Appendix B-3

2019 Annual Geotechnical Report Agnico Eagle Responses and Actions 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		
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		
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 hsa 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		
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		
	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		

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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**	**NA**	**NA**
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 in 2020.	**No**	**NA**	**NA**	**NA**	**NA**
	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 in 2020.	**No**	**NA**	**NA**	**NA**	**NA**
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 decommissioing activities can commence.	**No**	**NA**	**NA**	**NA**	**NA**

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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		
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		
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		
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		
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		
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.	Develop OMS for all water management infrastructure on site.	Engineering/Environment	Q4 2020		
	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		
	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.	Develop OMS for all water management infrastructure on site.	Engineering/Environment	Q4 2020		
	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		
	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		
	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 occuring 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		
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		

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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		
	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 samping 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 occured 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 strucutural assessement will be conducted if the quarterly suvey readings show that additional significant settlement has occurred.	Potential assessment by structural engineer if additional significant settlement observed and operations to be enhanced.	E&I/Engineering	Q3 2020		
		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		
		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 feasiblity 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		
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 seperator	**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 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 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		
	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		
	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		

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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**