

# Rio Algom Mining LLC

June 6, 2022

Mr. Tom Lancaster  
United States Nuclear Regulatory Commission  
Mail Stop T5-A10  
Washington, DC 20555-0001

**Re: Rio Algom Mining LLC – Ambrosia Lake West Mill  
License SUA-1473, Docket No. 40-8905  
License Amendment Request for Replacement of Monitoring Well 36-06 KD with 36-07 KD**

Dear Mr. Lancaster:

This letter is to respectfully request that NRC approve an amendment to the Rio Algom Mining LLC (RAML) Ambrosia Lake West mill (ALW) License SUA-1473, Docket No. 40-89-05 (License) for removal of Dakota groundwater monitoring well 36-06 KD and addition of the adjacent Dakota groundwater monitoring well 36-07 KD.

As is described in detail in the attached *Summary of Investigation of Groundwater Conditions at 36-06 KD and 36-07 KD* (Report), 36-06 KD does not serve its License purpose of monitoring groundwater conditions in the Dakota aquifer based on the following findings:

- Downhole camera footage shows mineral incrustation covering the screened interval of 36-06 KD,
- Aquifer testing and analytical chemistry data indicate 36-06 KD is not hydraulically connected to the Dakota aquifer, and
- Groundwater conditions in 36-06 KD appear to be localized, unique and not representative of the Dakota aquifer.

RAML proposes to add Dakota well 36-07 KD to the License as a replacement for well 36-06 KD. Well 36-07 KD was installed in October 2019 approximately 20 feet away from well 36-06 KD. The wells have the same total depth and lithology, as documented in the attached Report and the *ACL Drilling Program Report, Alternate Concentration Limits Drilling Program* [ML20294A298]. Well 36-07 KD has been sampled quarterly for two years, as required by License Condition 34 for replacement wells, and RAML has provided the sampling results as a courtesy to NRC in RAML's semi-annual groundwater monitoring reports. RAML proposes to continue sampling well 36-07 KD on a semi-annual frequency (in place of 36-06 KD), as required by the License for Dakota compliance monitoring wells. The results of the investigation detailed in the Report demonstrate reasonable assurance of adequate protection that the replacement of 36-06 KD with 36-07 KD in the License would not pose undue risk to the public.

RAML's proposed "red-line" tracked changes of License Condition 34 are included as **Attachment 1**. If NRC is in agreement with this License amendment request, the License would

be amended to remove 36-06 KD and replace it with 36-07 KD as a compliance well for the Dakota aquifer, and RAML will obtain and execute a permit from the New Mexico Office of the State Engineer to abandon 36-06 KD.

One hard copy of the Report is being provided to you and one hard copy is being provided to NRC Document Control. An electronic copy of the report will also be delivered by file share to you, Anne Maurer and Amber Rheubottom (NMED), and Mike Schierman (H3 Environmental).

If you have any questions regarding this letter, please contact me at (916) 947-7637.

Sincerely,  
**Rio Algom Mining LLC**



Sandra L. Ross, P.G.  
Manager US Legacy Assets

Attachment: As stated

cc: NRC Document Control (MD) – License SUA-1473, Docket No. 40-8905  
NMED – Anne Maurer (electronic only), Amber Rheubottom (electronic only)  
H3 Environmental – Mike Schierman (electronic only)

34. The licensee shall implement a groundwater compliance monitoring program. The monitoring wells presented in Paragraph A of this License Condition shall be sampled quarterly for the first two years if a replacement well is installed or following approval of the alternate concentration limits contained in Paragraph B of this License Condition. The licensee shall sample the aforementioned monitoring wells semiannually thereafter, until license termination. Wells in the monitoring network that have been replaced are designated with an "R" after the original name. The ground water compliance monitoring program shall consist of the following:

- A. Sample Dakota Sandstone wells 17-01 KD, 30-02 KD, 30-48 KD-R, 32-45 KD-R, ~~36-06 KD~~ 36-07 KD, and 5-02 KD for antimony, arsenic, beryllium, cadmium, chloride, cyanide, lead, lead-210, molybdenum, nickel, nitrate, radium-226 & -228, selenium, sulfate, thorium-230, total dissolved solids, natural uranium, pH, electrical conductivity, and water level.

Sample Tres Hermanos A wells 31-01 TRA-R, 30-01 TRA, & 33-01 TRA for chloride, cyanide, lead-210, molybdenum, nickel, nitrate, radium-226 & -228, selenium, sulfate, thorium-230, total dissolved solids, natural uranium, pH, electrical conductivity, and water level.

Sample Tres Hermanos B wells 19-77 TRB, 31-02 TRB-R, 31-67 TRB, 36-01 TRB, and 36-02 TRB for chloride cyanide, lead-210, molybdenum, nickel, nitrate, radium-226 & -228 selenium, sulfate, thorium-230, total dissolved solids, natural uranium, pH, electrical conductivity, and water level.

Sample alluvium wells 5-03 ALL-R, 5-04 ALL, 5-08 ALL-R, 5-73 ALL-R, 32-59 ALL, 31-61 ALL, 31-65 ALL, and MW-24 ALL, for chloride, lead-210, molybdenum, nickel, nitrate, radium-226 & -228, selenium, sulfate, thorium-230, total dissolved solids, natural uranium, pH, electrical conductivity, and water levels.

- B. Comply with the following ground water protection standards at Dakota Sandstone compliance wells 30-02 KD (old POC), 30-48 KD-R, 5-02 KD, 32-45 KD-R, and ~~36-06 KD~~ 36-07 KD: antimony = 0.05 mg/l; arsenic = 0.1 mg/l, beryllium = 0.01 mg/l; cadmium = 0.01 mg/l; cyanide = 0.04 mg/l; lead = 0.14 mg/l; molybdenum = 0.06 mg/l; and selenium = 0.04 mg/l. Comply with the following alternate concentration limits at the same compliance wells: lead-210 = 62 pCi/l; nickel = 6.8 mg/l; radium-226 & -228 = 218 pCi/l; natural uranium = 1.6 mg/l; thorium-230 = 945 pCi/l; chloride = 3,200 mg/l; nitrate (as N) = 22.8 mg/l; sulfate = 6,480 mg/l; total dissolved solids = 14,100 mg/l. The lead-210 compliance limit is lowered to account for polonium-210 unless or until a compliance limit is developed and approved for polonium-210, at which time lead-210 reverts back to 88 pCi/l. Background is recognized at well 17-01 KD.

Comply with the following ground water protection standards at Tres Hermanos A compliance wells 31-01 TRA-R (old POC) and 30-01 TRA: cyanide = 0.01 mg/l; molybdenum = 0.03 mg/l; nickel = 0.05 mg/l; selenium = 0.03 mg/l; and natural

uranium = 0.01 mg/l. Comply with the following alternate concentration limits at the same compliance wells: lead-210 = 62 pCi/l; radium-226 & -228 = 218 pCi/l; thorium-230 = 945 pCi/l; chloride = 1,070 mg/l; nitrate (as N) = 9.2 mg/l; sulfate = 2,584 mg/l; total dissolved solids = 6,400 mg/l. The lead-210 compliance limit is lowered to account for polonium-210 unless or until a compliance limit is developed and approved for polonium-210, at which time lead-210 reverts back to 88 pCi/l. Background is recognized as well 33-01 TRA.

Comply with the following ground water protection standards at Tres Hermanos B compliance wells, 31-02 TRB-R, 31-67 TRB, 36-01 TRB, and 36-02 TRB: cyanide = 0.01 mg/l; molybdenum = 0.08 mg/l; and selenium = 0.04 mg/l. Comply with the following alternate concentration limits at the same compliance wells: nickel = 6.8 mg/l; radium-226 & -228 = 218 pCi/l; natural uranium = 1.6 mg/l; thorium-230 = 945 pCi/l; lead-210 = 62 pCi/l; chloride = 2,810 mg/l; nitrate (as N) = 7.7 mg/l; sulfate = 4,760 mg/l; and total dissolved solids = 11,700 mg/l. The lead-210 compliance limit is lowered to account for polonium-210 unless or until a compliance limit is developed and approved for polonium-210, at which time lead-210 reverts back to 88 pCi/l. Background is recognized as well 19-77 TRB.

Comply with the following alternate concentration limits at alluvium compliance wells 32-59 ALL, 31-61 ALL, 31-65 ALL, MW-24 ALL, 5-04 ALL, 5-08 ALL-R, and 5-73 ALL-R: molybdenum = 176 mg/l; nickel = 98 mg/l; selenium = 49 mg/l; radium-226 & -228 = 3,167 pCi/l; thorium-230 = 13,627 pCi/l; natural uranium = 23 mg/l; lead-210 = 891 pCi/l; chloride = 7,110 mg/l; nitrate (as N) = 351 mg/l; sulfate = 12,000 mg/l; total dissolved solids = 26,100 mg/l. The lead-210 compliance limit is lowered to account for polonium-210 unless or until a compliance limit is developed and approved for polonium-210, at which time lead-210 reverts back to 1,274 pCi/l. Background is recognized as well 5-03 ALL-R.

Alternate concentration limits were specified in the technical evaluation report dated February 26, 2006 (ML060380387).

C. [DELETED by Amendment 56]

Submit, by February 1 and August 1 of each year ground water monitoring reports to include a minimum of the following: potentiometric surface maps for each aquifer; time vs. concentration plots for all parameters for which ACLs have been issued, hydrographs for the downgradient most trend well or POE well in each aquifer, hydraulic gradient calculations, and tabulated analytical data for each ACL parameter for each well.

D. [DELETED by Amendment 42]

- E. If the laboratory results indicate that the concentration of any constituent exceeds its associated ground water protection standard or ACL, the licensee shall collect a second sample within 7 calendar days of becoming aware of the aforementioned exceedance. If the results of this second sample confirm the

Attachment 1

aforementioned exceedance, the licensee shall increase the monitoring frequency to monthly and submit to NRC staff quarterly reports documenting the exceedance. If the exceedances continue for three consecutive months, the licensee shall submit to NRC staff a ground water corrective action designed to regain compliance with ground water protection standards and ACLs.

[Applicable Amendments: 9, 11, 13, 15, 25, 35, 40, 42, 56, 62, ##]