



## Independent Environmental Monitoring Agency

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January 31, 2019

Joseph Mackenzie  
Chair, Wek'eezhii Land and Water Board  
#1-4905 48th St, Yellowknife, NT  
X1A 3S3

### **Re: Jay Project AEMP Design Plan and Aquatic Response Framework**

Dear Mr. Mackenzie,

The Independent Environmental Monitoring Agency (Agency) has reviewed the Jay Project AEMP Design Plan (Design Plan) and Aquatic Response Framework (ARF) submitted by Dominion Diamond Mines ULC (Dominion) and provides the following comments for your consideration.

### **Jay AEMP Design Plan**

#### **Sediment Sampling Method (corer vs Ekman dredge)**

Section 4.5.4 discusses Dominion's plan for sediment sampling. Dominion continues to assert that it cannot effectively use the sediment corer in Lac du Sauvage and will continue the sediment sampling program using only the Ekman Dredge. Subsequent to distributing this Jay AEMP Design Plan, the Wek'eezhii Land and Water Board (WLWB) ruled in its Dec 3, 2018 decision that Dominion did not provide adequate rationale for discontinuing use of the corer in its sediment sampling program. The WLWB therefore determined that in the absence of a compelling rationale against it, the Ekati AEMP should proceed using a corer or a combination of coring and dredging in sediment sampling. The Agency supports the WLWB's decision and believes that the decision to use a combination of Ekman dredge and sediment corer should also be applied to the Jay AEMP Design Plan.

**Recommendation:** Dominion use the sediment corer and or a combination of the corer with the Ekman dredge to collect sediment sampling in accordance with the WLWB December 3, 2018 decision for the main AEMP design Plan.

#### **Fish Sampling – Slimy Sculpin**

In the May 29, 2017 Reasons for Decision Section 6.11.1 the WLWB ruled that Dominion "*is to demonstrate adequate abundance of Slimy Sculpin as a sentinel species, and describe contingencies if adequate sample sizes cannot be achieved.*" (p 62). Table 4.3-1 of the Design Plan, footnote (c) states "*Fishing effort may be extended outside the NF [near field] area and move into the southeast transect, if necessary, to collect sufficient numbers of fish.*" (p-4-8). Dominion does not explain how the data from sculpin sampled in the near field (NF) area will be handled in relation to that from the remainder sampled beyond the NF. Dominion need to ensure that any potential effects on fish health and tissue

contaminants in fish living in near field will not be diluted by those in the mid-field sampling areas, which would likely be less exposed to degraded water and sediment quality. This data analysis question is unexplained in the text of this report as well as in the *Supporting information for the Aquatic Effects Monitoring Program Design Plan for the Jay Project* (p. 8-2). Dominion needs to clearly describe how it is dealing with this data analysis concern in the Design Plan.

**Recommendation:** Dominion should explain in the Design Plan how inadequate (low) slimy sculpin sample sizes from the NF area will be supplemented with sculpin from outside the NF area and detail how the resulting data will be corrected or adjusted to differentiate any effect from NF and further field sampling.

### **Spatial Trends**

Section 8.3.3.1 of the Supplemental Information clarifies that there is no plan to assess spatial trends in health metrics in Lac du Sauvage slimy sculpin as part of the Design Plan (p-8.8), with no explanation or rationale provided. The Agency believes that an explanation is warranted, since all other components of the lake ecosystems in Lac du Sauvage (water quality, sediment quality, plankton, and benthos) will be assessed spatially.

**Recommendation:** The Design Plan should explain why there is no intention to conduct spatial trend analysis for slimy sculpin.

### **Baseline data for Harvestable Fish**

The Design Plan proposes to use only slimy sculpin in regular fish monitoring, with the possibility that if concerns are raised regarding possible impacts to large bodied fish then sampling will be expanded to include large bodied species. Adequate baseline sampling data are critical in determining potential impacts to fish species. The Agency is concerned that if large bodied fish monitoring was determined to be necessary, that there would not be adequate baseline data required to identify potential effects on large bodied fish.

Section 9.3 of the Baseline Data Summary, Evaluation, and Adequacy Report evaluated baseline slimy sculpin and lake trout tissue contaminants data. This report did not fully assess the adequacy of the baseline health and contaminants data collected for lake trout (large bodied fish). Although power analysis was done for lake trout body condition, for trout tissue contaminants (mercury only; sculpin looked at mercury and selenium) a percent sensitivity and minimum detectable difference were determined, but not the critical effect size as defined under the Environmental Monitoring Program (Table 9.2-5). Therefore, the assessment of baseline adequacy for lake trout tissue contaminants seems to be incomplete.

**Recommendation:** The adequacy of the baseline data for harvestable fish species should be revisited to either fill the missing analytical data gaps and include selenium in the trout tissue contaminants analysis, or explain why these cannot be done with the available baseline data.

### **Cumulative Effects and Winter Road**

Section 4.8 of the Design Plan and Section 8.5 of the Supporting Information Report restrict the discussion of cumulative effects assessment to combined aquatic impacts from the two mines, Ekati and Diavik. It says nothing of potential contributions from the Tibbett – Contwoyto Winter Road which runs along Lac du Sauvage in a north-south direction from the Narrows to Duchess Lake (see maps 4.2-1 to 4.2-4). During the Jay Design technical session, it was proposed that the Design Plan should provide a short summary of known aquatic impacts from the winter road since up to 4 sampling stations of the North and South AEMP transects (Aa-1 & -2; LDS 2&3) in Lac du Sauvage appear to be in close proximity

to truck portages. Dominion's consultant, Golder, responded that those sites were not close enough to the winter road portages to be affected by any degradation of lake water or sediment that could potentially be caused by lakeshore bank erosion at portage points. The Tibbet-Contwoyto Winter Road Project Description Report (p.5) speaks to the potential for rutting or gouging road surface at portages, as well as "blow-outs" at shallow near-shore approaches to portages caused by truck-induced pressure waves beneath the ice. With this in mind, the Agency believes a discussion of the possibility of incorporating the Winter Road into the AEMP monitoring of possible cumulative effects of the Jay project and other projects in the vicinity is warranted.

**Recommendation:** The Design Plan should include the Tibbett-Contwoyto Winter Road into the Jay AEMP monitoring plans for cumulative impacts.

## **Jay Aquatic Response Framework**

### **Sediment Quality Action Levels**

Dominion provided the same rationale for not including sediment quality in developing ARF action levels (section 3.3) as it used in the site-wide ARF. On October 4, 2018 the Agency submitted comments on the site-wide AFR which included a detailed argument for providing sediment quality based action levels for some parameters.

Under the site wide ARF, sediment quality can be incorporated into a Response Plan only when water quality benchmarks are exceeded, not when a sediment quality variable alone is found to be adverse to benthic life. Therefore, there is no protocol in the ARF for water quality data and benchmarks to be evaluated when a sediment quality government guideline is exceeded (as was the case for selenium in Leslie Lake in 2017). The Ekati ARF considers water quality benchmarks to be more appropriate than sediment quality ones because:

- Water quality is more frequently monitored (annually vs every 3 years for sediment);
- Historically, water quality variable increases are detected concurrently with sediment quality increases, so it's appropriate to focus on water quality in the Response Plans;
- Sediment quality is not a VEC, nor is it a "key environmental risk"; and,
- Few sediment quality guidelines exist to develop Response Plan sediment benchmarks.

While these statements are true, they do not justify the exclusion of sediment quality action levels in instances where the sediment quality guidelines are exceeded but not the water quality guidelines. It is the Agency's position that any guideline exceedance (water or sediment) is justification to trigger action levels and an appropriate Response Plan to investigate potential impacts, sources, causes and mitigation.

In addition to our comments above and in the October 4, 2018 comment letter, the 2012 AEMP (most recent large bodied for fish study) results indicate that *"a highly significant relationship between fish tissue and sediment concentrations was found to exist. Because of the relatively tight fit between sediment and fish tissue concentrations, any observed increases in sediment concentrations in future monitoring years will likely result in increases in fish tissue concentrations."* (p.3-328). Therefore, data from 2012 shows a potential connection between sediment quality and impacts to fish. Acting on sediment data trends would enable Dominion to get an early start with corrective action on potential future problems in biota/fish.

**Recommendation:** Dominion include sediment quality action levels for selenium and any other parameters that indicate a connection between sediment quality and fish tissue.

Should you have any questions concerning these comments, the Agency is pleased to discuss these at your convenience.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jaida Ohokannoak", with a long horizontal flourish extending to the right.

Jaida Ohokannoak  
Chairperson

Cc: Dominion Diamond– Lucas Novy  
Tłıchq Government – Violet Camsell-Blondin  
Yellowknives Dene First Nation – Johanne Black  
Łutsel K'e Dene First Nation – Lauren King  
North Slave Metis Alliance – Jessica Hurtubise  
Kitikmeot Inuit Association – Geoff Clark  
Government of the Northwest Territories – Laurie McGregor  
Indigenous and Northern Affairs Canada – Dinah Elliott