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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No: 2AM-MEL1631/
Amendment No. 1

August 21, 2020

Chris Kanaan

Email: chriskanaan@yahoo.com

Subject: Type "A" Water Licence No: 2AM-MEL1631 Emergency Amendment, Agnico Eagle Mines Limited, Meliadine Project

Dear Mr. Kanaan:

Thank you for providing your questions regarding the background to the water licensing process surrounding the Nunavut Water Board's (NWB or Board) issuance of the Emergency Amendment to Water Licence No: 2AM-MEL1631 (Emergency Amendment).

Overall, the NWB would like to clarify that the Emergency Amendment was a time-limited approval for the discharge of effluent from the Containment Pond 1 (CP1) into Meliadine Lake commencing in the spring freshet 2020. The focus of the Emergency Amendment was to respond to the urgent circumstances resulting from the need to discharge water that was predicted to exceed the Total Dissolved Solids (TDS) levels established for discharge into Meliadine Lake on an emergency basis. In support of the Emergency Amendment, the NWB required evidence that demonstrated that the effluent planned to be discharged would be non-toxic.

With respect to your first question about the NWB accepting Agnico Eagle's evidence "against the will of the Kivalliq Inuit Association (KivIA)", the NWB does not view that statement as an accurate reflection of the discussions with intervenors surrounding the Emergency Amendment. During the teleconference hosted by the NWB to consider the technical review comments of parties about the Emergency Amendment conducted by the NWB on April 16, 2020, all parties questioned why the discharge from CP1 was the only reasonable course of action and enquired about the source of high TDS. In addition, all parties, including the KivIA, agreed that urgent circumstances existed and that the discharge from CP1 was required during the 2020 spring freshet to avoid the potential for damage to Agnico Eagle's water management infrastructure. The KivIA did not dispute that the immediate discharge from CP1 was required during the 2020 spring freshet, and also acknowledged that an amendment to the existing Water Licence was required on an

emergency basis to allow for this discharge. The development of a longer-term strategy for managing effluent was not part of the Emergency Amendment, which was issued in the short term only to avoid the failure of containment of the water held in CP1, which could have resulted in harm or damage to the environment, to human health or to safety.

In terms of the consideration of a longer-term strategy for managing this effluent, the NWB and parties indicated to Agnico Eagle that in any future application they wished to submit to seek more permanent amendment to the Licence to better manage water volumes on-site Agnico Eagle would be required to provide more information on the source(s) of the high TDS and the rationale as to why the discharge of this effluent into Meliadine Lake is the only feasible course of action, as well as providing additional information regarding the status of all water management infrastructure.

As to the Saline Water Treatment Plant (SWTP) issues raised in your email, Agnico Eagle has informed the NWB and other intervening parties that the inflow rates of the Saline Water into the underground mine have increased significantly when stoping within the cryopeg began in 2019, and that the SWTP started experiencing some issues at that time. However, it is important to note that the CP1 effluent is treated at the Effluent Water Treatment Plant (EWTP), and not at the SWTP. Additionally, Agnico Eagle has stated to all parties that the untreated Saline Water never goes to CP1 and only reports to the designated Saline Ponds.

With respect to your second question about enforcement, under Nunavut's integrated regulatory system the NWB is the licensing authority responsible for the issuance and administration of licences, and does not have enforcement powers. The enforcement of licence terms and conditions is the responsibility of Crown-Indigenous Relations and Northern Affairs (CIRNA). The enforcement powers of CIRNA's inspectors are set out in ss. 85-89 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, S.C. 2002, c. 10.

With respect to your third question about the toxicity of the effluent, because Total Dissolved Solids (TDS) as a general criterion consists of a composite of ions in the mixture, the toxicity of a given TDS mixture depends largely on the specific composition of ions within the mixture, rather than the total TDS concentration. Consequently, the TDS concentrations in a particular effluent stream, without information about the specific composition of ions in the mixture is not, on its own, an accurate predictor of toxicity. The NWB understands that the TDS limits from the Red Dog Mine in Alaska that you referenced, were developed to reflect effluent where the ions in the TDS were predominantly made up of calcium sulphate ions. This is not similar to the composition of effluent in CP1. As discussed during the NWB's technical review of the Amendment, the TDS composition in the effluent in CP1 is comprised of predominantly sodium chloride and calcium chloride ions.

Additionally, you should be aware that the 1,500 mg/L TDS limit set for the Red Dog Mine in Alaska cannot be compared with the 3,500 mg/L TDS limit referenced in the Emergency Amendment, as the point at which the two limits is measured is different. The TDS limit of 3,500 mg/L in the Emergency Amendment is measured at the "end-of-pipe" at the Meliadine site (MEL-14), whereas the 1,500 mg/L limit as referenced in your email for the Red Dog Mine is a TDS limit measured at the edge of the mixing zone. The comparable edge of the mixing zone TDS limit

proposed by Agnico Eagle and adopted by the NWB and other interveners during the NWB's teleconference on April 16, 2020 to consider the Emergency Amendment, is actually lower than the Red Dog Mine limit and is 1,000 mg/L.

In terms of your question regarding the other mines in North America that allow such levels of TDS effluent to be discharged into a freshwater lake, during the NWB's consideration of the Amendment, the example of the Snap Lake Mine in the Northwest Territories was discussed, which currently has a site-specific water quality objective (SSWQO) for TDS at the edge of the mixing zone set at 1,000 mg/L. The TDS ionic composition at the Meliadiane resembles the ionic composition evaluated during the validation of the Snap Lake TDS SSWQO. As discussed during the establishment of the 1,000 mg/L SSWQO by Chapman[1], the adoption of the 1,000 mg/L SSWQO for Snap Lake's effluent, which is similar in composition to the effluent being discharged from CP1, was considered to be protective of aquatic life. The results of toxicity testing did not indicate that TDS above 1,000 mg/L TDS would result in harm to aquatic life, and also expressed *"reasonable certainty of no harm up to 1,000 mg/L"*. This information suggests that the TDS mixture discharged from CP1 into Meliadine Lake at the edge of the mixing zone would not exhibit chronic toxicity from TDS components at concentrations below 1,000 mg/L of TDS.

With respect to your concern about whether Agnico Eagle may have already requested a longer-term amendment of the TDS discharge criteria into Meliadine Lake, the NWB has not received an amendment application seeking this change to date. If such an application were received, the NWB's normal processing of the application would include several opportunities for interested parties, including members of the public, to provide comment about the amendment application and to participate in Board proceedings such as Technical Meetings, a Pre-Hearing Conference and some form of Public Hearing. Although public health measures to prevent the transmission of COVID-19 in place in Nunavut have required the NWB to consider alternatives to our normal practices for conducting in-person meetings in communities, with the increases to limits on public gatherings issued by public health authorities, the Board is hopeful that modified in-person meetings in communities will be possible in future.

In closing, the NWB understands the concerns of the community and other interested members of the public regarding the potential for effects on water quality from discharges into Meliadine Lake. To monitor for potential effects, a specific enhanced monitoring program was developed by Agnico Eagle that is being carried out throughout the 2020 Discharge. This program, as modified to reflect the recommendations of the KivIA, CIRNA, and Environment and Climate Change Canada (ECCC), was incorporated into terms and conditions added to the Licence to authorize the Emergency Amendment. Additionally, a specific Water Management Working Group consisting of the KivIA, CIRNA, ECCC, and NWB was established following the Emergency Amendment to supervise the 2020 Discharge and implementation of the Monitoring Program through ongoing teleconferences with the Water Management Working Group.

[1] Chapman P.M. 2014. *Snap Lake Mine: Additional toxicity testing to determine site-specific water quality objective for total dissolved solids in Snap Lake*. Technical Memorandum. Yellowknife, NWT.

I trust this information responds to your e-mail. Please let me know if you have any other questions or concerns. If you have not already done so, I invite you to contact Richard Dwyer, the NWB's Manager of Licensing, at richard.dwyer@nwb-oen.ca and ask to be placed on the NWB's Distribution List for the file so that you can receive any future application materials, monitoring reports, comment submissions from parties and notices and direction from the NWB regarding the Water Licence and amendments.

Sincerely,

NUNAVUT WATER BOARD

Stephanie Autut
Executive Director

cc: Richard Dwyer – Manager, Licensing

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