



# INDEPENDENT ENVIRONMENTAL MONITORING AGENCY CLOSING ARGUMENTS

Point Lake Project Application Process

Submitted to the Wek'eezhii Land and Water Board  
February 8, 2022

***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 24 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 Diamond) 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 Diamond) 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 Diamond 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 Diamond and governments the concerns of Aboriginal peoples and the general public.

### 1.2. Organization of our Closing Arguments

The Agency is pleased to submit our closing arguments on Arctic Diamond's application to licence the Point Lake Project (PLP). We carefully considered all of the information provided by Arctic Diamond as part of the application process, the arguments and evidence heard during the Public Hearing, Technical Sessions, Information Requests and responses, proposed updates to the Water Licence Amendment and Land Use Permit and various other meetings. The Agency retained the services of Lorax Environmental to provide expert advice on PLP waste rock management and geochemistry. Their input has helped inform our closing arguments. As in our intervention, we have focused our closing arguments on the following subject areas:

- Effectiveness of Current Caribou Mitigation Measures
- Sensory Disturbance to Caribou
- Location and Design of Waste Rock and Overburden Piles
- Timing to Onset of Acid Rock Drainage (ARD) and Heat Generation
- Seepage Collection
- Water Quality Predictions
- Design and Operation of the Dewatering Pipeline
- Pit Lake Closure

- Transferred Jay EA Measures

Based on these topics the Agency submitted 11 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 13 recommendations. The additional recommendations are a result of the Dewatering Plan review and responses to undertakings, as such the Agency does not believe these recommendations represent new information or comments.

## 2. AGENCY CLOSING ARGUMENTS AND RECOMMENDATIONS

### 2.1. Barriers to Caribou Movement

The Lac du Sauvage esker is an historically important corridor for the Bathurst and Beverly/Ahiak caribou as they migrate through the area occupied by the Ekati mine. The Bathurst caribou population has declined significantly over the past 25 years (97% reduction from the mid-1990s to the late 2010s) and as a result, all reasonable efforts must be taken to ensure the future sustainability of these important caribou herds.

#### 2.1.1. Effectiveness of Mitigation Plan

##### **Issue statement:**

The proposed Point Lake Project is within a known caribou movement corridor, and is one area where caribou currently move through when deflected around mine infrastructure. The effectiveness of current monitoring and mitigation for caribou movement has not been adequately demonstrated.

##### **Agency's Conclusion:**

Based on the Agency's findings in the Caribou Collar Data Report<sup>1</sup> and the lack of assessment by Arctic Diamond, it remains difficult to determine to what extent the mitigations currently used under the Caribou Road Mitigation Plan (CRMP) are effective. To date the Agency is not aware of a robust analysis into the effectiveness of these mitigation measures.

##### **Arctic Diamond's Conclusion:**

Arctic Diamond believes that despite the area being a known caribou and wildlife movement corridor, any impacts can be mitigated by the existing Wildlife Management and Monitoring Program (WMMP; termed the Ekati Wildlife Effects Monitoring Program (WEMP)) and associated CRMP, as well as a "*Point Lake Project Addendum to the WEMP that will describe monitoring and mitigation for caribou movement that is specific to the Point Lake Project*".

During a meeting on January 24, 2022, Arctic Diamond and the Agency discussed learnings from the caribou collar data analysis, an analysis which the company is preparing to conduct.

During the Public Hearing, Arctic Diamond agreed to meet with parties to discuss a number of concerns raised (WRSA's, roads, etc.) in regards to wildlife and caribou movement around and through the PLP area. The initial meeting is scheduled for February 15-16, 2022 and topics to be discussed include:

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<sup>1</sup> Influence of the Ekati Diamond Mine on migrating tundra caribou movements. Poole, Gunn and Pelchat. August 2021.

- Point Lake Project Addendum to the Wildlife Effects Monitoring Program (WEMP)
- Caribou Research (design and objectives) for collar data analysis and regional Bathurst research
- Point Lake Waste Rock Storage Area Design

The Agency is hopeful that the upcoming meeting(s) will help address some of our concerns. It remains unclear how the outcomes of discussions related to the WEMP and caribou research will be regulated.

**Agency's Recommendation:**

*Recommendation No. 1*

Arctic Diamond should work with stakeholders to assess the efficacy of the current CRMP and then update the CRMP and the WMMP/WEMP based on available data, including analysis of caribou movements from collar data and Traditional Knowledge (TK).

2.1.2. Sensory Disturbance for Caribou

**Issue Statement:**

In addition to the physical barrier presented by roads, waste rock piles and other physical structures, sensory disturbances, such as truck traffic, blasting, exhaust fumes and dust, will also likely have an impact on caribou use and movement through the area.

**Agency's Conclusion:**

The operations for the PLP greatly differ from those that are currently active at the Ekati site (Pigeon, Sable and Misery). The existing sensory disturbances are spread out amongst multiple locations, however the PLP will be the only operating pit for its duration so all the sensory disturbance will be focused on the Lac du Sauvage (formerly the Jay Road) and Misery roads and related infrastructure.

Table 1 summarizes heavy haul vehicle types and traffic volume during the construction and operation phases of the Point Lake Project

Table 1. Heavy haul vehicle types and traffic volume during the construction and operation phases of the Point Lake Project

Project Phase	Description	Time Period	Vehicle Type and Number	Location	Vehicle Passages/hr
<b>Construction Phase 1</b>	Early Works infrastructure	Nov 2021 (approx. 21 days)	5 x CAT 777 haul truck	Lac du Sauvage Road	8 or more
	Lake Dewatering and Fish Out	April 2022 to Sept 2022 (approx. 180 days)	1 x CAT 938 loader, Fuel truck	Lac du Sauvage Road	Up to 2
<b>Construction Phase 2</b>	Overburden and Pit infrastructure	Oct 2022 to March 2023 (approx. 180 days)	3 x CAT 777 haul trucks	Lac du Sauvage Road	8 or more
<b>Operation Phase</b>	Misery ore haulage	Oct 2021 to April 2024	5 x Dual powered road trains	Misery Road	Up to 2
	Point Lake ore haulage	April 2023 to January 2029	6 x CAT 793/777 haul trucks	Lac du Sauvage Road	Between 4 and 8 <sup>2</sup>
		May 2024 to April 2029	6 x Dual powered road trains	Misery Road	Up to 4
	Point Lake waste rock haulage	April 2023 to April 2029	6 x CAT 793/777 haul trucks	Point Lake Road <sup>3</sup>	Not provided <sup>4</sup>

Light truck and vehicle traffic is also expected on the Misery and Lac du Sauvage Roads throughout construction and operation phases of the Project for the purposes of crew changes and daily supervision, and survey and environmental monitoring. Vehicle traffic volumes will depend on operational activities with higher traffic during day shifts and lower traffic during night shifts.

**Arctic Diamond’s Conclusion:**

The Caribou Road Mitigation Plan (CRMP) is in effect site-wide as part of the approved Wildlife Effects Monitoring Plan (WEMP). The CRMP provides for increased mitigative actions as caribou approach roads, progressing from increased behavioral and location monitoring to full traffic stoppage.

In addition to the existing procedures in the WEMP and CRMP, Arctic Diamond is preparing a PLP Addendum to the WEMP/CRMP that will describe monitoring and mitigation for caribou movement that is specific to the PLP. The PLP Addendum will incorporate Traditional Knowledge engagement outcomes and scientific studies that are described in the response (see IR’s #1 through 4).

Arctic Diamond originally proposed to hold a Traditional Knowledge workshop on the PLP Addendum in December 2021, and to submit the Addendum to GNWT for approval in early 2022. We believe this TK

<sup>2</sup> Kimberlite ore and waste rock is mined at different times. When ore is mined, as compared to when waste rock is mined and transported to the nearby Point Lake Waste Rock Storage Area, haul traffic between Point Lake and the Lynx ore storage pad is expected to be moderate to heavy.

<sup>3</sup> The Point Lake Road is located between the pit and WRSA

<sup>4</sup> Although the vehicles passages/hr was not provided by Arctic Diamond, the Monitoring Agency assumes traffic volume on the Point Lake Road will be 8 or more passages/hr (heavy).

workshop has been rolled into the February 15-16, 2022 wildlife meeting. This work may serve to accelerate some aspects of the scheduled review and update of the WEMP as part of the 2023 Water Licence Renewal process.

**Agency's Recommendation:**

*Recommendation No. 2*

Additional caribou mitigation actions should be implemented and include testing of greater periods of 'no heavy haul truck' traffic (i.e., longer break intervals) during periods when caribou are migrating through the Lac du Sauvage – Lac de Gras isthmus and the PLP area.

2.1.3. Location and Design of Waste Rock and Overburden Piles

**Issue Statement:**

The location of the Waste Rock Storage Areas (WRSA), Overburden Pile, and the Pit are within a historically-important caribou movement corridor.

**Agency's Conclusion:**

The combined footprint of the WRSA, Overburden Pile, and Pit will act as significant barriers to caribou movement through this important corridor. The Agency is especially concerned with the corridor to the west of the PLP, where Misery operations combined with the proposed PLP WRSA and Overburden Pile may discourage use by caribou. Although a comparative evaluation of WRSA and overburden locations was carried out by Arctic Diamond as part of the application, the analysis was carried out internally and is opaque to reviewers beyond summaries of the results.

Arctic Diamond has repeatedly stated that locating the WRSA and Overburden Pile within the vicinity of the Point Lake Pit is the only economically-viable alternative. The Agency believes conducting an open and transparent alternatives analysis is a comprehensive method to collectively engage with community members and other stakeholders to identify an appropriate location and design that carefully considers caribou movement.

**Arctic Diamond's Conclusion:**

Arctic Diamond carried out a comparative evaluation of WRSA options as part of its planning process. The evaluation concluded that locations other than the Point Lake site were deemed fatally flawed on the basis that they resulted in a No-Project condition because of cost.

During the Public Hearing, Arctic Diamond agreed to meet and discuss this topic with stakeholders. The first meeting is scheduled for February 15-16, 2022.

**Agency's Recommendation:**

*Recommendation No. 3*

Arctic Diamond should conduct an open and transparent alternatives analysis for waste rock and overburden storage siting and design within the vicinity of the Point Lake Pit and submit a report that describes the process and results of the analysis. The analysis and reporting should be consistent with the methodology described in the ECCC "Guidelines for the assessment of alternatives for mine waste disposal" and Arctic Diamond must provide opportunities for Indigenous governments and

organizations, other governments, and other interested parties to participate directly in the alternatives analysis.

*Recommendation No. 4*

Arctic Diamond should revise the Point Lake Waste Rock Storage Area Design Plan and the Waste Rock and Ore Storage Management Plan (WROMP) to incorporate design and operational requirements to further mitigate the effects and risks to caribou movement. The requirement for the alternatives analysis should be clearly listed in Schedule 5 Condition 2 as a requirement of the WRSA Design Plan. The WL currently requires the WRSA Design Report to be submitted 90 days prior to construction. The alternatives analysis would need to be completed in advance of the 90 days.

## 2.2. Waste Rock Storage Areas

Waste Rock Storage Areas are permanent landscape structures that will remain in place following the completion of mining activities. The design and management of these structures during both mine operation and post-closure represents a significant challenge because, once constructed, these massive piles of waste rock are enduring.

### 2.2.1. Timing to Onset of Acid Rock Drainage (ARD) and Heat Generation

**Issue Statement:**

The PLP waste rock is different from other waste rock at Ekati in two important ways: (1) it is almost all metasediment, and (2) testing to-date indicates that it has greater potential to generate acid than other metasediments at the Ekati mine. Currently available test results indicate that acid-generation and metal leaching will likely occur, however, the testing program has not provided results that support well-informed predictions of timing for acid-generation, or water quality and thermal conditions arising from acid-generation reactions. Together, these inputs are important for informing the design, operation and closure of waste rock storage facilities.

**Agency's Conclusion:**

Based on data provided, the PLP metasediment presents distinct characteristics that pose a significant risk for acid generation and metal leaching. The Agency is concerned that PLP WRSAs will become acidic in the event that timely mitigative measures are not invoked to limit sulphide oxidation rates. The rapid onset to acid generation is expected based on:

- a) the results of the existing humidity cell tests (HCTs) composed of metasediments from the Misery and Pigeon deposits which generated acidic leachate within 51 weeks;
- b) the greater propensity for the PLP metasediments to be PAG than for other Ekati testing of metasediments (e.g., 91% of PLP samples classified as PAG vs. 51% of Misery samples classified as PAG or uncertain; lower median NPR values at PLP in comparison to the larger Ekati metasediment database or the samples used in HCTs); and
- c) lack of pH-buffering capacity in the PLP metasediment waste rock (i.e., 99% of PLP waste rock is expected to be metasediments and 62 of 80 PLP metasediment samples contained non-detectable neutralization in the form of carbonate content).

The amount of time the metasediments will take to turn acidic and the rates of sulphide oxidation under pH-neutral and acidic conditions are important in understanding the long-term seepage quality and

thermal properties of the WRSA. Quantification of these factors also has implications for the design, construction and closure of the WRSAs. Onset of acid-generating conditions before closure measures are in place could, for example, lead to long-term elevated concentrations of contaminants in seepage and/or thermal conditions that render the proposed thermal cover for the WRSAs ineffective (i.e., heat released by sulphide oxidation may inhibit freezing of the pile below the active layer).

**Arctic Diamond’s Conclusion:**

Arctic Diamond’s position is, because the PLP has a short mine life of 4 to 5 years followed by the immediate placement of a cover on the WRSAs, there is not enough time for ARD to develop and that once the cover is in place there will not be sufficient opportunity for ARD to form.

**Agency’s Recommendation:**

*Recommendation No. 5*

Results of kinetic testing should be used to inform the Point Lake Waste Rock Storage Area Design Report, Waste Rock and Overburden Management Plan and the closure plan for the WRSA. The kinetic testing should include:

- Development of PLP-specific closure seepage quality predictions and thermal modelling.
- The selected humidity cell samples should represent typical carbonate content found in PLP metasediments and assess how variable sulphur content in the 50, 75 and 95 percentile ranges influence variations in sulphide oxidation and metal leaching rates.
- Representative humidity cells should be operated for a minimum of 40 weeks.

2.2.2. Seepage Collection

**Issue Statement:**

Nearly all the waste rock at the PLP will be PAG metasediment. The collection and monitoring of seepage from the WRSA are important in assessing potential long-term water quality and protecting the receiving environment.

**Agency’s Conclusion:**

The proposed program to monitor, capture and assess “unexpected seepage loss” from the WRSA is incomplete as it does not include monitoring of potential subsurface flows that may bypass the seepage collection system.

**Arctic Diamond’s Conclusion:**

The two metasediment piles that comprise the proposed WRSA are purposely situated within the catchment area that drains northwards to the Lac du Sauvage Road (previously Jay Road). This simplifies seepage collection and minimizes new construction disturbance. The Lac du Sauvage Road directs seepage to the collection sumps. Design of the WRSA seepage collection system, including sumps and monitoring protocols, will be included in the WRSA Design Report. The sumps will be lined to securely contain seepage. The seepage collection system monitoring program will include monitoring of the road and sumps to identify and respond to unexpected seepage losses. WRSA seepage will also be monitored around the toe of the WRSA following the sampling protocols approved in the Waste Rock and Ore Storage Management Plan, which includes consideration of the risk of shallow subsurface seepage

movement through the seasonal active layer thaw zone. Arctic Diamond asserts that there is no connectivity to deep sub-permafrost groundwater. In the event monitoring programs identifies WRSA seepage that is not being collected, additional sumps or other means would be implemented to capture that seepage.

**Agency’s Recommendations:**

*Recommendation No. 6*

The monitoring program for the WRSAs should include components intended to identify and characterize any subsurface flows of water within the active layer. If such flows are identified, measures must be put in place to collect and monitor subsurface flows in the vicinity of the WRSA. The monitoring program for the WRSA must also include procedures on how “unexpected seepage loss” from the WRSA will be identified and provide triggers and contingencies to resolve surface and subsurface seepage loss. These components are critical to the successful management of the PLP WRSA seepage.

2.2.3. Water Quality Predictions

**Issue Statement:**

A simplified load balance model was developed to support a screening level assessment of the potential for changes in King Pond Storage Facility (KPSF) water quality due to inputs from the PLP, including pit dewatering and WRSA seepage and runoff. The WRSA seepage values used in modelling were based on the Misery Pit Sump water quality data prior to the start of underground mining, and may not be representative of the water quality from PLP waste rock seepage. These water quality models are important in determining both long and short-term management of the KPSF.

**Agency’s Conclusion:**

Water quality predictions developed for the PLP are not defensible given that supporting information is not presented or justified and available leachate data generated by the metasediment HCTs were not considered. This information is important to assess the assimilative capacity of the KPSF during operations and predict water quality at closure for the PLP WRSA, Point Lake pit, and KPSF. The use of Misery Pit Sump water quality data as a PLP source term did not attempt to identify proportions of water and relative loading reporting to the Misery Pit from different sources such as pit wall runoff, waste rock seepage and road runoff in order to isolate unit loading rates that could be applied and scaled for the PLP site.

**Arctic Diamond’s Conclusion:**

The load balance model included in Arctic Diamond’s application, considered changes in proportions of contact water reporting to and contained in KPSF, based on the assumption that the quality of minewater from Point Lake sources would be similar to or better than that of Misery Pit Sump prior to the start of underground mining. This is because, notwithstanding the presence of granite in the Misery pit, the water quality in the Misery pit sump at that time reflects several years of accumulated runoff over metasediment exposures in the Misery pit walls and metasediment fines on pit benches, some of which material may have been partially oxidized since mining began in 2000.

**Agency's Recommendation:**

*Recommendation No. 7*

The Agency proposes that Arctic Diamond recalculate water quality predictions using relevant existing metasediment HCT's data, since it would more accurately represent seepage in contact with the PLP metasediments (WRSA and pit walls). This works should include:

- Once PLP specific HCT data is available, Arctic Diamond should update water quality predictions as necessary.
- Similarly, relevant existing metasediment HCT's data should inform the King Pond load balance model and should be updated with the results from the PLP metasediment HCTs.
- Predictions from the model should be used to understand the effects and risks that potential variability and uncertainty of loading from PL mine water and seepage may have on water quality, and if necessary to update management and contingency plans to prevent non-compliant waste water discharge from King Pond or accumulations on site.

2.2.4. Design and Operation of the Dewatering Pipelines

**Issue Statement:**

The proposed Dewatering Plan focuses on mitigating potential water quality impacts to Lac du Sauvage from the Point Lake dewatering process (e.g., mitigating Total Suspended Particulate and shoreline erosion). Details are currently not provided on the design, construction and operation of the two proposed 80 cm-diameter pipelines to be located adjacent to the Lac de Sauvage Road.

**Agency's Conclusion:**

The proposed 80 cm-diameter water pipelines between Point Lake and each of Lac du Sauvage and King Pond will be oriented perpendicular to the historical north-south travel routes of the Bathurst and Beverly/Ahiak caribou herds. Careful design, construction and operation measures are required to ensure the pipelines do not contribute to the physical and sensory barrier effect on caribou movement already represented by infrastructure and activities associated with the PLP.

**Arctic Diamond's Conclusion:**

Arctic Diamond states that *"When established, pipelines (to each of Lac du Sauvage and King Pond) will be covered with crushed rock at a width and spacing to be determined. These crossings for caribou will be constructed using crushed rock (200 millimetres or less in size) at a slope of 1:5 so that the side slopes of the pipeline and road are flatter and easier walking for caribou than the larger road fill rock."* The response also states *"When the second stage begins and [the high-TSS water remaining in Point Lake] is pumped to King Pond, the pipeline to Lac du Sauvage will be removed, targeted for August 2022."* (Response to IR #17).

**Agency's Recommendation:**

*Recommendation No 8:*

While the prescribed locations and intervals between caribou crossings along the length of the proposed dewatering pipelines should be the subject of discussions within the WEMP Addendum, other design and construction details on the dewatering pipelines (i.e., engineered drawings of pipeline sections

constructed with caribou crossings, height of uncovered pipeline sections above adjacent roadbed and tundra) should be included in the final Dewatering Plan.

#### *Recommendation No. 9*

Contingency actions should be provided in the Dewatering Plan in the event completion of first stage dewatering activities is delayed into September 2022 or later, when caribou may be migrating through the Ekati property.

### 2.3. Pit Lake Closure

The Interim Closure and Reclamation Plan (ICRP) proposes the development of littoral zones in pits at Ekati. Earlier versions of the ICRP envisioned development of littoral zones in all pits, but ICRP 3.0 concluded that littoral zone development is constrained by topography of pits and is only practical in a limited number of pits.

#### 2.3.1. Planning for Littoral Zone Development

##### **Issue Statement:**

Pit design for PLP should include development of littoral zones as part of closure implementation as the establishment of littoral zones in pits is considered an integral part of Ekati closure planning.

##### **Agency's Conclusion:**

Arctic Diamond's application does not provide any details about planned development of littoral zones in the PL Pit. The description of open pit design (Section 4.3.2) does not describe how the future need for establishment of littoral zones has been considered in the design of the pit. As illustrated by Arctic Diamond's assertions in ICRP 3.0 about topography-related limitations for littoral zones, open pit design decisions could foreclose on future opportunities for achieving the closure objectives related to littoral fish habitat in pits.

##### **Arctic Diamond's Conclusion:**

In its application (Section 4.4.10), Arctic Diamond proposes that reclamation of the Point Lake Pit will include "flooding and reclamation." The RECLAIM estimate includes costs for creating littoral zones as part of the closure plan.

##### **Agency's Recommendation:**

#### *Recommendation No. 10*

Arctic Diamond should submit, for review and approval, a final open pit design that demonstrates how planning for closure, including development of littoral zones, has been incorporated in pit design.

### 2.4. Jay Environmental Assessment Measures

#### 2.4.1. Transferred Jay EA Measures

##### **Issue Statement:**

In Arctic Diamond's July 29 letter to the WLWB, they requested "... to remove the Jay Project in its entirety from the Water Licence", essentially cancelling the Jay Project in its current form. This has led to considerable regulatory uncertainty because there are legally binding Measures that came out of the Jay

Environmental Assessment (EA) process. Some of which are relevant to the concerns raised to the PLP due to the projects' proximity (i.e., concerns around impacts to caribou movement in a known movement corridor) and others that have been adopted on a site-wide basis. On September 6, 2021 the Mackenzie Valley Environmental Impact Review Board (MVEIRB) sent joint letters to Arctic Diamond and the GNWT asking them which Measures (from Jay) have been implemented and which ones remain relevant for the PLP.

**Agency's Conclusion:**

If the obligations originating from the Jay Measures were to be removed, there would be gaps that are not fully captured by existing permitting, reporting and regulatory requirements. The gaps relate to Jay EA measures:

- 6-2(a) Caribou Offset and Mitigation Plan
- 6-2(b) Research to design and implement successful offsetting projects
- 6-3 Air Quality Emissions Monitoring and Management Plan
- 9-1 Incineration – Stack Testing and Reporting

During the Public Hearing the GNWT accepted an undertaking (Undertaking 6) which asked the GNWT to *“Provide clarification on what parts of Measure 6-2(a) the GNWT believes will be addressed within the Wildlife Effects Monitoring Plan (WEMP), and what parts would or could be addressed through other regulatory instruments.”* In its response the GNWT provided a table, however the table did not include responses to Measures 6-2(a) (iii) and (iv), which read as follows:

6-2(a) (iii). Following implementation of the Caribou Offset and Mitigation Plan, Dominion will:

- annually report on the effectiveness of monitoring, mitigation and adaptive management of the Caribou Offset and Mitigation Plan to communities in person in a culturally appropriate manner;
- annually report on the activities conducted under the Caribou Offset and Mitigation Plan and the effectiveness of related monitoring, mitigation and adaptive management, to GNWT-ENR, WRRB and IEMA; and
- submit an updated Caribou Offset and Mitigation Plan for approval by GNWT-ENR every three years. Prior to approval, the GNWT should provide the opportunity for public comment.

6-2(a) (iv). The GNWT will enforce the Caribou Offset and Mitigation Plan under the section 95 of the Wildlife Act.

Condition 6-2(a) (iii) requiring annual reporting on mitigations and 3-year update for approval is critical to ensure Arctic Diamond is held accountable and to allow for the program to be updated and adapted based on lessons learned.

### **Arctic Diamond's Conclusion:**

In a written response to the MVEIRB dated September 24, 2021, Arctic Diamond has provided the following responses regarding the PLP and the review of the above Jay EA measures<sup>5</sup>.

- 6-2(a) Caribou Offset and Mitigation Plan: Item i: A Caribou Offset and Mitigation Plan for the Jay Project was prepared and Arctic has committed to carrying the Plan forward, with adaptations appropriate to the Point Lake Project in the absence of the Jay Project, throughout the duration of the Point Lake Project. Item ii: Some of the commitments of the Plan have been implemented and are complete, and some are being adapted as appropriate for the Point Lake Project in the absence of the Jay Project, which will require engagement prior to implementation throughout the life of the Point Lake Project. Arctic has committed to engagement on those items in 2022. Item iii: Arctic will carry forward the reporting and submission requirements throughout the life of the Point Lake Project.
- 6-3 Air Quality Emissions Monitoring and Management Plan: The Air Quality and Emissions Monitoring and Management Plan (AQEMMP) was approved by the GNWT on May 31, 2017.
- 9.1 Incineration – Stack Testing and Reporting: Arctic will implement the WLWB approved Incinerator Management Plan throughout the life of the Point Lake Project.

### **Agency's Recommendation:**

#### *Recommendation No. 11*

GNWT-ENR should confirm that it will require submission of an updated Caribou Offset and Mitigation Plan for approval every three years and, as part of the approvals process, facilitate a public review of the updated Plan.

#### *Recommendation No.12*

Arctic Diamond should fulfil its longstanding commitment to consolidate the current site-wide Air Quality Monitoring Program (AQMP) and Jay Air Quality Emission Monitoring and Management Plan to incorporate an Adaptive Management Framework into the AQMP.

#### *Recommendation No. 13*

Arctic Diamond should incorporate the three-year stack emissions testing and adaptive management requirements outlined in the Jay Measure 9-1 into an updated Incinerator Management Plan. This emissions testing schedule is consistent with waste incinerator best management practices in Canada.

## **3. SUMMARY OF RECOMMENDATIONS**

#### *Recommendation No. 1*

Arctic Diamond should work with stakeholders to assess the efficacy of the current CRMP and then update the CRMP and the WMMP/WEMP based on available data, including analysis of caribou movements from collar data and Traditional Knowledge (TK).

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<sup>5</sup> Source: A letter addressed to the MVEIRB, Re: Mackenzie Valley Resource Management Act (MVRMA) s.126(3) Decision – Point Lake Project – Response to request for further information

*Recommendation No. 2*

Additional caribou mitigation actions should be implemented and include testing of greater periods of 'no heavy haul truck' traffic (i.e., longer break intervals) during periods when caribou are migrating through the Lac du Sauvage – Lac de Gras isthmus and the PLP area.

*Recommendation No. 3*

Arctic Diamond should conduct an open and transparent alternatives analysis for waste rock and overburden storage siting and design within the vicinity of the Point Lake Pit and submit a report that describes the process and results of the analysis. The analysis and reporting should be consistent with the methodology described in the ECCC "Guidelines for the assessment of alternatives for mine waste disposal" and Arctic Diamond must provide opportunities for Indigenous governments and organizations, other governments, and other interested parties to participate directly in the alternatives analysis.

*Recommendation No. 4*

Arctic Diamond should revise the Point Lake Waste Rock Storage Area Design Plan and the Waste Rock and Ore Storage Management Plan (WROMP) to incorporate design and operational requirements to further mitigate the effects and risks to caribou movement. The requirement for the alternatives analysis should be clearly listed in Schedule 5 Condition 2 as a requirement of the WRSA Design Plan. The WL currently requires the WRSA Design Report to be submitted 90 days prior to construction. The alternatives analysis would need to be completed in advance of the 90 days.

*Recommendation No. 5*

Results of kinetic testing should be used to inform the Point Lake Waste Rock Storage Area Design Report, Waste Rock and Overburden Management Plan and the closure plan for the WRSA. The kinetic testing should include:

- Development of PLP-specific closure seepage quality predictions and thermal modelling.
- The selected humidity cell samples should represent typical carbonate content found in PLP metasediments and assess how variable sulphur content in the 50, 75 and 95 percentile ranges influence variations in sulphide oxidation and metal leaching rates.
- Representative humidity cells should be operated for a minimum of 40 weeks.

*Recommendation No. 6*

The monitoring program for the WRSAs should include components intended to identify and characterize any subsurface flows of water within the active layer. If such flows are identified, measures must be put in place to collect and monitor subsurface flows in the vicinity of the WRSA. The monitoring program for the WRSA must also include procedures on how "unexpected seepage loss" from the WRSA will be identified and provide triggers and contingencies to resolve surface and subsurface seepage loss. These components are critical to the successful management of the PLP WRSA seepage.

*Recommendation No. 7*

The Agency proposes that Arctic Diamond recalculate water quality predictions using relevant existing metasediment HCT's data, since it would more accurately represent seepage in contact with the PLP metasediments (WRSA and pit walls). This works should include:

- Once PLP specific HCT data is available, Arctic Diamond should update water quality predictions as necessary.

- Similarly, relevant existing metasediment HCT's data should inform the King Pond load balance model and should be updated with the results from the PLP metasediment HCTs.
- Predictions from the model should be used to understand the effects and risks that potential variability and uncertainty of loading from PL mine water and seepage may have on water quality, and if necessary to update management and contingency plans to prevent non-compliant waste water discharge from King Pond or accumulations on site.

*Recommendation No 8:*

While the prescribed locations and intervals between caribou crossings along the length of the proposed dewatering pipelines should be the subject of discussions within the WEMP Addendum, other design and construction details on the dewatering pipelines (i.e., engineered drawings of pipeline sections constructed with caribou crossings, height of uncovered pipeline sections above adjacent roadbed and tundra) should be included in the final Dewatering Plan.

*Recommendation No. 9*

Contingency actions should be provided in the Dewatering Plan in the event completion of first stage dewatering activities is delayed into September 2022 or later, when caribou may be migrating through the Ekati property.

*Recommendation No. 10*

Arctic Diamond should submit, for review and approval, a final open pit design that demonstrates how planning for closure, including development of littoral zones, has been incorporated in pit design.

*Recommendation No. 11*

GNWT-ENR should confirm that it will require submission of an updated Caribou Offset and Mitigation Plan for approval every three years and, as part of the approvals process, facilitate a public review of the updated Plan.

*Recommendation No.12*

Arctic Diamond should fulfil its longstanding commitment to consolidate the current site-wide Air Quality Monitoring Program (AQMP) and Jay Air Quality Emission Monitoring and Management Plan to incorporate an Adaptive Management Framework into the AQMP.

*Recommendation No. 13*

Arctic Diamond should incorporate the three-year stack emissions testing and adaptive management requirements outlined in the Jay Measure 9-1 into an updated Incinerator Management Plan. This emissions testing schedule is consistent with waste incinerator best management practices in Canada.