September 6th, 2017

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Re: Agnico Eagle Mines – Meliadine Division Response to ECCC comments on the Final Effluent System Design

Dear Ms. Pinto, Mr. Kharatyan,

Agnico Eagle is submitting the information, requested in the following letter:

- ECCC (August 29, 2017) *Re: 2AM-MEL1631 – Agnico Eagle Mines Ltd. – Meliadine Gold Mine – Final Effluent System Proponent Response to ECCC concerns*

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

Best regards,

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Comment 1:

"ECCC is satisfied with the Proponent's response to ECCC's concerns on discharge concentrations. However, ECCC requests that the Proponent submit the model results referenced in their response (i.e. results from the model run with effluent quality equal to average license limits) to ECCC."

Agnico Eagle Mines response:

On August 25th 2017, AEM indicated in its letter that "*As requested by ECCC, a model run was conducted assuming effluent quality is always equal to the licensed average concentration. In the highly unlikely event that effluent is continuously discharged at the average license limits, the model suggests that phosphorus, copper, and lead could exceed the CCME guidelines at the edge of the mixing zone*". The results of this model run, i.e. corresponding to the Base Case Scenario but with a discharge over the entire mine operating life with effluent concentration equal to the licensed average concentration (also called Water License A Maximum End-of-Pipe Average Concentration), is presented in the table below.

As one can observe, assuming years of discharge at these maximum average concentration levels and considering the accumulation of conventional constituent over these years, phosphorus, copper and lead could exceed CCME guidelines at the edge of the mixing zone. Note that these reported concentrations at the end of the mixing zone take into account the natural background concentration of the constituent in the lake. To give some perspective on these natural background concentrations, median copper concentration in Meliadine Lake (with no human activity) at 0.0011 mg/L according to the FEIS (Golder Associates, 2014), already represents 55% of the CCME guideline. The results of the recent monitoring campaign (2015-2016) show that the median concentration of copper in Meliadine Lake is below 0.0011 mg/L.

It should be reminded that this model run scenario would not be encountered as license criteria numbers represent sporadic peaks, not representative of the conventional constituent concentration. As AEM indicated in their letter of August 25th, "*even in this highly unlikely scenario, there would be time to respond and mitigate. As part of operating the Meliadine Mine, there will be regular monitoring, data review, comparison of data to triggers to guide the operations team, comparison of data to predictions, mitigations, and adaptive management that would be enacted before this unlikely scenario occurred*".

	CCME Guidelines [mg/L]	SSWQO Guidelines [mg/L]	Water Licence "A" Maximum End of Pipe Average Concentration [mg/L]	Constituent Concentration at the End of the Mixing Zone Base Case Scenario Upper Bound Concentration [mg/L] – (corresponding to Dilution of 23:1, i.e. scalar concentration of 0.042)
Conventional Constituents				
Total Dissolved Solids	-		1400	90
Total Suspended Solids	8		15	2.0
pH	-		6 to 9.5	
Major Ions				
Chloride	120		-	-
Fluoride	0.12	2.8	-	-
Sodium	-		-	-
Sulphate	-		-	-
Nutrients				
Total Ammonia as Nitrogen	3.33		14	0.59
Nitrate Ion	13		-	-
Phosphorus (total)	0.03		2	0.09
Cyanides				
Total cyanide	-		0.5	0.021
Free cyanide	0.005		-	-
Metals				
Aluminum	0.1		2	0.08301
Antimony	-		-	-
Arsenic	0.005	0.025	0.3	0.01238
Barium	-		-	-

	CCME Guidelines [mg/L]	SSWQO Guidelines [mg/L]	Water Licence "A" Maximum End of Pipe Average Concentration [mg/L]	Constituent Concentration at the End of the Mixing Zone Base Case Scenario Upper Bound Concentration [mg/L] – (corresponding to Dilution of 23:1, i.e. scalar concentration of 0.042)
Cadmium	0.00005		-	-
Chromium	0.0089		-	-
Copper	0.002		0.2	0.00913
Iron	0.3	1.06	-	-
Lead	0.001		0.2	0.00809
Manganese	-		-	-
Mercury	0.000026		-	-
Molybdenum	0.073		-	-
Nickel	0.025		0.5	0.02073
Selenium	0.001		-	-
Silver	0.00025		-	-
Thallium	0.0008		-	-
Uranium	0.015		-	-
Zinc	0.03		0.4	0.01756