



WATER LICENCE INSPECTION FORM

☒ Original

☐ Follow-Up Report

Licensee	Licensee Representative
BAFFINLAND IRON MINES CORPORATION	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
May 22-23, 2019	Jonathan Mesher
Activities Inspected	
<input type="checkbox"/> Camp	<input type="checkbox"/> Drilling
<input type="checkbox"/> Roads/Hauling	<input checked="" type="checkbox"/> Mining
	<input type="checkbox"/> Construction
	<input type="checkbox"/> Reclamation
	<input type="checkbox"/> Fuel Storage
	<input type="checkbox"/> Other:

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	A		Water Management Structures	C	2,6,7	Storage	C	3,4,8
Flow Measure. Device	A		Culverts / Bridges	A		Spills	A	
Source:	A		Drainage	C	6	Spill Plan	A	
Water Use:	A		Erosion / Sediment	C	6,7,11			
Recirculation ( y /n)	N		Mitigation Measures	C	9	Administrative		
Containment Ditches	U	1,2,	Reclamation Activities	A		Records	A	
			Materials Storage	C	5	Reports	Ni	
Waste Disposal			Signage	A		Plans	Ni	
Waste Water	U	2				Notifications	A	
Solid Waste	A		Monitoring			Other		
Hazardous Waste	U	3,4	Sample Collection / Analysis	NI				

*\*The number in the comments field will correspond with specific comments provided below.*

Samples taken by Inspector:

☐ Yes   ☒ No

SECTION 1    ☒ Comments (s.\_\_)    ☐ Non-Compliance with Act or Licence (s.\_\_)    ☐ Action Required (s.\_\_)

**Background**

An inspection was conducted by Jonathan Mesher, a Water Resource Officer of CIRNAC. 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.

**Construction activities on site include;**

- Construction of LP2,
- Construction of LP3,
- Construction of LP5,
- Ore Pad expansion,
- Milne Quarry diversion ditches,
- MP-06 expansion complete,
- Perimeter road surrounding the waste rock stockpile
- Construction of the new fuel farm at Mary river and,
- Ongoing construction at the 800 man camp.

**Facilities inspected are as follows;**

- Ore Crushing Area and Associated Water/waste Management Structures,
- Ore Crushing Area and Associated Water/waste Management Structures,
- Landfill,
- Laydown #2 at mine site,
- Raw water intakes,
- Hazardous waste berms at Milne Inlet and mine site,
- Polishing Waste Stabilization ponds at Milne inlet and mine site,
- Air Terminal Jet A storage,
- Ore Stockpile Pad and Related Water/Waste Management Structures at Milne Inlet,
- Milne Inlet Land Farm and,
- Bridges along the tote road.



The Inspector noted the following concerns listed below and is requesting that the licensee provide a response to the concerns within 30 days of receiving this Inspection Report.

**1. Ore Crushing Area and Associated Water/waste Management Structures.**

- a. During the last inspection the licensee had committed to installing the perimeter road around the facility prior to May 15, 2019, on May 22, 2019 the road was still not completed.
- b. The licensee continues to express to the Inspector that the perimeter road is designed to be 3m wide, in the "For Construction" drawing below produced by Golder Associates for BIMC it clearly shows there should be 8m gap between the stockpile and the ditch. (See Photo 2 )While on site it was noted that the material used to construct the ditches are significantly larger than the approved material mentioned in the For Construction drawing.
- c. As mentioned in previous inspection reports the slope of the ditches surrounding this facility do not appear to be consistent with the approved design and the construction material does not appear to be the approve size. (see Photo 1).
- d. It does not appear that the licensee is using the dust mitigation measures agreed upon, while on site the licensee was not using the shroud at the end of the conveyer belt that stacks the ore after crushing.( see Photo # 3)

**2. Waste Rock Stockpile and Associated Water/waste Management Structures.**

- a. During the inspection it was noted that there was still significant snow cover surrounding the waste rock stockpile.
- b. At the time of the inspection the licensee had the majority of the perimeter road complete, this road will act as a diversion berm and aid in the construction and maintenance of the containment ditches that BIMC plans to construct this season (see Photo 4).
- c. The ditches that are currently in use are still in the same condition noted in previous inspections and are not constructed to the approved design; Baffinland's solution is constructing all new ditches (see Photo 5).
- d. The leaking Waste rock stockpile containment pond appears to have significant capacity, the licensee will be repairing and increasing the capacity of this pond this season and has liner on site in preparation.

**3. Hazardous Waste Berms (HWB) at the mine site.**

- a. The inspector noted that Hazardous waste berm #7 had limited capacity and the berm walls were inconsistent, the inspector is requesting that the licensee provide the for construction and As-built drawings for all Hazardous waste berms.
- b. The inspector noted damaged containers within the Hazardous Waste Berm, Section 4.4.2of the Hazardous Material and Hazardous waste Management Plan states that; "Regular inspections are performed and recorded. Containers are placed so that each container can be inspected for signs of leaks or deterioration. Leaking or deteriorated containers will be removed and their content transferred to a sound container." The Licensee is to remove all damaged containers and transfer the hazardous material to sound containers. ( see Photos #6 )

**4. Hazardous Waste Berms (HWB) at the Milne Inlet.**

- a. During the inspection there was machinery operating in the hazardous waste berm and significant staining from spills in the facility, the machinery was freely driving in and out of this facility potentially spreading the spilled hazardous material and contaminating the surrounding area The inspector is requesting that the licensee remove the contaminated soil and appropriately dispose of it. (See Photo 8)
- b. The inspector noted that the licensee has recently placed new crushed rock in the facility over a portion of the spilled area and had absorbent material scattered over the affected area.(See Photo 8)
- c. The inspector noted damaged containers within the Hazardous Waste Berm, Section 4.4.2of the Hazardous Material and Hazardous waste Management Plan states that; "Regular inspections are performed and recorded. Containers are placed so that each container can be inspected for signs of leaks or deterioration. Leaking or deteriorated containers will be removed and their content transferred to a sound container." The Licensee is to remove all damaged containers and transfer the hazardous material to sound containers. (see Photo 7)
- d. The Inspector also noted rips in the liner of the facility that require repairs. (see Photo 9)

**5. Laydown #2 at Mine Site.**

- a. At the time of the inspection there was significant flooding of this laydown, in the flooded area there was multiple storage containers sitting in the water.
- b. PART D item 22 states that; "The Licensee shall undertake necessary corrective measures to mitigate impacts on surface drainage resulting from the Licensee's activities." (see Photos 15 and 16 for photos of flooding)



6. Ore Stockpile Pad and Related Water/Waste Management Structures at Milne Inlet.

- a. At the time of the inspection the licensee had completed the construction of the sedimentation pond adjacent to MP-06, no concerns were noted regarding this facility
- b. The East ditch leading into MP-06 does not appear to be keyed in properly, there was evident of water flowing under the liner and material being washed under the liner. The inspector is requesting that the licensee properly key in the liner.
- c. While reviewing the As-built and for construction drawings for the facility I was unable to locate the stamped engineered drawings for the construction of the ditches, Part D, item 2 states that; "The Licensee shall submit to the Board for review and acceptance, at least sixty (60) days prior to construction or in a timeframe otherwise approved by the Board in writing, final design and for-construction drawings, stamped and signed by a Professional Engineer, for all infrastructure and/or facilities designed to contain, withhold, divert or retain Water and/or Waste including the following:" The inspector is requesting the licensee provide the required engineered drawings.
- d. The ditch leading into MP-05 has rips in the liner; the licensee is to repair the liner to ensure the runoff is properly treated.

7. Tote Road Bridges.

- a. During the inspection there was sediment noted below the bridges.
- b. The abutments on Km 80 and Km 97 bridge appear to have shifted, CIRNAC's Civil engineer made the following suggestions based on the photos provided;
  - I. Km 97 Bridge, Photo 10: The precast abutment wall appears moving out of place, the wall must be investigated by a qualified professional engineer and appropriate corrective actions are to be provided.
  - II. Km 80 Bridge, Photo 11: Sizing and placing of the existing rip rap appear deficient and need to be reviewed. We would suggest having Baffinland look into a new design approach for the bridge abutment armoring features.
  - III. Km 80 Bridge Photo 12: Armoring features are deficient. The existing abutment wall components do not appear stable. Baffinland is to investigate and provide adequate mitigation measures in place to ensure that the structural integrity of the bridge is not compromised.

8. Air Terminal Jet A storage.

- a. While inspecting the Jet A storage it was noted that there was a high water mark significantly lower than the current water level. See Photos 13 and 14 for the noted concerns.
- b. There were rips in the Liner of this containment structure it appears to have hydrocarbons in the pooling water.

9. Access road to the Maine site Effluent outfall.

- a. During the inspection it was again noted that on this road there are area where the road blocks natural drainages which leads to flooding and washouts of the road.
- b. PART D item 22 states that; "The Licensee shall undertake necessary corrective measures to mitigate impacts on surface drainage resulting from the Licensee's activities." ( see photos 17 and 18 for the concerns noted above)

10. Erosion control installed at Camp Lake

- a. In the last 2 years Baffinland has had continual problems with managing the runoff from the old Camp pad to Camp Lake during freshet, during the most recent inspection the licensee had constructed significant erosion structures such as, armoring along the drainage, armoring along the camp lake shore line and the installation of multiple settling ponds. When licensee was questioned about the approvals for the installation of these structures the licensee stated that the licence allows for construction of water management structures in emergency situations
- b. Due to the reoccurrence of this problem for multiple of years, the inspector does not believe that this is an emergency situation, The licensee is to submit the required documents in PART G of the licence 2AM-MRY1325 and seek approval for these water management structures. (see photos 19 and 20 for photos of the construction mentioned above).

<input type="checkbox"/> Comments	<input checked="" type="checkbox"/> Non-Compliance with Act or Licence	<input checked="" type="checkbox"/> Action Required
<p>The Following is a list of Action Required by Baffinland, if required in the licence the licensee must obtain the appropriate approvals.</p> <ol style="list-style-type: none"><li>The Licensee is to Install and maintain the required 8m gap between the Crusher Pad Stockpile and Water Management structures. If this not completed by August 15<sup>th</sup>, 2019 the inspector will proceed with further enforcement.</li><li>Due to the apparent discrepancy between the material in the For Construction drawings and what's actually on site, the Licensee is to provide a report ensuring that the Water Management structures</li></ol>		



surrounding Ore Crusher Pad are constructed with the approved materials in the approved design.

3. The licensee is to remove all Hazardous material from any damaged containers and place it in sound containers.
4. The licensee is to repair/ Key-in the liners at MP-05 and MP-06 to ensure all runoff is proper captured.
5. The licensee is to get a Professional Engineer to inspect the Bridges along the Tote road as stated by CIRNAC’s Civil Engineer and during the last Geotechnical inspection.
6. The licensee is to repair the liner at the Jet “A” storage.
7. The licensee is to Install the appropriate water management structures or imply the appropriate snow management practices to limit machinery from driving through this surface water at Lay down #2.
8. The licensee is to install the appropriate water management structures at areas along the Mary River Effluent discharge road where it disrupts the natural surface drainage.
9. The licensee is to submit the required documents in PART G of the licence 2AM-MRY1325 and seek approval for the water management structures constructed leading into Camp Lake.


SECTION 3

☐ Comments

☐ Non-Compliance with Act or Licence

☐ Action Required

Click here to enter text.

Licensee or Representative	Inspector's Name
	Jonathan Mesher
Signature	Signature
	
Date	Date
	1/30/2019

Office Use Only:

Follow-up report to be issued by Inspector

☐ Yes ☐ No

CC:

Licensing Department, NWB  
Justin Hack, Manager of Field Operations, CIRNAC



PHOTO LOG

Date	Camera	Inspector	Authorization
August 22, 2018	Sony Cyber-shot	J.Mesher	2AM-MRY1325

Photo LogLocation Baffinland

Photo 1

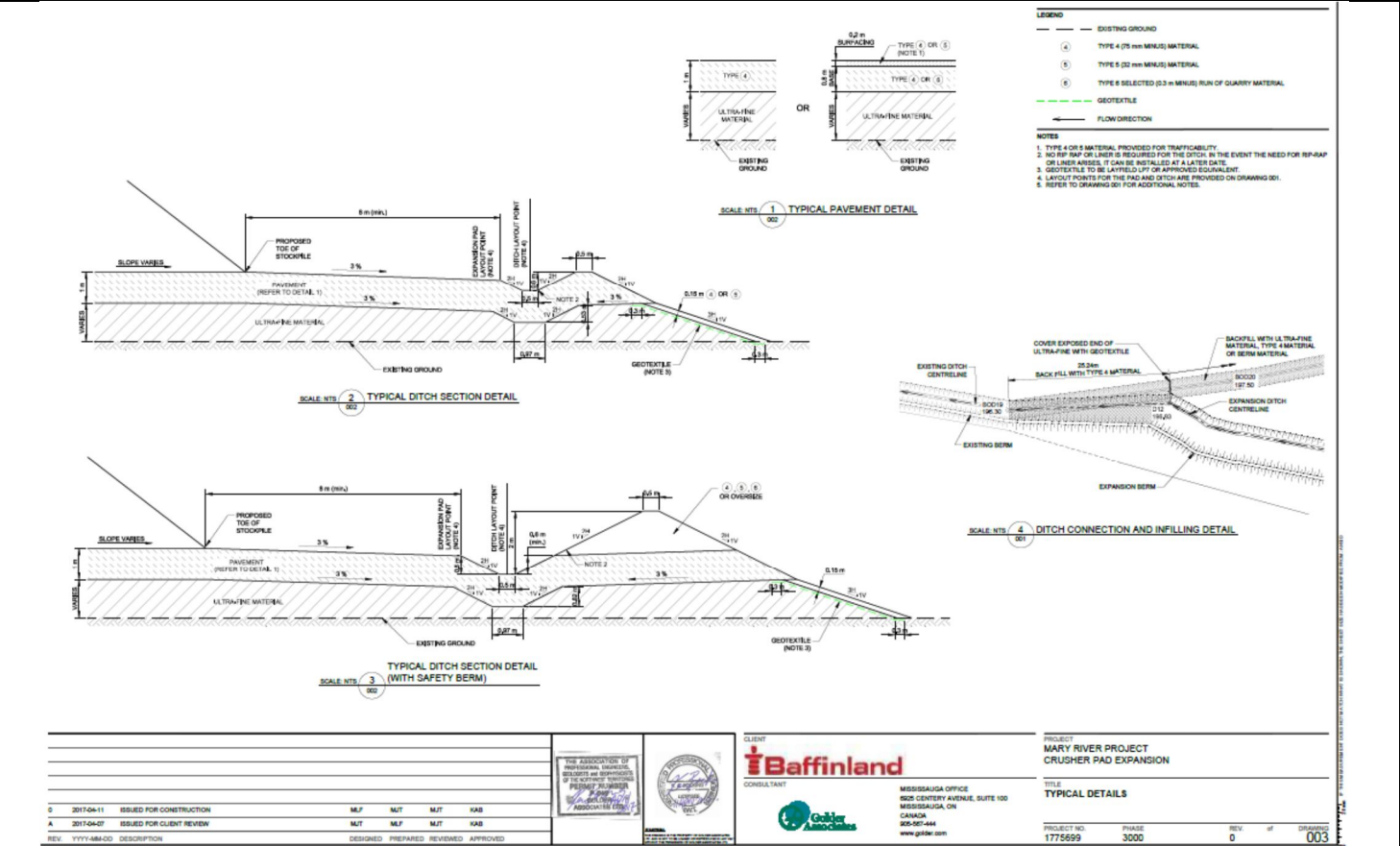


Description: Pooling in unlined ditches of the Crusher pad

Photo Log #

Photo 2

Location Baffinland



Description: Crusher Pad expansion For Construction



Photo Log #	Location Baffinland	
Photo 3	N	W



05 22 2019

Description: Lack of dust control

Photo Log #	Location: Baffinland	
Photo 4	N	W



05 22 2019

Description: Waste Rock Stockpile Ditches/ perimeter road construction



Photo Log #

Location Baffinland

Photo 5



Description: Waste Rock Stockpile improperly constructed Ditches

Photo Log #

Location Baffinland

Photo 6



Description: Damaged Hazardous waste containers.



Photo Log #

Location Baffinland

Photo 7



Description: Damaged Hazardous Waste containers.

Photo Log #

Location Baffinland

Photo 8



Description; Spill within Hazardous waste facility at Milne Inlet.



Photo Log #

Location Baffinland

Photo 9



Description; Milne inlet Hazardous waste liner puncture.

Photo Log #

Location Baffinland

Photo 10



Description; Km 97 Bridge abutment concern



Photo Log # Location Baffinland

Photo 11



Description; Km 80 Bridge damage

Photo Log # Location: Baffinland

Photo 12



Description; Km 80 Bridge abutment.



Photo Log #

Location Baffinland

Photo 13



Description; Jet A storage liner rip.

Photo Log #

Location Baffinland

Photo 14



Description; Jet A storage liner rip.

Photo Log #

Location Baffinland



Photo 15



Description; flooding of Laydown #2.

Photo Log #

Location Baffinland

Photo 16



Description; flooding of Laydown #2



Photo Log #

Location Baffinland

Photo 17



Description; Areas were natural drainage is blocked by the Mary River effluent access road

Photo Log #

Location Baffinland

Photo 18



Description; Areas were natural drainage is blocked by the Mary River effluent access road



Photo Log #

Location Baffinland

Photo 19



Description; Construction within 31m of Camp Lake

Photo Log #

Location Baffinland

Photo 20



Description; Water Management Structures constructed without approval.