



Health
Canada

Santé
Canada

Environmental Health Program (EHP)
Regulatory Operations and Enforcement Branch (ROEB), Health Canada
391 York Avenue
Winnipeg, MB
R3C 0P4

July 04, 2025

Keith Morrison
Manager, Project Monitoring
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, NU
X0B 0C0

Sent by email to: info@nirb.ca

Subject: Health Canada's response to the Comment Request for Baffinland Iron Mines Corporation's Mary River Project 2024 Annual Report

Dear Keith Morrison:

Thank you for your letter dated [June 04, 2025](#), requesting comments on the Mary River 2024 Annual Report provided by Baffinland Iron Mines Corporation.

Health Canada (HC) participates in environmental assessments as a federal authority under the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14 (*NuPPAA*). HC makes available specialist or expert information or knowledge in its possession to review panels and responsible authorities, among others.

The objective and scope of HC's review is to verify that the potential health impacts of the project are properly identified and to support Responsible Authorities to prevent, reduce, and mitigate the potential health impacts of project activities.

HC has reviewed the 2024 Annual Report and has provided its comments in the attachment. These pertain to results from the Proponent's Air Quality Monitoring and Fish Health Programs.

.../2

Canada



-2-

Should you have any questions concerning HC's response, please contact Paul Partridge at paul.partridge@hc-sc.gc.ca.

Sincerely,

Sandy Hutchison
A/Regional Manager, MB/SK/NU Region
Environmental Health Programs
Regulatory Operations & Enforcement Branch
Health Canada

cc: Heather Jones-Otazo, Manager, Environmental Assessment and Contaminated Sites (EACS) Division, Healthy Environments and Consumer Safety Branch (HECSB), Health Canada
Paul Partridge, Impact Assessment Specialist, EHP, ROEB, Health Canada
Isabelle Vezina, Impact Assessment Specialist, EHP, ROEB, Health Canada
Jeremie Allain, Impact Assessment Specialist, EHP, ROEB, Health Canada
Ashley James, Impact Assessment Specialist, EHP, ROEB, Health Canada
Wendy Wilson, Senior Environmental Health Specialist, EACS, HECSB, Health Canada
Julie Anderson, Environmental Assessment Coordinator, EACS, HECSB, Health Canada

Mary River Project 2024 Annual Monitoring Report

Health Canada Comments

Comment Number:	HC-01
Subject/Topic:	Air Quality Data (NO₂, SO₂ & PM_{2.5})
References:	<p>2024 Annual Report – Mary River (NIRB Registry ID No.: 355641)</p> <ul style="list-style-type: none"> • Section 4.6.2: Air Quality (Pages 73-86 ; PDF p., 91-104) • Appendix E 1: Response to Comments 2023 NIRB Annual Report (NIRB Registry ID No.: 355520) (Pages 135-138) • Appendix G.2.1: 2024 Air Quality, Dustfall, and Meteorology Report (NIRB Registry ID No.: 355523) <ul style="list-style-type: none"> ○ Section 2: Ambient Air Quality Monitoring (Pages 2-1 to 2-36 ; PDF p., 33-68) <p>Health Canada. (2023). <i>Guidance for Evaluating Human Health Effects in Impact Assessment: Air Quality</i>.</p> <ul style="list-style-type: none"> • Appendix B: Canadian Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Objectives (NAAQOs) (Pages 38-40; PDF p., 40-42)
Comment:	<p>Data in the 2024 Air Quality, Dustfall, and Meteorology Report (AQDMR) does not allow comparison between reported results and the Canadian Ambient Air Quality Standards (CAAQS).</p> <p>The 2024 AQDMR indicates that “the 2020 CAAQS would be used for comparison purposes only in agreement with the CCME objective to “keep clean areas clean” with respect to ambient air quality.” However, data presented in the AQDMR for sulphur dioxide (SO₂), nitrogen dioxide (NO₂) or fine particulate matter (PM_{2.5}) is not presented in the statistical form that would allow for comparison of reported results to the CAAQS. For example:</p> <ol style="list-style-type: none"> 1. Hourly summary data tables in Section 2.2 of the 2024 AQDMR (Tables 2.1, 2.2, 2.3, 2.4, 2.9 & 2.10) do not include the average annual 98th or 99th percentiles that would be required to apply the 1-hour CAAQS for NO₂ and SO₂; 2. 24-hour PM_{2.5} data was not included or summarized in Section 2.3 of the report, so reported results Sections 2.3.3.1 and 2.3.3.2 could not be verified; and,

	<p>3. Data from previous years was not provided or summarised to support the reported 3-year averages used for comparison to the CAAQS, which could also be used to illustrate multi-year trends.</p> <p>While incomplete, HC found information from the 1-hour summary tables for SO₂ and NO₂ allowed for comparisons to the annual CAAQS values, which consider the average over a single calendar year of all 1-hour average concentrations.</p> <p>HC notes that the 2024 annual mean 1-hour concentrations for those substances at the port and mine were not always aligned with the reported conclusions. For example, section 2.2.2.2 (AQDMR, 2024) indicated that the annual mean NO₂ concentration of all 1-hour average concentrations in 2024 was 7.2 ppb, which was the same as the reported 3-year average, while Table 2.4 lists 11.44 ppb as the average for 2024. Data presented in table 2.4 allowed for validation of reported results, and illustrates the importance of including and describing this data in the report.</p> <p>Section 2.3 did not include a summary data table for 24-hour PM_{2.5} for comparison to the CAAQS. Instead, the report included Tables 2.9 and 2.10 summarizing 1-hour data for PM_{2.5} along with Figures 2.17 & 2.19 to illustrate 24-hour average PM_{2.5}, that were not relevant or comparable to CAAQs. HC also noted that three years of data were not available for PM_{2.5} for comparison to the CAAQS this year, and recommends that comparison be made in the 2026 report once sufficient multi-year data becomes available.</p>
<p>Conclusion/Request:</p>	<p>HC recommends</p> <ol style="list-style-type: none"> 1. Implementing all economically and technologically feasible mitigation measures to limit emissions of non-threshold air contaminants to the extent possible. 2. For the 2025 AQDMR, HC recommends the following to allow a comparison between monitoring data and the CAAQS: <ul style="list-style-type: none"> • Adding the average annual 99th percentiles of the daily maximum 1-hour average SO₂ concentrations to the summary data table for SO₂ (i.e., Tables 2.1 & 2.3).

	<ul style="list-style-type: none"> • Adding the average annual 98th percentile of the daily maximum 1-hour average NO₂ concentrations to the summary table for NO₂ (i.e., Tables 2.2 & 2.4). • Adding 24-hour summary data tables for PM_{2.5}, including the monthly and annual 98th percentile of the daily 24-hour average PM_{2.5} concentrations at the Port and Mine sites. • Including a summary of multi-year data in tables for SO₂, NO₂ and PM_{2.5} concentrations to support the calculation of 3-year averages in the 2025 AQDMR; and, adding figures to illustrate possible trends over time.
--	--

Comment Number:	HC-02
Subject/Topic:	Reference to the “maximum allowable mercury concentration in fish for commercial sale” guideline (0.5 ppm)
References:	<p>2024 Annual Report – Mary River (NIRB Registry ID No.: 355641)</p> <ul style="list-style-type: none"> • Section 4.6.10: Marine Environment <ul style="list-style-type: none"> ○ Project T&C No.:83(a) (Pages 296-301; PDF p., 314-319) • Appendix E 1: Response to Comments 2023 NIRB Annual Report (NIRB Registry ID No.: 355520) (Page 135-138) • Appendix G 6.5: Marine Environment Effects Monitoring Report (NIRB Registry ID No.: 355566, 355567, 355568, 355569, 355570, 355571, 355572, 355573, 355574, 355575; & 355576) <ul style="list-style-type: none"> ○ Chapter 7.0: Fish Health & Tissue Chemistry (NIRB Registry ID No.: 355573) <ul style="list-style-type: none"> ▪ Section 7.3.5 Guideline Comparison (Page 15; PDF p., 25) <p>HC’s response to the Comment Request for Baffinland Iron Mines’ Mary River Project 2022 Annual Monitoring Report (NIRB Registry ID No. 346056)</p> <p>HC’s response to the Comment Request for Baffinland Iron Mines’ Mary River Project 2023 Annual Monitoring Report (NIRB Registry ID No. 350643)</p>

<p>Comment:</p>	<p>Comparison of monitoring data with the maximum allowable mercury concentration in fish for commercial sale can be misleading and misinterpreted by individuals and local communities that rely on subsistence harvesting.</p> <p>In Baffinland’s responses to HC’s comments on the 2022 and 2023 Annual Reports on use of the Canadian maximum level (ML) of 0.5 mg/kg for mercury in fish, enforced by the Canadian Food Inspection Agency (CFIA) for the sale of retail food, in the Marine Environmental Effects Monitoring Program (MEEMP) Report’s assessment of "Fish Tissue Chemistry", Baffinland clarified that:</p> <p>"The objective of the MEEMP is to monitor for potential changes in the environment as a result of the Project and evaluate whether the marine environment is changing over time. It is not the objective of the MEEMP to assess human health risks associated with eating country foods (i.e., fish) from Milne Port."; and, "In future reports, this guideline will be clearly identified as a commercial sale guideline when referenced in the MEEMP." (Appendix E-1)</p> <p>The stated focus of the MEEMP is monitoring for potential project related changes to the marine environment, but it is unclear how references to the commercial sales guideline supports that objective. Its use could also be misinterpreted, leading individuals and local communities that rely on subsistence harvesting to believe that one of the MEEMP’s objectives was the assessment of human health risk associated with eating country foods from Milne Port.</p> <p>The stated commitment to “clearly identified as a <u>commercial sale guideline</u>” would have added some clarity to annual reporting. However, HC noted that Section 4.6.10 of the Annual Report continued to reference: “Health Canada’s Maximum Levels for Chemical Contaminants in Foods mercury consumption guideline of 0.5 mg/kg ww (Health Canada, 2015)” (p., 300) without clarifying the value’s intended use as a commercial sales guideline, or its limitations for comparisons with monitoring data. This was repeated again in Appendix G 6.5 - Section 7.3.5: Guideline Comparison, where further clarification on the intended use of the guideline would have reduced the likelihood that</p>
------------------------	--

	individuals or local communities could misinterpret the reported results.
Conclusion/Request:	<p>HC recommends:</p> <ol style="list-style-type: none"> 1. Describing the intent, limitations and risks of comparing monitoring results to HC’s guideline value for commercial foods (i.e., 0.5 mg/kg wet weight) in the MEEMP Report’s guideline comparison (Chapter 7, Section 7.3.5: Guideline Comparison), to clarify its use in the assessment. 2. Clearly identify in future reports that this guideline is applied as a commercial sale guideline, to reduce the likelihood of local individuals or communities misinterpreting its use or reported results. This could include a link to the relevant section in the MEEMP Report (i.e., Section 7.3.5-Guideline Comparison).

Comment Number:	HC-03
Subject/Topic:	Metals in fish tissue and screening criteria (i.e., consumption benchmarks)
References:	<p>2024 Annual Report – Mary River (NIRB Registry ID No.: 355641)</p> <ul style="list-style-type: none"> • Section 4.6.7: Freshwater Environment <ul style="list-style-type: none"> ○ Project T&C No. 48(a) (Pages 185-187 ; PDF p., 203-205) • Appendix G 4.3 Freshwater Fish Health Report (NIRB Registry ID No.: 355695; 355696; 355697; 395698; & 395699) <ul style="list-style-type: none"> ○ Executive Summary (Pages i-iv; PDF p., 3-6) ○ Section 2.4.6 Data Analysis (Pages 21-26; PDF p., 36-41) ○ Table 2.1: Consumption Benchmarks for Metals in Fish Tissue (mg/kg wet weight) (Page 25; PDF p., 40) ○ Section 3.2.4 Fish Tissue (Pages 43-51; PDF p., 58-66) ○ Appendix D: Fish Data <p>Intrinsic (2024) Country Foods Human Health Risk Assessment – Baffinland Sustaining Operations Proposal (NIRB Registry ID: 350996)</p>

	<p>HC's response to the Comment Request for Baffinland Iron Mines' Mary River Project 2022 Annual Monitoring Report (NIRB Registry ID No. 346056)</p> <p>HC's response to the Comment Request for Baffinland Iron Mines' Mary River Project 2023 Annual Monitoring Report (NIRB Registry ID No. 350643)</p>
<p>Comment:</p>	<p>Missing data on metals in fish tissue and information on the derivation of screening criteria, limited Health Canada's review of the 2024 Freshwater Fish Health Report (FFHR) and its conclusions.</p> <p>HC's review of the report was limited by the following:</p> <ol style="list-style-type: none"> 1. the omission of data on metals concentrations in fish tissue referenced in section 3.2.4 (i.e., Appendix D, Tables D7 & D8); and, 2. insufficient information on the derivation of screening criteria (consumption benchmarks) in Table 2.1. <p>HC would require Appendix D: Tables D7 & D8 to complete its review, as the data in these tables was used to estimate dietary exposure to metals in fish tissue from Qurluktuk and Ikaluit Lakes.</p> <p>With regard to screening criteria, HC notes that several references to "HC's [consumption] benchmarks" (i.e., p. iii, 51 and 55) incorrectly attribute the derived screening values in Table 2.1 to HC. While HC's published toxicological reference values for environmental contaminants, guidance for contaminants considered essential trace elements, and resources on nutrition are referenced, information on their specific use in deriving the listed screening values was limited and could not be verified.</p> <p>Additionally, the 2024 FFHR indicated that mercury concentrations in fish tissue were compared to a guideline of 0.5 mg/kg wet weight. <u>This guideline value is applicable to commercial foods only.</u> For species consumed by local communities, it is more appropriate to use a toxicological reference value (a provisional Tolerably Daily Intake, pTDI) of 0.47 µg of MeHg per kg body weight per day (kg-bw/day) for adults and 0.2 µg MeHg per kg-bw/day for women of childbearing age and young children up to 12 years of age (Health Canada, 2007) to assess potential risks to local</p>

	<p>consumers based on consumption patterns informed by community consultation.</p> <p>Baffinland’s 2024 Country Foods Human Health Risk Assessment (Intrinsik, 2024) also considered toxicological reference values and consumption rates in their assessment of health risks that may be relevant to the analysis in the 2024 Freshwater Fish Health Report. Aligning the values used in both reports would allow for a comparison of relevant results and lend support to the conclusions made.</p>
<p>Conclusion/Request:</p>	<p>HC requests that the Proponent:</p> <ol style="list-style-type: none"> 1. Provide a complete version of the 2024 Freshwater Fish Health Report, including Appendix D - Fish Data: Tables D7 and D8. 2. Correct the references to “Health Canada consumption benchmarks” and “Health Canada benchmarks” throughout the report to accurately reflect their origin. Specifically, Health Canada references should be removed, as the derived consumption benchmarks are not HC values. <p>In addition, HC recommends:</p> <ol style="list-style-type: none"> 1. Applying the HC pTDI values and local consumption patterns to assess potential human health risks from mercury in country foods, and specifically fish tissues, in future project reporting as an approach that is protective of human health. 2. Using reference values and consumption estimates from the 2024 Country Foods Human Health Risk Assessment (Intrinsik, 2024) for comparison between the two reports. Alternatively, including additional information on the derivation of screening criteria (similar to the Intrinsik 2024 report) so the analysis can be evaluated.