

March 3, 2026

Robert Hunter
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Re: 2AM-MRY2540 – Baffinland Iron Mines – Mary River Project – Responses to Comments on Baffinland's Aquatic Effects Monitoring Plan, Revision 3

The following submission from Baffinland Iron Mines Corporation (Baffinland) is in response to the technical comments submitted by the Qikiqtani Inuit Association (QIA), Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) and Environment and Climate Change Canada (ECCC) on documents submitted in line with Part B, Item 15 of Baffinland's latest Type 'A' Water Licence, specifically the Aquatic Effects Monitoring Plan (AEMP, BIM-5200-PLA-0023; Revision 3). These comments were distributed by the NWB on February 20, 2026.

Baffinland is updating the AEMP based on the comments received, and will publish the final AEMP Revision 3 with the NWB-QIA Annual Report for Operations.

Should you have any additional concerns or questions regarding the attached responses, please do not hesitate to contact the undersigned at your convenience.

Regards,



Elisabeth Luther
Senior Manager, Regulatory Affairs

Cc: William Bowden, Todd Swenson, Laurence Serra

Attachments

Table 1. Response to Comments on the Aquatic Effects Monitoring Plan

Table 1

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#	Comment	Recommendation	Reference	Baffinland's Response
QIA-1	<p>Trigger, Action and Response Plan</p> <p>For Moderate Risk threshold, Revision 3 of AEMP states that for the Performance Indicator of Fish Tissue, a response is triggered if a confirmed effect for any of the BIC endpoints is identified. This criterion was not used in the previous version. No rationale is provided for why this less conservative criterion was added.</p> <p>In Table 5-1, Row 3, Column 5 (Medium Threshold), Baffinland identifies the following as a criterion for a medium threshold response for the Fish Tissue Study as it relates to the mean mercury concentrations in muscle tissue: <i>“there is a confirmed effect (i.e., exceedance of the moderate risk response threshold) for any one of the BIC endpoints 1 through 3.”</i></p> <p>In Version 2 of the AEMP, the medium response level threshold exceedance was based on mercury concentrations in fish muscle in an exposed area combined with mean concentration in the exposure area being statistically significantly higher (p<0.1) and a confirmed effect for any one of the fish health endpoints 1 through 5. These criteria appeared to capture the necessary levels required for action at the medium threshold. The Version 3 document has added a new criterion as noted in italics above. It is unclear why the additional confirmed effect for a BIC endpoint has been added to the threshold. This change increases the potential for an impact to aquatic life or even human health prior to triggering an adaptive management response.</p>	<p>Clarify the purpose of including this additional indicator for the medium risk response threshold for mercury concentration in fish tissue.</p>	<p>Baffinland Iron Mines Corporation BIM-5200-PLA-0023 Aquatic Effects Monitoring Plan Table 5-1</p>	<p>Including benthic invertebrate community (BIC) endpoints (density, richness, evenness) in the medium-level trigger for fish tissue responses is intended to support early detection of potential effects to fish health endpoints (ideally, before they occur) from dietary mercury (Hg) exposure. Because fish accumulate Hg primarily through their diet, ecologically meaningful changes in the BIC represent a direct change in prey availability, prey quality, and food-web pathways that influence Hg uptake. Benthic invertebrates typically respond more quickly and predictably to potential mine-related stressors, such as dust deposition, sedimentation, and habitat alteration than fish, making them a sensitive early indicator of ecosystem change. Confirmed effects to BIC endpoints that co-occur with fish tissue Hg concentrations that approach or exceed thresholds may be an early warning sign of potential impending food web Hg-related effects to fish health endpoints.</p> <p>Overall, adding BIC endpoints to the fish tissue trigger enhances the weight-of-evidence approach and increases the potential for early detection of Hg-related effects to fish (i.e., potentially before effects to fish health endpoints occur). In turn, this is expected to promote early initiation of follow-up actions (e.g., further data evaluations).</p>

#	Comment	Recommendation	Reference	Baffinland's Response
QIA-2	<p>Trigger, Action and Response Plan</p> <p>For the Low Risk threshold, Revision 3 of AEMP states that a response is triggered if the MDMER mercury threshold of 0.5 µg/g wet weight is exceeded. The previous version of the AEMP used a value of 0.2 µg/g wet weight. No rationale is provided for the change to a less conservative threshold.</p> <p>In Table 5-1, Row 3, Column 4 (Low Threshold) of the Version 3 AEMP, Baffinland identifies the following as a low threshold <i>“Mean total Hg concentration in fish muscle from the effluent-exposed area exceeds the MDMER threshold for an effect on fish tissue from Hg (i.e., 0.5 µg/g wet weight).”</i></p> <p>The March 2024 AEMP has the same statement but uses a value of 0.2 µg/g wet weight. It is unclear why the value has changed since no updates to MDMER have been implemented. The change to a less conservative trigger increases the threshold of an acceptable impact to aquatic life and potentially human health.</p>	<p>Clarify the purpose of revising the mercury threshold value from 0.2 µg/g to 0.5 µg/g.</p>	<p>Baffinland Iron Mines Corporation BIM-5200-PLA-0023 Aquatic Effects Monitoring Plan Table 5-1</p>	<p>Revision of the Low-Risk threshold from 0.2 micrograms per gram (µg/g) to 0.5 µg/g wet weight (ww) was made to align the trigger with established federal regulatory benchmarks for mercury (Hg) in fish tissue. Under the Metal and Diamond Mining Effluent Regulations (MDMER), an “effect on fish tissue from mercury” is defined as when the mean total Hg concentration in fish tissue from the exposure area exceeds 0.5 µg/g ww. Similarly, Health Canada and the Canadian Food Inspection Agency apply a national maximum limit of 0.5 milligrams per kilogram (mg/kg = µg/g) total Hg in retail fish, which represents the federally recognized human health protection standard (Health Canada 2019). Applying 0.5 µg/g as the Low-Risk threshold for total Hg concentrations in fish tissue is therefore consistent with federal legislation and nationally recognized standards.</p> <p>The previous value of 0.2 µg/g ww does not correspond to a formal Canadian regulatory limit under MDMER, nor to a national food standard. Values in the range of 0.15 to 0.2 µg/g are sometimes used in risk assessment contexts as precautionary screening levels for sensitive populations when developing fish consumption advisories (Health Canada 2019); however, they are not embedded within federal mining regulations (i.e., the focus of the studies noted above is human health, rather than environmental effects). Revising the threshold to 0.5 µg/g therefore</p>

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				<p>improves clarity by aligning the Action Level framework with federal guidance for defining Hg-related effects to fish and ensures that responses are triggered based on established standards.</p> <p><u>References:</u></p> <p>Health Canada. 2019. Mercury in Fish – Questions and Answers. Government of Canada. Available from https://www.canada.ca/en/health-canada/services/food-nutrition/food-safety/chemical-contaminants/environmental-contaminants/mercury/mercury-fish-questions-answers.html [accessed 26 February 2026].</p>														
CIRNAC-1	<p>In section 3.2 tables 3-3 and 3-4 state the water quality benchmarks for mine site lakes and streams which contain the following uranium benchmark:</p> <table border="1"> <thead> <tr> <th>Parameter¹</th> <th>Units</th> <th>Water Quality Guideline</th> <th>Camp/Sheardown Lake Tributaries</th> <th>Mary River³</th> <th>Selected Benchmark</th> <th>Benchmark Method ²</th> </tr> </thead> <tbody> <tr> <td>Uranium</td> <td>mg/L</td> <td>Variable (CCME)</td> <td>Variable (CCME)</td> <td>Variable (CCME)</td> <td>Variable (CCME)</td> <td>A</td> </tr> </tbody> </table> <p>NOTES:</p> <ol style="list-style-type: none"> 1. NC = Not Calculable; CLT = Camp Lake Tributary; MR = Mary River; SDLT = Sheardown Lake Tributary 2. Method A = Water Quality Guideline from CCME, Method B = 97.5% percentile of Baseline; Method C = 3* MDL; Method D = updated FEQG or CCME benchmark presented considers modifying factors of pH, hardness, and/or DOC 3. One sample (outlier) containing chemical concentrations orders of magnitude above other values was not included in the calculations for Mary River 4. Total metals unless otherwise noted. 5. Assumes temperature at 10°C, and pH of 8.0. 6. 97.5th percentile was being driven by elevated detection limit, therefore, the guideline was selected. <p>CIRNAC is concerned that the CCME states a particular benchmark for Uranium in fresh water whereas the AEMP states a variable while using CCME as reference.</p>	Parameter ¹	Units	Water Quality Guideline	Camp/Sheardown Lake Tributaries	Mary River ³	Selected Benchmark	Benchmark Method ²	Uranium	mg/L	Variable (CCME)	Variable (CCME)	Variable (CCME)	Variable (CCME)	A	(R-01) CIRNAC recommends that Baffinland clarify the variance and what values have been changed in the updated AEMP.	Baffinland Iron Mines Corporation BIM-5200-PLA-0023 Aquatic Effects Monitoring Plan Section 3.2 tables 3-3 and 3-4	<p>The uranium benchmark in Tables 3-3 and 3-4 should have been presented as the long-term Canadian Council of Ministers of the Environment (CCME) Water Quality Guideline for the Protection of Freshwater Aquatic Life (i.e., 15 micrograms per litre [µg/L]), rather than described as “variable (CCME)”. The word “variable” was retained in error. Specifically, the Background Concentration Procedure (BCP) was initially evaluated as a method for developing benchmarks that would <u>vary</u> by waterbody and season. However, the available water quality data set did not meet the requirements/assumptions for application of the BCP, and so the CCME guideline was adopted as the benchmark.</p>
Parameter ¹	Units	Water Quality Guideline	Camp/Sheardown Lake Tributaries	Mary River ³	Selected Benchmark	Benchmark Method ²												
Uranium	mg/L	Variable (CCME)	Variable (CCME)	Variable (CCME)	Variable (CCME)	A												

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				To address this, the final version of Aquatic Effects Monitoring Plan (AEMP) Revision 3 will explicitly adopt and present the long-term CCME freshwater guideline value for uranium as the selected benchmark for mine site lakes and streams. The "variable" notation will be removed.
ECCC-1	<p>Benchmarks for uranium concentrations in water</p> <p>The tables for water quality benchmarks for mine site lakes and streams, 3-3 and 3-4 respectively, have been updated to include benchmarks for selenium and uranium. For uranium, the Water Quality Guideline and Selected Benchmark are listed as: "Variable (CCME)". The Canadian Council of Ministers of the Environment (CCME) 2011 water quality guidelines for uranium for the protection of aquatic life are 0.015 and 0.033 mg/L, for long and short-term exposures respectively. They are not dependent on any toxicity modifying parameters and therefore not variable. It is not clear which variable CCME guidelines are being referred to for uranium.</p>	ECCC recommends the Proponent specify which variable guidelines for uranium are being used to set benchmarks for water quality or correct Tables 3-3 and 3-4 to include the CCME value as benchmarks.	<p>Aquatic Effects Monitoring Program (BIM-5200-PLA-0023) Revision 3 (Baffinland Iron Mines Corporation; January 9, 2026)</p> <ul style="list-style-type: none"> ○ Table 3-3: Water Quality Benchmarks for Mine Site Lakes ○ Table 3-4: Water Quality Benchmarks for Mine Site Streams <p>Canadian Water Quality Guidelines for the Protection of Aquatic Life - Uranium (Canadian Council of Ministers of the Environment; 2011)</p> <ul style="list-style-type: none"> ○ Table 1: Canadian Water Quality Guidelines for Uranium (Total recoverable, Unfiltered) for the Protection of Aquatic Life (µg•L-1) 	Thank you for your comment. Please see the response to CIRNAC-1, above.

#	Comment	Recommendation	Reference	Baffinland's Response
ECCC-2	<p>Key question for arctic char</p> <p>For each media monitored, a “key question” is used to focus monitoring efforts. All key questions in the Aquatic Effects Monitoring Program (AEMP) have been changed from the previous version, which should have been flagged in the Document Revision Record. Most of the new key questions are adequate, however the question for fish health is inappropriate because it does not mention fish or their health. In the previous AEMP Revision 2, the key question for fish health was: <i>“What are the combined effects of point and non-point sources, sedimentation, habitat loss or alteration, and changes in primary or secondary producers on Arctic char in Mine Area lakes (Sheardown Lake NW and SE, Camp Lake, and Mary Lake) and streams?”</i> In the current AEMP Revision 3, the question has been changed to <i>“Do concentrations of potential mine-related parameters (i.e., TSS, metals, nutrients, etc.) in exposed areas differ from reference and/or have they changed over time?”</i> This new key question relates to the aquatic environment and fish habitat more broadly but does not specifically address fish health.</p>	<p>ECCC recommends the Proponent modify the key question for the fish health component of the Aquatic Effects Monitoring Program so it directly relates to arctic char and their health. In future Program updates, any changes to key questions should be identified in the Document Revision Record.</p>	<p>Aquatic Effects Monitoring Program (BIM-5200-PLA-0023) Revision 3 (Baffinland Iron Mines Corporation; January 9, 2026)</p> <ul style="list-style-type: none"> ○ Table: Document Revision Record ○ Section 3.7.6: Fish (Arctic Char) Health <p>Aquatic Effects Monitoring Program (BIM-5200-PLA-0023) Revision 2 (Baffinland Iron Mines Corporation; March 31, 2024)</p> <ul style="list-style-type: none"> ○ Section 3.7.6: Fish (Arctic Char) Health 	<p>The change to the key question for the fish (arctic charr) component in AEMP Revision 3 was unintentional and the result of a copy/paste error during document editing. The intent of the AEMP is to maintain a key question that directly addresses arctic charr and their health, consistent with the structure and intention in Revision 2.</p> <p>To resolve this, the final version of AEMP Revision 3 will be updated to include the following key question, which explicitly focuses on arctic charr and their health, consistent with Revision 2:</p> <p><i>“What are the combined effects of point and non-point sources, sedimentation, habitat loss or alteration, and changes in primary or secondary producers on Arctic char in Mine Area lakes (Sheardown Lake NW and SE, Camp Lake, and Mary Lake) and streams?”</i></p> <p>Future revisions to key questions will be clearly documented in the Document Revision Record, as recommended by ECCC.</p>
ECCC-3	<p>Changes to action thresholds and responses</p> <p>Low, medium, and high thresholds are set for different media monitored so the appropriate response can be taken should monitoring results indicate possible unintended effects. Numerous changes to the thresholds and actions were made between Revisions 2 and 3 of the AEMP and the following require clarifications or corrections:</p>	<p>ECCC recommends the Proponent modify the Trigger, Action and Response Plan (Table 5-1) to address inconsistencies, including:</p> <ol style="list-style-type: none"> a. removing the condition relating to fish health or 	<p>Aquatic Effects Monitoring Program (BIM-5200-PLA-0023) Revision 3 (Baffinland Iron Mines Corporation; January 9, 2026)</p> <ul style="list-style-type: none"> ○ Table 5-1: Trigger, Action and Response Plan for the AEMP 	<p>(a) Thresholds for Mercury</p> <p>Upon review, Baffinland supports retaining the condition referring to benthic invertebrate community (BIC) endpoints within the medium-risk trigger for mercury (Hg) in fish tissue. While not part of the formal Metal and Diamond Mining Effluent Regulations</p>

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	<p>a. Thresholds for mercury – The Metal and Diamond Mining Effluent Regulations (MDMER) fish muscle tissue mean mercury concentration medium risk threshold proposed includes the two conditions in the previous version, mercury concentrations above 0.5 µg/g dry weight and higher than in reference areas, as well as a new third condition relating to confirmed effects on fish health or benthic invertebrate community endpoints. No justification was provided for adding the third condition and ECCC notes that this additional condition does not relate to fish tissue chemistry results. Given this, the third condition should be removed. Since removing the third condition would make the low and medium thresholds identical, reverting back to the AEMP revision 2 lower trigger concentration of 0.2 µg/g dry weight for the low threshold should be considered.</p> <p>b. Thresholds for selenium – The MDMER fish tissue threshold for selenium uses criteria for low and medium risk from different sources without specifying that these criteria refer to different parts of the fish. The Federal Environmental Quality Guideline (FEQG) of 6.7 µg/g dry weight used for the low threshold is for fish whole body tissue (ECCC 2022). The Aquatic Life Ambient Water Quality Criterion of 11.3 µg/g dry weight used for the medium threshold is for fish muscle tissue (U.S. EPA 2021). In order for both thresholds to be comparable, the same tissue type measurements should be compared. This is possible since the U.S. EPA also includes a criterion for fish whole body tissue of 8.5 µg/g dry weight. Additionally, the low level threshold uses the acronym “PNEC” without defining it.</p> <p>c. Threshold for sedimentation – The lake sedimentation low risk threshold sedimentation rate remains unchanged at 0.15 mm/ice-cover period but has been limited to a single monitoring station (SHAL-2 in Sheardown Lake NW). Since the AEMP aims to monitor the overall receiving environment, evaluations should not be limited to a subset of monitoring stations, even though the chosen stations might be the ones presumed to show measurable effects earliest.</p> <p>d. Development of high-risk threshold – For most media monitored, the high-risk threshold is “to be determined based on outcome of moderate pre-defined action level response”. This requires the response to medium risk level to include development of a high-risk threshold. The medium level response actions for MDMER fish tissue studies for mercury and selenium are missing the development of high-risk thresholds.</p>	<p>benthic invertebrate community endpoints in the medium risk threshold for fish muscle tissue mercury concentrations and amend the low risk threshold;</p> <p>b. amend the selenium threshold to use criteria for the same fish tissue type for the low and medium risk thresholds for fish tissue selenium concentrations and define the acronym PNEC in any narratives;</p> <p>c. applying the low risk threshold for sedimentation to all measurement stations;</p> <p>d. including the development of high risk thresholds in the response to medium risk responses for MDMER fish tissue studies for mercury and selenium; and</p> <p>e. correct references to tables for water and sediment quality benchmarks.</p>	<p>Aquatic Effects Monitoring Program (BIM-5200-PLA-0023) Revision 2 (Baffinland Iron Mines Corporation; March 31, 2024)</p> <ul style="list-style-type: none"> ○ Table 5.2: Trigger Action Response (TARP) Table 	<p>(MDMER) definition of an “effect,” the inclusion of BIC endpoints (density, richness, evenness) is intended to support early detection of potential food-web driven effects to fish tissue Hg before changes in fish health endpoints occur. Because fish accumulate Hg primarily through their diet, ecologically meaningful changes in the BIC represent direct shifts in prey availability, prey quality, and trophic pathways that influence Hg uptake. Benthic invertebrates also tend to respond more quickly to potential mine-related stressors (e.g., dust deposition, sedimentation, habitat alteration) than fish, making them a sensitive early indicator of ecosystem change.</p> <p>The combined interpretation of BIC and fish tissue Hg concentrations strengthens the weight-of-evidence approach and increases the potential for early detection of Hg-related effects to fish (i.e., potentially before effects to fish health endpoints occur). In turn, this is expected to promote early initiation of follow-up actions (e.g., further data evaluations).</p> <p>The AEMP Revision 3 will retain this condition but refine the wording to explicitly state that BIC endpoints function as a supporting line of evidence. This preserves the ecological value of the trigger, avoids misinterpretation, and aligns with the multi-metric, trophic-level approach used across northern AEMPs.</p>

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	<p>e. Incorrect table references – The Core Receiving Environment Monitoring Program (CREMP) water quality threshold refers to tables 3.1, 3.2 and 31 in the AEMP for water quality benchmarks. The references are incorrect as Table 3.1 covers sediment quality benchmarks and Table 3.2 relates to Chlorophyll <i>a</i>. Similarly the CREMP sediment quality threshold references the wrong table.</p>			<p>(b) Thresholds for Selenium</p> <p>Baffinland agrees with the recommendation to use criteria for the same fish tissue type for the low and medium risk thresholds for fish tissue selenium concentrations.</p> <p>Arctic char muscle samples, rather than whole bodies, are analyzed for tissue chemistry, as needed, to meet the requirements of the MDMER. Therefore, criteria for muscle, specifically, will be adopted as the low and medium risk thresholds. Specifically, the low- risk threshold will be set equal to the 4 micrograms per gram dry weight (µg/g dw) British Columbia interim guideline for selenium in fish muscle (BCMOE 2014). The United States Environmental Protection Agency (USEPA) Aquatic Life Ambient Water Quality Criterion of 11.3 µg/g dw, which also applies to fish muscle, will be retained as the medium risk threshold.</p> <p>The acronym “PNEC” (Predicted No-Effect Concentration) will not appear in table following revision of the low-risk threshold for selenium in fish tissue.</p> <p>(c) Thresholds for Sedimentation</p> <p>Baffinland agrees with ECCC’s recommendation. The low-risk sedimentation response threshold will be applied to all sedimentation monitoring stations in</p>

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				<p>Sheardown Lake NW, rather than a subset of stations. This will promote consistent evaluation of sedimentation conditions throughout the lake, not just at the area considered most representative of suitable spawning and incubation habitat (i.e., SHAL-2).</p> <p>(d) Development of High-Risk Thresholds</p> <p>The omission of the text related to developing high-risk thresholds as part of medium risk responses was unintentional. The final version of AEMP Revision 3 will include this text, consistent with the remainder of the program components and other monitoring media listed in the table.</p> <p>(e) Incorrect Table References</p> <p>Thank you for noting the incorrect table references. Revision 3 of the AEMP will be checked for formatting and table/figure reference errors (and revised accordingly) prior to finalization.</p> <p><u>References</u></p> <p>British Columbia Ministry of Environment (BCMOE). 2014. Ambient Water Quality Guidelines for Selenium Technical Report Update. Water Protection and Sustainability Branch, Environmental Sustainability and Strategic Policy Division. Available from https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/waterquality/water-quality-guidelines/approved-</p>

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				wqgs/bc_moe_se_wqg_companion_document.pdf [accessed 26 February 2026]