



July 30<sup>th</sup>, 2018

Richard Dwyer  
Manager of Licensing  
Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, NU X0B 1J0

**Re: Agnico Eagle Mines – Meliadine Division Response to SWTP OMM Recommendations**

Dear Mr. Dwyer,

As requested, the following information and comments are intended to address the comments outlined in the report below:

- Crown - Indigenous Relations and Northern Affairs Canada's (CIRNAC) Review of Agnico Eagle Mines Limited's Saline Water Treatment Operation and Maintenance Plan - Water Licence 2AM-MEL1631 - Meliadine Gold Project
- Environment and Climate Change Canada RE: 2AM-MEL1631 – Agnico Eagle Mines Ltd. – Meliadine Gold Mine – Saline Water Treatment Plant Operation & Maintenance Manual

Should you have any questions or require further information, please do not hesitate to contact me.

Regards,

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General Supervisor Environment



**Comment:** The description of the saline water treatment is very well described. However CIRNAC has one question: What happens to the brine bags? How and where are they disposed of?

AEM Responses:

Solid salt produced will be placed in double bags which will be stored into seacans to prevent dissolution of the salt. When required, the salt will be reused for underground mining activities. The exceeding bags of solid salt will be sent south on the barges for final disposal in accordance with regulations.

**Comment:** Although not necessarily directly related to the operation and maintenance plan for the saline water treatment plant, CIRNAC could find no information on the capacity of the saline pond.

AEM Responses:

Underground saline water is firstly stored in an underground stope that has a total capacity of approximately 11 000 m<sup>3</sup> and is then transferred to the surface Saline Pond which has a total storage capacity of approximately 33 000 m<sup>3</sup>. From there, the saline water will be transferred to the SWTP for treatment. The storage capacity is managed to keep the saline pond and stope volumes as low as possible, in order to have enough space for abnormal flow condition or SWTP shutdown.

**Comment:** Table 1 (Treatment Objectives) of the Saline water treatment plant Operation & Maintenance Manual sets out the maximum allowable salt plant effluent concentrations, as derived from a geochemical model. The table should also indicate the expected concentrations for treated effluent parameters. In addition, ECCC notes temperature, pH and total suspended sediments are missing.

AEM Responses:

Table 1 has been modified to include temperature, pH and total suspended sediments. Values presented in the table are guaranteed by the supplier.

**Table 1: Treatment objectives**

<b>Parameter (Total, mg/L)</b>	<b>Maximum Allowable Salt Plant Effluent Concentration<sup>1</sup></b>
Aluminum	6
Arsenic	1
Boron	4
Cadmium	0.0003
Chloride	2500
Copper	0.7
Chromium	0.003
Mercury	0.0001
N-NH4	35
Nickel	1.3
N-NO2	0.2
N-NO3	2
Phosphorous	0.1
Lead	0.6
Selenium	0.0025
TDS <sup>2</sup>	1400
Thallium	0.003
Total Cyanide	1.5
Zinc	1.3
pH <sup>3</sup>	5-8
TSS <sup>4</sup>	<10
Temperature <sup>5</sup>	<40°C

<sup>1</sup> Treatment objective values come from geochemical model made by Golder (2017) for a dry climate, taking into account the dilution occurring into CP1 (Ref: 6515-E-132-013-105-DGC-003). These concentrations are guaranteed by the supplier.

<sup>2</sup> Maximum concentration for the final effluent (ref: Water License No. 2AM-MEL1631).

<sup>3</sup> Possibility to adjust pH if required. Will depend on the CP1 alkalinity.

<sup>4</sup> Value expected to be low since effluent is treated in a reverse osmosis process prior to be discharged to CP1.

<sup>5</sup> Reverse osmosis post treatment should be perform below 35-40°C .