# Appendix 15

# Meadowbank 2019 Geotechnical Inspection Implementation Plan

# 2019 Meadowbank Annual Geotechnical Inspection Implementation Plan

AGNICO EAGLE

| Recommendation Number | Priority Level [1] | Location | Year [2] | Recommendation | Action Plan/Follow-up | Status | Completion Date |
|---|---|---|---|---|---|---|---|
| 2018_MG_6 | | All-Weather Private Road | 2018 | Expand monitoring program to include all culverts and bridges along the road in order to assess whether they are providing adequate capacity during the freshet and following large precipitation events | No issue has been observed last freshet. The Road Supervisor will continue to monitor the situation next spring/ summer season. | Ongoing | Spring 2020 |
| 2018_MG_7 | 4 | All-Weather Private Road | 2018 | Monitor the progression of the erosion of culverts PC-17A (8+830), PC-11 (39+552), R14 (67+840), R18-B (82+500), R-20 (85+490), R-23 (93+600) and R24 (98+100) at freshet | No issue has been observed last freshet. The Road Supervisor will continue to monitor the situation next spring/ summer season. | Ongoing | Spring 2020 |
| 2018_MG_8 | 4 | All-Weather Private Road | 2018 | Monitor R-00A (2+550), PC-14 (4+260), the unnamed culvert at 5+700, and PC-16 (54+950) to see if flow occurs through the culvert (i.e. during the freshet). If insufficient capacity to handle the flows is observed, or water circulates under the road, then it is recommended to clear the obstructions or repair the culverts. | No issue has been observed last freshet. The Road Supervisor will continue to monitor the situation next spring/ summer season. | Ongoing | Spring 2020 |
| 2018_MG_9 | | All-Weather Private Road | 2018 | Monitor the signs of settlement observed at Bridge 6, R15 | No issue has been observed last freshet. The Road Supervisor will continue to monitor the situation next spring/ summer season. | Ongoing | Spring 2020 |
| 2018_MG_12 | 2 | Baker Lake Fuel Farm | 2018/2019 | A hole in the exposed geomembrane (300 mm diameter hole) was observed at Baker Lake on the south southwestern corner of Tank 3 at the top of the slope. The hole in the geomembrane should be repaired to ensure a good performance of the retention basin. It is also recommended to cover the exposed area with geotextile and fill material to re-establish the liner protection. | Fill material was added to re-establish the liner protection. The hole will be repaired in Spring 2020. | Ongoing | Spring 2020 |
| 2018_MG_13 | 4 | Baker Lake Fuel Farm | 2018/2019 | Remove ponded water within the secondary containment cell | In collaboration with the Environment Department the ponds are tested and pumped as needed. | Complete | - |
| 2018_MG_15 | | Amaruq Road | 2018 | Monitor the progression of erosion at culverts #167 (41+843) and #232 (53+928) where signs of water flowing beneath the road were observed | Culverts added to culvert inspection master list for road supervisors. Will be monitored throughout freshet season and remediated as required. Added to monitoring list. | Ongoing | Spring 2020 |
| 2018_MG_16 | 3 | Amaruq Road | 2018 | Monitor the following culverts, as they are obstructed or damaged : two outlets of the set of culverts #7 (2+013), #13 (4+615), two outlets of the set of culverts #47 (11+101 to 11+107), #61 (1+050), #63 (13+390), #83 (20+300), #86 (20+740), #97 (22+436), #98 (22+482), #111 (26+461), #117 (27+173), #278 (61+870) | Culverts added to culvert inspection master list for road supervisors. Will be monitored throughout freshet season and remediated as required. Repaired, added to monitoring list. | Ongoing | Spring 2020 |
| 2018_MG_17 | 4 | Quarry #23 | 2018 | Keep workers from steep high slopes prone to pebbles or rock falls | Berms have been built with an excavator around the steep walls. | Complete | - |
| 2018_MG_18 | 4 | Quarries | 2018 | Inform the workers of the presence of unstable blocks and loose rocks along steep walls was observed in Quarries 3, 7, 9, 10, 12, 16, and 23 | Berms have been built with an excavator around the steep walls. | Complete | - |
| 2018_MG_19 | 3 | Baker Lake Tank Farm | 2018/2019 | Cover the exposed area where the granular fill material protecting the geomembrane was eroded with geotextile and fill material to re-establish the liner protection on the south side of Tanks 3 and 4, on the west side of Tank 1, and in the northeastern corner of Tank 4 | Granular fill has been added with a wheel loader. | Complete | - |

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| 2018_MG_20 | 3 | Baker Lake Tank Farm | 2018 | Cover the exposed liner on northern side of Tank 5 | To be done next summer. | Ongoing | Summer 2020 |
| 2018_MG_21 | 4 | Baker Lake Tank Farm | 2018/2019 | Monitor the evolution of tension cracks observed in the past on the upper bench north of Tanks 3 and 4 | Monitoring of the tension crack is done at the same time as the Fuel lines inspection. | Ongoing | - |
| 2018_MG_22 | 4 | Meadowbank Tank Farm | 2018/2019 | Remove ponded water within the secondary containment cell | In collaboration with the Environment Department the ponds are tested and pumped as needed. | Complete | - |
| 2018_MG_23 | 3 | Meadowbank Tank Farm | 2018 | Eastern area shows an exposed liner which is recommended to protect with granular layer | Granular layer installed. | Complete | - |
| 2018_MG_24 | 4 | Meadowbank Site Road | 2018/2019 | Monitor three culverts installed on Vault Road (coordinate 640964E/7217466N) where they partially collapsed in the middle and showed signs of erosion at the inlet | Culverts added to culvert inspection master list for road supervisors. Will be monitored throughout freshet season and remediated as required. Added to monitoring list. | Ongoing | Spring 2020 |
| 2018_MG_25 | | Meadowbank Site Road | 2018 | Monitor two culverts installed on Vault Road (coordinate 639214E/7216189N) where the inlet of one of the culvert was entirely obstructed by rockfill and one the other was broken | Culverts were repaired during road widening project in this area. Culverts added to culvert inspection master list for road supervisors. Will be monitored throughout freshet season and remediated as required. Added to monitoring list. | Ongoing | Spring 2020 |
| 2019_MG_1 | 3 | South Camp Dike | 2019 | Some water was ponding on the downstream side of South Camp Dike. No flow was observed. This is likely due to runoff water as there were unusually high precipitations in 2019. The water accumulation should still be monitored to confirm this. | Water accumulation on the downstream side of South Camp Dike is followed during inspection of the structure and reported in geotechnical inspection report | Completed | - |
| 2019_MG_2 | 4 | Bay Goose Dike | 2019 | Seepage rates observed in the channels have increased compared to the last years and the decreasing trend. The increase may be due to high amount of precipitation the site received this year. To be monitored for evolution. | The seepages rate in the Bay Goose Dike channels is monitored every 3 days during open water season. | Completed | - |
| 2019_MG_3 | 3 | Bay Goose Dike and East Dike | 2019 | Assess the validity of the current instruments layout for monitoring of the dike's performance over an extended operation time (10 more years due to in-pit deposition). Install additional instruments if necessary. | The current instrumentation setup will be re-assessed to ensure that it adequate to monitor for at least 10 more years due to in-pit deposition. | Not Started | Spring 2020 |
| 2019_MG_4 | 3 | East Dike | 2019 | VWP-400-C and VWP-420-C show a seasonal trend that is rising through the years since 2015 and doubled yearly over the last two years. Total head is now rising close to 2 m in 2019 from those two VWPs., while temperature is cooling. It is recommended to further investigate this behaviour (planned by AEM) and closely follow the significant seasonal trends in the future to react quickly if need be. Based on those aspects, it is considered that those observations should have triggered a yellow threshold criterion per the Dewatering Dykes OMS manual (yellow - personal notification and action required). | The behaviour of VWP-400-C and VWP-420-C have been flagged and are being followed. Instrumentation review procedure will be adjusted to ensure this type of behaviour are caught earlier in the future. This cyclical behaviour is linked with cooling of the temperature which suggest a pressure buildup due to ice formation. Similar behaviour is also observed at Bay-Goose Dike. These instrumetns behaviour are now documented in the quaterly instrumentation report of the structure. After discussion with the EOR, MDRB and designer this behaviour do not justify a TARP increase of the structure. | Ongoing | Freshet 2020 |
| 2019_MG_5 | 4 | East Dike | 2019 | The general trend in the piezometric readings has been steadily increasing since 2014 and the increase seems to accelerate in 2019 and should be monitored. | Piezometric data are being reviewed on a regular basis and the information and observations are documented in quaterly instrumentaiton report. | Completed | - |

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| 2019_MG_6 | 2 | North Cell Internal Structure | 2019 | Channelling of water has been observed at the upstream toe of the eastern part of the dike. The water flow has started to erode fine filter material at the toe. It is recommended to protect the filters in this area or to start capping this area as part of the closure plan. | The North Cell is currently inactive. AEM will continue to monitor this area closely and will ensure that it does not degrade further. Remediation will be done if degradation is observed. | Closed | - |
| 2019_MG_7 | 2 | North Cell Internal Structure | 2019 | Tension cracks (2 to 5 m long, a few millimeters wide) have been observed during the inspection in the fine filter surface between Sta. 2+650 and 2+800 m, near the crest. They need to be monitored and repaired as they may decrease the efficiency of the filters in case of further tailings deposition. | The North Cell is currently inactive. AEM will continue to monitor this area closely and will ensure that it does not degrade further. Remediation will be done if degradation is observed | Closed | - |
| 2019_MG_8 | 2 | Central Dike | 2019 | It is recommended to clean the angular granular material in direct contact with the LLDPE liner at Sta. 0+750 m approximately. A metallic piece around a pipe was also observed against the LLDPE liner at Sta. 1+000 m. This operation is required regularly and should be detailed in a procedure prepared by AEM. The procedure needs to be communicated to all concerned workers and added to the OMS manual. | As deposition is completed in the South Cell the risk for liner damage due to fine filter puncturing the liner is very small. AEM will continue to monitor the dike condition and will ensure that any hole in the liner is repaired. Object against the liner will be removed if it is safe to do so. | Completed | - |
| 2019_MG_9 | 2 | Central Dike | 2019 | Water was observed ponding along the LLDPE liner on the south side of Central Dike and Saddle Dam 5, from Sta. 0+850 m. It is recommended to remove this water before it freezes to protect the LLDPE liner (planned by AEM). | Most of the water was removed in that area before winter but as this is a low spot water keeps reporting to this area. The liner condition is part of the regular geotechnical inspection of the structure. Repair will be done if required. | Complete | - |
| 2019_MG_10 | 3 | Amaruq Road | 2019 | Obstructed and damaged culverts were observed at some locations:#7 (2+013), #7-2 (2+016), #13 (4+615), #27-2 (7+300), #45 (9+710), two outlets of the set of culverts #47 (11+101 to 11+107), #48 (11+203), #54 (12+388), #55 (12+440), #61 (1+050), #64 (13+920), #83 (20+300), #85 (20+671), #86 (20+740), #88 (20+861), #89 (21+180), #93 (22+100), #97 (22+436), #98 (22+482), #101 (23+025),#111 (26+461), #112 (26+630), #117 (27+173), #118 (27+433), #151 (36+562), #163 (40+474), #241 (55+235), #278 (61+870), #283 (62+695), #284-2 (63+072). If insufficient capacity to handle the flow is observed at locations where culverts are obstructed or damaged, it is recommended to clear the obstructions or repair the culvert. | Culverts added to culvert inspection master list for road supervisors. Will be monitored throughout freshet season and remediated as required. Added to monitoring list. | Ongoing | Spring 2020 |
| 2019_MG_11 | 2 | Baker Lake Tank Farm | 2019 | A small hole in the liner was observed on the northern side of the containment cell of the 20 Jet A fuel tanks. The hole in the geomembrane should be repaired to ensure a good performance of the retention basin. | Repair need to be done on the Geomembrane next spring. | Ongoing | Spring 2020 |

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| 2019_MG_14 | 4 | Other | 2019 | Since AEM is a member of the Mining Association of Canada, it is recommended that a tailings management audit be held in the framework of the Towards Sustainable Mining initiative. | This recommendation is currently ongoing by the EOR. An internal audit is underway to prepare for the external audit. As per the MAC, we are also also conducting an Annual Tailings Management Review within the EoR and AEO annual report/statement (final draft complete). | Ongoing | Fall 2020 |

1 : Priority Level Descriptions

P-1: A high priority or actual structure safety issues considered immediately dangerous to life, health, or the environment, or a significant risk of regulatory enforcement.

P-2: If not corrected could likely result in structure safety issues leading to injury, environmental impact, or significant regulatory enforcement; or, a repetitive deficiency that demonstrates a systematic breakdown of procedures.

P-3: Single occurrences of deficiencies or non-conformance that alone would not be expected to result in structure safety issues.

P-4: Best Management Practice – further improvements are necessary to meet industry best practices or reduce potential risks.

2 : Previous year recomendations are kept only if they are outstanding