

Appendix 7 : 2019 Annual Geotechnical Report Agnico Eagle Responses and Action Table

Annual Geotechnical Inspection Recommendation (Tetra Tech, 2019)			Priority Level (AEM 2020)	Recommendation (s) to be Implemented?	AEM Response to Recommendation	Additional Action(s) Required	Responsible Department(s)	Expected Date of Implementation	Status (End of 2020)	Comment/Additional Action (s) Required
1.	Inspection and Monitoring	The high water levels (in CP1) may have an impact on the ground temperatures in the dike. Temperatures should be monitored to determine the impact of the high-water level on them.	Medium	Already Implemented	The current schedule of instrumentation data collection, analysis and documentation follows the schedule developed in the OMS.	No	NA	NA	NA	NA
		The current OMS manual is dated September 2018. Update the OMS on an annual basis.	High	Yes	The annual review was held during the 2019 MIRB meetings in July 2019. Revisions to the document have been on-going.	A review of the OMS occurred in July 2019. The update of the OMS to incorporate these revisions is on-going	Engineering	June 2020	Complete	The updated OMS was finalized in June 2020.
2.	Water Management	(The water level in CP1) is higher than both the specified levels for the end of October and before the following spring freshet. A water management strategy must be developed to deal with the current high water levels in CP1.	High	Yes	Multiple workshops and a risk assessment have been held to evaluate different discharge strategies, and an operational risk assessment is currently ongoing to prepare for freshet. A plan is in place to enable discharge immediately at the onset of thaw/runoff. The plan is in place to enable the ability to manage water levels as soon as freshet begins.	Implement freshet management plan.	E&I/Environment/Engineering	May 15 2020	Complete	Freshet management plan was enacted - Water level in D-CP1 returned to acceptable operating levels and TARP level was reduced to green in July 2020
3.	Dike Repair/Maintenance	Minor cracking and small settlement were observed along portions of the upstream and downstream crest. The open cracks and depressions observed in the dike crests should continue to be monitored.	Medium	Already Implemented	The current schedule of visual inspections follows the schedule developed in the OMS.	No	NA	NA	NA	NA
		Three settlement survey monuments were installed over the liner crest in the dike (D-CP5); however, all of the points were damaged at the time of the inspection. It is understood they were replaced in October 2019. The GTCs and survey monitoring points should continue to be monitored following the schedule and procedures developed in the OMS manual.	Medium	Already Implemented	The current schedule of instrumentation data collection, analysis and documentation follows the schedule developed in the OMS.	No	NA	NA	NA	NA
		The high water levels (in CP1) may have an impact on the ground temperatures in the dike. It is understood that snow clearing on the downstream crest will be done to mitigate the impact of the high water levels.	High	Yes	Typically, snow clearing activities on the downstream of D-CP1 has the potential risk of damaging dataloggers, thermistor installations and trench sumps and is therefore not currently a scheduled maintenance activity. However, to offset the impacts of the high upstream water levels and decrease any possible downstream issues during freshet, snow clearing of the downstream of D-CP1 has been added t hte snow management and freshet plans.	Carefully remove snow from the downstream of D-CP1 prior to freshet.	E&I	May 1 2020	Complete	Snow clearing of the D-CP1 downstream (sump access road) was completed in 2020 prior to freshet. Surveys of snow depth to determine the impact on temperatures on the downstream of the dike and further actions will be planned after this assessment.
4.	Sump/Channels	The downstream collection channel pond was filled with water at the time of the site visit due to recent precipitation events and wet ground conditions downstream of the dike. The D-CP1 sump and downstream collection channel should be emptied in the fall/early winter to refreeze the ground around these facilities.	High	Already Implemented	The D-CP1 sump was emptied in the fall of 2019 as per OMS guidelines. However, very late season rainfall followed by freezing temperatures means the sump and channels were full at the onset of winter conditions. Prior to freshet 2020, a hole in the ice will be excavated so that pumping can commence immediately upon thawing.	Enable immediate pumping of sump upon freshet. Follow OMS guidelines for removal of water prior to 2020 freeze-up.	E&I	May 15 2020	Complete	NA
		During open water season, keeping the water level in the downstream channel and sump low will reduce the potential for thaw of the ground around and associated settlement.	Medium	Already Implemented	The D-CP1 downstream sump should be empty during open water season as per OMS guidelines and the AEM Water Management Plan.	Follow OMS guidelines for removal of water prior to 2020 freeze-up.	E&I	October 2020	Complete	NA

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1.	OMS	If the P-Area ponds and associated dikes continue to be used by AEM, it is recommended that they are included in an OMS manual.	Low	No	P3 of the P-Area was decommissioned with the construction of SP3 in 2019. P1 and P2 are scheduled to be decommissioned in 2020.	No	NA	NA	Complete	P1 and P2 were decomissioned in 2020
2.	Inspection and Monitoring	Cracks with settlement (vertical displacement or slump) and small circular voids evident along the dikes should continue to be monitored.	Low	No	P3 of the P-Area was decommissioned with the construction of SP3 in 2019. P1 and P2 are scheduled to be decommissioned in 2020.	No	NA	NA	Complete	P1 and P2 were decomissioned in 2020
		AEM personnel should continue to conduct geotechnical inspections and document visual observations such as cracking, slumping and/or seepage. Thermistor data should continue to be collected, plotted and reviewed and pond levels should continue to be measured and tracked. Inspection reports should continue to be prepared for documentation. It is recommended that the frequency of visual geotechnical inspections be weekly during freshet and monthly during the open water period.	Low	No	P3 of the P-Area was decommissioned with the construction of SP3 in 2019. P1 and P2 are scheduled to be decommissioned in 2020.	No	NA	NA	Complete	P1 and P2 were decomissioned in 2020
3.	Water Management	Continue to collect and pump back seepage water as deemed necessary,in areas where seepage could impact downstream areas.	Low	Already Implemented	If the P-Area is not fully decommissioned by freshet 2020, any seepage from the area will continue to be collected and pumped back until such time that decommissioning activities can commence.	No	NA	NA	Complete	P-Area was fully decomissioned in 2020

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1.	Channel 1	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
2.	Channel 2	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
3.	Channel 3	Monitor the cracking and subsidence in the native ground above Channels 3 and 4 to determine if they impact the channels performance.	Low	Already Implemented	The area in question will be monitored during open water season as part of the site-wide geotechnical monitoring program.	Continue to monitor channel performance.	Engineering/Environment	Open Water 2020	Complete	Channel 3 performance does not appear to be impacted and monitoring will continue as per the recommendations of the 2020 Geotechnical Inspection
4.	Channel 4	Monitor the cracking and subsidence in the native ground above Channels 3 and 4 to determine if they impact the channels performance.	Low	Already Implemented	The area in question will be monitored during open water season as part of the site-wide geotechnical monitoring program.	Continue to monitor channel performance.	Engineering/Environment	Open Water 2020	Complete	Channel 4 performance does not appear to be impacted and monitoring will continue as per the recommendations of the 2020 Geotechnical Inspection
5.	Channel 5	Monitor the slumping and cracking adjacent to Channel 5 to determine if sediment from the area is blocking the channel.	Low	Already Implemented	The area in question will be monitored during open water season as part of the site-wide geotechnical monitoring program.	Continue to monitor channel performance.	Engineering/Environment	Open Water 2020	Complete	Channel 5 performance does not appear to be impacted and monitoring will continue as per the recommendations of the 2020 Geotechnical Inspection
6.	Channel 7	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
7.	Berm 2	Erosion of the slopes should be monitored.	Low	Already Implemented	The area in question will be monitored during open water season as part of the site-wide geotechnical monitoring program.	Continue to monitor berm performance.	Engineering/Environment	Open Water 2020	Complete	Berm 2 performance does not appear to be impacted and monitoring will continue as per the recommendations of the 2020 Geotechnical Inspection
8.	Berm 3	Erosion of the slopes should be monitored and consideration given to placing coarser material on Berm 3 to reduce the potential for erosion if it becomes substantial.	Low	Already Implemented	The area in question will be monitored during open water season as part of the site-wide geotechnical monitoring program.	Continue to monitor berm performance.	Engineering/Environment	Open Water 2020	Complete	Berm 3 performance does not appear to be impacted and monitoring will continue as per the recommendations of the 2020 Geotechnical Inspection
9.	Pond CP3/Berm CP3	It is recommended that an OMS manual be developed for the collection pond.	Medium	Yes	AEM Meliadine is currently developing an OMS for all water management infrastructure on site. OMS for water collection ponds to be completed by Q4 2021	Develop OMS for all water management infrastructure on site.	Engineering/Environment	Q4 2020	On-going	OMS for all water management infrastructure to be completed by Q4 2021
		A water management strategy should be developed to deal with potential pond levels next spring	High	Already Implemented	The pond currently has capacity for 2.5 days of a 7-day, 1:100 wet freshet (IDF). The pumping system is planned to be in place to ensure pumping is possible immediately upon runoff.	No	NA	NA	NA	NA
		Pumps should be in place to deal with freshet as it begins.	High	Yes	This will be completed prior to the onset of thaw. Associated pipelines have been cleared of water and winterized prior to freeze-up 2019.	Install pumping system prior to freshet.	E&I	May 15 2020	Complete	CP3 dewatering pumps were implemented at the onset of thawing during freshet 2020
		It should be verified that there is enough pumping capacity to deal with the IDF during spring freshet.	High	Already Implemented	It has been verified that the 250hp diesel pump at CP3 has the pumping capacity sufficient to keep up with the IDF (1:100 wet freshet occuring over 7 days). This equates to 9,400 m3/day.	No	NA	NA	NA	NA
10.	Pond CP4/Berm CP4	It is recommended that an OMS manual be developed for the collection pond.	Medium	Yes	AEM Meliadine is currently developing an OMS for all water management infrastructure on site. OMS for water collection ponds to be completed by Q4 2021	Develop OMS for all water management infrastructure on site.	Engineering/Environment	Q4 2020	On-going	OMS for all water management infrastructure to be completed by Q4 2021
		The settlement and the impact on the pond should be monitored in future years to determine if remedial action is required.	Low	Already Implemented	The area in question will be monitored during open water season as part of the site-wide geotechnical monitoring program.	Continue to monitor pond performance.	Engineering/Environment	Open Water 2020	Complete	CP4 pond/berm performance does not appear to be impacted and monitoring will continue as per the recommendations of the 2020 Geotechnical Inspection
		A water management strategy should be developed to deal with potential pond levels next spring.	High	Already Implemented	The pond currently has capacity for 2.6 days of a 7-day, 1:100 wet freshet (IDF). The pumping system is planned to be in place to ensure pumping is possible immediately upon runoff.	No	NA	NA	NA	NA
		Pumps should be in place to deal with freshet as it begins.	High	Yes	This will be completed prior to the onset of thaw. Associated pipelines have been cleared of water and winterized prior to freeze-up 2019.	Install pumping system prior to freshet.	E&I	May 15 2020	Completed	CP4 dewatering pumps were implemented at the onset of thawing during freshet 2020
		It should also be verified that there is sufficient pumping capacity to deal with the IDF during freshet.	High	Already Implemented	It has been verified that the 250hp diesel pump at CP4 has the pumping capacity sufficient to keep up with the IDF (1:100 wet freshet occurring over 7 days). This equates to 11,000 m3/day.	No	NA	NA	NA	NA
11.	Saline Pond 1	The settlement and cracking in the berm should continue to be monitored.	Low	Already Implemented	The area in question will be monitored during open water season as part of the site-wide geotechnical monitoring program.	Continue to monitor berm performance.	Engineering/Environment	Open Water 2020	Completed	SP1 pond/berm performance does not appear to be impacted and monitoring will continue as per the recommendations of the 2020 Geotechnical Inspection
12.	Saline Pond 2	Monitoring of the settlement and cracking in the overburden above the pond should continue.	NA	No	Saline Pond 2 lies within the footprint of Tiriganiaq Pit 02. Development of this open pit is currently slated to begin in Q2 2020.	No	NA	NA	NA	NA
		The subsidence area on the access ramp should continue to be filled. Vehicle traffic into the area should continue to be restricted.	NA	No	Saline Pond 2 lies within the footprint of Tiriganiaq Pit 02. Development of this open pit is currently slated to begin in Q2 2020.	No	NA	NA	NA	NA

13.	Saline Pond 3	The pond should continue to be monitored for signs of settlement etc. as it was constructed on the native ground.	Medium	Already Implemented	The area in question will be monitored during open water season as part of the site-wide geotechnical monitoring program.	Continue to monitor pond performance.	Engineering	Open Water 2020	Completed	SP3 pond/berm performance does not appear to be impacted and monitoring will continue as per the recommendations of the 2020 Geotechnical Inspection
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1.	Inspection and Monitoring	The ground temperatures should continue to be monitored in the TSF and the foundation using the GTCs presently installed.	Medium	Already Implemented	Temperatures in the TSF and foundation will continue to be monitored on a monthly basis.	No	NA	NA	NA	NA
		It is recommended that the tailings be tested to determine their unfrozen content curve below 0°C to determine how much of the tailings remain unfrozen.	Low	Yes	Discussions with the design engineer will occur regarding the recommended test program and expected outcomes.	Discuss sampling plan with design engineer and potentially implement testing.	Engineering	Q4 2020	Not Started	AEM continues to work with the Design Engineer to develop an adequate test program to determine the unfrozen content curve. The test program will be implemented during 2021.
		On-going water quality tests in CP3, process water testing and ARD/ML testing can be used to assess the geochemical performance of the facility.	Medium	Already Implemented	The current schedule of geochemical sampling and testing will continue in 2020.	No	NA	NA	NA	NA

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1.	Site Roads	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
2.	Borrow Sources (Wesmeg, Meliadine North, Meliadine, Tiriganiaq, SP2 Temporary)	The borrow areas should be monitored for future erosion and thaw settlement. The need for further reclamation can be assessed in future years.	Low	Already Implemented	The areas in question will be monitored during open water season as part of the site-wide geotechnical monitoring program.	No	NA	NA	NA	NA
3.	Ore Stockpiles	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
4.	Crusher Ramp	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
5.	Saline Water Treatment Plant (SWTP)	It is recommended that the plant be resurveyed to determine how much movement has occurred since the plant was releveled.	Low	Already Implemented	It is known that significant settlement has occurred in the building foundations. Survey points were established in the SWTP shortly after the facility was commissioned and routine survey had been typically conducted on a monthly basis until September 2019 when a quarterly schedule was adopted. Quarterly readings will continue throughout 2020.	No	NA	NA	NA	NA
		A structural assessment of the plant and possibly the building should be carried out if it is determined that significant settlement has occurred since it was last releveled.	Low	Yes	SWTP operation is planned to be minimal during 2020. Prior to recommencing operations, a structural assessment will be conducted if the quarterly survey readings show that additional significant settlement has occurred.	Potential assessment by structural engineer if additional significant settlement observed and operations to be enhanced.	NA	NA	NA	The SWTP was not in operation during 2019 and there are currently no plans to recommission the facility.
		It is also recommended that the geotechnical conditions under the building be evaluated and GTCs installed under the building to evaluate how much additional settlement may occur.	Low	No	AEM agrees that the settlement is the result of thawing of the ice-rich permafrost below the building pad and differential settlement between the original building foundation and the extension. It is not felt that additional evaluation or GTC installations are required at this time.	No	NA	NA	NA	NA
6.	Operation Landfill	It is recommended that the landfill be covered in stages with intermediate cover to avoid blowing debris.	Medium	Yes	The short term landfill management options are currently under review. Access may be required to remove wood from the landfill.	Complete review of landfill management options.	Environment/E&I	May 1 2020	On-going	The Landfill Management plan is currently under review, and will include a strategy for the progressive cover placement.
		A program to separate burnable debris could reduce the landfill requirements. The landfill is nearing its current design capacity. A plan must be developed to raise the landfill berms.	Medium	Yes	The feasibility of segregating untreated wood for reuse or burning is currently being assessed. Raising the landfill berms is one of several options currently under evaluation.	Complete review of landfill management options.	Environment/E&I	May 1 2020	Complete	Burnable debris was removed from the landfill, and the landfill berm was raised in October 2020, increasing the landfill storage capacity
7.	Emulsion Plant Pad	It is recommended that the pad settlement and erosion should continue to be monitored.	Low	Already Implemented	The area in question will be monitored during open water season as part of the site-wide geotechnical monitoring program.	No	NA	NA	NA	NA
8.	Landfarm	It is recommended that the water in the landfarm sump be tested as per AEM's protocol and then removed from the landfarm.	Low	Already Implemented	Pre and post treatment water samples were collected and water was removed from the landfarm using an oil water separator	No	NA	NA	NA	NA
9.	Cyanide Storage Pad(s)	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
10.	Emulsion Plant Storage	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
11.	Industrial Fuel Storage	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
12.	Incinerator Pad	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
13.	Mine Site Fuel Farm	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
14.	Paste Plant Ramp	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
15.	Portal 1/Portal 2	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
16.	Industrial Pad	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
17.	Exploration Camp/Road	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA

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1.	Culverts	Consider adding armouring around culverts to reduce potential for erosion. (km 7.0)	Low	Already Implemented	Culvert will continue to be monitored for signs of erosion.	No	NA	NA	NA	NA
		Consider installation of a culvert at this location to reduce the risk of overtopping. (km 19.5)	Low	Already Implemented	This area of the road will be monitored over 2020 freshet and flow events, and evaluated for the need of a culvert	No	NA	NA	NA	NA
		Consider installation of a culvert in this area to reduce the risk of overtopping. (km 21.2 to 21.5)	Low	Already Implemented	This area of the road will be monitored over 2020 freshet and flow events, and evaluated for the need of a culvert	No	NA	NA	NA	NA
		Clear culvert inlet of road fill material. Consider adding armouring around culverts. Consider adding additional culverts if water management continues to be an issue during freshet. (km 25.8)	Medium	Yes	When feasible, inlet of this culvert will be cleared of road fill material. Adding armouring will be considered. Water level and erosion during freshet will be monitored to assess need for additional culverts.	Clear culvert inlet.	E&I	Open water 2020	On-going	Clearing of culvert was not completed. No armor was added to the culvert. Water level and erosion during freshet was monitored and will continue to be monitored during 2021 freshet
		Lower pipe should be replaced. Consider adding additional culverts if water management continues to be an issue during freshet. (km 26.2)	Low	Yes	Lower pipe is planned to be replaced over 2020. Water levels during freshet will be monitored to assess need for additional culverts	Replace lower pipe.	E&I	Open water 2020	On-going	Lower pipe was not replaced in 2020. Water levels during freshet was monitored and will continue to be monitored during 2021 freshet
		Monitor riprap and add more protection if more erosion occurs. (km 27.1)	Low	Already Implemented	This area will continue to be monitored for erosion, and riprap added as needed.	No	NA	NA	NA	NA
		A culvert could be installed to reduce the risk of overflow. (km 28.7)	Low	Already Implemented	This area will continue to be monitored over 2020 freshet and need for additional culvert will be assessed.	No	NA	NA	NA	NA
		Monitor areas that have ponding, but no culverts and consider installing culverts to manage water.	Medium	Already Implemented	AEM will continue to monitor the AWAR for ponding, track ponded areas and assess the need for culverts.	No	NA	NA	NA	NA
2.	Bridge/Road	Replace or repair damaged gabion. Continue to monitor for erosion and/or settlement. (M-5 Bridge)	Medium	Yes	Gabion is planned to be repaired or replaced over 2020. Culvert will continue to be monitored for signs of erosion and/or settlement.	Replace gabion. Continue monitoring.	E&I/Environment	Open water 2020	On-going	Gabion was not replaced in 2020. M-5 bridge was inspected as part of annual geotechnical inspection in 2020 and will continue to be monitored for erosion. A structural assessment of the bridge will be conducted in the summer of 2021 to determine if repairs or replacement of the gabion is necessary

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1.	Itivia Fuel Farm	No recommendations.	NA	NA	NA	No	NA	NA	NA	NA
2.	Culverts	Monitor ponding of water upstream of inlets and consider lowering culverts to reduce ponding. (km 1.8)	Low	Already Implemented	As recommended, ponding will continue to be monitored upstream of inlets, and need for adjustment of the culvert height will be assessed.	No	NA	NA	NA	NA
		Additional culverts should be installed in low road area to the northwest; alternatively, the low area in the road could be raised but would result in a large flooded area.	Low	Already Implemented	Low area in road was raised in October 2019 with approval of the design engineer.	No	NA	NA	NA	NA