



## KIA Lands Department Scope Assessment

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**LICENCE:** NIRB File No.: 11MN034

**DATE:** May 8, 2020

**SUBJECT:** Scope Review – Meliadine Saline Effluent Discharge

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### SUMMARY

The Nunavut Impact Review Board (“NIRB”) has requested comments and advice to the Board on two proposals advanced by Agnico Eagle Mines Ltd. (“**Agnico Eagle**”) with respect to the Meliadine Gold Mine Project:

1. the proposed “2020 Saline Discharge Strategy” to truck additional saline effluent to Itivia Harbour for discharge into Melvin Bay during the summer of 2020; and
2. the “Saline Effluent Discharge to Marine Environment”<sup>1</sup> (“**Waterline Proposal**”) focused on developing a waterline to convey saline effluent to replace the currently approved trucking method.

NIRB seeks comments about whether or not these two proposals are significant modifications to the existing Meliadine gold mine project authorized under Meliadine Project Certificate No. 006, modified by a 2018 Addendum<sup>2</sup> which permitted saline groundwater discharges into Melvin Bay of up to 800 m<sup>3</sup>/day. Both proposals are a means of expanding the rate of saline discharge into the marine environment beyond what is currently authorized by the Project Certificate.

The Kivalliq Inuit Association (“**KivIA**”) appreciates this opportunity to provide comments and advice on these two proposals. Below are responses to the five questions posed by NIRB. The details related to these responses are provided on pages 3 to 8 of this technical memo. All documents and correspondence submitted to the NIRB related to these two proposals are outlined in the Background section on pages 9 to 11.

With respect to the **2020 Saline Discharge Strategy**, the NIRB has asked for responses to the following questions:

- 1) Whether the scope of the proposed 2020 Saline Discharge Strategy was included within the scope of what was previously assessed for the approved project.

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<sup>1</sup> Nunavut Impact Review Board. April 14, 2020. Request for Comments on Agnico Eagle Mines Limited’s “2020 Saline Discharge Strategy” Proposal related to the Meliadine Gold Mine Project, and “Saline Effluent Discharge to Marine Environment” Amendment for the Meliadine Gold Mine Project.

<sup>2</sup> Nunavut Impact Review Board, Reconsideration Report and Recommendations, Saline Effluent Discharge to Marine Environment Proposal, Agnico Eagle Mines Limited, NIRB File No. 11MN034, October 31, 2018 (the 2018 Saline Effluent Discharge Proposal). Public Registry ID: 320879



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- 2) Whether the proposed modification constitutes a significant modification to the project previously assessed.

KivIA has the following responses to the NIRB questions:

- 1) The shorter term 2020 Saline Discharge Strategy is outside the scope of what has been previously assessed for the approved NIRB Project Certificate Number 006.
- 2) The shorter term 2020 Saline Discharge Strategy modification does constitute a significant modification to the project previously assessed.

With respect to the **Waterline Proposal**, the NIRB has asked for a response to the following questions:

- 1) Whether the proposed modification constitutes a significant modification to the original project as previously assessed and subsequently modified and approved by the NIRB;
- 2) Whether the proposed modification is consistent with the terms and conditions of the existing Project Certificate No. 006, Amendment 1, or are changes to the Project Certificate necessary to reflect the modification; and
- 3) Any matter of importance to the commenting party related to the Board's processing of the project proposal.

KivIA has the following responses to the NIRB questions:

- 1) The Waterline Proposal does constitute a significant modification to the original project as previously assessed and subsequently modified and approved by the NIRB.
- 2) The proposed modification will require changes to the Project Certificate necessary to reflect the modification, and
- 3) KivIA has identified the following four additional matters of importance related to the Board's processing of the project proposal which speak to the need for further review:
  - a. The COVID-19 pandemic creates unique and important concerns with the Waterline Proposal, particularly during the construction phase scheduled to begin in August 2020. Further assessment of the Waterline Proposal by NIRB should clarify how Agnico Eagle will implement public health precautions. A failure to assess and mitigate these epidemiological risks could create a legitimate emergency.
  - b. Agnico Eagle has outlined socioeconomic benefits and impacts in the Waterline Proposal, the bulk of which are predicted to coincide with the commencement of construction in August 2020. These require full participation of Kivalliqmiut Inuit to be realized. Additional assessment is required to determine whether the socioeconomic impacts and benefits as outlined in the proposal continue to be valid during the COVID-19 pandemic.
  - c. KivIA's Lease for Inuit-Owned Lands KVRW11F02 (the "**KivIA Lease**") does not currently authorize the proposed Waterline. An amendment of the KivIA Lease may be necessary



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to facilitate the Waterline, and would benefit from information produced by NIRB's assessment process.

- d. KivIA suggests that, based on the current normalcy of remote work, a condensed schedule may be appropriate to provide sufficient review and consideration of both the Waterline Proposal and the 2020 Saline Discharge Strategy. This schedule may allow Waterline construction to begin in 2020, as proposed by Agnico Eagle, following the conclusion of the NIRB process and implementation of appropriate terms and conditions.

KivIA wishes to stress the importance of local caribou to Kivalliqmiut Inuit. KivIA is concerned that both the 2020 Saline Discharge Strategy and Waterline Proposal may impact local herds, impeding the access of hunters to this important source of country food. KivIA asserts that both proposals require additional consideration by the NIRB to minimize impacts to caribou and avoid creating food insecurities for vulnerable hunters who are unable to travel beyond the Meliadine Project local assessment area in search of country food.

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### **KIVIA RESPONSE TO 2020 SALINE DISCHARGE STRATEGY**

#### **1: Terrestrial Environment, including Caribou Habitat**

Due to the potential impacts of increased truck traffic on the terrestrial environment, the proposed 2020 Saline Discharge Strategy presents a significant modification of the previously authorized Meliadine Project Certificate. In particular, the impacts on caribou migration warrant further assessment by NIRB, and may warrant restrictive conditions on the seasonal timing of truck traffic.

The current Project Certificate only permits up to 16 round trips by 50,000 litre (50 m<sup>3</sup>) diesel-fueled water trucks transporting saline groundwater via the All-Weather Access Road (AWAR) to the Itivia Harbour Facility. The 2020 Saline Discharge Strategy proposes an increase of up to 44 one-way trips, or 22 round trips, per day, an increase of 6 round trips per day. However, in order to discharge a total of 1,600 m<sup>3</sup> per 24-hour period it would be necessary to conduct 32 round trips per day, an increase of 16 round trips. This increase is based on a three-hour turn-around per truck carrying 50 m<sup>3</sup> of saline water per round trip. This requires one truck to make 8 round trips per 24-hour period in order to discharge 400 m<sup>3</sup>. Therefore, to discharge 1,600 m<sup>3</sup> in a 24-hour period would require 32 round trips. The proponent must provide the correct number of trips based on the turn-around per round trip and the accurate volume per truck per round trip.

KivIA's main concern is the unassessed impacts associated to caribou and the terrestrial environment associated with increased truck traffic based on the 2018 Meliadine Annual Report. This annual report indicated that the traffic volume on AWAR to date exceeded what was predicted in the FEIS by nearly a factor of two for the whole year and by 200–250% during the months of July, August and September



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(2018 Meliadine annual report Table 10.4, s 10.3, pg 65; note it is unclear whether these are round-trips or single passages). Some of the summer traffic was non project-related vehicles, but no explanation was provided for the overrun. The 2020 saline trucking proposal will further increase summer trucking frequency, which will:

1. Possibly increase road dust, depending upon dust mitigation measures,
2. Possibly increase the risk to caribou of injury, and
3. Most importantly, increase the potential for sensory disturbance and related impacts to movement, especially if caribou move through the area in large numbers.

Agnico Eagle proposes that existing management plans will ensure protection of the environment. While this may be the case for dust mitigation, it is less clear for potential sensory disturbance to caribou.

### **2: The Marine Environment**

The potential impacts on the marine environment further indicate that the proposed 2020 Saline Discharge Strategy is a significant modification to the Meliadine project. NIRB has not previously assessed the environmental impacts of doubling the volume of saline effluent discharged into Melvin Bay.

Agnico Eagle is proposing to increase discharges into Melvin Bay from 800 m<sup>3</sup>/day to 1,600 m<sup>3</sup>/day. Impacts associated with effluent discharges above 800 m<sup>3</sup>/day have not been assessed nor defined by the proponent; additional discharge volumes are not addressed in the 2015 Project Certificate or 2018 addendum. The size of the mixing zone has not been modelled for discharge volumes or flow rates greater than 800 m<sup>3</sup>/day. Modelling at the proposed effluent flow rate of 1,600 m<sup>3</sup>/s is required to determine if water quality and water temperature targets as outlined in Section 3.4.6 of the 2018 Addendum will be met within the mixing zone 100 metres from the diffuser. The proponent must provide modelling results that demonstrate that the discharge of 1,600 m<sup>3</sup>/day into Melvin Bay in 2020 will meet water quality and temperature targets outlined in the 2018 FEIS Addendum.

### **3: NWB's approval of the updated (2019) Road Management Plan does not entail NIRB approval**

Agnico Eagle's March 18, 2020 letter to the NIRB states their adherence to the updated (2019) Roads Management Plan submitted to the Nunavut Water Board describing discharges to the marine environment of up to 1,600 m<sup>3</sup>/day and associated increase in traffic to 32 round trips per day. On February 24, 2020, the Nunavut Water Board ("NWB") did approve Agnico Eagle's updated Road Management Plan as part of an amendment to Water License 2AM-MEL1631.

However, the updated Road Management Plan is not a condition of the Meliadine Project Certificate issued, and amended, by NIRB. Prior NIRB reviews approved an earlier version of the Roads Management Plan without the increase in truck traffic.



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The NWB and NIRB have different jurisdiction under the Nunavut Agreement, and the NWB's approval was limited to its jurisdiction over the Water License.

The KivIA agrees with the NIRB's assessment that the updated Roads Management Plan and the activities associated with groundwater transportation or discharge volumes above 800 m<sup>3</sup>/day to the marine environment have not been subject to *"the applicable regulatory requirements, including conformity and impact assessment or associated operational requirements associated with the approval of specific activities, works or undertakings that are outside the scope of previous assessment and approval processes."*

### KIVIA RESPONSE TO THE WATERLINE PROPOSAL

#### 1: Terrestrial Environment

The Waterline Proposal entails a significant linear obstruction through sensitive caribou migratory habitat. For this reason, the Waterline Proposal would be a significant modification to the Meliadine Project Certificate, and requires further impact assessment by NIRB.

To move saline effluent from the mine to Itivia, Agnico Eagle is proposing twin 16" (~40 cm) waterlines running alongside the existing roads. Once completed these waterlines will replace trucks for movement of saline effluent by June 2021.

The 2020 FEIS addendum proposes twin 16" waterlines which will be constructed within the AWAR and Bypass Road easement, with the pipes placed on the ground for a majority of the 34 km length. Figure 4a of the 2020 FEIS Addendum depicts twin pipes on the ground (presumably directly on the tundra) adjacent to the bottom of the road berm. The details are of insufficient resolution in this drawing to determine the proposed distance from the toe of the road berm to the waterlines, or the proposed distance between the twinned 16" pipes. Twin waterlines placed along the relatively flat Meliadine AWAR are likely to be easily visible adjacent to the road and could be visual or physical semi-permeable barriers to caribou.

Table 9 of the 2020 FEIS Addendum summarized potential pathways, including spills and that the waterlines could cause injury or mortality to wildlife. Other than adherence to mitigation measures already in place and the Caribou Migration Procedure in the TEMMP, caribou specific mitigation includes:

- Use smaller diameter pipes to allow caribou to cross.
- Install waterlines outside of sensitive time of year.
- Road surveillance monitoring to determine when caribou are near [whatever that means].
- Site roads have been designed and constructed to use finer material size that facilitate caribou crossing (i.e., coarse boulders are not used).



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- Minimize outside workforce when caribou herds (i.e., >50 animals) move through the Project.
- Adhere to triggers and thresholds for operations for caribou monitoring and mitigation developed for the all-weather access road.

The pathways and mitigation do not address the twin waterlines as semi-permeable barriers to wildlife movement with a focus on caribou, suggesting that these pathways have not been considered within the existing scope of the project.

In addressing the risk of injury or mortality pathway, the 2020 FEIS Addendum (s 8.1.2, pgs 58–59) refers to an ERM (2020) 1-page summary report of waterline and caribou interactions. This summary report contains no references and states (among other points):

- *“Caribou will cross small-diameter waterlines on the ground when waterlines are less than 20 inches (50 cm) diameter without any specific mitigation.*
- *Lay the waterline on a bench build into the side of the existing all weather road so that the pipe does not become a visual barrier for caribou.*
- *Install crossing structures at known caribou movement corridors and high-value habitats or regularly at a pre-determined interval distance”.*

The 2020 FEIS Addendum, however, does not propose to lay the pipes on a bench built into the side of the existing road. It does state that the following mitigation measure “*will be considered*”: ***“If required, install crossing structures at known caribou movement corridors and high-value habitats or regularly at a pre-determined interval distance if the locations of corridors or high-value habitats are not known”*** (s 8.1.2, pg 59) (emphasis added). The text further writes off the waterlines with no substantiating evidence: *“Impacts along the AWAR to wildlife were previously assessed and activities associated with waterlines are less than those for roads”* (s 8.1.2, pg 59), and concludes there will be *“negligible changes to the mortality rate from physical hazards”*.

The 2020 FEIS Addendum does address sensory disturbance but only from noise (s 8.1.2, pgs 60–61) which would occur only during construction and should be easily mitigated by construction window timing.

The 2020 FEIS Addendum addresses uncertainty in its findings (s 8.1.4, pgs 63–64) but misses the key point that even if there is evidence (not provided) that caribou will cross a single waterline/pipeline less than 20” in diameter, there is no evidence or even suggestion that caribou will readily cross twin 16” waterlines spaced an unspecified distance apart. In addition, there is evidence (summarized in Russell and Gunn 2019<sup>3</sup>: pgs 46, 85) that separating pipelines from roads is an effective mitigation to reduce crossing deflections but this is not addressed.

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<sup>3</sup> Russell, D, and A. Gunn. 2019. Vulnerability analysis of the Porcupine Caribou Herd to potential development of the 1002 lands in the Arctic National Wildlife Refuge, Alaska. Submitted to: Environment Yukon, Environment and



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In summary, the use of two 16" waterlines to convey water to Itivia Harbour Facility laid in parallel within the AWAR and Bypass Road easement is considered a significant modification to the project that must be assessed with respect to potential impacts in the terrestrial environment. Terms and conditions may be required to assist in reducing the waterlines' physical presence and impact within the terrestrial environment, and in particular to caribou movement and migration.

### **2: The Marine Environment**

The Waterline Proposal entails up to fifteen-fold increases in saline effluent discharged into Melvin Bay. Uncertainty around the impacts of such an increase renders the Waterline Proposal a significant modification to the Meliadine project, and warrants further review by NIRB.

Agnico Eagle has proposed to increase discharges into Melvin Bay during the open water season from 800 m<sup>3</sup>/day as permitted under the 2018 FEIS Addendum to between 6,000 and 12,000 m<sup>3</sup>/day. The KivIA asserts that increasing the volume of effluent discharged into the marine receiving environment from 800 m<sup>3</sup>/day to between 6,000 and 12,000 m<sup>3</sup>/day (by an order of magnitude) to be outside the scope of what was assessed in either 2015 or 2018 and permitted under the approved Project Certificate.

The KivIA appreciates that the effluent concentrations are not expected to differ and the associated risk of acute toxicity is not expected to increase. However, this assertion must be confirmed through environmental assessment given that the proponent has encountered a significant increase in annual saline groundwater requiring management.

In addition, the 2020 FEIS Addendum includes a proposed change in discharge infrastructure. The 2018 application describes a single or dual port diffuser intended to ensure rapid mixing of effluent volume of up to 800 m<sup>3</sup>/day<sup>4</sup>. The 2020 Addendum describes a new approach to effluent diffusion: a 5 port 25-m wide diffuser as pictured in Figure 7 and Figure 8. The impacts on the marine environment from the increase in overall effluent volume in conjunction with the change in discharge infrastructure need to be assessed. In particular, mixing zone modelling is required to determine if the proposed multiport diffuser configuration will optimize nearfield mixing, and meet receiving environment targets presented in the 2018 Addendum.

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Climate Change Canada, and NWT Environment and Natural Resources. Shadow Lake Environmental Inc, Whitehorse, YT. 3 February 2019.

<sup>4</sup> Agnico Eagle Mines Ltd. June 2018. Meliadine Gold Mine – Final Environmental Impact Statement Addendum. Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet. Submitted to the Nunavut Impact Review Board.





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### **3: COVID-19 Risks During the Construction Phase**

COVID-19 has created unique challenges, to which Nunavut is particularly vulnerable. The construction phase of the Waterline Proposal could risk introducing or transmitting COVID-19 within the Kivalliq region.

COVID-19 prevention is within NIRB's mandate to "*protect and promote the existing and future well-being*" of Nunavut residents. COVID-19 has both eco-systemic and socio-economic impacts, and warrants oversight from NIRB's assessment and monitoring processes.

KivIA suggests that the construction phase of the Waterline Project may need to be subject to enforceable conditions designed to mitigate epidemiological risks. In the present context, the likely need for these special public health measures underscores the significance of this proposed project modification.

### **4: KivIA Lease for Inuit-Owned Lands**

KivIA's Lease for Inuit-Owned Lands, KVRW11F02, does not include the Waterline Proposal, contrary to Agnico's statement in their recent letter to NIRB, dated May 4, 2020<sup>5</sup>.

The KivIA Lease grants Agnico Eagle use of a linear tract of Inuit-Owned Land "only for the construction, operation, maintenance and reclamation" of the AWAR. It does not contemplate the construction, operation, maintenance and reclamation of a Waterline, or the environmental and socio-economic impacts associated with those activities. Because the KivIA Lease includes terms for managing environmental risks on Inuit-Owned Lands, an amendment of the lease may benefit from information produced during NIRB's assessment process.

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<sup>5</sup> Agnico Eagle Mines Ltd. May 4, 2020. Clarification on Agnico Eagle Mines Limited's Waterline Proposal for the Meliadine Gold Mine Project.





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### BACKGROUND

Agnico Eagle has notified NIRB of their intention to implement a “2020 Saline Discharge Strategy” and engage in a series of activities to better manage saline groundwater at the Meliadine mine site. The KivIA notes that the “2020 Saline Discharge Strategy” was not provided to the NIRB in a formal document, but was referenced in a letter submitted to the NIRB on March 18, 2020 titled “Meliadine Mine Saline Water Management Update – Mid Term Strategy 2020”<sup>6</sup>. The NIRB summarizes the proposed midterm activities as follows:

*“An increase to the volume of saline effluent discharged directly into Melvin Bay during the 2020 open water season; specifically, increasing the maximum per day from the previously-approved 800 m<sup>3</sup> to 1600 m<sup>3</sup>; and*

*An associated increase in the amount of truck traffic on the all-weather road required to transport the additional volume of saline effluent groundwater between the Meliadine site and approved Itivia Harbour facility; specifically, increasing the maximum daily trips from the previously-approved 16 round trips (32 one-way trips) per day to a maximum of 44 one-way trips per day.”*

The longer-term groundwater management strategy was submitted by Agnico Eagle to the NIRB as an addendum to the Final Environmental Impact Statement in April 2020<sup>7</sup>. Activities proposed in that addendum application are summarized by the NIRB as follows:

- *“Construction and operation of a waterline pipe from the Meliadine mine site to the Itivia facility along the all-weather access road and by-pass road specifically:*
  - *Installation of two (2) waterlines of 16-inch diameter, running alongside the existing roads and within the easement of the existing roads,*
  - *Connection of waterlines to a modified pump house/sampling station at the Itivia facility.*
- *Installation, operation and decommissioning of a new pipeline extending from the pump house at the existing Itivia facility to a discharge location in Melvin Bay:*
  - *Discharge location approximately 250 metres (m) northwest of the existing approved pipeline;*
  - *Use of horizontal directional drilling (HDD) method to construct an underground corridor for the pipeline;*

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<sup>6</sup> Agnico Eagle Mines Ltd. March 18, 2020. Meliadine Mine Saline Water Management Update – Mid Term Strategy 2020. Submitted to the Nunavut Impact Review Board.

<sup>7</sup> Agnico Eagle Mines Ltd. April 2020. Meliadine Gold Mine – Final Environmental Impact Statement Addendum. Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet. Submitted to the Nunavut Impact Review Board



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- Pipeline would extend underground from the pump house to approximately seven (7) m depth below the water surface, and continue on the sea floor to an engineered diffuser at 20 m depth; and
  - Pipeline would remain in place following decommissioning of the facility.
- Discharge of saline effluent into Melvin Bay at a rate of 6,000 m<sup>3</sup> to 12,000 m<sup>3</sup> per day during the open water season.”

Agnico Eagle’s March 18, 2020 letter<sup>8</sup> to the NIRB outlines their assertion that both the “2020 Saline Discharge Strategy” and longer-term groundwater management strategy outlined in the 2020 addendum were within the scope of what had already been permitted and should not be considered significant modifications to the project. The NIRB disagreed with Agnico Eagle’s assertion<sup>9</sup> and has issued a request for interested parties to provide comment as to whether the Agnico Eagle’s proposal constitute a significant modification to the project as currently described under project certificate. This review answers the two specific requests put forward by the NIRB<sup>10</sup>:

1. *“Whether the scope of the proposed 2020 Saline Discharge Strategy was included within the scope of what was previously assessed for the approved project.*
2. *Whether the proposed modification constitutes a significant modification to the project as previously assessed.”*

Meliadine Project Certificate No. 006 was modified through a 2018 Addendum<sup>11</sup> to permit groundwater discharges to Melvin Bay of up to 800 m<sup>3</sup>/day. That modification described trucking groundwater<sup>12</sup> *“from the Mine to the Itivia Fuel Storage Facility at a minimum volume 400 m<sup>3</sup>/day from May to October... [requiring] eight [round-trip] trips per day with a 50,000 litre (L) diesel-fueled water truck that will travel via the [All Weather Access Road] AWAR”*. It included additional capacity for up to 800 m<sup>3</sup>/day requiring up to 16 round trips per day while applying *“the same transportation details”*. That is, continued use of 50,000 L diesel fueled water trucks travelling along the AWAR. Agnico Eagle is committed under the project certificate terms and conditions *“to no more than 16 round truck trips per*

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<sup>8</sup> Agnico Eagle Mines Ltd. March 18, 2020. Meliadine Mine Saline Water Management Update – Mid Term Strategy 2020. Submitted to the Nunavut Impact Review Board.

<sup>9</sup> Nunavut Impact Review Board. March 27, 2020. NIRB Clarification on scope of the Meliadine Gold Mine Project in relation to Agnico Eagle Mines Limited’s “Meliadine Mine Saline Water Management Update – Mid Term Strategy 2020” Update.

<sup>10</sup> Nunavut Impact Review Board. April 14, 2020. Request for Comments on Agnico Eagle Mines Limited’s “2020 Saline Discharge Strategy” Proposal related to the Meliadine Gold Mine Project, and “Saline Effluent Discharge to Marine Environment” Amendment for the Meliadine Gold Mine Project.

<sup>11</sup> Nunavut Impact Review Board, Reconsideration Report and Recommendations, Saline Effluent Discharge to Marine Environment Proposal, Agnico Eagle Mines Limited, NIRB File No. 11MN034, October 31, 2018 (the 2018 Saline Effluent Discharge Proposal). Public Registry ID: 320879

<sup>12</sup> Agnico Eagle Mines Ltd. June 2018. Meliadine Gold Mine – Final Environmental Impact Statement Addendum. Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet. Submitted to the Nunavut Impact Review Board.



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*day for transport of saline effluent. If Agnico Eagle exceeds the number of trips due to caribou migration, weather and mechanical issues, Agnico Eagle will notify KIA with the reason”.*

The 2018 Addendum describes that saline water will be discharged to Melvin Bay: *“The discharge facility, located at the Itivia Fuel Storage Facility, will include a storage tank and an engineered marine outflow, comprised of a discharge pipe extending to an engineered diffuser located in Melvin Bay. The treated groundwater effluent will be discharged seasonally in a controlled manner through the diffuser to allow for maximum dilution and minimum impact on the marine environment.”*

The saline discharges are regulated under the Metal and Diamond Mine Effluent Regulations (MDMER) for saline discharges at the outfall, and are further regulated using a points of compliance in a 100 m radius surrounding the diffuser. Saline effluent is discharged through a *“single or double port [diffuser]... to meet the required discharge criteria”*.