



Nunavut Research Institute

License Holder Reporting requirements

For research undertaken in the 2024 calendar year (commencing January 01, 2024 and ending December 31, 2024)

Project Title:

Air Quality and Climate Monitoring

Project Leader(s): Full name, affiliation, and contact information (address, phone number, email) of each project leader (principle investigator and co-PIs)

Nunami Stantec Limited
Greg Johnson
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Tel: (902) 468-7777

Project Team: Full name, affiliation, and address (name of city/community and province/territory/state) of each member of the project team

Dan Jarrett, Burnaby, BC
Greg Johnson, Saint John, NB
Douglas Rimmer, Fredericton, NB
Jonas Arreak, Pond Inlet, NU
Justin James, Lethbridge, AB
Danijela Stojanovic, Calgary, AB
Tom Williamson, Saskatoon, SK
Rachel Noddle, North Bay, ON
Liam Guenther, Winnipeg, MB
Kathleen Meszaros, Revelstoke, BC
Gilliam McLean, Torbay, NL
Jessy St. Amour, Montreal QC
Brendan MacNeill, Wolfville, NS
Samuel Immaroitok, Igloolik, NU
Ronnie Komangapik, Pond Inlet, NU

Abstract: A concise summary of what was done, found, and concluded to date, and how the results/information will be used. This summary must be translated into the appropriate dialect of Inuktitut. Suggested length: 250-300 words. ***This section will be published in the NRI's annual compendium of licensed research**

In 2024, Baffinland Iron Mines Corporation (Baffinland) retained Nunami Stantec to manage and compile the data for the Air Quality and Climate Monitoring Program. The program consists of the following components:

A. Three meteorology stations were continually operational at Milne Port, Mine Site, and Steensby Port. The meteorology stations monitored the following parameters: precipitation (rain), temperature, wind speed, wind direction, solar radiation, barometric pressure, and humidity.

B. Continuous ambient air quality monitoring for SO₂, NO_x and NO₂ at Port Site Complex (PSC) and the Mine Site Complex (MSC) in accordance with Project Certificate No. 005 issued by the Nunavut Impact Review Board (NIRB), Conditions #7 and #8.

C. Continuous ambient air quality monitoring for total suspended particulates (TSP) and respirable particulates 2.5 µm in diameter and less (PM_{2.5}) at the PSC and MSC.

The results of the Air Quality and Climate Monitoring Program will be published in Baffinland's 2024 Annual Report to the Nunavut Impact Review Board (NIRB).

Key messages: Concise, plain language summary of key take-away messages of work to date, findings and conclusions. Preferably 3-5 points, in bullet form.

Findings and conclusions are still being analyzed. A plain language executive summary will be available in the 2024 NIRB Annual Report that will be published in spring 2025.

Objectives: Project objectives, preferably in bullet form.

The Air Quality and Climate Monitoring Program's objective is to monitor and analyze meteorological and ambient air quality data from the Mary River Project Site.

Annual activities: A description of activities and methods carried out during the current reporting period. This section should answer the questions: What? Where? When? Who? How? Include dates team members conducted research at remote field sites or collected data (including interviews) in communities; append a map with locations and/or coordinates of remote field sites, if applicable.

The Baffinland Environment Team checked ambient air quality data on a daily basis. In addition, the Baffinland Environment Team inspected the ambient air quality monitors weekly. Nunami Stantec receives monthly data downloads for both ambient air quality and meteorological data. Nunami Stantec calibrated the ambient air quality monitors quarterly and maintained the meteorology stations as needed throughout the year.

Results and Achievements: Findings and results to date of the above activities, highlighting any key research achievements (see guide below for formatting tips regarding tables and figures).

The data of the 2024 monitoring program is currently being analyzed. Preliminary results will be available in the spring of 2025 and will be published in Baffinland's Annual Report to the NIRB.

Challenges/Obstacles: In this section, please comment on any challenges/obstacles (if any) that you experienced during this project year. If there were any actions to mitigate or resolve these challenges, please list them here. Were any concerns raised regarding the conduct of research team members or the impacts of the project?

The Steensby Port meteorology station is in a remote location. The station is powered by a photovoltaic solar system. Due to the limited sunlight available during the winter months, the station was unable to power up, and data was lost. In addition, the equipment at the Steensby Port meteorology station was vandalized, further contributing to the loss of data.

Expected Project Completion Date: Provide month and year of expected completion date of the project.

December 2024

Project website (if applicable): If your project has a presence on the internet, including a website and/or social media page, please provide the link and/or account handle.

URL: <https://www.baffinland.com/media-centre/document-portal/>

Citations: Please append a complete reference list if citations are used anywhere in the document.

POLICY RELEVANCE

Does this research support policy development or decision-making in Nunavut? If yes, please describe.

In accordance with existing Terms and conditions of the Nunavut Impact Review Board (NIRB) project Certificate (PC) 005 Baffinland is responsible for the establishment and implementation of Air Quality and Noise Abatement Management Plan, which includes detailed information on Baffinland's project effects monitoring programs that are conducted over a sufficient time to meet the following objectives:

- a. Measure the relevant effects of the Project on the Atmospheric environment.
- b. Confirm that the project is being carried out within the terms and conditions relating to the protection of the Atmospheric environment.
- c. Assess the accuracy of the predictions contained in the Final Environmental Impact Statement (FEIS) for the project.

RESEARCH OUTCOMES: BENEFITS

Community engagement: Briefly list and describe any community consultation, engagement, collaboration and outreach activities that you have undertaken for the project; describe the role(s) that community members and/or specific organizations have played in research co-design and activities.

N/A

Youth engagement: Briefly list and describe any outreach, school or classroom activities that you have undertaken for the project; describe the role(s) that youth have played in your research activities.

N/A

Training and Employment:

How many Nunavummiut received training from team members? Please describe training and/or compensation provided.

Nunavummiut participants received training from team members on the ambient air quality monitors and meteorology stations.

How many team members received training from Nunavummiut? Please describe training received and/or what knowledge sharing and/or skills exchange took place.

Nunavummiut participants shared information and knowledge with team members in an informal capacity over the duration of the program.

How many Nunavummiut received employment? Please describe employment type and length, role(s) and responsibilities, and compensation provided.

The Nunavummiut participants were Baffinland (3) and QIA employees (3).

How many Nunavummiut received honoraria as research participants? Please describe method of participation (interview, observation, sample, survey, etc.), including compensation provided.

Same as above

Please explain how the project directly benefited Nunavut organizations and/or businesses (e.g., through contract services, local purchases, equipment donations, etc.)

OPTIONAL: Nunavut Team Members, hires, and/or trainees (excluding research participants e.g., interviewees)

The NRI is creating an inventory of Nunavummiut who are skilled and/or interested in research. The information provided below will not be shared publicly but will support long-term capacity sharing by connecting local and visiting researchers with research talent in each community.

Name	Expertise/skills	Training/interest areas	Contact Info	Community

Academic Mobility

If you are affiliated with an academic institution, please answer the following question: For which Level of Project(s) will the data be used? (Check all that may apply)

- ☐ Research
- ☐ Post-Doctoral Research
- ☐ PhD Thesis
- ☐ Masters (Major Research Paper)
- ☐ Masters (Thesis)
- ☐ Graduate Course Project
- ☐ Staff/Administration Research
- ☐ Undergraduate Honours Thesis

Other

BUDGET

Please complete the table below to detail your projected and actual research expenditures during the reporting period.

Category	Planned/Approved Expenditure	Actual Expenditure
Travel and Accommodation		
Equipment, Materials and Supplies		
Salaries/Wages for Nunavut residents		
Salaries/Wages for non-Nunavut resident researchers		
Professional Fees and services in Nunavut		
Professional Fees and Services outside of Nunavut		
TOTAL EXPENDITURES		

List the total \$ amount of funding from each funding source for your full research program, including in-kind support

N/A

RESEARCH OUTPUTS / REPORTING TOOLS

What research outputs were generated? Please list below and append copies of each. Specify which outputs (if any) may be made public on the NRI research licensing database.

The 2024 Baffinland Annual Report to the NIRB. This will be available in spring of 2025.

Have peer-reviewed manuscripts been published as a result of your project? If Yes,
complete the following table:

Full citation	Publicly accessible/ free to access (Y/N)	Link (if available) and DOI (if available)

If No, do you intend to submit a manuscript (or manuscripts) for peer reviewed publication?

Nunami Stantec has an internal review process, and all monitoring programs are reviewed by the technical members of the Terrestrial Environment Working Groups.

Were non-peer reviewed materials produced to either communicate or synthesize results to the public? Examples of these materials include (but are not limited to): websites, reports, brochures, podcasts, webinars, presentations, non-peer reviewed publications, etc.

If Yes, complete the following table:

Title	Description of Materials	Link (if available)	DOI (if available)
Annual Air Quality, Dustfall and Meteorology Report	Details of Annual Air Quality and Climate Monitoring Program	Yes	https://www.baffinland.com/media-centre/document-portal/
NIRB Annual Report	Detail of all program conducted by Baffinland during the year in r	Yes	https://www.baffinland.com/media-centre/document-portal/

Did your project develop a communications plan? Please describe communications/reporting tools used, and list the target audience for each and/or who requested which.

Through the NIRB review process, we respond to all comments received. We send hard copies and digital copies of NIRB annual report and monitoring reports to the five Hunters and Trapper Associations in th affected communities.

How were Nunavummiut credited and/or acknowledged in all project outputs, such as co-authorship, participant biographies, article acknowledgements, etc.

N/A

DATA AND INTELLECTUAL PROPERTY

Did you enter into a research agreement, data-sharing agreement and/or intellectual property rights agreement with a community and/or designated Inuit organization (DIO)? If yes, please explain.

Do intellectual property rights apply to your research? If yes, please explain.

Stantec owns all copyright including all text, data, tables, figures, drawings published in Annual Air Quality, Dustfall and Meteorology Report

Who owns the data? Has the raw data been shared with the appropriate community and/or DIO? If yes, how? How is data security and storage handled by community-based co-owners?

The data from Baffinland research is owned by Baffinland. Results of the research is shared to community members through the Terrestrial Environment Working Groups. In addition hard copies and soft copies of the Annual and monitoring reports are shared with the communities.

Where is the data stored and will the data be destroyed within a set timeframe?

Baffinland and its consultants store the data, and there is no schedule to destroy the data.

Is the data trackable and/or available in a public data repository? If yes, please provide the appropriate information and/or link to ensure the findability and accessibility of the data.

Results are available at <https://www.baffinland.com/media-centre/document-portal/> but raw data is not available publicly.

Please append a copy of your data management plan.

CLIMATE CHANGE

Is your research about climate change (causes, impacts, mitigation, adaptation, etc.)? If yes, explain.

Although the program does collect data on Greenhouse Gases, this program does not focus on Climate Change.

PHOTOGRAPHS

If possible, please provide high-resolution photos of licensed research activities that NRI may use in communication materials, organizational reporting, and other promotional purposes. The photographer and all recognizable people in each photo must sign the attached Photo and Video Release form. Please also complete the table below for each photo provided and submit to NRI along with all required NRI photo release forms. The photographer/owner will be credited in all uses of the photograph(s).

File Name	Location	Description	Subjects	Photographer/Owner	Date

Would you like your project to be considered for a research profile and promotion by the NRI? **Yes**

FORMATTING TIPS

Main text:

Please supply report in a standard manuscript format (**Microsoft Word format is required**).

Tables:

Any number of tables can appear in one file (as long as they are clearly marked). Tables prepared using simple table formats as provided in word processing programs such as WordPerfect are preferred. Each table should be numbered according to its appearance in the text (e.g., Table 1, Table 2) and each should have a brief descriptive heading.

Figures:

Each figure or graphic element should be submitted as a separate file. Black & white and colour graphics are both acceptable. We can accommodate most standard graphic file formats, however, please indicate in which format the graphic was prepared.

References:

Please use the APA or MLA Citation Style while referencing throughout the report.

Size:

The size of the electronic document must not exceed 4MB (if larger than 4MB, please send attachments separately and number the emails).