MEADOWBANK IN-PIT DISPOSAL MEETING ECCC/AGNICO EAGLE

JULY 12TH, 2018

MEETING AGENDA

- Introduction
- Project description
- ECCC IR Responses review
- Discussion

Meeting objective

- Facilitate transfer of the information
- Review ECCC IRs
- Present Agnico Eagle responses

ATTENDEES

Agnico Eagle

- Jamie Quesnel: Superintendent - Permitting and Regulatory Affairs - Nunavut
- Michel Groleau: Nunavut Permitting Lead
- Ryan Vanengen: Nunavut Permitting Lead

SNC-Lavalin

- Anh-Long Nguyen: Manager Mine Water Resources
- Guillaume Comeau: Project manager - Hydrogeology
- Henri Sangam: Director Mine Environment

ECCC

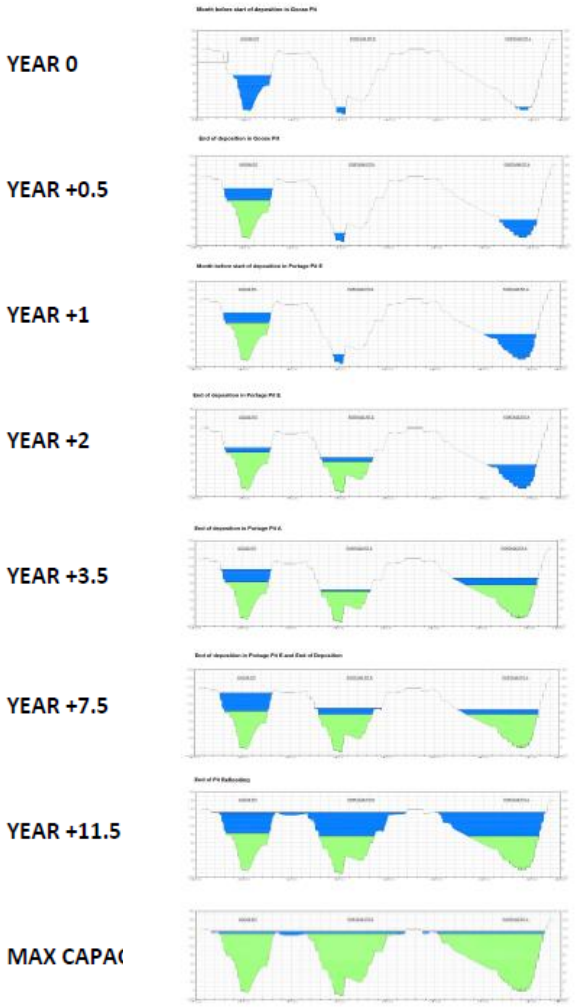
- Anne Wilson: Team Lead, Water Quality
- Melissa Pinto: Senior EA Coordinator
- Lindsey Wilson: Environmental Effects Monitoring Coordinator
- Reg Ejeckan: Senior Mining Project Officer
- Meagan Tobin: Water Quality Project Officer
- Eva Walker:

PROJECT DESCRIPTION

- Meadowbank Life Of Mine and use of the Tailings Storage Facility has been extended through approval of Whale Tail Pit.
  - NIRB PC and Ministerial decision on March 15th, 2018
  - NWB positive decision on May 29th, 2018.
- Tailings are currently stored in approved TSF under Meadowbank Type A 2AM MEA1526
  - Schedule II of Northwest arm of Second Portage Lake in 2008
  - Includes fisheries offsetting
- Currently approved TSF has capacity until Q1 2019 without any raises
- Engineering feasibility studies began in 2016
- Engineering for permitting was completed in 2017

PROJECT DESCRIPTION

- Existing Meadowbank Tailings Storage Facility will reach it's capacity in 2019.
- In pit deposition is consistent with current operations at Meadowbank:
  - Backfilling waste in Portage
  - Optimize freshwater use and efforts to reduce freshwater consumption during operations
- In pit deposition of tailings through subaqueous deposition will allow storage capacity:
  - Portage Pit - 29.8Mm³;
  - Goose Pit – 6.4Mm³;
- In pit disposal follows best practices for Tailings Management in Canada:
  - Reduces geotechnical risks
  - Reduces freshwater use (up to 60%)
  - Optimizes existing impacted footprint
  - Recommendation of Meadowbank Dike Review Board

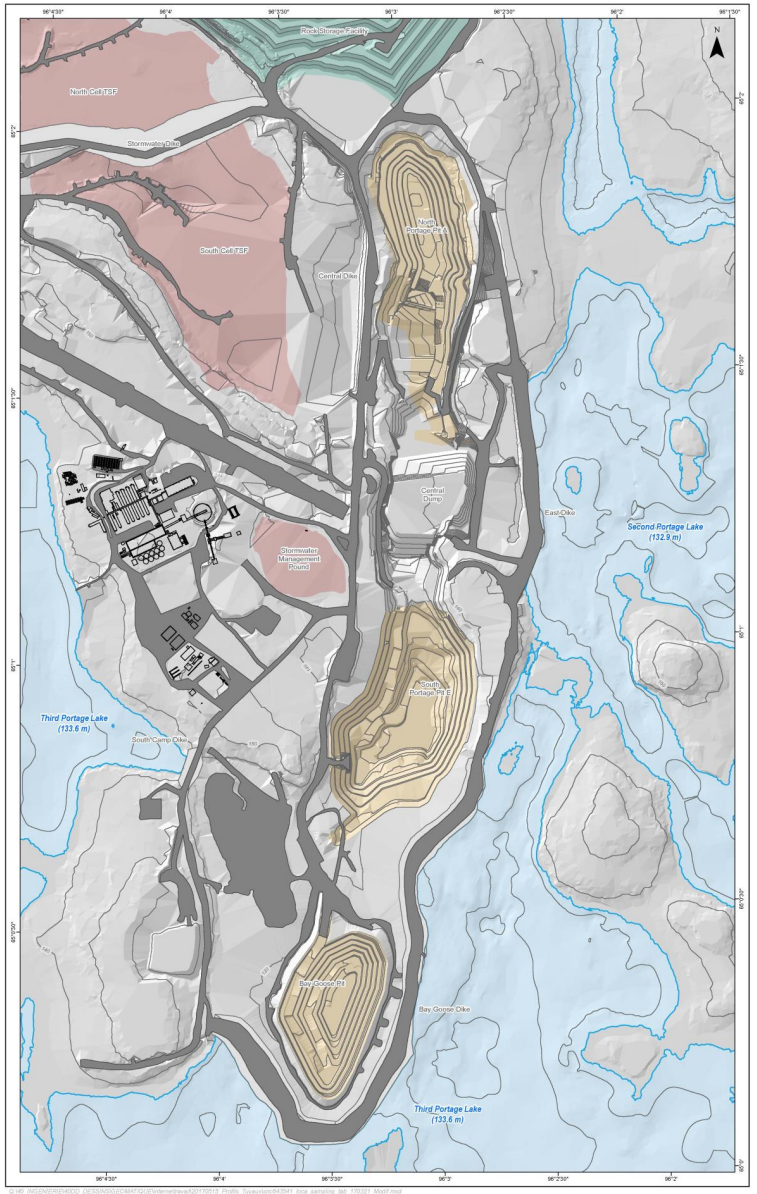


PROJECT DESCRIPTION

- As currently approved by NWB, closure of Meadowbank pits requires Agnico Eagle to:
  - Water quality modelling
  - Treatment required in operation to meet closure criteria;
  - Reflooding to meet NWB future WQ limits in closure (as a condition of the future Type A);
  - Adhere to a closure plan that requires reflooding using freshwater (natural water);
  - Adhering to offsetting plans (i.e. fulfilling concepts to construct fish habitat);
- In-pit disposal modification is built on these same assumptions
- With approval of the Whale Tail Pit Project, Closure of Meadowbank is as follows:
  - 2026 – 2029 - begin active closure including flooding of pits – monitor water quality
  - 2029 – 2035 – monitoring (depending on water quality)
  - Physical opening of the dikes = reconnection to the lake
- To ensure these closure criteria are met:
  - Treatment of water
  - Use of clean lake water to flood (siphoning)
  - Erosion protection during flooding
  - Capping tailings with clean material (ie milled or NPAG waste material)
  - Creating fish habitat or shoals as per offsetting plan
  - Physical opening of the dikes = reconnection to lake – erosion control measures

PREFEASIBILTY STUDY

- The Prefeasibility Study (PFS) design for in-pit deposition included the following studies:
  - A hydrogeological modeling of groundwater flow in and around the Portage and Goose Pits including a 3D contaminant transport model;
  - 1D tailings consolidation modeling assessment of the tailings in the pit;
  - Development of deposition methodology and strategy;
  - Development of pit closure strategy;
  - Update and refinement of the water and tailings mass balance around Portage and Goose Pits;
  - Update of the water quality forecast model;
  - Development of infrastructures required for in-pit deposition;
  - Review pit wall stability during in-pit deposition.
- PFS report was submited with the NWB and NIRB applications on February 2018



TAILINGS DEPOSITION METHODOLOGY AND STRATEGY

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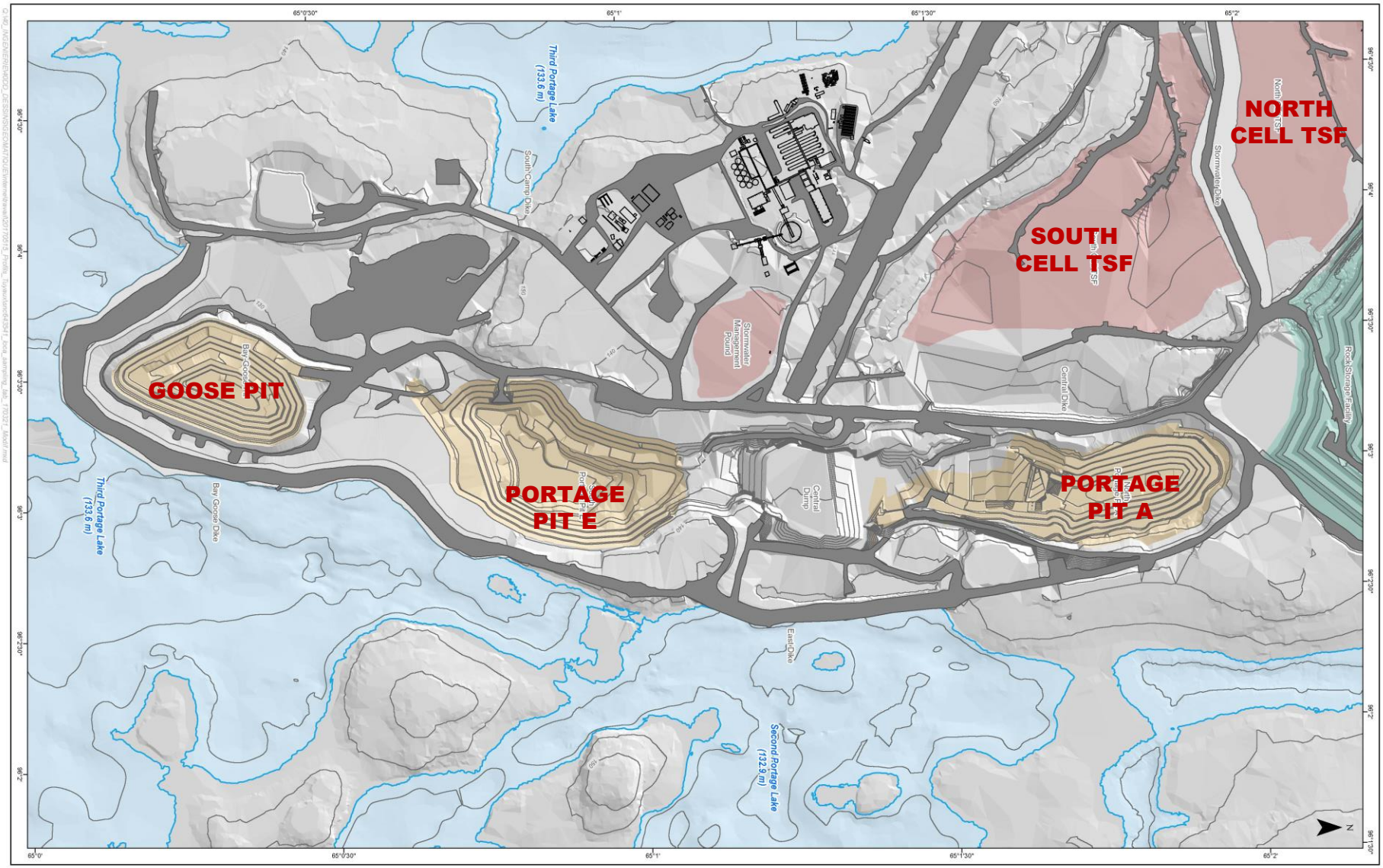

ECCC IR 1

AGNICO EAGLE

Reference to FEIS:

Environmental Impact Study Review – Meadowbank In Pit Tailings Deposition. SNC Lavalin. Feb. 15, 2018; Section 5.3.2.1 Surface Water

In-Pit Tailings Deposition Water Balance and Water Quality Forecast. SNC Lavalin. Sept. 12, 2017; Table 5-8 and 5-9, Section 6.4 Water Treatment System

Information Request / Recommendation Made By Interested Party:

a) ECCC requests that the Proponent provide information on how the effects to water quality from elevated levels of major ions and ammonia in pit water will be mitigated.

b) With respect to treatment residuals from the metals precipitation, ECCC requests that the Proponent describe the conditions at the sediment interface and discuss the potential for remobilization of the metals. Will conditions be such that metals remain bound in sediments?

c) ECCC requests that the Proponent describe contingencies for treatment if levels are not reduced sufficiently in the predicted 3-5 year treatment period.

d) ECCC requests that the Proponent describe what measures are available to minimize sulphate levels in the pit waters from water treatment reagents.

WATER QUALITY FORECAST

KEY FINDINGS

- Water licence requires water quality forecasting each two years.
- Current water quality forecast recommends water treatment at closure for treatment of pit water to reduce total and dissolved metals, and could be designed to address issues with ammonia and any other parameters of concern.
- Type A water licence will dictate pit lake reconnection process.

WATER QUALITY FORECAST

FULL CAPACITY SCENARIO – 32MT

- When considering mixed pits conditions: **arsenic, copper, selenium, total Nequivalent and sulfate.** The following parameters are close to the CCME guidelines: **chromium, fluoride and total ammonia**.

			At End of Monitoring Period – December 2035		
Parameters	**Units**	**CCME Guidelines**	**Mixed Portage Pit**	**Goose Pit**	**Mixed Pits**
Alkalinity	mg $CaCO_3$/L	n/a	99	90	98
Hardness	mg $CaCO_3$/L	n/a	930	644	892
Total dissolved solids	mg/L	n/a	2227	1581	2141
Total Aluminium (Al)	mg/L	0.10	0.24	0.19	0.24
Total Silver (Ag)	mg/L	0.00025	0.00027	0.0013	0.0004
Total Arsenic (As)	mg/L	0.005	0.761	0.427	0.717
Total Barium (Ba)	mg/L	n/a	0.1559	0.1020	0.1487
Total Cadmium (Cd)	mg/L	0.00004	0.00006	0.00034	0.00010
Total Chromium (Cr)	mg/L	0.001	0.009	0.005	0.008
Total Copper (Cu)	mg/L	0.002	0.770	0.556	0.741
Total Iron (Fe)	mg/L	0.30	1.63	1.35	1.60
Total Lead (Pb)	mg/L	0.001	0.002	0.001	0.002
Total Manganese (Mn)	mg/L	n/a	0.133	0.404	0.169
Total Mercury (Hg)	mg/L	0.000026	0.000032	0.000038	0.000033
Total Molybdenum (Mo)	mg/L	0.073	0.082	0.097	0.084
Total Nickel (Ni)	mg/L	0.025	0.080	0.048	0.076
Total Selenium (Se)	mg/L	0.001	0.004	0.010	0.005
Total Strontium (Sr)	mg/L	n/a	0.385	0.337	0.378
Total Thallium (Ti)	mg/L	0.0008	0.0009	0.0032	0.0012
Total Uranium (U)	mg/L	0.015	0.001	0.002	0.001
Total Zinc (Zn)	mg/L	0.03	0.005	0.008	0.005
Chloride	mg/L	120	88	62	85
Fluoride (F)	mg/L	0.12	0.25	0.34	0.27
Sulfate (SO4)	mg SO_4/L	128 (1)	1725	1188	1654
Total Cyanide (CNt)	mg/L	0.005	0.000	0.000	0.000
Total Ammonia (NH3 + NH4)	mg N/L	1.83	13.2	9.6	12.8
Nitrate (NO3)	mg N/L	2.94	2.3	1.8	2.3
Total N equivalent	*mg N/L*	*0.35 (2)*	*15.6*	*11.5*	*15.0*

Notes: (1) Threshold value for sulfate based on BC Environment guildeline for the protection of aquatic life (April 2013)
(2) Value based on the threshold concentration for classification of an oligotrophic lake in terms of nutrient concentrations (Nurnberg 1996).

WATER QUALITY FORECAST

8.3M TONNES SCENARIO

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- When considering mixed pit conditions, the following parameters are forecasted to be higher o slightly higher than the CCME guidelines: **aluminum**, **silver,** arsenic, **cadmium,** chromium, **copper, iron, lead**, **mercury, molybdenum, nickel, selenium, thallium**, fluoride, ammonia, total Nequivalent and sulfate.

			AT END OF MONITORING PERIOD DEC. 2031				
PARAMETERS	UNITS	CCME GUIDELINES	PORTAGE PIT A	PORTAGE PIT E	MIXED PORTAGE PIT	GOOSE PIT	MIXED PITS
Alkalinity	mg $CaCO_3$/L	n/a	20	22	21	25	22
Hardness	mg $CaCO_3$/L	n/a	109	134	124	66	116
Total dissolved solids	mg/L	n/a	264	322	299	243	291
Total Aluminium (Al)	mg/L	0.10	0.04	0.04	0.04	0.03	0.04
Total Silver (Ag)	mg/L	0.00025	0.00006	0.00006	0.00006	0.00057	0.00014
Total Arsenic (As)	mg/L	0.005	0.071	0.098	0.088	0.001	0.074
Total Barium (Ba)	mg/L	n/a	0.0188	0.0236	0.0217	0.0101	0.0200
Total Cadmium (Cd)	mg/L	0.00004	0.00001	0.00001	0.00001	0.00016	0.00003
Total Chromium (Cr)	mg/L	0.001	0.001	0.001	0.001	0.000	0.001
Total Copper (Cu)	mg/L	0.002	0.087	0.106	0.098	0.061	0.093
Total Iron (Fe)	mg/L	0.30	0.20	0.24	0.23	0.24	0.23
Total Lead (Pb)	mg/L	0.001	0.000	0.000	0.000	0.000	0.000
Total Manganese (Mn)	mg/L	n/a	0.020	0.021	0.020	0.172	0.043
Total Mercury (Hg)	mg/L	0.000026	0.000007	0.000005	0.000006	0.000018	0.000008
Total Molybdenum (Mo)	mg/L	0.073	0.013	0.013	0.013	0.023	0.014
Total Nickel (Ni)	mg/L	0.025	0.009	0.011	0.010	0.003	0.009
Total Selenium (Se)	mg/L	0.001	0.001	0.001	0.001	0.004	0.001
Total Strontium (Sr)	mg/L	n/a	0.062	0.066	0.064	0.060	0.064
Total Thallium (Ti)	mg/L	0.0008	0.0003	0.0003	0.0003	0.0016	0.0005
Total Uranium (U)	mg/L	0.015	0.000	0.000	0.000	0.001	0.000
Total Zinc (Zn)	mg/L	0.03	0.003	0.002	0.002	0.004	0.002
Chloride	mg/L	120	12	13	12	12	12
Fluoride (F)	mg/L	0.12	0.11	0.10	0.11	0.15	0.11
Sulphate (SO4)	mg SO4/L	128 (1)	198	242	225	156	214
Total Cyanide (CNt)	mg/L	0.005	0.000	0.000	0.000	0.000	0.000
Total Ammonia (NH3 + NH4)	mg N/L	1.83	1.7	2.1	1.9	1.9	1.9
Nitrate (NO3)	mg N/L	2.94	0.48	0.39	0.43	0.36	0.42
Total N equivalent	*mg N/L*	*0.35 (2)*	*2.2*	*2.5*	*2.4*	*2.2*	*2.3*

Notes: (1) Threshold value for sulfate based on BC Environment guildeline for the protection of aquatic life (April 2013)
(2) Value based on the threshold concentration for classification of an oligotrophic lake in terms of nutrient concentrations (Nurnberg 1996).

WATER QUALITY FORECAST

SCENARIO COMPARISON

- In the full capacity deposition of tailings in Goose and Portage Pits scenario, tailings are allowed to be deposited up until **elevation 125.6** masl approximately (**8 metres water cover**).
- When compare to the 8.3 MT scenario, tailings are will be deposited up until **elevation 82 masl** approximately (**43 metre waters cover**).

			At End of Monitoring Period	
			8.3MT Scenario	32 MT Scenario
Parameters	Units	CCME Guidelines	Mixed Pits	Mixed Pits
pH		6.5 to 9.0	7.5 est.	7.5 est.
Alkalinity	mg $CaCO_3$/L	n/a	22	98
Hardness	mg $CaCO_3$/L	n/a	116	892
Total dissolved solids	mg/L	n/a	291	2141
Total Aluminium (Al)	mg/L	0.10	0.04	0.24
Total Silver (Ag)	mg/L	0.00025	0.00014	0.0004
Total Arsenic (As)	mg/L	0.005	0.0074	0.717
Total Barium (Ba)	mg/L	n/a	0.0200	0.1487
Total Cadmium (Cd)	mg/L	0.00004	0.00003	0.00010
Total Chromium (Cr)	mg/L	0.001	0.001	0.008
Total Copper (Cu)	mg/L	0.002	0.093	0.741
Total Iron (Fe)	mg/L	0.30	0.23	1.60
Total Lead (Pb)	mg/L	0.001	0.000	0.002
Total Manganese (Mn)	mg/L	n/a	0.043	0.169
Total Mercury (Hg)	mg/L	0.000026	0.000008	0.000033
Total Molybdenum (Mo)	mg/L	0.073	0.014	0.084
Total Nickel (Ni)	mg/L	0.025	0.009	0.076
Total Selenium (Se)	mg/L	0.001	0.001	0.005
Total Strontium (Sr)	mg/L	n/a	0.064	0.378
Total Thallium (Ti)	mg/L	0.0008	0.0005	0.0012
Total Uranium (U)	mg/L	0.015	0.000	0.001
Total Zinc (Zn)	mg/L	0.03	0.002	0.005
Chloride	mg/L	120	12	85
Fluoride (F)	mg/L	0.12	0.11	0.27
Sulfate (SO4)	mg SO_4/L	128 (1)	214	1654
Total Cyanide (CNt)	mg/L	0.005	0.000	0.000
Total Ammonia (NH3 + NH4)	mg N/L	1.83	1.9	12.8
Nitrate (NO3)	mg N/L	2.94	0.42	2.3
Total N equivalent	*mg N/L*	*0.35 (2)*	*2.3*	*15.0*

Notes: (1) Threshold value for sulfate based on BC Environment guildeline for the protection of aquatic life (April 2013)
(2) Value based on the threshold concentration for classification of an oligotrophic lake in terms of nutrient concentrations (Nurnberg 1996).

ECCC IR 1 A – AGNICO EAGLE RESPONSE

AGNICO EAGLE

a) *ECCC requests that the Proponent provide information on how the effects to water quality from elevated levels of major ions and ammonia in pit water will be mitigated.*

- The water quality forecast model for the 8.3 Mt scenario shows that the major ions of concern are arsenic, copper, selenium, Total $N_{equivalent}$ and sulfate, and to a lesser extent chromium, fluoride and total ammonia.
- Water treatment will be considered to reduce these major ions and ammonia in the reclaim water following the end of in-pit deposition before the pit flooding.
- The following mitigation treatment options are being considered and evaluated:
  - For total metals, the technology identified was based on raising the pH with sodium hydroxide in order to precipitate the metals out of solution as metal hydroxide precipitates. The addition of an organo sulfide chemical was also considered in order to achieve lower metal concentrations. If required, an oxidation step with peroxide, ozonation or other oxidants could be required to oxidize some of the metals to favour their precipitation;
  - The next step in the treatment was the addition of a coagulant, such as ferric sulfate to coagulate any colloidal particles and co-precipitate any residual arsenic as a ferric-arsenate precipitate;
  - The precipitate is then removed using a clarification step and polished using a multimedia filtration step;

ECCC IR 1 A – AGNICO EAGLE RESPONSE (CON'T)

AGNICO EAGLE

a) *ECCC requests that the Proponent provide information on how the effects to water quality from elevated levels of major ions and ammonia in pit water will be mitigated.*

- The selenium is present in the reclaim water in the form of selenate (Se(VI)) species. If selenium remains an issue, there are several possible treatment options that were considered:
  - adsorption onto a specialized media;
  - biological treatment;
  - chemical reduction following by coagulation using an iron based coagulant.
- With regard to fluoride, an additional coagulation step using aluminum sulfate can be used to absorb the ion and co-precipitate it on the aluminum hydroxide floc;
- If high total ammonia and nitrogen concentrations persist, active treatment solutions could be implemented such as:
  - mechanical aerations could be installed to assist in the natural volatilization of ammonia;
  - "In-situ" by either stripping or biological treatment process;
  - alternative treatment technology like snow making could be considered; or
  - pH adjustment of the treated water, near neutral pH, in order to ensure that most of the ammonia present is as ammonium (NH_4^+) instead of unionized ammonia (NH_3);

ECCC IR 1 A – AGNICO EAGLE RESPONSE (CON'T)

a) *ECCC requests that the Proponent provide information on how the effects to water quality from elevated levels of major ions and ammonia in pit water will be mitigated.*

- Further polishing to reduce chloride and sulfate in the treated water could then be considered by using ion exchange or nanofiltration treatment technologies;
- Sludge generated from the treatment process could be thickened and/or dewatered and stored in the North Cell or South Cell tailings storage facilities and capped with NPAG rockfill at closure.

- Agnico Eagle will perform bench testing and pilot testing on the reclaim water during the operation phase to evaluate the suitable water treatment system prior to the submission of the finale closure plan.

ECCC IR 1 B – AGNICO EAGLE RESPONSE

b) With respect to treatment residuals from the metals precipitation, ECCC requests that the Proponent describe the conditions at the sediment interface and discuss the potential for remobilization of the metals. Will conditions be such that metals remain bound in sediments?

- As stated in the Meadowbank-In-Pit Tailings Deposition Pit Lake Stratification Part B - Tailings Fine Resuspension Modelling issued to the Nunavut Impact Review Board (NIRB) on March 2018 (SNC, 2018b) there is not likely to be significant re-mobilization of either dissolved or total metals at sediment interface based upon the following:
- Rates of sulphide oxidation will be negligible as a result of the water cover and thus there will not be any significant release of acidity, sulphate salinity or metals under such conditions. Even relatively shallow water covers of only a few meters are highly effective in preventing sulphide oxidation (SNC-2018b) as oxygen has limited solubility in water and the rate of transfer of oxygen to the sulphides is limited to diffusion (which is very slow). The proposed 8 metre minimum thickness of water cover above the sediment interface at Meadowbank is several times greater than the fore mentioned referenced sites where a water cover has reported negligible rates of sulphide oxidation;

ECCC IR 1 B – AGNICO EAGLE RESPONSE (CON'T)

b) With respect to treatment residuals from the metals precipitation, ECCC requests that the Proponent describe the conditions at the sediment interface and discuss the potential for remobilization of the metals. Will conditions be such that metals remain bound in sediments?

- Circum-neutral to moderately alkaline water that will be contact with the sediment interface from the time tailings deposition ceases to many years beyond mine closure [(based upon PHREEQC modeling work undertaken as part of in pit water quality assessment at closure (SNC-Lavalin 2018a)] there will be no significant dissolution of minerals at the tailings interface (hence no significant associated metals release); and
- An assessment of the potential for tailings re-suspension (SNC-Lavalin 2018b) that included both re-suspension modelling work and literature review work demonstrated a low potential for significant tailings re-suspension, with note to the following:
  - Re-suspension modelling work assuming a very conservative low critical shear stress for re-suspension (0.01 Nm-2) suggested the following:
    - Negligible re-suspension at a depth of 2.75 m water cover for expected wind velocity; and
    - Sustained higher than expected wind velocity (i.e. 130% expected wind velocity) requires a 3.75 m water cover to ensure negligible re-suspension.
  - Detailed literature review suggested the intended minimum water cover thickness of 8 metres will provide a very high safety factor in the prevention of tailings re-suspension in terms of what has been previously observed at other project sites.

ECCC IR 1 C – AGNICO EAGLE RESPONSE

AGNICO EAGLE

c) ECCC requests that the Proponent describe contingencies for treatment if levels are not reduced sufficiently in the predicted 3-5 year treatment period.

- Water quality forecast will be updated during the operational window on an annual basis to continuing updating the water quality forecast with monitoring data. Model result will be used to assess treatment duration during operation.
- Treatment of the reclaim water at closure was also evaluated as a closure option for the Meadowbank Project with the existing approved tailings deposition management plan. The forecasted treatment period was 1 to 2 years.
- The 3 -5 years of treatment is based on reclaim water volume needed to be treated at closure. Based on the conservatism of the model, if the treatment levels are not reached in the 3 to 5 years treatment period, several options will be considered by Agnico Eagle as extending the treatment period and postponing the completion of the pit reflooding or increasing the treatment plant design flow to treat the residual reclaim water volume in a shorter period.
- During the treatment period, the treated water quality will be assessed. If the treatment objectives are not being met, additions and/or modifications to the treatment process will be implemented.

ECCC IR 1 D – AGNICO EAGLE RESPONSE

d) ECCC requests that the Proponent describe what measures are available to minimize sulphate levels in the pit waters from water treatment reagents

Agnico Eagle is evaluating two different options for the treatment of sulfate at this point:

- One option is to reduce sulfate in the reclaim water is to treat it by ion exchange. The water is passed through an anion exchange system where the sulfate is adsorbed onto the resin where it takes the place of a carbonate or chloride ion. Once the resin is saturated, it is either regenerated or disposed of off-site. If it is regenerated on site, the regenerant can further be treated to precipitate the sulfate as gypsum.
- Another approach is to treat the water through a nanofiltration process. This process will reduce the total dissolved salt in the treated water, which will include a reduction in chloride and sulfate concentration. The brine produced will then need to be further treated to precipitate the salts out of solution.

Selection of the preferable treatment option will be made in the Meadowbank finale closure plan.

ECCC IR 2

Reference to FEIS:

In-Pit Tailings Deposition Water Balance and Water Quality Forecast. SNC Lavalin. Sept. 12, 2017; Table 5-8 and 5-9

Ambient Water Quality Guidelines for Sulphate: Technical Appendix Update. Minister of Environment Province of British Columbia. April 2013. https://www2.gov.bc.ca/assets/gov/environment/air-landwater/water/waterquality/wqgswqos/ approvedwqgs/ bc_moe_wqg_sulphate.pdf

Information Request / Recommendation Made By Interested Party:

a) ECCC requests that the Proponent provide options for the reduction of sulphate.

b) ECCC requests that the Proponent identify target concentrations for pit waters and how those can be achieved.

c) ECCC requests that the Proponent discuss developing a water quality objective for sulphate in Second Portage Lake.

ECCC IR 2 A – AGNICO EAGLE RESPONSE

a) ECCC requests that the Proponent provide options for the reduction of sulphate.

- Agnico Eagle refers ECCC to IR ECCC#1d response.

ECCC IR 2 B – AGNICO EAGLE RESPONSE

b) ECCC requests that the Proponent provide options for the reduction of sulphate.

- As per water license requirements, target concentrations for pit waters will be determined by Nunavut Water Board (NWB) prior to closure. As per Licence 2AM-MEA 1525, Part E Item 7, The Licence shall not breach dikes until the water quality in the re-flooded area meets CCME Water Quality Guidelines for the Protection of Aquatic Life, baseline concentrations, or appropriate site specific water quality objectives. Subject to the board approval, if water quality parameters are above CCME guidelines, a site specific risk assessment must be conducted to identify water quality objectives that are protective of the aquatic environment.
- For comparison to modelling results, target concentrations for most contaminants considered for the pit lake water quality are based on the Canadian Council of Ministers of the Environment (CCME) guidelines for the protection of aquatic life. For sulfate, a threshold value based on the Ambient Water Quality Guidelines for sulphate issued by the British Columbia Ministry of Environment in April 2013. The guideline is based on the water hardness of the receiving water body. The guideline value used is 128 mg/L.
- The following table summarizes the target concentrations considered for the modelling of pit lake water quality.

ECCC IR 2 B – AGNICO EAGLE RESPONSE

AGNICO EAGLE

b) ECCC requests that the Proponent provide options for the reduction of sulphate.

Parameters	Units	CCME Guidelines
Alkalinity	mg $CaCO_3$/L	n/a
Hardness	mg $CaCO_3$/L	n/a
Total dissolved solids	mg/L	n/a
Total Aluminium (Al)	mg/L	0.10
Total Silver (Ag)	mg/L	0.00025
Total Arsenic (As)	mg/L	0.005
Total Barium (Ba)	mg/L	n/a
Total Cadmium (Cd)	mg/L	0.00004
Total Chromium (Cr)	mg/L	0.001
Total Copper (Cu)	mg/L	0.002
Total Iron (Fe)	mg/L	0.30
Total Lead (Pb)	mg/L	0.001
Total Manganese (Mn)	mg/L	n/a
Total Mercury (Hg)	mg/L	0.000026
Total Molybdenum (Mo)	mg/L	0.073
Total Nickel (Ni)	mg/L	0.025
Total Selenium (Se)	mg/L	0.001
Total Strontium (Sr)	mg/L	n/a
Total Thallium (Ti)	mg/L	0.0008
Total Uranium (U)	mg/L	0.015
Total Zinc (Zn)	mg/L	0.03
Chloride	mg/L	120
Fluoride (F)	mg/L	0.12
Sulfate (SO4)	mg SO_4/L	128 (1)
Total Cyanide (CNt)	mg/L	0.005
Total Ammonia (NH3 + NH4)	mg N/L	1.83
Nitrate (NO3)	mg N/L	2.94
Total N equivalent	*mg N/L*	*0.35 (2)*

The Meadowbank Mine Core Receiving Environment Monitoring Program 2017 presents hardness concentration varying in between 9.6 and 13.4 mg/L in the Third Portage Lake. Based on this information, sulfate threshold would be 128 mg/L.

Water hardness* (mg/L)	Sulphate guideline (mg/L)
Very Soft (0-30)	128
Soft to moderately soft (31-75)	218
Moderately soft/hard to hard (76-180)	309
Very hard (181-250)	429
>250	Need to determine based on site water**

*Water hardness categories adapted from the CCME.

** Toxicity tests on the early stage rainbow trout were only conducted up to a water hardness of 250 mg/L. Natural background concentrations of water hardness in BC are generally much lower than 250 mg/L. It is recommended that additional toxicity testing on several species is required if natural background water hardness is greater than 250 mg/L. Organisms exposed to higher concentrations of water hardness in combination with sulphate may experience osmotic stress.

Notes: (1) Threshold value for sulfate based on BC Environment guildeline for the protection of aquatic life (April 2013)
(2) Value based on the threshold concentration for classification of an oligotrophic lake in terms of nutrient concentrations (Nurnberg 1996).

ECCC IR 2 C – AGNICO EAGLE RESPONSE

c) *ECCC requests that the Proponent discuss developing a water quality objective for sulphate in Second Portage Lake.*

- Agnico Eagle would like to clarify that the reconnection with the pit lake will be completed at Third Portage Lake and not the Second Portage Lake. As per water license requirements Part E Item 7, a final water quality object for sulphate will be determined by NWB prior to reconnecting the pit area to Third portage lake. As stated previously, Agnico Eagle are currently applying the BC limit for sulphate as a target for evaluating water quality management options.

ECCC IR 3

Reference to FEIS:

Hydrogeological Modeling for In-Pit Deposition of Tailings. SNC Lavalin. Nov. 30, 2017; Section 4.2 In-Pit Tailings Deposition

In-Pit Tailings Deposition Water Balance and Water Quality Forecast. SNC Lavalin. Sept. 12, 2017; Table 2-1,Section 4.0 Pit Closure Strategy

Environmental Impact Study Review – Meadowbank In Pit Tailings Deposition. SNC Lavalin. Feb. 15, 2018; Section 5.3.2.2 Groundwater

Core Receiving Environment Monitoring Program 2017 – Meadowbank Mine. Azimuth Consulting. March 2018.

Information Request / Recommendation Made By Interested Party:

a) ECCC requests that the Proponent provide a rationale for the 8 m water cover depth.

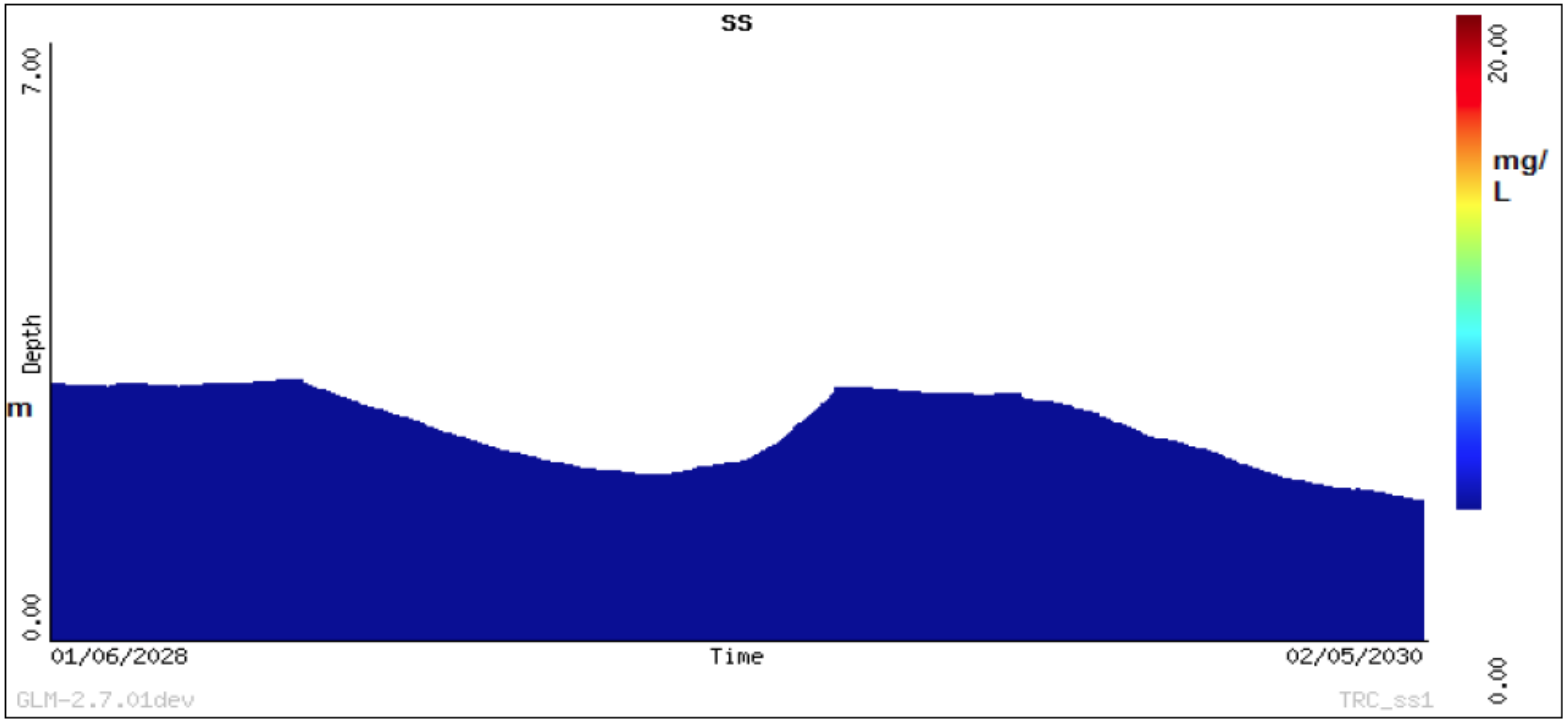
b) ECCC requests that the Proponent clarify if monitoring of the pore water quality will be conducted.

c) ECCC requests that the Proponent discuss potential effects of the tailings on water quality, and identify measures to mitigate effects to water quality.

WATER COVER DESIGN

- Negligible re-suspension at a depth of 2.75 m water cover for expected wind velocity

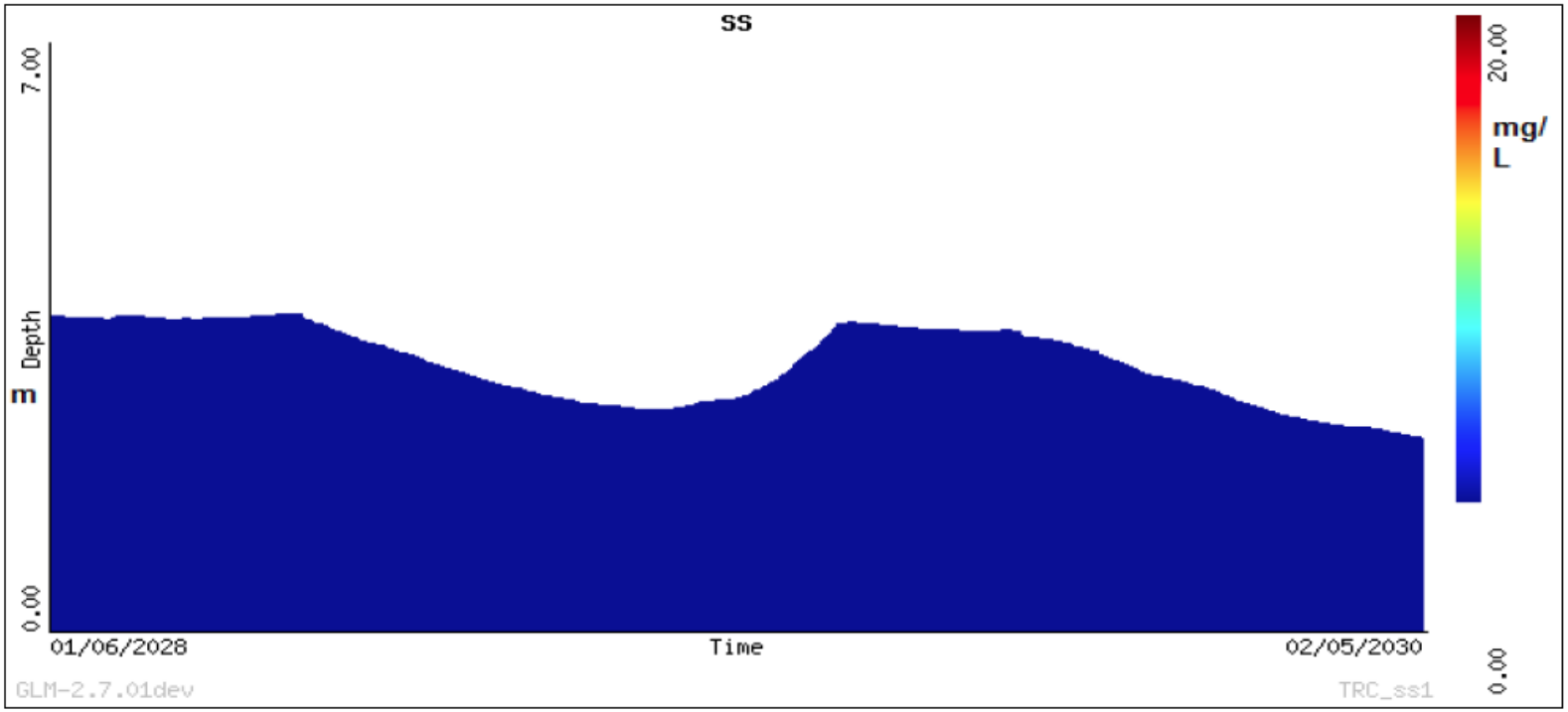
Figure 4 Run 4 – Fine Silt with 2.75 m water cover and expected wind velocity



WATER COVER DESIGN

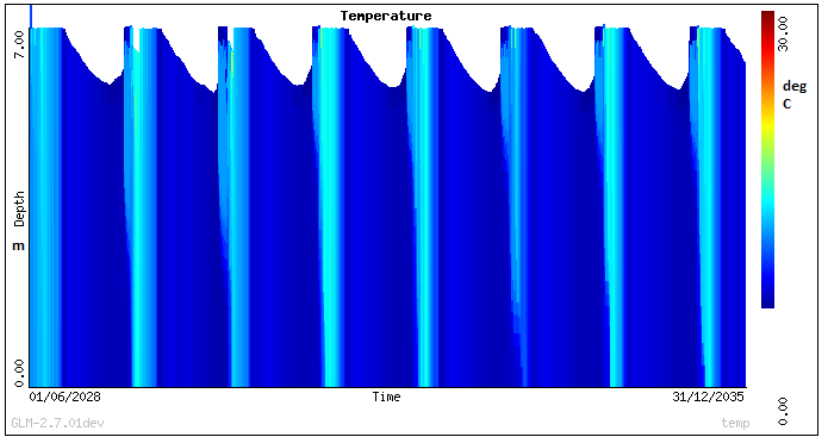
- Sustained higher than expected wind velocity (i.e. 130% expected wind velocity) requires a 3.75 m water cover to ensure negligible re-suspension.

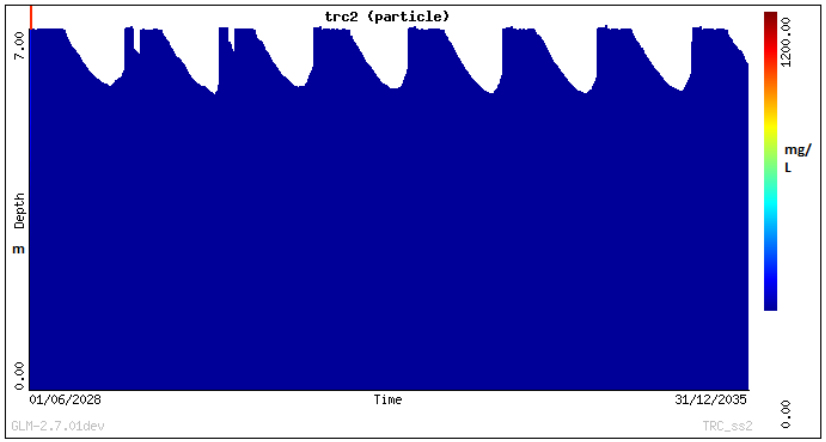
Figure 8 Run 8 – Fine Silt with 3.75 m water cover and 130% expected wind velocity

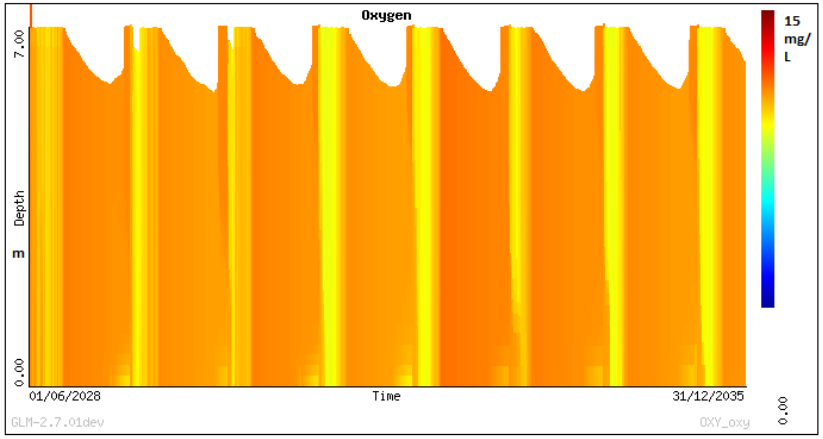


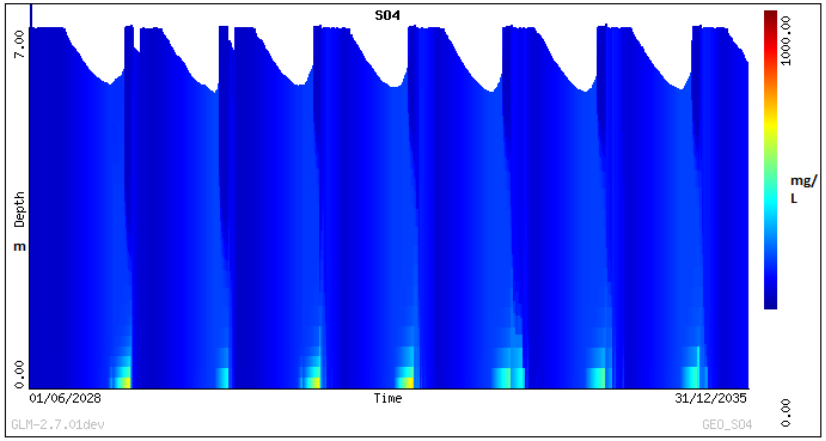
WATER COVER DESIGN

- Lake Stratification modeling results for temperature, oxygen, suspended solids and sulphate, considering inflows and outflows from the pit lake









ECCC IR 3 A – AGNICO EAGLE RESPONSE

AGNICO EAGLE

a) ECCC requests that the Proponent provide a rationale for the 8 m water cover depth.

- During the conceptual engineering phase, the minimal 8 meters water thickness cover was selected in order to keep any tailings inside the pit and avoid having any tailings covering the 2nd and 3rd Portage lake bed sediments exposed around the pits following the Meadowbank dewatering phase. During the pre-feasibility engineering phase, SNC-Lavalin completed the assessment of the minimum 8 metre water cover and confirmed that it will provide a very high safety factor in the prevention of tailings re-suspension. Furthermore, during the operation of the in-pit tailings pond, the tailings beach will have a slope varying between 2 to 5% based on Meadowbank operational experience. It is expected that the water cover thickness along the tailings will be variable. Minimum water cover thickness of 8 metres will be observed at the deposition point and water thickness will increase as tailings beach formation progress though the tailings pond.
- The rationale for the 8 m water cover depth was based upon the following:
- The proposed 8 metre minimum thickness of water cover above the tailings interface will result in negligible oxidation of the sulphide content of tailings materials (as noted previously several times greater than the fore mentioned referenced sites (SNC 2018b)) where a water cover has reported negligible rates of sulphide oxidation; and
- An assessment of the potential for tailings re-suspension (SNC-Lavalin 2018b) was presented by Agnico Eagle in the response of the IR-ECCC- 1-b.

ECCC IR 3 A – AGNICO EAGLE RESPONSE

b) ECCC requests that the Proponent clarify if monitoring of the pore water quality will be conducted.

- Agnico Eagle confirms that the pore water quality will be monitored.
- For the water quality forecast and contaminant transport models, it was assumed that the pore water will have the same water quality than the mill water (i.e. water contained in the slurry). However, during the tailings deposition process, the mill water will be mixed with the reclaim water when discharged into the in-pit tailings pond. At this point, the pore water quality should be much more similar to the reclaim water quality. Based on this approach, the pore water quality used for the water quality forecast and contaminant transport models is a conservative evaluation.

ECCC IR 3 A – AGNICO EAGLE RESPONSE

AGNICO EAGLE

c) ECCC requests that the Proponent discuss potential effects of the tailings on water quality, and identify measures to mitigate effects to water quality.

- Post closure modelling of in-pit water quality (SNC-Lavalin 2018a) predicts that in the absence of water treatment, there are many water quality parameters that may remain above both natural background and or CCME guideline concentrations after the reconnection of Portage and Goose Pits with the surrounding lake system (SNC-Lavalin 2018a). The water quality forecast model for the 8.3 Mt scenario shows that the major ions of concern are arsenic, copper, selenium, Total Nequivalent and sulfate, and to a lesser extent chromium, fluoride and total ammonia.
- However, the following should be noted:
- Source loadings of these contaminants are associated with tailings contact water from the mill and tailings storage areas and thus these contaminant source loadings will cease at the end of tailings deposition.
- Once the 8 meter or greater water cover has been established there will be negligible loadings associated with any of the following geochemical processes occurring at the sediment interface:
  - Sulphide oxidation;
  - Mineral dissolution; and
  - Tailings re-suspension

ECCC IR 3 A – AGNICO EAGLE RESPONSE (CON'T)

AGNICO EAGLE

c) ECCC requests that the Proponent discuss potential effects of the tailings on water quality, and identify measures to mitigate effects to water quality.

- The water quality modelling work used total concentrations for water quality inputs to the model as a conservative estimate of contaminant concentrations (i.e. a significant proportion of several parameters are likely to be associated with total suspended solids (TSS) rather than dissolved phase concentrations and tailings re-suspension modeling work has confirmed there will be insignificant TSS in the water cover with an intended minimum depth of 8 metres);
- The water quality modeling work did not account for the removal of total cyanide via volatilization and bio-degradation which even with a water cover depth of 8 metres is expected to naturally attenuate to negligible levels within a period of a few months based upon what has been observed at several other Canadian Mine sites with water cover depths up to 10 metres (Botz et al. 1999);
- The water quality modeling work did not account for the removal of total nitrogen from the water column via sedimentation or denitrification. These processes are expected to be removal significant amounts of total nitrogen from the post mine closure water column over a period of months rather than years (Saunders and Kalff 2001);

ECCC IR 3 A – AGNICO EAGLE RESPONSE (CON'T)

AGNICO EAGLE

c) *ECCC requests that the Proponent discuss potential effects of the tailings on water quality, and identify measures to mitigate effects to water quality.*

- PHREEQC modeling work undertaken as part of the post closure assessment of in-pit water quality (SNC-Lavalin 2018a) suggested that there is likely to be significant reduction in the following dissolved constituents in the water column as a result of mineral precipitation and adsorption processes: aluminum, cadmium, copper, iron and lead;
- The water quality forecast model does not assume any water treatment in order to assess a conservative evaluation of the pit lake quality after deposition and pit flooding. However, water treatment will be put in place at the end of deposition, which will mitigate the impact of many of the parameters identified in the water quality forecast.

ECCC IR 4

Reference to FEIS:

NIRB Application for Screening #125253. Agnico Eagle Mines Meadowbank Modification - In-Pit Tailings Disposal; Section: Environmental Impacts

Technical Meeting for Agnico Eagle's In-Pit Tailings Disposal Modification. June 12, 2018.

Technical Meeting Presentation for Agnico Eagle's In-Pit Tailings Disposal Modification. June 12, 2018; Slide 20 Pit Closure Strategy

Information Request / Recommendation Made By Interested Party:

ECCC requests that the Proponent provide rationale for not capping the tailings with non-PAG rock after deposition, and how the Proponent plans to mitigate the effects to water quality above the tailings should there be remobilization of the tailings and contaminants when the water turns over or mixes.

ECCC IR 4 – AGNICO EAGLE RESPONSE

AGNICO EAGLE

- A non-PAG cap will not provide any additional benefit in terms of mitigating remobilization of the tailings and contaminants either generally and or specifically when the water turns over or mixes. This is based upon the following lines of evidence:
- Regardless of the an absence of a non-PAG cap - rates of sulphide oxidation will be negligible solely as a result of the proposed water cover with a minimum 8 metre depth. Thus there will not be any significant release of acidity, sulphate salinity or metals under such conditions. Even relatively shallow water covers of only a few meters are highly effective in preventing sulphide oxidation as oxygen has limited solubility in water and the rate of transfer of oxygen to the sulphides is limited to diffusion (which is very slow). The proposed 8 metre minimum thickness of water cover above the tailings interface is several times greater than the fore mentioned referenced sites where a water cover has reported negligible rates of sulphide oxidation (i.e. a non-PAG cap will have no appreciable beéneficial effect upon rates of sulphide oxidation);
- Regardless of the an absence of a non-PAG cap - Circum-neutral to moderately alkaline water that will be contact with the sediment interface from the time tailings deposition ceases to many years beyond mine closure. Based upon PHREEQC modeling work undertaken as part of in pit water quality assessment at closure (SNC-Lavalin 2018a), there will be no significant dissolution of minerals at the tailings interface (hence no significant associated metals release). A non-PAG cap will have no appreciable effect upon dissolution of minerals at the tailings interface.

ECCC IR 4 – AGNICO EAGLE RESPONSE (CON'T)

- Regardless of the an absence of a non-PAG cap - Assessment of the potential for tailings re-suspension (SNC-Lavalin 2018b) that included both re-suspension modelling work and literature review work demonstrated a low potential for significant tailings re-suspension, with note to the following:
  - Re-suspension modelling work assuming a very conservative low critical shear stress for re-suspension (0.01 Nm-2) suggested the following:
    - Negligible re-suspension at a depth of 2.75 m water cover for expected wind velocity; and
    - Sustained higher than expected wind velocity (i.e. 130% expected wind velocity) requires a 3.75 m water cover to ensure negligible re-suspension.
  - Detailed literature review suggested the intended minimum water cover thickness of 8 metres will provide a very high mitigation in the prevention of tailings re-suspension in terms of what has been previously observed at other project sites.

ECCC IR 5

Reference to FEIS:

Environmental Impact Study Review – Meadowbank In Pit Tailings Deposition. SNC Lavalin. Feb. 15, 2018; Section 5.3.2.2 Groundwater

Groundwater Monitoring Plan Version 8. January 2018; Section 3 Adapted Groundwater Monitoring Program for In-Pit Tailings Deposition

In-Pit Tailings Deposition Water Balance and Water Quality Forecast. SNC Lavalin. Sept. 12, 2017; Section 6.5 Portage Central Dump Monitoring Wells

Hydrogeological Modeling for In-Pit Deposition of Tailings. SNC Lavalin. Nov. 30, 2017; Section 4.4 Post-closure

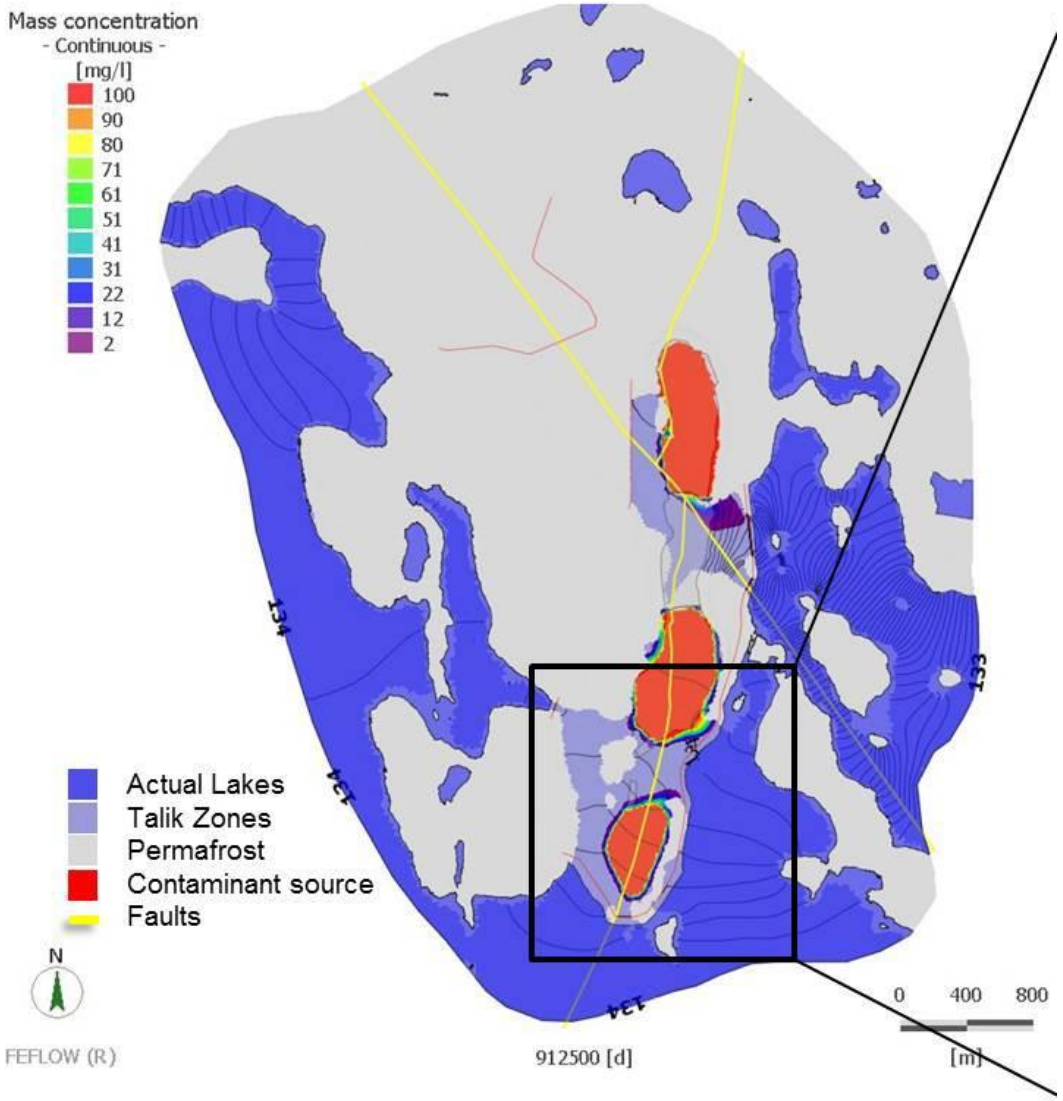
Information Request / Recommendation Made By Interested Party:

a) ECCC requests that the Proponent identify the depth that groundwater wells will be sampled.

b) ECCC requests that the Proponent discuss monitoring and mitigation/contingencies for addressing potential contaminant migration out from the pits into groundwater. Response guideline: briefly explain how treatment of the contaminant source mitigate the contamination migration

CONTAMINATION TRANSPORT MODELING

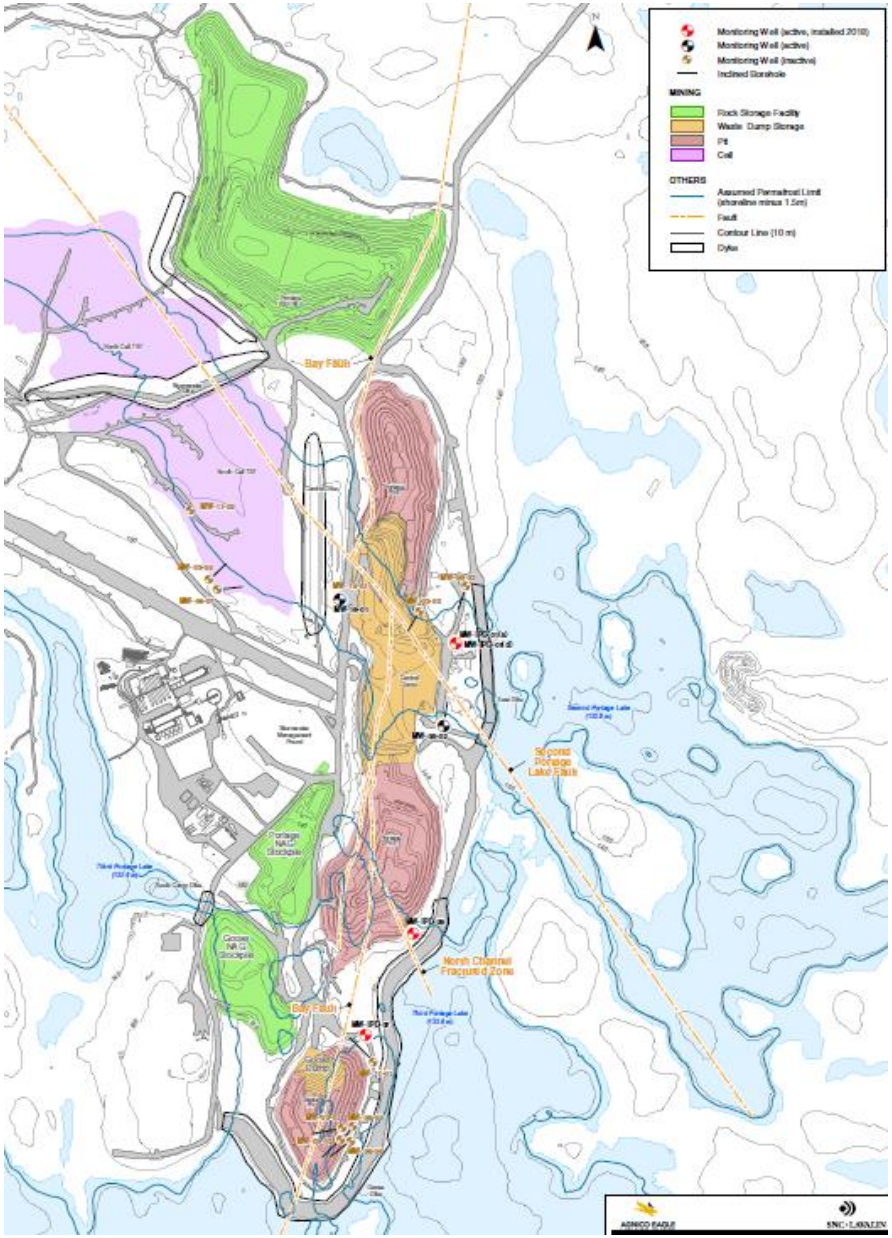
- Key findings from the simulations
  - At closure, once all pits filled with tailings: Natural GW flow will be reestablished and potential contaminants will migrate to east, in lake direction, but at a low rate, since hydraulic gradient will be low.
  - If source concentration remains constant over time, the plume would reach only 250m from Portage Pit A, 100 m from Portage Pit E and 150 m from Goose Pit, in lakes direction over 2,500 years (at 3% of the initial concentration).
  - Water treatment required at closure before the pit lake reconnection will mitigate this risk.



GROUNDWATER MONITORING

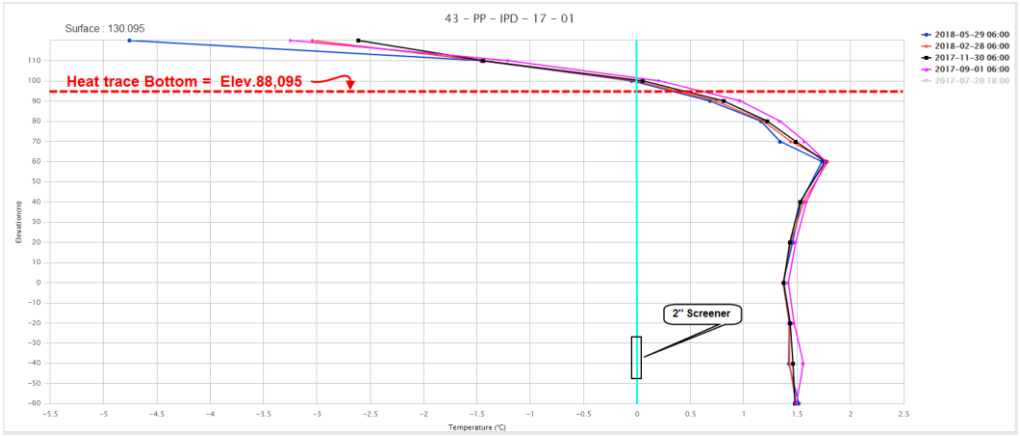
- Install monitoring Wells (MW) network
  - Add 4 deep MW (60 to 180 mbgs) at key location
  - Talik area between pits and lakes are targeted

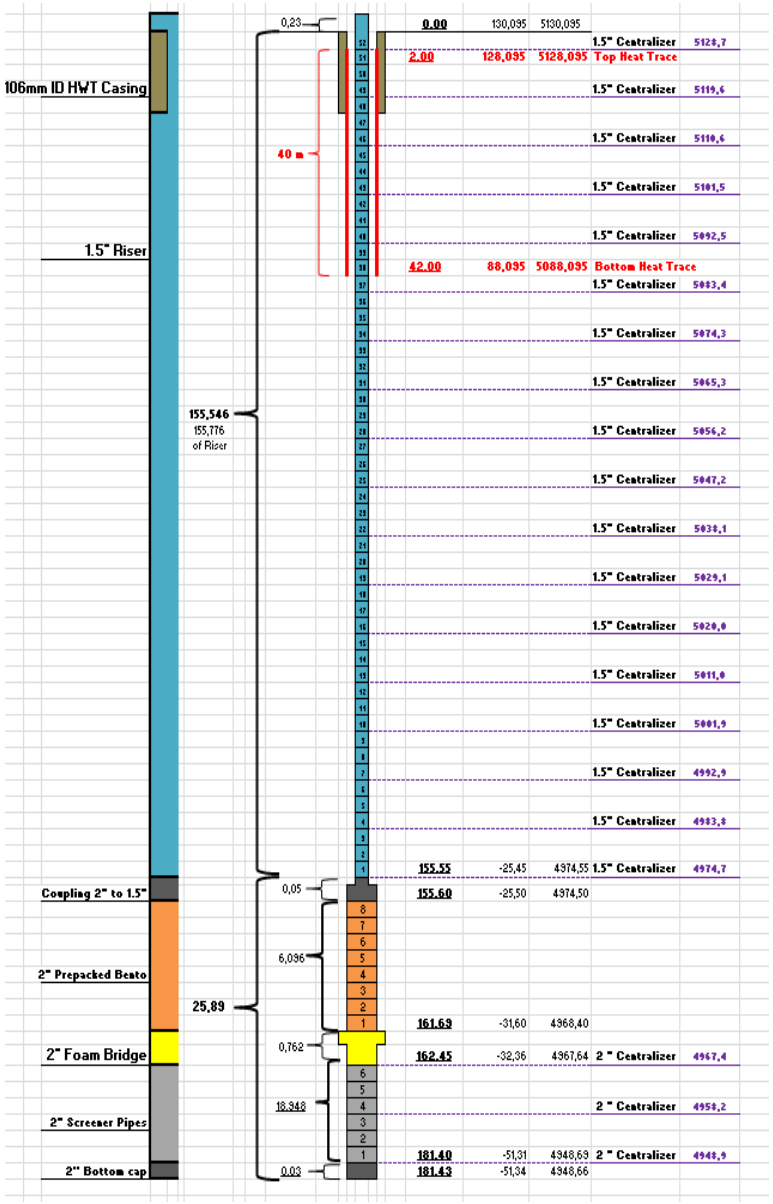
- GW monitoring program for IPD
  - Background GW quality already assessed
  - During IPD: Sample GW
    - Total and dissolved metals
    - Chloride
    - Fluoride
    - Total cyanide
    - Nitrate
  - During IPD: Continue water level and temperature monitoring
  - After IPD (for a minimum of 2 years): Continue MW sampling once a year at spring



GROUNDWATER MONITORING

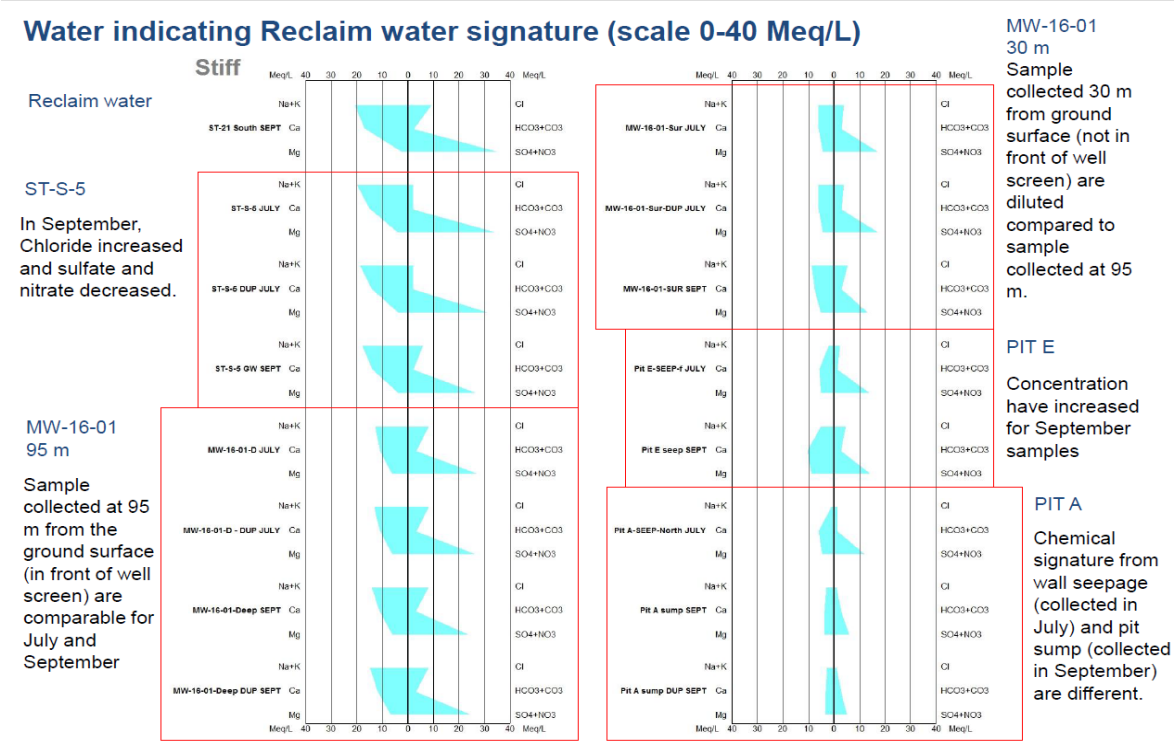
- Monitoring Wells Network Expansion
  - Based on contaminent transport model
  - Conduct a hydrogeological drilling investigation program prior to well installation
  - Confirm permafrost elevation





GROUNDWATER MONITORING

- Improvement of Groundwater Sampling Practices
  - Limit or avoid usage of de-icing salt/brine during well installation
  - Install heat trace in the permafrost zone
  - Dedicated sampling pumps for each well
  - Low-flow technique well sampling with nitrogen gas installations.
- Methodology for Groundwater Geochemical Interpretation



ECCC IR 5 A – AGNICO EAGLE RESPONSE

a) *ECCC requests that the Proponent identify the depth that groundwater wells will be sampled*.

Depth of the six (6) actual groundwater monitoring wells varies from 50 to 180 m. Specifically, monitoring wells depth are: 50 m (MW-IPD-07), 70 m (MW-IPD-01s), 80 m (MW-IPD-09), 101 m (MW-16-01), 150 m (MW-08-02) and 180 m (MW-IPD-01d).

ECCC IR 5 A – AGNICO EAGLE RESPONSE

b) ECCC requests that the Proponent discuss monitoring and mitigation/contingencies for addressing potential contaminant migration out from the pits into groundwater.

- Agnico Eagle did an assessment of the groundwater sampling methodology in 2016 and 2017 with the support of SNC-Lavalin. Installation and maintenance of monitoring wells in a permafrost environment is challenging and investigation on the mechanism of failure of the previous wells was completed. Result of this investigation provided Agnico Eagle to review the monitoring well site selection process, extend heat traced cable below the permafrost actual depth to prevent future damage related to the extension of the permafrost overtime and by integrating recommended sampling procedures by SNC-Lavalin.
- The groundwater monitoring network has been expanded in 2018 with the addition of four (4) new monitoring wells, adapted to the in-pit tailing deposition project. The 3D hydrogeological model was used to locate each new monitoring wells in the predicted groundwater flow paths in talik areas from the pits to the lakes. Monitoring wells will maintain their integrity over time in talik environment. Prior well installation, a hydrogeological and thermal field investigation was carried out to adapt the installation to each local condition and to target the most fractured zones at pit depths.

ECCC IR 5 A – AGNICO EAGLE RESPONSE (CON'T)

b) ECCC requests that the Proponent discuss monitoring and mitigation/contingencies for addressing potential contaminant migration out from the pits into groundwater.

- New monitoring wells have been installed close to the pits for "warning" purpose, to indicate contaminant traces, if it occurs, before they reach the lakes. Groundwater sampling practices has been improved by the following main actions: Limit or avoid usage of de-icing salt/brine calcium chloride during well installation in talik environment; Dedicated sampling pumps and tubing to each monitoring well location to prevent samples cross-contamination; Use low flow sampling techniques; and, Sample groundwater during the same period of the year to obtain consistent water quality comparison. Some major ions analysis was also added to the monitoring program for chemical results reliability check (mass balance verification). Geochemical interpretation, using Piper and Stiff diagrams are used to facilitate the comprehension and interpretation of the origin of groundwater chemical signatures at each sampling location. Water treatment of pit lakes will also limit potential contaminant migration in upper bedrock formations.
- Following closure and pit flooding, permafrost created around the monitoring well during the mining of the pit will start degrading though time which will mitigate any future damage to the well. Angico Eagle will have to maintain access to those sampling location by building jetties from the dike and extending well collars.