ᓄᓇᕗᑦ ᐃᒪᓕᕆᔨᒃᑯᑦ ᑲᑎᒪᔨᖏᑦ
NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: **2AM-MEL1631**
2BB-MEL1424

December 05, 2019

Martin Thériault
Environmental Compliance Counselor
Agnico Eagle Mines Limited
Meliadine Division
Nunavut, Canada
X0C 0G0

Email: martin.theriault@agnicoeagle.com

Jessica Huza
Environment Superintendent
Agnico Eagle Mines Limited
Meliadine Mine
Suite 879 - Rankin Inlet, Nunavut, Canada
X0C 0G0

jessica.huza@agnicoeagle.com

RE: NWB Technical Review of the 2016-2018 Annual Reports for the Meliadine Project; Water Licences Nos. 2AM-MEL1631 and 2BB-MEL1424

Dear Mr. Thériault and Ms. Huza:

The Nunavut Water Board (NWB or Board) has completed a technical review of the 2016, 2017 and 2018 Annual Report submissions provided to the Board by Agnico Eagle Mines Limited (Agnico Eagle or Licensee) to fulfill the requirements of Part B of Water Licence No. 2AM-MEL1631. Upon receipt, all submissions were distributed for public review and comments.

Copies of all documents received during public review can be accessed through the NWB's Public Registry and FTP site using the following link:

ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-MEL1631%20Agnico/3%20TECH/1%20GENERAL%20(B)/2%20ANNUAL%20RPT/

The present technical review will mainly focus on the 2018 Annual Report as the most recent submission. This submission included the following updated management plans:

- Freshet Action Plan – Version 5, March 2019
- Groundwater Management Plan – Version 4, March 2019
- Spill Contingency Plan – Version 8, February 2019
- Mine Waste Management Plan – Version 5, March 2019
- Water Management Plan – Version 6, March 2019
- Incineration Management Plan – Version 6, February 2019
- Quality Assurance/Quality Control Plan – Version 3, March 2019

- Environmental Management and Protection Plan – Version 9, March 2019
- Landfill and Waste Management Plan – Version 7, March 2019
- Roads Management Plan – Version 7, March 2019
- Dust Management Plan – Version 5, March 2019
- Landfarm Management Plan – Version 3, February 2019
- Sediment and Erosion Management Plan – Version 1, March 2019
- Water Quality and Flow Monitoring Plan – Version 1, January 2019

On March 31, 2019, the NWB distributed the 2018 Annual Report submission for public review. On July 3, 2019 and September 25, 2019, comments were received from Environment and Climate Change Canada (ECCC) and Crown-Indigenous Relations and Northern Affairs (CIRNA), respectively. The table below summarises the issues and recommendations provided by the interveners and the NWB as part of the Report review. For more detailed information about the issues raised by the interveners, please refer to the NWB public registry at the link referenced above, as well as the documents attached to this correspondence.

No.	Concerns/ Recommendations	Response Deadline
Crown-Indigenous Relations and Northern Affairs (CIRNA)		
1.	*2018 Geotechnical Inspection Recommendations*	
	Provide updated responses to the outstanding Geotechnical Investigation Recommendations highlighted in Appendix B-2.	March 31, 2020
2.	*Surface Water Runoff*	
	Provide updates on the effectiveness of mitigation measures implemented in 2018/2019 at the Itivia Site to reduce TSS levels and exceedances of regulatory limits. Also, see comment #2 from the NWB.	March 31, 2020
3.	*Water Balance and Water Quality Forecasting Models*	
	Provide any updates and improvements to the water balance and water quality models and updated forecast results.	March 31, 2020
4.	*Mine Impacts on Meliadine Lake*	
	Provide updates on Mine-related impacts on Meliadine Lake, and the effects of diversion of STP effluent to CP1 on parameter concentrations and nutrients.	March 31, 2020
Environment and Climate Change Canada (ECCC)		
1.	*2019 Total Dissolved Solids Predictions*	
	• Provide clarification on the source of high modeled salinity levels in P-Area and whether saline mine water has been incorporated into the model; • Provide updates to the 2019 Water Balance and Quality Forecast Results for review and include a description of the assumptions and inputs used.	March 31, 2020

2.	*Sampling Station Designators*	March 31, 2020
	Provide a list of sample stations with correct descriptions.	
3.	*Surface Runoff Quality Samples – Monitoring Locations*	March 31, 2020
	Provide a map showing locations of all surface runoff sampling sites and clarify where the runoff reports to and the proximity to surface waters. (Note that this item was previously requested by ECCC within their 2017 Annual Report review). Also, see comment #2 from the NWB.	
4.	*Clarification of Tables – Appendix H-2*	
	• Clarify the location of the sampling station(s) for the data tables on Pages 2-5 of Appendix H-2; • Provide a list of tables with titles.	March 31. 2020
5.	*TSS-turbidity Correlation*	March 31, 2020
	Review the need for periodic calibration of the TSS/turbidity correlation for CP1 discharges, confirming whether operational data demonstrate the turbidity readings that are consistently representative of TSS. (Note that this item was partially addressed in the Agnico Eagle's March 2019 letter[1]).	
6.	*Disposal of Wastewater Treatment Sludges*	March 31, 2020
	Provide a characterization of treatment sludges to identify potential closure concerns with sediment quality in the sludge disposal area. (Note that this item was partially addressed in the Agnico Eagle's March 2019 letter[1]).	
7.	*Benthic Invertebrate Community*	March 31, 2020
	The Board notes that ECCC's recommendation from their 2017 Annual Report Review suggested to *"consider multivariate methods to assess the Bray-Curtis Index (e.g., Mantel's test, distance-based redundancy analysis dbRDA)"* and, therefore, encourages the Licensee to address this comment within the 2019 Annual Report.	
Nunavut Water Board (NWB)		
1.	*Management Plans Updates*	March 31, 2020
	Provide a table listing all Management Plans modified in the reporting year and include the following information: • title of the plan; • most recent NWB Approval date (for approved plans); • most current update date; • brief description of the update including sections modified; • classification of the update (significant vs. insignificant as per Licensee); (Note that upon review of the plan, the Board will make their own determination of significance independent of the Licensee's suggestion).	

[1] Martin Thériault (AEM) to Richard Dwyer (NWB), Re: AEM – Meliadine Division Response to the Updated Water Management Plan and Updated Environmental Management & Protection Plan comments from CIRNAC and ECCC, dated March 22, 2019.

2.	*Surface Runoff Monitoring at the Itivia Site*	
	Summary: The only sampling stations presented within the 2018 Annual Report (the Report) are the Meliadine stations in Figure 2.2 and Reference stations in Figure 1.3 (note that this figure is misnumbered in the Report). The Board notes that the Water Management Plan (WMP) includes Figure 7.1b showing Monitoring locations at Itivia Site, however, sampling station MEL-SR-2 referenced in Table 19 of the WMP is not included in any of the above-mentioned figures. The Report states that all chemistry data is provided in Appendix H-3, however, the detailed chemistry results for stations MEL-SR-8, MEL-SR-11, MEL-SR-12, MEL-SR-13, and MEL-SR-14 listed in Table 19 of the WMP are not included into Appendix H-3. Additionally, there is no chemistry data available for the background station MEL-SR-03. The Board notes that the Report has a reference to Appendix G-3, which could be a possible location of the missing data, however, this submission was not provided to the Board. There is some chemistry data provided for the "US" surface runoff stations (the Board assumes that this is the sampling that occurred upstream of the Agnico Eagle Lease), but the exact locations or description indicating the distance from the original stations are not included into the Report. The Report mentions that the TSS exceedances occurred during freshet were believed to be attributed to the upstream input, and describes the immediate mitigation strategy used. However, there is no mention of marginal Chloride concentrations correlated with the increasing Sodium and Calcium concentrations registered for the months of July, August, and September. The Board understands that CCME short term limit for Chloride is 640 mg/L, but would like to bring Agnico Eagle's attention to the fact that these results were consistently higher than the CCME long term limit of 120 mg/L throughout the entire summer from July onward, and therefore question the applicability of CCME short term limit. Additionally, missing data for the background station MEL-SR-03 makes it impossible to compare surface runoff data to water chemistry at the bay. Recommendations: • Provide a map (maps) showing location of all sampling sites within the 2019 Annual Report or have a reference indicating where such maps can be found; • Ensure completeness of reporting of future chemical results; • Further investigate the TSS exceedances and consider the CCME long term limits for the ongoing elevated Chloride concentrations.	March 31, 2020
3.	*Meliadine Lake Water Quality*	
	Summary: Chemistry results for monitoring stations MEL-12 and MEL-14 show marginal Chloride concentrations. While all pre-treatment results from	

	MEL-12 fall below the CCME short term Chloride limit of 640 mg/L, some post-treatment data acquired from the regulated monitoring station MEL-14 show marginal or elevated values of 590 -660 mg/L. The Board requires clarification as to why the post-treatment Chloride concentrations are higher than the pre-treatment concentrations. Additionally, the Board notes that all MEL-14 Chloride results were a lot higher than the CCME long term limit of 120 mg/L and that using these long term (as opposed to short term) limits might be a more appropriate way of water discharge assessment considering the ongoing nature of such elevated Chloride concentrations. Monitoring results acquired from station MEL-22 showed significantly elevated TDS (up to 16,300 mg/L), Chloride (up to 9500 mg/L), and total Ammonia (up to 48 mg/L) concentrations. The Board understands that this is a verification monitoring station, which is sampled for operational and management purposes, however, considering the previously expressed concerns[2] related to elevated Chloride and Ammonia concentrations in now dewatered Lake A54, Lake A38 and a fish-bearing Lake A8, these exceedances should be discussed and properly investigated. The Board is concerned that the water collected in CP5 and subsequently transferred to CP1 for treatment through the EWTP might cause the exceedances registered at MEL-14 and discussed earlier. Technical Memorandum prepared by Golder[3] states that water from CP5 undergoes the reverse osmosis (RO) treatment prior to being transferred to CP1, which should address the high salinity concerns of the runoff collected in CP5. The Memorandum also reassures that for the future years *"it is expected that the TDS effluent quality will be lower than the 2017 data due to the inclusion of the RO treatment plant at CP5".* Data presented for MEL-14 in 2018 shows a slight decrease in TDS, but the concentrations are still marginal to exceeding limits (note the abnormally high MEL-22 results reported on August 19 and September 17). The Board needs further clarification regarding the efficiency of current RO treatment system. TDS concentration reported for MEL-13 on August 20, 2018 was 400mg/L, which is within the limits, but higher than the 204mg/L predicted by the Model[4]. This could have potentially been caused by the August 19th exceedance at MEL-14, where TDS concentration was 1430 mg/L. Appendix 2H to the 2018 AEMP/EEM Report states that *"there was an unscheduled power outage and effluent release had stopped at the effluent water treatment plant (EWTP)",* and it was unclear where the summer intern student collected the sample, therefore *"the TDS concentrations reported from the laboratory analysis for MEL-14 on August 19, 2018 are assumed to be not representative for the final effluent discharged [at] the sampling port for MEL-14 to Meliadine Lake."* The Bord would like to remind the	

[2] KIA Technical Memorandum, Re: Meliadine Gold Project 2016 Annual Report Review, dated May 15, 2017.
[3] Golder Associates Ltd. Technical Memorandum, Re: Response to Commitments on Cycle 1 EEM Study Designed for the Meliadine Mine, Ref. No. 1787610_685_TM_RevB, dated May 30, 2018.
[4] Tetra Tech Design Report for Meliadine EWTP, Pumping Stations, Pipelines, and Diffuser, dated June 22, 2017.

	Licensee that an integrated review of all sampled data should be implemented in order to see any patterns in the effluent chemistry and effects to the aquatic environment. However, the Board appreciates the measures taken to mitigate such instances in the future. Additionally, Appendix 2H of the 2018 AEMP/EEM Report states that the Aluminum exceedance was not realized until October 1, 2018: *"the laboratory results were received on August 8, 2018, however, the exceeded criteria for the total Aluminum concentration was not observed at the initial time of the data review and data input. During the quarterly reporting for MDMER-EEM (RIIS) on October 1, 2018, the exceeded concentration was observed and reported immediately."* The Board would like to remind the Licensee that it is extremely critical to review the chemistry reports very thoroughly in order to catch such exceedances in a timely manner, especially now, when the project is entering the Operation stage. The Board also notes that the units used to report the concentration of chemicals in the effluent are inconsistent and occasionally mixed up throughout the 2018 AEMP/EEM Report, which makes it challenging to analyze the data provided. For example, Section 2.4.2.1 of the AEMP/EEM Report states that *"total aluminum concentrations in effluent were generally variable, with a large range of measured values (i.e., 5.0 to 1,320 mg/L; Appendix 2B)."* However, the Total Aluminum concentrations provided in Appendix 2B are given in µg/L, which would be more reflective of the 5.0 to 1,320 range. If these concentrations were in fact in mg/L, then there would be more exceedances than just the one reported on July 23, 2018. The Board would encourage the Licensee to ensure consistency in reporting in the future. Additionally, the Board would appreciate a more clear description of the '%Above Guideline' columns within the summary tables of the AEMP/EEM Report emphasizing that this is the percentage of exceedances above guidelines as opposed to overages in percent. <u>Recommendations:</u> • Investigate discrepancies in pre-treatment vs. post-treatment Chloride concentrations at the monitoring stations MEL-12 and MEL-14 and consider the CCME long term limits for the ongoing elevated Chloride concentrations; • Implement a more integrated review of all chemistry results focusing on possible relationship between different monitoring stations; • Provide further clarification regarding the efficiency of current treatment system; • Ensure timely exceedance reporting; • Ensure consistency in reporting of chemistry units throughout the entire submission	March 31, 2020

4.	*Peninsula Lakes Water Quality*	
	Summary: Sections 7.1.1 of the Annual Report states that *"all parameter concentrations [for Lakes A8, B7, and D7] … were within normal ranges"*. However, closer examination of the 2018 AEMP/EEM Report, and in particular Appendices 7B and 7C, revealed that there is a step increase of Total Lithium concentration in Lake B7 rising from 3.9-5.1 µg/L (averaging at 4.4 µg/L) in 2017 to 14-15 µg/L (averaging at 14 µg/L) in 2018, which is outside of its normal ranges. The Board notes that this pattern is similar to Lithium behavior in Meladine Lake and encourages the Licensee to implement a more integrated review of data and compare the chemistry results for CP1 and B7 to identify any potential connection. Additionally, the Board notes that there is a typo in Table 7.4-1 having "Lithium" entered as "ok". Similarly, Lake B7 shows a step increase in Total Strontium concentrations, which rose from 136-148 µg/L (mean 140 µg/L) in 2017 to 206-251 µg/L (mean 226 µg/L) in 2018. The Board understands that Lake B7 was not included in the model predictions under FEIS and, therefore, encourages the Licensee to provide a more detailed discussion regarding these chemistry changes including comparison with the lakes covered by FEIS. The Board also notes that a concern[2] was previously raised by the interveners regarding elevated/ increasing Ammonia and Chloride concentrations reported for Lake A38 in 2015, 2016 and 2017. However, Lake A38 was not included into the 2018 Annual Report, nor there was any discussion explaining how its chemistry has improved or changed compared to previous years. Considering the anticipated activities in this area, the Board would like to suggest that it could be beneficial to include Lake A38 (and potentially Lake A9) into future Peninsula Lakes studies and provide a discussion on improvements in water chemistry or potential impacts. Recommendations: • Provide a discussion on increased concentrations of total metals in Lake B7 (or other Peninsula Lakes if similar patterns are observed in the future) and potential relationship with the mine activities; • Consider including Lake A38 (and possibly A9) into future Peninsula Lakes Study and provide a discussion on how its chemistry has improved compared to previous years.	March 31, 2020
5.	*Sediment Quality*	
	Summary: The Board notes that ECCC's recommendation from their 2017 Annual Report Review suggested to *"identify reference area with similar substrate to the near-field exposure area"*. Appendix 9A of the 2018 AEMP/EEM Report states that the Sediment Reconnaissance Survey was completed in July 2018 *"to optimize sampling station locations to further limit substrate*	

	variability between stations and areas" and *"some sampling stations were relocated […] to confirm suitable substrates"*. However, Section 2.0 of Appendix 9A shows that there was more focus on suitable grab sampler fullness and high retrieval success, as opposed to finding locations with similar substrate compositions. According to Figures 9.4-1 and 9.4-2 of the AEMP/EEM Report, the fines/sand ratios for the new stations were relatively similar to those reported in the previous years, and the differences between exposure and reference areas continued to be explained by the *"natural spatial variability identified for lake sediments"*. It is unclear to the Board as to why the substrate homogeneity between all sampling stations was not achieved as a result of this Survey, and what extent the sampling locations were optimized to. Section 8.4.4 of the 2018 AEMP/EEM Report states that *"normal ranges were calculated using data available from the AEMP Reference areas, 2015 and 2016 data from the Near-field and Mid-field AEMP exposure areas, and appropriate pre-2015 data included in the FEIS"*. However, it is unclear why these ranges are different from those presented in Table 4.3-6 of the 2017 AEMP Report and those developed in the FEIS. Additionally, the Board notes that the Exposure Area concentrations for a number of total metals were more than a double of the respective Reference Area means and in some cases exceeded respective normal ranges. If this is indeed due to natural variability, the Board would suggest to consider site-specific objectives that will help to explain similar exceedances in the future as not attributed to any impacts of construction or operation activities (i.e., dust deposition or site runoff). Section 8.4.2.2 of the 2018 AEMP/EEM Report concludes that elevated, compared to Reference Areas, Arsenic concentrations (even when normalized for fine sediment content) *"were not linked to the Mine effluent discharge, [since] Arsenic was not elevated in the effluent or in the lake water (concentrations were also below the effluent discharge limit and the AEMP benchmark)"*. However, Figures 6.4-3 and 6F.2-34 of the 2018 AEMP/EEM Report show that Arsenic concentration in the Meliadine water was significantly higher in the Near-Field area compared to the Mid-Field and Reference areas. The Board notes that metals suspended in the water tend to settle out and accumulate on the lake bottom over time, therefore, cumulative effect should be considered when making such conclusions. Data plotted in Appendix 8E of the 2018 AEMP/EEM Report is grouped by location and does not differentiate between years, which makes it hard for the reader to see how these correlations were changing over time. The Board notes that combining all data into one plot makes it less representative and would suggest adding an additional dimension reflecting the time scale into the future reports. This might potentially help to see the trends in other metals than Aluminum, considering that all clays are alumosilicates and therefore the Al-Fines correlation will always be high.	

	Recommendations: • Provide further clarification on the optimization of sampling locations; • Provide further clarification on the data used to estimate normal ranges; • Introduce the time scale into correlation plots.	March 31, 2020
6.	*Fish Population Health*	
	Summary: The NWB understands that *"the 2018 fish health survey was implemented to meet EEM sampling requirements and was not intended to meet the specific requirements of the AEMP fish health component"* [and that] "*the next AEMP fish health and fish tissue chemistry program is scheduled for 2021."* The Board would like to bring to the Licensee's attention that as of August 28, 2019, new Fish and Fish Habitat Protection Provisions (FFHPP) – Bill C-68 – came into force, so that the Licensee should familiarize themselves with the applicable changes. Section 7.1.2 of the 2018 Annual Report states that the effects on fish health were not observed in 2018. However, comparison of Tables 10.4-8 and 10-4-7 presented in the 2018 AEMP/EEM Report shows that 18 out of 31 female and 2 out of 21 male species in the Near-Field and 15 out of 25 of female and 9 out of 23 of male species in Reference Area 1 were parasitized by tapeworms. This data contradicts with Section 10.4.3.6 of the 2018 AEMP/EEM Report, which states that *"no significant differences were observed in the prevalence of parasites […] between males and females"*. May 2018 Technical Memorandum[3] states that *"the proponent commits to collecting non-lethal data [as per EEM recommendations] for Ninespine Stickleback captured during the 2018 fish health program and include these data as a second sentinel species if sample sizes are sufficient."* The Board notes that no discussion pertaining to this commitment was provided in the 2018 Annual Report. However, further examination of Table 10A-1, Appendix 10A of the 2018 AEMP/EEM Report revealed that only 1-2 Ninespine species per trap were captured in 2018. The Board encourages the Licensee to provide clear statements addressing their commitments within the future reports. It is unclear to the Board as to how the total number of fish specimens was calculated in the 2018 AEMP/EEM Report. Section 10.4.3 states that the total number of fish surveyed was 216, which is confirmed in Table 10.4-9. However, Tables 10.4-6 and 10.4-7 give a total of 100 and in table 10.4-5 the column with totals is calculated incorrectly giving 99 samples. The Board encourages the Licensee to be more consistent in future calculations. The 2018 AEMP/EEM Report provides a total number of abnormalities among the lethally sampled fish (Table 10.4-9), but it does not specify whether the affected samples were male or female, or adult vs. juvenile. The	

	Board recommends to include this information within future reports to see if there is any correlation with tapeworm infection, where mainly female species are majorly affected (Table 10.4-6). Additionally, it is unclear whether these numbers are calculated out of total 216 lethally sampled specimens or consider the exclusion due to tapeworm infection (which is less realistic based on the 111 number of liver deformities). Section 10.4.3.4.1 of the 2018 AEMP/EEM Report suggest increased energy storage at the Near-Field area, where the egg-count per female was twice higher than in Reference Area 1 and population length and body weight increased in 2018 compared to 2015 (Appendix 10D). However, Section 10.5 contradicts this point saying that *"similar response was not observed in supporting energy storage endpoints, [since] relative egg size was significantly greater at Reference Area 1."* The Board notes that the specimens used for comparison might have been of a different age and suggests to discuss a potential use of the 'body size vs. egg size' correlation with DFO. Appendix 10B of the 2018 AEMP/EEM Report is missing some survey data. For example, it is unclear why station 4204 does not have any records in Table 10B-1, but shows some data in Table 10B-3. <u>Recommendations:</u> • Provide clear statements addressing all previous commitments; • Avoid contradictions between future Annual Reports and Monitoring Program results; • Ensure consistent calculations in future reports; • Discuss the use of 'body size vs. egg size' correlation with DFO; • Ensure completeness of data provided to the Board	March 31, 2020
7.	*Plankton*	
	<u>Summary:</u> Section 11.5 of the 2018 AEMP/EEM Report states that *"phytoplankton biomass, and chloroplhyll a concentrations in the Near-field area were above the upper bound of the normal range in Meliadine Lake"* and continues as follows: *"biomass and chlorophyll a in the Near-field area in 2018 were within the range of results observed during the pre-construction phase of the Mine."* The Board is unclear as to how the pre-construction ranges are different from current normal ranges and how exactly these ranges were estimated. Section 11.3.2 of the Report has a few references to Tables 7.1-2 and 7.1-3, which do not exist in the document. The Board notes that these references should read as 11.1-2 and 11.1-3. <u>Recommendations:</u> • Provide further clarification on the differences between pre-construction ranges and normal ranges; • Ensure proper references to tables and figures in future reports.	March 31, 2020

8.	*Plume Characterization*	
	Summary: Section 2.4.3.3.2 of the 2018 AEMP/EEM Report states that effluent plume development *"was observed between 50 and 100 m from the diffusers, with slight preference for south-west orientation."* Based on Figures 2.4-7 and 2.4-8 of this Report, the direction of the plume seems to be more south-east. The Board would appreciate further clarification regarding this point, as well as further discussion on the differences in specific conductivity during ice-covered conditions being 118 µS/cm in the Near-Field and to 99 µS/cm in the Mid-Field. The Board also suggests that it would be useful to include Figure 6.2-1 within this section, so that there is a reference to all stations MEL-01-01 through MEL-01-09. Recommendations: • Provide further clarification on the direction of plume development; • Provide a discussion regarding the differences in specific conductivity during ice-covered conditions.	March 31, 2020
9.	*Inconsistent Sampling*	
	Summary: The Board notes that the number of sampling events has changed over time. For example, Near-Field and Mid-Field areas were sampled once (March) during the under-ice season in 2018, but twice per season (January, February) in 2016 and 2017. The Board understands that the AEMP Design Plan requires Exposure Area to be sampled only once during under-ice season. However, some discussion regarding extra samples in 2016-2017 and reduction to the designed requirement in 2018 would be appreciated. The Board also notes ECCC's recommendation from their 2017 Annual Report Review suggesting to *"include multiple sampling events at all reference area to ensure adequate assessment of seasonal and year-to-year variability"*. This recommendation needs to be addressed within the next Annual Report. Additionally, Lake A38 was sampled in 2016 and 2017, but not in 2018. Considering ongoing concerns regarding increasing Ammonia and Chloride concentrations (also, see comment #4 from the NWB), it would be beneficial to provide a discussion on this matter. Recommendation: • Provide further clarification on under-ice sampling inconsistency and address ECCC's 2017 comment.	March 31, 2020
10.	*Updated Aquatic Effects Monitoring Plan*	
	Summary: Environmental Management and Protection Plan provides a reference to the Aquatic Effects Monitoring Plan, Version 2 that was updated in October 2018. However, the Board has no record of receiving this document to date.	

	Recommendation: • Provide the updated Aquatic Effects Monitoring Plan within the 2019 Annual Report Submission.	March 31, 2020
11.	*Adaptive Management Program*	
	Summary: Section 12.2 of the 2018 AEMP/EEM Report talks about the Low Action Levels designed to provide an early-warning indication of potential adverse effects on the environment. Section 12.2.1.1 states that the End of Pipe Low Action Toxicity Level is reached when a *"persistent sublethal toxic effect is observed"* and further defines *"persistent"* as *"observed in the same test organisms in three consecutive end-of-pipe samples"*. The Board notes that some sampling is conducted only once a year and is unclear whether the End of Pipe toxicity will have to be observed for 3 consecutive years in order to trigger the low Action Level or there are additional requirements not reflected in current document. Section 12.2.1.2 of the above report states that for parameters with no available benchmarks *"a Low Action Level would only be triggered if (1) the Near-field area concentration was greater than five times the analytical detection limit, and (2) the magnitude of difference relative to the reference area was greater than two-fold."* While the second requirement seems to be reasonable, it is unclear to the Board how the *"five times the analytical error"* requirement was justified. Additionally, this section states that *"one of the anticipated response actions [for a parameter with no AEMP benchmark] will be to develop a benchmark"*. It is unclear to the Board how this benchmark will be developed, whether it will be based on normal ranges or any other parameters, as well as how many consecutive overages need to be observed in order to trigger this procedure. Recommendation: • Provide more information on Low Action Level triggers.	March 31, 2020

The technical review of the 2018 Annual Report Submission including the Management Plans listed above, as well as the *Cycle 1 Environmental Effects Monitoring Report /2018 Aquatic Effects Monitoring Program Annual Report, 2018 Annual Geotechnical Inspection Report, and 2018 Metal Leaching and Acid Rock Drainage Monitoring Report*, determined that the information provided generally addresses the requirements of current Water Licence and could be deemed acceptable, subject to applicable recommendations provided in the table above.

The NWB notes that *Version 8* of the *Environmental Management & Protection Plan* was provided to the Board on February 4, 2019 as required by Part I, Item 2 of the Licence. This submission was distributed for public review with a deadline set at March 6, 2019. On or before the deadline the comments were received from CIRNA and ECCC. These comments were addressed in the Agnico Eagle's March 2019 letter[1] and incorporated into *Version 9* of the *Environmental Management and Protection Plan* provided within the 2018 Annual Report submission.

Additionally, *Meliadine Bulk Fuel Storage Facility: Environmental Performance Monitoring Plan, Version 1, dated August 2019*, was provided to the Board on August 28, 2019 as a requirement under Part I, Item 12 of the Licence. This submission was distributed for a thirty (30) day public review on September 3, 2019. On October 3, 2019, CIRNA confirmed their satisfaction with the content provided in the *Bulk Fuel Storage Facility Management Plan.*

The Board finds the *Environmental Management and Protection Plan, Version 9, dated March 2019,* and *Meliadine Bulk Fuel Storage Facility: Environmental Performance Monitoring Plan, Version 1, dated August 2019,* functional and generally satisfying Licence requirements, and by copy of this letter has approved the above stated documents through the Board Motion No. 2019-A1-010, dated December 05, 2019.

The NWB notes that 2BB-MEL1424 Annual Reports are generally incorporated into the 2AM-MEL1631 Annual Reports. After completing a technical review of the Type B portion of the above-mentioned reports, the Board found that the information provided addresses the requirements of Water Licence No. 2BB-MEL1424. The Board understands that all effluent from the exploration camp STP has been hauled to CP1 since 2017. However, the Board requires further clarification as to why the volumes discharged from MEL-07 in 2018 (Table 1, Appendix 2J, 2018 AEMP/EEM Report) were significantly higher than in previous years and whether the February 2, 2019 accidental discharge from the retention tanks was accounted for when reporting this data. This information should be included within the 2019 Annual Report.

Additionally, the Board recommends Agnico Eagle to submit all future Annual Reports and respective supporting documents for Water Licences 2AM-MEL1631 and 2BB-MEL-1424 as separate submissions under each Licence. The NWB does understand that these projects are connected and there may be duplications, however, having all information amalgamated into one package creates certain challenges associated with keeping the records for each Licence, as well as their respective technical review.

Should you have any questions, please feel free to contact the undersigned at (867) 360-6338 (extension 29) or sergey.kuflevskiy@nwb-oen.ca, at your earliest convenience.

Sincerely,

Sergey Kuflevskiy
Nunavut Water Board,
Technical Advisor

Enclosure: Comments – CIRNA, ECCC

Cc: Distribution List – Meliadine