EA1819—01 Depositing Processed Kimberlite in Pits and Underground

Intervention by the North Slave Métis Alliance

Sept 5-6, 2019

North Slave Métis Alliance (NSMA)

- Represents s.35 Aboriginal rights-bearing Métis people of the Great Slave Lake area;
- The only Indigenous group in the NWT that has received judicial recognition of its members' common law Aboriginal rights as Métis.
- Members continue to exercise their collectively held, unextinguished Aboriginal rights as Métis people around Great Slave Slake, including in the area of Lac de Gras.

Lac de Gras – Cultural Importance and Diavik Impacts

Importance of Lac de Gras for NSMA members include:

- Cultural heritage (Lac de Gras is a Metis name)
- Caribou harvest
- Fish and water

NSMA Priorities for EA1819-01

Safe and clean environment

- Mine site (not just the pits) return to pre-development condition for the cleanest and safest environment possible for humans and wildlife;
- Store processed kimberlite in underground workings and pits to reduce surface footprint and lead to safer and cleaner post-closure environment;
- Prioritize water quality as primary criteria in determining the pits' suitability for reconnection to Lac de Gras;

NSMA Priorities for EA1819-01

Thus, NSMA is supportive to proposed closure approach, so long as suitable closure criteria are met at time of closure and expected to stay stable.

NSMA – Intervention Issues and recommendations

1. Significance Threshold for Water Quality (SIS Section 4)

Overview: unless a model prediction exceeds a contaminant concentration that is more than 20% the AEMP benchmark, lasting for over 30 years, and somewhere outside of the Local Assessment Area (>1km), the DDMI does not consider the effect as significant.

Conclusion: The Developer defined the magnitude guideline in relation to the water quality guidelines rather than the lake baseline, as stated in the 1999 CSR. The high magnitude rating requires a 20% exceedance above AEMP benchmark.

Recommendation: Review Board should consider more conservative definitions for water quality significance thresholds.

NSMA – Intervention Issues and recommendations

1. Significance Threshold for Water Quality (SIS Section 4)

DDMI Response: AEMP Benchmarks were approved by WLWB, are appropriate for the EA determination of significance, and the AEMP plus 20% have been used to define high magnitude effect for consistency with the CSR.

Intervenor Response: the Board should still consider more conservative definitions for water quality significance thresholds.

NSMA – Intervention Issues and recommendations

2. Significance Thresholds for Wildlife (SIS Section 7)

Overview: "any [reduction of] calving success at a time when herd is in precarious state is a significant impact" on the Bathurst herd (Review Board – Jay Project). Significance for effects on wildlife set as >10% from baseline parameters.

Conclusion: the proponent's proposed magnitude rating of >10% change in measurable parameters is too permissive.

Recommendation: the Review Board should make a significance determination based on magnitude ratings that are supported by evidence, and considers the current state of Bathurst caribou and not solely based on the 1999 CSR.

NSMA – Intervention Issues and recommendations

2. Significance Thresholds for Wildlife (SIS Section 7)

DDMI Response: The EA methods used to develop the Supplementary Impact Statement use a framework developed by Stantec that has been used in numerous EAs across the north, as well as both federal and MVEIRB guidance. These methods that have not changed since the 1998 Comprehensive Study.

Intervenor response: NSMA restates its original recommendation.

NSMA – Intervention Issues and recommendations

3. AEMP Benchmark – Zinc (SIS Section 4)

Overview: A significant ratings considers only the high magnitude water quality rating (>20% AEMP benchmark). Zinc benchmark remains at 30µg/L (1998 assessment) despite CCME updating the guideline to 7µg/L.

Conclusion: Developer wants to keep consistency with 1998 assessment and 2017 AEMP. Predicted max zinc concentrations remain well below 7µg/L (except A21 3a). NSMA believes using up-to-date science will ensure addressing potential zinc impacts independently and monitoring climate change related impacts not yet considered.

Recommendation: The Board should require DDMI update their zinc benchmark threshold to match the current CCME guideline, to utilize up-to-date scientific information and ensure the best ecological protection available.

NSMA – Intervention Issues and recommendations

3. AEMP Benchmark – Zinc (SIS Section 4)

DDMI Response: DDMI's review of CCME water quality guidelines happens every 3 years. DDMI does not think it is critical to update AEMP Benchmarks more frequently than this. Necessary updates will be included in a timely manner by the WLWB through updates, reviews, and approvals to AEMP Design Plan. Predicted Zinc concentrations in A154 and A418 will remain below the 7µg/L; A21 mine workings has been removed for PK deposit.

Intervenor Response: Accepted.

NSMA – Intervention Issues and recommendations

4. Climate Change Impact on Meromictic Condition (SIS Section 4)

Overview: Sensitivity analyses concluded that increased air temperature due to climate change will not result in pit lake water temperature or water quality changes; however, climate change may have other potential indirect influences on lake systems, such as effects on permafrost, through methane release, and nutrient upwelling.

Conclusions: The Developer argues that increased chemical yield and biological productivity as a result of receding shoreline permafrost will contribute to stabilizing pit lakes.

Recommendation: That additional modeling be conducted, ones that takes into account the range of conditions that could be expected in consideration of the influences of climate change on upwelling.

NSMA – Intervention Issues and recommendations

4. Climate Change Impact on Meromictic Condition (SIS Section 4)

DDMI Response: DDMI commits to working with the NSMA to understand the specific climate change scenarios that are of interest to NSMA and if practical include these as scenarios for the revised modelling. DDMI proposes to provide the revised modelling as a condition of an amended Water License.

Intervenor Response: Accepted.

NSMA – Intervention Issues and recommendations

5. Project Interactions with Fish and Fish Habitat (SIS Section 6)

Overview: Lac de Gras is an oligotrophic lake with low levels of nitrogen relative to CCME guidelines. Pit water nitrogen concentrations may impact N:P ratios of the lake once the dike is breached, impacting the food web.

Conclusions: Current nitrate, nitrite and ammonia outputs have not lead to plankton or benthic invertebrate community composition changes detrimental to fish, so the Developer believes it unlikely the future N loadings, even with climate change, would cause such an event. NSMA agrees this is unlikely, but is interested in reviewing details of and providing input to the monitoring program to ensure potential changes are recorded.

Recommendation: N/A

NSMA – Intervention Issues and recommendations

6. Presence of fish species below 40m depth in pit lakes (SIS Section 6)

Overview: studies on slimy sculpin conducted in other areas indicate that slimy sculpin can inhabit depths from 0.5m to 150m. Upon reconnection to Lac de Gras, there is potential for slimy sculpin to access deep waters within these pits, below the 40m surface water regulated for the AEMP benchmarks.

Conclusions: Slimy sculpin will not inhabit the deeper waters of the pit. Slimy sculpin are only expected to migrate to deeper waters only if sufficient oxygen, prey availability, and suitable habitat is found at depths. NSMA agrees slimy sculpins will not occupy deeper waters of the pits for prolonged periods, but do note research proving their adaptability and ability to tolerate low O_2, or to evade a predator.

Recommendation: Board should recommend the proponent design a study focused on the abiotic zone of the pits (below 40m). This study could include the following: abiotic parameters below 40m in depth; camera documentation of fish species presence below 40m depth; impacts of the >40m environment on fish species health, possible adaptive management options.

NSMA – Intervention Issues and recommendations

6. Presence of fish species below 40m depth in pit lakes (SIS Section 6)

DDMI Response: specific terms and conditions that will define the monitoring plans related to fish and fish habitat in pit lake(s) should be established by the WLWB through the review of: PK to Mine Workings WL Amendment, and specific monitoring plans should be established through updates, reviews and approvals to Diavik's CRP and AEMP Design Plan. If monitoring of fish use in the pit is necessary, acoustic monitoring would be the most effective method.

Intervenor Response: Accepted. NSMA would like to discuss the possibility of an acoustic monitoring program.

NSMA – Intervention Issues and recommendations

7. Nitrite Concentration of Pit Water (SIS Section 4 and 6)

Overview: Nitrite can be toxic to living organisms. Several pit scenarios include nitrite concentrations approaching or exceeding water quality benchmarks, prior to breaching.

Conclusions: DDMI does not expect adverse health effects to wildlife that comes into contact with pit water prior to breaching, due to the CCME water quality guideline for protection of livestock (10mg/L) being higher than AEMP benchmark. NSMA is concerned that potential risk to migratory waterfowl using the open water in the pit, prior to breach, has not been thoroughly considered.

Recommendation: MVEIRB should acknowledge the potential for the PK disposal to affect wildlife habitat and health during the operational period and consider these effects in the assessment. MVEIRB should require development/refinement of management plans to incorporate specific requirements for wildlife monitoring and response protocol related to waterfowl and wildlife use of pits during the operational period.

NSMA – Intervention Issues and recommendations

7. Nitrite Concentration of Pit Water (SIS Section 4 and 6)

DDMI Response: DDMI commits to updating the wildlife monitoring program for Diavik to include the PKMW Project.

Intervenor Response: Accepted.

NSMA – Intervention Issues and recommendations

8. Community-Based Monitoring

Overview: There exists significant interest from the community members for ongoing, extended, community-based monitoring of the closure and post-closure conditions. Providing opportunities and capacities to the indigenous community members would build public confidence in DDMI and other industrial development projects in the North.

Recommendation: the Review Board to require DDMI to facilitate and fund a community based monitoring program of the closure operations and post-closure conditions of the mines.

NSMA – Intervention Issues and recommendations

8. Community-Based Monitoring

DDMI response: DDMI continues to work with the TK Panel to identify opportunities and approaches to TK-based monitoring particularly for application to post-closure.

Intervenor Response: NSMA requests a funding commitment from DDMI for post-closure monitoring.

Thank you. Questions?