August 17, 2020

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Re: IQALUIT-#1286985 Dustfall Concern at the Mary River Project – Follow Up

The following submission from Baffinland Iron Mines Corporation (Baffinland) is a follow-up in response to the August 4, 2020 letter (IQALUIT-#1286985[1]) regarding dustfall concerns at Baffinland's Mary River Project (the Project) from Crown-Indigenous Relations Northern Affairs Canada (CIRNAC). The attached Table 1 provides a summary of CIRNAC's concerns. Baffinland has also detailed responses to these items in Table 1. A summary of Baffinland's previous responses to the NIRB recommendations related to dust from 2015-2019, which are compiled in CIRNAC's letter as Appendix B, is also attached in Table 2 for reference.

Baffinland takes its commitment to protect the environment and to address CIRNAC, Nunavut Impact Review Board (NIRB) and Inuit community members' concerns seriously. Baffinland is aware of the concerns respecting fugitive dust emissions from the Project and has made dustfall mitigation a priority since operations began in 2015. Despite an increase in ore shipment, annual dustfall decreased in 2019 relative to prior years, demonstrating that implemented dust suppression control measures and corrective actions have been successful in incrementally reducing dust generation. Baffinland has strong monitoring programs in place to be able to detect changes in the environment that may occur as a result of dust emissions and to date no significant residual effects in environmental media have occurred as a result of mining activities.

Dustfall Thresholds

Baffinland wishes to provide clarification on the dustfall threshold cited in CIRNAC's letter. CIRNAC notes that Table 9 of the Air Quality and Noise Abatement Management Plan (AQNAMP) identifies corrective actions to be taken if the threshold of 4.6 g/m^2/yr is exceeded and further notes that in multiple locations this threshold has been exceeded while applying proposed corrective actions. Baffinland's use of the 4.6 g/m^2/yr as an indicator threshold, which is the upper limit defining "low" dustfall deposition in modelling and monitoring programs, shows a conservative approach to dustfall management triggers. That threshold (and even 50 g/m^2/yr; the upper limit defining the "moderate" dustfall deposition category) was predicted to be exceeded within the PDA and some areas adjacent to the PDA in the original

[1] CIRNAC (2020). Dustfall concern at the Mary River Project. Letter dated August 4, 2020.

CALPUFF model results presented in the FEIS and FEIS Addendum. Exceedance of this action level is within the range of anticipated effects for the project and are associated with routine mining related activities in the PDA. It's also important to note that there are no known dust deposition thresholds specific to effects on vegetation, and that regulatory criteria cited for Alberta and Ontario in Table 6 of the AQNAMP are based on nuisance values and not on a human or ecological health endpoint. Therefore, the magnitude of dustfall must be considered in concert with the effects assessment in the Terrestrial Environment and Freshwater Environment to determine if dustfall is contributing to loss of vegetation or sedimentation in surface water.

Baffinland will continue to implement conservative thresholds for the implementation of mitigation measures, and through the Phase 2 review process will work with the Qikiqtani Inuit Association (QIA) on the implementation of further refined adaptive management strategies for dustfall.

Should you require further information, please feel free to contact the undersigned at (647) 253-0596 Ext. 6016.

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Attachments

Attachment 1: Table 1 Response Summary Table

Attachment 2: Table 2 - Summary of Previous Baffinland Responses to NIRB Recommendations

Attachment 1
Response Summary Table

Table 1 – Baffinland Responses to CIRNAC Letter Regarding DustFall Concerns

#	Description of Concern or Finding	Response
1	Given that, "Principal contingencies for dust control are increased frequency of water spraying, and selection of a more effective dust suppressant in the case of road dust," as per section 3.2.1.3 of the Air Quality and Noise Abatement Management Plan; does Baffinland have a schedule for watering roads and can Baffinland clarify what more effective dust suppressant will be utilized.	Mitigation of dust emissions from road surfaces has been controlled throughout operations through a combination of watering and application of calcium chloride. The application of water on roadways is continuous, or as needed based on site conditions generally from mid-May into September. Calcium chloride is applied in accordance with the Government of Nunavut's environmental guideline for dust suppressants, which is consistent with standard practice across Canada. Baffinland's ability to water the road has continuously improved over the duration of mining operations as water truck availability has increased. Current resources allow for water truck allocation to all areas of the Tote Road as required for systematic and uniform application during dust suppression activities. Based on feedback received from communities, the QIA and other regulators, Baffinland actioned an implementation plan for testing new dust suppression products with increased durability and longevity for site infrastructure and approved for use in Nunavut on unpaved roads. The use of Dust Stop, produced by Cypher Environmental, was first trialed in August of 2019 over a 4km stretch of the Tote Road and subsequently applied along the entire Tote Road in 2020. Maintenance applications of Dust Stop were undertaken throughout the summer as needed based on routine visual inspections. Product reapplication recently ended for the 2020 season due to ambient air temperatures. The application of water will continue for the duration of the 2020 dust season. Product performance is currently being reviewed and evaluated to determine suitability for long term use.
2	Has Baffinland implemented the mitigation measures for the mine site by reducing dust from their crusher facility conveyors, as per	In accordance with Section 3.3.1.2 of the Air Quality and Noise Abatement Management Plan, Baffinland has implemented mitigation measures identified to minimize dust

	section 3.3.1.2, which includes adding shrouds and hoods and reducing drop distances to stockpiles? Can details related to this requirement be forwarded for verification?	generation at the Mine Site; including the use of dust suppression on roads, and reducing drop distances to stockpiles. In addition, hoods, shrouds and rubber bellows are being used on crusher equipment to reduce dust generation and dispersion. The installation of hoods and shrouds on Crusher Facility equipment (stackers and conveyors) is an ongoing initiative shown to minimize dust generation. The dust abatement equipment is removed periodically for maintenance and/or replaced as necessary. The rubber bellows installed on the crusher equipment in 2019 control the fall of the ore and reduce the distance the ore freefalls to the pad, essentially reducing the drop distance, as well as, the dispersion of dust at the end of the conveyor system as ore is being discharged to the pad. Photos of the hoods, shrouds and rubber bellows on the crusher equipment will be included with the NIRB dust suppression activities update submission.
3	Has Baffinland implemented the mitigation measures for the Milne Port, as per Section 3.3.3.2, which includes reducing vehicle speed on roads and minimizing drop distance from stackers?	In accordance with Section 3.3.3.2 of the Air Quality and Noise Abatement Management Plan, Baffinland has implemented mitigation measures identified to minimize dust generation at Milne Port, including reduced vehicle speeds on roads, and minimizing drop distances from stackers. Vehicle speeds at Milne Port have been reduced in areas where there is foot traffic, including on the main road running through camp, along the Tote Road at the OHT laydown, at the Mobile Maintenance Shop, and at the Warehouse. Improved methods are being used to drop iron ore into the stockpiles at the Ore Stockpile. Specifically, conveyor heights have been adjusted to minimize ore drop distances from the stackers into the stockpiles during stockpiling. Stackers are dropping material at the lowest possible safe distance to limit dust generation created from the

		fall. In addition, rubber bellows have been installed at the end of each stacker to minimize the dispersion of dust generated during the fall. Photos of the current drop distances from the stackers, and of the rubber bellows on the stacker equipment will be included with the NIRB dust suppression activities update submission.
4	TABLE 9, of the Air Quality and Noise Abatement Management Plan identifies corrective actions to be taken if the threshold of 4.6 g/m2/yr is exceeded. In multiple locations this threshold has been exceeded while applying the proposed corrective actions. Please provide the following information; All dust suppressants/dust mitigation measures utilized since 2015 at the Mary River Project, Any studies or trials conducted relevant to dust mitigation, and Proposed solutions to reduce dust from the Ore Stockpile and Crusher area.	Key dust mitigation measures implemented to date at the Project include the use of water and calcium chloride on roadways, the installation of coverings on Mine Site ore crushers, and the implementation of improved methods of dropping ore in the ore stockpiles at Milne Port. Ongoing initiatives include evaluating the effectiveness of new dust suppressants in an Arctic setting, and evaluating new technologies and equipment retrofits to reduce potential local sources of dust, including: • Working on the stockpiles at Milne Port over the last year or so to understand how dust is created and moves. • Assessing the methods used to drop iron ore into the stockpiles and evaluating and adjusting conveyor heights to minimize drop distances to ore stockpiles, which serves to minimize dust creation. • Installation of shrouding at the discharge end of the ore stackers to reduce the effect of windblown dust during stacking activities. • Installation of chutes on the shiploader to prevent windblown dust during loading operations. • Systematic watering in combination with the application of calcium chloride to control dust emissions from road surfaces. • Trialing an application of Dust Stop, produced by Cypher Environmental, in 2019 over a 4km stretch of the Tote Road and subsequently applying the product along the entire Tote Road in 2020.

		• Ongoing installation of hoods and shrouds on Crusher Facility equipment (stackers and conveyors) to minimize dust generation during crushing operations. • Installation of rubber bellows on Crusher Facility equipment to control the fall of ore to the pad, and reduce dispersion of dust as ore is being discharged to the pad. In addition, Baffinland is exploring the potential use of satellite imagery to better assess the extent of dust dispersion during winter months where snow is present and where dust may be depositing during winter operations. Mitigation of dust emissions from road surfaces has been controlled throughout operations through a combination of watering and the application of calcium chloride from mid-May to September. Calcium chloride is applied in accordance with the Government of Nunavut's environmental guideline for dust suppressants, which is consistent with standard practice across Canada. Based on feedback received from communities, the QIA and other regulators, Baffinland actioned an implementation plan for testing new dust suppression products, approved for use in Nunavut on unpaved roads, with increased durability and longevity for site infrastructure. During the summer of 2015, water sources for dust suppression were limited to Km 32 and near the camps resulting in constraints in implementing the dust suppression program. Twelve (12) additional water source locations were requested for the purpose of dust suppression along the entire length of the Tote Road in Baffinland's Type "A" Water Licence Amendment application for the Early Revenue Phase, however, due to delays in receiving the amended licence from the NWB, dust suppression efforts were hampered throughout the summer months. The Water Licence Amendment No. 1 was issued in early September, granting approval for use of the additional twelve (12) water source locations needed for improved dust suppression activities. Dust suppression efforts that were undertaken later in the summer included the application of calcium

		chloride salt on the Tote Road and camp areas. These applications, although limited in extent, were highly successful. In 2016, Baffinland retained Golder Associates (Golder) to develop a Dust Mitigation Action Plan with an implementation schedule addressing crushing operations, wind coming in contact with the crushed rock/iron stockpiles and vehicle traffic on the Tote Road. Baffinland subsequently began implementation of the Action Plan. Golder found that among the various sources of dust present at the Mine, the crusher, the Port and along the Tote and Mine Haul roads, wheel-entrained dust was the single most significant and important source. In contrast, losses of ore dust from Ore Haul Trucks (OHTs) during transport along the Tote Road was not found to be an important contributor to dust. In general, the same activities that led to meaningful reductions in dust generation related to wheel entrainment were also effective in controlling wind-blown dust from the surface of roadways. As a result of these findings, initial mitigative and corrective action efforts were focused on reducing wheel-entrained dust generation. In 2016, Baffinland undertook a number of actions over the course of the summer season to control dust emissions related to travel along the Tote Road, including watering, application of calcium chloride, and grading. Resurfacing of portions of the Tote Road was also undertaken during the spring and summer of 2016 to control dust emissions related to travel along the Tote Road. The combination of a structurally sound road embankment and running surface coupled with the integration of chemical suppressants and watering was found to be effective in the areas where the application was substantially completed. The mine road water truck extended its route to include other areas where wheel-entrained dust was observed to be present. Systematic watering of the surface of the crusher pad and of the haul truck route across the Milne Port ore stockpile pad was undertaken to mitigate wheel-entrained dust from the movement of front-end loaders

		used for managing the stockpiles and for loading of ore haul trucks, and the movement of ore haul truck on the crusher and ore stockpile pads. The roadway watering program was also extended to some laydowns and parking areas. The extension of the roadway watering program resulted in considerable reductions in dust generation where water was applied. Other activities initiated in 2016 included: • The design of equipment shrouding, where there is potential for suspended fines to be exposed to and entrained by the wind. • Evaluation and procurement of a dedicated dust suppression program using a specialized dust suppressant (EK-35) for the mine site airstrip. Also in 2016, RWDI Consulting Engineers and Scientists (RWDI) evaluated Baffinland's watering and calcium chloride application practices and recommended that the dust suppression program commence earlier in the season to avoid elevated dustfall levels between mid-May and mid-July. RWDI concluded that using water for dust suppression prior to June is impractical as the month of May is dominated by sub-freezing temperatures but found, however, that use of calcium chloride may be feasible and recommended consideration be given to starting calcium chloride applications on the Tote Road in May. Baffinland subsequently attempted to apply dry flake calcium chloride earlier in the season but found that the desired effect could not be achieved without the concurrent use of water to activate the dry flake product. The start of the dust suppression season is dependent on ambient air temperatures which fluctuate year over year. Measures to mitigate downwind dust of the Ore Pad were implemented in spring 2017 by removing dust impacted snow from areas of accumulation, including snow drifts near water bodies and the beach west of the ship loader. The crushers at the Mine Site were installed with engineered dust shrouds on the main surge bins to reduce windblown dust as well as hoods at the out flow areas. A snow fence trial was conducted at the Ore and

		Crusher Pads to determine the effectiveness of capturing windblown ore dust snow, however varying wind directions confounded results. Research towards various dust control binding agents for crusher pads and roads continued. Baffinland proposed a product by the trade name of *Road Warrior* which is an emulsion of high grade polymer and tall oil pitch for roadway dust suppression along the Tote Road. A small quantity of product was procured for trial but during transport froze and was deemed unusable for application the following season. After review of this product it was found not to be financially feasible. In 2018 specific actions taken by Baffinland for dust management included continual development of new dust suppression alternatives at Milne Port such as redesigning the ore pads to position fines in the centre and lump ore around the margins, installation of downwind fencing and proper positioning of the conveyors to minimize distances when stockpiling, and the removal of dust impacted snow at strategic locations at the Project. Calcium chloride and water was also applied on road surfaces throughout the year to mitigate dust emissions. Specific measures implemented in 2019 included completing installation of new crusher shrouding and enclosed chutes, road resurfacing, limiting speed and volume of vehicles on all roads, application of water and dust suppression substances, continued implementation of redesigned stockpile activities and layout at Milne Port, retrofitting existing dust suppressant equipment, and the removal of dust impacted snow at strategic locations at the Project. The use of Dust Stop, produced by Cypher Environmental, was first trialed in August of 2019 over a 4km stretch of the Tote Road. Improved dust suppression was visually observed over a three-day period throughout the application zones and the product also showed signs of water shedding during rain events supporting improved road sealant and application lifespan. In 2020, the use of Dust Stop was expanded with the product

		being applied along the entire Tote Road. Product performance is currently being reviewed and evaluated to determine suitability for long term use. This product is also being used in a municipal setting in the hamlet of Pond Inlet thanks to Cypher Environmental, which donated a supply. Baffinland also contribute to this initiative by providing support for a technician to visit Pond Inlet to train workers in proper product application. Baffinland has looked at a variety of options to control fugitive dust emissions from the ore stockpiles based on what has been proven at other operations and what would be most achievable to adapt to site environmental conditions, while maintaining the competency of the lump and fine ore products. Through this exercise, it was determined that the most viable option is the application of a non-toxic substance which coats the outside of the stockpiles and acts as a sealant to prevent lift-off of dust from the stockpiles. This type of application has been shown to be effective at reducing dust from stockpiles at other sites, is known to last for months, and is rain resistant and non-toxic. DusTreat, a specialized crusting agent produced by SUEZ Water Technologies & Solutions Canada (SUEZ), and the equipment to apply this product has been purchased and is scheduled to arrive on the 2020 sealift. Baffinland intends to apply the product to the ore stockpile in the Fall (October 2020), as per the application techniques and dosage calculations provided by SUEZ. Prior to selecting the product DusTreat, alternative products were explored, however, these products were either water-based or required the addition of chemical to the ore. During the evaluation of these products, they were found to be unsuitable because they either impacted the moisture content or altered the chemistry of the ore which would impact the final ore product and make it unsuitable for shipment to customers. As part of Phase 2, dust deposition at the Mine Site is anticipated to be reduced further with the relocation of secondary ore crushing and screening to a permanent, enclosed

		facility at Milne Port, and dust collectors will be installed at ore screening and crusher transfer points. Additionally, dust deposition along the Northern Transportation Corridor will be reduced as ore transportation is transitioned to rail.
5	In the 2020 February Site Visit Report issued by NIRB, the NIRB requested that Baffinland provide a more substantive update in the summer of 2020, including the results of a trialed solution to reduce dust, Has Baffinland provided this document to the NIRB?	An update summarizing the dust suppression activities implemented at the Project in 2020, including the results of the trialed solution to reduce dust, will be submitted to NIRB and CIRNAC by August 21, 2020.

Attachment 2

Summary of Previous Baffinland Responses to NIRB Recommendation

Year Annual Report	Reference	Date	Recommendation No.	NIRB Recommendation Description	Baffinland Response	Reference	Date	Follow-up Actions/Commitments
2015	The Nunavut Impact Review Board's 2014-2015 Annual Monitoring Report for the Mary River Project and Board's Recommendations, October 23, 2015	23-Oct-15	2	The Board request that Baffinland specify which mitigation measures within its existing Air Quality and Noise Abatement Management Plan will be implemented to address the high threshold level of deposition, exceeding levels predicted in the FEIS or FEIS Addendum; as well as a description of how and where specific adaptive management measures is to be used to ensure that dust deposition levels return to normal range threshold. It is requested that this information be provided within an updated Air Quality and Noise Abatement Management Plan and incorporated in Baffinland's next annual reporting to the NIRB.	These comments will be addressed in the Roads Management Plan and Air Quality and Noise Abatement Management Plan and provided in the Annual Report to the NIRB	Baffinland. 2015. Baffinland response to the Nunavut Impact Review Board's 2015-2016 Annual Monitoring Report for the Mary River Project and Board's Recommendations (December 7, 2015)	07-Dec-15	2015 NIRB Annual report to include in the Roads Management Plan and Air Quality and Noise Abatement Management Plan provided in the 2015 NIRB Annual report.
2015	The Nunavut Impact Review Board's 2014-2015 Annual Monitoring Report for the Mary River Project and Board's Recommendations, October 23, 2015	23-Oct-15	16	The Board requests that Baffinland provide an explanation as to why dust suppression measures committed to in the Final Environmental Impact Statement and Early Revenue Phase Addendum on which the acceptable limits were based for deposition rates, and which were expected to trigger adaptive management strategies in Baffinland's Air Quality and Noise Abatement Management Plan, are not in place onsite. In addition, the Board requests that Baffinland discuss how it plans to implement the recommendation of Workers' Safety and Compensation Commission inspectors with respect to appropriate use of dust control measures at the crusher and screening plant to prevent health hazards to workers. It is requested that this information be provided within 45 days' receipt of these recommendations.	A monitoring program for the purpose of assessment of fugitive dust deposition rates has been implemented year round for the site since 2013. The results from monitoring are reported annually and once analyzed, inform management actions in this regard. Baffinland acknowledges that during the summer of 2015, there were constraints in implementing the dust suppression program due to delays in receiving our Type "A" Water Licence Amendment from the NWB. If the amended licence had been issued on a more timely basis (earlier in the summer), an additional 12 water source locations would have been available for the purpose of dust suppression along the entire length of the Tote Road. The Water Licence Amendment No. 1 was issued on September 2, shortly before freeze up, too late to be of use during the summer months. During the summer, water sources were limited to Km 32 and near the camps. This hampered dust suppression efforts. The additional 12 water source locations under the amended water licence will improve dust suppression performance during the summer next year. In addition to applying water to the roads, Baffinland applied calcium chloride to the road in both granular and brine form. It is noted that the NIRB site inspector was at site for a short time early in the summer season and did not witness the dust suppression efforts that were undertaken later in the summer including *the application of calcium chloride salt on the Tote Road and camp areas. These applications, although, limited in extent were highly successful and will continue at a greater scale next summer. In addition to continue to apply calcium chloride to the roads, Baffinland is also planning to test the effectiveness of several types of dust suppressants during the 2016 open water season.* Equipment and methods to address potential human health issues associated with fugitive dust from the crushers and screening plants are currently being implemented. Baffinland continues to work cooperatively with the WSCC Inspectors in this regard. Finally, the board is reminded that the Mary River Project is not fully constructed and it was predicted that dust would intermittently be at higher levels during construction similar to any construction site.	Baffinland. 2015. Baffinland response to the Nunavut Impact Review Board's 2015-2016 Annual Monitoring Report for the Mary River Project and Board's Recommendations (December 7, 2015)	07-Dec-15	2015 Annual reporting to the NIRB provides summary of activities completed.
2016	The Nunavut Impact Review Board's 2015-2016 Annual Monitoring Report for the Mary River Project and Board's Recommendations, November 4, 2016	04-Nov-16	9	The Board requests that Baffinland provide the NIRB with the identified documentation as absent within the 2015 Annual Report, and further clarify why the 2015 Air Quality and Noise Abatement Management Plan was not updated as required by the Board's 2015 recommendation regarding which specific adaptive management measures that would be implemented in the event of high threshold level of dust deposition, exceeding levels predicted in the FEIS or FEIS Addendum. It is requested that these missing documentation be provided within 30 days' receipt of these recommendations, and that the required update to Section 8 of Air Quality and Noise Abatement Management Plan be included within the Proponent's next annual report to the NIRB.	Baffinland's Dust Management Protocol was Attachment 7 of the Air Quality and Noise Abatement Management Plan (Rev 6) submitted to the NIRB with the 2015 Annual Report in March 2016. The Dust Management Protocol was also identified as Attachment A of the Roads Management Plan (Part 2 of 5 of the Roads Management Plan). The Dust Management Protocol will be further updated to reflect changes in measures and practices that will be adopted during 2017.	Baffinland. 2016. Baffinland Response to the Nunavut Impact Review Board's 2015-2016 Annual Monitoring Report for the Mary River Project and Board's Recommendations (Nov 4, 2016)	12-Dec-16	The Dust Management Protocol will be further updated to reflect changes in measures and practices that will be adopted during 2017.
2017	The Nunavut Impact Review Board's 2016-2017 Annual Monitoring Report for the Mary River Project and Board's Recommendations, November 27, 2017	27-Nov-17	4	The Board requests that Baffinland substantiate its efforts of undertaking dust management and monitoring activities by submitting the referenced documents (the Air Quality and Noise Management Plan and the Road Management Plan), and provide details of the specific changes or updates made to its existing Dust Monitoring and Mitigation Plan in response to excessive dust emissions generated from the site, with details of how it intends to incorporate adaptive management strategies for increased dust deposition from its operations. It is requested that Baffinland provide updates on its efforts for dust management and monitoring, and also submit all the referenced documentation within the next 30 days to the Nunavut Impact Review Board.	Baffinland continues to investigate how to better mitigate dust on site and plans to update the Air Quality and Noise Management Plan in 2018. Baffinland continues, as scheduled, to evaluate and report on dust emissions through its approved dust monitoring program at the Mine Site, Port Site and Tote Road. Baffinland has worked diligently towards decreasing dust generated by wheel entrainment across the Project Sites, specifically reducing dust generation from ground surfaces by applying water and/or chemical suppressants (CaCl) to road surfaces and site layouts during summer conditions. Air Quality and Noise Management Plan Roads Management Plan https://www.baffinland.com/media-centre/document-portal/	Baffinland. 2017. Response to The Nunavut Impact Review Board's 2016-2017 Annual Monitoring Report for the Mary River Project and Board's Recommendations (December 27, 2017)	27-Dec-17	

Year Annual Report	Reference	Date	Recommendation No.	NIRB Recommendation Description	Baffinland Response	Reference	Date	Follow-up Actions/Commitments
2018	The Nunavut Impact Review Board's 2017-2018 Annual Monitoring Report for the Mary River Project and Board's Recommendations, November 8, 2018	08-Nov-18	3	The Board requests that Baffinland revise the dust isopleth model using existing dustfall collection data and make revisions to the existing Dust Management and Roads Management Plan to include "specific adaptive management measures" to be implemented should monitoring observations confirm that dust deposition from the Project is greater than initially predicted. It is requested that Baffinland highlight revisions to the dust isopleth model within the Proponent's 2018 Annual Report to the Nunavut Impact Review Board.	Baffinland continues to apply dust suppression and mitigation measures to minimize fugitive dust emissions as a result of the Project to the fullest extent possible. Furthermore, in 2017 and 2018 Baffinland observed decreases in dustfall at the Project site, which may be partially or wholly attributed to increased dust suppression measures implemented by Baffinland. Dust mitigation measures were implemented in 2018 and six (6) additional remote dustfall sites were installed along the Tote Road in consultation with QIA and the MHTO and will be monitored for additional information on dustfall in 2019. Additionally, in 2019 Baffinland will be implementing the Tote Road Monitoring Program to assess water quality at select fisheries crossings, areas of recent construction, and areas historically prone to sedimentation events. This program was designed in consultation with QIA throughout 2018 to formalize and improve upon the existing water quality monitoring conducted on the Tote Road.	Baffinland. 2019. 2018 Annual Report to the NIRB. Relevant Project Certificate No. 005 Terms and Conditions include No. 10, 21, 46, 54 and 58	31-Mar-18	
2019	The Nunavut Impact Review Board's 2018-2019 Annual Monitoring Report for the Mary River Project and Board's Recommendations, October 25, 2019	25-Oct-19	1	The Board requires that within 30 days Baffinland submit the design of the experiment including the method, areas selected for trial, observations, timeline and evidence of conclusion for the expanded dust trial which commenced in September for the Mary River Project. Further, if applicable Baffinland is required to report in its 2019 Annual Report to the NIRB an updated its Air Quality and Noise Abatement Management Plan (2017) and Roads Management Plan (2017) with the results of the experiment and the plans should clearly indicate when application of dust suppressants (including water) should be completed.	As previously described in Baffinland's follow-up submission to the NIRB summer site visit (provided on August 26 and September 27, 2019, respectively), Baffinland has taken several measures to reduce dust onsite. Baffinland continues to implement changes to its existing monitoring and mitigations to effectively identify and control impacts of dust deposition. This includes but is not limited to: • Evaluate new technologies and equipment retrofits to reduce potential local sources of dust. • Evaluating effectiveness of new dust suppressants in an Arctic setting. • Upgrading monitoring to address regulator concerns and to collect new parameters. • Continuing to engage with regulators and the community. In 2018 specific actions taken by Baffinland for dust management include continual development of new dust suppression alternatives at Milne Port such as redesigning the ore pads to position fines in the centre and lump ore around the margins, installation of downwind fencing and proper positioning of the conveyors to minimize distances when stock piling. Calcium chloride and water has also been applied on road surfaces throughout operations to mitigate dust emissions. Based on feedback received from communities, the QIA and other regulators, Baffinland actioned an implementation plan for testing new dust suppression products with increased durability and longevity for site infrastructure. The use of Dust Stop, produced by Cypher Environmental was first trialed in August of 2019. Dust Stop is an approved product for dust suppression under Nunavut's Environmental Guideline for Dust Suppression on unpaved Roads. Dust Stop is expected to have a longer lasting durability for both traffic and rainfall impact, as it promotes a hard, competent water repellant surface when properly applied. The 2019 trial involved an initial application of the product along a 4 km stretch (from km 103.5 to km 97) of the Tote Road. A representative from Cypher Environmental was onsite to instruct the road maintenance personnel on the use and application of the product. Baffinland has attached two documents from Cypher Environmental which outlines the method and recommendations for application (Attachment 5). These instructions and methods were followed by Baffinland staff. Improved dust suppression was visually observed over a three-day period throughout the application zones and the product also showed signs of water shedding during rain events supporting improved road sealant and application lifespan (see Attachment 4). Two initial applications of the product along the entire tote road (24 hrs apart), followed by routine application to maintain the coating on the roads every two weeks, is planned for 2020. Baffinland will amend the Air Quality and Noise Abatement Management Plan (2017) and Roads Management Plan (2019) with the results of the expanded trial application and comprehensive procedures for the application of dust suppressants on site as needed.	Baffinland. 2019. Baffinland Response to Comments on the NIRBs 2018-2019 Annual Monitoring Report and Board Recommendations for Project Certificate No. 005 for the Mary River Project (November 25, 2019)	25-Nov-19	Baffinland.2020. 2019 Annual Report to the NIRB (May 15, 2019); UPDATED RESPONSE IN APPENDIX E: As previously described in Baffinland's follow-up submission to the NIRB summer site visit (provided on August 26 and September 27, 2019, respectively), Baffinland has taken several measures to reduce dust onsite. Baffinland continues to implement changes to its existing monitoring and mitigations to effectively identify and control impacts of dust deposition. This includes but is not limited to: - Evaluate new technologies and equipment retrofits to reduce potential local sources of dust. - Evaluating effectiveness of new dust suppressants in an Arctic setting. - Upgrading monitoring to address regulator concerns and to collect new parameters. - Continuing to engage with regulators and the community. In 2018 specific actions taken by Baffinland for dust management include continual development of new dust suppression alternatives at Milne Port such as redesigning the ore pads to position fines in the centre and lump ore around the margins, installation of downwind fencing and proper positioning of the conveyors to minimize distances when stock piling. Calcium chloride and water has also been applied on road surfaces throughout operations to mitigate dust emissions. Based on feedback received from communities, the QIA and other regulators, Baffinland actioned an implementation plan for testing new dust suppression products with increased durability and longevity for site infrastructure. The use of Dust Stop, produced by Cypher Environmental was first trialed in August of 2019. Dust Stop is an approved product for dust suppression under Nunavut's Environmental Guideline for Dust Suppression on unpaved Roads. Dust Stop is expected to have a longer lasting durability for both traffic and rainfall impact, as it promotes a hard, competent water repellant surface when properly applied. The 2019 trial involved an initial application of the product along a 4 km stretch (from Km 103.5 to Km 97) of the Tote Road. A representative from Cypher Environmental was onsite to instruct the road maintenance personnel on the use and application of the product. Baffinland has attached two documents from Cypher Environmental which outlines the method and recommendations for application (Attachment 4 in Baffinland [2019b]). These instructions and methods were followed by Baffinland staff. Improved dust suppression was visually observed over a three-day period throughout the application zones and the product also showed signs of water shedding during rain events supporting improved road sealant and application lifespan (Attachment 4 in Baffinland [2019b]). Baffinland recently amended the Air Quality and Noise Abatement Management Plan (2020) and Roads Management Plan (2020) with the results of the expanded trial application and comprehensive procedures for the application of dust suppressants on site as needed. In 2020 Baffinland will be expanding and implementing the use of Dust Stop, starting with two initial applications of the product along the entire Tote Road (24 hrs apart), followed by routine application to maintain the coating on the roads every two weeks. Based on the trial application in 2019, the use of Dust Stop in combination with regular use of water as dust suppression on Project roadways is anticipated to reduce dust generation below levels using current mitigation measures. Baffinland notes that the identification of additional dust management measures to improve performance should be seen as a continual process. The development the Dust Mitigation Action Plan (the Plan) in 2016 continues to guide processes for identifying and prioritizing specific measures to be implemented to further reduce dust emissions. Implementation of the Plan in 2019 resulted in the implementation of various measures including completing installation of new crusher shrouding and enclosed chutes, road resurfacing, limiting speed and volume of vehicles on all roads, application of water and dust suppression substances, continued implementation of redesigned stockpile activities and layout at the Port, retrofitting existing dust suppressant equipment, and the removal of dust impacted snow at strategic locations at the Project.