Baffinland

October 31st, 2012

Mr. Damien Côté
Executive Director
Nunavut Water Board
P.O Box 119
Gjoa Haven, NU
X0B 1J0

Re: Baffinland Response to Nunavut Water Board (NWB) Letter dated October 25, 2012

Dear Mr. Côté,

This submission is in response to the Nunavut Water Board (NWB) letter dated October 25, 2012, in which the NWB requested that Baffinland respond to certain items listed in Table 2 that were outcomes from the October 18, 2012 preliminary technical meeting. Baffinland has provided responses in tabular format with more detailed responses included as appendices to the table, for some items.

Should the NWB have questions regarding these responses, please contact the undersigned at 416-814-3195.

Sincerely,

Oliver Curran
Director of Sustainable Development

Cc
David Hohnstein (NWB)
Sean Joseph (NWB)
Phyllis Beaulieu (NWB)
Ryan Barry (NIRB)

List of Items Requiring Follow-up (Table 2 in NWB October 25th, 2012 Letter)		
Number	**Issues**	**BIM Response**
1	BIMC to provide a summary table identifying and distinguishing the activities and facilities that are associated with the Type A and Type B licenses.	Please refer to Appendix A for this information.
2	NWB to provide correspondence in response to BIMC's errata request for SNP stations associated with the existing Type B water licence.	No Response Required from Baffinland
3	With respect to blasting, BIMC to provide details pertaining to measure of success that will be implemented to determine if best management practices are working and will define triggers for initiating adaptive management if practices are not effective.	Blasting Management Plan with be submitted 60 days prior to construction. BIM will provide a conceptual management plan prior to November 13th for the AEMP workshop.
4	EC and AANDC to provide clarification on whether or not the mandates of both organizations allows for inspections related to sewage discharged into the marine environment under Arctic Waters Pollution Prevention Act (R.S., 1985, c. A-12).	No Response Required from Baffinland
5	QIA to discuss with BIMC contingency measures and other matters related to the storage and planned road transportation of sewage from the rail construction camps.	Baffinland has invited QIA to meet to discuss this matter on Nov. 14th.
6	BIMC to provide information pertaining to the type of testing that will be conducted to assess the structural integrity of fuel tanks if hydrostatic testing is not being considered for proposed fuel storage tanks.	Fuel tank assembly will be inspected and tested to American Petroleum Institute (API) 650 Section 8 which includes visual inspection of all welds, radiograph inspection, vacuum box test of welds, liquid penetration tests, shell to floor joint, mag particle and UT tests on reinforcing pads. In lieu of hydrostatic testing, additional liquid penetration tests and vacuum box tests will be completed in compliance with API 650 Section 7.3.5. All inspection and test reports will be confirmed by the contactor and construction management personnel.
7	BIMC to include incineration activities associated with the floating camp facilities in its next iteration of the incineration management plan for the project.	This will be included in plan submitted 60 days prior to construction. Refer to Waste Management Plan in FEIS Volume 3, Appendix 3B, Attachment 5.

8	BIMC to schedule a workshop aimed at developing a framework for the Aquatic Effects Management Plan (AEMP). Other issues that will be explored include the possibility of linking the AEMP to the Environmental Effects Monitoring Program.	A workshop has been confirmed for November 13th with the intent to discuss a conceptual framework for the AEMP. QIA, EC, AANDC, NWB and DFO have noted they will participate in this meeting.
9	BIMC to provide the completion and implementation schedule(s) for the relevant management plans associated with the Type A water licence application.	Refer to Appendix B (attached) for a listing of the Management Plans and the proposed schedule for submission.
10	BIMC to provide an update on its continued efforts pertaining to screening and selecting water bodies as potential reference sites in relationship to the AEMP as described under item no. 8.	BIM continues to work on exploring reference areas and this will be a topic of discussion at the AEMP workshop on November 13th.
11	EC to explore the possibility of communicating and working directly with BIMC to address ongoing and/or additional issues that may arise, as they related to the Type A water licence application, including issues EC has indicated may be provided as an addendum to EC's June 2012 comment submission.	No Response Required from Baffinland
12	As a follow-up to BIMC's response that it would not exploit quarries with ARD (Acid Rock Drainage) potential, BIMC to define the criteria that will be used to distinguish ARD from Non-ARD rocks.	BIM's Borrow Pit and Quarry Management Plan will be submitted 120 days prior to construction. This management plan will include the criteria that will be used to distinguish ARD from non-ARD rocks. A conceptual framework will be developed and discussed at the Nov. 13th AEMP workshop.
13	EC to provide follow-up correspondence that includes questions pertaining to the risk and implications associated with uncertainty in stream flow and runoff estimates.	Please see Appendix C for EC's questions and Baffinland's response.
14	BIMC to address erosion and sediment control measures specifically for each water crossing as part of its relevant applications to DFO.	BIM has arranged to meet with DFO on the 5th of November and will continue to hold ongoing discussions.
15	BIMC will continue to work with DFO to resolve issues related to fish passage that may arise before, during and after the construction of water crossings.	BIM has arranged to meet with DFO on the 5th of November and will continue to hold ongoing discussions.
16	BIMC and DFO will meet to discuss issues related to the finalization of the Fish off-setting plan and other relevant issues.	BIM has arranged to meet with DFO on the 5th of November and will continue to hold ongoing discussions.

17	NWB to provide correspondence clarifying the general approach to ice road licensing (i.e. whether captured under Type A or new/existing Type B licence).	No Response Required from Baffinland
18	If the Minister approves the project, the NWB to provide direction regarding timelines and next steps for parties wishing to supplement their previous comment submissions to reflect issues raised by direction of the Minister	No Response Required from Baffinland

Appendix A – Activities to Be Regulated Under Current Type B and New Type A Water Licences

The table below provides clarification concerning the respective activities to be conducted at the Mary River Project under the existing Type B Water Licence No. 2BB-MRY1114 and the future Type A Water Licence. Specifically, the following information is presented:

1. The Project site locations (column 1).
2. The activities and facilities currently permitted under Baffinland's existing Water Licence No. 2BB-MRY1114 (column 2).
3. The activities that will remain authorized under an ongoing Type B Water Licence subsequent to the granting of the Type A Water Licence (column 3). These activities will include drill water use and waste deposition (drill cuttings and drill return water) associated with ongoing exploration, environmental data collection and geotechnical drilling programs. In future, small satellite support camps could be established at locations that would facilitate work at exploration satellite deposits. Furthermore, since it is expected that winter ice roads will be required for the initial phase of the construction activities (first winter of construction). Baffinland will be seeking authorization for the construction of winter roads. It is anticipated that the existing Type B licence will be renewed and periodically amended as required to support these activities.
4. The activities and facilities authorized under the Type A Water Licence (column 4). The current camp facilities and infrastructure located at the Milne Inlet, Mary River, Mid-Rail, and Steensby Inlet sites will be transferred to the new Type A Water Licence. The follow up monitoring of facilities decommissioned at all Project sites will be regulated under the new Type A Water Licence. However, please note that existing camp infrastructure will continue to be used to support personnel involved in ongoing exploration and geotechnical investigation programs and other environmental baseline and engineering studies.

Mary River Project - Activities To Be Regulated Under Current Type B and New Type A Water Licences			
Site	**Current Type B Licence No. 2BB – MRY1114**	**Type B After Issuance of Type A**	**New Type A Water Licence**
Milne Port	• Fuel storage (one steel tank and bulk fuel bladder farm) • Sewage treatment plant and Polishing Waste Stabilization Pond (PWSP) • Camp • Temporary hazardous/nonhazardous waste and materials storage • Oily water treatment system • Water supply from Philips Creek and 32 km Lake • Incinerator	• All activities and infrastructure facilities will be transferred to the new Type A Licence with the exception of geotechnical drilling to support future infrastructure development	• Water supply from Philips Creek and 32 km Lake for potable and other camp uses • Site drainage and surface water management • Sewage treatment facilities for Milne Camp • Oily water treatment facilities for waste water and oily stormwater treatment from maintenance facilities and fuel storage berms • Incinerator for camp and combustible wastes • Storage and management of hazardous materials • Landfarm for deposition and treatment of hydrocarbon contaminated snow and soil • Fuel tank storage facilities and associated secondary containment areas for bulk fuel tank farm, fuel dispensing and day tanks. • Containment areas for temporary storage of hazardous/nonhazardous waste (waste transfer areas) and new product storage for drums and totes • Ongoing decommissioning of existing and historic camp infrastructure (e.g., fuel bladder farm and ancillary facilities).
Mine Site	• Exploration drilling and geotechnical drilling activities • Exploration camp and sewage treatment plant, PWSPs, and pipelines. • Water supply from Camp Lake for potable and other uses. • Bulk fuel storage farm (bladders) • Landfill • Temporary hazardous/nonhazardous waste and materials storage • Explosive magazines • Incinerator	• On-going exploration drilling and geotechnical drilling activities on Baffinland's mineral claims and development areas for the life of the Project • Use of existing camp infrastructure to house to service exploration and geotechnical drilling programs • Drill water use to support ongoing exploration and geotechnical drilling activities on mineral claims and Project development areas for the life of the Project (specific sources identified prior to drilling) • Potential for establishing future satellite camps to support exploration and drilling activities (amendment of licence would be required)	• Water supply from Camp Lake for potable and other camp uses • Site drainage and surface water management • Sewage treatment facilities for exploration camp, construction camp and permanent mining camp • Oily water treatment facilities for waste water and oily stormwater treatment from maintenance facilities and fuel storage berms • Explosives storage and manufacturing facilities • Fuel tank and dispensing storage facilities and associated secondary containment areas for bulk fuel tank farm, fuel dispensing facilities, and day tanks. • Containment areas for temporary storage of hazardous/nonhazardous waste (waste transfer areas) and new product storage for drums and totes • Waste sorting facility and temporary storage facilities for hazardous wastes • Storage and management of hazardous materials • Landfill site for disposition of solid waste • Landfarm for deposition and treatment of hydrocarbon contaminated soils and snow • Incinerator for camp and combustible wastes • Waste rock stockpile and waste rock pile runoff management • Ore stockpiles runoff management

		• All other activities and facilities will be transferred to the new Type A Licence	• Decommissioning of existing fuel bladder farm and ancillary facilities at the conclusion of active service life.
Steensby Port	• Current tent camp • 48 person hardwall camp and sewage treatment plant (not yet installed) • Drummed fuel storage • Temporary waste and materials storage • Water supply • Incinerator	• All activities and infrastructure facilities will be transferred to new Type A Licence with the exception of geotechnical drilling to support future infrastructure development	• Water supply from 3 km and 10 km Lakes • Site drainage and surface water management • Sewage treatment facilities for construction camp and permanent port camp • Oily water treatment facilities for waste water and oily stormwater treatment from maintenance facilities and fuel storage berms • Explosives storage and manufacturing facilities • Fuel tank and dispensing storage facilities and associated secondary containment areas for bulk fuel tank farm, fuel dispensing facilities, and day tanks. • Containment areas for temporary storage of hazardous/nonhazardous waste (waste transfer areas) and new product storage for drums and totes Landfill site for disposition of solid waste • Landfarm for deposition and treatment of hydrocarbon contaminated soils and snow • Incinerator for camp and combustible wastes • Ore stockpile runoff management
Railway Construction	• Mid-rail tent camp • Water supply • Incinerator • Temporary waste storage	• All activities and infrastructure facilities will be transferred to the Type A Water Licence with the exception of geotechnical drilling to support future infrastructure development	• Water supply for each construction camp • Sewage disposal for each proposed camp • Waste disposal for each proposed camp • Incineration of waste at each proposed camp • secondary containment for fuel storage and hazardous materials(if any) at each camp location
Water Crossings	• Tote road water crossings currently regulated under existing DFO authorizations and letters of advice	• New water crossings for the railway require a DFO authorization (letter of advice or specific authorization)	• Water course crossings including pipelines, jetties, bridges and roads, associated channel and bank alterations, culverts, spurs, erosion control, and, artificial accretion • Flood control • Diversions • Alterations of flow or storage by means of dykes or dams • Ongoing inspection and maintenance of all water course crossings and associated infrastructure

Appendix B – Schedule for Updates to Management Plans

The Table below lists the various management plans submitted in support of the Type A Water Licence application, and there proposed timelines for submission.

Baffinland`s management plans presented in support of the Type A Water Licence will need to be updated in a sequential manner to ensure that these management plans incorporate the requirements outlined in the terms and conditions of the Project Certificate and Type A Water Licence. A number of these management plans will also be required to support other permits such as the Crown Land Lease for Steensby and the QIA Land Lease for the Mine Site and Milne Port areas.

These management plans cannot be finalized until Baffinland has further refined its Project execution strategy and has retained major contractors to execute the work as has been identified to applicable regulatory agencies. It was noted in a recent Nunavut Water Board (NWB) conference call (October 18, 2012) that the majority of these plans meet the requirements of the NWB and are considered acceptable for the time being.

Baffinland requests that when the NWB considers granting the Type A Water Licence with the condition that each management plan required in support of the water licence application be updated and submitted to the NWB for review, that they consider the suggested timeframes shown in the Table below.

Suggested Schedule for Management Plans Required by the Type A Water Licence	
Management Plan	**Timeframe for Submission of the updated Management Plan**
Environmental Protection Plan	The Licensee shall submit to be Board for review, sixty (60) days prior to start of construction, an updated and consolidated Environmental Protection Plan. In recognition of the fact that the Environmental Protection Plan is a "living document" additional Operational Standards prepared within the framework of this Environmental Protection Plan by the Licensee or his contractors, as required throughout the construction period, shall be submitted to the Board (Inspector) for review prior to their implementation.
Emergency Response and Spill Contingency Plan	The Licensee shall submit to the Board for review, sixty (60) days prior to start of construction, a revised and consolidated "Emergency Response and Spill Contingency Plan". The updated Emergency Response and Spill Contingency Plan shall cover the activities included in the scope of the Licence. The Emergency Response and Spill Contingency Plan shall be reviewed and updated annually. Periodic updates or revisions to the Emergency Response and Spill Contingency Plan shall be submitted to the Board.

Blasting Management Plan	The Licensee shall implement best management practices for the use of explosives for blasting. The Licensee shall submit to the Board for review, a Blasting Management Plan sixty (60) days prior to start of blasting operations.
Hazardous Material and Hazardous Waste Management Plan	The Licensee shall submit to the Board for review, sixty (60) days prior to start of construction, an updated Hazardous Material and Hazardous Waste Management Plan.
Surface Water, Aquatic Ecosystems, Fish and Fish Habitat Management Plan	The Licensee shall submit to the Board for review, sixty (60) days prior to start of construction, an updated Surface Water, Aquatic Ecosystems, Fish and Fish Habitat Management Plan.
Waste Water Management Plan	The Licensee shall submit to the Board for review, sixty (60) days prior to start of construction, an updated Waste Water Management Plan.
Waste Management Plan	The Licensee shall submit to the Board for review, sixty (60) days prior to start of construction, an updated Waste Management Plan which include: 1. Landfarm management plan; 2. Landfill management plan; and, Incineration management plan.
Borrow Pits and Quarry Management Plan	The Licensee shall submit to the Board for review, sixty (60) days prior to start of construction, an updated Borrow Pits and Quarry Management Plan. The Borrow Pits and Quarry Management Plan will include criteria that will be used to distinguish ARD from non-ARD rocks.
Environmental Monitoring Plan	The Licensee shall submit to the Board for review, sixty (60) days prior to start of construction, a consolidated and updated Environmental Monitoring Plan.
Aquatic Effects Monitoring Program (AEMP) Framework	The Licensee shall upon issuance of this licence implement the Aquatic Effects Monitoring Program (AEMP) Framework presented at the NWB Final Hearing and subsequently modified based on the results of ongoing workshops with stakeholders scheduled to commence in November 2012. The Licensee shall implement Phase 1 of the AEMP sixty (60) days prior to start of construction (section applicable to construction camp operations). The Licensee shall implement Phase 2 of the AEMP sixty (60) days prior to start of the mine pre-stripping operations.
Waste Rock Management Plan	The Licensee shall upon issuance of this licence implement the Waste Rock Management Plan submitted in the Water licence application. The Licensee shall submit to the Board for review, an update of this management plan sixty (60) days prior to start of mine pre-stripping operation.

Preliminary Closure and Reclamation Plan	The Licensee shall upon issuance of the water licence implement the Preliminary Closure and Reclamation Plan submitted in the Water Licence application. The Licensee shall submit to the Board for review, sixty (60) days prior to start of mine pre-stripping operation an Interim Closure and Reclamation Plan. The Interim Closure and Reclamation Plan will include updates on pit water quality modelling, as well as an updated closure cost estimate for the project.

Notes:

Oil Pollution Emergency Plan (OPEP) – Milne Port – this plan will be submitted to Transport Canada (TC) on an annual basis as per regulatory requirements.

Oil Pollution Emergency Plan (OPEP) – Steensby Port - this plan will be submitted to Transport Canada (TC) on an annual basis as per regulatory requirements.

Explosives Management Plan - The Licensee shall obtain the required authorization for handling, use and storage of explosives at the Project sites. The Explosives Management Plan will be submitted for review by NRCAN.

Air Quality and Noise Abatement Management Plan – As part of conditions in the NIRB Hearing Report, the Air Quality and Noise Abatement Management Plan will be updated and submitted to the NIRB.

Health and Safety Management Plan – This management plan will be submitted as part of the Nunavut Mines Safety Act.

Appendix C – Stream Flow and Runoff Implications

Environment Canada follow-up questions regarding uncertainty in stream flow estimates:

1) BIM has stated that a 30 year record is necessary to reliably estimate stream flows. Given that the record available for the Mary River Project is much shorter than 30 years will BIM continue to take flow measurements before construction begins to improve design estimates?

Baffinland Response: Yes, Baffinland will continue to take flow measurements before construction begins to improve design estimates.

2) Will BIM continue to take flow measurements after the bridges, dams and culverts are built to ensure that the estimates are realistic?

Baffinland Response: Yes, Baffinland will continue to take flow measurements after construction.

3) What methodologies would Baffinland use to determine if the original design values are high in error?

Baffinland Response: While we cannot say with 100% certainty that the true return period values aren't greater than those derived (as the values were derived statistical extrapolation based on limited regional datasets), we can say that considerable conservatism was incorporated into the development of the return period values. A summary of this conservatism is as follows:

1. Average maximum annual daily discharge values were developed for various drainage areas using a regional envelope curve (actual regional values are all less than the envelope curve).

2. Standard deviation of maximum annual daily discharge values were developed for various drainage areas using a regional envelope curve (actual regional values are all less than the envelope curve).

3. Generalized extreme value distribution was selected to generate peak daily discharge values for various return periods. The GEV distribution has been shown to generated reasonable, yet conservative estimates of peak discharge (Cathcart, 2001).

4. A conservative coefficient of skewness (Cs) was applied to the GEV. Regional Cs values ranged from -0.03 to 0.23. A Cs value of 0.20 was selected.

5. Return period peak daily values were then scaled to instantaneous values using a regional envelope curve of Instantaneous/Daily maximum annual discharge ratios.

Given all of the conservatism built into their design, it is expected that the resultant peak flow values are similarly conservative. This is supported by the comparison of the peak flow values with data measured on site, as presented in the Mary River Baseline Hydrology Report (Knight Piésold, 2011).

4) Assuming that Baffinland continues to take measurements it is implied that they would use the information gathered to assess the risk that their structures are under-designed. Is that the case?

Baffinland Response: Once project infrastructure has been built, the analysis could be updated periodically (once every five or ten years) to ensure design flows have not increased by any considerable amount. If they are shown to have increased, Baffinland will then assess the risk and may then consider a range of mitigation options, including reconstruction of specific infrastructure.

5) Will Baffinland be putting an objective mechanism in place to assess and respond to this risk?

Baffinland Response: Refer to item 3 and 4 above. As the data set becomes more extensive, there will be more confidence in the magnitude of the return period, which will enable Baffinland to conduct a realistic risk assessment for infrastructure of concern.

6) What threshold of underestimation/risk would trigger a management response such as reconstructing a piece of infrastructure?

Baffinland Response: At this stage, Baffinland considers that the approach taken is very conservative (refer to item 3 above) and minimizes the risk of under sizing infrastructure. Acceptable thresholds of underestimation/risk will be established once the data set is more comprehensive. It is premature at this stage to discuss specific threshold that may require reconstruction of infrastructure.