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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File Nos: **2AM-MEL1631**
2BB-MEL1424

August 19, 2022

Sara Savoie
Compliance Counselor
Agnico Eagle Mines Limited
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Mirabel, Quebec, Canada J7N 1G9

Email: sara.savoie@agnicoeagle.com

RE: NWB Technical Review of the 2021 Annual Report for the Meliadine Project; Water Licences Nos: 2AM-MEL1631 and 2BB-MEL1424

Dear Ms. Savoie:

The Nunavut Water Board (NWB or Board) has completed its technical review of the 2021 Annual Report submission provided to the Board by Agnico Eagle Mines Limited (Agnico Eagle or Licensee) to fulfill the requirements of Part B of Water Licences Nos: 2AM-MEL1631 and 2BB-MEL1424. This submission was provided to the Board on May 2, 2022.

Copies of all documents received during public review can be accessed through the NWB's Public Registry and FTP site using the following link:

ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-MEL1631%20Agnico/3%20TECH/B%20GENERAL/2%20ANNUAL%20RPT/2021

The submission included the following updated management plans associated with Water Licence 2AM-MEL1631:

- Aquatic Effects Monitoring Program (AEMP) Design Plan – Version 2, April 11, 2022
- Blast Monitoring Program – Version 4, April 2022
- Explosives Management Plan – Version 8, April 2022
- Incineration Management Plan – Version 7, April 2022
- Landfarm Management Plan – Version 4, April 2022
- Landfill and Waste Management Plan – Version 8, April 2022
- Mine Waste Management Plan – Version 9, April 2022

- Oil Pollution Emergency Plan / Oil Pollution Prevention Plan (OPEP/OPPP) – Version 6, April 2022
- Ore Storage Management Plan – Version 4, April 2022
- Quality Assurance / Quality Control Plan – Version 4, April 2022
- Shipping Management Plan
- Spill Contingency Plan – Version 11, April 2022
- Water Management Plan – Version 12, April 2022

On May 9, 2022, the NWB distributed the 2021 Annual Report and additional associated information for public review with a deadline for comments set at August 9, 2022 and later extended to August 11, 2022 at the request of the Kivalliq Inuit Association (KivIA). On or before the deadline, the comments were received from the KivIA, Crown-Indigenous Relations and Northern Affairs (CIRNA) and the Environment and Climate Change Canada (ECCC). The table below summarises the issues and recommendations provided by the interveners as part of the review process. For more detailed information about the issues raised by the interveners, please refer to the NWB public registry at the link referenced above, as well as the documents attached to this correspondence.

No.	Concerns/ Recommendations	Response Deadline
	Kivalliq Inuit Association (KivIA)	
1.	*Nutrient Enrichment in Meliadine Lake*	September 9, 2022
	• Amend the statement in Section 7.1.4 to acknowledge that phosphorus concentrations have increased over time in the East Basin of Meliadine Lake • Explore strategies to mitigate the impact of nutrient enrichment in the East Basin, including, but not limited to, increasing the volume of contact water diverted to Itivia Harbour.	
2.	*Threespine Stickleback Chemistry*	All Future Annual Reports
	• Considering that the higher concentrations of calcium, arsenic, manganese, strontium, and uranium were detected in Threespine Stickleback were detected at Mel-01 in 2021, continue to monitor the Threespine Stickleback tissue chemistry as set out in the AEMP.	
	Crown-Indigenous Relations and Northern Affairs (CIRNA)	
1.	*Higher than Expected Total Dissolved Solids (TDS) in Containment Pond 1 (CP1) (Follow-up from 2020 report comment #1)*	September 9, 2022
	• Establish a program to measure runoff quantity and quality from Ore Stockpile 2 (OP2); • Provide additional details and discussion of the OP2 component of the water balance model; • Provide additional information on actual quantities and the physical and chemical nature of ore stockpiled in OP2 with emphasis on TDS loadings to CP1.	

2.	*Surface Disposition of Waste Rock (Follow-up from 2020 report comment #3)*	September 9, 2022 and all future Annual Reports
	• Provide additional discussion on where/how waste rock was used for construction, where/how it was placed in the Waste Rock Storage Facilities (WRSFs) and Tailings Storage Facilities (TSF) and confirmation that it was placed according to approved plans and procedures	
3.	*Tailings Storage Facility (TSF) Capacity (Follow-up from 2020 report comment #4)*	September 9, 2022
	• Provide additional information verifying that tailings placement was in accordance with the *Mine Waste Management Plan*.	
4.	*Tracking Volume of Freshwater Obtained from Other Permitted Locations for Road Dust Suppression Activities (Follow-up from 2020 report comment #10)*	September 9, 2022 and all future Annual Reports
	• Include more detailed information regarding the locations of small ponds proximal to the All-Weather Access Road (AWAR), from which water is taken for dust suppression, as well as the breakdown of the monthly and annual volumes of freshwater obtained from each of these locations.	
5.	*Quantities of Ore Production and Storage*	September 9, 2022
	• Discuss and clarify apparent discrepancies in information provided for ore storage in 2021 (1,950,544 tonnes mined vs. 1,714,892 tonnes of tailings deposited); • Provide maximum tonnes of ore stored on site in any month in 2021; • Provide maximum tonnes of ore stored in OP2 in any month in 2021; • Provide descriptions and discussions of *"ore stockpiles on site, excluding major locations"* presented in Table 12 of Section 4.3, Waste Rock Volume, and show where this ore is stored.	
6.	*Quantities of Waste Rock Production and Storage*	September 9, 2022
	• Clarify discrepancies in waste rock production reported in the body of the Annual Report and *Mine Waste Management Plan*; • Provide descriptions and discussions of *"waste rock stockpiles on site excluding major locations"* presented in Table 12 of Section 4.3, Waste Rock Volume.	
7.	*Management Plans*	September 9, 2022
	Mine Waste Management Plan (MWMP): • Update Tables 3.3, 4.1, 4.2 so that the actual quantities are clearly identified with an asterisk (*); • Provide information illustrating actual vs. Final Environmental Impact Statement (FEIS) predicted quantities of overburden, waste rock and tailings; • Include an actual as built plan or actual as built sections of the TSF for each year of the report.	

	Ore Storage Management Plan (OSMP): • Update OSMP so that the actual quantities are clearly identified with an asterisk (*); • Provide information illustrating actual vs. FEIS predicted quantities of ore stored annually; • Assess the modelled and actual runoff quality, quantity and TDS loads from the ore storage area and investigate if viable alternatives to surface runoff from the ore storage to CP1 could be developed so as to reduce TDS levels in CP1 and discharge to Meliadine Lake. *Water Management Plan (WMP):* • Replace the Site Location and Mine Site Layout dated 1-22-2020 of Appendix A of the Meliadine Groundwater Management Plan (GMP), which is Appendix A of the WMP.	
8.	*Inspection Reports and/or Compliance Reports*	All future Annual Reports
	• In future Annual Reports, provide an appendix containing reports of all formal inspections/compliance carried out during the reporting year.	
9.	*Geotechnical Inspection Concerns/Issues*	March 31, 2023
	• Add a section to the Geotechnical Inspection Report that provides clear and concise information on the status of any permafrost degradation that may be occurring on site; • Continue monitoring of soft ground conditions in 2022 between CP6 and WRSF to determine if additional waste rock is needed to mitigate associated risks; • Carry out repairs at AWAR Culvert 25.8 km and Culvert 26.8 km during open water season 2022; • Carry out repairs at Bridge M- 5 during open water season 2022.	
10.	*Impacts of Effluent Discharge on Phytoplankton in Meliadine Lake*	September 9, 2022
	• Given the recent observation of algal blooms in Meliadine Lake, which is a clear indication that something is affecting the phytoplankton community in Meliadine Lake, CIRNAC recommends that AEM should conduct additional studies to determine the root cause of the algal blooms and determine whether the impact is the direct result of effluent discharge to Meliadine Lake.	
Environment and Climate Change Canada (ECCC)		
1.	*Radium-226 Units*	September 9, 2022
	• Confirm the units for Radium-226 as Bequerels/liter (Bq/L) or provide the conversion done for milligrams/liter (mg/L).	
2.	*Ammonia and Total Phosphorus in CP1*	September 9, 2022
	• Review the modeling for ammonia (NH_3) and total phosphorus (TP) in CP1 to identify the source of the discrepancy in observed vs predicted concentrations,	

	• Conduct limited winter sampling to identify TP levels under ice to validate the predicted spikes in TP concentrations due to cryoconcentration and/or internal recycling of phosphorus.	
3.	*AEMP Design Plan - Definitions for IC25 and QA/QC Blanks*	September 9, 2022
	• Correct definition for IC25 from *"inhibition concentration affecting 25% of tested organisms"* to *"effluent concentration that causes a 25% inhibitory effect in the sublethal endpoint being measured"*; • Revise the descriptions of travel and field blanks in the AEMP Design QA/QC section on page 44.	
4.	*AEMP Design Plan - QA/QC Blanks*	September 9, 2022
	• Clarify the use of QA/QC blanks, noting the different purposes between field and travel blanks.	
5.	*AEMP Design Plan - Low Action Levels – Phytoplankton Assessment Criteria*	September 9, 2022
	• Revise the Phytoplankton Assessment Criteria statement to specify "below" or "outside" rather than "beyond" the range of baseline/reference conditions and include the footnote (c).	
6.	*AEMP Design Plan - Proposed Action Levels for Nutrient Enrichment Hypothesis*	September 9, 2022
	• Amend the third condition to trigger Low Action Level for Water Quality presented in Table 8-3 of the *AEMP Design Plan* from *"Lake-wide average phosphorus concentration exceeds 75% of AEMP Benchmark"* to *"Near-field average phosphorus concentration exceeds 75% of AEMP Benchmark"*.	
7.	*Tissue Chemistry – Threespine Stickleback*	March 31, 2023
	• Considering that fish tissue results from MEL-01 in 2021 documented higher concentrations of calcium, arsenic, manganese, strontium, and uranium in Threespine Stickleback compared to the reference areas and compared to baseline tissue chemistry results from 2015, continued monitoring and evaluation of parameters that are showing consistent increases in biotic and abiotic components of the Meliadine Lake ecosystem.	
8.	*Acid Rock Drainage (Follow-up from 2020 report comments #5 and #6)*	March 31, 2023
	• Implement a monitoring plan to verify the conclusion that filtered tailings are classified as uncertain.	
9.	*Dustfall*	September 9, 2022
	• Assess the impact of the heavier 2021 summer precipitation on the reduced rate of dustfall.	
10.	*Relative Humidity*	September 9, 2022
	• Perform a quality assurance of the relative humidity data	

After completing the technical review of the 2021 Annual Report Submission for Water Licence No: 2AM-MEL1631, including the Management Plans listed above, the NWB has determined that the information provided generally addresses the requirements of current Water Licence. However, some information still needs to be provided to the Board in order for the 2021 Annual Report to be deemed acceptable. Please ensure the comments provided in the table above are addressed by the deadlines specified.

Additionally, the Board reviewed the following updated management plans, submitted on August 20, 2021:

- *Meliadine Interim Closure and Reclamation Plan (ICRP) - Update 2020, Final Report* – Revision 3, dated July 4, 2021;
- *Water Quality Management and Optimization Plan (WQMOP) - Progress Update Rev4b*, dated August 10, 2021;
- *Itivia Bulk Fuel Storage Facility Environmental Performance Monitoring Plan (IEPMP)* – Version 1, dated August 2021; and
- *Monitoring Plan for the Phase 1 AWAR between Rankin Inlet and the Meliadine Site (AWAR Monitoring Plan)* – Version 3, August 2021.

After completing the technical review of the *ICRP, WQMOP, IEPMP* and the *AWAR Monitoring Plan*, including the comments from the interveners, the Board determined that the information provided generally addresses the requirements of Water Licence No: 2AM-MEL1631 and the plans could be deemed acceptable.

Additionally, the NWB notes that the 2BB-MEL1424 2021 Annual Report was incorporated into the 2AM-MEL1631 2021 Annual Report. After completing a technical review of the Type B portion of the above-mentioned report, the Board found that the information provided addresses the requirements of Water Licence No: 2BB-MEL1424. The Board understands that during the reporting year, all effluent from the exploration camp Sewage Treatment Plant (STP) was transferred by truck either to the Main Camp STP for a secondary treatment or directly to CP1.

Should you have any questions, please feel free to contact the undersigned at (867) 360-6338 (extension 29) or sergey.kuflevskiy@nwb-oen.ca, at your earliest convenience.

Sincerely,

Sergey Kuflevskiy
Technical Advisor
NUNAVUT WATER BOARD

Enclosure: Comments – KivIA, CIRNA, ECCC

Cc: Distribution List – Meliadine