

basis, with both the NWB and the NIRB for modifications to Agnico Eagle's long-term water management at the Meliadine Gold Mine site. For the clarity of all reviewers, the attached NIRB Report is limited to comments about the activities completed by Agnico Eagle in relation to the Emergency Amendment and the changes to general site water management permitted through Emergency Amendment No.1 to the Type "A" Water Licence 2AM-MEL1631.

Please also find enclosed Agnico Eagle's *Final Report* for your reference. All documents associated with the emergency undertaking can be accessed via the NIRB's public registry at www.nirb.ca/project/125582.

Sincerely,



Tara Arko
Director, Technical Services
Nunavut Impact Review Board

cc: The Honourable Bernadette Jordan, P.C., Minister of Fisheries and Oceans and the Canadian Coast Guard
Sharon Ehaloak, Nunavut Planning Commission
Stephanie Autut, Nunavut Water Board
Alasdair Beattie, Fisheries and Oceans Canada
Jamie Quesnel, Agnico Eagle Mines Limited
Michel Groleau, Agnico Eagle Mines Limited

Attachment (1): Nunavut Impact Review Board Report on Agnico Eagle Mines Limited's Emergency Amendment No. 1 to the Type "A" Water Licence No. 2AM-MEL1631 for the Meliadine Gold Mine Project, NIRB File No. 19WA007 (*October 8, 2021*)

Enclosure (1): Meliadine Gold Project 2020 Emergency Amendment Report (*April, 2021*)



Nunavut Impact Review Board

Report on Agnico Eagle Mines Limited’s (Agnico Eagle) Emergency Amendment No. 1 to Type “A” Water Licence No. 2AM-MEL1631 for the Meliadine Gold Mine Project NIRB File No. 11MN034, Project Certificate No. 006

October 8, 2021

On May 12, 2020 the Minister of Northern Affairs certified that pursuant to s.152(1)(c) of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 (*NuPPAA*) an emergency existed in relation to Agnico Eagle Mines Ltd.’s (Agnico Eagle) application for “Emergency Amendment No. 1 to the Type “A” Water Licence No. 2AM-MEL1631 for the Meliadine Gold Mine Project” (the Emergency Amendment), and activities should be carried out without delay in the interest of protecting property and the environment. Following completion of the activities authorized under the Emergency Amendment, Agnico Eagle engaged with the Nunavut Impact Review Board (NIRB or Board), and on April 16, 2021 the NIRB received a *Final Report* from Agnico Eagle related to the emergency situation, including a copy of the NWB Type “A” Water Licence 2AM-MEL1631 Amendment No. 1, and Water Quality Management and Optimization Plan.

The NIRB has prepared this Report under s. 152(4) of the *NuPPAA* to acknowledge receipt of Agnico Eagle’s *Final Report* on the emergency activities. All documents associated with the Emergency Amendment can be accessed on the NIRB’s public registry at www.nirb.ca/project/125582.

PROCEDURAL HISTORY

Although the focus of this Report is on the NIRB’s assessment of activities conducted by Agnico Eagle under the Emergency Amendment application, while those activities were on-going, there were two other regulatory applications submitted by Agnico Eagle seeking additional changes to Water Licence 2AM-MEL1631 and the Meliadine Gold Mine Project as previously approved by the NIRB under Project Certificate No. 006. As the scope of activities under these two subsequent regulatory applications involved changes to Agnico Eagle’s on-site water management plans,

including the timing, process and extent of discharges from on-site containment ponds into Meliadine Lake (the primary activity within the scope of the Emergency Amendment), there was some overlap between the activities, adaptive management measures and monitoring associated with the Emergency Amendment, and the two other regulatory applications before the Nunavut Water Board and the NIRB. Accordingly, the Board has included a summary of the procedural histories associated with both the Emergency Amendment and the two other applications below.

Amendment No. 1 to Type “A” Water Licence No. 2AM-MEL1631 (Emergency Amendment)

On March 24, 2020 Agnico Eagle submitted an application to the Nunavut Water Board (NWB) with a request to amend the existing Type “A” Water Licence No. 2AM-MEL1631 (the Water Licence) on an emergency basis, to authorize the time-limited release of effluent to Meliadine Lake that exceeded the total dissolved solids (TDS) concentration limits prescribed under the Water Licence. Agnico Eagle indicated that the discharge was urgently required to protect the integrity of the site water management infrastructure during the May 2020 spring freshet.

The pre-licensing requirements involving a land use plan conformity review by the Nunavut Planning Commission and impact assessment by the Nunavut Impact Review Board that would normally be associated with an amendment to a Type “A” water licence under the *NuPPAA* did not apply to the NWB’s processing of the Emergency Amendment because the NWB determined (and the Minister subsequently certified) that an emergency existed and that, to ensure the health and safety of the public and to protect property and the environment, the activities must be carried out without delay. The urgent processing of the Emergency Amendment by the NWB also meant that the NWB waived the requirements for a specified public comment period and public hearing requirement that would otherwise be associated with an amendment to the Water Licence.

On April 29, 2020 the NWB issued its Reasons for Decision in respect of the Emergency Amendment and requested that the Minister of Northern Affairs consent to the NWB’s processing of the amendment application on an emergency basis and recommended that the Minister issue Emergency Amendment No. 1 to the Water Licence.

On May 12, 2020, the Minister of Northern Affairs issued correspondence that:

- Certified the NWB’s declaration that an emergency situation existed under s.152(1)(c) of the *NuPPAA*;
- Approved the issuance of “Emergency Amendment No. 1 to the Type “A” Water Licence No. 2AM-MEL1631 for the Meliadine Gold Mine Project”; and
- Indicated that the activities included within the scope of the Emergency Amendment should be carried out without delay in the interest of protecting property, human health and the environment.

Amendment No. 2 to Type “A” Water Licence No. 2AM-MEL

After the Minister’s approval of the Emergency Amendment, Agnico Eagle submitted a separate application to the NWB in August 2020, to further amend the Type “A” Water Licence 2AM-MEL1631, primarily to propose longer-term changes to the water use and water management at the Meliadine Gold Mine Project to address the issues which contributed to the emergency situation and to update Agnico Eagle’s overall site water management practices. The proposed changes included increased TDS limits for contact water discharge to the receiving environment, as well as adaptive management strategies for management of site contact water. The changes to discharge activities were proposed as a long-term strategy to effectively manage site water and limit the potential for future emergency scenarios. This amendment was processed in accordance with the normal pre-licensing requirements under *NuPPAA*. Following public review and comment, including an in-person Public Hearing, on May 13, 2021 the NWB issued Reasons for Decision to the Minister of Northern Affairs and recommended the Minister approve Amendment No. 2 to Type “A” Water Licence 2AM-MEL1631.

The NIRB’s Reconsideration of Project Certificate No. 006 Associated with the Assessment of the “Saline Effluent Discharge to Marine Environment” Proposal

In addition to the two NWB licence amendment processes described above, on April 7, 2020 Agnico Eagle provided notice to the NIRB of changes to the previously-approved Meliadine Gold Mine Project (NIRB File No. 11MN034) as described in the “Saline Effluent Discharge to Marine Environment” Proposal (the Waterlines Proposal). The Waterlines Proposal included changes to the existing Project to install two waterlines to transport saline groundwater (saline effluent) between the mine and Itivia Harbour, and seeking authorization to increase the amounts of saline water to be discharged from the Meliadine Gold Mine. The Waterlines Proposal also indicated that the waterlines may be used by Agnico Eagle to receive treated surface contact water (including from the containment ponds at the mine site that were the sources of the discharges into Meliadine Lake authorized under the Emergency Amendment). Agnico Eagle indicated that this use of the waterlines to also carry surface contact water for discharge into the marine environment was justified as a key component of the overall water management strategy for the Meliadine Gold Mine Project and allow the necessary flexibility to adaptively manage both saline effluent and surface contact water. In June 2020, the Board determined that the changes proposed under the Waterlines Proposal were significant, and a reconsideration of the terms and conditions of Project Certificate No. 006 was required to assess the potential for ecosystemic effects of the proposed waterlines. The NIRB’s consideration of the Waterlines Proposal was not completed prior to the NWB’s consideration of the Emergency Amendment, and, as indicated by the NWB in its Reasons for Decision issued April 29, 2020 for Water Licence 2AM-MEL1631 Emergency Amendment No. 1t:

The Board [NWB] notes that the activities approved under this [Emergency] Amendment do not include changes to the management and discharge of saline groundwater into the marine environment recently proposed by Agnico Eagle and

currently being considered under a separate application that was filed with the Nunavut Impact Review Board (NIRB File No. 11MN034).

On July 30, 2021, the NIRB completed the assessment of the Waterlines Proposal and issued the Board's Reconsideration Report and Recommendations to the Minister of Northern Affairs for consideration and decision-making.¹ The NIRB recommended that the Waterlines Proposal be allowed to proceed subject to eleven (11) revisions and the addition of three (3) new Terms and Conditions in Project Certificate No. 006.

TECHNICAL ASSESSMENT

In accordance with s. 152(4) of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 (*NuPPAA*) this correspondence acknowledges receipt of Agnico Eagle's *Final Report* on the activities carried out under the Emergency Amendment and highlights the key issues raised by Agnico Eagle within its *Final Report*.

From the materials received by the NIRB to date detailing the undertakings associated with the Emergency Amendment, the scope of activities and components included:

- Time-limited discharge (May 2020 – October 2020) of effluent from Containment Pond 1 (CP1) into Meliadine Lake with an increase in the exceedance limit of total dissolved solids from 1,400 mg/L to 3,500 mg/L for the maximum average concentration;
- Continued use of existing infrastructure for dewatering of CP1; and
- Additional water quality monitoring at Meliadine Lake.

To provide a procedure for determining acceptable discharge criteria and an in-lake monitoring benchmarks in Meliadine Lake, Agnico Eagle developed a Water Quality Management and Optimization Plan, in a phased approach. Each phase was reviewed by the NWB, Kivalliq Inuit Association (KivIA), Environment and Climate Change Canada (ECCC), and Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) and resulted in the following:

- a. Phase 1: recommended TDS discharge criteria up to 3,500 mg/L and in-lake monitoring benchmark of 1,000 mg/L at 100 metres (m) from the discharge location, during the 2020 discharge season;
- b. Phase 2: detailed the validation studies specific to the emergency amendment, which commenced in conjunction with the release of discharge; and
- c. Phase 3: confirmed the following benchmarks:

¹ Public Registry: www.nirb.ca/project/125515 Document ID: 336375

- i. A maximum average concentration of TDS of 3,500 mg/L and a maximum grab concentration of TDS of 5,000 mg/L for discharge from CP1 to Meliadine Lake; and
- ii. A benchmark concentration of TDS of 1,000 mg/L to be achieved at the edge of the mixing zone at 100m from the discharge location in Meliadine Lake.

As part of the water quality monitoring of Meliadine Lake and water management activities at CP1, Agnico Eagle established a Water Management Working Group to meet and review data related to the emergency amendment throughout the discharge period.

Within the *Final Report* and associated materials provided by Agnico Eagle to the NIRB, the NIRB notes the following key monitoring results:

- Water column profile monitoring of specific conductivity near the discharge point showed that the discharge dispersed rapidly but could be identified in the lower portions of the water column.
- The discharge was more apparent in the water column at the edge of the mixing zone during ice cover conditions, and in open water conditions, during periods of higher discharge rates and higher TDS concentrations. During other periods of discharge, the discharge was not discernible at the edge of the mixing zone.
- The TDS limit was set below the limits within the *Guideline for Canadian Drinking Water Quality* (Health Canada, 2010), and all discharge was found to be within these water quality guidelines.
- Weekly acute toxicity testing indicated that the discharge was not acutely toxic to Rainbow Trout or *Daphnia magna*.
- Chronic toxicity testing determined that, overall, discharge did not result in unacceptable chronic toxicity at the edge of the mixing zone. Sporadic mortality occurred during the *Pimephales promelas* (fathead minnow) testing, likely due to bacterial and fungal growth in the water. One occasion of chronic effects to *Lemna minor* (common duckweed) was observed; however, these effects were not seen throughout the monitoring period.
- To ensure ongoing community updates, Agnico Eagle provided a summary of monitoring data and evaluation to the public through a variety of public access forums. Messaging surrounded results of monitoring, levels of discharge, and safety of the water to freshwater species and human consumption. These messages were broadcast and uploaded to the Mine's public-access website and other social media platforms.

Through the NIRB's review of the *Final Report* and associated materials, the NIRB notes that components of the environment that could be impacted by this undertaking included: freshwater resources, freshwater aquatic biota, birds, other wildlife and their habitat. Agnico Eagle has provided information on the resources that have the potential to be most affected by the project

(i.e., fish and fish habitat) and quality of water for human consumption. As water quality outside of the mixing zone was determined to be safe for aquatic organisms and below the aesthetic objective in the *Guidelines for Canadian Drinking Water Quality* [Health Canada 2010], impacts to birds and other wildlife should be limited.

RECOMMENDATIONS

At this time, acknowledging that there were regulatory mechanisms in place to manage and monitor the activities carried out under the Emergency Amendment, and recognizing that the Water Licence for the Meliadine Gold Mine Project has since been amended (Amendment No. 2 to Water Licence No. 2AM-MEL1631) to allow increased TDS levels to be discharged, the NIRB does not recommend any additional terms and conditions specific to the emergency undertaking. In relation to the ecosystemic and socio-economic aspects of the activities associated with the Emergency Amendment, the NIRB offers additional discussion of the following topics for Agnico Eagle's consideration:

Chronic Toxicity

The NIRB appreciates the increased aquatic toxicity monitoring that occurred in Meliadine Lake throughout the discharge period. This monitoring indicated that there were no widespread acute or chronic toxicity effects due to the increase in TDS levels of water discharged from CP1 to Meliadine Lake. However, the NIRB notes that there were a few instances of chronic toxicity effects being observed in fathead minnow and common duckweed. Although the observed effects to fathead minnow were noted as likely due to bacterial and fungal contamination and there was only one occurrence of an effect to common duckweed in one sampling period, continued tracking of chronic effects will be critical to ensure that there is no sublethal effects of the increased TDS in the discharged water. Continued chronic toxicity testing is mandated under the *Metal and Diamond Mining Effluent Regulations* (SOR/2002-222) and ongoing monitoring in Meliadine Lake will occur under the Agnico Eagle's Aquatic Ecosystem Monitoring Program. As such, the NIRB looks forward to being provided with the results of ongoing chronic toxicity monitoring results and associated discussion as Agnico Eagle is now permitted to release water at the increased TDS concentration included in Amendment No. 2 to the Water Licence.

Community Engagement

Meliadine Lake is an important source of water for community members and changes, whether real or perceived, to drinking water quality is an important factor to consider in human health and traditional land use activities, as is the perception of quality of fish harvested from Meliadine Lake with the increase to the TDS limits. The NIRB acknowledges that increased monitoring of water quality occurred throughout the discharge period under the Emergency Amendment, as well as required ongoing monitoring of Meliadine Lake water quality, not only for aquatic life but also for human consumption. The NIRB notes the efforts documented by Agnico Eagle to inform the community and complete a community update campaign during discharge, providing key

messages about water quality monitoring and safety of discharge to the aquatic environment. While advance notice to the community of discharges that occur in emergency situations is not required under s. 55(5) of the *Nunavut Waters and Nunavut Surface Right Tribunal Act*, S.C. 2002, c. 10, because Meliadine Lake has been noted as very important to the community, the NIRB has heard² that engagement with the community of Rankin Inlet as soon as practicable will be necessary to address community concerns regarding water quality in and around the project area. The NIRB stresses the importance of this communication and urges Agnico Eagle to be proactive in engagement and use of visual supports or models to ensure community members understand project activities, potential impacts, mitigation and monitoring measures. This is especially important when multiple but separate regulatory approval processes are ongoing.

CONCLUSION

Considering the above discussion and recommendations, the NIRB respectfully submits this Report to the Minister's office. The *Final Report* and associated materials will be considered by the NIRB to inform ongoing monitoring of the receiving environment in Meliadine Lake and general monitoring of the Meliadine Gold Mine Project, within the NIRB's mandate. The NIRB will also continue to work with Agnico Eagle to ensure that the appropriate mitigation plans, and monitoring reports are filed to inform monitoring activities. The Board appreciates Agnico Eagle providing the relevant and necessary information required to inform the Board of the activities carried out under the Emergency Amendment and associated monitoring as required under s.152(2) of the *NuPPAA*. This information is central to the Board's ability to fulfill our responsibilities under s. 152(4) of the *NuPPAA* to consider whether specific recommendations in respect of the emergency undertaking or future monitoring efforts are required and to prepare this summary Report for the consideration of the responsible Minister.

² 2020 Community Information Session Summary Report for the NIRB's assessment of Agnico Eagle Mines Limited's "Saline Effluent Discharge to Marine environment" Project Proposal Related to Meliadine Gold Mine Project, Nunavut Impact Review Board, Public Registry www.nirb.ca/project/125515, Doc ID No. 332014/332072