



INDEPENDENT ENVIRONMENTAL MONITORING AGENCY CLOSING ARGUMENTS

Water Licence Renewal

Submitted to the Wek'eezhii Land and Water Board
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INDEPENDENT ENVIRONMENTAL MONITORING AGENCY

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1. INTRODUCTION

1.1. Background and Mandate - Independent Environmental Monitoring Agency

The Independent Environmental Monitoring Agency (Agency) has provided advice on environmental management and regulation of the Ekati Diamond Mine for 26 years. The Agency was established in 1997 through a legally binding Environmental Agreement to act as a public oversight body for the Mine.

The Agency is a non-profit society under territorial legislation with funding provided by Arctic Canadian Diamond Company Ltd. (Arctic Canadian) as set out by the Environmental Agreement. We report to our society members (the Tłı̨chǫ Government, Akaitcho Treaty 8 (Yellowknives Dene First Nation and Lutsel K'e Dene First Nation), North Slave Métis Alliance, Kitikmeot Inuit Association, Governments of NWT and Canada and Arctic Canadian) and, although our Directors are appointed by these members, once appointed they operate independently. Directors are knowledgeable and experienced in fields such as wildlife, fisheries, lands, water and environmental assessment, and have extensive experience with, and knowledge of, environmental management at the Ekati Diamond Mine.

Our mandate as set out in the Environmental Agreement is to:

- Review, report and make recommendations on the environmental programs, reports and activities of Arctic Canadian and government regulators and the integration of the experience and Traditional Knowledge of Aboriginal peoples.
- Participate as an intervenor in regulatory and other legal processes concerning the environment at Ekati.
- Maintain a resource library of environmental information relevant to Ekati.
- Distribute information about Ekati to Aboriginal peoples and the general public.
- Provide an effective means to bring to Arctic Canadian and governments the concerns of Aboriginal peoples and the general public.

1.2. Organization of the Closing Arguments

The Agency is pleased to submit our closing arguments on Arctic Canadian's application to renew its Type A Water Licence. We carefully considered all of the information provided by Arctic Canadian as part of the application process, the arguments and evidence heard during the Technical Session and Public Hearing, along with the responses provided through Undertakings and Information Requests and proposed updates to the Water Licence. As in our intervention, we have focused our closing arguments on the following subject areas:

- Expiry date of the Water Licence
- Definitions
- Conditions applying to water use
- Conditions applying to construction, specifically Dams and Tailings Containment Facilities
- Conditions applying to waste disposal
- the Surveillance Network Program sampling and requirements

Based on these topics, the Agency submitted 22 recommendations in its intervention. Following the Public Hearing, undertakings and draft Water Licence comments, the Agency has amended and updated a number of the original recommendations resulting in 9 remaining recommendations.

2. AGENCY CLOSING ARGUMENTS AND RECOMMENDATIONS

2.1. Expiry Date of Licence

Issue Statement:

Arctic Canadian proposes a 10-year Water Licence term, expiring on October 18, 2033.

Agency's Conclusion:

The term of the Water Licence should reflect the current operating status and projected remaining mine life of the Ekati Mine Project while providing a sufficient timeframe for regulatory certainty and seamless transitions for Project planning and operations.

Agency's Recommendation #1:

The term of the Water Licence should be 7 years with an expiry date of 18 October 2030.

2.2. Part A: Scope and Definitions

2.2.1. Part A.2 – Definitions

The Agency acknowledges Arctic Canadian's willingness to align most of the definitions in Part A.2 of the Water Licence with the Land and Water Board (LWB) Waste and Wastewater Management Policy and Standard Water Licence Conditions Template Version 2.1. In particular, the Agency notes adoption of definitions for the terms 'Deposit of Waste', 'Discharge', 'Effluent', 'Receiving Environment', 'Receiving Waters' and 'Wastewater'. Use of modified definitions for these terms (or lack thereof) in the current Water Licence and management plans has resulted in significant confusion and uncertainty. Alignment with the Policy is a positive step.

2.2.1.1. Discharge

Issue Statement:

The proposed definition of 'Discharge' is incomplete within the scope of Water Licence activities.

Agency's Conclusion:

The Agency acknowledges the proposed definition of 'Discharge' is consistent with the Standard Water Licence Conditions Template. However, the proposed definition is narrower than the scope of Water Licence activities as it does not include the term 'Waste' as defined in Section 1 of the *Waters Act*. As an example, hydrocarbons and hydraulic fluids from storage facilities and vehicles are neither 'Water' or 'Wastewater' but would be a discharge if released into Receiving Waters.

Agency's Recommendation #2:

The definition of 'Discharge' should be expanded to include *"a direct or indirect deposit or release of any Water, Wastewater or Waste to Receiving Waters"*.

2.2.1.2. Independent Tailings Review Panel

Issue Statement:

Neither the proposed definition nor the standard definition clearly describes the requirements for an independent panel or individual.

Agency's Conclusion:

The Agency suggests relying on information provided in the Mining Association of Canada Guide to the Management of Tailings Facilities to support the definition.

Agency's Recommendation #3:

The definition of 'Independent Tailings Review Panel' should be expanded to include "one or more third-party subject matter expert(s) who are independent of the licensee and who are not and have not been directly involved in the design, construction or operation of the LLCF".

2.3. Part D: Conditions Applying to Water Use

2.3.1. Condition D.8 – Withdrawal of Water from Upper Exeter Lake

Issue Statement:

Arctic Canadian has proposed the use of fresh water from Upper Exeter Lake to augment water supply in the Long Lake Containment Facility (LLCF) for process plant uses on a contingency basis, in order to make up for water balance shortfalls in the LLCF now that processed kimberlite (PK) is deposited in the Panda/Koala Open Pits. The Agency acknowledges the additional wording included in the draft Water Licence to address this concern.

Agency's Conclusion:

It remains the Agency's view that using additional freshwater from Upper Exeter Lake for process plant operations will increase the closure liability and risk associated with water management. It also increases potential environmental effects on Upper Exeter Lake due to greater volumes of water withdrawal, and potential water quality impacts associated with greater total volumes of mine-affected water. As a result, use of freshwater for process plant operations should only be authorized as a last resort after Arctic Canadian has implemented all practical measures to continue using recycled water.

Agency's Recommendation #4:

The Agency suggest the following revision to Condition D.8 (underlined text):

"Each year, prior to the [effective date of licence], and three months in advance of any contingency Water withdrawal from Upper Exeter Lake, the Licensee shall provide a report to the Board and the Inspector on the annual volume of water needed for this purpose, outline the criteria and conditions that led to the determination of this volume, and outline the factors impacting, and measures taken to prevent, the need for contingency Water use."

2.4. Part F: Conditions Applying to Construction

2.4.1. Condition F.10 – Delineation Programs

Issue Statement:

Soil, rock and ground ice conditions should be identified and assessed prior to the construction of any new containment structure or diversion channel.

Agency’s Conclusion:

The scope of Condition F.10 is overly narrow as it restricts the requirement to identify pre-construction soil, rock, and ground ice conditions along the centerline of containment structures and diversion channels to only those associated with the Sable, Pigeon, Beartooth and Lynx developments.

Agency’s Recommendation #5:

The scope of Condition F.10 should be expanded to require the identification of soil, rock, and ground ice conditions prior to the construction of any new containment structures and diversion channels (for example the Point Lake containment structures).

2.4.2. Dams and Tailings Containment Facilities

2.4.2.1. Condition F.19 – Engineer of Record

Issue Statement:

Confirmation of Engineer of Record provides evidence of ongoing status.

Agency’s Conclusion:

As described in our written and oral interventions, the Agency agrees with the need for the Licensee to retain an Engineer of Record. In addition, we believe it is critical that the Licensee notify the WLWB about the appointment and status of the Engineer of Record, including the initial appointment and any changes. Confirmation from the Engineer of Record that they have accepted the role and its responsibilities is also important. An engineer’s signature on an inspection report does not confirm that they have accepted a role as Engineer of Record.

Arctic Canadian’s comments on the draft Water Licence highlight the importance of clarity and transparency about who the Engineer of Record is, and what their role is – both initially and through time. As noted in those comments, the Engineer of Record doesn’t necessarily have to be the design engineer (though they often are the same engineer). Nonetheless they must have responsibility for the safe design, construction, performance, and operation of the facility, meaning that they must be familiar with design and construction (both historical and proposed). The Application of Dam Safety Guideline to Mining Dams (CDA, 2019) notes the role of the Engineer of Record in “continuity of knowledge related to design, construction, operation, and performance of the dam.” The Engineer of Record provides input about whether the facility “has been designed in accordance with performance objectives and indicators, applicable guidelines, standards and regulatory requirements,” and “is being constructed or has been constructed and is performing, throughout the life of the dam, in accordance with the documented design intent and requirements.”

One of the “lessons learned” as stated in the “Mount Polley Mine Tailings Storage Facility Breach Investigation Report of the Chief Inspector of Mines” (BC Mining and Mineral Resources Division, Ministry of Mines, 2015) was:

“The role of the EoR was not well articulated or integrated with the responsibilities of the mine manager. Frequent changes of the EoR (the individual as well as the contract engineering firm) led to a loss of site-specific knowledge, and there was little effective continuity over the change of tenure from KP to AMEC. Broader lessons include communication, continuity of knowledge, and clear definition of the responsibilities of the EoR.”

Both Arctic Canadian’s comments on the draft Water Licence and the findings from the Mount Polley failure highlight the importance of having clear and transparent information about who holds the role of Engineer of Record and what responsibility they have accepted.

Current best practice for regulation of mining dams in Canada requires notification of the name of the engineer and acknowledgement that they have accepted the responsibility. These should be included as part of Condition F.19.

Agency’s Recommendation #6:

Condition F.19 of the Water Licence should be revised to state: “The Licensee shall retain an Engineer of Record for Dams. The Licensee shall submit the name of the Engineer of Record and acknowledgement by the Engineer of Record that they have agreed to accept the responsibility.”

2.4.2.2. Condition F.23 and F.24 – Independent Tailings Review Panel

Issue Statement:

A requirement for an Independent Tailings Review Panel or an Independent Profession Engineer should be included in the Water Licence for Ekati’s tailings storage facility.

Agency’s Conclusion:

As described in our written and oral intervention, the Agency considers independent review as an important best management practice for tailings storage facilities like the LLCF. As reflected in the options for Condition F.23 in the draft Water Licence, independent review could be conducted by a Review Panel or a single independent professional engineer. The Mining Association of Canada (MAC) tailings guidance recommends that the composition of an independent review body should be commensurate with the risk profile of the facility. Panels with more than one individual can provide subject-matter experts with different but complementary areas of expertise, which may be important for a facility like the LLCF where there are many potential factors influencing performance, for example permafrost, hydrology, hydrogeology, tailings characteristics and climate change. Given the size and complexity (i.e., multiple dams) of the LLCF, the Agency believes that an independent panel with multiple subject-matter experts is warranted. As noted in the MAC guidance, this could be changed later if the independent panel concludes that a narrower scope is warranted.

Condition F.24 requires submission of a letter of acceptance from the independent reviewer(s) for any design changes for the LLCF. While this is an important requirement, it does not reflect the range of review and responsibility that should be assigned to the independent reviewer(s), especially for an

existing, operating facility like the LLCF. There may not be proposed design changes, but the ongoing operation and maintenance of the facilities will be an important area of scope for the independent reviewer(s). The Health, Safety and Reclamation Code for Mines in British Columbia provides a more comprehensive requirement for reporting: annual reports must include “*a report of the activities of the independent tailings review panel*” including a summary of reviews conducted, whether the work reviewed meets the panel’s expectations, any conditions that may compromise integrity of the facility, and occurrences of non-compliance with recommendations from the engineer of record. The Agency believes similar requirements for reporting should be established in the Water Licence, in addition to the requirement for submitting letters of acceptance.

Agency’s Recommendation #7:

Given the size and complexity (i.e., multiple dams) of the LLCF, the Agency believes that an independent panel with multiple subject-matter experts is warranted. As noted in the MAC guidance, this could be changed later if the independent panel concludes that a narrower scope is acceptable.

The ongoing operation and maintenance of the facilities will be an important area of scope for the independent reviewer(s). The Agency believes these requirements should also be established in the Water Licence, in addition to the requirement for submitting letters of acceptance. An additional condition should be included that requires the independent reviewer(s) to submit an annual report of their activities and findings, including a summary of reviews conducted, whether the work undertaken related to the LLCF (e.g., design, construction, inspection, monitoring) meets the panel’s expectations, whether there are conditions that may increase risks to or compromise the integrity of the facility, and any occurrences of non-compliance with recommendations of the Engineer of Record.

2.5. Part H: Conditions Applying to Waste Disposal

2.5.1. Condition H.20 – Operations, Maintenance and Surveillance Manuals

Issue Statement:

Operations, Maintenance and Surveillance (OMS) Manuals may be updated as operations progress and change. The proposed Water Licence condition related to submission of OMS Manuals does not address submission of future updates.

Agency’s Conclusion:

In our Intervention, the Agency recommended Arctic Canadian annually consider the need for updates to OMS manuals for Dams as part of the Annual Geotechnical Inspection Report, and complete and submit those updates when recommended by the engineer. The Agency continues to believe this is important because, as operations progress and change and as understanding of conditions and risks is refined, OMS Manuals for Dams will also need to change. Also, this would be consistent with guidance in the Canadian Dam Association Dam Safety Guidelines.

Agency’s Recommendation #8:

Condition H.20 of the Water Licence should be revised to include a requirement for submission of any updates to OMS Manuals as part of the Annual Geotechnical Inspection Report for the year in which an update is completed. The Condition should also require that each annual Geotechnical Inspection Report specifically address the need for updates to the OMS Manual.

2.6. Annex B: Part A – Surveillance Network Program Description and Sampling Requirements

2.6.1. SNP Station 1616-13

Issue Statement:

The Lower Panda Diversion Channel (PDC) Aquatic Effects Monitoring Program (AEMP) station is not a satisfactory replacement for Surveillance Network Program Station 1616-13.

Agency's Conclusion:

SNP Station 1616-13 (PDC prior to entering Kodiak Lake) should remain active until the PDC has been fully closed and a Performance Assessment Report has been submitted. In its response to the Agency's comments on the draft Water Licence, Arctic Canadian acknowledges that residual securities continue to be held by the GNWT related to continuation of water quality monitoring and potential mitigation of impacts until such time as Arctic Canadian demonstrates long term performance of the channel that is consistent with closure objectives and criteria.

While the Agency agrees SNP Station 1616-13 and the Lower PDC AEMP station are in the same general vicinity, they have been established for significantly different purposes. SNP Station 1616-13 was established to monitor the performance of the PDC to ensure compliance with various physical and chemical Effluent Quality Criteria, including Total Suspended Solids (TSS) – a primary indicator of PDC erosion – and is sampled monthly during periods of flow. The Lower PDC AEMP station was established to monitor potential changes and trends in upper Kodiak Lake by comparing water quality with ecologically-based benchmarks and is sampled annually, but does not include monitoring for TSS.

Agency's Recommendation #9:

SNP Station 1616-13 should remain an active sampling station until the PDC is fully closed in accordance with a Final Closure and Reclamation Plan and financial securities are relinquished.

3. CLOSING REMARKS

The Agency would like to acknowledge that through discussions at the Technical workshop, Public hearing and the various submissions in between, the following recommendations from the Agency's intervention have been resolved and removed from the list of recommendations.

- F.2 Schedule 5, Condition 3
- H.13 Discharge of Waste and Wastewater
- H.10 Operate and Maintain Waste Disposal Facilities
- H.13 Collection and Settling Ponds
- H.13b) Inspections of Collection and Settling Ponds
- K.2 Updating Closure and Reclamation Plans
- K.4 Closure and Reclamation Progress Report
- Schedule 1d) Reporting Qualities of Waste Disposed
- Schedule 6 1d)-f) Wastewater and Processed Kimberlite Management
- Schedule 6 2u) WRSA Seepage Evaluation Framework
- SNP Station 1616-30a

- SNP Condition B.11 Quantities of Minewater Pumped
- SNP Condition C.1-3 Meteorological Monitoring

4. SUMMARY OF RECOMMENDATIONS

Recommendation No. 1

The term of the Water Licence should be 7 years with an expiry date of 18 October 2030.

Recommendation No. 2

The definition of ‘Discharge’ should be expanded to include “*a direct or indirect deposit or release of any Water, Wastewater or Waste to Receiving Waters*”.

Recommendation No. 3

The definition of ‘Independent Tailings Review Panel’ should be expanded to include “one or more third-party subject matter expert(s) who are independent of the licensee and who are not and have not been directly involved in the design, construction or operation of the LLCF”.

Recommendation No. 4

The Agency suggest the following revision to Condition D.8 (underlined text):

“Each year, prior to the [effective date of licence], and three months in advance of any contingency Water withdrawal from Upper Exeter Lake, the Licensee shall provide a report to the Board and the Inspector on the annual volume of water needed for this purpose, outline the criteria and conditions that led to the determination of this volume, and outline the factors impacting, and measures taken to prevent, the need for contingency Water use.”

Recommendation No. 5

The scope of Condition F.10 should be expanded to require the identification of soil, rock, and ground ice conditions prior to the construction of any new containment structures and diversion channels (for example the Point Lake containment structures).

Recommendation No. 6

Condition F.19 of the Water Licence should be revised to state: “The Licensee shall retain an Engineer of Record for Dams. The Licensee shall submit the name of the Engineer of Record and acknowledgement by the Engineer of Record that they have agreed to accept the responsibility.”

Recommendation No. 7

Given the size and complexity (i.e., multiple dams) of the LLCF, the Agency believes that an independent panel with multiple subject-matter experts is warranted. As noted in the MAC guidance, this could be changed later if the independent panel concludes that a narrower scope is acceptable.

The ongoing operation and maintenance of the facilities will be an important area of scope for the independent reviewer(s). The Agency believes these requirements should also be established in the Water Licence, in addition to the requirement for submitting letters of acceptance. An additional condition should be included that requires the independent reviewer(s) to submit an annual report of their activities and findings, including a summary of reviews conducted, whether the work undertaken related to the LLCF (e.g., design, construction, inspection, monitoring) meets the panel’s expectations, whether there are conditions that may increase risks to or compromise the integrity of the facility, and any occurrences of non-compliance with recommendations of the Engineer of Record.

Recommendation No. 8

Condition H.20 of the Water Licence should be revised to include a requirement for submission of any updates to OMS Manuals as part of the Annual Geotechnical Inspection Report for the year in which an update is completed. The Condition should also require that each annual Geotechnical Inspection Report specifically address the need for updates to the OMS Manual.

Recommendation No. 9

SNP Station 1616-13 should remain an active sampling station until the PDC is fully closed in accordance with a Final Closure and Reclamation Plan and financial securities are relinquished.