	<u>"</u>
<u>1101</u>	<u>40.030</u>	<u>13.4</u>	<u>7479</u>	<u>++</u>	<u>7.05</u>	<u>BA</u>	<u>" Starting to flow</u>
							<u>starting to thin out and slow down ~1.1 gpm.</u>
							<u>adjusted volume based on drum markings</u>

*If measured.

Stabilization = Temp ±1°C; pH ±0.2 units; Sp. Cond. ±10%; Turb. ±10%

Appendix C

New Mexico Office of the State Engineer Documentation



STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

DISTRICT I

MIKE A. HAMMAN, P.E.
STATE ENGINEER

5550 San Antonio Drive NE
Albuquerque, NM 87109-4127
(505) 383-4000

April 11, 2022

Rio Algom Mining LLC
c/o Kent Applegate
PO Box 218
Grants, NM 87020

Yellow Jacket Drilling Services, LLC
3922 E University Dr #1
Phoenix, AZ 85034

Well No. B-481 Unknown POD (MW 5-04)

To Whom It May Concern:

Enclosed is the Well Plugging Plan of Operations which has been approved subject to the Conditions of Approval, attached hereto.

If you have any questions or comments, please contact this office.

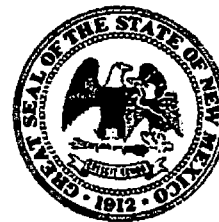
Sincerely,

A handwritten signature in black ink, appearing to read "Nathan", written over a horizontal line.

Nathan Lopez-Brody
Water Resources Professional I



WELL PLUGGING PLAN OF OPERATIONS



NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging. This form may be used to plug a single well, or if you are plugging multiple monitoring wells on the same site using the same plugging methodology.

Alert! Your well may be eligible to participate in the Aquifer Mapping Program (AMP)-NM Bureau of Geology geoinfo.nmt.edu/resources/water/cgmu/ if within an area of interest and meets the minimum construction requirements, such as there is still water in your well, and the well construction reflected in a well record and log is not compromised, contact AMP at 575-835-5038 or -6951, or by email nmbg-waterlevels@nmt.edu, prior to completing this prior form. Showing proof to the OSE that your well was accepted in this program, may delay the plugging of your well until a later date.

I. FILING FEE: There is no filing fee for this form.

II. GENERAL / WELL OWNERSHIP: Check here if proposing one plan for multiple monitoring wells on the same site and attaching WD-08m *(under 8-481 MON project)*

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: MW 5-04 ALL

Name of well owner: Rio Algom Mining LLC

Mailing address: PO Box 218Cio County: _____

City: Grants State: NM Zip code: 87020

Phone number: 505-287-8853 E-mail: kent.kc.applegate@bhp.com

III. WELL DRILLER INFORMATION:

Well Driller contracted to provide plugging services: Yellow Jacket Drilling Services, LLC

New Mexico Well Driller License No.: WD-1458 Expiration Date: 10/31/22

IV. WELL INFORMATION: Check here if this plan describes method for plugging multiple monitoring wells on the same site and attach supplemental form WD-08m and skip to #2 in this section.

Note: A copy of the existing Well Record for the well(s) to be plugged should be attached to this plan.

1) GPS Well Location: Latitude: 35 deg, 23 min, 0.5658 sec
Longitude: -107 deg, 48 min, 36.61272 sec, NAD 83

2) Reason(s) for plugging well(s):
Well was damaged by flooding in 2021 and cannot realistically be repaired and redeveloped.

3) Was well used for any type of monitoring program? Yes If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.

4) Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detail, including analytical results and/or laboratory report(s): n/a

5) Static water level: 28.53 feet below land surface / feet above land surface (circle one)

6) Depth of the well: See Sec VII feet

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ALBUQUERQUE, NEW MEXICO
2022 MAR 25 AM 11:03

- 7) Inside diameter of innermost casing: 4 inches.
- 8) Casing material: Steel
- 9) The well was constructed with:
 an open-hole production interval, state the open interval: _____
 a well screen or perforated pipe, state the screened interval(s): 30-70 ft
- 10) What annular interval surrounding the artesian casing of this well is cement-grouted? _____
- 11) Was the well built with surface casing? No If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? _____ If yes, please describe:

- 12) Has all pumping equipment and associated piping been removed from the well? Yes If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

V. DESCRIPTION OF PLANNED WELL PLUGGING: If plugging method differs between multiple wells on same site, a separate form must be completed for each method.

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal. Attach a copy of any signed OSE variance to this plugging plan.

Also, if this planned plugging plan requires a variance to 19.27.4 NMAC, attach a detailed variance request signed by the applicant.

- 1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well:

A tremie pipe will be lowered to the bottom of the well and the cement/grout will be placed from the bottom up.

- 2) Will well head be cut-off below land surface after plugging? Yes

VI. PLUGGING AND SEALING MATERIALS:

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant. Attach a copy of the batch mix recipe from the cement company and/or product description for specialty cement mixes or any sealant that deviates from the list of OSE approved sealants.

- 1) For plugging intervals that employ cement grout, complete and attach Table A.
- 2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
- 3) Theoretical volume of grout required to plug the well to land surface: 19.5
- 4) Type of Cement proposed: Type III Portland and powdered bentonite
- 5) Proposed cement grout mix: 8.5 gallons of water per 94 pound sack of Portland cement.
- 6) Will the grout be: _____ batch-mixed and delivered to the site
 mixed on site

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7) Grout additives requested, and percent by dry weight relative to cement:

5% powdered bentonite

8) Additional notes and calculations:

N/A

VII. ADDITIONAL INFORMATION: List additional information below, or on separate sheet(s):

*The well was silted in due to flooding which raised the TD to 29.4 ft btoc from the original 70 ft btoc. Prior to P&A, as much of the sediment filling in the well will be removed as possible, with the final amount of grout needed adjusted accordingly. The amount of grout listed above was calculated assuming that none of the sediment would be able to be removed.

VIII. SIGNATURE:

I, Alme Wilson, say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.

Signature of Applicant

STATE ENGINEERS OFFICE
ALBUQUERQUE, NEW MEXICO
2022 APR 25 AM 11:03

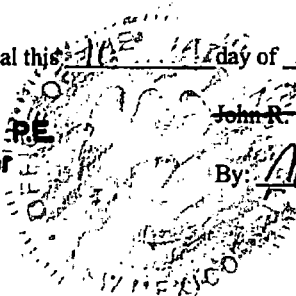
IX. ACTION OF THE STATE ENGINEER:

This Well Plugging Plan of Operations is:

Approved subject to the attached conditions.
 Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this 10th day of April, 2022

Mike A. Hamman, PE
State Engineer



John R. D'Antonio Jr., P.E., New Mexico State Engineer

By:

TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			0'
Bottom of proposed interval of grout placement (ft bgl)			Between 29.4 and 70 ft, depending on results of redevelopment.
Theoretical volume of grout required per interval (gallons)			Between 19.4 gal and 46.2 gal depending on results of redevelopment.
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			8.5 gallons of water per 94 lb bag of portland cement and 5% bentonite
Mixed on-site or batch-mixed and delivered?			Mixed on site
Grout additive 1 requested			Bentonite powder
Additive 1 percent by dry weight relative to cement			5%
Grout additive 2 requested			N/A
Additive 2 percent by dry weight relative to cement			N/A

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 2022 MAR 25 AM 11:03

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			

STATE ENGINEERS OFFICE
 ALBUQUERQUE, NEW MEXICO
 2022 MAR 25 AM 11:03

**NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL PLUGGING PLAN OF OPERATIONS
CONDITIONS OF APPROVAL**

This plugging plan is approved subject to the following conditions of approval:

Well File No. MW 5-04 (under B-481 monitoring project)

Permittee: Rio Algom Mining LLC

Location: 35° 23' 0.5658" N. Lat., 107° 48' 36.61272" W. Long.

Water well drilling and well drilling activities, including well plugging, are regulated under 19.27.4 NMAC, which requires any person engaged in the business of well drilling within New Mexico to obtain a Well Driller License issued by the New Mexico Office of the State Engineer (NMOSE). Therefore, the firm of a New Mexico licensed Well Driller shall perform the well plugging.

1. All sediment filling the well due to flooding will be removed prior to plugging and abandonment of the well, such that the full 70 foot depth of the well can be plugged with cement grout.
2. If sediment cannot be removed to the full depth of the well, the driller **MUST** contact this office for consultation prior to plugging the well: Nathan Lopez-Brody, (505) 383-4015, nathan.lopez-brody@state.nm.us
3. Measurement of the current static water level in the well prior to initiation of plugging **IS REQUIRED**, and shall be recorded on line II.7. of the Plugging Record. This water depth shall be measured after the removal of sediment from the well casing.
4. Theoretical volume of sealant required for abandonment of the 4-inch casing is approximately 0.653 gallons per vertical foot. The reported 70 foot depth of the well was obtained from the applicant, and the theoretical volume of sealant necessary to plug the well is 45.71 gallons.
5. The Well Plugging Plan of Operations requests use of 5% bentonite-enriched cement. Pure bentonite powder ("90 barrel") is allowed as a cement additive under NMOSE and AWWA guidelines, and neither granular bentonite nor extended yield bentonite shall be mixed with cement for plugging purposes. Supplemental bentonite powder increases water demand for the slurry at a rate of approximately 0.65 gallon of water per 1% increment of bentonite by dry weight content above the fundamental water demand of 5.2 gallons of water per 94-lb. sack of cement.

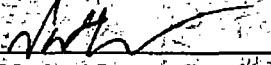
The final 5% bentonite/cement slurry mix shall not exceed 8.5 gallons of water per 94-lb. sack of cement and 5-lb. bentonite increment.
6. The bentonite shall be hydrated separately with its required increment of water before being mixed into the cement slurry.

If water is otherwise added to the combination of dry ingredients or the dry bentonite blended into wet cement, the alkalinity of the cement will restrict yield of the bentonite powder, resulting in excess free water in the slurry and enhanced cement shrinkage upon curing.

7. The well shall be plugged by tremie pipe from the bottom up.
8. Before any attempts are made to plug this well, the NMOSE. District I Office shall be notified 48 hours in advance of the anticipated schedule for plugging, so that an NMOSE representative has the opportunity to witness the procedures, if deemed necessary.
9. Should the NMED or another regulatory agency sharing jurisdiction of the project authorize, or by regulation require, a more stringent well plugging procedure than herein acknowledged, the more-stringent procedure should be followed. This, in part, includes provisions regarding pre-authorization to proceed, contaminant remediation, inspection, pulling/perforating of casing, or prohibition of free discharge of any fluid from the borehole during or related to the plugging process.
10. The well driller shall file a complete plugging record with the State Engineer and the permit holder no later than 30 days after completion of the plugging.

Witness my hand and seal this 11th day of April, 2022

Mike A. Hamman, P.E., State Engineer

By: 
Nathan Lopez-Brody
Water Resources Professional I
District I



STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

DISTRICT I

MIKE A. HAMMAN, P.E.
STATE ENGINEER

5550 San Antonio Drive NE
Albuquerque, NM 87109-4127
(505) 383-4000

April 11, 2022

Rio Algom Mining LLC
c/o Kent Applegate
PO Box 218
Grants, NM 87020

Yellow Jacket Drilling Services, LLC
3922 E University Dr #1
Phoenix, AZ 85034

Monitoring Well, B-481 POD 34
Plugging Plan, Well No. B-481 Unknown POD (MW 5-04)

To Whom It May Concern:

Enclosed is the Application for Permit to Drill a Well with No Water Right and Well Plugging Plan of Operations listed above. These have been approved subject to the Conditions of Approval, attached hereto.

If you have any questions or comments, please contact this office.

Sincerely,

A handwritten signature in black ink, appearing to read "Nathan Lopez-Brody".

Nathan Lopez-Brody
Water Resources Professional I

File No. **B-481**

NEW MEXICO OFFICE OF THE STATE ENGINEER



WR-07 APPLICATION FOR PERMIT TO DRILL A WELL WITH NO WATER RIGHT



(check applicable box):

For fees, see State Engineer website: <http://www.ose.state.nm.us/>

Purpose:	<input type="checkbox"/> Pollution Control And/Or Recovery	<input type="checkbox"/> Ground Source Heat Pump
<input type="checkbox"/> Exploratory Well (Pump test)	<input type="checkbox"/> Construction Site/Public Works Dewatering	<input type="checkbox"/> Other(Describe):
<input checked="" type="checkbox"/> Monitoring Well	<input type="checkbox"/> Mine Dewatering	

A separate permit will be required to apply water to beneficial use regardless if use is consumptive or nonconsumptive.

Temporary Request - Requested Start Date: _____ Requested End Date: _____

Plugging Plan of Operations Submitted? Yes No

1. APPLICANT(S)

Name: Rio Algom Mining LLC	Name: INTERA Inc.
Contact or Agent: <input type="checkbox"/> check here if Agent	Contact or Agent: <input checked="" type="checkbox"/> check here if Agent
Kent Applegate	Angela Persico
Mailing Address: PO Box 218	Mailing Address: 2440 Louisiana Blvd NE, Suite 700
City: Grants	City: Albuquerque
State: NM Zip Code: 87020	State: NM Zip Code: 87110
Phone: 505-287-8853 <input checked="" type="checkbox"/> Home <input type="checkbox"/> Cell	Phone: 505-246-1600 <input checked="" type="checkbox"/> Home <input type="checkbox"/> Cell
Phone (Work):	Phone (Work):
E-mail (optional): kent.kc.applegate@bhp.com	E-mail (optional): apersico@intera.com

STATE ENGINEERS OFFICE
ALBUQUERQUE, NEW MEXICO
2008 MAR 25 AM 11:02

FOR OSE INTERNAL USE Application for Permit, Form WR-07, Rev 11/17/16

File No.:	Trn. No.:	Receipt No.:	-63285 85
Trans Description (optional): POD34			
Sub-Basin:	PCW/LOG Due Date:		

2. WELL(S) Describe the well(s) applicable to this application.

Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude (Lat/Long - WGS84).

District II (Roswell) and District VII (Cimarron) customers, provide a PLSS location in addition to above.

- NM State Plane (NAD83) (Feet) UTM (NAD83) (Meters) Lat/Long (WGS84) (to the nearest 1/10th of second)
 NM West Zone Zone 12N
 NM East Zone Zone 13N
 NM Central Zone

Well Number (if known):	X or Easting or Longitude:	Y or Northing or Latitude:	Provide if known: -Public Land Survey System (PLSS) (Quarters or Halves, Section, Township, Range) OR - Hydrographic Survey Map & Tract; OR - Lot, Block & Subdivision; OR - Land Grant Name
5-04 ALL-R	-107.8101702	35.3834905	13N 9W Section 5 NWSE

NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 – POD Descriptions)
 Additional well descriptions are attached: Yes No If yes, how many _____

Other description relating well to common landmarks, streets, or other:

Well is on land owned by: Rio Algom Mining LLC

Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No
 If yes, how many _____

Approximate depth of well (feet): 55.0

Outside diameter of well casing (inches): 4.0

Driller Name: Yellow Jacket Drilling Services, LLC

Driller License Number: WD-1458

3. ADDITIONAL STATEMENTS OR EXPLANATIONS

The monitoring well is to be installed to replace a previous monitoring well (5-04 ALL) that was damaged by flooding in 2021. The proposed well will be part of an established monitoring well network used to monitor groundwater quality at a site regulated by the United States Nuclear Regulatory Commission (NRC). The groundwater monitoring will continue for the foreseeable future until such a time as the site meets regulatory compliance standards.

FOR OSE INTERNAL USE

Application for Permit, Form WR-07

File No.:

Trn No.:

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

Exploratory: <input type="checkbox"/> Include a description of any proposed pump test, if applicable.	Pollution Control and/or Recovery: <input type="checkbox"/> Include a plan for pollution control/recovery, that includes the following: <input type="checkbox"/> A description of the need for the pollution control or recovery operation. <input type="checkbox"/> The estimated maximum period of time for completion of the operation. <input type="checkbox"/> The annual diversion amount. <input type="checkbox"/> The annual consumptive use amount. <input type="checkbox"/> The maximum amount of water to be diverted and injected for the duration of the operation. <input type="checkbox"/> The method and place of discharge.	Construction De-Watering: <input type="checkbox"/> Include a description of the proposed dewatering operation, <input type="checkbox"/> The estimated duration of the operation, <input type="checkbox"/> The maximum amount of water to be diverted, <input type="checkbox"/> A description of the need for the dewatering operation, and, <input type="checkbox"/> A description of how the diverted water will be disposed of.	Mine De-Watering: <input type="checkbox"/> Include a plan for pollution control/recovery, that includes the following: <input type="checkbox"/> A description of the need for mine dewatering. <input type="checkbox"/> The estimated maximum period of time for completion of the operation. <input type="checkbox"/> The source(s) of the water to be diverted. <input type="checkbox"/> The geohydrologic characteristics of the aquifer(s). <input type="checkbox"/> The maximum amount of water to be diverted per annum. <input type="checkbox"/> The maximum amount of water to be diverted for the duration of the operation. <input type="checkbox"/> The quality of the water.
Monitoring: <input checked="" type="checkbox"/> Include the reason for the monitoring well, and, <input checked="" type="checkbox"/> The duration of the planned monitoring.	<input type="checkbox"/> The method of measurement of water produced and discharged. <input type="checkbox"/> The source of water to be injected. <input type="checkbox"/> The method of measurement of water injected. <input type="checkbox"/> The characteristics of the aquifer. <input type="checkbox"/> The method of determining the resulting annual consumptive use of water and depletion from any related stream system. <input type="checkbox"/> Proof of any permit required from the New Mexico Environment Department. <input type="checkbox"/> An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located.	Ground Source Heat Pump: <input type="checkbox"/> Include a description of the geothermal heat exchange project, <input type="checkbox"/> The number of boreholes for the completed project and required depths. <input type="checkbox"/> The time frame for constructing the geothermal heat exchange project, and, <input type="checkbox"/> The duration of the project. <input type="checkbox"/> Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request.	<input type="checkbox"/> The method of measurement of water diverted. <input type="checkbox"/> The recharge of water to the aquifer. <input type="checkbox"/> Description of the estimated area of hydrologic effect of the project. <input type="checkbox"/> The method and place of discharge. <input type="checkbox"/> An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. <input type="checkbox"/> A description of the methods employed to estimate effects on surface water rights and underground water rights. <input type="checkbox"/> Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.

ACKNOWLEDGEMENT

I, We (name of applicant(s)), Albone Williamson Print Name(s)

affirm that the foregoing statements are true to the best of (my, our) knowledge and belief.

[Signature]
Applicant Signature

[Signature]
Applicant Signature

STATE ENGINEERS OFFICE
 ALBUQUERQUE, NEW MEXICO
 2022 MAR 25 AM 11:52

ACTION OF THE STATE ENGINEER

This application is:

approved partially approved denied

provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval.

Witness my hand and seal this 10th day of April 20 22, for the State Engineer,

Mike A. Hamman, PE
State Engineer, State Engineer

By: [Signature] Signature Nathan Lopez-Brady Print

Title: Water Resources Professional I Print

FOR OSE INTERNAL USE

Application for Permit, Form WR-07

File No.:	Trn No.:
-----------	----------

**NEW MEXICO OFFICE OF THE STATE ENGINEER
PERMIT TO DRILL MONITORING WELLS
CONDITIONS OF APPROVAL**

This Application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the following conditions of approval:

Permittee: Rio Algom Mining LLC
Agent: Kent Applegate
PO Box 218
Grants, NM 87020

Permit Number: B-481

Monitoring Well/Point of Diversion (POD):

B-0481 POD 34
Latitude: 35.3834905 Longitude: -107.8101702

1. No water shall be appropriated and beneficially used under this permit.
2. Water shall be used from the well for monitoring purposes only unless and until a permit for a specific use has been issued by the State Engineer.
3. The well shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-12 NMSA and the well shall be constructed in accordance with 19.27.4 NMAC.
1. If artesian water is encountered, the Permittee and driller shall comply with Subsection C of 19.27.4.31 NMAC and all rules and regulations pertaining to the drilling and casing of artesian wells.
4. The well shall be drilled and completed within one year of issuance of this permit. A Well Record shall be filed no later than thirty (30) days after completion of the well in accordance with Subsection N of 19.27.4.29 NMAC (i.e. due by June 20, 2020).
5. Upon completion of permitted use, this well shall be plugged under a State Engineer-approved Plugging Plan, and a Plugging Record shall be filed with the State Engineer within thirty (30) days after the well is plugged in accordance with Subsection C of 19.27.4.30 NMAC.
6. Construction of a water well by anyone without a valid New Mexico Well Driller License is illegal, and the well owner shall bear the cost of plugging the well by a licensed New Mexico well driller. This does not apply to driven wells, the casing of which does not exceed two and three-eighths outside diameter.


**NEW MEXICO OFFICE OF THE STATE ENGINEER
PERMIT TO DRILL MONITORING WELLS
CONDITIONS OF APPROVAL**

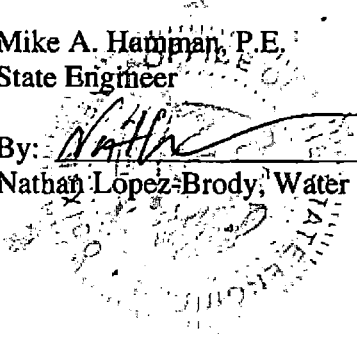
7. Pursuant to Section 72-8-1 NMSA, the Permittee shall allow the state engineer and his representative's entry upon private property for the performance of their respective duties, including but not limited to access to the wells for meter readings and water level measurements.

8. The State Engineer retains jurisdiction over this Permit.

Witness my hand and seal this 11th day of April, 2022.

Mike A. Hamman, P.E.
State Engineer

By: 
Nathan Lopez-Brody, Water Resources Professional I



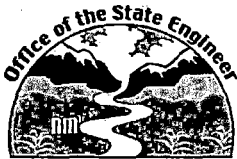


WELL RECORD & LOG

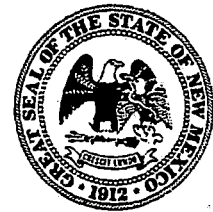
OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) 5-04 ALL-R		WELL TAG ID NO.		OSE FILE NO(S). B-481			
	WELL OWNER NAME(S) R10 ALGOM MINING LLC				PHONE (OPTIONAL)			
	WELL OWNER MAILING ADDRESS PO BOX 218 CID				CITY GRANTS	STATE NM	ZIP 87020	
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 35	MINUTES 23	SECONDS .05658	* ACCURACY REQUIRED: ONE TENTH OF A SECOND			
		LONGITUDE -107	48	36.61272	* DATUM REQUIRED: WGS 84			
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE 13 N 9 W SECTION 5 NW SE								
2. DRILLING & CASING INFORMATION	LICENSE NO. WD-1458		NAME OF LICENSED DRILLER STEVEN D. LARA		NAME OF WELL DRILLING COMPANY YELLOW JACKET DRILLING SERVICES			
	DRILLING STARTED 1/9/23	DRILLING ENDED 1/13/23	DEPTH OF COMPLETED WELL (FT) 39'	BORE HOLE DEPTH (FT) 39'	DEPTH WATER FIRST ENCOUNTERED (FT) 28'			
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input type="checkbox"/> DRY HOLE <input checked="" type="checkbox"/> SHALLOW (UNCONFINED)				STATIC WATER LEVEL IN COMPLETED WELL (FT) 28'	DATE STATIC MEASURED 1/12/23		
	DRILLING FLUID: <input type="checkbox"/> AIR <input type="checkbox"/> MUD ADDITIVES - SPECIFY:							
	DRILLING METHOD: <input type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input checked="" type="checkbox"/> OTHER - SPECIFY: AUGER					CHECK HERE IF PITLESS ADAPTER IS INSTALLED <input type="checkbox"/>		
	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	19	10	BLANK PVC	THREADED	4"	SC# 40	
	19	39	10	SCREEN	THREADED	4"	SC# 40	.020
3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT		
	FROM	TO						
	0	12	10"	CEMENT		TRIMMIE		
	12	16	10	3/8 BENTONITE CHIPS		POURED		
	16	39	10	12-20 SILICA SAND		POURED		



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: MW 5-04 ALL

Well owner: RIO ALGDM MINING LLC Phone No.: _____

Mailing address: PO BOX 218 CID

City: GRANTS State: NM Zip code: 87020

II. WELL PLUGGING INFORMATION:

- 1) Name of well drilling company that plugged well: YELLOW JACKET DRILLING SERVICES, LLC
- 2) New Mexico Well Driller License No.: WD-1458 Expiration Date: 10/31/24
- 3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): STEVEN D. LARA
- 4) Date well plugging began: 1/11/23 Date well plugging concluded: 1/11/23
- 5) GPS Well Location: Latitude: 35 deg, 23 min, .5658 sec
Longitude: -107 deg, 48 min, 34.61272 sec, WGS 84
- 6) Depth of well confirmed at initiation of plugging as: 29.4 ft below ground level (bgl),
by the following manner: _____
- 7) Static water level measured at initiation of plugging: 28.53 ft bgl
- 8) Date well plugging plan of operations was approved by the State Engineer: 3/25/22
- 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):

Appendix D

Field Notes

9
1/18/23

5-04 ALL-R

BA

Drilling

1015

B. Archuleta arrives onsite.

- note: YJD running late fr: Phx.

- Objective: Complete trainings w/ Michaela + Mike and start setting up to drill.

1020

SWPPP Training w/ Michaela

- B. Archuleta

JRA edits

1045

Tailgate safety meeting Form.

YJD called. Won't be in

1315

Milan till around 3 pm.

Mike S. (HS) arrives onsite.

1315

B.A. to hotel. will meet

YJD + Michaela + Mike S.

for JRA review + RWP review.

1445

~~1215~~

Steve L (YJD) called me and

let me know he's stuck in traffic

and won't make training.

1455

Called + notified Michaela.

Training postponed until tomorrow.

1/10/23

5-04 ALL-R

BA

0700 B. Archuleta arrive onsite
Steve (YJD) + Michaela (BHP)
onsite. Mike (H3) arrive onsite.

Discuss 5-04 ALL-R drilling
strategies and develop concepts.

0715 Remaining YJD crew arrive
onsite. John + Kent (RMP)
arrive onsite.

0720 JRA review.
RWP review.
note: Brett (Intwa) on webex.

0845 YJD crew to Rig to try to
start and perform rig inspection.

0955 Rig started. Inspection complete.
Start moving Rig + Eqs to drill
pad (5-04 ALL-R).

A

1/10/23

S-04-ALL-R

BA

1305 Start drilling S-04 ALL-R

Site

Yellow Jacket Drilling

Driller: Steve Lara

Helpers: Brandon

Equip

Taylor

Rig: Auger

U

10" Borehole

(P)

Solid Stem Auger

Sampling: Logging Cuttings

IDW Super Sack (1 yard³)

Logging: P-Log

K

Note

Wet cutting observed
in the 25'-30' interval.

Fires

See P-Log for details.

Notes

U

Hit refusal at ~36' bgs
which is about 10-15' higher
than expected compared to
old log.

Steve thinks Top of Sandstone.

1/10/23

5-04 AU-R

BA

@ 39' bgs. evidence of
Sandstone in cutting.

No gravel or gray clay/sandstone
observed as described in old log.

1500 Called to discuss well placement
w/ B. Mayhew.

Decision to set well here
and screen from ~19'-39' bgs.
W.L. estimate at 25'-30' bgs.

1530 Start setting the well.
- See as-built for details.

1615 Well installed. Filter pack up to 16' bgs.
- will seal tomorrow.

1630 Leave drill pad.

1655 Sign out / Sign out
Offsite

BA { 1/10/23

A

1/10/23

BA

5-04 ALL-R AS-BUILT

3' x 3' x 4"
concrete pad

8" metal monument (locking)

- Top of monument = 2.8' ags

- TOC = 2.36' ags

stone
log.

Concrete G.S.
2' bgs

cement

Neat cement
grout w/
5% bent
mixture

4" PVC Blank
Sch 40

bgs

12' —
Bent. Seal
16' —

18.8'

16' bgs

W.L. (Drilling) 1/10/23
25.0' ∇

W.L. 27.9' (1/11/23) ∇

4" PVC 020 Screen
Sch. 40

12/20 Silica
Sand

39' bgs

38.8'

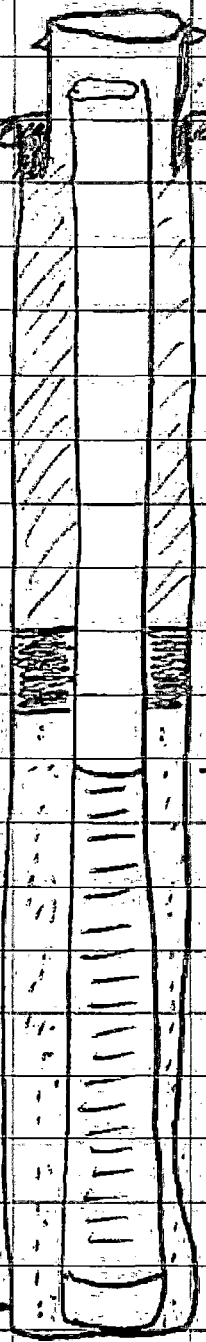
39.2'

4" PVC End Cap
Sch 40

TR-B

39.2' bgs = TD

10"
Diameter



S-04 ALL-R

BA

1/11/22

0730 Arrive onsite.

Objective: ^{Complete} ~~*****~~ S-04 ALL-R,
stand setting well, ^{stand} P7A
S-04 ALL

weather: Cold + windy. ~1"
of snow on ground.

0740 TG Safety meeting.

0800 Drillers prepping material
& equipment.

0930 All arrive at well pad.

Prepare to scrub well +
surge filter pack.

3A

1/11/2L

S-04 ALL-R

BA

0945

Start Development

See Form for details.

- start swabbing to set sand pack

R,

0955

End Swabbing

- sand still at 16' bgs

Doesn't seem to need to settle anymore. Top of sand = 16

"

1000.

Add ^{Enviro Plug} ~~pot plug~~ sand (granular)

Seal = 16' - 12' bgs

1002

Hydrate (add water)
Let hydrate.

1225

Return to well.

Prepare to grout from

12' to near surface.

1235

Grout complete. mixed in

55 gallon drum. Grout up to 2' bgs

- mix Ratio

- Total volume = ~ 38 gallons

- 1/3 of 50-lb bag AMC GEL

- 3 50-lb bag Portland Cement

1/11/23

5-04 ALL P+A

BA

1245

Preparing to P+A 5-04 ALL

1328

Air Lifting Setup Complete.

1330

Begin air lifting attempt.

1425

Air lifting complete

- Successful.

Removed ~ 20 + gallons
of sediment and tagged bottom
of well at 70' bgs.

Prepare to grout

- Mix grout Portland cement
5% Bent. Gel mixture.

Poured to ~ 2' bgs.

1600

Pullback buried conductor (monument)
casing that was temporarily used
to help extend the old/damaged
well casing.

1607

Pour remaining concrete in hole.
~ 2' bgs. Start clean-up.

9

1/11/23

5-04 ALL P & A

BA

1630

Back at trailer

will finish surface completion
and well development tomorrow.

1700

Offsite.

3

BA

1/11/23

ament)

A

1

le.

1/12/23

5-04 ALL-R

BA

0955 Arrive onsite.

Objective:

- Develop 5-04 ALL-R
- Surface completion

1015 Arrive at well pad.
Meet Steve L. (YTD)

Prepare to develop 5-04 ALL-R
Vice pumping (monsoon pump)

1030 Calibrate YSI Pro Plus
pH 7, 10, 4
Sp. Cond. 1413 $\mu\text{S}/\text{cm}$
Calibrate Turbidity meter
HACH 2100Q

Tag WL: DTW = 27.9' bgs

1045 Start pumping / well development
- See field form for details

BA

1/12/23

S-04 ALL-R

BA

1150

End pumping/development

Summary:

- 85 total gallons.
- well pumped dry twice slowly, @ ~ 2.5 gpm.
- allowed well 5-10 minutes to recharge.
- water cleared significantly but never got better than light brown/murky (~ 566 NTUs).
- 1 hr 5 min duration.

-R

mp)

1200

Clean up - prepare to ~~start~~ complete surface

- 8" steel monument
- 3' x 3' x 4" concrete pad

ps

1350 Surface completion finished.

Steve L. will let concrete

rpment

dry a little more before

etching S-04 ALL-R into

surface.

1/18/23

S-OY ALL-R

BA.

1400

Back to field office trailer.
Leave copy of RWP on
HB's desk.

Collect boxes of unused Tyvek
suits to take back to Abq.

Scan out and prepare for
demo.

1500

B.A. office

BA

1/12/23

Appendix E

Photo Log



Photograph 1 -Yellow Jacket staging supplies and equipment for replacement well



Photograph 2 -Yellow Jacket staff during well completion at 5-04 ALL-R



Photograph 3 -Yellow Jacket staff during well completion at 5-04 ALL-R



Photograph 4 -Yellow Jacket staff air-lifting sediments from 5-04 ALL during P&A



Photograph 5 -Yellow Jacket staff air-lifting sediments from 5-04 ALL during P&A



Photograph 6 -Yellow Jacket staff mixing grout for 5-04 ALL P&A



Photograph 7 -Yellow Jacket staff mixing grout for 5-04 ALL P&A



Photograph 8 -Finished 5-04 ALL-R surface completion (foreground) with marker for 5-04 ALL (background)