

Baffinland Dust Audit

2024 Annual Report

February 28, 2025

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Baffinland Iron Mines Corporation

Prepared by:
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Independent Dust Audit Committee
Members



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This report was verified virtually with members of the Dust Audit Committee on October 31, 2024 and February 13, 2025.

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Executive Summary

Baffinland Iron Mines Corporation (Baffinland) produces direct shipping iron ore at the Mary River Mine located on Baffin Island, Nunavut. The iron ore is loaded onto bulk carrier ships at Milne Port during the shipping season (typically July to October) and primarily shipped to European ports for use by steel makers in continental Europe. Baffinland's Mary River Mine is one of the most northern mines in the world.

In June 2021, Baffinland submitted a Notice and Request to five (5) North Baffin communities of Pond Inlet, Clyde River, Arctic Bay, Sanirajak, and Igloolik regarding a commitment to the Nunavut Impact Review Board (NIRB) to resolve outstanding issues with the Phase 2 Proposal identified by a Pond Inlet Hamlet Council, including dust-related issues. The Dust Audit Committee was formed in response to a commitment outlined in Appendix C – Final Table of Post Phase 2 Approval/Regulatory Phase Commitments for the Mary River Project Phase 2 Proposal issued on January 24, 2022. This commitment was later integrated into Amendment No 4 to Project Certificate 005 as term and condition 187, which allowed for the operation to continue at a transportation rate of 6 million tonnes per annum (mtpa) for 2022. Since 2022, Nunami Stantec has conducted third-party audit involving the five (5) Inuit communities on North Baffin to identify the greatest sources of fugitive dust at the Mary River Mine and any modifications or controls that could effectively reduce the generation or spread of dust.

The Dust Audit Committee is comprised of nominated representatives from the hamlets and their Hunter and Trappers' associations including Pond Inlet, Igloolik, Clyde River, Sanirajak and Arctic Bay, as well as representatives from the Qikiqtani Inuit Association (QIA), and facilitators and engineering subject matter experts from Nunami Stantec and CWA Engineers Inc (CWA).

The following report presents an update on the status of the Committee's recommendations provided to Baffinland based on what was observed and discussed during the field trip to Baffinland Mary River Mine Site in April 2024.

The Dust Audit Committee requests that Baffinland continue to provide updates on the implementation of the recommendations through ongoing engagement with the Committee.

1 Introduction

The Baffinland Dust Audit Committee (the Committee) was established in September 2022 to observe and understand the present and potential future dust sources at Baffinland's Mary River Mine Site, Milne Inlet Tote Road Corridor, and Milne Port site, and to recommend dust mitigation measures for Baffinland's consideration. Baffinland's Mary River Mine is located on Baffin Island, Nunavut and is one of the most northern mines in the world with one of the richest deposits of iron ore discovered to date, which can be mined, crushed and shipped directly to market.

The formation of a Dust Audit Committee was a commitment outlined in Appendix C – Final Table of Post Phase 2 Approval/Regulatory Phase Commitments for the Mary River Project Phase 2 Proposal (Baffinland 2022a): Term and Condition 187 for the Project Certificate reiterates the commitment that Baffinland will “resource an annual audit of dust impacts and mitigations associated with project activities to be completed by a third party acceptable to the responsible parties. The dust audit shall evaluate effectiveness of current measures and if necessary, contain recommendations and options to reduce the spread and impacts of dust from project activities”.

The Dust Audit Committee also acknowledges that as per the new Condition (188) in the Mary River Mine Project Certificate, Baffinland will work with the Terrestrial Environmental Working Group (TEWG) to establish site-specific thresholds for conditions that may increase dust dispersion (i.e., wind speed), and corresponding mitigations to implement when thresholds are met. Additionally, the Dust Audit Committee is aware of Baffinland's dust-related commitments to the Qikiqtani Inuit Association (QIA).

The following report presents an update on the status of the Committee's recommendations provided to Baffinland in 2023 (Nunami Stantec 2023), as well as follow-ups received from Baffinland to date on the status of the implementation of the recommendations. The report also includes a summary of the site visit from April 2024, where members of the Committee were able to meet with Baffinland and understand the progress of recommendations to date.

Since submission of the report in February 2023, four meetings with the Dust Audit Committee occurred, including one meeting with Baffinland to discuss the recommendations and next steps. A site visit occurred in April, 2024.

1.1 Inuit Qaujimajatuqangit / ᐃᓄᐃᑦ ᖃᐅᐱᐱᐅᐅᖃᖅᓴᐅᖅ

The principles and Inuit societal values that guide the IQ for the Dust Audit Committee include (Government of Nunavut, n.d.): Inuit Qaujimajatuqangit / ᐃᓄᐃᑦ ᓄᐃᑭᐱᑦᓴᑦᓴᑦᓴᑦ (IQ), which translates to “that which Inuit have always known to be true” is recognized as a unified system of beliefs and knowledge characteristic of the Inuit culture (National Collaborating Centre for Aboriginal Health, n.d.).

The Project Inuit Impact and Benefit Agreement (IIBA) has a definition of IQ relevant to this discussion. Use of the Inuktitut term “Inuit Qaujimajatuqangit” or the acronym “IQ” is broadly intended to mean Inuit Societal Values (ISV) that include traditional, current and evolving bodies of Inuit values, beliefs, experience, perceptions and knowledge regarding the environment, including, land, water, wildlife and people, to the extent that people are part of the environment.

The points below outline how the Dust Audit Committee has incorporated IQ values during all stages of committee work and reporting:

- **Inuuqatigiinniq / ᐃᓄᖃᑎᓐᓴᓐᓴᓐ** – the Dust Audit Committee strives for consensus in our meetings, and we take the time to listen to the opinions and feedback from each member of the group.
- **Pijitsirniq / ᐱᓐᓴᓐᓴᓐ** – the Dust Audit Committee is comprised of community representatives serving their community.
- **Pilimmaksarniq/Pijariuqsarniq / ᐱᓴᓐᓴᓐᓴᓐ/ ᐱᓴᓐᓴᓐᓴᓐ** – through collaborative discussions, members of the Dust Audit Committee share observations and knowledge which helps develop skills and understanding for all.
- **Piliriqatigiinniq/Ikajuqtigiinniq / ᐱᓴᓐᓴᓐᓴᓐᓴᓐ/ ᐃᓴᓐᓴᓐᓴᓐᓴᓐ** – All members of the Dust Audit Committee are working together for the common cause, to identify and provide recommendations to improve dust generation and management.
- **Tunnganarniq / ᐅᓐᓴᓐᓴᓐ** – All five (5) North Baffin communities working together as part of the Dust Audit Committee, with open discussions and are inclusive of the Hunters and Trappers associations (HTAs) and Hamlets.
- **Aajiiqatigiinniq / ᐱᓐᓴᓐᓴᓐᓴᓐ** – this drives the Dust Audit Committee in how decisions are made, for example a consensus is reached prior to putting recommendations forward for ways to mitigate dust while being innovative and resourceful.
- **Avatittinnik Kamatsiarniq / ᐱᓴᓐᓴᓐᓴᓐᓴᓐᓴᓐ** – a driving force of the Dust Audit Committee is to find ways to reduce dust to respect and care for the land, animals, and environment.

Consideration of the IQ values identified above were integrated into the below assessment and are reflected in the information provided by Dust Audit Committee.

IQ shared by the Committee, including any spatial information (if applicable) was compiled and integrated into the report. To finalize the report, Nunami Stantec facilitators met virtually with members of the Committee to review and verify for accuracy and appropriate treatment of sensitive or confidential information before being finalized.

The information shared is the intellectual property of participants and, collectively, the Dust Audit Committee (see Appendix A). This report is not intended as a comprehensive representation of information known by members of the Dust Audit Committee. The absence of additional concerns presented in this report should not be construed as a lack of use by or importance to members of the Dust Audit Committee.

1.2 Definitions

As first presented in the recommendations report, the following definitions are used by the Committee to define each of these terms:

Dust: fine particulate matter generated by drilling, blasting, materials handling, and the transporting of materials. The Dust Audit Committee defines dust as any particles dispersed as a result of Project activities.

Dust Source: sources evaluated by the Dust Audit Committee include drilling, blasting crushing, screening, mine haul roads, Tote Road, material handling, stockpiling, shiploading, and other workspace areas at the Mary River Mine.

Mary River Mine Site: “Baffinland’s Mary River Mine site on Baffin Island, Nunavut, Canada, is one of the most northern mines in the world. It has among the richest iron ore deposits ever discovered, consisting of nine-plus high-grade iron ore deposits that can be mined, crushed, and screened into marketable products” (Baffinland 2022b). Currently, activities are occurring at the Mine Pit (Deposit 1).

Blasting: Mining activity that involves chemical and physical processes to break iron ore and waste rock into smaller pieces for loading and hauling. Involves the use of explosives, boosters, and detonators based on a blast design.

Tote Road: An approximately 100km road on which ore is transported from the crushing facility at Mary River Mine site to Milne Inlet for stockpiling and subsequent shipping.

Mine Haul Roads: Roads which connect the Mine Pit (Deposit 1) to the Ore Pad (including the crushing area), waste rock storage area, and mine operation areas.

2 Data Collection

Data used to inform the Recommendations Report came from Dust Audit Committee members over the course of 14 months (beginning September 2021), including two site visits, committee interviews and workshops, and regular bi-weekly ZOOM meetings. Nunami Stantec and CWA conducted technical interviews with Baffinland staff and relayed this information to the Dust Audit Committee. A summary of these data collection methods is provided in the subsections below.

2.1 2024 Field Site Visit

A field trip took place from April 23 to April 26, 2024 (including travel), with members of the five North Baffin communities participating in the Dust Audit including Arctic Bay, Clyde River, Sanirajak, Igloodik, and Pond Inlet. Also participating in the field visit was a member of Nunami Stantec and a member from CWA Engineers Inc. During the site visit, Committee members had the opportunity to visit targeted areas within the mine site such as the crushing facility, active mining areas, and the locations of dust monitor stations.

The 2024 field site visit itinerary is included as Appendix B.

2.2 Committee Interviews and Workshops

Workshops with the Dust Audit Committee were held in person and virtually to facilitate discussions and record feedback, concerns, and comments regarding dust, dust sources, and pathways.

3 Status of Recommendations

Throughout the duration of the Dust Audit Committee, members have stated the importance of collaborative and ongoing discussions with Baffinland to ensure their concerns regarding dust are heard, considered, and mitigated.

The Dust Audit Committee recommendation report identified concerns for dust and its impacts to water and water sources (specifically, water transporting dust, and snow and ice they have observed melting faster due to dust, and lack of clean water), wildlife and wildlife habitat (including wildlife health), human health, the cumulative effects of mining and dust, and stressed the impact that all industrial activity has on the environment and subsequently on communities on Baffin Island.

The Committee remains interested in understanding more about dust mitigation implemented by Baffinland, and has reiterated their concerns for dust and its impacts.

“When the dust spreads to the land, it affects the land animals like birds, caribou...would like to know if it is safe to eat...would like it to be confirmed if it is safe to consume.” (Committee member, January 2024)

Intrinsik's assessment (Section 4.2) indicated that contributions from mine dust to safety of country foods is small, as risks associated with consuming specific organs or meats (such as caribou organs, seal liver, and narwhal) are not related to Project dust.

During the site visit, a member of the Committee indicated that they had noticed improvements since their last visit, and stated that they saw a fox and ptarmigan, both of which did not have red-coated fur or wings, and to the Committee, this was seen as confirmation that Baffinland has been taking steps to fulfill the mitigation recommendations.

Subsequently, 16 recommendations were proposed by the Committee for implementation by Baffinland. In August 2023, Baffinland provided a response to the recommendations, and in 2024 a site visit (April 2024) and virtual meetings (January 2024, March 2024, October 2024, December 2024, and February 2025) were conducted to provide additional response to the Committee from Baffinland.

3.1 Blasting $\mathfrak{b}^{\mathfrak{b}} \mathfrak{n}^{\mathfrak{c}} \mathfrak{n}^{\sigma^{\mathfrak{b}}}$

Baffinland's current operations of the Mary River Mine continue to be focused on Deposit No. 1 in 2023/2024. Blasting remains a dust source of concern for the five North Baffin Island communities, including the dispersion of dust from blasts, as well as nitrogen oxide from blasts. Table 3.1 provides an overview of the recommendations as submitted to Baffinland in February 2023.

Table 3.1 Blasting Recommendations

#	Recommendation
1	Work with explosives supplier and drill and blast engineer to identify dust control measures during the blasting process and to refine blasting protocols to reduce dust and nitrogen oxide (NOx) fumes (seen as yellow dust during the blast) for implementation. This includes studying the viability of using dust suppression cannons or fog prior to and during blasting, including looking at truck mounted as well as pit edge mounted machines.
2	Continue conversations with the Dust Audit Committee regarding atmospheric winds during the new moon to integrate IQ into the program under development regarding conditions of high-risk dusk dispersion and to determine conditions where additional mitigations to reduce dust can be implemented or, where outlined by the wind thresholds report, blasting may be paused until wind speeds are within identified thresholds.
3	Practice heightened monitoring and vigilance for the 4 days following a new moon and be prepared to delay or re-schedule blasting activities based on forecast or observed pressure/wind relative to established thresholds.
4	Conduct a blast fragmentation size study with explosive supplier and blasting specialists that can be incorporated into the program under development regarding conditions of high-risk dust dispersion.
5	Update draft explosives management plan once the explosive suppliers and drill and blast engineer's have determined the blasting protocols to develop a Standard Operating Procedure (SOP) for blasting, including thresholds for conditions when/where blasting can occur, blast pattern designs parameters to help reduce dust, explosive type and usage to help reduce dust, stemming material specifications to help reduce dust, and any other blasting related recommendations that the drill and blast engineer determines would help reduce dust generation.

3.1.1 Status Update from Baffinland

Baffinland noted that through their work with the TEWG they continue to develop a program for identification of conditions with high risk for dust dispersal and plan for additional mitigation measures that may be applied at the times the conditions are present is ongoing and acknowledges its importance.

Baffinland acknowledged their learning that certain factors like humidity may have an influence on the amount of dust generated by certain activities from their use of air monitors. For example, Baffinland noted that water use for dust suppression can be implemented based on observations from personnel in the field. During trials of Purple Air monitors, it was noted that decreased humidity may increase the amount of dust generated. If this is confirmed by observations in the field, the operation may increase the frequency that water is applied to the road.

During the site visit, Baffinland stated that their goal to reduce dust generation at the source is intended to result in consistent dust reduction during all potential conditions, 24 hours a day, 7 days a week. Baffinland indicated that monitoring dust levels in real time provides more detailed results than just trying to correlate dust levels with specific environmental conditions. However, during specific environmental conditions, Baffinland would initiate existing protocols that may dictate operational shutdown. Baffinland reported that when wind speeds reach above 80 km/h, mining, hauling and crushing activities stop. When wind speeds are between 60-80 km/h, a review of activities on a case-by-case basis is initiated and mining, hauling and crushing activities may stop or be reduced. Baffinland provided aerial photos with locations of monitors from fall/winter 2023/2024 studies at crushing area and Milne port and deposit 1 blasting areas for both ore and waste (Figure 1). The Committee was able to observe loading of haul trucks at Deposit 1 as well (Figure 2).

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Baffinland provided an update on their blasting review and blast optimization program study. Baffinland monitored five blasts in 2023, with plans to continue in 2024, with a range of blast sizes and other factors. Baffinland deployed up to nine air monitors and collected dust data before, during, and after blasts. Baffinland also monitored wind speed and direction, temperature, precipitation, and other factors from the nearby weather station and with collected video. Baffinland reiterated their commitment to control dust under all weather conditions.

Baffinland reported that as new blasting parameters are introduced, the effects on dust generation will be evaluated. The current blasting parameters evaluated include:

- change in blast size;
- change in burden, spacing and collar;
- change in powder factor;
- effect of stemming plugs;
- ore versus waste parameters; and
- wind direction and strength during blast times.

Baffinland's preliminary results indicated that at stations located in close proximity to the blasts, the dust emitted by the blasts dissipated quickly, and was of limited extent. Other stations located farther from the blast area showed peaks after a period of time from the blast, which is indicative the spikes were due to traffic rather than the blast.

Baffinland also provided an update on their blasting review and blast optimization program (BOP) study. Baffinland monitored 5 days of blasts in 2023, and an additional 2 days of blasts in early 2024, with a range of blast sizes and other factors.



Figure 1 Blast Monitoring - PurpleAir Map 2023. Provided by Baffinland.



Figure 2 At Deposit 1, Haul Truck being loaded (April 25, 2024)

3.1.2 Dust Audit Committee Feedback

The following questions were asked by the Committee and include Baffinland's responses below each:

- In underground mines they had vacuum (dust collection) systems to prevent workers from breathing dust. It would be good vacuum up piles of fine dust left by drilling to prevent them from becoming airborne during blasting. It would be good to view the drilling.
 - Baffinland confirmed that there are vacuum systems at drill holes to collect drilling dust and drill operators sit in pressurized cabs to protect them from exposure to dust.
- The Committee inquired about the elevations of monitors used to detect and track dust?
 - Baffinland indicated that there was some variation to the elevations of each PurpleAir device.
- The Committee noted that the dust close to the blast is less of a concern than dust farther away, and asked if there were some of the monitors in places where dust is more of a concern?
 - Baffinland indicated that each blast is from a different location within the pit, and locations of monitors is also different for each blast. Baffinland noted that this is in addition to regional monitoring locations which have been monitored since 2014 and reported on annually.

3.2 Materials Handling

The Committee's scope includes review of mine operations, crushing, and the Tote Road as part of the materials handling system. Shipping is part of the materials handling system, but no new specific concerns or recommendations were identified by the Committee in 2023 and therefore it is not discussed.

Dust as a result of materials handling activities has been a concern for the Committee, including the potential to optimize the run of mine material handling to minimize dust. Table 3.2 provides an overview of the recommendation as submitted to Baffinland in February 2023.

Table 3.2 Material Handling Recommendations

#	Recommendation
1	<p>Conduct a run-of-mine (ROM) optimization study to assess the viability of implementing the following processes to be considered for current and future expansion, including Steensby:</p> <ul style="list-style-type: none"> • Using a ROM dump pocket • Minimizing the use of front-end loaders (FEL) at the ore pad and the port • Use of enclosures to collect and minimize dust. • Increasing the use of conveyors and transfer chutes • Using luffing stackers to reduce drop height when forming stockpiles • Cover hoppers when loading conveyors, crushers, or screens. • Load or unload B-Trains within an enclosed area

3.2.1 Status Update from Baffinland

Baffinland indicated that the current crushing operations were intended for early revenue phase work, and that with the advancement of Steensby, the current plan is to enclose crushing and possibly implement other recommended measures at the mine site.

3.2.2 Dust Audit Committee Feedback

During the March 2024 virtual meeting, members of the Committee reiterated the need for safety measures for people if crushing is indoors (i.e. masks, dust collection systems), noting that they have known people who worked in other mines in the past and that these people experienced health impacts. The committee also asked about the buildings that crushers would be contained in during the site visit, and Baffinland confirmed that the current plan is to use crushers in buildings as part of the Steensby expansion.

The Committee would like to see continued meetings on material handling measures that are planned as part of the Steensby expansion.

3.3 Dust Fall Monitoring and Suppression >vcsb

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As stated in previous reports, the Committee has observed seasonal differences in dust generation and dispersion associated with each dust source during site visits and recognized that the seasonal changes were likely due to the moisture content of the materials.

Table 3.3 and Table 3.4 provide an overview of the recommendations as submitted to Baffinland in February 2023.

Table 3.3 Dust Fall Monitoring Recommendations

#	Recommendation
1	<p>Explore options to implement a continuous sitewide dust monitoring system for Arctic conditions to track the effectiveness of implemented dust mitigations. This system should include active dust monitors in order to:</p> <ul style="list-style-type: none"> • measure changes to dust generation associated with changes to blast designs and execution. • determine if there are any exceedances of the ambient air quality standards (at the Project Disturbance Area Boundary) due to dust emissions from blasting and/or mining activities. • Understand the contribution of blasting activities to dust emissions.
2	<p>Install additional passive monitors at a greater distance from the mine to capture the broader regional impacts of dust, including up and down wind of prevailing winds¹.</p>

Table 3.4 Dust Suppression Recommendations

#	Recommendation
1	Conduct a study to assess the amount of watering and road maintenance equipment required for present and future operations
2	Research the viability of applying sea water on the haul roads and Tote Road, due to the lower freezing point, if Baffinland considers applying water exclusively as dust suppression
3	Develop a SOP on dust suppression products that includes procedures on application and the ongoing maintenance for active mine haul roads
4	Conduct a study on dust suppressants for utilization on ore that is loaded onto the B-train trucks, instead of covers due to challenges of Arctic winter conditions. The study should also examine which is the most effective dust suppressant for the Arctic weather conditions (liquid or dry).
5	Analyze aircraft approved dust suppression products for use on the runway. Approved products for runway use should be incorporated into the SOP on dust suppression
6	Examine the use of wind fences around dust generating infrastructure and complete a feasibility study to determine how to use wind fencing most effectively at both the mine site and the port site taking into consideration of Arctic weather conditions. This study should include use of computer modelling to determine the optimal height and location of fencing both at the mine site and at the port site.

¹ This recommendation would be in addition to the Commitment ID 234 (Baffinland. 2022a), wherein Baffinland committed to developing and funding a “Community Based Monitoring (CBM) program out of Pond Inlet that is Inuit led to monitor the extent of visual dust in the Project Area as well as a snow sampling program”.

#	Recommendation
7	Examine areas where water treatment can be increased to reduce the amount of dust and particles that enter the drainage basin to reduce the potential effect of dust on the environment, and the reduction of dust that enters the drainage outside of the Project boundaries.

3.3.1 Status Update from Baffinland

3.3.1.1 *Dust Fall Monitoring*

Members of the Committee reiterated that Baffinland’s use of PurpleAir monitoring devices was positive and inquired about additional places where PurpleAir could be deployed regionally to understand dustfall in areas of importance. Baffinland noted their use of satellite imagery to understand dustfall extent. As reported by EDI 2024, Baffinland examined satellite images to characterize dustfall extent and to verify Inuit land users’ reports of seeing dust beyond what was predicted (Figure 3). The satellite imagery also provided a visual representation of the extent of dustfall in areas where it is below detection in dust monitors. In Baffinland’s 2023 Annual Report, Baffinland noted that the extent of dustfall on the landscape was similar from 2014 to 2023 for all areas, with the highest concentrations near the Project and dustfall extending northeast along Milne Inlet, west and south of the Mine Site, and southwest of the Tote Road south crossing (km 78) in the direction of prevailing and/or strong winds (EDI 2024).

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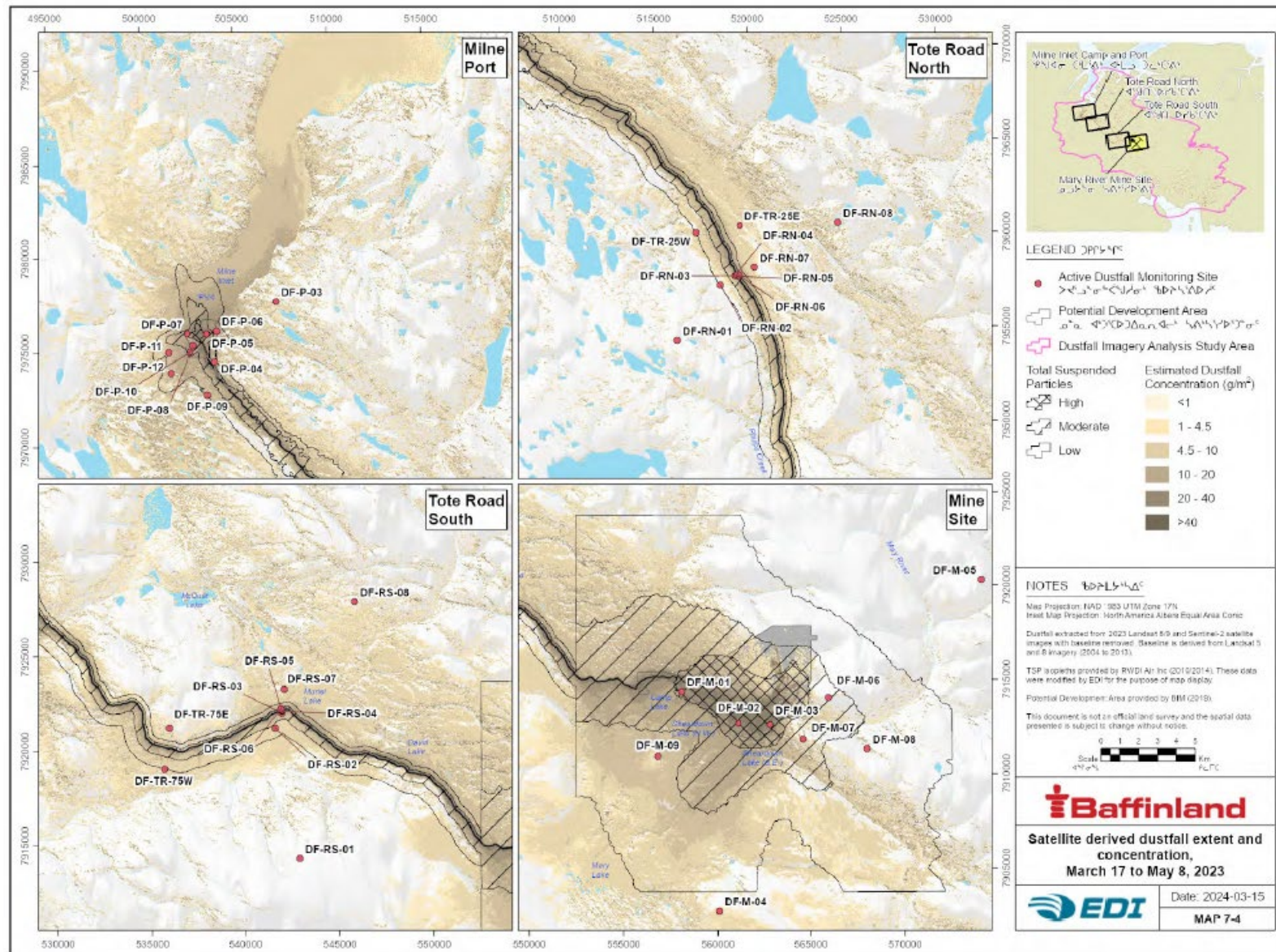


Figure 3 Satellite Imagery of dustfall extent and concentration (from EDI 2024)

3.3.1.2 *Dust Suppression 1: Amount of Watering and Road Maintenance Equipment Required for Current Operations.*

In 2023, Baffinland converted a 777-haul truck into a water truck to improve the dust suppression capacity on the Mine Haul Road (MHR). Water for this truck was sourced as much as possible from compliant water discharge locations within the mine area to reduce driving times to freshwater sources to increase the effectiveness of dust suppression during dry periods.

Baffinland measured dust before and after the application of water on the MHR to inform the resourcing of equipment and operators for road watering in 2024. Additionally, videos were taken (14 hrs) to correlate visual observation with measured dust. The Committee understand that more of this effort is planned for 2024.

3.3.1.3 *Dust Suppression 2: Viability of Applying Sea Water*

In the August 2023 response, Baffinland committed to initiating a review and evaluation of the viability of applying sea water as a dust suppression, as well as continue trialing other dust suppression products.

In January 2024, Baffinland provided an update to their review. Baffinland stated that the seawater would more precisely be described as brackish water, due to the natural mixture of seawater and fresh water at Milne Inlet. Brackish water, therefore, would not be considered a significant contributor of "salt" as a dust suppressant and would require frequent re-application. In addition, Baffinland stated that seawater is not listed as an approved dust suppressant with the Government of Nunavut and may not provide significant benefits over fresh water or calcium chloride (CaCl₂) usage. Baffinland also noted that sea water may have an increased risk of negative environmental impacts, due to the need for frequent re-application. For example, the potential impacts of salt from the continuous re-application of seawater on roads adjacent to sensitive freshwater habitats has not been assessed in detail. Baffinland noted that fresh water and CaCl₂ as dust suppressants have been extensively studied and for CaCl₂, appropriate environmental application procedures have been developed across industry and government which mitigate the environmental risks of its use.

Baffinland indicated that, for those reasons, they do not consider sea water to be a viable option for dust suppression.

3.3.1.4 *Dust Suppression 3: SOPs for Dust Suppression Products*

Baffinland has developed SOPs for dust suppression activities on mine haul roads including the Tote Road that were implemented in 2024, including:

- Mine operations dust management
- Tote Road dust management
- DusTreat system SOP (crusher operations)
- Ore Stockpile dust management (DusTreat)
- Dust suppression tanker trailer (Airstrip)

Part of Baffinland's goal with the trial of PurpleAir monitors is to monitor dust emissions during applications of different types of dust suppressant along the Tote Road. (Figure 4, Figure 5).



Figure 4 Baffinland showing members of the Committee the PurpleAir device and how it is deployed currently with the pails (April 2024)



Figure 5 Maps of various sites where PurpleAir devices are being used (maps provided by Baffinland, January 2025).

3.3.1.5 *Dust Suppression 4: Use of Suppressants Along Material Handling/Crushing/Screening Lines*

Baffinland introduced the dust suppressant trial at Crusher C (Figure 6, Figure 7) to the Committee during the April 2024 site visit. The trial first ran between December 2 to December 14, 2023. During this time, Baffinland applied a dust suppressing product through a spray system at two locations along one of the three material handling/crushing/screening lines. Spraybars were placed at the conveyor drop (transfer point) to apply spray to the ore as hit the belt after falling from the conveyor above (Figure 8). The application rate was adjusted by Baffinland to determine quantity of suppressant required without over-applying.

Another trial was initiated on April 1, 2024, with similar methodology to the above. Baffinland's goal is to look at production of dust from material handling/crushing/screening lines with and without product applied using real time monitoring of dust. During the site visit, Baffinland showed videos from April 22, 2024, of crushing, screening, and conveying with and without dust suppressant, and reported that there was more dust produced without the dust suppressant. Baffinland stated that they are also monitoring dust generation during loading and offloading from OHT's at the ore pad and the port.

Along the Tote Road, Baffinland ran a trial of two dust suppressants, DUST/BLOKR® and CaCl₂ between July 30 to August 4, 2023. DUST/BLOKR® was applied between km 97-100, while CaCl₂ was applied from km 91-97. Baffinland showed graphs during the site visit with micrograms per cubic meter on the vertical axis and time on the horizontal axis to demonstrate the effectiveness of each dust suppressant.

PurpleAir monitors were deployed along the Tote Road in multiple locations to monitor the difference between CaCl₂, DUST/BLOKR® and water only for dust suppression. The monitoring stations were on a similar stretch of road, on both the downwind and upwind side.

In the trial, Baffinland reported that DUST/BLOKR® applied on the Tote Road was less effective after 8 days than the CaCl₂. This finding appears to be supported by the targeted qualitative observations documented by the road maintenance department. A similar test was done where water only application was compared to calcium chloride and water. Baffinland stated that their results from the trial showed that CaCl₂ was a more effective dust suppressant than water. Baffinland noted that following their trial, CaCl₂ and increased water application continued into 2024, and would continue in 2025 along the Tote Road.



Figure 6 Crusher Trial - PurpleAir Monitor Map 2024 (provided by Baffinland, January 2025).



Figure 7 Crusher Line C during April 24, 2024, site visit.



Figure 8 Visual of Crusher Dust Suppressant Nozzles at Crusher Line C trial (provided by Baffinland, January 2025)

3.3.1.6 *Dust Suppression 5: Dust Suppression at the Runway*

Baffinland noted that this evaluation is still underway. A water tanker was commissioned in spring 2023 and from June through early September, water was applied as a dust suppressant to the airstrip before the arrival and departure of 737 passenger and cargo aircrafts. During that time, water was applied as needed when dry conditions were observed. Baffinland reported that this concentrated effort resulted in the lowest concentrations recorded at the dust fall monitor adjacent to the airstrip since monitoring began (EDI 2024).

Two PurpleAir monitors were deployed in April 2024 at two locations near airstrip (no data shown yet) (Figure 9).



Figure 9 PurpleAir Monitor (labelled A) near airstrip connected to device (labelled B) that shares data to Baffinland on demand (April 2024)

3.3.1.7 *Dust Suppression 6: Wind Fencing Feasibility*

A Feasibility Review was provided by Baffinland to QIA on September 25, 2023. A version of this report for the Committee's review has been received and will be reviewed.

Baffinland showed a map with current WeatherSolve (identified vendor of wind fences, mostly for coal mines) installation locations, noting that there was no data on use in an Arctic environment and only a few locations where snow or ice buildup is an issue. Baffinland indicated its concerns about challenges related to ongoing maintenance and operation as well as initial installation. Based on the feasibility study conducted, Baffinland reported that about 2 km would be required for the ore pad, and that the height would need to be 22 m (74'). Baffinland stated that the main technical constraint around the wind fencing included "ice fog" or "rim ice", which could cause significant weight to be applied to structure. Baffinland also stated that blowing snow would be blocked by the wind fence as well. Baffinland stated that a more practical, more cost-effective alternative to wind fences would be to use sprays on stockpiles to prevent dust from blowing away.

3.3.1.8 *Dust Suppression 7: Water Treatment Areas*

The Dust Audit Committee will continue to discuss water treatment areas with Baffinland and to review areas where water treatment can be increased to reduce the amount of dust and particles that enter the drainage basin to reduce the potential effect of dust on the environment, and the reduction of dust that enters the drainage outside of the Project boundaries.

3.3.2 Dust Audit Committee Feedback

The Committee noted that they were pleased to see that Baffinland has taken their concerns seriously. A member of the Committee noticed that on a previous visit his window was dripping with red dust, and that this time it was not. With respect to the materials used as dust suppressant for the road, they stated that they are okay with CaCl₂ as it doesn't appear to be harming the fish.

The following questions were asked (with Baffinland's responses below each):

- How long is the tote road and is the road watered for the whole length? Are you monitoring the effect of sprays on surrounding lakes and streams?
 - Baffinland reported that the road is approximately 100 km and that they apply CaCl₂ and have tried other products. Baffinland confirmed that water monitoring occurs, and that erosion and sediment controls are used to prevent sediment from going to the lakes and streams.
 - Baffinland reiterated that very little dust suppressant should run off the road as the amount applied is optimized to avoid over-application.
- Has the CaCl₂ sprayed on the roads been reviewed
 - Baffinland stated that the products marketing department and environment department review chemicals applied for impact and for customer impact/selling the product.
- Does CaCl₂ interfere with fish's protective coating?
 - Baffinland's biologist noted that fish (specifically Trout Salmon and Char) have the ability to regenerate the protective film (mucus membrane) on the surface of their bodies. Because of how

it is applied to Baffinland roads, and the level of dilution lowers after rainfalls, Baffinland noted that there should be no concern to fish health.

- Of the water testing completed in 2024, sample concentrations averaged 5.66 mg/L, with a peak at one site at 14.4 mg/L and a low at one site at 0.94 mg/L.
- Were there background levels taken at both locations to measure dust in absence of any dust suppressant?
 - Baffinland confirmed that monitors were set up during the trial.
 - Baffinland and the Dust Audit Committee to continue discussions regarding baseline dust levels prior to dust suppressant trials.
- The Committee asked if the PurpleAir work differently in windy weather than in calm weather?
 - Baffinland stated that PurpleAir specifications indicate they can be used in windy conditions. The PurpleAir monitors are set up in multiple locations to capture measurements of dust from multiple directions (up wind and downwind)
- Possibility of spraying the ore in the trucks to prevent the dust from the trucks from escaping along the tote road?
 - Baffinland stated the dust from the trucks is primarily from the wheels rather than the ore in the truck, based on their visual observations and chemical analysis of dust on vegetation near the road.

The following questions were asked regarding the Crushing line C trial (with Baffinland's responses below each:

- What was the dust suppressing product?
 - Baffinland stated that it is a glycerin-based material handling product designed to provide freeze protection and also reduce fugitive dust. Baffinland provided the MSDS for review
- Are there silt fences to keep sediments from going into the environment and where is the silt from?
 - Baffinland indicated that not all of the sediment is from dust, rather some of it is from disturbed soil, grading, etc. Baffinland provided information regarding their use of silt fences which will be discussed with the Committee in future meetings.
- Is there anything such as a membrane, around crushing line C to prevent the chemical from seeping into streams and lakes?
 - Baffinland stated that the crusher area is surrounded by a ditch that collects the run-off, which is treated and then sampled prior to discharge. Baffinland displayed the MSDS again to show the ecological information and explained that tests are done on both invertebrates and fish to show that it is not harmful to either.
- At what concentration is it applied to the ore?
 - Baffinland confirmed that it is applied at 100% concentration, not diluted with water.
- What's next in the crushing line C trial, and what are the plans for Crusher A and Crusher B?
 - Baffinland is looking at the data now to make sure they are optimizing the dosage, after which they will decide how much they need to buy to treat to be shipped on the next sea lift.

3.4 Dust Audit Committee ᐅᖃᑦᓕᓚᔭᐅᑦ ᑲᑎᒪᔭᑦᓴᐹᑦ.

The Committee is pleased that Baffinland continues to fund and support this scope of work and looks forward to future discussions with Baffinland. Table 3.5 provides an overview of the recommendation as submitted to Baffinland in February 2023.

Table 3.5 Commitments to the Dust Audit Committee

1	<p>Request:</p> <ul style="list-style-type: none"> • Ongoing funding of the Dust Audit Committee. • Provision of documents in both English and Inuktitut through accessible means. • A transparent process of providing data obtained through ongoing studies conducted by Baffinland. • Establish a virtual monitoring website that is accessible to the five Northern communities.



Figure 10 The Committee observing activities at Crusher C (from Baffinland, April 2024)

3.4.1 Response from Baffinland

In August 2023 (Baffinland 2023), Baffinland committed to the following in response to the recommendations submitted to NIRB in 2023 (Nunami Stantec 2023):

- Baffinland will maintain the Dust Audit committee to continue to meet and receive updates with respect to dust and dust sources, performance of mitigation measures and to solicit input regarding potential refinements or improvements.
- Baffinland will report back to the dust audit committee on the implementation and results of the recommendations.
- Baffinland will facilitate ongoing site visits to allow the committee to see the implementation of recommendations.
- Baffinland will enhance communications via its existing website with respect to environmental monitoring and mitigations on a more frequent basis than is currently available. The website will be accessible to the five Northern communities.

Baffinland reiterated their commitment to the Dust Audit Committee.

3.4.2 Dust Audit Committee Feedback

The Dust Audit Committee continues to be committed to engage with Baffinland. The committee looks forward to hearing updates on recommendation as they are researched and implemented to continue to be part of the process and provide feedback throughout the process.

4 Guest Presentations

The Dust Audit Committee also welcomed presentations from Natural Resources Canada (NRCan) and Intrinsic in 2024. In preparing the document, Nunami Stantec did not verify information supplied to it by NRCan and Intrinsic but has provided a summary below.

4.1 NRCan Presentation

NRCan provided a presentation to the Committee in 2024 related to their dustfall monitoring program. NRCan noted during the presentation that they are proposing a tri-lateral project (between NRCan, Mittimatalik Community Members and Baffinland) to investigate the dust at Mary River, with the goal to bridge western science, industry monitoring and Inuit Qaujimajatuqangit. The presentation can be found in Appendix C.

At the time of the presentation, NRCan applied for a Nunavut Review License, which has been approved by Nunavut Planning Commission (NPC) and Nunavut Research Institute (NRI). Access to Inuit Owned Lands was under review. As part of the program, NRCan is trialing two dust monitoring devices: dust canisters and passive dry deposition collectors. In addition, using the passive dry deposition collectors, NRCan can determine the source of metals or elements of concern. NRCan shared with the committee that in addition to the program monitoring and supporting the evaluation of environmental effects, remote sensing is being used to provide increased detail on dust dispersion. NRCan shared with the Committee the proposed sampling location zones and noted that they will deploy passives and collect snow samples at 15 of Baffinland's 43 dust sampling locations in addition to 12 community-based sampling locations in the Milne Inlet, Koluktoo Bay and Robertson River.

The Committee looks forward to additional updates from NRCan and Baffinland regarding this dustfall monitoring program.

4.2 Intrinsic Presentation

The Committee invited Intrinsic to present on their Human Health Risk Assessment. Studies completed by Intrinsic to date included a Country Foods Human Health Risk Assessment and an assessment of monitoring data, such as surface water data and snow meltwater data. Intrinsic's country foods assessment species including arctic hare, caribou, ptarmigan, arctic char, narwhal, and ringed seals. Intrinsic's focus during country food studies was on the potential changes associated with dust. Findings were consistent with results and conclusions from other researchers in the region. Intrinsic's assessment indicated that contributions from mine dust to safety of country foods is small, as risks associated with consuming specific organs or meats (such as caribou organs, seal liver, and narwhal) are not related to Project dust. The presentation can be found in Appendix D.

5 Next Steps

Regarding QIA Technical Comment # AE-4 (as accepted as part of Term and Condition 187), the Committee would like to complete the one-time review of the Air Quality and Noise Abatement Management Plan and have requested that Baffinland also present the meeting. At the time of confirmation of the review, the Committee did not have quorum in attendance and therefore will discuss it during the following meeting. The Committee will review the publicly available version of the report and provide comments for consideration.

6 Conclusion

The Dust Audit Committee has reviewed, and endorsed the Annual Report and status of recommendations outlined in this report. The Dust Audit Committee also understands that this committee will continue to provide ongoing evaluations of the effectiveness of current dust mitigation measures as well as to provide further options to reduce the spread and impacts of dust from project activities.

As indicated in the above report, through the Dust Audit Committee meetings, site visits, and discussions with Baffinland, the committee has reiterated the importance of Baffinland listening to Inuit voices and the concerns identified. While the concerns associated with dust and impacts of dust have been noted throughout the mine's lifetime through various engagement activities, the Dust Audit Committee is eager to continue working with Baffinland to mitigate impacts of dust.

6.1 Acknowledgements

The authors of this report would like to recognize and thank all members of the Dust Audit Committee and for their contribution and knowledge which informed this report. We would also like to thank the Qikiqtani Inuit Association participating as observers of the Dust Audit Committee.

The Dust Audit Committee would like to thank Baffinland for their support of the committee, coordination and tours, and receptiveness to answering questions both within and out of scope. The Dust Audit Committee would also like to thank subject matter experts who were consulted during the production of this report, including mining sector leads and air quality specialists at Nunami Stantec, CWA and dust suppression specialists.

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Appendix A Consent Forms

Dust Audit Committee Interview/Fieldwork Consent Form

**Baffinland Iron Mine Corporation
Mine Mary River Project**

Interviewee: _____

Interviewer: _____

Date: _____

Nunami Stantec Limited has been contracted by Baffinland Iron Mine Corporation (Baffinland) to participate in an audit of present and potential future dust sources at the Mine Site, Milne Inlet Tote Road Corridor, and Milne Port to identify sources of dust and recommend actions and mitigation that can be used to reduce dust production and dispersion.

Your name has been put forward by your community or Hunter Trapper Organization to participate in this work.

You will be asked questions about community concerns with fugitive dust emissions, sources of dust emissions, and mitigation options to reduce dust emissions.

Information compiled in the final report, and figures created for the report, will be submitted to the Dust Audit Committee for verification and approval prior to release. The intent is that information you share, and the maps created will be shared with Baffinland.

Your participation in this study is voluntary and your identity will not be disclosed in the final report. Nunami Stantec recognizes that the information you share belongs to you and is provided only for the purposes set out above. You have the right to withdraw from the committee at any time before the report is submitted to Baffinland, without penalty and have all your information deleted.

Informed Consent signatures:

I agree to be interviewed by a representative of Nunami Stantec Limited so that information about present and potential future dust sources and recommendations for mitigation at the Mine Site, Milne Inlet, Tote Corridor and Milne Port can be recorded.

I understand that the interview will be recorded by audio recorder or video camera, and that photos may be taken.

Signature of Interviewee _____

Date _____

Signature of Interviewer _____

Date _____

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Appendix B 2024 Site Visit Itinerary

Baffinland Dust Audit Itinerary: Site Visit – DRAFT

Dates April 23 - 26.

Day 1 - Travel	
Various times	<ul style="list-style-type: none"> • Stantec arrive at the Mine Site • Community Participants arrive on Dornier and Community Flights • BIM escort and bus pickup at airport for Dornier flight
Day 2	
7:00 – 8:00 am	Breakfast at Sailivik Camp
8:30 – 9:15 am	Dust Audit Committee Kick-Off Meeting and Safety Review
Location: MSC Training Room	<ul style="list-style-type: none"> • Review Itinerary, confidentiality, purpose of audit. • Size and fit all for PPE.
9:15-9:30 am	Break
9:30 - 10:30 am	Dust Audit Committee
Location: MSC Training Room	<ul style="list-style-type: none"> • Presentation from Baffinland: Steensby Update.
10:30 - 11:30 am	Dust Audit Committee
Location: MSC Training Room	<ul style="list-style-type: none"> • visuals to outline current mitigations and updates as per recommendations
11:30 am-1:00 pm	Lunch at Sailivik Camp
1:15-3:30 pm	Dust Audit Committee
Location: Site	<ul style="list-style-type: none"> • Site tour around crushing facility. • Travel by small bus and trucks to complete visit.
3:30-3:45 pm	Break
3:45-5:00 pm	Dust Audit Committee
Location: MSC Training Room	<ul style="list-style-type: none"> • Discussion of site tour / questions regarding current mitigations and updates.
5:00 pm	Wrap up / Dinner at Sailivik
Day 3	
7:00 – 8:00 am	Breakfast at Sailivik Camp
8:30-10:30 am	Dust Audit Committee
Location: MSC Training Room	<ul style="list-style-type: none"> • Internal discussion regarding recommendations.
10:30-10:45 am	Break
10:45 - 11:45 am	Dust Audit Committee
Location: MSC Training Room	<ul style="list-style-type: none"> • Discussion of implemented recommendations seen thus far
11:45 am-1:00 pm	Lunch at Sailivik Camp
1:15-3:15 pm	Dust Audit Committee
Location: Mine Site	<ul style="list-style-type: none"> • Site Tour: visit the nearest dust monitoring station. Also see any other implemented recommendations. • Travel by small bus and trucks to complete visit
3:15-3:30 pm	Break

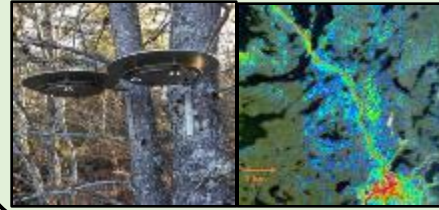
3:30-5:00 pm	Dust Audit Committee	<ul style="list-style-type: none">• Technical team update and close out meeting; update on status of other in-progress recommendations as responded to by Baffinland August 2023
<i>Location: MSC Training Room</i>		
5:00 pm	Wrap up / Dinner at Sailivik	
Day 4 – Travel		
<u>Flight out Schedule</u>		
Various Times	Community Participants and Stantec to fly home	

Appendix C NRCan Presentation

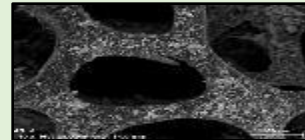
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5. • 2015-2016 2017-2018 2019-2020 2021-2022 2023-2024 2025-2026 2027-2028 2029-2030 2031-2032 2033-2034 2035-2036 2037-2038 2039-2040 2041-2042 2043-2044 2045-2046 2047-2048 2049-2050 2051-2052 2053-2054 2055-2056 2057-2058 2059-2060 2061-2062 2063-2064 2065-2066 2067-2068 2069-2070 2071-2072 2073-2074 2075-2076 2077-2078 2079-2080 2081-2082 2083-2084 2085-2086 2087-2088 2089-2090 2091-2092 2093-2094 2095-2096 2097-2098 2099-2100 2101-2102 2103-2104 2105-2106 2107-2108 2109-2110 2111-2112 2113-2114 2115-2116 2117-2118 2119-2120 2121-2122 2123-2124 2125-2126 2127-2128 2129-2130 2131-2132 2133-2134 2135-2136 2137-2138 2139-2140 2141-2142 2143-2144 2145-2146 2147-2148 2149-2150 2151-2152 2153-2154 2155-2156 2157-2158 2159-2160 2161-2162 2163-2164 2165-2166 2167-2168 2169-2170 2171-2172 2173-2174 2175-2176 2177-2178 2179-2180 2181-2182 2183-2184 2185-2186 2187-2188 2189-2190 2191-2192 2193-2194 2195-2196 2197-2198 2199-2200 2201-2202 2203-2204 2205-2206 2207-2208 2209-2210 2211-2212 2213-2214 2215-2216 2217-2218 2219-2220 2221-2222 2223-2224 2225-2226 2227-2228 2229-2230 2231-2232 2233-2234 2235-2236 2237-2238 2239-2240 2241-2242 2243-2244 2245-2246 2247-2248 2249-2250 2251-2252 2253-2254 2255-2256 2257-2258 2259-2260 2261-2262 2263-2264 2265-2266 2267-2268 2269-2270 2271-2272 2273-2274 2275-2276 2277-2278 2279-2280 2281-2282 2283-2284 2285-2286 2287-2288 2289-2290 2291-2292 2293-2294 2295-2296 2297-2298 2299-2300 2301-2302 2303-2304 2305-2306 2307-2308 2309-2310 2311-2312 2313-2314 2315-2316 2317-2318 2319-2320 2321-2322 2323-2324 2325-2326 2327-2328 2329-2330 2331-2332 2333-2334 2335-2336 2337-2338 2339-2340 2341-2342 2343-2344 2345-2346 2347-2348 2349-2350 2351-2352 2353-2354 2355-2356 2357-2358 2359-2360 2361-2362 2363-2364 2365-2366 2367-2368 2369-2370 2371-2372 2373-2374 2375-2376 2377-2378 2379-2380 2381-2382 2383-2384 2385-2386 2387-2388 2389-2390 2391-2392 2393-2394 2395-2396 2397-2398 2399-2400 2401-2402 2403-2404 2405-2406 2407-2408 2409-2410 2411-2412 2413-2414 2415-2416 2417-2418 2419-2420 2421-2422 2423-2424 2425-2426 2427-2428 2429-2430 2431-2432 2433-2434 2435-2436 2437-2438 2439-2440 2441-2442 2443-2444 2445-2446 2447-2448 2449-2450 2451-2452 2453-2454 2455-2456 2457-2458 2459-2460 2461-2462 2463-2464 2465-2466 2467-2468 2469-2470 2471-2472 2473-2474 2475-2476 2477-2478 2479-2480 2481-2482 2483-2484 2485-2486 2487-2488 2489-2490 2491-2492 2493-2494 2495-2496 2497-2498 2499-2500 2501-2502 2503-2504 2505-2506 2507-2508 2509-2510 2511-2512 2513-2514 2515-2516 2517-2518 2519-2520 2521-2522 2523-2524 2525-2526 2527-2528 2529-2530 2531-2532 2533-2534 2535-2536 2537-2538 2539-2540 2541-2542 2543-2544 2545-2546 2547-2548 2549-2550 2551-2552 2553-2554 2555-2556 2557-2558 2559-2560 2561-2562 2563-2564 2565-2566 2567-2568 2569-2570 2571-2572 2573-2574 2575-2576 2577-2578 2579-2580 2581-2582 2583-2584 2585-2586 2587-2588 2589-2590 2591-2592 2593-2594 2595-2596 2597-2598 2599-2600 2601-2602 2603-2604 2605-2606 2607-2608 2609-2610 2611-2612 2613-2614 2615-2616 2617-2618 2619-2620 2621-2622 2623-2624 2625-2626 2627-2628 2629-2630 2631-2632 2633-2634 2635-2636 2637-2638 2639-2640 2641-2642 2643-2644 2645-2646 2647-2648 2649-2650 2651-2652 2653-2654 2655-2656 2657-2658 2659-2660 2661-2662 2663-2664 2665-2666 2667-2668 2669-2670 2671-2672 2673-2674 2675-2676 2677-2678 2679-2680 2681-2682 2683-2684 2685-2686 2687-2688 2689-2690 2691-2692 2693-2694 2695-2696 2697-2698 2699-2700 2701-2702 2703-2704 2705-2706 2707-2708 2709-2710 2711-2712 2713-2714 2715-2716 2717-2718 2719-2720 2721-2722 2723-2724 2725-2726 2727-2728 2729-2730 2731-2732 2733-2734 2735-2736 2737-2738 2739-2740 2741-2742 2743-2744 2745-2746 2747-2748 2749-2750 2751-2752 2753-2754 2755-2756 2757-2758 2759-2760 2761-2762 2763-2764 2765-2766 2767-2768 2769-2770 2771-2772 2773-2774 2775-2776 2777-2778 2779-2780 2781-2782 2783-2784 2785-2786 2787-2788 2789-2790 2791-2792 2793-2794 2795-2796 2797-2798 2799-2800 2801-2802 2803-2804 2805-2806 2807-2808 2809-2810 2811-2812 2813-2814 2815-2816 2817-2818 2819-2820 2821-2822 2823-2824 2825-2826 2827-2828 2829-2830 2831-2832



ՀԵՐԱՆՈՒՅԵՐԻ ՄԱՍԻՆ ԵՐԱՅԵՐԻ ՄԱՍԻՆ

መፈገግጅት ለጋራው ጥራትና ለጋራው ጥቅም (NRCan)
ለህግ ለጥራትና ለጥቅም ለጋራው ጥራትና ለጋራው ጥቅም

- [illegible]



ክፍል ሙሉ ስራዎችን ለማግኘት የሚያስፈልጉትን ክፍል ለማግኘት?

ጋራ ስራዎችን ለማግኘት የሚያስፈልጉትን ክፍል ለማግኘት:

- ከሙሉ ስራዎች/ሰራተኛዎች ለማግኘት የሚያስፈልጉትን ክፍል ለማግኘት:
 - ከሙሉ ስራዎች ለማግኘት የሚያስፈልጉትን ክፍል ለማግኘት
 - ሙሉ ስራዎችን ለማግኘት የሚያስፈልጉትን ክፍል ለማግኘት
 - ሙሉ ስራዎችን ለማግኘት የሚያስፈልጉትን ክፍል ለማግኘት
 - ሙሉ ስራዎችን ለማግኘት የሚያስፈልጉትን ክፍል ለማግኘት
- ጋራ ስራዎችን ለማግኘት የሚያስፈልጉትን ክፍል ለማግኘት
- ሙሉ ስራዎችን ለማግኘት የሚያስፈልጉትን ክፍል ለማግኘት



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Ressources naturelles
Canada

Canada

[illegible]

- $C \wedge \text{ኢንፎርጋንስ}$
 $\wedge \text{ኢንፎርጋንስ}$ $\wedge \text{ኢንፎርጋንስ}$
- ኢንፎርጋንስ $C \wedge \text{ኢንፎርጋንስ}$
 ኢንፎርጋንስ $\Delta \wedge \text{ኢንፎርጋንስ}$
 $\wedge \text{ኢንፎርጋንስ}$
- $\Delta \wedge \text{ኢንፎርጋንስ}$ $\Delta \wedge \text{ኢንፎርጋንስ}$
 $\Delta \wedge \text{ኢንፎርጋንስ}$
 $\Delta \wedge \text{ኢንፎርጋንስ}$
 $\Delta \wedge \text{ኢንፎርጋንስ}$
 $\Delta \wedge \text{ኢንፎርጋንስ}$
- $\Delta \wedge \text{ኢንፎርጋንስ}$ $\Delta \wedge \text{ኢንፎርጋንስ}$

- ነፍሱን ለሰውነቱ ለማስጠበቅ ለሚያስፈልግ የሆኑ ስሜቶችን ለማግኘት ለሚችልበት ሁኔታ ለማድረግ
- ለሰውነቱ ለማስጠበቅ ለሚያስፈልግ የሆኑ ስሜቶችን ለማግኘት ለሚችልበት ሁኔታ ለማድረግ
- ለሰውነቱ ለማስጠበቅ ለሚያስፈልግ የሆኑ ስሜቶችን ለማግኘት ለሚችልበት ሁኔታ ለማድረግ
- ለሰውነቱ ለማስጠበቅ ለሚያስፈልግ የሆኑ ስሜቶችን ለማግኘት ለሚችልበት ሁኔታ ለማድረግ

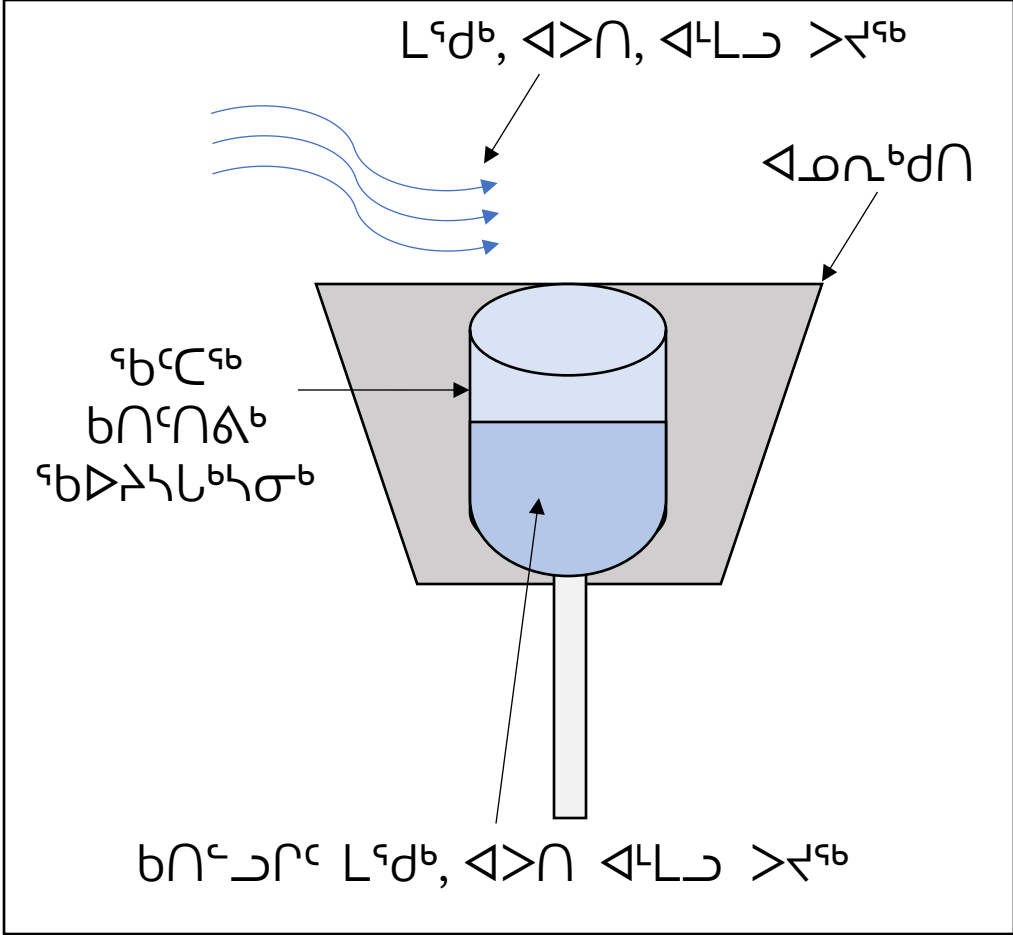
- $\Delta^{\circ}\Gamma^{\circ}\zeta\epsilon\tau\alpha\sigma^{\circ}\rfloor$ $\Delta\beta\epsilon\eta\eta^{\circ}$
($\triangleright\epsilon\zeta\beta\epsilon\tau\alpha\delta^{\circ}\Gamma$ $\triangleright\epsilon\beta\eta\sigma^{\circ}\beta$, $\triangleleft\eta^{\circ}\Gamma^{\circ}\epsilon\rfloor$)
- $\epsilon\beta\triangleright\eta\epsilon\beta\eta\triangleright\epsilon\sigma$ $\triangleright\epsilon\eta\eta\eta\epsilon\beta\eta\epsilon\sigma\triangleright\Gamma$
 $\Delta\sigma\triangleright\epsilon\Gamma^{\circ}$ $\triangleright\epsilon\eta\eta\eta\epsilon\beta\eta\sigma$
 $\epsilon\beta\triangleright\eta\epsilon\delta\triangleright\sigma^{\circ}$ ($\triangleleft\epsilon\triangleright\triangleright\epsilon\Gamma^{\circ}$
 $\epsilon\rho\Gamma^{\circ}\rho^{\circ}\epsilon\sigma\triangleright\Gamma$ $\triangleright\epsilon\epsilon\sigma^{\circ}$
 $\omega\triangleright\epsilon\eta\epsilon\beta\eta\sigma^{\circ}\rfloor$ $\Gamma^{\circ}\epsilon\triangleright\epsilon\epsilon\epsilon\sigma^{\circ}$)
- $\triangleleft\triangleright\epsilon\sigma^{\circ}\Gamma^{\circ}\sigma$ $\epsilon\beta\triangleright\eta\Gamma^{\circ}\epsilon\epsilon\sigma\triangleright\sigma$
 $\Delta\beta\epsilon\epsilon\sigma\triangleright\epsilon\rfloor$ $\epsilon\beta\triangleright\eta\epsilon\triangleright\eta\Gamma^{\circ}$
 $\triangleright\epsilon\epsilon\triangleright\eta\epsilon\triangleright\eta\epsilon\sigma\triangleright\Gamma$
- $\triangleright\epsilon\triangleright\Gamma^{\circ}\epsilon\eta\eta\epsilon\sigma\triangleright\sigma$ $\Gamma^{\circ}\omega\triangleright\epsilon\Gamma$
 $\omega\triangleright\epsilon\eta\epsilon\beta\eta\sigma^{\circ}\rfloor$ $\wedge\epsilon\eta\triangleleft\epsilon\eta\epsilon\rfloor$
 $\epsilon\beta\triangleright\eta\epsilon\triangleright\eta\Gamma^{\circ}\sigma^{\circ}$

[illegible]

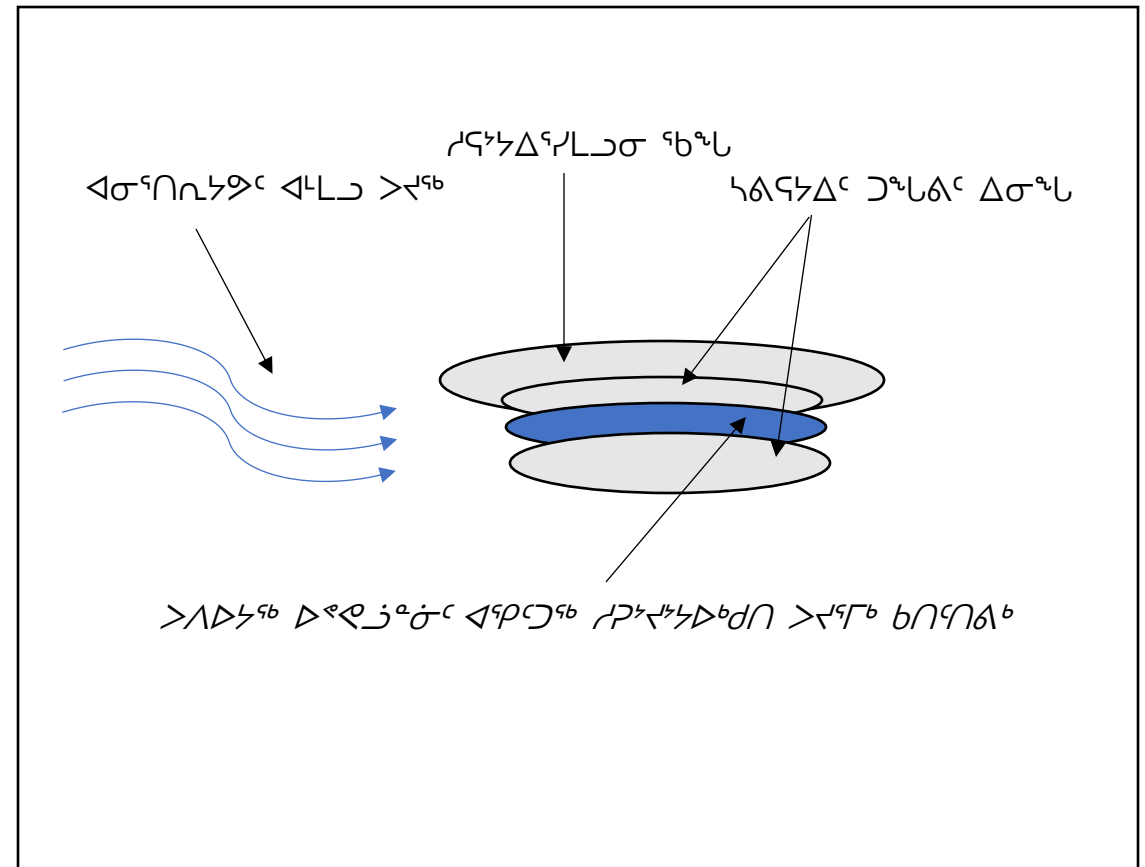
[illegible]

- ᐅᓃᐅᓯᐅᔪᑦ ᐱᓃᐅᓴᓴᐅᔪᑦ ᐭᓵᓯᓇᐅᒻᑦ:**

Հանրահայտ (1): Հանրահայտ > Բնական



➤ ሂሳብ ማረጋገጥ (2): ለጥያቄው የሚገባውን የጥሬ ምርት (Pas-DD)



◁▷በጊዜ ኖኔፕላኒና



ኖልዶሃዎዊ ኖርጋር ልብሆሜ ኃረፍ ለኃደረ፣ ካልናኑኖሆሆር
ላሊ ለርኖሆሆሆሆር ላሊ ለፖሆሆሆሆር ልሊፖርረር ለዎኖር።

በህይወት ድረጃ ለጥናት የሚያገለግሉ ንጹህነቶች

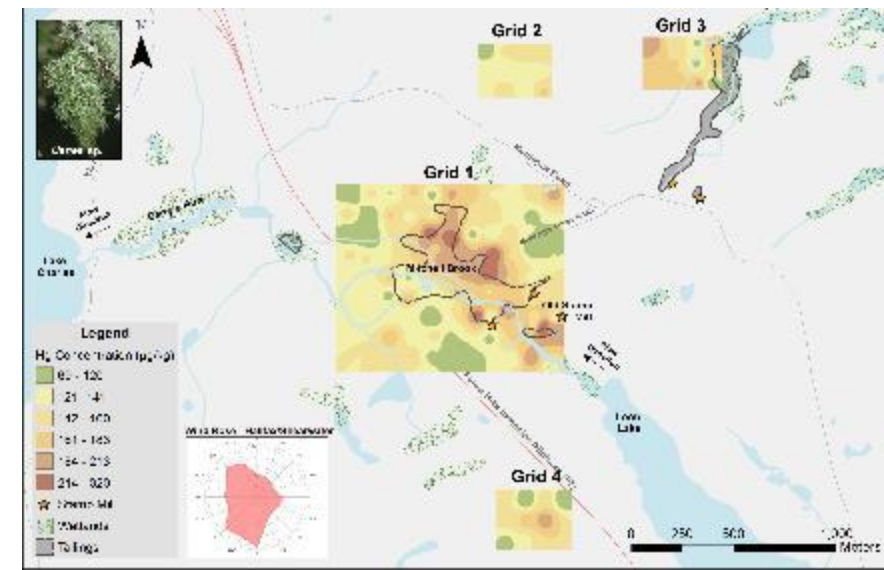
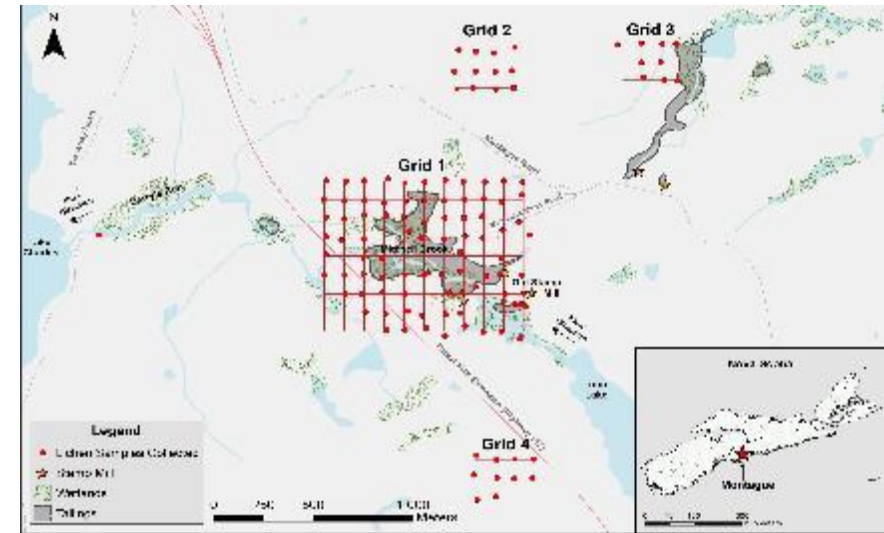
በጥንቃቄ



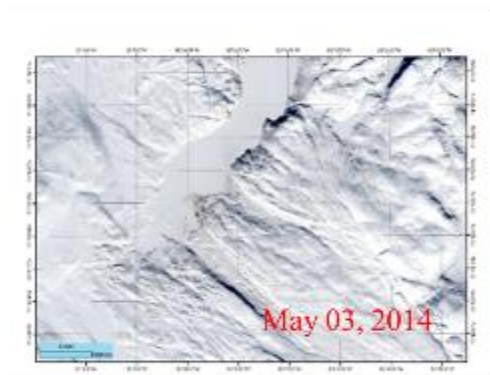
የሕይወት በጥንቃቄ



ወደፊትም ይቆያል፣ ንጹህነታችንን ማስጠበቅ ለጥናትም፣ ለሕይወትም በህይወት ድረጃ ለሕይወትም ይረዳል፡ የጥናታችን ልሳሴዎች ለወጣታችን? ወደፊትም ይቆያል፣ ንጹህነታችንን ማስጠበቅ ለጥናትም፣ ለሕይወትም በህይወት ድረጃ ለሕይወትም ይረዳል፡ የጥናታችን ልሳሴዎች ለወጣታችን?



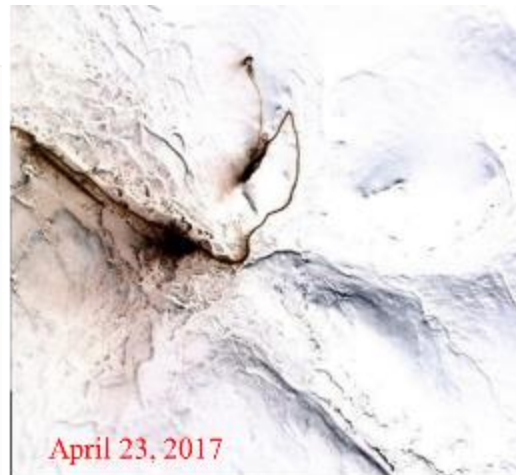
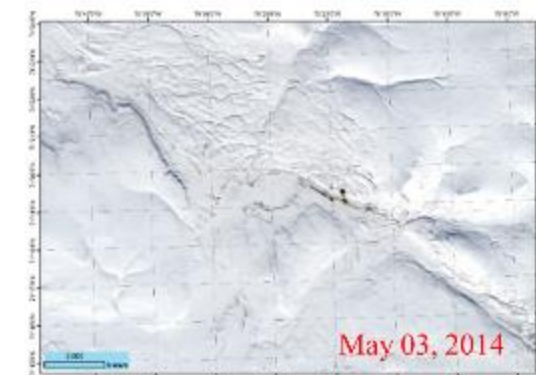
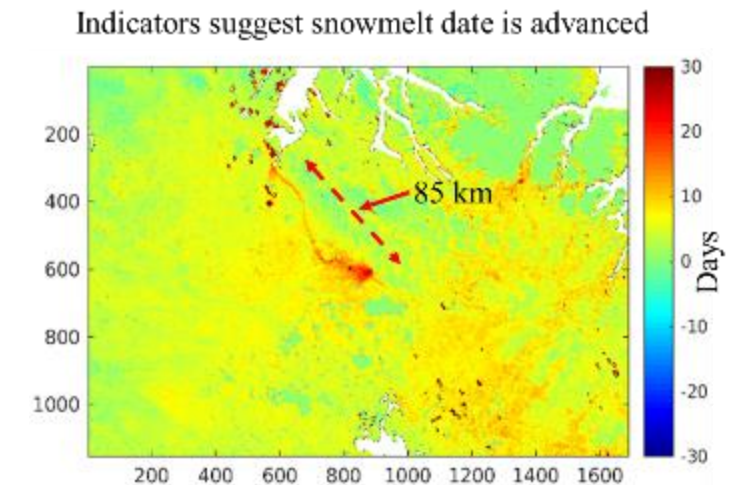
ጥናት፣ 2021

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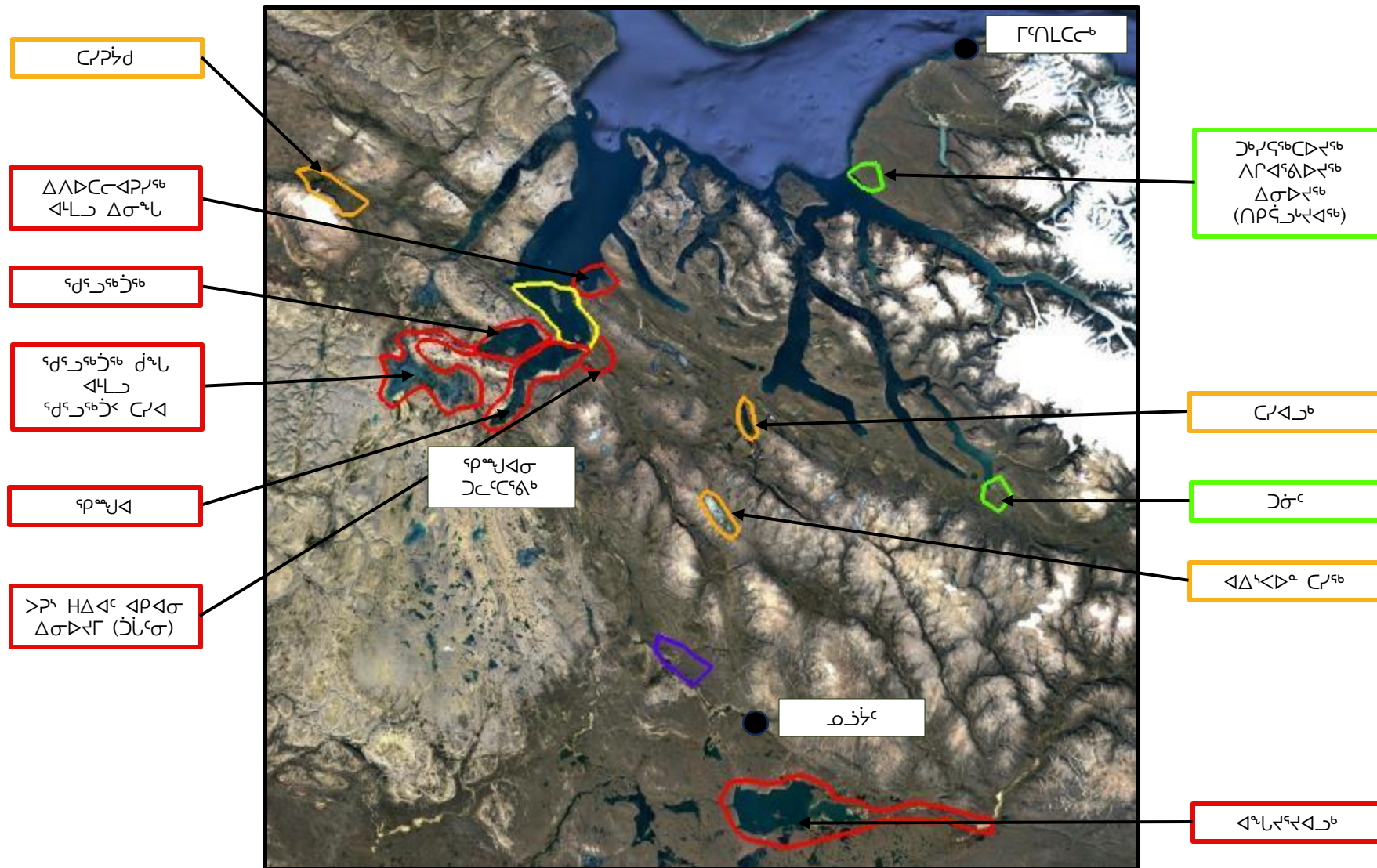
ᐱᓗᕈᓂᕐᒃ ᑕᑦᑎᓕᑎᓚᓕ ᐃᓄᑭᓚᓄᓐ ᐤᓄᓕᓕᓄᓐ ᑕᑦᑎᓕᑎᓚᓕ ᐃᓄᓕᓕᓄᓐ ᑭᓚᓕᓕᓕᓄᓐ ᓴᓄᓄᓄᓚᓄᓐᑭᓚᓄᓐ.






ደጋፊ ልማት ሆኖ ለ ርኅረካ ጥያቄዎች የሚያስፈልጉ ርዕደ ለውጥ
ፍቃድ ለሕግ ልማት ምክር ቤት ማቅረብ ይቻላል፡፡

ᐃᓕᓴᓂᐅᓄᐅ ᐸᓇᓴᓴᓂᐅᓄᐅ
(Landsat)

[illegible]

ᐃᓕᓴᓂᐅᑦ ᓂᓈᓴᓂᐅᑦ (MODIS)

[illegible]

- 
 $\Delta\sigma\triangleright^c \wedge^L L\triangleright^c \triangleleft^L \omega$
 $\triangleright^c\sigma^b \subset\triangleright^b\subset\triangleright^c\sigma^b$
 $\omega\subset^c\Gamma\triangleright\subset\sigma^b$
- 
 $\triangleright^c\sigma^b \subset^c\omega\omega\omega\omega\omega\omega \Delta\sigma\triangleright^c$
 $\cap\triangleright\cap\subset\triangleright^b\triangleright^b$
- 
 $\Delta\sigma\triangleright^c \wedge^L L\triangleright^c, \triangleright^c\Gamma$
 $\subset\sigma^b \omega\omega\omega\omega\omega\omega\subset\triangleright^c\omega^c\omega^b,$
 $\rho\triangleleft\sigma \omega\triangleright^c\cap^b\omega^c\sigma^b$
 $\cap\subset\triangleright\omega\triangleright\triangleright^c\omega^b$
- 
 $\triangleright^c\sigma^b \subset^c\omega\sigma$
 $\Delta\omega\omega\omega\omega\omega\omega\omega^c\omega^b$
- 
 $\wedge^L L\triangleright^c\omega^b$
 $\subset\triangleright^c\omega\omega\omega^b\subset\omega\omega\omega\omega\omega\omega\omega$
 $\Delta\omega^c\omega$

ዕዳረፍ ልባዎሮ ለኃይረ ድጋፊ፡
 ልዕረፍ ለኖባሎጥጥ ዕድሮችና፡
<http://ihtl.ca/eng/place-names/pn-goog.html>
 ዕዳረፍ ልባዎሮ ድጋፊና፡ ርዕሰ ጉዳይ፡

Proposed Field Work for April 2024

- NRCan will deploy passives and collect snow samples at 15 of Baffinland's 43 dust sampling locations
- Additionally, 12 community-based sampling locations in the Milne Inlet, Koluktoo Bay and Robertson River will be targeted with a local guide for snow sampling
- Passives at these community-based sites will be installed in the Summer
- Pictures of the area will be taken for Satellite Imagery Validation

Proposed Community Sites



We are seeking feedback and thoughts from community members on these locations



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Ressources naturelles
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ፋፕጋጦፋፊፅ



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HPeter.White@NRcan-RNcan.gc.ca

ፍጥነት ይገኛል!!

Canada

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Proposed Field Work for April 2024



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Status Update on NRCan's Proposed Dustfall Monitoring Project: Overview of the Collaborative Development of a Research Proposal

Philippa Huntsman, Amy Cleaver (CanmetMINING), H.Peter White, George Choma (Canada Centre for Remote Sensing), Peter Unger (Office of Chief Scientist), Natural Resources Canada

Dust Audit Committee—February 2024

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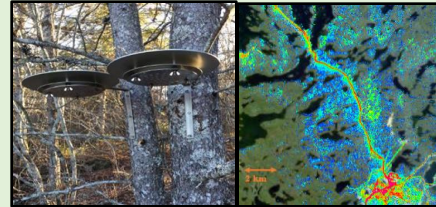
Introduction to NRCan Fugitive Dust Research Program

Who are we?

- Proposing a tri-lateral project (between NRCan, Mittimatalik Community Members and Baffinland) to investigate the dust at Mary River
- Goal to bridge Western Science, Industry Monitoring and Inuit Qaujimajatuqangit

Objectives

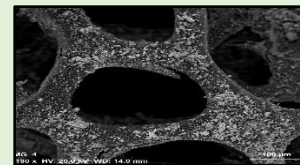
1. Evaluate new dust monitoring techniques



3. Investigating dust in the environment



2. What's in the dust?



4. Bridging Western Science with Inuit Qaujimajatuqangit



5. Inform impact assessment and mine dust management



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Engagement to Date with Mittimatalik Community Members



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Ikaarvik



Top Image: Eric Soloman-Ikaarvik
Bottom Image: Justin Milton-Ikaarvik



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What did NRCan learn?

Questions and concerns raised by Mittimatalik community members:

- **What does the dust contain?**
 - **Are there heavy metals?**
- How it affects
 - **Plants (accumulation)**
 - Animals
 - **Water quality**
 - Humans
- Sediments and fish spawning
- **Rate of snow/ice melt**
- **Inuit are observing dust where industry techniques do not detect it (below detection levels)**
- Lack of baseline studies (IQ can be used as the baseline)
- Changing the experience on the land affects Inuit identity
 - Cultural impacts, traditional food impacts
 - Is snow when travelling safe and palatable to drink?
 - Mental health impacts: uncertainty, concern

Bold= Overlap with NRCan's skill set



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Photo Credits: Eric Soloman-Ikaarvik

Engagement to Date with Baffinland

Interactions between NRCan and Baffinland

- Presented at TEWG June 2022
 - Gave an overview of our research at other sites
- Site Visit in April 2023
 - Helicopter Tour of the Site (mine site, tote road, Milne Inlet to Bruce Head)
 - Tour of stockpiles and crusher
 - Walked a dust sampling transect along the Tote Road
- Presented at TEWG December 2023
 - Gave overview of our proposed research at Mary River
- Baffinland has reviewed the draft research proposal and continues to meet with NRCan to help with field logistics



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What did NRCan learn?

Challenges raised by Baffinland Employees:

- Industry Standard/Recommended Method is:
 - Not designed for Arctic conditions
 - Not adequately sensitive
 - Not highly transportable or practical
 - Unable to perform detailed dust characterization studies
- Challenges accessing sites year-round
- Open to trying new techniques



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Tri-Lateral Approach to Research

Goal: Inclusive and fuller understanding of Mine Dust around Mary River

Researchers' Role

- Neutral Third Party
- Research within their scope of knowledge
- Train and build capacity with interested community members
- Oversees the project

Communities' Role

- Drive Research Questions
- Co-design the field program (sampling locations, timing, logistics)
- Participate and lead field work at community chosen locations
- Involvement in interpreting results as desired

Baffinland's Role

- Logistical support (access to mine site, etc.)
- Oversee sampling of onsite sampling locations (to compare dust monitoring techniques)
- Insight on operations to support interpretation of results
- Sharing of current monitoring program results

The team is always open to adapt to suggestions and feedback.



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Current Status:

Applying for a Nunavut Research License

- Reviewed and approved by Nunavut Planning Commission (NPC) and Nunavut Research Institute (NRI)
- Access to Inuit Owned Lands under review

Topics Covered in the Proposal:

1.

Community Guidance



2.

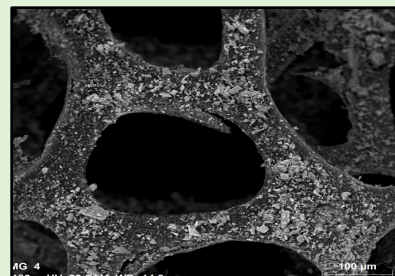
Evaluation of new dust monitoring techniques

(Comparison with industry standard
deployed by Baffinland)



3.

What's in the dust? Are
there heavy metals?



4.

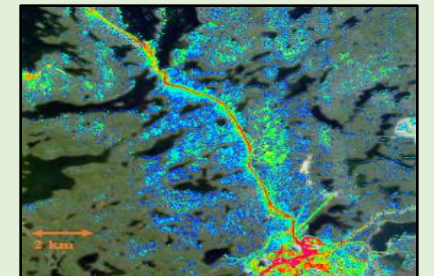
Investigating dust in the
environment

(snow and lichen)



5.

Satellite imagery to
investigate dust distribution
and snow melt

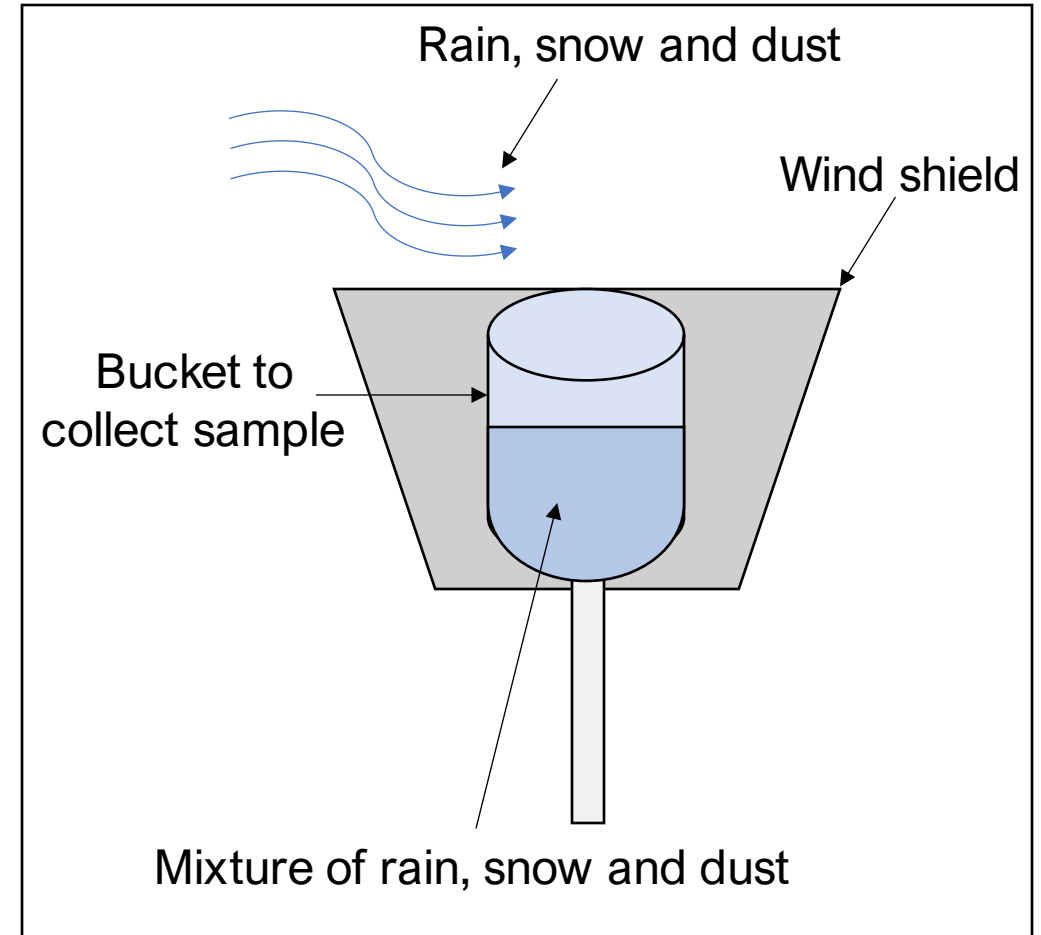


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Dust Monitoring Device (1): Dust Canisters

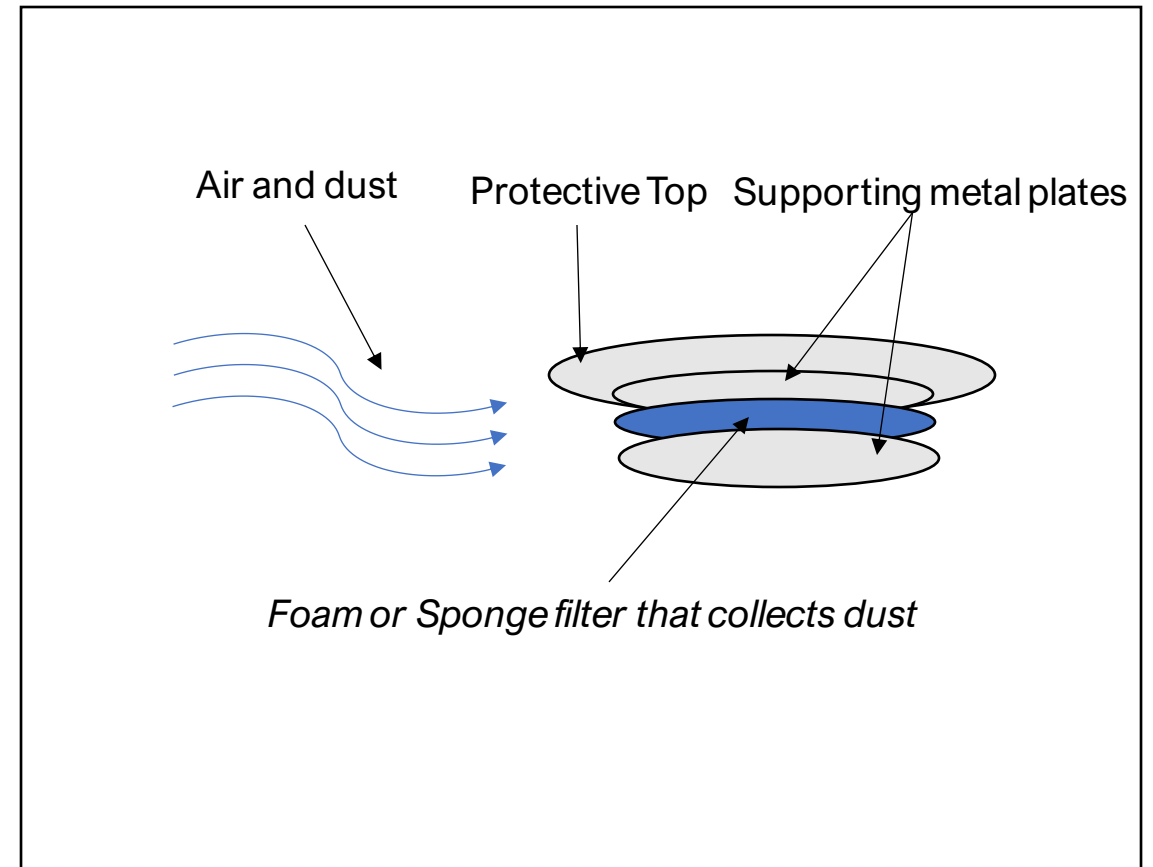


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Dust Monitoring Device (2): Passive Dry Deposition Collectors (Pas-DD)

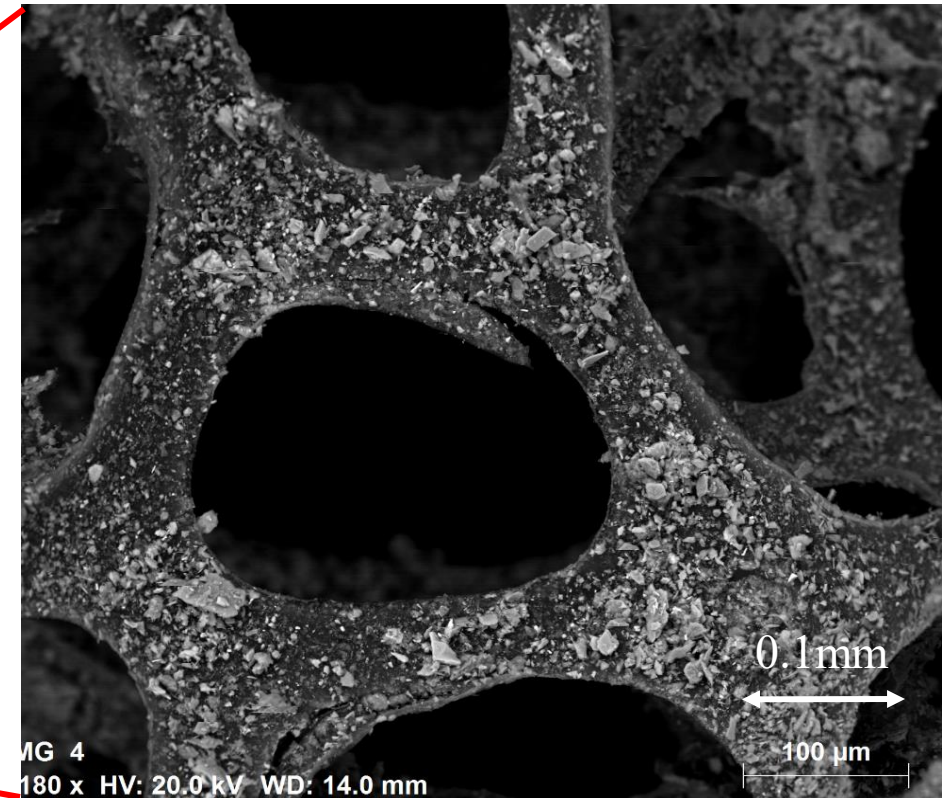
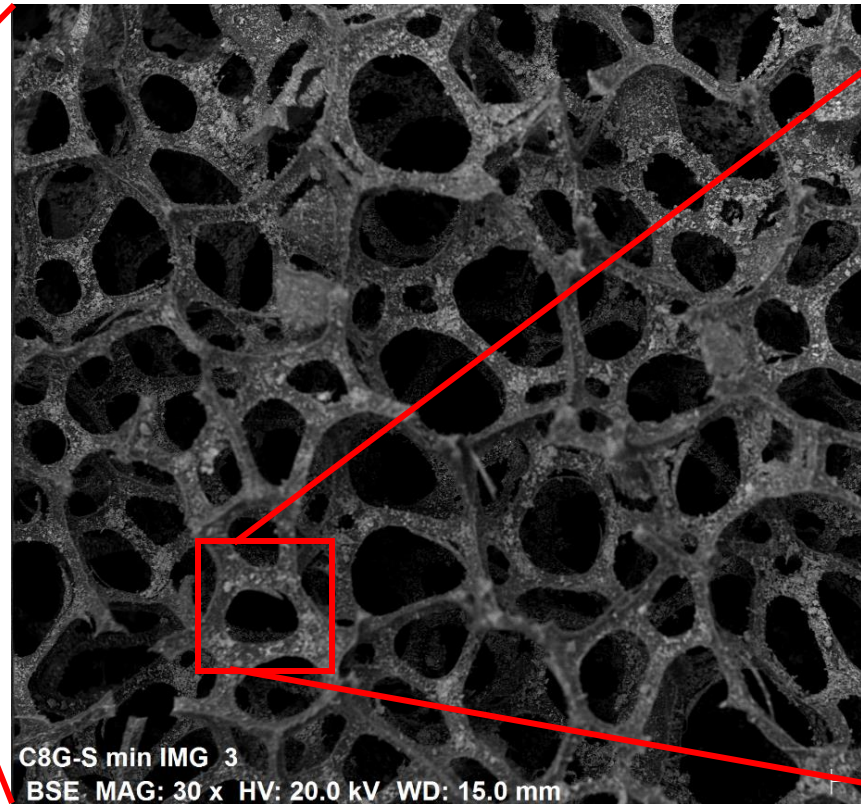
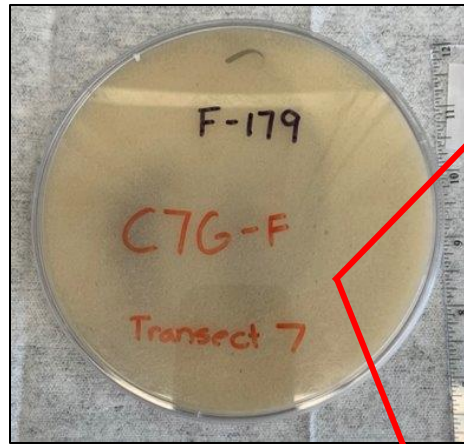


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Information gathered from the Filters



We can look at filters under microscopes to determine the compound hosting the metals or elements of concern.



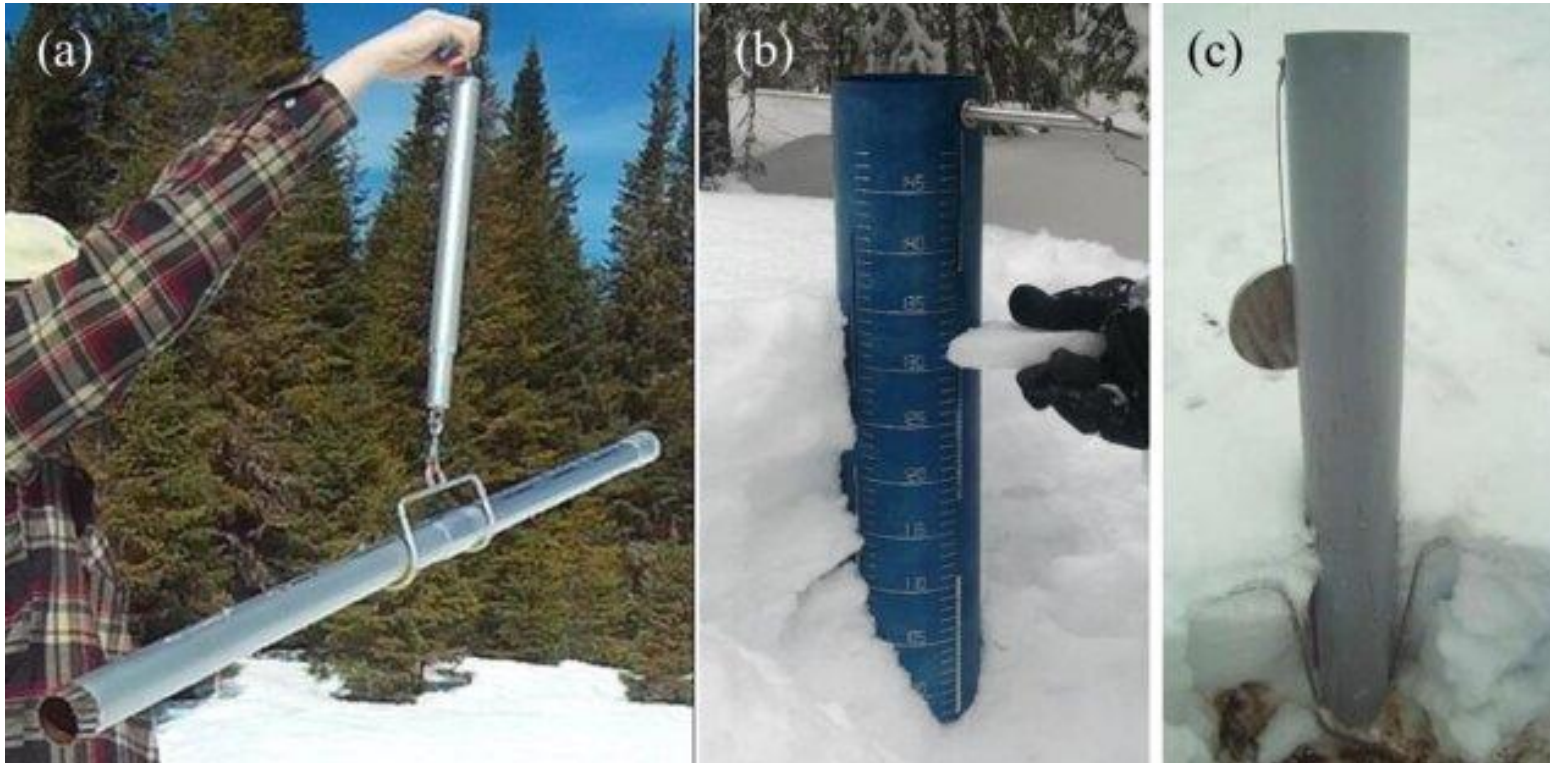
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How Can This Support Evaluation of Environmental Effects?

Snow Sampling



<https://doi.org/10.5194/tc-16-3199-2022>

We can measure the amount of dust captured, metal concentrations and the presence and abundance of algae.



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Lichen or Vegetation Survey

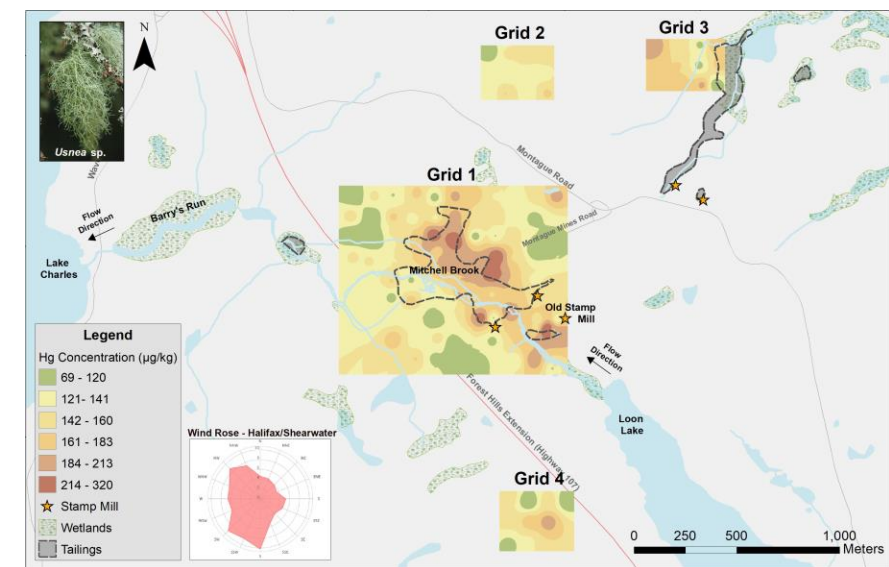
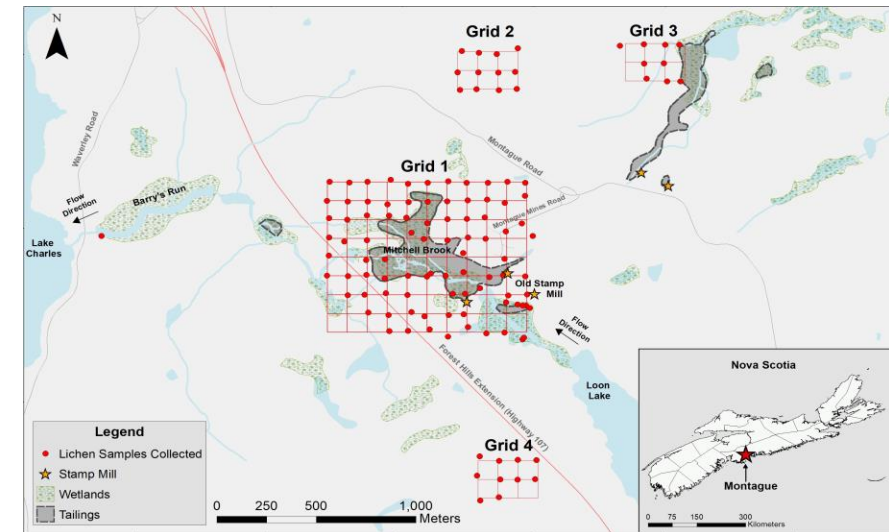
Old man's beard



Varied rag lichen



At sites in Nova Scotia, we measured metal concentrations in the tissue of different lichen species and mapped the spatial patterns. Explore the potential for either broadleaf vegetation or lichen study.



Smith, 2021

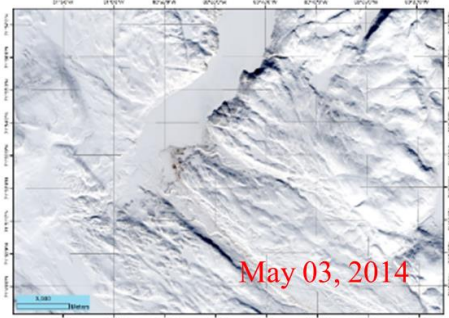


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Remote Sensing: Imagery of the area is freely and openly available from many sites

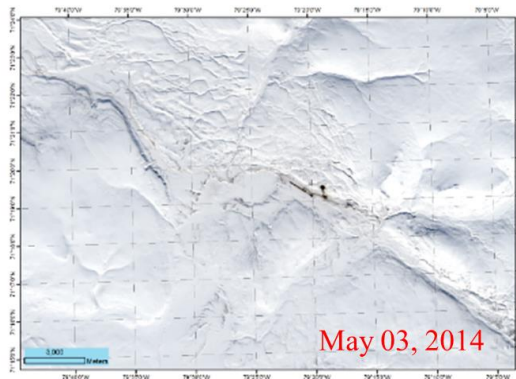


Imagery from orbital sensors are freely and openly available.

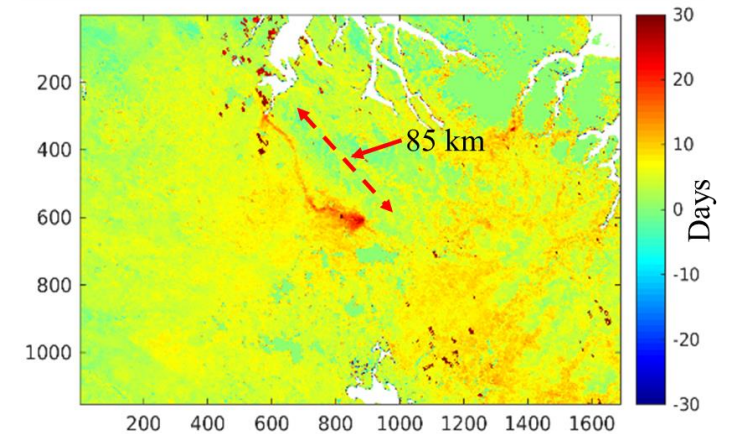
Imagery shows areas of lower albedo correlated with mining activity.

Validation of how this lower albedo relates to dust dispersion in the environment is required.

From Landsat Imagery



Indicators suggest snowmelt date is advanced



From MODIS imagery

Images were enhanced for visualization and the colors are not accurate.

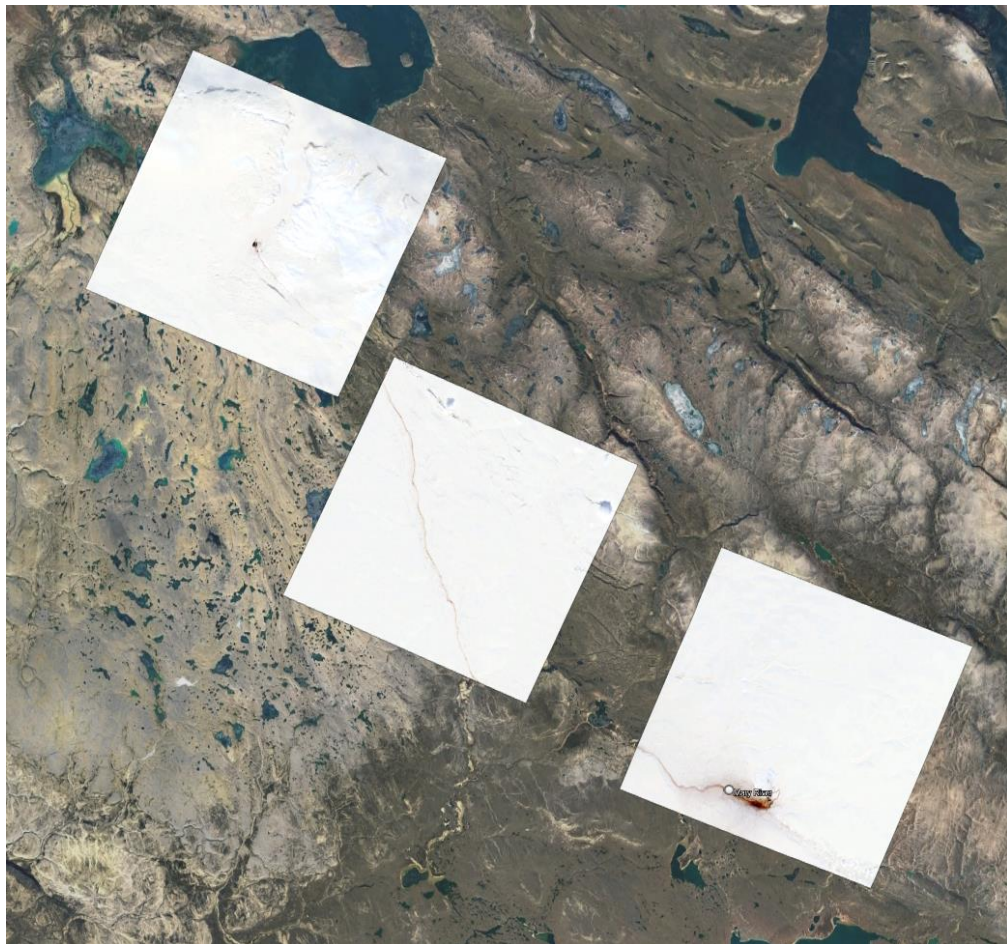


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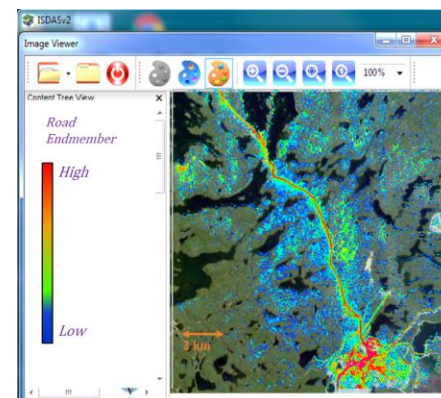
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Remote Sensing: New Sensors are providing increased detail



EnMAP Hyperspectral acquisitions:
Mary River Mine and Milne Port, April/May 2023

- With new orbital sensors, separation of low albedo areas from dust-on-snow versus shadow becomes possible
- Detecting the spectral signature of dust and relating that to quantity of dust on the surface requires field validation
- We will follow the protocols used at the Ekati Diamond Mine to highlight the spectral signature of dust and research how to extract that signature from the imagery in this environment



Ekati Mine and Misery Road. Left: Chris-on-Proba imagery analysis. Right: Landsat imagery analysis

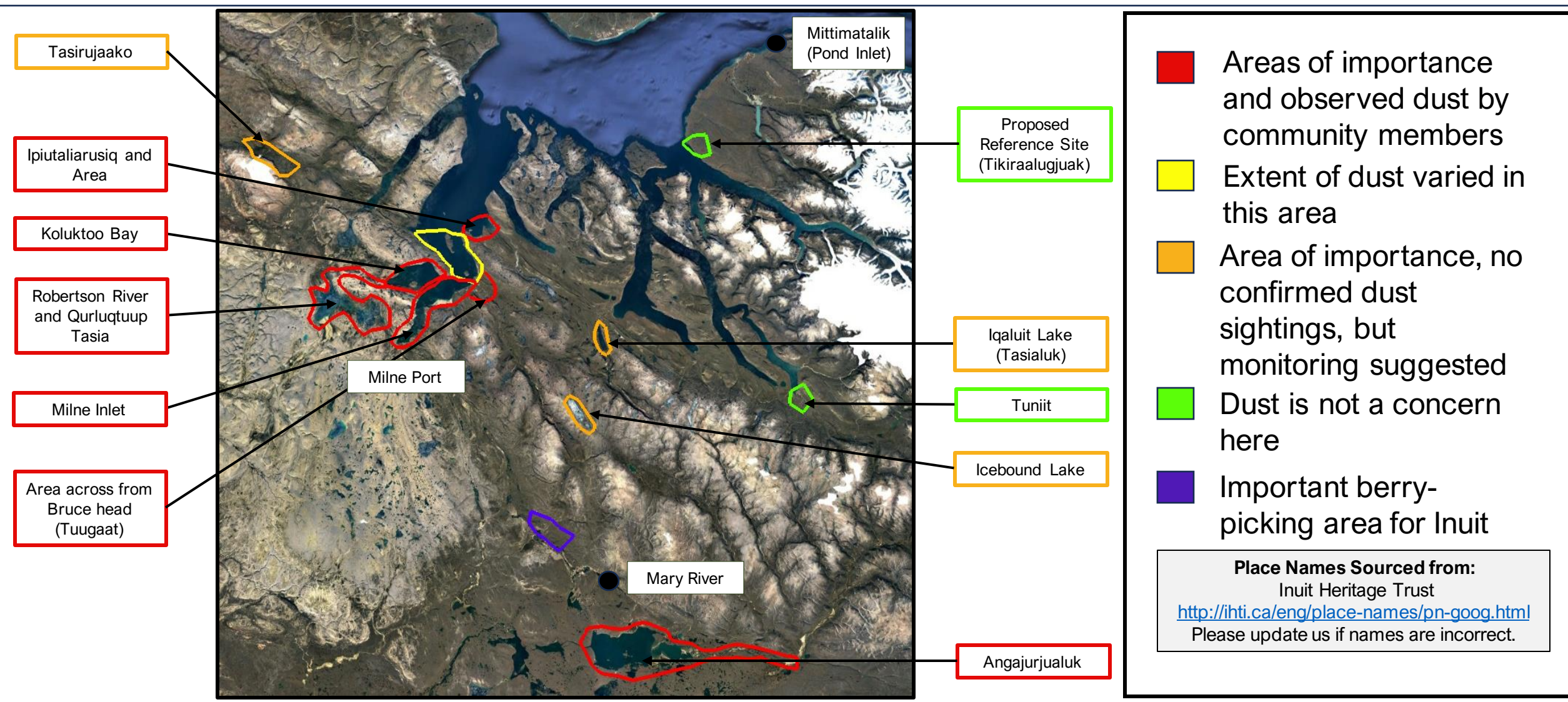


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Proposed Sampling Location Zones based on Inuit Qaujimajatuqangit



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Proposed Field Work for April 2024

- NRCan will deploy passives and collect snow samples at 15 of Baffinland's 43 dust sampling locations
- Additionally, 12 community-based sampling locations in the Milne Inlet, Koluktoo Bay and Robertson River will be targeted with a local guide for snow sampling
- Passives at these community-based sites will be installed in the Summer
- Pictures of the area will be taken for Satellite Imagery Validation

Proposed Community Sites



We are seeking feedback and thoughts from community members on these locations



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Next Steps

- Planning the first field work session to be in April 2024
 - Working with MHTO, Ikaarvik and Baffinland to finalize field logistics
- Identifying community members interested in being involved in the project
- NRCan plans to develop a research agreement with communication and data sharing plans which are tri-lateral in nature

Contact



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Qujannamiik!!



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Proposed Field Work for April 2024



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Appendix D Intrinsic Presentation

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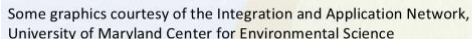
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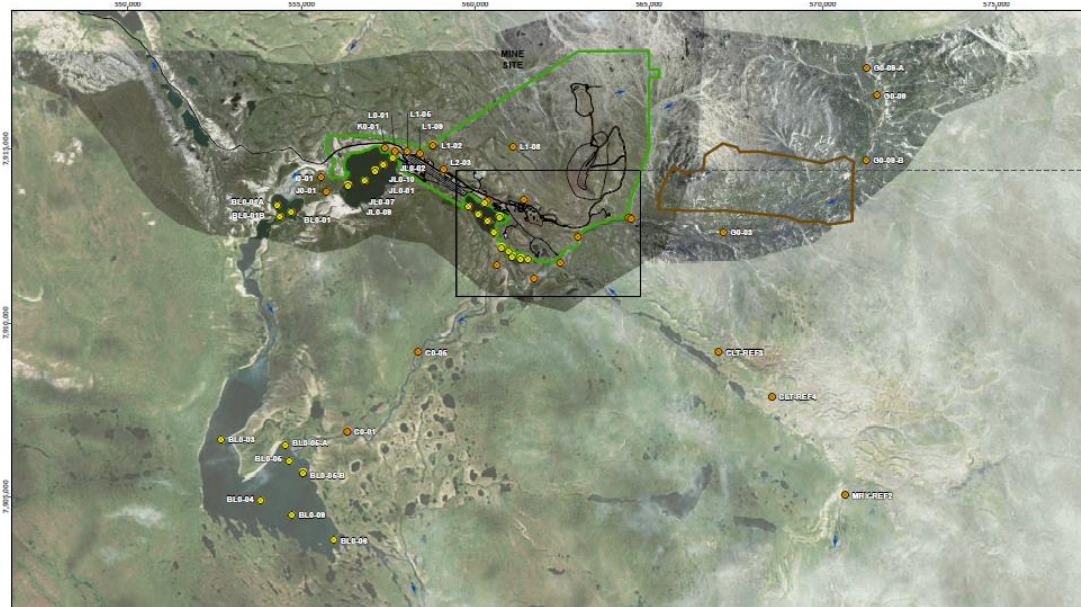


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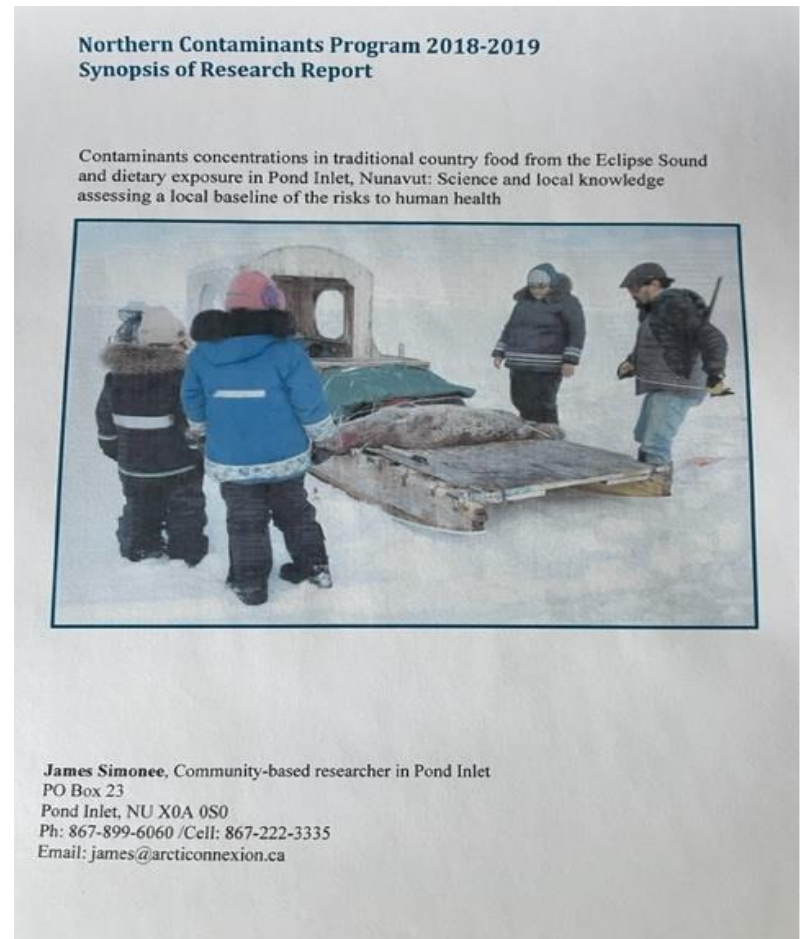
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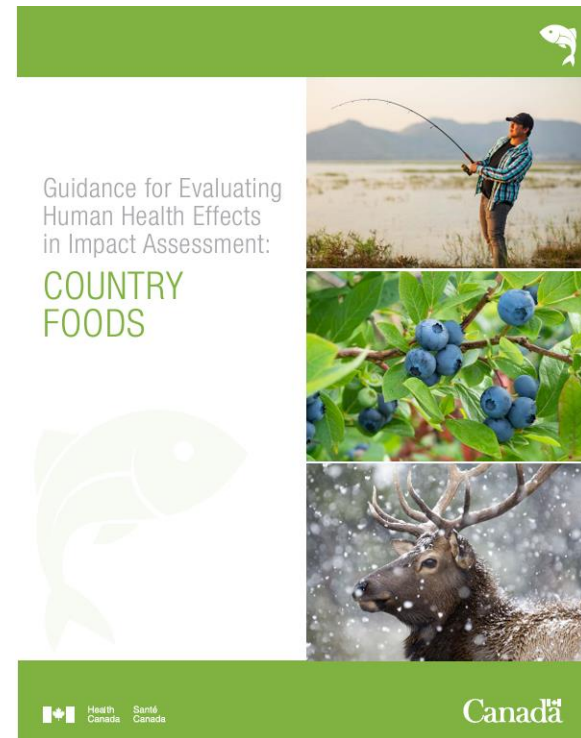
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- ለጤና ምክንያት ለሚጠቀሙ ሕዝቦች ማፍፀሚያ ማረጋገጥ ለሚጠቀሙ ሕዝቦች ማረጋገጥ ማረጋገጥ
- ሕዝቦች ለሚጠቀሙ ሕዝቦች ማረጋገጥ ማረጋገጥ ማረጋገጥ
- ሕዝቦች ለሚጠቀሙ ሕዝቦች ማረጋገጥ ማረጋገጥ ማረጋገጥ
- ሕዝቦች ለሚጠቀሙ ሕዝቦች ማረጋገጥ ማረጋገጥ ማረጋገጥ



σ^qρ^cℓ^cĈ^c Δ^cĈ^qℓ^qρ[<]Ĉ^c σ_ℓρ^c?

- [illegible]

የግልጽ ጥያቄ ማሟላት ማረጋገጥ -
የጥያቄው ማረጋገጫ ማረጋገጥ

- $\mathcal{M} \models \Box(\Box A \rightarrow A) \rightarrow \Box A$
 \wedge $\mathcal{M} \models \Box(A \rightarrow B) \rightarrow (\Box A \rightarrow \Box B)$
 \wedge $\mathcal{M} \models \Box A \rightarrow \Box \Box A$
- $\mathcal{M} \models \Box A \rightarrow A$
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- $\mathcal{M} \models \Box A \rightarrow A$
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$$\Delta_{\mathcal{D}}\Delta^C \triangleleft^a \sigma \triangleleft^{fb} \sigma^b \subset \Delta_{\mathcal{C}} \mathcal{L} \sigma^a \mathcal{I}^a_{\mathcal{D}} \mathcal{D}^C$$



Human Health Risk Assessment of:

Water, Snow and Country Foods near the Baffinland Mary River Project

Presentation to the Dust Audit Committee

December 5, 2024

Presented by: Bart Koppe, Intrinsik

Presentation Outline

- Background on Intrinsic (“who we are”)
- Objectives
- Information we relied on
- Key findings
- Monitoring programs

What is Intrinsic?

- Environmental and health consulting firm (independent of Baffinland)
 - Specialize in assessing the risks of chemical exposures to human health and the environment
- 40-year history
- Private, independent company with staff across Canada and the United States
- We have worked in all provinces and Territories of Canada, and internationally in many countries
- We work for industry, all levels of government, and Indigenous communities across the country

Who are we?

- Team of scientists, with three senior staff leading the assessments:
 - Each with 25+ years of experience assessing the risks to human health and the environment from different contaminants
- Intrinsic Team:
 - Christine Moore – experience in northern projects (including mining), environmental monitoring, human health and ecological risk assessment
 - Claire McAuley – experience working for Indigenous communities on country food assessments and reviewing mining projects for communities
 - Bart Koppe – experience working with Indigenous communities, northern projects, environmental monitoring, human health and ecological risk assessment, health impact assessment

What did Intrinsic do for Baffinland?

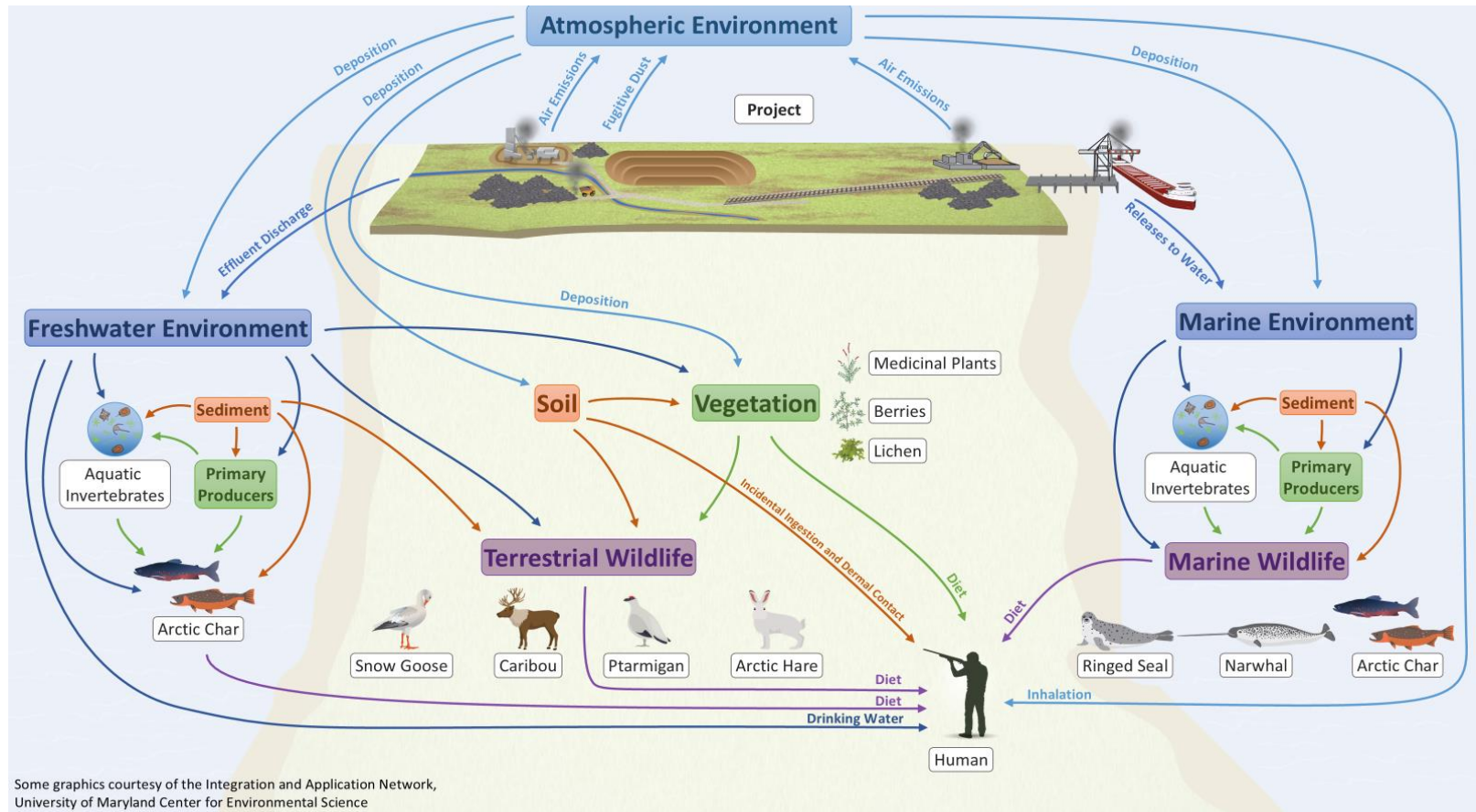
- Country Foods Human Health Risk Assessment
- Assessment of monitoring data, such as surface water data and snow meltwater data
- Review of scientific reports and studies

Objectives / Key Questions

- Is the lake water and snow meltwater safe to drink or use for tea?
- Are country foods safe to eat?

Interconnected Risk Model

Land, water, air, animals and people ... everything is connected

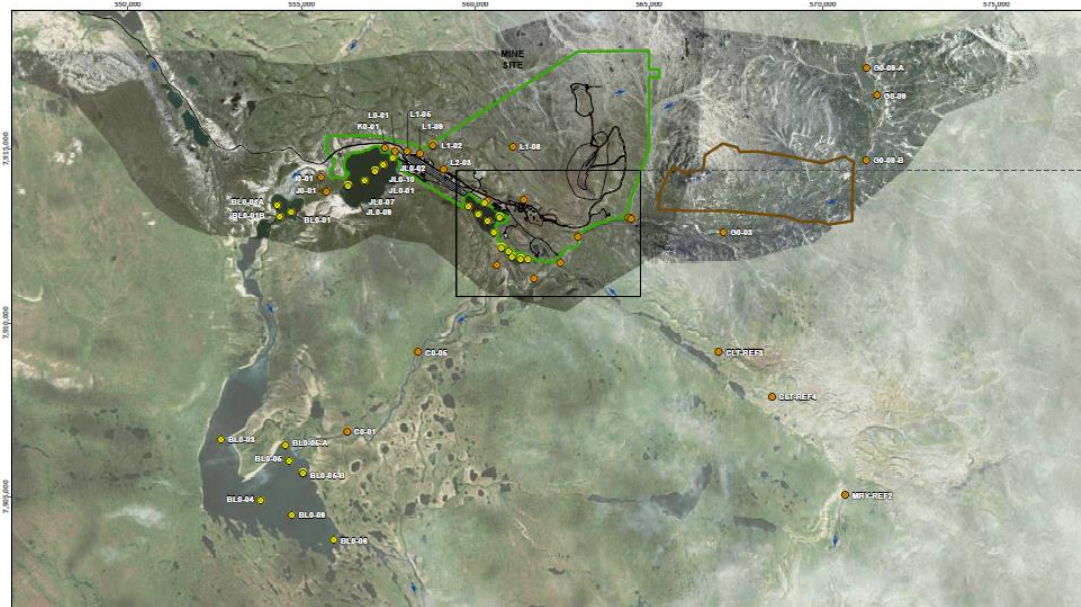


Some graphics courtesy of the Integration and Application Network,
University of Maryland Center for Environmental Science

What we sampled ...

Surface water quality monitoring data from areas close to and far away from the Mine.

Locations have been monitored since before the Project started.



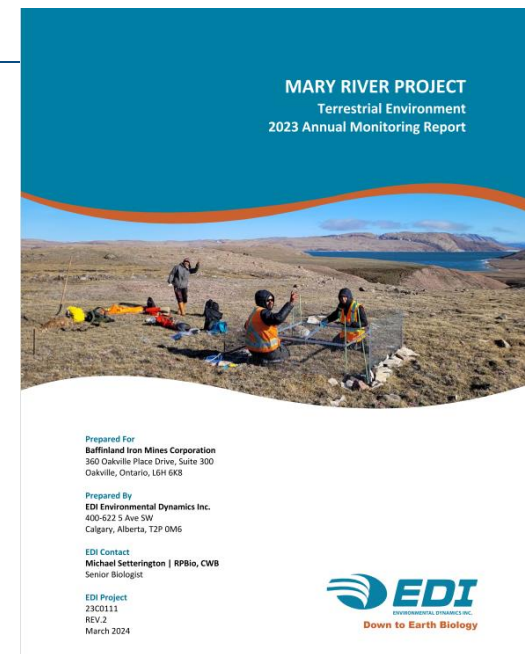
2023 Water Quality Data

- Camp Lake
- Mary Lake North
- Sheardown Lake North
- Mary River
- Tom River
- Tributaries
- Milne Port (raw intake water)

Total = 61 stations

What we sampled ...

Dustfall data from near and far sampling locations, as well as soil and lichen data



- Collected by EDI – Mine, Milne Port and Tote Road
- In 2023, 49 passive dustfall collectors
- Results from stations nearest to active operations were selected to characterize dust composition
- Deposition data used in exposure model

What we sampled ...

Snow samples from the Mine, Tote Road and Milne Port for the snow meltwater assessment



2023 program included the same locations as previous years, with the **additions** of a transect across Tote Road (5) and traditional use locations at the Mine Site (3) and Milne Port (5)

Also included reference sites

Sampling locations (totals):

- Milne Port = 11
- Mine = 10
- Tote Road = 7

What we sampled ...

Country Foods (muscle and organs)

Sources: Combination of scientific literature and shared report

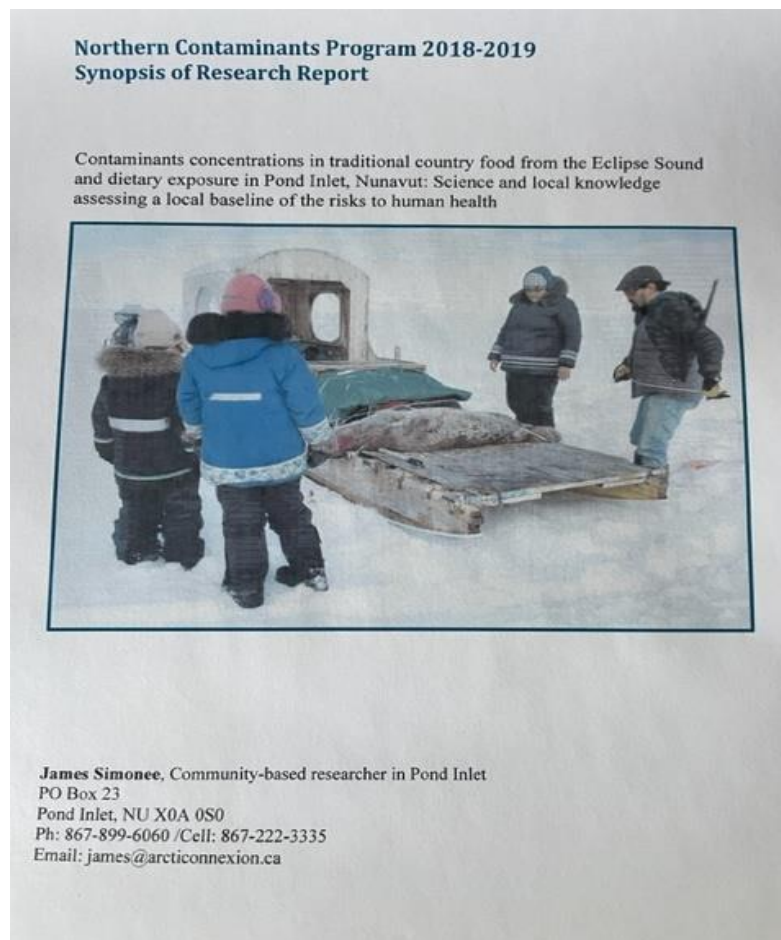


Sample sizes:

- Arctic hare (n = 9)
- Caribou muscle (n = range 88 to 220)
- Caribou organ (n = range 43 to 78)
- Ptarmigan (n = 46)
- Arctic char
 - Freshwater (n = 69)
 - Marine (n = 8)
- Narwhal (n = 11)
- Ringed seal
 - Liver (n = range 12 to 26)
 - Muscle (n = 26)

Other information we used ...

Community based sampling studies
and scientific publications



Is the water safe to drink?



Water concentrations were compared to Canadian Drinking Water Quality Guidelines:

- Maximum Allowable Concentrations (health-based)
- Aesthetic Objectives (odour and taste based)

Guidelines are based on continuous consumption (daily over a lifetime)

Findings:

- Water samples often did not have measurable concentrations of contaminants
 - More than half the contaminants were undetectable
 - Mercury was undetectable in all samples
- Of the 61 locations:
 - 7 had water samples that could have a different taste or colour (iron)
 - 2 had water samples with concentrations higher than the MAC Guideline
- Health risks are very low

Results of snow meltwater sampling ...

- Compared to Canadian Drinking Water Guidelines
- Most of the parameters were below Guidelines
 - Milne Port = 18/22
 - Mine Site = 18/22
 - Tote Road = 19/22
- Occasional exceedances of health-based guidelines in locations close to the Mine site, Milne Port and Tote Road
 - Milne Port = 1 location (aluminum)
 - Mine Site = none
 - Tote Road = 2 locations (aluminum and manganese)
- Occasional exceedances of the aesthetic objectives at the same locations
 - Milne Port = 4 locations (aluminum, manganese and iron)
 - Mine Site = 2 locations (aluminum, manganese and iron)



Is snow meltwater safe for tea?

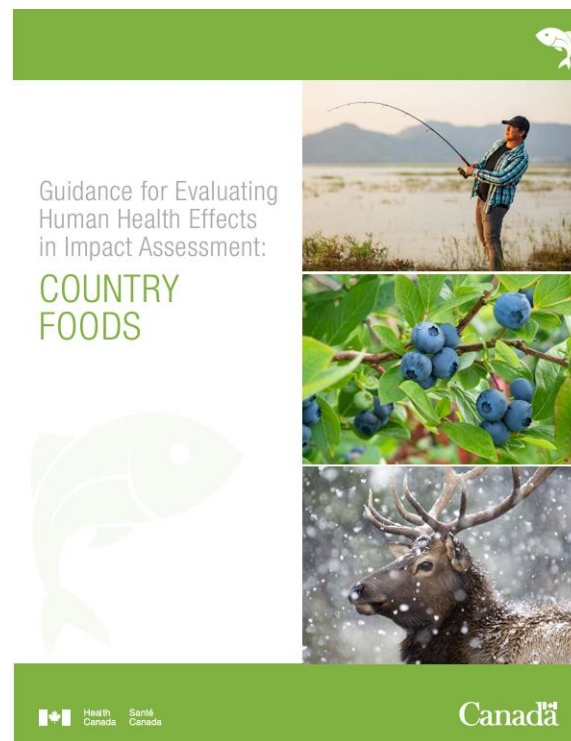
- Snow samples from inside the operational areas at Milne Port and the Mine Site had higher concentrations (compared to locations further away)
- For Tote Road, concentrations of metals were highest in samples collected closest to the road.
- All the traditional use locations added in 2023 had concentrations below health-based guidelines

Yes, the snow water is safe to use for tea.



Are country foods safe to eat?

- Human health risk assessment followed Health Canada guidance
- Combination of measured data and modelled data
- Focus was on the potential changes associated with dust
- Findings were consistent with results and conclusions from other researchers in the region

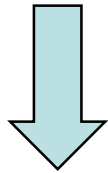


Are country foods safe to eat?

- Country foods are an important and safe source of nutrients in North Baffin Island
- Some risks are higher for people who eat organs or meats of certain animals, but this is **not related to Project dust**:
 - Caribou organs (cadmium)
 - Seal liver (mercury / cadmium)
 - Narwhal (mercury)
- Mercury is not associated with dust from the Mine. Mercury is a global pollutant which comes to the Arctic through long range air transport, as well as naturally occurring sources.
- Cadmium is also naturally occurring in rocks, and is commonly found in organ meats across the country. The assessment indicates contributions from mine dust are very small.

Next Steps – Monitoring Programs

- Terrestrial monitoring program (soil, lichen, dustfall)
- Marine monitoring program (sediment, surface water, fish)
- Freshwater monitoring program (surface water)
- Snow meltwater monitoring program
- Fish health monitoring program (pending collaboration with community)



Human Health

