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December 3, 2018

W2012L2-0001

Mr. Harry O'Keefe  
Dominion Diamond Ekati ULC (Dominion)  
900-604 4 Street SW  
Calgary, AB T2P 1T1

Dear Mr. O'Keefe

**Re: Ekati Response Framework Version 3.0**

The Wek'èezhìi Land and Water Board (WLWB or the Board) met on November 19, 2018 to consider Dominion Diamond Ekati ULC's (Dominion's) Response Framework Version 3.0 for Water Licence W2012L2-0001.<sup>1</sup>

As described in the attached Reasons for Decision, the Board has approved the Response Framework Version 3.0 and the fluoride water quality benchmark of 1.5 mg/L.

Sincerely,

A handwritten signature in blue ink, appearing to read "Joe Mackenzie".

Joe Mackenzie  
Chair, Wek'èezhìi Land and Water Board

Copied: Ekati Distribution List

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<sup>1</sup> See WLWB Online Registry at [www.wlwb.ca](http://www.wlwb.ca) for [W2012L2-0001 - Ekati - AEMP - Response Framework - Version 3.0 - Jun 29 18.pdf](#)



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## Reasons for Decision

<b>Reference/File Number:</b>	W2012L2-0001 (Type "A" Water Licence)
<b>Licensee:</b>	Dominion Diamond Ekati ULC (Dominion)
<b>Subject:</b>	Ekati Response Framework Version 3.0

## Decision from the Wek'èezhìi Land and Water Board Meeting of November 19, 2018

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### 1.0 Decision

On November 19, 2018, the Wek'èezhìi Land and Water Board (WLWB or the Board) met to consider Dominion Diamond Ekati ULC's (Dominion's) Response Framework Version 3.0,<sup>2</sup> required by Part J, Condition 7 and Schedule 8, Condition 1(q) of Water Licence W2012L2-0001 (the Licence).<sup>3</sup>

In consideration of the submission, reviewer comments, and proponent responses, the Board has:

1. Approved the Response Framework Version 3.0; and
2. Approved the proposed fluoride water quality benchmark of 1.5 mg/L.

### 2.0 Background

The Aquatic Effects Monitoring Program (AEMP) represents an extensive monitoring program, which includes the monitoring of water, sediment, and several types of living organisms around the Ekati site. The purpose of the AEMP is to measure and evaluate potential effects of the mine on the Receiving Environment. The AEMP Design Plan outlines the details for the sampling program (e.g., sampling locations, field and laboratory methods, and data analysis methods).

The Response Framework links the results of the AEMP to specific management actions. It requires a proponent to develop benchmarks (water quality objectives) and responses should a pre-defined level of environmental change, called an 'action level,' be reached. Action levels are defined to ensure that environmental change does not reach a 'significance threshold,' a point at which an environmental change

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<sup>2</sup> See WLWB Online Registry at [www.wlwb.ca](http://www.wlwb.ca) for [W2012L2-0001 - Ekati - AEMP - Response Framework - Version 3.0 - Jun 29 18.pdf](#)

<sup>3</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - Water Licence - Amendment - Misery UG - Aug 24 18.pdf](#)

is considered significantly adverse. In 2010, the WLWB issued Draft Guidelines for Adaptive Management (Board's Draft Guidelines (2010))<sup>4</sup> describing the intent and format for Response Frameworks.

The Ekati Response Framework Version 2.0<sup>5</sup> was approved on November 24, 2017.<sup>6</sup> At that time, the Board directed Dominion to work with Board staff to establish a submission date for the revisions required in submission of the Response Framework Version 3.0. On May 7, 2018, it was requested that Dominion ensure that the Response Framework Version 3.0 reflects the Board's January 27, 2016 and April 30, 2018 Reasons for Decision.<sup>7</sup>

On June 29, 2018, Dominion submitted its Response Framework Version 3.0<sup>8</sup> for the Board's consideration. The Report was distributed for public review on July 30, 2018. Comments were received by the deadline of October 4, 2018 by Environment and Climate Change Canada (ECCC), the Department of Environment and Natural Resources of the Government of the Northwest Territories (GNWT-ENR), and the Independent Environmental Monitoring Agency (IEMA). Dominion provided responses to reviewer comments by the deadline of October 18, 2018. The Review Summary Table is available on the WLWB Online Registry.<sup>9</sup>

### **3.0 Reasons for Decision**

The Response Framework was submitted to address the Board's January 27, 2016, December 14, 2017, and April 30, 2018 Reasons for Decision. No parties commented on the proposed changes to address the Board's January 27, 2016 or April 30, 2018 decisions and the Board believes those revisions to be appropriate. As described below, in review of the submission, reviewer comments, proponent responses, and follow-up correspondence, the Board believes that the proposed changes to the Response Framework Version 3.0 address the December 14, 2017 direction are appropriate.

- ***Decision #1: The Board has approved the Response Framework Version 3.0.***

### **3.1 Fluoride Benchmark**

In 2014, fluoride was added to the Ekati AEMP as an analyzed variable<sup>10</sup> and in January 2018 it was included as an evaluated variable.<sup>11</sup> Although the 2014, 2015, and 2016 AEMP Annual Reports compare monitoring data to the 2002 Canadian Council of Ministers of the Environment (CCME) interim guideline of 0.12mg/L, the Response Framework did not previously include a benchmark value for fluoride. In the

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<sup>4</sup> See [DRAFT: Guidelines for Adaptive Management – A Response Framework for Aquatic Effects Monitoring](#).

<sup>5</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - Response Framework Version 2.0 - Jul 31 17.pdf](#)

<sup>6</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - Sable AEMP V1.2 and Response Framework V2.0 - Directive and RFD - Dec 14 17.pdf](#)

<sup>7</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - Response Framework - Version 3.0 - Correspondence - May 7 18.pdf](#)

<sup>8</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - Response Framework - Version 3.0 - Jun 29 18.pdf](#)

<sup>9</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - Response Framework - Version 3.0 - Review Summary and Attachments - Oct 18 18.pdf](#)

<sup>10</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - 2015 3yr Re-evaluation and Design Plan - Report and Appendices - Jun 30 16.pdf](#); pg. 5-46

<sup>11</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - 2016 Annual Report - Board Directive and Reasons for Decision - Jan 25 18.pdf](#)

Response Framework Version 2.0,<sup>12</sup> Dominion proposed a fluoride water quality benchmark of 0.27 mg/L based on the proposed screening level risk assessment for waste rock seepage at Ekati.<sup>13</sup> Clear rationale for the deviation from the general method used to adopt benchmarks was not explicit in the Response Framework document or the cover letter. In its December 14, 2017 Reasons for Decision,<sup>14</sup> the Board approved Version 2.0 of Dominion's Response Framework but did not approve the proposed fluoride benchmark. The Board required Dominion to choose one of the following options with respect to the fluoride benchmark in the Response Framework:

1. Submit Version 2.1 to the Board, for a conformity check, using the CCME [2002 interim] guideline for fluoride [0.12 mg/L]; or
2. Submit Version 3.0 to the Board, for public review and approval, with proposed changes and supporting rationale for an update to the fluoride benchmark included in the cover letter.

Dominion has chosen option #2 in submission of its Response Framework Version 3.0, which includes a memorandum describing its rationale for the proposed fluoride water quality benchmark. However, while a benchmark of 0.27 mg/L was proposed in Version 2.0, Version 3.0 and the supporting memorandum propose a fluoride benchmark of 1.5 mg/L. In its cover letter, Dominion describes that benchmarks established at Ekati follow the 'Use-Protection Approach', which provides protection of the function and use of the Receiving Environment. Dominion identifies the uses of the Receiving Environment to include use by people and wildlife for drinking water and fishing, and proposes the following benchmarks to be respective of these uses:

1. **Aquatic Life:** Dominion proposes that a benchmark of 1.94 mg/L, as derived by McPherson, Lee, and Chapman (2014),<sup>15</sup> is considered protective of aquatic life and is based on the most conservative, available, and acceptable chronic toxicological studies conducted to date.
2. **Wildlife:** Dominion proposes that the CCME guideline for livestock watering of 2.0 mg/L (CCME 2002; ERM 2017a) is considered a surrogate threshold for the protection of wildlife at the Ekati Diamond Mine.
3. **Human Health:** Dominion proposes that the Health Canada drinking water maximum acceptable concentration (MAC) fluoride guideline of 1.5 mg/L is considered protective of human health (ERM 2017a).

Since the Health Canada guideline was the most conservative of the three thresholds identified for the protection of all freshwater uses at Ekati, Dominion proposed a fluoride water quality benchmark of 1.5 mg/L. Dominion also identified that this benchmark is used at the Snap Lake Mine.

The GNWT-ENR supported Dominion's proposed fluoride water quality benchmark of 1.5 mg/L (GNWT-ENR comment 1). As discussed below, both ECCC and IEMA had questions regarding the determination of

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<sup>12</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - Response Framework Version 2.0 - Jul 31 17.pdf](#)

<sup>13</sup> For the proposed fluoride benchmark, Dominion references ERM 2015b. Ekati Diamond Mine: Waste Rock Storage Area Screening Level Ecological Risk Assessment. Prepared for Dominion Diamond Ekati Corporation by ERM Consultants Canada Ltd.: Yellowknife, Northwest Territories; and ERM. 2016f. Diavik Diamond Mine: Site-specific Risk-based Closure Criteria Phase II Report. Prepared for Diavik Diamond Mines (2012) Inc. by ERM Consultants Canada Ltd.: Yellowknife, Northwest Territories

<sup>14</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - Sable AEMP V1.2 and Response Framework V2.0 - Directive and RFD - Dec 14 17.pdf](#)

<sup>15</sup> McPherson, C. A., D. H. Y. Lee, and P. M. Chapman. 2014. Development of a fluoride chronic effects benchmark for aquatic life in freshwater. *Environmental Toxicology and Chemistry*, (11): 2621-27.

the benchmark for protection of aquatic life (ECCC comment 2, IEMA comments 4-9). IEMA did not support the proposed benchmark and recommended that a fluoride benchmark of 0.27 mg/L be used until “accepted evidence is provided or new studies can be completed on [Lake Trout] or a surrogate, to validate an increase” (IEMA comment 9). These comments are addressed below.

### **3.1.1 Protection of Aquatic Life**

Dominion proposes that the fluoride benchmark derived by McPherson, Lee, and Chapman (2014) for the Snap Lake Mine (1.94 mg/L) is considered protective of aquatic life. McPherson, Lee, and Chapman (2014) conducted a literature review and derived a benchmark in accordance with the Type A Species Sensitivity Distribution (SSD) approach as recommended by CCME (2007). The memorandum describes that in addition to a review of toxicological data and studies included in McPherson, Lee, and Chapman (2014), Dominion completed a literature and database search in February 2018 to identify any additional recent studies.

Dominion’s 2018 review identified only one peer-reviewed paper which was applicable to Ekati and acceptable based on CCME (2007) criteria;<sup>16</sup> this was a paper by Percy, Elphick, and Burnett-Seidel (2015). This paper was referenced as an “unpublished manuscript” in the McPherson, Lee, and Chapman (2014) paper and included in the benchmark derivation.

Dominion argues that the approach to derive the 1.94 mg/L benchmark (McPherson, Lee, and Chapman (2014)) is “superior to others including the interim CCME guideline”,<sup>17</sup> which are derived from acute lethality toxicity tests and include safety factors to correct for the acute duration of the test and/or the lethal endpoint on which the threshold was based. In contrast, the proposed fluoride benchmark for aquatic life (1.94 mg/L) is derived using a Type A SSD approach as recommended by CCME (2007). This approach utilized 12 chronic endpoints, 10 of which were unavailable at the time of derivation of the CCME interim fluoride guideline.

#### Consideration of Other Projects

In its memorandum, Dominion refers to the DeBeers’ Snap Lake Mine which has the approved fluoride benchmark of 1.5 mg/L, reflective of the Health Canada water quality guideline. Similar to Dominion’s proposal, the Snap Lake Mine considers a fluoride concentration of 1.94 mg/L (McPherson, Lee, and Chapman 2014) to be protective of aquatic life and has utilized the Health Canada water quality guideline as an AEMP benchmark because it is more conservative.

Dominion references a proposed toxicity reference value (TRV) of 0.27 mg/L used in the of the Waste Rock Storage Area (WRSA) Screening Level Ecological Risk Assessment,<sup>18</sup> and the Site-specific Risk-based

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<sup>16</sup> See CCME at [www.ccme.ca](http://www.ccme.ca) for [CCME \(2007\) A Protocol for the Derivation of Water Quality Guidelines for the Protection of Aquatic Life. Winnipeg, MB, Canada.](#)

<sup>17</sup> Both existing interim Canadian fluoride guidelines (CCME, BC MOE) and most other fluoride toxicological thresholds (proposed Ekati TRV and proposed Diavik SSRBCC)

<sup>18</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - WRSA Seepage Analysis - Part 1 - ERA, Thermal Modelling, Geochemistry Evaluation - Apr 2 15.pdf](#);

Closure Criteria (SSRBCC) of 2.76 mg/L for the Diavik Mine.<sup>19</sup> Neither of these values have been approved by the Board at this time.<sup>20</sup>

Although Dominion did not discuss the AEMP benchmarks at NWT Diamond mines beyond Snap Lake, Table 1 below summarizes the fluoride benchmarks at the three other active NWT Diamond Mines. In an ongoing amendment process, DeBeers has proposed the fluoride benchmark at the Gahcho Kué Mine be increased to 1.5 mg/L.

**Table 1: NWT Diamond Mine – AEMP Benchmarks**

Project	AEMP Benchmark (Decision Year)	Notes
Diavik	0.12 mg/L (2013) <sup>21</sup>	
Gahcho Kué	0.12 mg/L (2014) <sup>22</sup>	Proposed increase to 1.5 mg/L currently undergoing review as part of amendment proceeding. <sup>23</sup>
Snap Lake	1.5 mg/L (2015) <sup>24</sup>	

### Consideration of Applicable Species

In its analysis of the McPherson Lee, and Chapman (2014) benchmark, Dominion identifies three species that were used in the derivation of SSD that are not applicable or present in Ekati waterbodies. In the technical memo Dominion states:

...even though some of the studies used in the derivation of the SSD curve may not be directly applicable to Ekati Diamond Mine receiving environment waterbodies, the benchmark of 1.94 mg/L is based on the most conservative, available, and acceptable toxicological studies conducted to date.

ECCC recommended Dominion discuss the implications on the fluoride benchmark, including HC5 and model selection for the SSD curve, if the three un-applicable species are removed from the analysis (ECCC comment 2). In response, Dominion explained that the precise effect of removing data from the McPherson, Lee, and Chapman (2014) SSD curve would require “costly statistical analyses”. Dominion identified that all toxicity endpoints used to derive the interim CCME and interim BC MOE guidelines, the proposed Ekati TRV, the proposed Diavik SSRBCC, the McPherson, Lee, and Chapman (2014) guideline, and relevant endpoints identified since the publication of McPherson, Lee, and Chapman (2014) are greater than the recommended benchmark of 1.5 mg/L (response to IEMA comment 9).

The aquatic life benchmark (1.94 mg/L) is determined from the SSD curve that is intended to protect 95% of the species. IEMA stated that “the SSD method for deriving a site-specific benchmark may not be appropriate in instances where the most sensitive species is a [Valued Ecosystem Component] (VEC).” IEMA identified that Lake Trout are considered to be a VEC for the Ekati Mine and it is possible that Lake

<sup>19</sup> See WLWB Online Registry for [Diavik - CRP Version 4.0 - Revised SSRBCC Reports \(Appendices X-8.1 and X-8.2\) - Sep 8 17.pdf](#)

<sup>20</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - WRSA Seepage Analysis - Part 1 - Board Directive and Reasons for Decision - Sept 9 15.pdf](#)

<sup>21</sup> See WLWB Online Registry for [W2007L2-0003 - Diavik - AEMP - Response Framework - Version 3.1 - May 31 13.pdf](#)

<sup>22</sup> See WLWB Online Registry for [MV2005C0032 MV2005L2-0015 - De Beers Gahcho Kue - Reason for Decision - Aug11-14.pdf](#)

<sup>23</sup> See WLWB Online Registry for [MV2005L2-0015 - De Beers Gahcho Kue - Amendment - Effluent Quality Criteria Report - March 19 18.pdf](#); Table 2-2

<sup>24</sup> See WLWB Online Registry for [MV2011L2-0004 - De Beers Snap Lake - December 2013 Amendment - Type A Water Licence - Reasons for Decision.pdf](#)

Trout could fall in the 5% that are not protected (IEMA comment 8). IEMA identified that the CCME Protocol for guideline development (2007)<sup>25</sup> has the Protection Clause which states:

...if an acceptable single (or, if applicable, geometric mean) lethal-effects endpoint (i.e., LC<sub>x</sub>, where x = 15%) for any species is lower than the proposed guideline (i.e., is below the 5th percentile intercept to the fitted curve), then that endpoint becomes the recommended guideline value.

Dominion argued that the data does not suggest the need to invoke the CCME Protection Clause since all relevant endpoints are greater than the recommended benchmark of 1.5 mg/L (response to IEMA comment 9). Dominion acknowledged that the McPherson, Lee, and Chapman (2014) guideline identifies available long-term exposure endpoints for Lake Trout and Rainbow Trout (a surrogate species for Lake Trout), including an Lethal Concentration (LC)<sub>20</sub> of 2.0 mg/L; an LC<sub>10</sub> of 4.8 mg/L; and an LC<sub>10</sub> of >134 mg/L. Dominion stated that of all relevant endpoints considered, only one (1.8 mg/L)<sup>26</sup> was lower than the guideline of 1.94 mg/L; however, Dominion noted that this value (i.e., 1.8 mg/L) is not lower than the proposed fluoride benchmark of 1.5 mg/L.

The Board believes Dominion's response addresses the concerns raised regarding the consideration of potential effects of fluoride on Lake Trout.

#### Consideration of Effect of Hardness

The BC MOE guidelines identify uncertainty surrounding the effect of hardness and the reliability of study results that evaluate the toxicity modifying effects of hardness; however, it proposes an equation<sup>27</sup> to calculate benchmarks when hardness is greater than 10 mg/L. This equation represents the understanding that toxicity decreases with increasing hardness and applies a factor of safety (0.01) to account for the use of a single acute lethality toxicity test. McPherson, Lee, and Chapman (2014) indicate the derived benchmark of 1.94 mg/L is considered conservative because it did not take into account any modifying factors that could result in a decrease in fluoride toxicity. In addition, Dominion stated that the tests conducted by Percy, Elphick, and Burnett-Seidel (2015) "did not support the conclusion that water hardness (i.e., calcium and magnesium ions) materially affects the toxicity of fluoride."<sup>28</sup>

In its comments, IEMA identified concerns with the solubility limitations of calcium fluoride and the reliability of studies to evaluate the toxicity modifying effects of hardness (IEMA comment 5 and 9). IEMA identified that the interim BC MOE Ambient Water Quality Criteria (AWQC) for fluoride explains that since fluoride precipitates out with calcium, the relationship between fluoride and hardness is complicated, and it is difficult to maintain high fluoride concentrations in the presence of high hardness (IEMA comment 5). IEMA explains that this complicates the interpretation of toxicity studies completed for fluoride. The BC MOE Guidelines state:

the only reliable data are for low fluoride levels, less than about 5 mg/L, in very soft water, when the experimenters actually measured F- and hardness in the solution, rather than weighing out fixed amounts of chemical and calculating fluoride and hardness values.

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<sup>25</sup> See CCME at [www.ccme.ca](http://www.ccme.ca) for [CCME \(2007\) A Protocol for the Derivation of Water Quality Guidelines for the Protection of Aquatic Life. Winnipeg, MB, Canada.](#)

<sup>26</sup> The inhibitory concentration (IC)<sub>10</sub><sup>26</sup> for *Hyallolela azteca* (1.8 mg/L) calculated in Percy, Elphick, and Burnett-Seidel 2015

<sup>27</sup> LC<sub>50</sub> fluoride = 0.01\*[-51.73 + 92.57 log<sub>10</sub> (Hardness)]

<sup>28</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - Response Framework - Version 3.0 - Follow-up Correspondence - Nov 6 18.pdf](#)

In follow-up correspondence,<sup>29</sup> Dominion was asked for clarification on how the benchmark derived from McPherson, Lee, and Chapman (2014) considered the effect of hardness on fluoride toxicity as described in the BC MOE Guidelines. In response, Dominion identified that since the development of the interim BC MOE benchmark (1990), a comprehensive evaluation of fluoride toxicity and potential toxicity modifying factors was conducted by Percy, Elphick, and Burnett-Seidel (2015). The Board notes that the unpublished Percy, Elphick, and Burnett-Seidel (2015) results were considered in the McPherson, Lee, and Chapman (2014) derivation.

Dominion describes that in the Percy, Elphick, and Burnett-Seidel (2015) study, fluoride concentrations were measured at the beginning and end of exposures to verify that the targeted concentrations were maintained throughout. Dominion identified that there was little evidence of loss of fluoride from solution in these tests, despite testing across a range of hardness values.<sup>30</sup> Dominion argued that the concerns regarding the solubility of calcium fluoride raised in the BC MOE guideline, and raised by IEMA “appear to be unfounded, at least under the water quality conditions and fluoride concentrations tested by Percy, Elphick, and Burnett-Seidel (2015).”

Dominion argued the interim CCME guideline and interim BC MOE guideline were both derived from a single acute lethality toxicity test and include large safety factors to compensate for the acute duration of the test and/or the lethal endpoint on which the threshold was based. Dominion also notes that the interim CCME and interim BC MOE guidelines (1990) were derived prior to the development of the McPherson, Lee, and Chapman (2014) guideline “which incorporates more recent and defensible science.” The BC MOE guideline states that the fluoride benchmark is considered “...an interim criterion until carefully controlled experiments can determine the appropriate levels of fluoride under various combinations of water temperature and hardness, measured as calcium carbonate”. Dominion argued that the tests conducted by Percy, Elphick, and Burnett-Seidel (2015) address this concern and additional toxicity studies suggested by IEMA are not required to justify a benchmark for fluoride at this time.

### **3.1.2 Decision on Fluoride Benchmark**

In consideration of the proposed fluoride benchmark, the Board recognizes that IEMA has recommended a lower fluoride benchmark (0.27 mg/L) be used until accepted evidence is provided or new studies can be completed on Lake Trout or a surrogate, to validate an increase. However, in consideration of the technical memorandum submitted, reviewer comments, proponent responses, and follow-up correspondence, the Board believes Dominion has provided a reasonable argument that the proposed benchmark is reflective of the best available science to date.

At this time, the Board believes the proposed benchmark are appropriate for the following reasons:

1. Similar to the approved Ekati potassium SSWQO,<sup>31</sup> the McPherson, Lee, and Chapman (2014) benchmark was developed using Type A SSD approach as recommended by CCME (2007) and is considered to be protective of aquatic life;

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<sup>29</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - Response Framework - Version 3.0 - Follow-up Correspondence - Nov 6 18.pdf](#)

<sup>30</sup> Hardness values ranged from 20-320 mg/L

<sup>31</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - Revised Potassium SSWQO and Predictions - Directive and Reasons for Decision - Jan 27 16.pdf](#)

2. The proposed benchmark is greater than all toxicity endpoints (including Lake Trout and Rainbow Trout) used to derive the interim CCME and interim BC MOE guidelines; the McPherson, Lee, and Chapman (2014) guideline; and the relevant endpoints identified since the publication of McPherson, Lee, and Chapman (2014);
3. The proposed benchmark was approved for the Snap Lake Mine; and
4. The GNWT-ENR supports the proposed benchmark.

As always, as research advances, revisions to this benchmark may be considered; however, the Board does not believe sufficient evidence exists to require additional studies be completed at this time.

- ***Decision #2: The Board has approved the proposed fluoride water-quality benchmark of 1.5 mg/L.***

### **3.2 Incorporation of Sediment Quality**

In its comments, IEMA identified that a mine effect in selenium sediment concentrations was reported in the 2017 AEMP Annual Report. IEMA discussed a possibility that sediments may be influencing the selenium concentrations in fish tissue. A similar discussion took place in review of the 2017 AEMP Annual Report and incorporates comments on this topic from other reviewers. IEMA's comments and others are discussed in Section 3.2 of the 2017 AEMP Annual Report Reasons for Decision. The Board has considered IEMA's comment regarding selenium sediment concentration (i.e., IEMA comment 10) in the review of the 2017 AEMP Annual Report.<sup>32</sup>

### **3.3 Deferred Comments**

In its January 25, 2018 Reasons for Decision,<sup>33</sup> the Board had determined that Dominion was to address the GNWT-ENR comments 3, and 5-7 in the cover letter accompanying the Response Framework Version 3.0 and propose any revisions in the Response Framework as appropriate. In the covering letter for Version 3.0, Dominion provided a response to the GNWT-ENR's comments and proposed no changes to the Response Framework. The GNWT-ENR was the only party to comment on Dominion's response to the January 25, 2018 direction. The GNWT-ENR stated it had reviewed Dominion's response and has no further comment at this time however additional discussion regarding these topics may be warranted in the future as specific situations arise (GNWT-ENR comment 2).

During the public review of Versions 1.2 of the Dissolved Oxygen (DO) and Total Phosphorus (TP) Response Plans, recommendations regarding revisions to the low action level were provided by the GNWT-ENR.<sup>34</sup> Because the low action levels are outlined and approved as part of the Response Framework, the Board decided that these comments would be considered during the public review of Version 3.0 of the Response Framework.<sup>35</sup> No comments were received during the public review with respect to the low

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<sup>32</sup> See WLWB Online Registry for [W2012L2-0001 – Ekati – AEMP - 2017 Annual Report - Directive and Reasons for Decision - Dec 3 18](#)

<sup>33</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - Nitrogen-Selenium-Potassium-Fish Response Plans - Directive and Reasons for Decision - Jan 25 18.pdf](#)

<sup>34</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - TP and DO Response Plans - Version 1.2 - Review Summary and Attachments - Mar 22 18.pdf](#); see GNWT-ENR comments 2, 6, and 13

<sup>35</sup> See WLWB Online Registry for [W2012L2-0001 - Ekati - AEMP - TP and DO Response Plans - Version 1.2 - Directive and Reasons for Decision - Apr 30 18.pdf](#)

action levels for DO and TP. The Board encourages GNWT-ENR and Dominion to discuss these issues further if needed. Reviewers will have the opportunity to provide further recommendations on these topics, at minimum during review of the next Aquatic Effects Re-evaluation Report and AEMP Design.

**Signed the 3rd Day of December 2018, on behalf of the Wek'èezhii Land and Water Board**



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Witness



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Joseph Mackenzie  
Acting Chair, Wek'èezhii Land and Water Board