



WATER LICENCE INSPECTION FORM

☒ Original
☐ Follow-Up Report

Licensee		Licensee Representative	
Baffinland Iron Mines Corporation (BIMC)		Connor Devereaux	
Licence No. / Expiry		Representative's Title	
2AM-MRY1325		Environmental Superintendent	
Land / Other Authorizations		Land / Other Authorizations	
8BC-MRY1416, 2BE-MRY1421		N2014X0012, N2014Q0016, N2014C0013	
Date of Inspection		Inspector	
November 8-9, 2017		Jonathan MESHER	
Activities Inspected			
<input checked="" type="checkbox"/> Camp	<input type="checkbox"/> Drilling	<input checked="" type="checkbox"/> Mining	<input checked="" type="checkbox"/> Construction
<input checked="" type="checkbox"/> Roads/Hauling	<input type="checkbox"/> Other:		<input type="checkbox"/> Reclamation
		<input type="checkbox"/> Other:	<input 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
Intake/Screen	NI			Water Management Structures		U	1,2,3,4
Flow Measure. Device	NI			Culverts / Bridges		C	2
Source:	A			Drainage		U	3
Water Use:	A			Erosion / Sediment		NI	
Recirculation (y /n)	NA			Mitigation Measures		C	4
				Reclamation Activities		A	
				Materials Storage		A	
Waste Disposal				Signage		A	
Waste Water	C		4				
Solid Waste	A			Monitoring			
Hazardous Waste	A			Sample Collection / Analysis		NI	
*The number in the comments field will correspond with specific comments provided below.							
Samples taken by Inspector:							
<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			
On November 8, 2017, 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.			
Weather Conditions on Site			
Mainly cloudy with temperatures between -15 and -20 degrees Celsius. There was significant snow cover on the ground at the time of the inspection, making it difficult to determine the condition of most water and waste management structures.			
Summary of Report			
At the time of inspection, the Licensee was undertaking activities related to the operation of an open-pit iron ore mine at the Mine site (Mary River), Milne Port (Milne Inlet), and Tote Road. BIMC is primarily mining ore and transporting it to Milne Port in preparation for open water season. Construction activities on site include; Construction of an 800 man camp at Mary River site and work on problematic areas along the tote road.			
Prior to this inspection the Licensee had been dealing with drainage with low pH and a leak in the Waste Rock Stockpile sedimentation pond. The licensee is currently reviewing and discussing a work plan with Golder Associates to develop a water and waste rock management action plan prior to freshet 2018.			



Inspection

1. **Ore Stockpile Pad and associated water management structures.**
 - a. As mentioned in previous inspection reports, the Ore Stockpile pad does not appear to be graded properly. There are low points throughout this facility which may affect the flow of surface water from the unlined facility to the lined sedimentation ponds. This facility will be monitored in future inspections to ensure it is operating as intended.
 - b. During inspection a large area on the West side of the East sedimentation pond had significant ore used to level an area outside of containment.
 - I. Part D, Item 13 of the licence 2AM-MRY1325 states: The Licensee shall use fill material for construction from approved sources that been demonstrated by appropriate geochemical analyses to not produce Acid Rock Drainage and to be Metal Leaching properties.
 - II. Please provide proof to the inspector that this ore had been approved for the use in construction.
 - III. If this ore has not been approved for construction the licensee shall remove the ore from the identified area before May, 2018. See figures 1 and 2 below for pictures of the area of concern.
2. **Water Management Structures along the Tote Road**
 - a. While inspecting the tote road it was difficult to determine the condition of water management structures due to snow.
 - b. At the time of the inspection the licensee was working on armouring ditches and culverts at kilometer 85.
 - I. INAC's senior engineer raised concerns with the size and layout of the rip rap, It does not appear to the engineer that the placement and size is compliant with best practices.
 - II. This issue will be monitored during future inspections by the senior engineer to ensure that this is adequate. See Figure 3 for a picture of the area of concern.
3. **Ore Crushing Area and associated water management structures**
 - a. As noted in the previous inspection, the diversion ditches around this facility do not appear to fully surround the ore crusher pad. See figure 4 for the area that is not contained by ditches.
 - b. Until the facility is fully surrounded by ditches, INAC is requesting that the Licensee start bi-weekly sampling down gradient from the area where no ditches are present. The licensee is to provide the inspector with the following;
 - I. Lab results for all criteria set out in PART F, Item 25 in the water licence 2AM-MRY1325.
 - II. Photos of the sampling being conducted.
 - III. Time, Date, GPS coordinates.
 - IV. Name and position of the person sampling.
 - c. During the inspection there was crushed ore and a boulder pushed into the ditches around this facility.
 - I. This debris is to be removed prior to freshet 2018 to allow proper flow of water to the sedimentation ponds. See figures 5-7 for photos of debris in the ditches.
4. **Waste Rock Stockpile and associated water management structures**
 - a. The Waste rock stockpile sedimentation pond has been experiencing low levels of PH due to unforeseen Acid Rock Drainage (ARD).
 - b. During a Water Licence inspection on August 22-24, 2017 the INAC inspector noted "3 uncontrolled discrete seepages originating from the central toe of the waste rock water containment berm".
 - c. The licensee had initially expected that the "seepages" were due to waste water flowing under the containment facility. On November 4th, 2017 the Licensee pumped rhodamine dye into the containment pond and determined that the containment structure is leaking into the surrounding environment.
 - d. The Licensee is has failed to comply the following directions from, the Inspectors Direction written on September 5, 2017 to Baffinland Iron Mines Corporation;
 - I. 1. To fix the Facility to the specifications provided in the approved for-construction drawing, within 30-days of this direction or prior to freeze-up, whichever occurs first. This has been determined because this facility was not initially designed to leak.
 - II. 2. To prevent all uncontrolled discharges from leaving the facility. This has been determined because this facility is still leaking.
 - e. The licensee is currently reviewing and discussing a work plan with Golder Associates to develop a water and waste rock management action plan prior to freshet 2018.



5. **Geomembrane liners**

a. INAC’s senior engineer has determined that the geomembranes throughout Mary River and Milne Port do not meet industry standard because of their lack of cover.

b. BIMC is required to construct all water management structures in accordance with all applicable legislations and industry standards as stated in Part D, item 24, “The Licensee shall construct and operate all infrastructure and Facilities designed to contain, withhold, divert or retain Water and/or Waste in accordance with all applicable legislations and industry standards.”

c. The inspector is requiring BIMC to cover all exposed membranes to meet industry standards or provide justification for not doing so.
6. **Oil sumps in all garages**

a. INAC’s senior engineer has raised a concern about the oil sumps/ holding tanks.

b. INAC is requesting that BIMC assess the integrity and performance of the oil sumps/holding tanks to ensure that no vehicle waste (engine oil, transmission fluid, brake fluid, solvents, degreasers, etc.) enters and surrounding water bodies.

SECTION 2	<input type="checkbox"/> Comments	<input checked="" type="checkbox"/> Non-Compliance with Act or Licence	<input checked="" type="checkbox"/> Action Required
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Action required			
1. To provide the inspector with all records of weekly inspections as required in part E, item 11 of the water licence 2AM-MRY1325.			
Relevant information			
PART E CONDITIONS APPLYING TO WATER USE AND MANAGEMENT			
11. The Licensee shall carry out weekly inspections of all structures designed to contain, withhold, divert or retain Waters or Wastes during periods of flow and maintain records of the inspections and findings, for review upon the request by the Board or an Inspector.			
2. To provide the inspector with proof that the ore in figure 1 and 2 has been approved for the use as fill material.			
Relevant information			
PART D CONDITIONS APPLYING TO CONSTRUCTION AND OPERATIONS			
13. The Licensee shall use fill material for construction from approved sources that been demonstrated by appropriate geochemical analyses to not produce Acid Rock Drainage and to be Metal Leaching properties.			
3. INAC is requesting that the Licensee start bi-weekly sampling down gradient from the area where no ditches are present at the Ore Crusher Pad. The licensee is to provide the inspector with the following: Lab results for all criteria set out in PART F, Item 25 in the water licence 2AM-MRY1325.Photos of the sampling being conducted, Time, Date, GPS coordinates, Name and position of the person sampling.			
4. To remove all debris from all diversion ditches prior to freshet 2018, so that surface water flows as intended to the sedimentation ponds.			
5. To come in compliance with Items 1 and 2 of the Inspectors Direction written on September 5, 2017 to Baffinland Iron Mines Corporation.			
6. To cover all exposed membranes to meet industry standards or provide justification for not doing so.			
7. To assess the integrity and performance of the oil sumps/holding tanks to ensure that no vehicle waste (engine oil, transmission fluid, brake fluid, solvents, degreasers, etc.) enters and surrounding water bodies.			

Inspector's Name	
Jonathan Mesher	
Signature	
Signature on original report	
Date	
June 20, 2017	



Figure 1: crushed ore being used for fill.



Figure 2: ore being used for fill



Figure 3: Km 85 construction

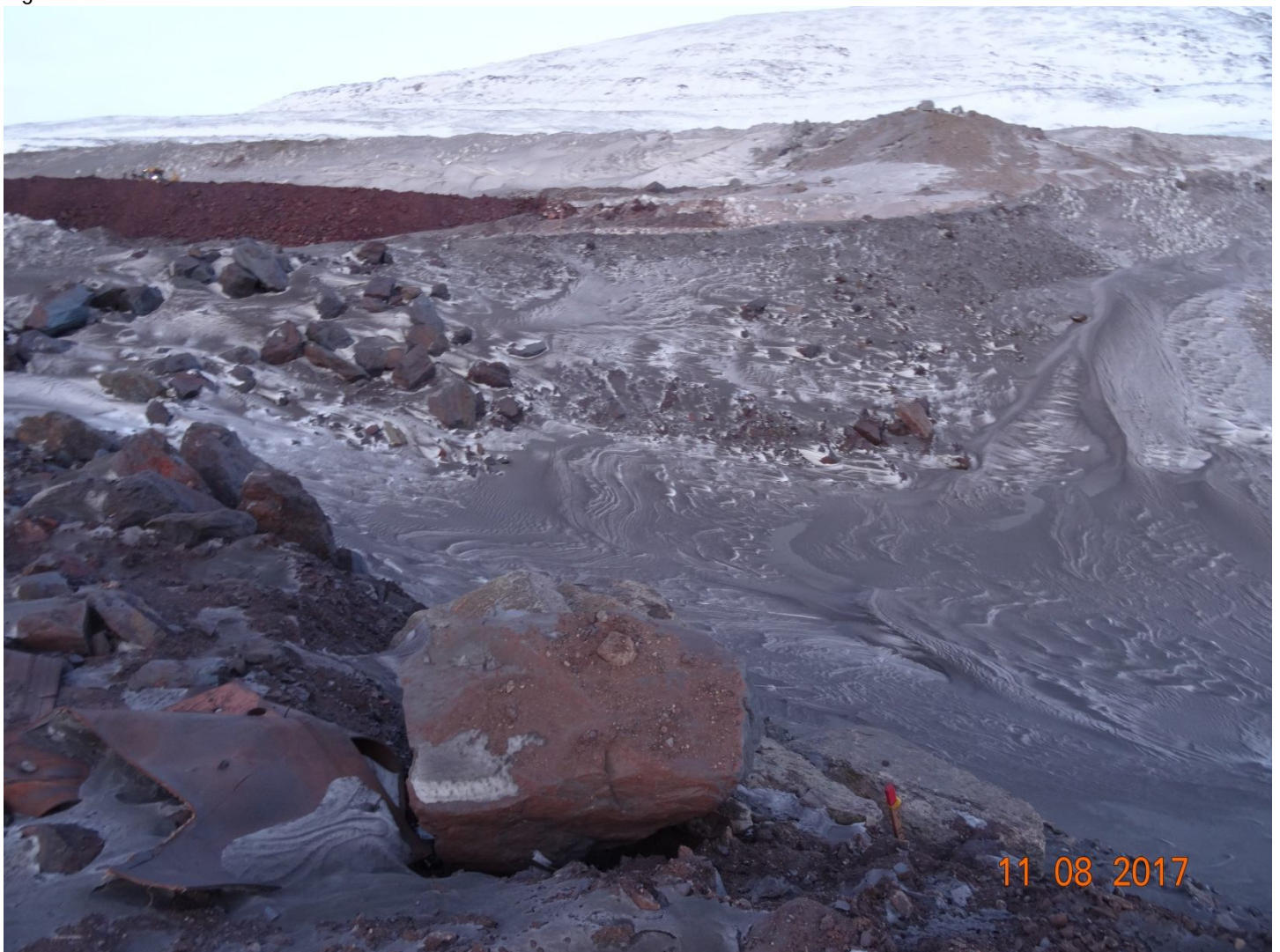


Figure 4: Crusher pad-There is no diversion ditches below this “oversize” ore.



Figure 5: snow pushed into the ditches.



Figure 6: Boulder pushed into the ditch.



Figure 7: crushed ore pushed into the ditch.

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