



July 29, 2015

Resource Management Officer
Nunavut Field Operations
Aboriginal Affairs and Northern Development Canada
PO Box 219
Box 100
Iqaluit, NU X0A 0H0
Justin.Hack@aandc-aancd.cg.ca

Re: Follow up June 16-17, 2015 AANDC Water Licence Inspections - Water Licences Nos.
2AM-MRY1325, 8BC-MRY1416, 2BE-MRY1421 - Mary River Project

A Water Licence Inspection was conducted on June 16-17, 2015, on Baffinland's Mary River Project, by the Aboriginal Affairs and Northern Development Canada (AANDC) Water Resource officer. During the inspection, some concerns were identified and these concerns are outlined in the attached Inspection Report.

The attached Table A.1 provides a table that summarizes the Inspector's key observations and concerns along with Baffinland's responses.

Should you require further information on the above, please feel free to contact the undersigned at (647) 253-0596 Ext. 6010 or Jim Millard at (902) 403-1337.

Prepared by:

Reviewed by:

A handwritten signature in black ink, appearing to read "Trevor Myers".

Trevor Myers.
Environmental Superintendent

James Millard, M.Sc, P.Geo..
Environmental Manager

Attachments: AANDC Water Licence Inspection Report, dated July 2, 2015 (3 pages).
Table A.1 (2 pages)

cc. Allan Knight, Oliver Curran, Erik Madsen, Michael Anderson (Baffinland).

Erik Allain, Scott Burgess, AANDC



WATER LICENCE INSPECTION FORM

☒ Original
☐ Follow-Up Report

Licensee	Licensee Representative
Baffinland Iron Mines Corporation (BIMC)	Jim MILLARD/Allan KNIGHT/Trevor MYERS
Licence No. / Expiry	Representative's Title
2AM-MRY1325	Environmental Manager
Land / Other Authorizations	Land / Other Authorizations
8BC-MRY1416, 2BE-MRY1421	N2014X0012, N2014Q0016, N2014C0013
Date of Inspection	Inspector
June 16-17, 2015	Justin HACK
Activities Inspected	
<input checked="" type="checkbox"/> Camp <input checked="" type="checkbox"/> Roads/Hauling	<input type="checkbox"/> Drilling <input type="checkbox"/> Other: <input checked="" type="checkbox"/> Mining <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Other: <input type="checkbox"/> Reclamation <input checked="" type="checkbox"/> Fuel Storage

Conditions:	A - Acceptable	C - Concern	U - Unacceptable	NA – Not Applicable	NI – Not Inspected			
Water Use	Condition	Comment	Site Conditions	Condition	Comment	Haz/Mat Management	Condition	Comment
Intake/Screen	NI		Water Management Structures	C	1,2,3	Storage	NI	
Flow Measure. Device	NI		Culverts / Bridges	C	7	Spills	A	
Source:	A		Drainage	A		Spill Plan	A	
Water Use:	A		Erosion / Sediment	U	8,9,10,11			
Recirculation (y /n)	NA		Mitigation Measures	C	4	Administrative		
			Reclamation Activities	A		Records	A	
			Materials Storage	C	5,6	Reports	A	
Waste Disposal			Signage	A		Plans	A	12,13
Waste Water	A					Notifications	A	
Solid Waste	A		Monitoring			Other		
Hazardous Waste	A		Sample Collection / Analysis	NI		Follow-up from previous inspection	A	14, 15 16
*The number in the comments field will correspond with specific comments provided below.								
Samples taken by Inspector:			Location(s):					
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								

SECTION 1	<input checked="" type="checkbox"/> Comments	<input type="checkbox"/> Non-Compliance with Act or Licence	<input type="checkbox"/> Action Required
Inspectors Statement			
<p>On June 16-17 2015, a water licence inspection was conducted at the Mary River Project, Qikiqtani Region, Nunavut. Sites inspected included the Mary River Mine Site, the Tote Road, and the Milne Port area.</p> <p>Conditions on Site</p> <p>Freshet conditions: Snow around site has melted due to dust effects; however, there were still significant amounts of snow further from the impacted areas.</p> <p>Background</p> <p>At the time of inspection, the Licensee was undertaking activities related to the construction and operation of an open-pit iron ore mine at the Milne Port (Milne Inlet), Mine site (Mary River), and Tote Road. Given that different licence conditions apply to the project depending on what Phase the project is in, and that the project is in both construction and operation phases, Aboriginal Affairs and Northern Development Canada’s (AANDC) Water Resource Officer’s are working with the Licensee to ensure all relevant water licence conditions are being met.</p> <p>Major construction activities on site included the construction of the Milne Inlet Ore Dock, the re-grading and/or upgrades of the Tote Road, the construction of the ore crushing area sedimentation ponds, and construction of the Mine Road.</p> <p>Major activities occurring on site under the scope of the operations phase include the mining, crushing, screening and transportation of ore from Deposit 1 to the Ore Stockpile area at Milne Inlet. Shipping of ore has not yet occurred.</p> <p>Due to freshet conditions on site and lack of snow cover, this site inspection has revealed concerns not apparent during winter months while there was snow cover. Freshet presents an operationally demanding time of year for BIMC to manage water licence related issues. For the most part, BIMC has handled the risks of freshet successfully; however, areas of concern exist and certain operations can be further improved. BIMC Environment division has a history of working positively with Water Inspectors at AANDC to address issues of concern, and we continue to work towards achieving compliance. No major issues of non-compliance exist on site.</p>			



SECTION 2

☐ Comments

☐ Non-Compliance with Act or Licence

☒ Action Required

Water Management Structures:

1. Silt fences
 - Many silt fences at site appear to be unmaintained and collapsed in areas. Maintain where still required and remove where no longer required.
2. Ore Stockpile Pad at Milne Inlet
 - Proper diversion ditches have not been installed around the Ore Stockpile Pad. BIMC has agreed to follow-up with the responsible party and will provide a date for implementation in a response to this report. In the meantime, BIMC will be monitoring and sampling run-off from this facility weekly in the interim.
3. Ore Stockpile Settling Pond at Milne Inlet
 - The lip of the settling pond liner was exposed at the entrance to the western ore stockpile settling pond at Milne Inlet. The lip of the liner should be buried according to engineered drawings. Again, BIMC will be following up with the responsible party and will provide a date for implementation in a response to this report.

Mitigation Measures:

4. Application of Calcium Carbonate on roads
 - It was observed that calcium carbonate (salt) was being applied to the road without a water truck applying water to the salt.
 - It is recommended that a water truck and the salt truck operate in tandem to prevent the potential for salt to become windblown.

Materials Storage:

5. Storage of materials and equipment within 31m above the ordinary High Water Mark of any water body
 - Storage of sealift crates at explosives magazine storage on Mine Road is within 31m of a Mary River tributary. It was agreed that a plan would be provided to Water Inspector Hack to deal with this. A date was not provided; however, the Inspector requests this plan to be provided before the next scheduled inspection of July 30th, 2015.
6. Deposition of snow containing debris and sediment within 31m of water
 - It is recognized that snow removal and snow management is a significant obstacle for a mine operating in the Arctic; however, the deposition of large quantities of snow containing high levels of sediment and debris near water is unacceptable.
 - BIMC has recognized the need for a Snow Management Plan to prevent potentially contaminated snow from affecting sensitive areas and has agreed to develop and implement this plan by November 30, 2015.
 - Due to the soft ground conditions, the snow containing sediment and debris located near the Aerodrome apron will be difficult to remove, so it was decided an action plan is to be developed for its removal by July 15, 2015.
 - The snow containing sediment and debris near the hazardous waste berm at Milne Inlet is to be removed by July 1, 2015. Photo documentation to be provided.
 - The deposition of sand containing debris, as a result of snow disposal, at edge of lay-down area near Site Services Building (Mary River) is within 31m of a Sheardown Lake tributary (71°19'43"N, 79°22'07"W). It was agreed that this material would be appropriately moved by July 15, 2015.

Culverts/Bridges:

7. Culvert installations and extensions are still ongoing throughout the site
 - Now that freshet is happening, BIMC is reminded to implement sediment and erosion control measures, prior to and during their construction to prevent and minimize sediment loading into water.

Erosion/Sedimentation:

8. Construction on the Tote Road at KM76.5
 - During construction of this part of the Tote Road, best management practices were not implemented and this resulted in water flowing through an improperly constructed berm, onto the Tote Road, and into a tributary. Erosion and sedimentation control measures were not in place to minimize the effects of this event and caused significant sedimentation into the stream.
9. Pumping of water over Tote Road at KM6
 - Water was pumped over the Tote Road at KM6 because the culvert was frozen preventing the free passage of water underneath the road. At the time of inspection, the pump was not discharging; however, erosion and sediment loaded water was noted downstream of the pump. There was a suitable location for the discharge approximately 5 metres from the discharge location.
10. It is understood that project infrastructure and activities have the potential to influence watercourses. BIMC



has a *Surface Water and Aquatic Ecosystems Management Plan, 2015* in place outlining their commitment and plan to prevent the deposition of sediment into a water body. Preventative measures are a significant part of this plan and must be implemented throughout the life of the project, consistent with conditions of their water licences. BIMC has taken steps to address identified sites of specific concern (Yard Swale near MS-MRY-1) and has a history of willing to work towards preventing sedimentation and erosion.

11. However, activities continue to occur on the site where best practices have not been implemented, as outlined in their *Surface Water and Aquatic Ecosystems Management Plan, 2015*. To manage this issue of concern, BIMC Environment has committed to conduct inspections of sedimentation and erosion control measures related to construction, and will be ensuring that the Project Manager of road construction and his/her staff are educated on proper procedures. This is a major concern for the inspector and will be a point of focus during the next inspection.

Sites of Concern Managed by a Compliance Action Plan:

12. Drilling/Road Salt (Calcium Chloride)
- Since the August 21-25 2014 Inspection, BIMC has submitted a plan to address concerns AANDC Water Resource Officers had with the storage of Calcium Chloride near the quarry site at Milne Inlet.
 - As per the plan, BIMC has segregated salt bags and debris that have the potential to become windblown to prevent them from becoming displaced around site.
 - On June 30, 2015 BIMC requested an extension of their July 1, 2015 deadline to July 31, 2015 for the clean-up of compromised salt bags due to unforeseen delays as a result of reallocations of manpower resources.
 - During the inspection on site, it was observed that BIMC has made significant progress towards their meeting their deadline of July 1, 2015. By way of this report, I recognize this is a reasonable request and recognize July 31, 2015 as the new deadline.
13. Waste Ash in barrels near incinerator
- During the inspection on site, it was observed that BIMC continues to work towards meeting the deadlines of disposing the Category 1 Ash by July 31, 2015.
 - The Soil Monitoring Report and Final Summary Report of this activity are due September 30, 2015.
 - AANDC Water Inspector will monitor these deliverables as they become due.

Sites of Concern noted from previous Inspection:

14. Erosion and Sedimentation from construction activities
- This concern has been observed again during this inspection and is addressed in the erosion/sedimentation section above.
15. Debris or Sediment pushed into watercourse at MS-MRY-1.
- BIMC removed the snow of concern from the watercourse near MS-MRY-1 and has provided documentation to prove this.
 - Snow management continues to be a concern at site and BIMC has committed to a Snow Management Plan by November 30, 2015.
16. Spill into Water Course at KM38 of Tote Road
- BIMC has filed a spill report about this spill.
 - It was noted on site that spill trays were being used on equipment stored or used near a watercourse.


Inspector's Name	
Justin Hack	
Signature	
	
Date	
July 2, 2015	

Table A.1 - Response to AANDC Water Licence Inspection - June 16-17, 2015		
ITEM No.¹	Observation or Item of Concern	Baffinland Response
Waste Management Structures		
1	<i>Silt fences - many silt fences at site appear to be unmaintained and collapsed in areas. Maintain where still required and remove where no longer required.</i>	It is typical for silt fences to fill full of silt and sand and collapse once they have reached capacity. During the 2015 open water season, collapsed fences will be removed and landfilled. This will be substantially completed by September 15.
2	<i>Ore Stockpile Pad at Milne Inlet - proper diversion ditches have not been installed around the Ore Stockpile Pad. - Implementation date required. - Monitoring and sampling run-off from this facility weekly in the interim.</i>	Ditching system cannot be constructed until ore stockpile reaches its full areal extent. Also there is infrastructure that is currently impeding this effort. The infrastructure will be removed and the ditching system will be in place for freshet 2016.
3	<i>Ore Stockpile Settling Pond at Milne Inlet - the lip of the settling pond liner was exposed at the entrance to the western ore stockpile settling pond at Milne Inlet. - Implementation date required.</i>	This will be addressed by freshet 2016.
Mitigation Measures		
4	<i>Application of Salt on roads - salt was being applied to the road without a water truck applying water to the salt. Inspectors recommendation that a water truck and the salt truck operate in tandem to prevent the potential for salt to become wind blown. What are the future plans for the use and application of dust suppression on the project?</i>	Baffinland accepts this recommendation, however, there may be times when there is a short interval where the water truck follows at some distance after the calcium chloride (CaCl ₂) is applied. Baffinland does not consider this to be a problem so long as the CaCl ₂ does not become windblown. The plan is to continue to utilize granular CaCl ₂ stored at the Mine Site and at Milne Port. The CaCl ₂ has to date been applied in granular form. However, there are plans to commence applying the CaCl ₂ as a brine. Flake CaCl ₂ has been ordered for this year's sealift which is better suited for application as a brine. EK35, a non toxic and aircraft approved dust suppressant is to be applied to the airstrip this summer.
Materials Storage		
5	<i>Storage of materials and equipment within 31m above the ordinary High Water Mark of any water body. - sealift crates at explosives magazine storage on Mine Road is within 31m of a Mary River tributary, Inspector requests plan to be provided before the next inspection - July 30, 2015.</i>	The sealift crates have been moved as requested. The explosive magazines remain in place.
6	<i>Deposition of snow containing debris and sediment within 31m of water. Deposition of large quantities of snow containing high levels of sediment and debris near water is unacceptable. - develop and implement a Snow Management Plan by November 30, 2015. - develop action plan for removal of sediments located near the Aerodrome drainage by July 15, 2015. - Snow containing sediment and debris near the hazardous waste berm at Milne Inlet to be removed by July 1, 2015. - the deposition of sand containing debris, as a result of snow disposal, at edge of '07 Laydown is within 31m of tributary needs to be removed by July 15, 2015</i>	<p>- Baffinland will develop a Snow Management Plan by November 30, 2015.</p> <p>- With regard to the sediments located near the Aerodrome drainage, our plan is to access the area during September or early October once the ground surface is adequately frozen. In the meantime, silt fences have been installed around the sediment pile to reduce the likelihood of sediment release to the stream.</p> <p>- Snow containing sediment and debris near the hazardous waste berm at Milne Inlet was removed prior to July 1, 2015.</p> <p>- the material at the edge of '07 Laydown was removed as requested before July 15, 2015.</p>
Culverts/Bridges		
7	<i>Culvert installations and extensions are still ongoing throughout the site - reminder to implement sediment and erosion control measures, prior to and during their construction to prevent and minimize sediment loading into the water.</i>	Noted.

Erosion and Sedimentation		
8	<p>Construction on the Tote Road at KM76.5</p> <p>- best management practices not implemented during construction which resulted in water flowing through an improperly constructed berm, onto the road, and into a tributary. Erosion and sedimentation control measures were not in place to minimize the effects of this event and caused significant sedimentation into the stream.</p>	The situation has since been rectified with the installation of numerous silt fences, rock berms, and other structures.
9	<p>Pumping of water over Tote Road at KM6</p> <p>Water was being pumped over the Tote Road at KM6 because the culvert was frozen preventing the free passage of water underneath the road. At the time of the Inspection, the pump was not discharging,; however, erosion and sediment loaded water was noted downstream of the pump. There was a suitable location for the discharge approximately 5 metres from the discharge location.</p>	Tote road freshet crews were warned about this practice and correct procedures are now being followed.
10	<p>It is understood that project infrastructure and activities have the potential to influence watercourses. The Surface Water and Aquatic Ecosystems Management Plan, 2015 is in place outlining commitments and plans to prevent the deposition of sediment into a water body. Preventative measures are a significant part of this plan and must be implemented throughout the life of the project, consistent with the conditions of the Water Licence. There have been steps taken to address identified sites of specific concern and work undertaken to prevent sedimentation and erosion.</p>	Agreed.
11	<p>However, activities continue to occur on the site where best practices have not been implemented, as outlined in the SW&AEMP, 2015.</p> <p>To manage this issue of concern, Environment has committed to conduct inspections of sedimentation and erosion control measures related to construction, and ensuring that the Project Manager(s) of road construction and staff are educated on proper procedures. This is a major concern for the Inspector and will be a point of focus during the next inspection.</p>	Noted. A concerted effort has been undertaken to improve sediment control practices at the referenced locations as well as at other locations along the road.
Sites of Concern Managed by a Compliance Action Plan		
12	<p>Drilling/Road Salt (Calcium chloride)</p> <p>- Cleanup of compromised salt bags by July 1, 2015 July 31, 2015.</p>	The clean-up is now substantially complete for the historical debris and compromised salt bags.
13	<p>Waste Ash in barrels near incinerator</p> <p>- deadline of July 31, 2015 to dispose of Category 1 Ash - (landfill)</p> <p>- soil monitoring and final summary report due September 30, 2015</p>	Category 1 Ash has been transported to the landfill. Soil monitoring and final summary to be completed by September 30.
Sites of Concern noted from previous inspection		
14	<p>Erosion and Sedimentation from construction activities</p> <p>- concern observed again and is addressed in the erosion/sedimentation section above</p>	Noted.
15	<p>Debris or Sediment pushed into watercourse at MS-MRY-1</p> <p>- snow of concern removed and documentation provided</p> <p>- Snow management continues to be a concern of the Inspector and a Snow Management Plan has been committed to by November 30, 2015</p>	Noted.
16	<p>Spill into Water Course at KM38 of Tote Road</p> <p>- Spill report filed</p> <p>- Inspector noted spill trays were being used on equipment stored or used near a watercourse.</p>	Noted.

Notes:

¹ Item No. as referenced in AANDC Water Licence Inspection Report June 16-17, 2015