



CIRNAC Comments to NIRB Re: Agnico Eagle Mines Ltd.'s Meadowbank Gold Mine and Whale Tail Pit Projects 2019 Annual Report



Nunavut Regional Office
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Your file - Votre référence
03MN107 and 16MN056
Our file - Notre référence
CIDMS # 1286087

July 6, 2020

Keith Morrison
Technical Advisor II, Monitoring Officer
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, NU, X0B 0C0
Via electronic mail to: info@nirb.ca

Dear Mr. Morrison,

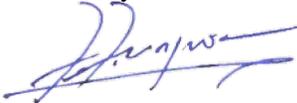
Re: Comment Request for Agnico Eagle Mines Limited's Meadowbank Gold Mine Project and Whale Tail Pit Project 2019 Annual Report

On May 23, 2019, as per Section 12.7 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty The Queen in Right of Canada* (Nunavut Agreement) and the Meadowbank Gold Mine Project Certificate [No. 004] and the Whale Tail Pit Project Certificate [No. 008], the Nunavut Impact Review Board (NIRB) requested parties to review Agnico Eagle Mines Limited's (AEM's) 2019 Annual Report with respect to effects and compliance monitoring.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) has conducted a review of the 2019 Annual Report and related documents in areas under its mandate pertaining to effects and compliance monitoring. On this basis, CIRNAC would like to provide the comments attached for the NIRB's consideration.

CIRNAC appreciates the opportunity to review AEM's Meadowbank Gold Mine Project and Whale Tail Pit Project 2019 Annual Report and looks forward to working with the NIRB and AEM throughout future reviews for these projects. Should you have any questions, please do not hesitate to contact Alexandre Chaikine at 867-975-4587 or by email at alexandre.chaikine@canada.ca.

Sincerely,



Felexce Ngwa
Manager, Impact Assessment



1. Effects Monitoring

The 2019 Annual Report has been evaluated to assess the measurable changes to the valued components/indicators under CIRNAC areas of interest, compared to the potential effects that were predicted to result from a proposed development of Meadowbank Gold Mine Project and Whale Tail Pit Projects, taking into account the Final Environmental Impact Statement (FEIS), previous years' Monitoring Reports and the requirements included in the Projects Certificates. The assessment considered the following:

- a. Whether the conclusions reached by Agnico Eagle in the 2019 Annual Report are valid; and,**
- b. Any areas of significance requiring further supporting information or any changes to the monitoring program which may be required**

Within the areas under its mandate, CIRNAC did not identify any information that would invalidate the conclusions reached by AEM in the 2019 Annual Report. However, the data interpretation would benefit from the comments included in this document.

Comment Number:	CIRNAC #1
Subject:	Ongoing Issues Identified during 2018 Annual Report Review
Reference:	<ul style="list-style-type: none"> • CIRNAC Comments on Agnico Eagle Mines' (AEM's) 2018 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects • Appendix 1, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Background/Rationale:	CIRNAC's review of the 2018 Annual Report resulted in the generation of 10 comments for AEM's consideration. As demonstrated in the 2019 Annual Report, and summarized in Appendix 1 of that report, AEM has provided appropriate responses and completely addressed 6 of these comments. Outstanding items are listed below in sequence.
<p>CIRNAC #1.1 (previously 1.2 of CIRNAC's comments on AEM's 2018 Annual Report for Meadowbank and Whale Tail mine sites)</p> <p>Tailings Freeze back and Capping Thickness</p>	<p>In its comments for the 2017 Annual Report Review, CIRNAC recommended that AEM include a meaningful discussion of the results from the permafrost monitoring in the Annual Report. Specifically, FEIS predictions should be compared with monitoring results and be clearly presented. AEM should present the updated modeling supporting their conclusions that the conceptual plans for thermal encapsulation of the Tailing Storage Facility and the Waste Rock Storage Facility remain effective to prevent and control deleterious seepage over long term. If results show discrepancies from the predicted values, AEM should discuss the management actions that should be implemented to address the risk.</p> <p>CIRNAC notes that AEM continues to assess the existing and predicted long-term thermal performance of mine wastes and cover systems at the Meadowbank and Whale Tail sites. Multiple assessments are ongoing and have been integrated into the closure planning process. AEM also notes that while progressive reclamation</p>



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	of some mine wastes has begun, designs have not been finalized. As such, progressively reclaimed areas may need to be upgraded as additional information on freezeback becomes available in the future. Such information will be provided in future annual reports, specific research studies and/or closure and reclamation plans.
Recommendation:	This is an on-going topic that will be a focus of future planning for the operational and closure phases of the project. As such, the prior recommendation has yet to be fully addressed and continues to apply.
CIRNAC #1.2 (previously 1.3 of CIRNAC's comments on AEM's 2018 Annual Report for Meadowbank and Whale Tail mine sites) Tailings Freezeback and Capping Thickness	CIRNAC recommended that AEM continue to provide information on the nature and extent of research efforts, results of the research and a discussion of how the proposed cover design has been influenced by these results. AEM continues to assess the existing and predicted long-term thermal performance of mine wastes and cover systems at the Meadowbank and Whale Tail sites. Multiple assessments are ongoing and have been integrated into the closure planning process. Such information will be provided in future annual reports, specific research studies and/or closure and reclamation plans.
Recommendation:	This is an on-going topic that will be a focus of future planning for the operational and closure phases of the project. As such, the prior recommendation has yet to be fully addressed and continues to apply.
CIRNAC #1.3 (previously 1.4 of CIRNAC's comments on AEM's 2018 Annual Report for Meadowbank and Whale Tail mine sites) Progressive Reclamation	CIRNAC recommended that future updates to Interim Closure and Reclamation Plans (ICRP) include more details on progressive reclamation such as: areas of Tailings Storage Facility (TSF) and Waste Rock Storage Facility (WRSF) facilities covered in the prior year, total areas covered to date, along with the volumes associated with these areas, amongst others.
Recommendation:	The Meadowbank ICRP and 2019 Annual Report both include high level summaries of progressive reclamation completed during the reporting period. However, there is insufficient detail to develop a full understanding of the completed work. As a result, the prior recommendation continues to apply.
CIRNAC #1.4 (previously 1.7 of CIRNAC's comments on AEM's 2018 Annual Report for Meadowbank and Whale Tail mine	CIRNAC recommended that AEM continue analyzing the thermistor monitoring results against early thermal modelling predictions and update its Waste Rock and Tailings Management Plans if large discrepancies are observed between the monitoring results and model predictions. AEM continues to assess the existing and predicted long-term



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sites) Results of Thermistor Measurements for Tailings and Waste Rock Storage Facilities	thermal performance of mine wastes and cover systems at the Meadowbank and Whale Tail sites. Multiple assessments are ongoing and have been integrated into the closure planning process. Additional information will be provided in future annual reports, specific research studies and/or closure and reclamation plans.
Recommendation:	This is an on-going topic that will be a focus of future planning for the operational and closure phases of the project. The prior recommendations have yet to be fully addressed and continue to apply.

Comment Number:	CIRNAC #2
Subject:	Geotechnical Design Processes
Reference:	<ul style="list-style-type: none"> S.3.1, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Background/Rationale:	<p>With respect to the Whale Tail Pit Project, the 2019 performance of multiple water management structures deviated significantly from their design intent. Specifically, all four dikes at the Whale Tail site experienced major issues, including:</p> <ol style="list-style-type: none"> 1. Whale Tail Dike – High seepage rates through the foundation. 2. Mammoth Dike – Water levels in Mammoth Lake were above their normal operating levels. 3. Waste Rock Storage Facility (WRSF) Dike – High seepage and uncontrolled discharge to Mammoth Lake. 4. Northeast Dike – The dyke is incapable of diverting non-contact water from the Whale Tail Lake watershed to the Nemo Lake watershed, as intended. <p>CIRNAC notes that it is common for some mine components to underperform relative to their design intent as a new mine transitions from the construction to operations phases. In addition, AEM rapidly identified these performance issues and started to implement a range of measures to mitigate the concerns. Overall, the actions taken by AEM demonstrate they have an effective system for identifying and responding to emerging performance issues with an appropriate sense of urgency.</p> <p>Nonetheless, the fact that all four of the Whale Tail dikes initially failed to meet their design intent warrants further consideration. For example, seepage through both the Whale Tail and WRSF dikes suggest that the design process failed to adequately consider potential permafrost degradation and hydraulic conductivity through the dike foundations. For Mammoth Dike, it appears that operating procedures neglected to consider the potential for ice blockages at</p>



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	the outlet of Mammoth Lake. In the case of the Northeast Dike, the survey data and/or design processes appear to have been insufficient. Given AEM's history of designing effective water retention structures in the North with relatively few performance issues, it is unclear why multiple Whale Tail dikes failed to meet their design intent.
Recommendation:	CIRNAC recommends that AEM perform a "lessons learned" assessment of its design processes for the Whale Tail Pit Project water retention structures. The goal of this assessment is to identify and address any systemic design, construction, or operational process deficiencies that may have contributed to the sub-standard performance of the Whale Tail dikes. AEM should also indicate how it will incorporate the lessons learned into its design and environmental management processes.

Comment Number:	CIRNAC #3
Subject:	Non-Compliant Discharges
Reference:	<ul style="list-style-type: none"> S.11.6.2, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Background/Rationale:	<p>In August 2019, AEM determined that seepage from the recently constructed WRSF dike was discharging to Mammoth Lake at a rate of approximately 100 m³/hour. This event was disclosed to the relevant authorities and, in the opinion of CIRNAC, appropriate measures were taken to address the issue.</p> <p>Once the WRSF pond level was lowered the seepage was no longer observed. The risk associated with this event is contaminant release to Mammoth Lake and the area downstream of the dike as well as possible damage to the dike. Analysis of seepage water samples showed no exceedances of the Metal and Diamond Mining Effluent Regulations (MDMER) water quality criteria.</p> <p>Section 11.6.2 presents a summary of non-compliance issues associated with the Whale Tail Pit Project. The summary does not include the unauthorized discharge of WRSF seepage to Mammoth Lake.</p>
Recommendation:	CIRNAC recommends that AEM clarify why the unauthorized discharge of WRSF contact water to Mammoth Lake is not reported as a non-compliance issue.



Comment Number:	CIRNAC #4
Subject:	Meadowbank Water Treatment Requirements
Reference:	<ul style="list-style-type: none"> • AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects; • Meadowbank ICRP, Appendix 55 of AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Background/Rationale:	<p>AEM's revised water quality monitoring and forecasting indicates that aluminum, arsenic, cadmium, chromium, copper, iron, nickel, selenium, fluoride, TSS and ammonia in pits may exceed the Canadian Council of Ministers of the Environment (CCME) guidelines or other site-specific criteria during the closure phase. Lead, sulfate, chloride, cyanide and nitrate may also represent a potential long-term contamination risk. CIRNAC notes that the number of parameters requiring treatment has progressively increased over the years. AEM indicates that the increase in forecasted concentration for certain parameters is mainly due the milling and deposition of tailings from ore body extracted from Whale Tail pit. The ore body at Whale Tail pit has a different geochemical behavior when compared to the ore body from Portage/Goose/Vault pits.</p> <p>The revised forecasting results indicate that water treatment will likely be required during the closure phase. This has significant implications to the long-term care and maintenance of the Meadowbank site, as well as financial securities. Despite these implications, CIRNAC notes that the Interim Closure and Reclamation Plan (ICRP) for the Meadowbank site (Appendix 55) presents no information regarding long-term water treatment requirements and options. Instead, the ICRP states: "<i>Treatment options will be examined and will be assessed in greater detail if required during the preparation of the Final Closure and Reclamation Plan.</i>"</p> <p>While CIRNAC agrees that final decisions regarding long-term water treatment are not required at this stage, the Department is of the view that the process of defining potential requirements and options should be initiated as soon as possible. Based on our experience working on a wide range of projects, multiple years are required to develop and refine closure strategies. In addition, it is critical that CIRNAC ensure that sufficient financial security is available for all long-term closure requirements.</p>
Recommendation:	CIRNAC recommends that the next iteration of the Meadowbank ICRP identify and examine potential water treatment scenarios based on current and future water quality projections during the closure phase. Although final decisions are not required at this time, costs associated with implementing the most likely water treatment scenario should also be incorporated into security estimates.



Comment Number:	CIRNAC #5
Subject:	Meadowbank WRSF Seepage Quality
Reference:	<ul style="list-style-type: none"> S.8.5, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Background/Rationale:	<p>As discussed in Section 8.5.3.1.13, of the 2019 Annual Report, ponded water was observed and collected from the base of the Vault Rock Storage Facility (sampling station ST-24) in June, July, August and September 2019. Based on the results of those analyses, AEM concluded: <i>"To date water monitoring analysis from run off indicates no concerns related to ARD. The water seepage from the Vault RSF area is expected to be of suitable quality to allow discharge to the environment without treatment and capping of this facility is therefore not proposed."</i></p> <p>AEM initially reached similar conclusions regarding seepage from waste rock storage facilities (WRSFs) associated with the Whale Tail Pit Project. However, during NIRB and NWB reviews of that project, CIRNAC requested that AEM extend its modelling predictions to include periods after the "breakthrough point" when WRSFs reach their field capacities. Prior to that point, the facilities will continue to function as sponges, absorbing precipitation and potentially contaminated seepage that percolates into the core of the WRSFs. AEM's revised modelling indicated there would be a significant spike in seepage quantity and a deterioration of seepage quality after the breakthrough point which is predicted to occur 80 years after closure. Based on the findings of that revised modelling, there remains a potential that treatment of seepage from the Whale Tail WRSFs will be required in the future.</p> <p>It is unclear to CIRNAC whether AEM's modelling of long-term seepage from the Meadowbank WRSFs is of sufficient duration to identify the long-term implications of seepage (i.e., after breakthrough).</p>
Recommendation:	CIRNAC recommends that AEM confirm whether long-term modelling of seepage from the Meadowbank WRSFs is of sufficient duration to characterize seepage after breakthrough. If not, CIRNAC recommends that AEM extend the temporal scope of its WRSF seepage modelling to ensure that potential seepage impacts after breakthrough are accurately characterized.



Comment Number:	CIRNAC #6
Subject:	Monitoring of Meadowbank Landfarm
Reference:	<ul style="list-style-type: none"> S.7.2, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Background/Rationale:	<p>Table 7-6 of the 2019 Annual Report presents a summary of historical sampling from the Meadowbank landfarm from 2014-2016. However, similar to 2017 and 2018, no further sampling was performed in 2019. The rationale for not sampling the landfarm is not provided in the report.</p> <p>In 2017, AEM commissioned an independent assessment of chemical and microbiological analyses of soil samples from the landfarm. Recommendations for enhancing biodegradation rates were made and AEM indicates that they will assess the feasibility of the recommendations in 2020.</p>
Recommendation:	CIRNAC recommends that AEM clarify why sampling of the landfarm has not occurred for the last three years. In addition, AEM should describe why prior recommendations to enhance the performance of the landfarm have not yet been implemented.

Comment Number:	CIRNAC #7
Subject:	Chromium in Meadowbank Third Portage Lake Sediments
Reference:	<ul style="list-style-type: none"> S.8.12.3.1.1, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Background/Rationale:	<p>There is conclusive evidence that chromium has increased in the sediments at Meadowbank Third Portage Lake (TPE) relative to the baseline period. Despite observed effects on some species, AEM indicates that the increase in sediment chromium is not adversely affecting the benthos at TPE (i.e. there is negligible ecological effect on lower trophic levels, and FEIS predictions are not being exceeded). As a result, AEM is not planning to conduct further targeted studies at this time, other than annual monitoring of the benthos community as part of the routine Core Receiving Environment Monitoring Program (CREMP). Further, AEM concluded that supplemental mitigations are not required to address the elevated chromium concentrations.</p> <p>According to AEM, the elevated chromium concentrations in TPE are likely attributable to ARD/ML ultramafic rock used to construct the Bay-Goose Dike.</p>
Recommendation:	<p>AEM concluded that further assessment of chromium in TPE sediments is not justified and that no supplemental mitigations are necessary. CIRNAC recommends that AEM provide additional analyses to support their conclusion that additional mitigation for chromium is not required.</p> <p>As noted above, the elevated chromium concentrations were caused by the use of ultramafic waste rock with elevated metal leaching</p>



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	potential as a construction material. CIRNAC recommends that AEM indicate why rock with elevated metal leaching potential was used as a construction material. Further, AEM should describe any changes made to its waste rock management practices to ensure similar materials do not result in adverse impacts in the future.

Comment Number:	CIRNAC #8
Subject:	Whale Tail Pit Project Nutrient Sources
Reference:	<ul style="list-style-type: none"> S.8.1.2, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Background/Rationale:	<p>The FEIS for the Whale Tail Project identified a risk that mining activities could result in a change to the ultra-oligotrophic status of local lakes. This prompted Condition #23 which requires AEM to conduct several different studies to support the conclusions that a change in trophic status in Mammoth Lake would not impact fish productivity.</p> <p>Notably, during 2019 (i.e., the first year of operational monitoring of the Whale Tail Pit Project) AEM identified statistically significant increases in primary productivity (as biomass). AEM speculates that the increase is due to the combined influence of natural variability and mining-related activities. Specifically, AEM considers the flooding of terrestrial soils (e.g., Whale Tail Lake South) to be the primary source of increased nutrient loadings from mining activities. CIRNAC notes that explosives use represents another potential source of nutrient loadings to the watershed. AEM's Annual Report does not appear to discuss this possibility, nor does it present information regarding the use of explosives at the Whale Tail site.</p>
Recommendation:	<p>CIRNAC recommends that future monitoring reports include a section that describes and quantifies AEM's use of explosives relative to assumptions used in the FEIS modelling.</p> <p>In addition, in light of 2019 monitoring results, CIRNAC recommends that AEM revisit its prior conclusion that a change in trophic status in Mammoth Lake will not impact fish productivity.</p>



Comment Number:	CIRNAC #9
Subject:	Whale Tail Pit Project Mercury Monitoring
Reference:	<ul style="list-style-type: none"> S.8.2, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Background/Rationale:	<p>Monthly mercury water quality data is collected as part of the routine CREMP. When compared to baseline concentrations, the 2019 results are anomalous, with mercury concentrations spiking from around 0.5 ng/L or lower to nearly 20 ng/L across all stations. While less pronounced, similar changes were observed for methylmercury, but less consistently across stations. Notably, similar trends were also observed at control stations, suggesting the possibility of an unexplained regional change in mercury concentrations. Alternatively, the elevated results may be attributable to data quality issues.</p> <p>During the environmental assessment process for the Whale Tail Pit Project, multiple parties expressed concerns regarding the potential release of mercury to the aquatic environment following terrestrial flooding (e.g., Whale Tail Lake South). This was the basis of Condition #63. The 2019 mercury monitoring results have not helped in efforts to address these concerns. Additional efforts are required to address this issue on a priority basis during the 2020 field season.</p>
Recommendation:	CIRNAC recommends that AEM report back to NIRB on a priority basis to determine how it intends to address the significant (40X) spike in mercury concentrations observed in 2019. If the measured mercury concentrations are deemed accurate, AEM should indicate whether the elevated results have the potential to result in significant ecological and/or human impacts.

Comment Number:	CIRNAC #10
Subject:	Reporting of Mean Data
Reference:	<ul style="list-style-type: none"> CREMP, Appendix 35 of AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Background/Rationale:	<p>The 2019 CREMP report (Appendix 35) provides an assessment of water quality monitoring results, with analysis of inter-annual trends and comparisons to site-specific trigger values and FEIS predictions. When performing these comparisons, AEM used the <u>annual mean monitoring results of each parameter from all stations in a given water body</u>. Using annual mean monitoring results for entire lakes has the potential to mask spatial and temporal variability in the monitoring data and, by extension, could result in a failure to detect elevated results. Specifically, while mean concentrations for a given parameter may be below an applicable limit, there is a potential that results from some sampling stations and/or sampling events will be greater than the limit.</p>
Recommendation:	CIRNAC recommends that AEM modify its reporting approach to ensure that comparisons between monitoring data and applicable criteria reflect the temporal and spatial variability inherent in these natural systems.



Comment Number:	CIRNAC #11
Subject:	Sewage Treatment Plant (STP) Effluent Discharge to Whale Tail Lake North Basin
Reference:	<ul style="list-style-type: none"> • S.8.5.4.3, Table 8-59, and S.11.6.3, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects • Nunavut Water Board Water Licence 2BB-MEA1828, Part D Item 10
Background/Rationale:	<p>Effluent from the Sewage Treatment Plan (STP) is discharged to the Whale Tail Lake North Basin, fishless since 2018, and monitoring is conducted as per Water License 2BB-MEA1828, Part D Item 10. Monitoring results were reported in Table 8-59 of the 2019 Annual Report. Six exceedances of the water licence limits were reported in 2019, one (1) for Oil & Grease and five (5) for Fecal Coliform. All of the non-compliances were properly acknowledged and reported to the GN Spill hotline (i.e. fecal coliform exceedances) and the following preventative measures were put into place:</p> <ul style="list-style-type: none"> ▪ Remind technician to make sure to eliminate the possibility of cross contamination during the sampling ▪ Preventative maintenance was done on the unit including cleaning and disinfecting all sampling lines, changing UV lights on Newterra system and installed UV light on Bionest system ▪ Reminder to technicians and operators to flush the lines prior to sampling <p>CIRNAC notes the number of Fecal Coliform exceedances of the license limit (1,000 CFU/100mL) to be excessive, representing 5/40 samples or 12.5%. Given the increasing population of the camp and greater reliance on the STP, it is important to ensure that the system is meeting the required performance standards to reduce the discharge of contaminated effluent into Whale Tail North basin.</p>
Recommendation:	CIRNAC recommends that AEM conduct a thorough review of the system design, operation, and management procedures of the STP to ensure that the system is capable and robust enough to ensure that required performance standards are met continuously and that contaminated effluent is not being discharged into Whale Tail Lake North basin.



Comment Number:	CIRNAC #12
Subject:	Community notices regarding public use of Meadowbank All-weather Access Road
Reference:	<ul style="list-style-type: none"> • Term and Condition (T&C) #32, NIRB Project Certificate No. 004 • S. 11.7.2.1 and S. 11.7.2.2, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Issue/Rational:	<p>With respect to the operation of the Meadowbank All-weather Access Road, T&C #32(f) of the Meadowbank Project Certificate requires AEM to:</p> <p style="text-align: center;"><i>“Place notices at least quarterly on the radio and television to explain to the community that the road is a private road with non-mine use of road limited to authorized, safe and controlled use by all-terrain-vehicles for the purpose of carrying out traditional Inuit activities.”</i></p> <p>Based on a review of the 2019 Annual Report, it appears AEM has not fulfilled this requirement. Rather, AEM provides information regarding their All-weather Access Road (rules of use and status) in both English and Inuktitut through a company website (www.aemnunavut.ca/community/roads). In addition, AEM uses social media (Facebook) and meets with Baker Lake community members to discuss the All-Weather Access Road's management. Although these means of communication are useful and should be continued, the T&C requires notices be provided at least quarterly on the radio and television.</p>
Recommendation:	AEM's current methods of providing information on the Meadowbank All-weather Access Road's to Baker Lake community members appear to be sufficient. CIRNAC is not aware of any complaints to indicate the contrary. As a result, CIRNAC recommends that T&C #32(f) be revised to reflect these communication protocols if the NIRB and other interested stakeholders agree.



Comment Number:	CIRNAC #13
Subject:	Authorized non-mine use of the Meadowbank All-weather Access Road
Reference:	<ul style="list-style-type: none"> • Term and Condition (T&C) #32(g), NIRB Project Certificate No. 004 • S. 11.7.1.1(g), AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Issue/Rational:	<p>With respect to the operation of the Meadowbank All-weather Access Road, T&C #32(g) of the Meadowbank Project Certificate requires AEM to:</p> <p style="text-align: center;"><i>“Record all authorized non-mine use of the road, and require all mine personnel using the road to monitor and report unauthorized non-mine use of the road, and collect and report this data to NIRB one (1) year after the road is opened and annually thereafter.”</i></p> <p>Although AEM records non-mine authorized use of the road on a daily basis, the 2019 Annual Report notes 2019 usage was greater than prior years because of a change in reporting procedures (both drivers and passengers counted as road users). A consistent approach to monitoring road use should be applied moving forward to allow for reliable data analysis.</p>
Recommendation:	CIRNAC recommends that AEM establish and implement consistent monitoring parameters for non-mine authorized use of both the Meadowbank and Meliadine All-weather Access Roads.

Comment Number:	CIRNAC #14
Subject	Full-time road safety, search and rescue position
References	<ul style="list-style-type: none"> • Term and Condition (T&C) #34, NIRB Project Certificate No. 004 • S. 1, Table 1-1 Meadowbank and Whale Tail List of Reporting Requirements, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Issue/Rational	<p>Pursuant to T&C #34 of the Meadowbank Project Certificate, Agnico Eagle are required to:</p> <p style="text-align: center;"><i>“...in consultation with the Hamlet of Baker Lake, KivIA, and the Royal Canadian Mounted Police, facilitate the hiring of a full-time road safety, search and rescue position to respond to safety matters arising from mine and unauthorized non-mine use of the all-weather private access road, including consulting with Baker Lake and Chesterfield Inlet Elders to incorporate Traditional Knowledge into search and rescue operations.”</i></p> <p>AEM has not provided an update on the status of this T&C.</p>
Recommendation	CIRNAC recommends that AEM confirm whether they have hired a full-time road safety, search, and rescue position pursuant to T&C #34 of the Meadowbank Project Certificate.



Comment Number:	CIRNAC #15
Subject:	Semi-annual calls with Government of Nunavut Career Development Personnel
References:	<ul style="list-style-type: none"> • Term and Condition (T&C) #49, NIRB Project Certificate No. 008 • S. 11.11.1.2, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Issue/Rational:	<p>T&C #49 of the Whale Tail Project Certificate requires AEM to meet with Government of Nunavut career development personnel on a semi-annual basis, at minimum, to discuss:</p> <ul style="list-style-type: none"> • Hiring procedures and policies; • Issues regarding employee recruitment and retention; • Agnico Eagle policies regarding career pathways and opportunities for advancement; • Internal and/or partnered training and development of employees; and • Long-term labour market plans to facilitate training in communities. <p>As stated in the 2019 Annual Report, AEM and the Government of Nunavut's Acting Regional Manager of Career Development met in on-site in 2019 and a follow-up meeting is planned in 2020. Although it is encouraging AEM and the Government of Nunavut met last year to discuss career development initiatives, the Project Certificate requires AEM to initiate semi-annual calls at a minimum. It is not clear if this frequency of meetings is being met.</p>
Recommendation:	CIRNAC recommends that AEM strive to meet with the Government of Nunavut career development personnel on a semi-annual basis, at minimum, pursuant to T&C #49 of the Whale Tail Project Certificate. A rationale should be provided if the frequency of meetings, as recommended within the NIRB T&C, is not being met.



Comment Number:	CIRNAC #16
Subject:	Application of Inuit Qaujimaningit to monitoring plans
References:	<ul style="list-style-type: none"> • Term and Condition (T&C) #54, Whale Tail Project Certificate • S. 11.10.1, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Issue/Rational:	<p>Pursuant to T&C #54 of the Whale Tail Project Certificate, AEM:</p> <p><i>“...should ensure that the development of all project monitoring plans and associated reporting and updates are undertaken with active engagement of Kivalliq communities, land users, and harvesters. The Proponent should work with the Kivalliq Inuit Association, the local Hunters and Trappers Organizations and the Kivalliq Socio-Economic Monitoring Committee to report on the collection and integration of Inuit Qaujimaningit through its monitoring programs for the Project.”</i></p> <p>Through their Annual Report submission, AEM makes reference to engagement with the Kivalliq Socio-economic Monitoring Committee as an important means of engaging with Kivalliq communities, land users, and harvesters to inform the development of annual Socio-economic Monitoring Reports. No reference is made to a process of ensuring the active engagement of these stakeholders in the development of <u>all</u> project monitoring plans and the integration of collected Inuit Qaujimaningit.</p>
Recommendation:	CIRNAC recommends that AEM describe how it has engaged with Kivalliq communities, land users, and harvesters in the development of project monitoring plans and associated reporting and updates pursuant to T&C #54 of the Whale Tail Project Certificate. Furthermore, AEM should summarize how Inuit Qaujimaningit is being integrated into their monitoring programs.

Comment Number:	CIRNAC #17
Subject:	Cross-cultural training initiatives
References:	<ul style="list-style-type: none"> • Term and Condition (T&C) #59, Whale Tail Project Certificate • S. 11.10.3, AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects • 2019 Socio-economic Monitoring Report, Appendix 69 of AEM's 2019 Annual Report for Meadowbank Gold Mine and Whale Tail Pit Projects
Issue/Rational:	Pursuant to T&C #59 of the Whale Tail Project Certificate, AEM are encouraged to make cross-cultural training initiatives available to employees and on-site subcontractors. The 2019 Socio-economic Monitoring Report provides the uptake and completion rates for employees only.
Recommendation:	CIRNAC recommends that AEM include the uptake and completion rates of cross-cultural training initiatives for on-site sub-contractors as well as employees in future annual report submissions. As specified in T&C #59, such initiatives are a means of promoting respect and consideration for the importance of Inuit Qaujimajatuqangit.



2. Compliance Monitoring

a. Provide a summary of any compliance monitoring and/or site inspections undertaken in association with the project, including specifically:

- i. Identify the terms and conditions from the Project Certificate which have been incorporated into any permits, certificates, licenses or other approvals issued for the Project, where applicable**

CIRNAC has a broad mandate for the co-management of water resources and the management of Crown Land in Nunavut under the following applicable acts and regulations:

- *The Department of Crown-Indigenous Relations and Northern Affairs Act;*
- *The Nunavut Agreement;*
- *The Arctic Waters Pollution Prevention Act and Regulations;*
- *The Nunavut Waters and Nunavut Surface Rights Tribunal Act and Regulations; and*
- *The Territorial Lands Act and Regulations.*

In terms of water management in Nunavut, CIRNAC has a number of different responsibilities. The Minister of Northern Affairs has a decision-making role with regards to the Nunavut Water Board's (NWB) issuance of any Water Licences associated with a project. Furthermore, CIRNAC participates as an intervenor in the water licensing process, providing advice and expertise.

When a proposed project is approved to proceed, CIRNAC is responsible for inspecting and enforcing any Terms and Conditions contained within any Water Licence associated with the project. The NWB ensures that Project Certificate Terms and Conditions are incorporated in Water Licences.

CIRNAC issued the following leases for AEM Whale Tail and Meadowbank projects:

- 66A/8-71, Baker Lake Area, Road, Mining;
- 66A/8-72, Baker Lake Area, Quarry rock pile, Mining;
- 66H/8-1, between Meadowbank and Amaruq Quarry Pit, Industrial;
- 66H/8-2, between Meadowbank and Amaruq Road, Industrial.

CIRNAC has reviewed the Type 'A' Water Licence associated with the Meadowbank Gold Mine and Whale Tail Pit Projects with respect to Project Certificates [No. 004 and No.008] and have included concordance tables (Appendices A and B) that outline how these T&Cs have been incorporated in the Water Licences.

In 2019, the projects activities and monitoring were conducted under the following Water Licences:

- Type A Water Licence 2AM-MEA1525 (Meadowbank), and
- Type A Water Licence 2AM-WTP1826 (Whale Tail)



ii. A summary of any inspections conducted during the 2019 reporting period, and the results of these inspections

CIRNAC's Field Officers conducted three inspections of the projects in 2019, in April, June and September.

Summaries of the concerns identified in the inspection reports are presented below for NIRB's consideration.

Whale Tail

April 9, 2019

The following facilities were inspected through the course of this inspection: Road from Meadowbank to the Whale Tail Project, Raw Water Intake Facility, Dewatering lake Whale Tail North Basin, Dyke, Waste Rock Facility, Mobile Maintenance Shop, Contractors FGL Equipment Laydown and the Underground Laydown Area.

In the Mobile Maintenance Shop, the inspectors found a metal bin which was to be hauled to the landfill. The metal bin contained used oil rags, open and use lube tubs, oil filters, and hazardous waste containers. The inspector noted that these materials are considered hazardous waste and are required to be removed before the metal bin is taken to the landfill.

At the FGL Equipment site, the inspector noted that there were totes stored outside, some of which contained some quantity of used oil, which were exposed to the elements without lids. The inspector noted that these totes needed to be stored in secondary containment.

June 15, 2019

The following waste and water management facilities were inspected through the course of this inspection: Water Intake Facility, Waste Rock Storage Facility, Whale Tail Dyke, Mammoth Dyke, Whale Tail Maintenance Shop, Water Treatment Plant, The West Bay Well, and Whale Fuel tank farm.

The Water Intake Facility required missing signs to be posted, and the catchment for the fuel tank was noted to be full of water, with apparent sheen and oil.

At the Whale Tail Maintenance Shop, a previous concern regarding hazardous material stored in a metal bin designated for the landfill from April 9, 2019 has been addressed.

The West Bay Well building contained a barrel of glycol. The Inspector requested the barrel be moved to mitigate risk of spills near the well.

September 22, 2019

The inspectors visited the Meadowbank and Whale Tail project sites to ensure compliance of water licenses 2AM-MEA1526 and 2AM-WTP1826; specifically Part F Item 18 "The Licensee shall dispose of all petroleum hydrocarbon contaminated soils and operate the Landfarm in accordance with the approved Landfarm Design and Management Plan, dated February 2013. Water accumulating in the Landfarm shall be contained within the Landfarm and not be discharged to the environment"; regarding spills that have occurred and remediated, and also Part H in its entirety.

During their inspections, the inspectors found booms from a spill near Kilometer 23 that AEM representatives stated occurred in 2017.



AEM is reminded to completely remediate the spill that occurred near Kilometer 23 in 2017. Some absorbent booms and contaminated soil were still present in the area where the spill occurred in 2017.

CIRNAC is requesting the total volume of soils removed from spill sites in cubic meters. This information shall be entered into spill follow up reports moving forward.

Meadowbank

April 8-9, 2019

The following facilities were inspected through the course of this inspection: Road from Baker Lake to Meadowbank Mine site, Water Intake Facility, Fuel Storage Facility, Refueling Station, Waste Oil Filtration Building, FGL Equipment Contractors Area, Warehouse Laydown Area, Central Dyke, Land Farm, Landfill, Laydown areas for machinery/Underground support laydown, Tailings Storage Facility, Hazardous Material Storage Area, and Vault Maintenance Shop

At the Refueling Station, the Inspector noted a spill (<100L) which was in secondary containment that was to be cleaned up.

During the inspection of the Landfill, the Inspectors noted unauthorized debris including but not limited to used oil rags, AA batteries, and a miniature insta-berm saturated in what appears to be engine oil with in the Landfill. The Inspector requested that AEM remove these items from the Landfill as these items would be considered hazardous waste.

The Hazardous Waste Storage Area containing sea cans of waste material was noted to be left open when not in use. The AEM representative instructed responsible parties to ensure the sea cans containing hazardous materials have their doors closed when not in use.

The Inspector noted that the Vault Maintenance Shop contained heavy equipment which was dripping fluid throughout parking area of the Vault Maintenance Shop. The Inspector recommended that the fluid be cleaned up prior to freshet to ensure no unauthorized deposits of waste spread to the surrounding environment.

June 14-17, 2019

The following facilities were inspected during the course of this inspection: Fresh Water Intake Barge, Hazardous Waste Storage Area, FGL Equipment Contractors Laydown, Refueling Station, Cyanide Storage Pad, East Dyke, Central Dyke, Storm Water Dyke, Tailings Storage Facility, Landfarm, Landfill, Waste Rock Stockpile, Goose Pit Deposition, and Baker Lake AEM Tank Farm.

The concerns raised during April 8, 2019 regarding the Hazardous Waste Storage Area doors being left opened when not in use have been addressed.

FGL Equipment Contractors Laydown area noted minor concerns related to disposal of lubrication pales and used oil rags in garbage bins designated for the landfill. Verbal instructions were given for separation of hazardous wastes in garbage bins prior to landfill disposal.

A previous concern of a spill from April 9th at the Refueling Station was addressed.

Detailed inspection reports can be accessed through the NWB Public Registry:

Meadowbank:

<ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-MEA1526%20Agnico/3%20TECH/A%20SCOPE%20ENFORCE/1%20INSPECTION/>



Whale Tail:

<ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-WTP1826%20Agnico/3%20TECH/A%20SCOPE%20ENFORCE/1%20INSPECTION/>

i. A summary of AEM's compliance status with regard to authorizations that have been issued for the project

Although some issues have been identified in 2019, CIRNAC is generally satisfied with AEM response to the concerns raised by the inspectors in 2019. CIRNAC will continue to work with AEM to ensure compliance with all water licence requirements associated with Meadowbank Gold Mine and Whale Tail Pit projects.



Appendix A: Meadowbank Project Certificate Terms and Conditions (T&C) incorporated into any permits, certificates, licenses or other approvals issued for the Project

T&C #	NIRB Project Certificate No. 004 Term & Condition	Implemented in Licences or Permits?
5	Cumberland shall meet with respective licensing authorities prior to the commencement of construction to discuss the posting of adequate performance bonding. Licensing authorities are encouraged to take every measure to require that sufficient security is posted before construction begins. This bonding should not duplicate other amounts of security required (e.g. the NWB).	Yes, all of Part C within the water licence (2AM-MEA1525). Part 16 -19 of Lease No. 66A/81-71-2 (covers the sections of the all-weather access road (AWAR) located on crown land). Part 34-37 of Lease No. 66A/8-72-2 (covers the quarries on crown land).
9	Cumberland shall provide detailed plans for water treatment for the tailings (reclaim pond) discharge, and on a contingency basis for the attenuation pond discharge(s) and for the pits, including estimates of treatment efficiency for each parameter of concern and the description of pH adjustments in the water license application to the NWB.	Yes, Part B, Item 13 within the water licence (2AM-MEA1525).
13	Cumberland shall not permit the water discharged into Wally Lake and Third Portage Lake to exceed receiving environment discharge criteria established by the NWB or as otherwise required by law.	Partially, the portion referring to criteria established by the NWB is found in Part F, Items 3 and 4 within their water licence (2AM-MEA1525).
14	Cumberland shall not remove dewatering dikes until the quality of water contained within them is of sufficient quality to meet receiving environment discharge criteria established by the NWB or as otherwise required by law.	Yes, Part E, Item 7 within their water licence (2AM-MEA1525).
15	Cumberland shall within two (2) years of commencing operations re-evaluate the characterization of mine waste materials, including the Vault area, for acid generating potential, metal leaching and non-metal constituents to confirm FEIS predictions, and re-evaluate rock disposal practices by conducting systematic sampling of the waste rock and tailings in order to incorporate preventive and control measures into the Waste Management Plan to enhance tailing management during operations and closure. The results of the re-evaluations shall be provided to the NWB and NIRB's Monitoring Officer.	Yes, Part B, Item 13 within the water licence (2AM-MEA1525).



T&C #	NIRB Project Certificate No. 004 Term & Condition	Implemented in Licences or Permits?
18	Cumberland shall commit to a pro-active tailings management strategy through active monitoring, inspection, and mitigation. The tailings management strategy will include the review and evaluation of any future changes to the rate of global warming, compliance with regulatory changes, and the ongoing review and evaluation of relevant technology developments, and will respond to studies conducted during the mine operation.	Yes, Part B, Item 13 within the water licence (2AM-MEA1525).
19	Cumberland shall provide for a minimum of two (2) metres cover of tailings at closure, and shall install thermistor cables, temperature loggers, and core sampling technology as required to monitor tailing freezeback efficiency. Cumberland shall report to NIRB's Monitoring Officer for the annual reporting of freezeback effectiveness.	Yes, Schedule B, Item 18 and Part B Item 13 within their water licence (2AM-MEA1525).
20	Prior to construction, Cumberland shall identify mitigation measures that can be taken if groundwater monitoring around the tailings facility demonstrates that contamination from tailings has occurred through the fault. Upon drawdown of the North arm of Second Portage Lake, Cumberland shall conduct further tests to assess the permeability of any faults and provide the results to regulators. If doubt remains Cumberland shall seal the fault and conduct further permeability testing and monitoring.	Yes, Part B Item 13 within their water licence (2AM-MEA1525).
22	<p>Prior to the commencement of the Project, Cumberland shall fund and install an on site lab that has the capability to monitor parameters at a type and at a frequency acceptable to the NWB and EC at all site discharge points. The results of these analyses, as well as any other water quality monitoring required by regulatory authorities shall be used in the submission of a receiving water assimilative capacity water quality assessment study of concern to regulators.</p> <p>The lab shall be certified for environmental water quality analysis purposes with standards to include the calibration of water quality monitoring instruments.</p> <p>Cumberland shall file proof of application to become accredited upon the request of the NWB.</p>	Partially, Part I, Item 16, 17, 18, 19 and 20 of their water licence (2AM-MEA1525) relate to this condition, but not the installation of an on-site lab prior to construction.



T&C #	NIRB Project Certificate No. 004 Term & Condition	Implemented in Licences or Permits?
23	For the purposes of monitoring quality assurance and quality control ("QA/QC"), Cumberland shall ensure that water quality monitoring performed at locations within receiving waters that allow for an assimilative capacity assessment of concern to regulators, be carried out by an independent contractor and submitted to an independent accredited lab for analysis, on a type and frequency basis as determined by the NWB. Results of analysis shall be provided to the NWB and NIRB's Monitoring Officer.	Yes, Part I, Item 16 within their water licence (2AM-MEA1525).
24	Cumberland shall identify an area and design for a landfill for disposal of operational and closure non-salvageable materials, including a list of any nonsalvageable materials, and a procedural manual for preparation of location and placements of these materials, and incorporate the design into the final Waste Management Plan as instructed by the NWB.	Yes, Part B, Item 13 within their water licence (2AM- MEA1525).
25	Cumberland shall manage and control waste in a manner that reduces or eliminates the attraction to carnivores and/or raptors. Cumberland shall employ legal deterrents to carnivores and/or raptors at all landfill and waste storage areas. The deterrents are to be developed taking into consideration Traditional Knowledge and in consultation with the HTO, EC and CIRNAC and incorporated into the final Waste Management Plan prior to filing the Plan with the NWB.	Partially, this was not captured within the water licence as it was already completed prior to licence approval. AEM's water licence (2AM-MEA1525) does however, require adherence to the Waste Management Plan under Part B, Item 13.
26	Cumberland shall ensure that spills, if any, are cleaned up immediately and that the site is kept clean of debris, including wind-blown debris.	<p>Yes, Part H, Items 1 and 2 within their water licence (2AM-MEA1525).</p> <p>Partially, Condition 4547 of Lease No. 66A/81-71-2 (covers the sections of the AWAR located on crown land).</p> <p>Partially, Conditions 47 and 52- 56 and 55 of Lease No. 66A/8- 72-2 (covers the quarries on crown land).</p>



T&C #	NIRB Project Certificate No. 004 Term & Condition	Implemented in Licences or Permits?
27	Cumberland shall ensure that the areas used to store fuel or hazardous materials are contained using safe, environmentally protective methods based on practical, best engineering practices.	<p>Yes, Part H, Item 3 within their water licence (2AM-MEA1525).</p> <p>Partially, Condition 45-47 of Lease No. 66A/81-71-2 (covers the sections of the AWAR located on crown land).</p> <p>Partially, Conditions 52-56 of Lease No. 66A/8-72-2 (covers the quarries on crown land).</p>
33	<p>Cumberland shall update the Access and Air Traffic Management Plan to:</p> <ol style="list-style-type: none"> 1. include an All-weather Private Access Road Management Plan, including a right-of-way policy developed in consultation with the KivIA, GN, CIRNAC and the Hamlet of Baker Lake, for the safe operation of the all-weather private access road; and 2. to facilitate monitoring of the environmental and socio-economic impacts of the private road and undertake adaptive management practices as required, including responding to any concerns regarding the locked gates. 	Partially, item 1 is addressed under condition 54 of Lease No. 66A/8-71-2 (covers the sections of the AWAR located on crown land).
35	Cumberland shall reclaim the all-weather private access road at the end of the mine life to prevent any future use	Partially, Condition 12 and 15 of Lease No. 66A/81-71-2 (covers
78	Cumberland shall file a complete Closure and Reclamation Plan developed to comply with CIRNAC's policy of full cost of restoration and any related NWB requirements such that the Inuit and taxpayers are not liable for any cost associated with the cleanup, modification, decommission, or abandonment.	<p>Partially, Part B, Item 13 within their water licence (2AM-MEA1525).</p> <p>Partially, Condition 12, 15, 16-19, 26 of Lease No. 66A/81-71-2 (covers the sections of the AWAR located on crown land).</p> <p>Partially, Conditions 14, 17, 26, 34-38 of Lease No. 66A/8-72-2 (covers the quarries on crown land).</p>



T&C #	NIRB Project Certificate No. 004 Term & Condition	Implemented in Licences or Permits?
79	<p>79. In addition to the NWB's requirements, the final Closure and Reclamation Plan shall require Cumberland to:</p> <p>a. Ensure that mine facilities and infrastructure are abandoned in such a manner that:</p> <ul style="list-style-type: none"> i. The Project site is physically stable and any requirements for long term maintenance and monitoring are minimized; ii. Threats to public safety and wildlife are eliminated; and iii. Affected areas are returned to the original undisturbed conditions to the fullest extent possible. <p>b. Prevent continuing impacts from contaminants and wastes on the environment including those associated with acid rock drainage;</p> <p>c. Remove all hazardous materials and waste and as much salvageable waste as practicable from the Project area; and</p> <p>d. Enter into written arrangements with its abandonment and reclamation contractors to ensure all site debris is cleaned up off the lands, including wind-blown debris.</p>	<p>Partially, Part B, Item 13 within their water licence (2AM-MEA1525).</p> <p>Partially, Condition 12, 15, 16-19, 26 of Lease No. 66A/81-71-2 (covers the sections of the AWAR located on crown land).</p> <p>Partially, Conditions 14, 17, 26, 34-38 of Lease No. 66A/8-72-2 (covers the quarries on crown land).</p>
80	<p>Cumberland shall file annually with NIRB's Monitoring Officer an updated report on progressive reclamation and the amount of security posted, as required by KivIA, CIRNAC, and/or the NWB.</p>	<p>Does not incorporate filing to the NIRB's Monitoring Officer, but does speak to reporting on progressive reclamation and security:</p> <p>Partially, Condition 19 (bi-annual reporting requirement), 20, and 33 of Lease No. 66A/81-71-2 (covers the sections of the AWAR located on crown land).</p> <p>Partially, Condition 24 and 38 of Lease No. 66A/8-72-2 (covers the quarries on crown land).</p>



Appendix B: Whale Tail Project Certificate Terms and Conditions (T&C) incorporated into any permits, certificates, licenses or other approvals issued for the Project

T&C #	NIRB Project Certificate No. 008 Term & Condition	Implemented in Licences or Permits?
2	<p>Prior to commencing construction activities the Proponent shall update the existing Dust Management and Monitoring Plan for the Meadowbank Mine site to address and/or include the following additional items:</p> <ul style="list-style-type: none"> • Align plan requirements with commitments made in the Final Environmental Impact Statement and during the Final Hearing to monitor dust along the existing all-weather access road, the Amaruq haul road and any other roads and trails associated with the Project. • Verify commitments to the utilization of dust suppressants along the all-weather access road, the Amaruq haul road and any other roads and trails associated with the Project, including a description of the type of suppressant to be utilized and the frequency and timing of applications to be made throughout the various seasons of road use. <p>Outline the specific triggers, thresholds, and adaptive management measures that will apply if monitoring indicates that dust deposition is higher than predicted.</p>	Water licence (2AM-WTP 1826) Part F:12
6	The Proponent shall conduct detailed hydrodynamic modelling during operations and closure to evaluate the mixing of the Waste Rock Storage Facility seepage into Mammoth Lake post-closure; and Based on the results of the modelling implement monitoring programs and adaptive management strategies that minimize the need for active intervention, including long-term treatment of mine contact water.	Water licence (2AM-WTP 1826) Part E: 8
9	The Proponent shall undertake the additional site-specific geotechnical investigations required to identify sensitive land features and to inform final engineering design prior to the construction of project components such as the waste rock storage facility and quarries.	Water licence (2AM-WTP 1826) Part D: 2



12	<p>As part of the Closure and Reclamation Plan, the Proponent shall develop and implement a program to:</p> <p>a) Progressively reclaim disturbed areas within the project footprint, with an emphasis on restoring the natural aesthetics of the area through re-contouring to the extent practicable; and</p> <p>b) In a manner that demonstrates that the Proponent has considered the aesthetic values of local communities (e.g. information regarding the acceptability of the topography and landscape of the project areas following progressive reclamation efforts).</p>	Water licence (2AM-WTP 1826) Part J:2
13	<p>The Proponent shall explore the feasibility of topsoil/organic matter salvage as part of project development and provide updates to the Closure and Reclamation Plan based on this investigation.</p>	Water licence (2AM-WTP 1826) Part J:3
15	<p>Subject to the additional direction and requirements of the Nunavut Water Board, the Proponent shall prepare and implement a Groundwater Monitoring Plan that, at a minimum includes:</p> <ul style="list-style-type: none"> • The collection of additional site-specific hydraulic data (e.g., from new monitoring wells) in key areas during the pre-development, Nunavut Impact Review Board Page 23 of 49 Project Certificate No. 008 construction and operation phases; • Definition of vertical and horizontal groundwater flows in the project development areas; • Delineates monitoring plans for both vertical and horizontal ground water; and <p>Thresholds that will trigger the implementation of adaptive management strategies that reflect site-specific conditions encountered at the project site.</p>	Water licence (2AM-WTP 1826) Part I:1e



16	<p>Within two years of commencing operations, the Proponent shall:</p> <ul style="list-style-type: none"> a) Conduct additional analyses to determine the approximate fill time for the Whale Tail Pit at closure; b) Undertake a hydrogeological characterization study to assess the potential for arsenic and phosphorous diffusion from submerged Whale Tail pit walls; c) If the results of the characterization study indicate a moderate to high potential for arsenic and/or phosphorous diffusion, perform detailed hydrodynamic modelling of the flooded pit lake prior to closure to evaluate meromictic conditions and flooded pit water quality; and <p>Add these required activities to the site Groundwater Monitoring Plan.</p>	Water licence (2AM-WTP 1826) Part E:7
17	<p>The Proponent shall:</p> <ul style="list-style-type: none"> a) Monitor the effects of project activities and infrastructure on surface water quality conditions; b) Ensure the monitoring data is sufficient to compare the impact predictions in the Environmental Impact Statement (EIS) for the Project with actual monitoring results; c) Ensure that the sampling locations and frequency of monitoring is consistent with and reflects the requirements of the Water Quality and Flow Plan and the Core Receiving Environmental Monitoring Program; and d) On an annual basis, the Proponent will compare monitoring results with the impact assessment predictions in the EIS and will identify any significant discrepancies between impact predictions and monitoring results. 	Water licence (2AM-WTP 1826) Part D:10-14



18	<p>The Proponent shall, reflecting any direction from the Nunavut Water Board, maintain a Site Water Monitoring and Management Plan designed to:</p> <ul style="list-style-type: none"> • Minimize the amount of water that contacts mine ore and wastes; • Appropriately manage all contact water and discharges to protect local aquatic resources; and • Implement water conservation and recycling to maximize water reuse and minimize the use of natural waters. <p>The Plan should include monitoring that demonstrates contact water (runoff and shallow groundwater) from the ore storage and waste rock storage areas is captured and managed, as per the Waste Rock Facility Management Plan.</p>	Water licence (2AM-WTP 1826) Part E:7-11
19	<p>The Proponent shall, reflecting any direction from responsible authorities such as the Nunavut Water Board, Fisheries and Oceans Canada and Environment and Climate Change Canada, maintain a Core Receiving Environment Monitoring Program (CREMP) designed to:</p> <ul style="list-style-type: none"> • Determine the short and long-term effects in the aquatic environment resulting from the Project; • Evaluate the accuracy of Project effect predictions; • Assess the effectiveness of mitigation and management measures on Project effects; • Identify additional mitigation measures to avert or reduce environmental effects due to Project activities; • Comply with Metal Mining Effluent Regulations requirements, should an Environmental Effects Monitoring program be triggered; • Reflect site-specific water quality conditions; Include details comparing the watershed features in the Whale Tail watershed to those watersheds used as reference lakes; and • Evaluate the mixing and non-mixing portion of the pit. <p>The CREMP should include sufficient sampling and monitoring programs to appropriately characterize the receiving environment to ensure that adequate data is available to assess impact predictions made within the Environmental Impact Statement for the Whale Tail Pit Project.</p>	Water licence (2AM-WTP 1826) Part E:7-11



20	Unless otherwise authorized, the Proponent shall maintain an appropriate setback distance between project quarries and borrow pits from fishbearing or permanent waterbodies as required to prevent acid rock drainage or metal leaching into such waterbodies.	Water licence (2AM-WTP 1826) Part I-1
21	The Proponent shall ensure that all project infrastructures in watercourses are designed and constructed in such a manner that they do not unduly prevent or limit the movement of water or fish species in fish bearing streams and rivers, unless otherwise authorized by Fisheries and Oceans Canada.	Water licence (2AM-WTP 1826) Part E-25
22	The Proponent shall engage with Fisheries and Oceans Canada to develop project specific thresholds, mitigation and monitoring for any blasting activities that would exceed the requirements of Fisheries and Oceans Canada's Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters.	Water licence (2AM-WTP 1826) Part I-1
24	<p>The Proponent shall engage Fisheries and Oceans Canada, and other interested parties to further assess:</p> <ul style="list-style-type: none"> • Whether the increased surface area of Whale Tail Lake is a viable offset to habitat losses resulting from development of the Project; and • Whether Whale Tail end pit would support fish in the post closure scenario. <p>Results of this assessment should be incorporated into the Habitat Compensation Plan and/or the Conceptual Fisheries Offsetting Plan as appropriate.</p>	Water licence (2AM-WTP 1826) Part I-1
26	<p>The Proponent shall include revegetation strategies within its Mine Closure and Reclamation Plan that support progressive reclamation, and promote natural revegetation and recovery of disturbed areas compatible with the surrounding natural environment.</p> <p>These strategies should include exploration of the feasibility and practicality of topsoil/organic matter salvage through Project development. Consideration for the results of similar reclamation efforts at other northern projects, including the Meadowbank Gold Mine Project, must be demonstrated.</p>	Water licence (2AM-WTP 1826) Part J-8

