

Rio Algom Mining LLC

August 26, 2024

Document Control Desk, Director
Office of Nuclear Material Safety and Safeguards
United States Nuclear Regulatory Commission
Washington, DC 20555-0001

Re: **Rio Algom Mining LLC – Ambrosia Lake West Mill**
License SUA-1473, Docket No. 40-8905
Semiannual Effluent Report – First Half 2024

Dear Director:

In accordance with source material license SUA-1473 condition 19 and the Rio Algom Mining LLC (RAML) *Radiation Protection and Environmental Monitoring Program Manual* ([ML23088A157](#)), RAML is providing the first half of 2024 Semiannual Effluent Report for its Ambrosia Lake West mill.

In a letter dated December 14, 2016 ([ML16344A027](#)), the Nuclear Regulatory Commission (NRC) agreed in part with a RAML request to terminate certain routine environmental monitoring tasks since the site has been mostly reclaimed. As a result, routine monitoring for environmental external dose, sediment, vegetation, and surface soil has been discontinued and data for these media are no longer being reported. Likewise, in a letter dated December 20, 2017 ([ML17293A342](#)), the NRC agreed with RAML's proposal to terminate environmental monitoring for radioactive particulates in air. RAML terminated this monitoring on December 31, 2017.

[Figure 1](#) depicts monitoring locations, and [Table 1](#) provides first half of 2024 environmental monitoring results for radon-222 in ambient air. The data have been reviewed as required by section 2.7 of RAML's *Radiation Protection and Environmental Monitoring Program Manual* ([ML23088A157](#)) and are consistent with the past five years of monitoring results. Time-series plots for the past five years for each location are provided in [Appendix A](#).

If you have any questions or need additional information, please do not hesitate to call me at (505) 317-4416.

Respectfully,



Michael Schierman, CHP
Radiation Safety Officer
H3 Environmental, LLC

cc: Mr. Kevin Ramsey (RAML)
Ms. Elizabeth Ruedig (RAML)
Mr. Thomas Lancaster (NRC)
NRC Region IV Division of Nuclear Materials Safety

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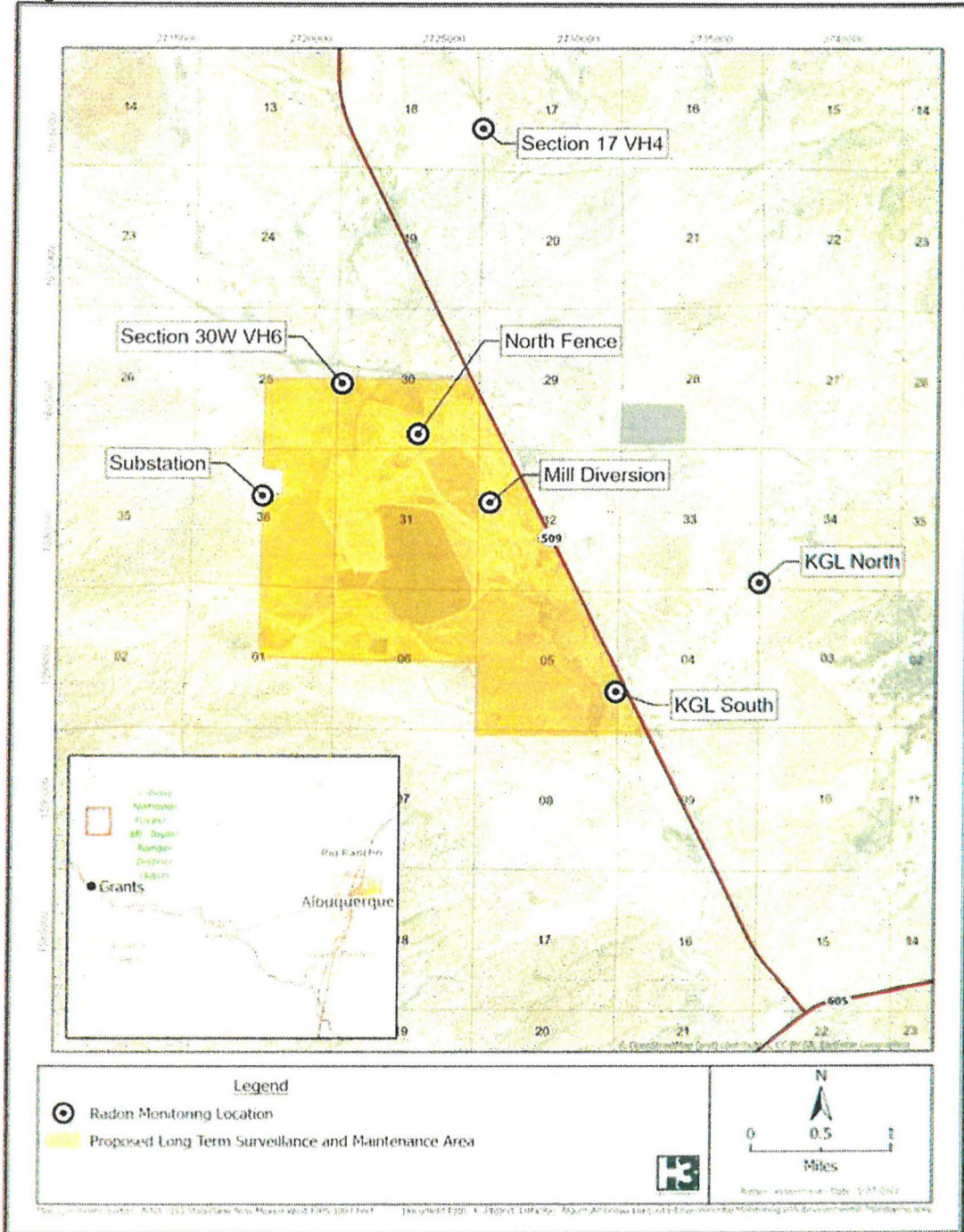


Figure 1. Radon-222 monitoring locations at the Ambrosia Lake West mill

Table 1. Results of first half of 2024 monitoring for radon-222 in ambient air

Ambrosia Lake Environmental Radon 2024									
1st Quarter (01/03/24 – 04/03/24) Sample Media: Ambient Air					2nd Quarter (04/03/24 – 07/11/24) Sample Media: Ambient Air				
Location:	Conc. ¹ μCi ml ⁻¹	Error ² μCi ml ⁻¹	MDC ³ μCi ml ⁻¹	% EC ⁴	Location:	Conc. ¹ μCi ml ⁻¹	Error ² μCi ml ⁻¹	MDC ³ μCi ml ⁻¹	% EC ⁴
Substation	3.2E-10	1.1E-10	1.5E-10	3%	Substation	4.1E-10	1.1E-10	1.5E-10	4%
Mill Diversion	1.4E-09	2.5E-10	1.5E-10	14%	Mill Diversion	1.6E-09	2.2E-10	1.5E-10	16%
Section 30W VH6	2.3E-09	3.3E-10	1.5E-10	23%	Section 30W VH6	2.5E-09	3.6E-10	1.5E-10	25%
Section 30W VH6-Duplicate	2.1E-09	2.8E-10	1.5E-10	21%	Section 30W VH6-Duplicate	3.1E-09	4.4E-10	1.5E-10	31%
North Fence	1.7E-09	2.8E-10	1.5E-10	17%	North Fence	2.0E-09	2.8E-10	1.5E-10	20%
North Fence-Duplicate	1.8E-09	2.8E-10	1.5E-10	18%	North Fence -Duplicate	1.8E-09	2.8E-10	1.5E-10	18%
Section 17 VH4	2.2E-10	1.1E-10	1.5E-10	2%	Section 17 VH4	3.5E-10	1.1E-10	1.5E-10	4%
KGL - North	1.5E-09	2.2E-10	1.5E-10	15%	KGL - North	1.4E-09	1.9E-10	1.5E-10	14%
KGL - North- Duplicate	1.3E-09	2.2E-10	1.5E-10	13%	KGL - North- Duplicate	1.5E-09	2.2E-10	1.5E-10	15%
KGL - South	1.3E-09	2.2E-10	1.5E-10	13%	KGL - South	1.4E-09	2.2E-10	1.5E-10	14%

Note: Formatting for this table follows the format of [Regulatory Guide 4.14, Revision 1](#), Table 3, consistent with SUA-1473 condition 19 and an NRC staff request made during RAML's September 2019 license inspection.

¹ All measurements were collected using a closed, high-sensitivity alpha-track detector.

² Error is the measurement uncertainty at a 95% confidence level.

³ MDC is reported by the manufacturer technical specifications.

⁴ % EC is based on the limit in [10 CFR 20 Appendix B](#) for radon-222 without its decay products (1E-08 μCi ml⁻¹).

Conc. – concentration
 % EC – percentage of effluent concentration
 μCi ml⁻¹ – microcuries per milliliter
 MDC – minimum detectable concentration

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Appendix A

APPENDIX A

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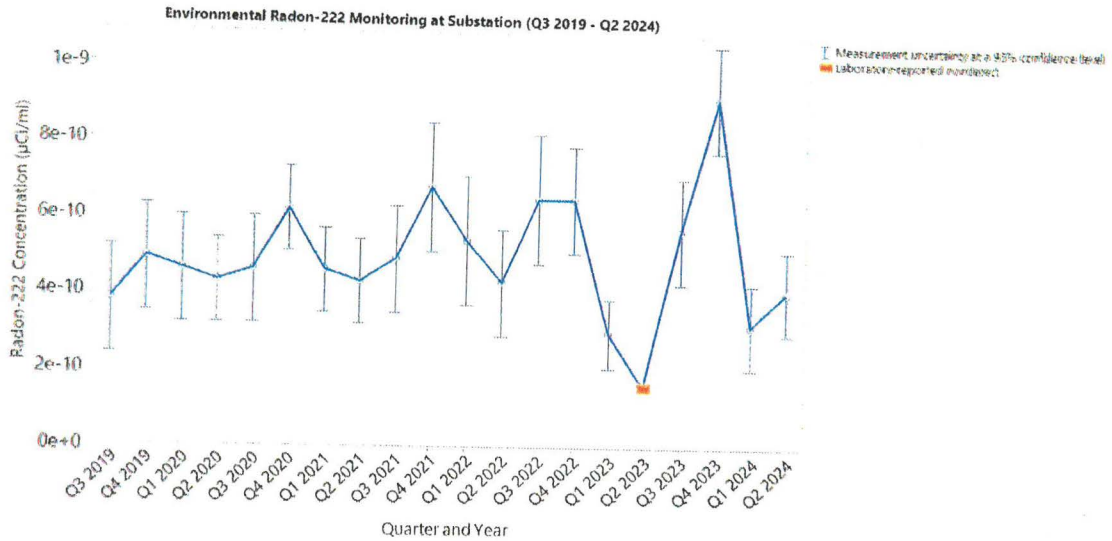


Figure A-1. Time series of ambient radon-222 concentrations at the substation location from 2019 to present.

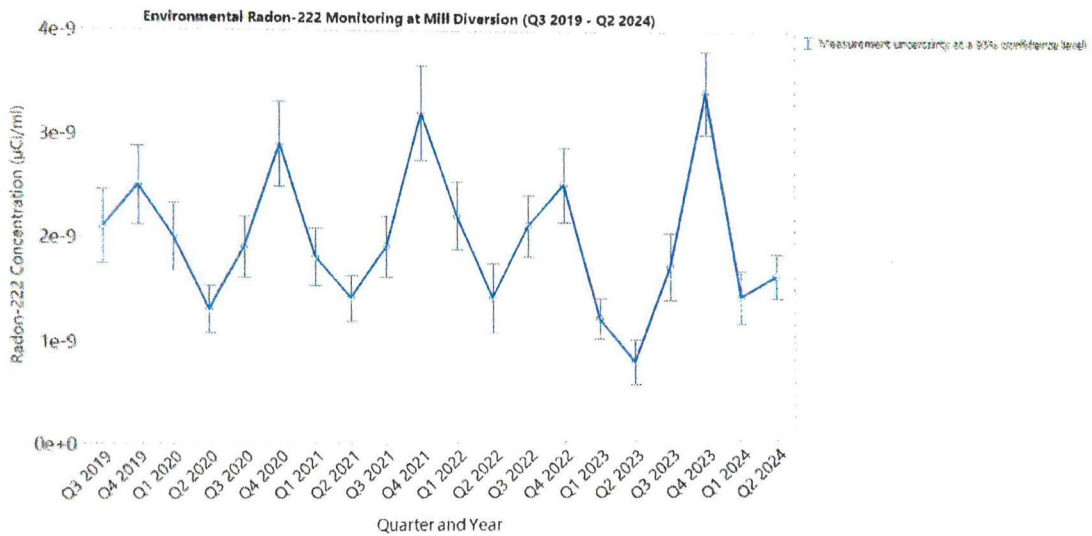


Figure A-2. Time series of ambient radon-222 concentrations at the mill diversion location from 2019 to present.

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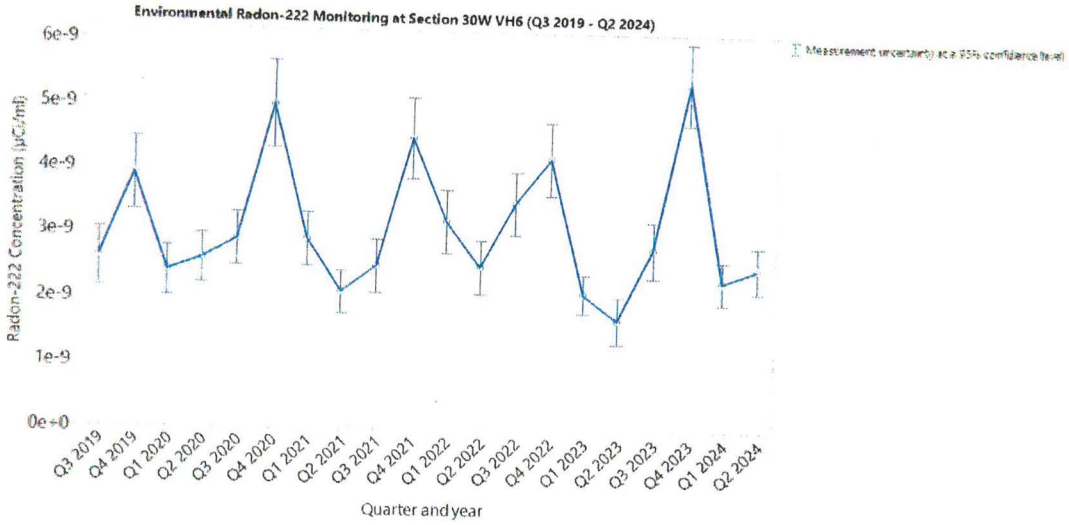


Figure A-3. Time series of ambient radon-222 concentrations at the Section 30W VH6 location from 2019 to present.

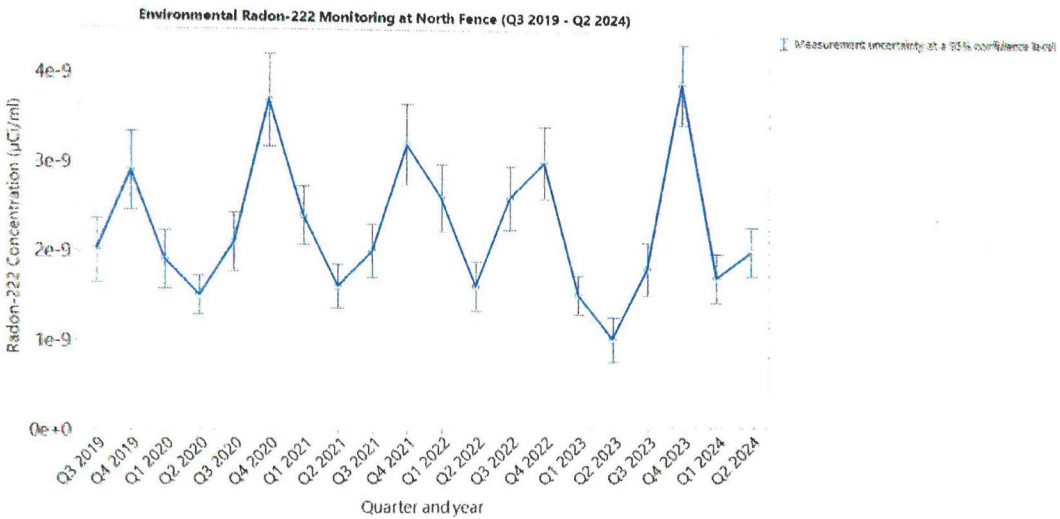


Figure A-4. Time series of ambient radon-222 concentrations at the north fence location from 2019 to present.

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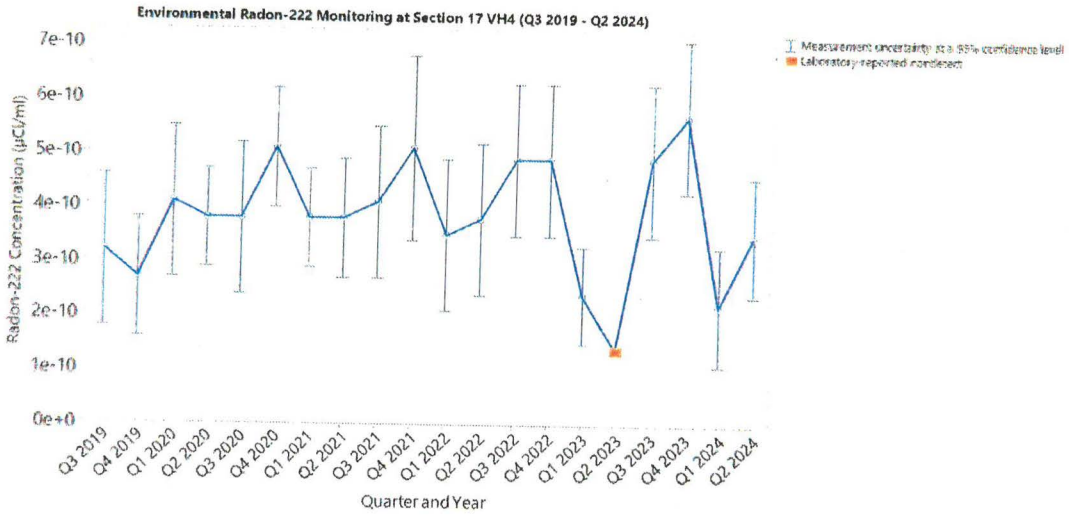


Figure A-5. Time series of ambient radon-222 concentrations at the 17 VH4 location from 2019 to present.

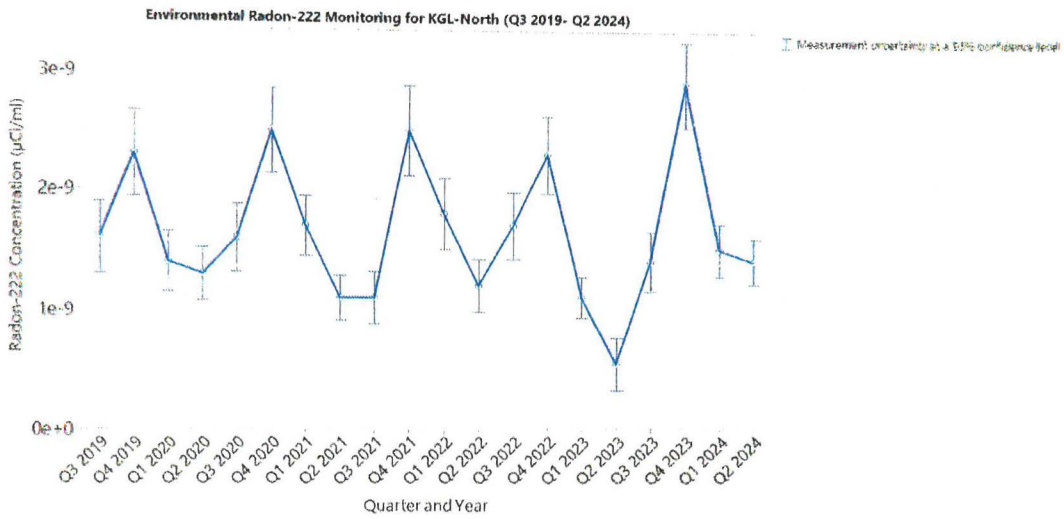


Figure A-6. Time series of ambient radon-222 concentrations at KGL north location from 2019 to present.

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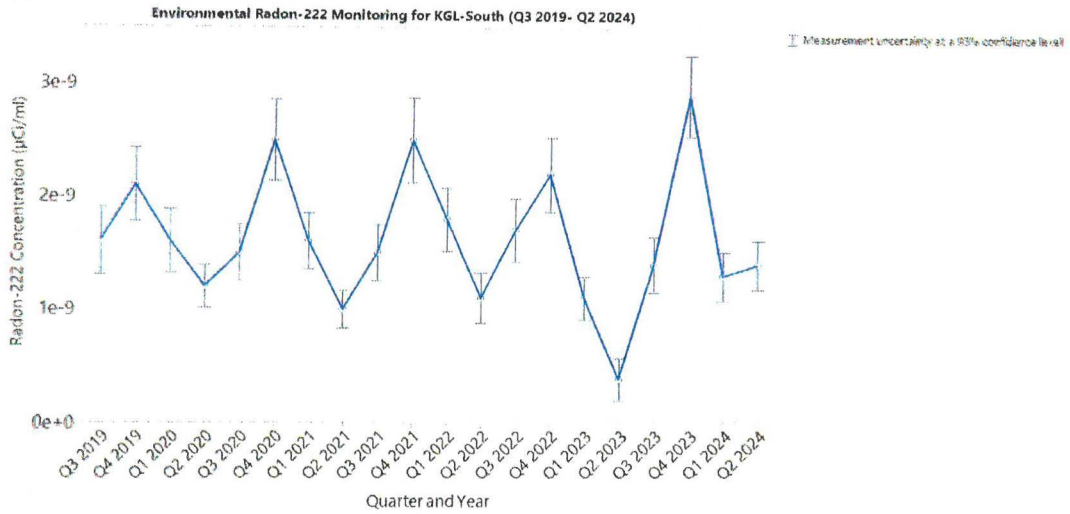


Figure A-7. Time series of ambient radon-222 concentrations at KGL south location from 2019 to present.