APPENDIX E.14

Response to Outstanding 2018 Annual Report Comments

Table E.14 - Baffinland Response to Outstanding Comments on the 2018 QIA & NWB Annual Report for Operations - March 31, 2020

Comment ID and Topic	Comment	Baffinland Response	Due Dates Assigned by NWB[1]
CIRNAC			
1-R1	Undertake supplementary test work to confirm the nature of the soluble sulphate fraction that is amorphous by use of a mineralogical technique that is able to confirm amorphous minerals in waste rock.	Refer to Section 6.2 and Appendix A of BAF-PH1-830-P16-0029 r2 - Phase 1 Waste Rock Management Plan; *"Drilling and test pitting was completed at five (5) locations on the WRF in June and July 2019 to further develop the geochemical understanding of the current WRF with respect to soluble sulphate presence. Boreholes were drilled using a drill rig using 200 mm (8") diameter bits and were drilled through the entire thickness of the WRF at each location. The test pit was excavated using a track mounted excavator. The four boreholes (P1, P2, P3, P5) and one test pit (P4) were located adjacent to areas where low pH and/or high metal concentrations (specifically copper, iron, nickel, and zinc) were observed in the 2018 runoff water quality data. Boreholes P1, P2, P3 and P5 were drilled to 30 m, 30 m, 16 m and 28 m deep, respectively and yielded 6, 10, 3 and 6 samples, respectively. Test pit P4 was excavated to 4.5 m depth with 4 samples were collected. The 29 samples collected from the WRF investigation were submitted for geochemical analyses, including acid base accounting (ABA; modified Sobek), bulk metals analysis and shake flask extraction (SFE). The boreholes and the test pit were logged by a Baffinland geologist."*	March 31, 2020
1-R2	Undertake further studies to investigate the potential effect of rapid release of acidity and metals from such materials on water quality upon seepage, and determine the appropriate water treatment requirements.	Refer to Section 6.2 and Appendix A of BAF-PH1-830-P16-0029 r2 - Phase 1 Waste Rock Management Plan.	March 31, 2020
1-R3	Review the 0.2% total sulphur cut-off and examine the necessity for an additional readily soluble sulphate cut-off to the identification of PAG materials.	Refer to Section 6.2 and Appendix A of BAF-PH1-830-P16-0029 r2 - Phase 1 Waste Rock Management Plan.	March 31, 2020
1-R4	Once addressed, the outcomes of recommendations in 1- R1, 1-R2, and 1-R3 need to be incorporated into the Waste Rock Management Plan.	Refer to Section 6.2 and Appendix A of BAF-PH1-830-P16-0029 r2 - Phase 1 Waste Rock Management Plan;	March 31, 2020
2-R5	Either adjust the neutralization potential ratio (NPR) to a value greater than 2 to account for a lack of Ca/Mg carbonate minerals, or undertake suitable supplementary test work to validate that there is effective neutralization capacity above pH 6.	Refer to Section 6.2 and Appendix A of BAF-PH1-830-P16-0029 r2 - Phase 1 Waste Rock Management Plan.	March 31, 2020
2-R6	Demonstrate: i. The level of uncertainty/variability between NPR values and associated total sulphur values; ii. The level of uncertainty/variability between total sulphur values and associated potential leachate water quality; and iii. A factor of safety in relation to the derivation of the total sulphur threshold.	Refer to Section 6.2 and Appendix A of BAF-PH1-830-P16-0029 r2 - Phase 1 Waste Rock Management Plan.	March 31, 2020
4-R8	Document and apply the lessons learned from the WRF pond liner leakage study to the assessment of the status of all current and planned lined pond facilities at the Mary River Project.	Baffinland is currently developing a design recommendations memorandum based on lessons learned from the Waste Rock Facility Pond. The documented lessons learned will be referenced and used for further designs and planned lined pond facilities at the Mary River Project.	March 31, 2020
5-R10	Review all spills on the project site through an extended timeframe (annual or longer) to determine whether corrective and preventive actions need to be applied across the project at repeat failure locations. Changes should be tracked to determine if the improvements are effective.	Baffinland is committed to reviewing and addressing the root cause of spills at the Project year over year. For 2019, Baffinland prepared an internal spills analysis document to further characterize the sources of spills on site. This document described the key observations and recommendations for operations personeel to reduce the number of releases each year. Please refer to Section 6.1 of the QIA-NWB 2019 Annual Report for description and analysis of spill occurances in 2019. Overall Baffinland demonstrated a 28% decrease in spills in 2019.	March 31, 2020

Notes:

[1]NWB. (2019) Licence No. 2AM-MRY1325 Type "A"; Mary River Project, Baffinland Iron Mines Corporation; 2018 Annual Report Review.

Table E.14 - Baffinland Response to Outstanding Comments on the 2018 QIA & NWB Annual Report for Operations - March 31, 2020

Comment ID and Topic	Comment	Baffinland Response	Due Dates Assigned by NWB[1]
6-R12	Address all the noted design and layout challenges at the crusher drainage pad while maintaining the 3m buffer zone.	In 2017, Baffinland submitted the design for the expansion of the Crusher Pad (Modification No. 1) and the associated Sedimentation Pond (Modification No. 5), which were both approved by NWB. In executing the design outlined in the Golder Associates April 17, 2017 Technical Memorandum on the Crusher Pad expansion, Baffinland consulted Golder to implement a field change to the width of the single land of traffic between the stockpile and the perimeter ditching from 8 metres in width to 3 metres in width. Golder approved this design, and provided a field directive signed by a Professional Engineer registered in NT/NU. Baffinland engaged NWB to confirm the ore crushing stockpile perimeter change did not require a modification request. On September 4, 2019, NWB confirmed no modification request was necessary. Baffinland maintains that while this is a change to the design submitted and approved in Modification Request No. 1, the change was documented by the Engineer. Per Schedule D, Item 1 (d), this field decision was documented in the Construction Summary Report (CSR) currently under development for the Crusher Pad facility and Sedimentation Pond.	March 31, 2020
7-R13	Use a more effective approach to collecting flow measurements during low flow conditions.	As noted by CIRNAC, the 2018 Hydrometric Report indicates there was a discrepancy between the discharge measured at the H01 station and the discharge predicted by the rating curve. However, the difference was within the 15% uncertainty typically associated with dilution gauging techniques. It was suggested in the report that the uncertainty could be due to incomplete mixing of the dye in the stream. The flow measurement conducted at H01 in 2018 was obtained under mid-flow conditions. During these conditions, it can be challenging to ensure complete mixing of the dye at H01 due to the width of the channel upstream of the gauging station. However, dilution gauging is considered the best method for measuring flow and it would be difficult or impossible to use other methods (such as a current meter or ADCP) due to turbulent flow conditions and the difficulty in accurately measuring cross sectional area. Dilution gauging typically provides reliable estimates of flow and has in the past at H01. In the future, Baffinland will plan to obtain additional flow measurements to further reduce uncertainty, ideally during mid to high flow conditions. During low flow conditions, dilution gauging is not used at H01 and flow measurements have been conducted in the past using a wading current meter and the area-velocity technique (including during the 2019 hydrometric program). Baffinland understands the importance of measuring flow as accurately as possible in order to maintain reliable rating curves and strives to use the best possible methods for all sites and flow conditions.	March 31, 2020
8-R15	Adjust the flow-monitoring program to capture additional flow measurements to further refine/verify the rating curves.	The peak flows at H04 and H11 tend to occur over a shorter time period than at other stations due to their relatively small watershed size. As such, the flow monitoring program will be adjusted to be accommodate rapidly changing flow conditions at these sites and high flow conditions will be targeted and measured as often as possible.	March 31, 2020
10-R18	Incorporate information about effluent concentrations in receiving water bodies, or a reference to where this information can be found, into the Annual Reports.	The details of the Aquatic Effects Monitoring Programs (AEMP) are provided in the Annual Report for Operations, and include monitoring completed to assess concentrations in lakes and water bodies proximal to Mine operations in the Core Receiving Environment Monitoring Program (CREMP) report. The reader is referred to Appendix E.9 of the 2019 Annual Report for Opertions for the relevent AEMP reports.	Subsequent annual reports
10-R19	Incorporate the findings and data from the Hydrometric Monitoring Program into other monitoring and mitigation programs to develop a holistic view of on-going environmental conditions, trends, and impact predictions.	Baffinland will investigate ways to incorporate data and observations from the hydrometric monitoring into other monitoring programs and in the interpretation of overall environmental conditions where possible.	Subsequent annual reports

Notes:

[1]NWB. (2019) Licence No. 2AM-MRY1325 Type "A"; Mary River Project, Baffinland Iron Mines Corporation; 2018 Annual Report Review.

Table E.14 - Baffinland Response to Outstanding Comments on the 2018 QIA & NWB Annual Report for Operations - March 31, 2020

Comment ID and Topic	Comment	Baffinland Response	Due Dates Assigned by NWB[1]
14-R23	Develop a holistic view of on-going environmental conditions and trends that can tie back into the monitoring and mitigation programs by incorporating findings and data from other monitoring programs.	Baffinland will consider developing a holistic view of data intepretation and on-going environmental conditions and trends that can tie back into the monitoring and mitigation programs by incorporating findings and data from other monitoring programs. Baffinland notes that the AEMP program is designed to incorporate various studies to assess the overall effects of the operation of the Mine on the freshwater recieving environment. For a more detailed analysis of monitoring completed at the project relative to the effects predictions in the FEIS, the reader is referred to the Annual Report to the Nunavut Impact Review Board.	Subsequent annual reports
15-R24	Provide a summary description of the activities performed to address the permafrost degradation in the borrowing areas in subsequent Annual Reports.	In September 2019, Baffinland retained Tetra Tech to evaluate areas of potential permafrost degradation along the Tote Road, at Mary River and Milne Port. Further assessment of critical borrows was conducted, and prioritization of actions needed was conducted following Tetra Tech's evaluation. As part of the 2019 Annual Report submission, Baffinland has provided Tetra Tech's 2019 Inspection of the Milne Inlet Tote Road and Associated Borrow Sources Report. The assessment involved visual assessment of the “Tote Road” and borrow sources to observe any changes since 2014. Additionally, Baffinland has developed an action plan based on the findings of the Tetra Tech evaluation to remediate the priority areas, and has completed work in 2019 to begin addressing the priority areas as outlined in Table 8.0 of the annual report, begining with the borrow at KM7.2.	Subsequent annual reports
17-R26	Demonstrate compliance to the regulatory criteria in subsequent Annual Reports by providing a table that compares results to the allowable limits.	Baffinland will consider amending the format of furture reports to incorporate a table for reviewers to cross-check the results to allowable limits during review of Incinerator Bottom Ash Waste.	Subsequent annual reports
20-R30	Either include all of the regulatory instruments that inform the *Surface Water and Aquatic Ecosystem Management Plan* , or remove the “and;” from the end of the list to demonstrate a complete list, or include a phrase to indicate that the regulatory instrument list is not exhaustive.	Baffinland has amended the *Surface Water and Aquatic Ecosystem Management Plan* to provide further clarification on the regulatory instruments that inform the development and implementation of the Plan. As part of the 2019 Annual Report submission, Baffinland has provided the latest versions of the Project's *Surface Water and Aquatic Ecosystem Management Plan.*	March 31, 2020
23-R33	Include all sample sites at quarries including Q1 and QMR2 in tables 9-2 and 9-3 of the *Surface Water and Aquatic Ecosystem Management Plan* . CIRNAC has reviewed this plan under the Phase 2 Amendment Application and will review the next update, expected in December 2019, when it is submitted. CIRNAC has no comments on this management plan at this time.	In the most recent update to the *Surface Water and Aquatic Ecosystem Management Plan* , sample sites at quarries Q1 and QMR2 in tables 9-2 and 9-3 have been added. As part of the 2019 Annual Report submission, Baffinland has provided the latest versions of the Project's Surface Water and Aquatic Ecosystem Management Plan.	Next revision of the plan
QIA			
1	Baffinland provide all outstanding as-built drawings and Construction Summary Reports.	In response to QIA's July 2019 inspection, a comprehensive list of all as-built drawings and construction summary reports has been provided. Please see Appendix E.14.	As per Licence Part D, Item 17
2	Going forward, Baffinland include work plan items and modification requests, which were not completed in Table 2.0.	Baffinland has included in Table 2.0 items that were not completed in the given year.	The NWB recognizes the issue as subject to the agreement between the Licensee and the QIA only.
3-1	Baffinland provide supporting documentation to substantiate the reclamation of KM 57.	Baffinland visited the site with QIA representatives in May 2019 during an inspection of the Site, to demonstrate the results of reclamation efforts that were employed. The culvert was removed from the stream crossing and the area re-graded to promote natural drainage. The surface has been scarified to promote natural revegetation. Photographs from this site visit, as well as satellite imagery depicting the extent of works completed to reclaim the historic section of roadway and culvert are appended to this response.	As per Licence Schedule B, Item f(i).

Notes:

[1]NWB. (2019) Licence No. 2AM-MRY1325 Type "A"; Mary River Project, Baffinland Iron Mines Corporation; 2018 Annual Report Review.

Table E.14 - Baffinland Response to Outstanding Comments on the 2018 QIA & NWB Annual Report for Operations - March 31, 2020

Comment ID and Topic	Comment	Baffinland Response	Due Dates Assigned by NWB[1]
3-2	What are Baffinland's plans for reclamation of the historical tote road for 2019? Specifically, how many kilometers of the tote road will be reclaimed?	Baffinland will continue to reclaim the historical sections of the Tote Road on an as-needed basis, and when resources are available to complete this work. It is recognized that some of these areas intersect with proposed development as part of the Phase 2 proposal for the transportation corridor, and therefore efforts to reclaim historical areas of the road will be limited in these areas. Progressive reclamation remains a priority for Baffinland in order to minimize the project footprint, environmental impact and reclamation liability.	As per Licence Part J, Item 3 and Schedule J.
4	Given the WRF Waste Treatment Plant is the main item in this modification request and has been operational for a year, it would be reasonable to request the as-built for this facility be submitted.	Baffinland will be submitting P&IDs for the Waste Rock Facility Water Treatment Plant alongside the Construction Summary Report for the Waste Rock Facility Pond upgrades and repairs.	The NWB understands that the Piping (or Process) and Instrumentation Diagrams (P&IDs) of the water treatment plant at the Waste Rock Facility are provided in BAF-PHI-340-PRO-048 *Waste Pond Water Treatment Plant Operations* ; however, the P&IDs lack a stamp and signature of an Engineer (please see NWB comment 3).
5	Baffinland provide a revised as-built for works completed under Modification No. 9 as per the requirements of the Lease Operations Guide.	Baffinland has included the Construction Summary Report for the construction of Sedimentation Pond 1a and the expansion of the Ore Stockpile Pad in Appendix C.1 of the 2019 Annual Report for Operations to the NWB and QIA.	While the NWB recognizes that any requirements under the Lease Operations Guide as subject to the agreement between the Licensee and the QIA only, the Board reminds[1] the Licensee to submit post–construction information in accordance with Licence Part G, Item 4 and Part D, Item 17.
6	Baffinland please provide insight on the high occurrence of sewage spills at Mine Site Complex. Additionally, list any steps currently being taken to reduce the risk/occurrence of spills of treated and untreated sewage from the Mine Site Complex Lift Stations.	Sewage and grey water spills represented over 80 percent (%) of the documented volume of products spilled at the Project during the 2019 reporting period and 15 of the 25 reportable spills. The majority of sewage and grey water spills were determined to be caused by the separation of couplings/fittings (e.g. Fernco, ABS elbows), lift station floats failing to trigger resulting in lift station overflows and personnel not following established procedures. The separation of couplings/fittings along sewage pipelines servicing the sewage systems of the Port Site Complex and Mine Site Complex has been heavily documented in Baffinland's sewage spills analysis reports and is largely due to the current design, which lacks the necessary flexibility near the lift stations to expand and contract with changing ambient temperatures. To address the separation of couplings/fittings, it is recommended that Baffinland implement the most recent recommendations outlined in the 2017 Sewage Spills Cause Analysis Report (Baffinland, 2018A), including design reassessment to incorporate additional flexibility near lift stations. To address the failure of lift station floats not triggering, it is recommended the cause of float malfunctions be further investigated. It is also recommended that Baffinland review other available floats and/or triggering mechanisms on the market that are used by industry peers (e.g. TMAC, Agnico Eagle). Preventative maintenance procedures, to address routine maintenance and cleaning of floats, should also be reviewed to determine if current procedures and frequency are sufficient for maintaining effective float operation.	March 31, 2020 (2019 Annual Report) and subsequent annual reports (echoing CIRNA's 5- R10 above)
8	Baffinland provide a revised listing separating out "Equipment", "Mobile Equipment", and "Other Materials". Moreover, Baffinland specify whether these items are owned by Baffinland or third-party companies.	Baffinland provides the manifests for inbound and backhaul materials that detail all equipment, mobile equipment and other materials mobilized and remove from site during sealift.	The NWB recognizes the issue as subject to the agreement between the Licensee and the QIA only.

Notes:

[1]NWB. (2019) Licence No. 2AM-MRY1325 Type "A"; Mary River Project, Baffinland Iron Mines Corporation; 2018 Annual Report Review.

Table E.14 - Baffinland Response to Outstanding Comments on the 2018 QIA & NWB Annual Report for Operations - March 31, 2020

Comment ID and Topic	Comment	Baffinland Response	Due Dates Assigned by NWB[1]
NWB			
1	The NWB notes that allowable water use for dust suppression was exceeded in 2018. While the Board appreciates the inclusion of mitigation measures into BAF-PH1-830-P16-0010 *Fresh Water Supply, Sewage, and Wastewater Management Plan*, the Board reminds the Licensee to restrict its water use to prescribed limits.	To prevent similar incidents from re-occurring, Baffinland plans to improve the documentation and categorization of water volumes withdrawn and optimize tracking for operators to support Project activities. In addition, Baffinland has informed the NWB in 2019 of the use of reclaimed water from the KM97 borrow source for the purpose of dust suppression.	Subsequent annual reports
2	The NWB would like to correct the statement in section 7.3.3 of the 2018 QIA and NWB Annual Report for Operations, "Within 24 hours of discovering and stopping the release, Baffinland reported the release to the NT-NU Spill Line, NWB, CIRNAC, QIA and ECCC (NT-NU Spill Report No. 18-244)." The NWB was not in receipt of the spill report from Baffinland. This is a minor correction, as the Licensee does not have an obligation to provide a spill report to the NWB within 24 hours.	N/A	No follow-up required.
3	Some P&IDs and drawings for engineered facilities, especially those provided in management plans, do not have an Engineer's stamp and signature.	In 2020, Baffinland plans to conduct a review of currently approved management plans, and verify which P&IDs and drawings that are missing an Engineer's stamp and signature.	Next revisions of management plans

Notes:

[1]NWB. (2019) Licence No. 2AM-MRY1325 Type "A"; Mary River Project, Baffinland Iron Mines Corporation; 2018 Annual Report Review.

LEGEND

Contour (1 m Interval)

× Milne Inlet Tote Road Km Marking

MARY RIVER PROJECT

KM 57 - 2017 to 2019

Projection: NAD 1983 UTM ZONE 17N.
Base Map: © 2019 Digital Global, Inc.
Imagery and Infrastructure are representative as of August 2019.

0 25 50 100 Meters
Scale 1:4,000

N

Baffinland

FIGURE E.14.1

Figure E.14.2: Stream Crossing with Culvert Removed, Historic Roadway Regraded to Restore Natural Drainage, May 2019