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NUNAVUT WATER BOARD  
NUNAVUT IMALIRIYIN KATIMAYINGI  
OFFICE DES EAUX DU NUNAVUT

**Files: 2AM-MEA1530, 2AM-WTP1830, 2BB-MEA1828**

August 24, 2020

Marie-Pier Marcil  
Environmental Project Coordinator Interim  
Agnico Eagle Mines Limited  
145 King Street East, Suite 400  
Toronto, ON M5C 2Y7

E-mail: [marie-pier.marcil@agnicoeagle.com](mailto:marie-pier.marcil@agnicoeagle.com)

**RE: Licences No: 2AM-MEA1530, Meadowbank Gold Mine Project;  
2AM-WTP1830, Whale Tail Pit Project; and  
2BB-MEA1828, Meadowbank Advanced Exploration Project;  
Agnico Eagle Mines Limited;  
2019 Annual Report Review**

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Dear Marie-Pier Marcil:

The Nunavut Water Board (NWB or Board) has completed a technical review of the 2019 Annual Report (the Report) for Type “A” Water Licences 2AM-MEA1530, 2AM-WTP1830, and 2BB-MEA1828 (Meadowbank Licence, Whale Tail Pit Licence, and Advanced Exploration Licence, respectively, or Licences). The Report was received on April 21, 2020 from Agnico Eagle Mines Limited (Agnico Eagle or Licensee), submitted as a requirement under Part B of the Licences, with additional information submitted by the Licensee on April 24, April 28, and May 4, 2020.

Copies of all documents received during Report review can be accessed through the NWB’s Public Registry and FTP site using the following links:

[ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-MEA1530%20Agnico/3%20TECH/1%20GENERAL%20\(B\)/2%20ANNUAL%20RPT/2019/](ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-MEA1530%20Agnico/3%20TECH/1%20GENERAL%20(B)/2%20ANNUAL%20RPT/2019/)

and

<ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-WTP1830%20Agnico/3%20TECH/B%20GENERAL/2%20ANNUAL%20RPT/>

On April 21, 2019, the NWB distributed the Report for public review, with additional information distributed on April 28 and May 6, 2020. Submissions were received from Kivalliq Inuit Association (KivIA), Crown-Indigenous Relations and Northern Affairs (CIRNA), and Environment and Climate Change Canada (ECCC) on July 6, 2020. The table below provides a brief summary of issues that were found outstanding during the Report review that pertain to the NWB’s mandate. The table

provides deadlines for the Licensee to respond to respective recommendations and concerns. For the intervenors' discussion of these items, please refer to the comment submissions referenced above.

No.	Licence No:	Intervener Recommendation / Concern	Deadline to Respond by and Notes
Kivalliq Inuit Association (KivIA)			
1	2AM-MEA1530	Describe what measures have been implemented to limit iron rich water from flowing from the downstream pond to the current and future receiving environment.	March 31, 2021 (2020 Annual Report)
2	2AM-WTP1830	Include adaptive management thresholds, triggers and responses pertaining to water levels in Mammoth Lake, and incorporate these into the Adaptive Management Plan for the Whale Tail site.	March 31, 2021 (2020 Annual Report).
3	2AM-MEA1530	Include explicit descriptions and planning for treatment of water in the flooded pits sufficient to meet CCME water quality guidelines and establish aquatic habitat.  Explore additional habitat offsetting opportunities should water quality modelling and measurements continue to indicate that the end pit lakes may not be viable habitat in the post closure environment without treatment.	March 31, 2021 (2020 Annual Report)
4	2AM-MEA1530	Continue monitoring water quality at ST-16 and in NP-2 for the full suite of parameters as outlined in Table 8-19 and Table 8-20 until WAD cyanide is measured below the detection limit for 5 consecutive years.	March 31, 2021 (2020 Annual Report)
5	2AM-WTP1830	Compare the results from the lakes in the receiving environment to a) historical monitoring data to identify if water quality is changing relative to the normal range, and b) Canadian Council of the Minister of Environment (CCME), <i>Water Quality Guidelines for the Protection of Freshwater Aquatic Life</i>	March 31, 2021 (2020 Annual Report)
6	2BB-MEA1828	All discharges regulated under MDMER should include acute and sublethal toxicity testing. These tests should be completed for all future discharges deemed to fall under the purview of MDMER by ECCC, and not just those which were predetermined under the water licence and project certificate	Subsequent annual reports
7	2AM-WTP1830	Future iterations of the water quality and load balance models, intended for submission as part of the 2020 Annual Report, to include additional sensitivity analysis scenarios focused on the potential for additional contact water. The Water Management Plan should also be updated for the Whale Tail site as part of the 2020 Annual Report to include mitigation options.	March 31, 2021 (2020 Annual Report)
8	2AM-	Provide rationale as to why average water quality	November 1, 2020

	WTP1830	<p>conditions were considered appropriate inputs for the water quality model for Mammoth, Nemo and Whale Tail Lakes as opposed to a more conservative percentile (e.g. 75<sup>th</sup>) of measurements.</p> <p>Future updates to the water quality and load balance models for the Whale Tail site to use the 75<sup>th</sup> percentile at minimum, and sensitivity analysis using the 95<sup>th</sup> percentile of measured values in those waterbodies.</p>	March 31, 2021 (2020 Annual Report)
9	2AM-WTP1830	<p>Clarify whether the water quality model assume complete flushing of Mammoth Lake each year (i.e. return to baseline concentrations) or whether the model accounts for interannual loading to the receiving environment.</p> <p>Ensure that all future water quality models account for interannual loading to the receiving environment.</p>	<p>November 1, 2020</p> <p>Subsequent annual reports</p>
10	2AM-WTP1830	Include the removal of snow from areas of concern (as defined in Section 2 of the 2020 Freshet Action Plan) as a specified activity in the 2020 Freshet Action Plan. The water quality and load balance models should be updated for the 2020 Annual Report using two scenarios related to freshet management.	March 31, 2021 (2020 Annual Report)
11	2AM-MEA1530, 2AM-WTP1830	Address sample contamination with a particular focus on ammonia and TKN in the field protocols implemented as part of the 2020 field programs across all sites.	March 31, 2021 (2020 Annual Report)
12	2AM-WTP1830	Address the reported divergences from modelled water quality in the project's receiving environment.	March 31, 2021 (2020 Annual Report)
13	2AM-WTP1830	Provide a discussion as part of the 2020 Mercury Monitoring Report as to whether Nemo Lake is still an appropriate reference site for use in assessing mercury concentrations at the Whale Tail project. Nemo Lake should no longer be considered a spatial reference location if it continues to receive discharges of contact water in volumes sufficient to qualify as a discharge location under MDMER; Nemo Lake may still be used as a temporal reference.	March 31, 2021 (2020 Annual Report)
14	2AM-WTP1830	Add total phosphorus to the analytical suite for the EEM program at the Whale Tail site.	November 1, 2020
15	2AM-MEA1530	Investigate whether any accredited labs are able to overcome the detection limit issue for dissolved metals, so that concentrations below the predicted values can be reliably measured.	November 1, 2020
16	2AM-MEA1530, 2AM-WTP1830	Discuss why hydraulic oil spills are so common at both mine sites and demonstrate what proactive steps will be taken. Compare the 2019 spill rate in comparison with patterns observed in previous	November 1, 2020

		years.	
17	2AM-MEA1530	Discuss the risk of dust being generated from the sulfur prill spills and subsequent clean up, and the possibility that it could become airborne and reach waterbodies. Explain what training operators receive in the proper handling of sulfur prill.	November 1, 2020
18	2AM-WTP1830	Provide details on the cause of and corrective action taken for the fecal coliform exceedance.	November 1, 2020
19	2AM-MEA1530	Provide monthly precipitation records for 2019. Clarify the cause of the significant increase in pumped volume in 2019, with evidence. Explain when the calibrated flowmeter will be installed and what the monitoring regime will be.	November 1, 2020
20	2AM-MEA1530, 2AM-WTP1830	Re-format the table with commitments to ensure that all text can be read and comments can be easily referenced.	March 31, 2021 (2020 Annual Report)
21	2AM-WTP1830	Clarify why 50% is an appropriate standard for relative percent difference analysis of surface water samples, given that CCME recommend lower values.	November 1, 2020
22	2AM-MEA1530	Incorporate metal precipitation into the forecasting model for the TSF Reclaim Ponds.	March 31, 2021 (2020 Annual Report)
23	2AM-MEA1530	Discuss possible reasons for the deviations from previous year average concentrations measured in mill effluent for nickel and selenium in 2019.	November 1, 2020
24	2AM-MEA1530	Discuss when different treatment options will be tested for the Reclaim Pond and Portage and Goose Pits.	November 1, 2020
25	2AM-WTP1830	Explain why TSS exceeded limits in May, August and October, and why turbidity exceeded limits in October. Please clarify what a punctual event is.	November 1, 2020
26	2AM-WTP1830	Discuss whether reducing the flow rate (to below the swimming speed of stickleback) would be a feasible mitigation measure to prevent future harm to fish.	November 1, 2020
27	2AM-MEA1530	Explain why the quality of the data is deemed to be good in the Groundwater Monitoring Report. Provide a discussion of the implications low precision groundwater quality data may have on the water quality predictions for the site.	November 1, 2020
28	2AM-MEA1530	Discuss why there was 113% increase in total cyanide mean annual concentrations in groundwater samples between 2018 and 2019 and whether this indicates an effect of in-pit tailings deposition on groundwater quality.	March 31, 2021 (2020 Annual Report)
41	2AM-WTP1830	Develop a road dust best management practices document that lays out the rules and mitigation measures that can be used to reduce dust generation from the Whale Tail haul road.	March 31, 2021 (2020 Annual Report)
44	2AM-WTP1830	Clarify how much more rapidly the alert level has been raised once an anomaly is detected or inferred	November 1, 2020

		at the Waste Rock Storage Facility, especially given the close proximity to Mammoth Lake.	
45	2AM-MEA1530, 2AM-WTP1830	Indicate how the additional explosives may have impacted water quality in the contact water ponds for the open pits and WRSF. In particular, the ammonia content.	November 1, 2020
<b>Crown-Indigenous Relations and Northern Affairs (CIRNA)</b>			
1	2AM-WTP1830	Conduct an assessment of its designs for the Whale Tail Pit Project water retention structures to identify and improve these designs, construction, and operational process that may have contributed to the lower than expected performance at the Whale Tail site.	March 31, 2021 (2020 Annual Report)
2	2AM-MEA1530, 2AM-WTP1830	Continue analysis of the thermal monitoring, mine waste and cover systems, and any permafrost degradation to update their thermal modelling predictions, and the Waste Rock and Tailings Management Plans for Meadowbank and Whale Tail sites. The result should be reported in the 2020 annual report and subsequent annual reports.	March 31, 2021 (2020 Annual Report)
3	2AM-WTP1830	Continue to monitor dike dewatering, especially between May and October, to identify the cause of the high TSS, and implement prevention measures to prevent TSS exceedances in the future.	March 31, 2021 (2020 Annual Report)
<b>Environment and Climate Change Canada (ECCC)</b>			
6	2AM-MEA1530	Base the duration of pore water monitoring on the potential for further movement of contaminants, as well as monitoring results, rather than a fixed timeframe.	March 31, 2021 (2020 Annual Report)
7	2AM-MEA1530	Clarify or correct the data anomalies identified for Table 8-19.	November 1, 2020
8	2AM-MEA1530	Discuss whether the recommendations provided in Section 6.2 (Recommendations for future groundwater monitoring) of the 2019 Groundwater Monitoring Report will be implemented in the next groundwater monitoring report.	November 1, 2020
9	2AM-MEA1530	Refer to the CCME guidelines as guidelines rather than limits or criteria, which implies a regulatory basis.	Subsequent annual reports
10	2AM-MEA1530	Discuss the feasibility of treating reclaimed water earlier in the mine operations, e.g. segregating high-concentration water and treating to remove contaminants.	March 31, 2021 (2020 Annual Report)
11	2AM-MEA1530	Include the dissolved guidelines for zinc and manganese in the tables in Appendix 22.	March 31, 2021 (2020 Annual Report)

The NWB notes that Agnico Eagle submitted the following updated management plans with the 2019 Annual Report. The plans address the requirements of the Licences.

Licence No.	Management Plan
2AM-MEA1530	<ul style="list-style-type: none"> <li>• 2019 Water Management Plan dated March 2020;</li> <li>• Pore Water Quality Monitoring Program dated March 2020;</li> <li>• 2019 Mine Waste Rock and Tailings Management Plan dated March 2020;</li> <li>• Groundwater Monitoring Plan dated March 2020;</li> <li>• Meadowbank Interim Closure and Reclamation Plan dated March 2020.</li> </ul>
2AM-WTP1830	<ul style="list-style-type: none"> <li>• Water Management Plan dated March 2020;</li> <li>• Waste Rock Management Plan dated March 2020;</li> <li>• Hazardous Materials Management Plan - Meadowbank Mine Site, Whale Tail Pit Site, Baker Lake Facilities dated March 2020;</li> <li>• Thermal Monitoring Plan dated March 2020;</li> <li>• Groundwater Monitoring Plan dated March 2020;</li> <li>• Landfill and Waste Management Plan dated March 2020.</li> </ul>
2AM-MEA1530 and 2AM-WTP1830	<ul style="list-style-type: none"> <li>• Oil Pollution Emergency Plan dated March 2020;</li> <li>• Aquatic Effects Management Program Meadowbank and Whale Tail Projects dated March 2020;</li> <li>• Quality Assurance / Quality Control (QA/QC) Plan dated March 2020;</li> <li>• Meadowbank and Whale Tail Spill Contingency Plan dated February 2020.</li> </ul>

In addition, the Licensee provided the following management plans on July 12, 2020 in accordance with Part B, Item 15 of the Whale Tail Pit Licence 2AM-WTP1830 that are currently undergoing public review:

- Quality Assurance / Quality Control (QA/QC) Plan dated July 2020;
- Spill Contingency Plan dated July 2020;
- Emergency Response Plan dated June 2020;
- Interim Closure and Reclamation Plan dated July 2020;
- Hazardous Materials Management Plan dated July 2020;
- Water Management Plan dated July 2020; and
- Waste Rock Management Plan dated July 2020.

The Board also notes that Part H, Item 2 of the Advanced Exploration Licence requires the Licensee to submit an updated document entitled “Amaruq and GOT Exploration Projects Spill Contingency Plan” dated August 2019 on or before July 18, 2020. To date, the NWB has not received the required information.

If you have any questions, please contact the undersigned at [assol.kubeisinova@nwb-oen.ca](mailto:assol.kubeisinova@nwb-oen.ca) or (867) 360 6338.

Best regards,



Assol Kubeisinova  
Nunavut Water Board  
Technical Advisor

CC: Distribution list - Meadowbank

Attachments: KivIA, CIRNA, ECCC