September 10, 2019

Jonathon Mesher
Water Resources Officer, CIRNAC
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0

RE: Water Licence 2AM-MRY1325 May 2019 Inspection Report

A Water Licence Inspection was conducted on May 22-23, 2019, at Baffinland's Mary River Project by the Crown-Indigenous Relations Northern Affairs Canada (CIRNAC) Water Resource Officers. During the inspection, some concerns were identified and these concerns are outlined in the attached Inspection Report.

The attached Table A provides a summary of the Inspector's key observations along with Baffinland's responses.

Should you require further information, please feel free to contact the undersigned or William Bowden at (647) 253-0596 Ext. 6016

Prepared by:

Connor Devereaux
Environmental Superintendent

Reviewed by:

Christopher Murray
Environmental & Regulatory Compliance Manager

Attachments:
Attachment 1: 2AM-MRY1325 May 2019 Inspection Report
Attachment 2: Response Summary Table
Attachment 3: Site Photos

Cc: Karén Kharatyan (NWB)
Chris Spencer (QIA)
Justin Hack, Jeremy Fraser (CIRNAC)
Tim Sewell, Megan Lorde-Hoyle, Lou Kamermans, Shawn Stevens, Amanda McKenzie (Baffinland)

Attachment 1: 2AM-MRY1325 May 2019 Inspection Report

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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

☐ Camp ☐ Drilling ☒ Mining ☐ Construction ☐ Reclamation ☐ Fuel Storage
☐ Roads/Hauling ☐ Other: ☐ 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 is 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).

☐ Comments	☒ Non-Compliance with Act or Licence	☒ Action Required

The Following is a list of Action Required by Baffinland, if required in the licence the licensee must obtain the appropriate approvals.

1. 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 15th, 2019 the inspector will proceed with further enforcement.

2. 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

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

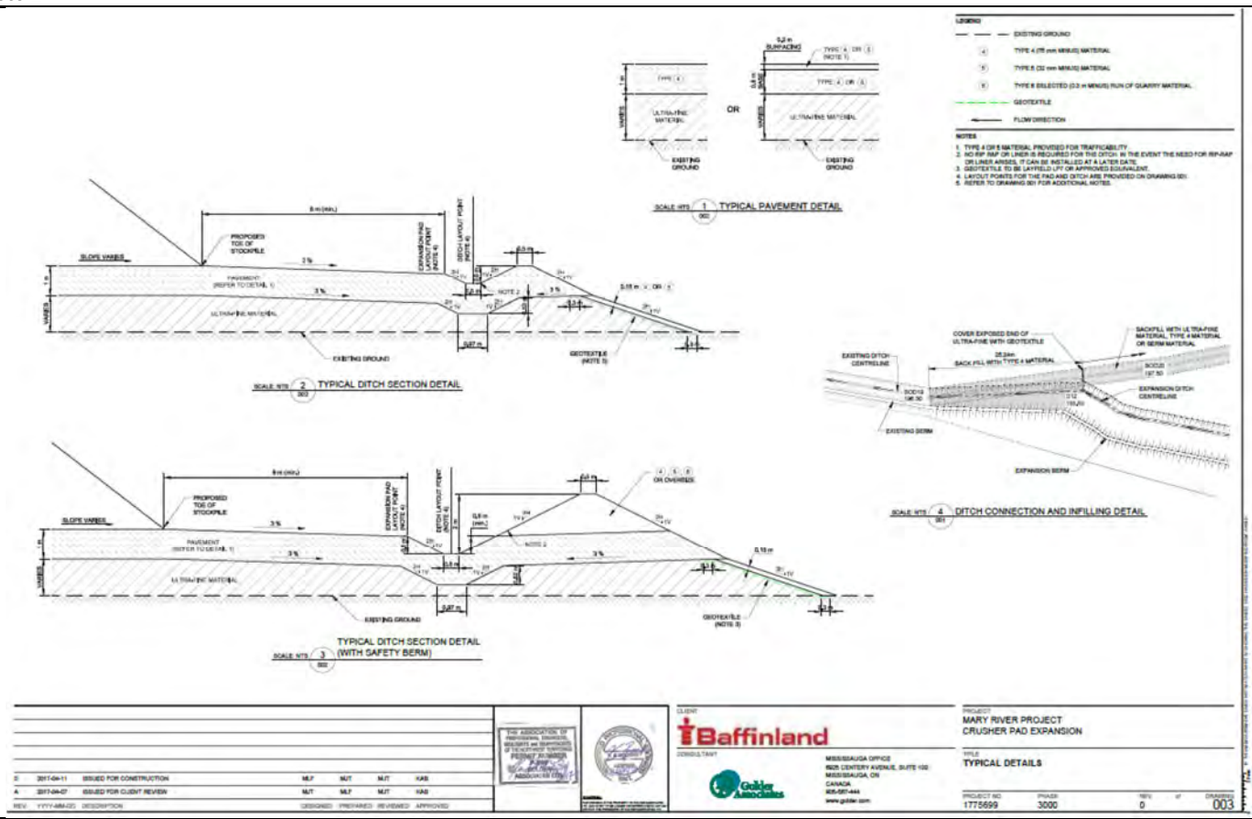
Photo Log **Location Baffinland**

Photo 1

Description: Pooling in unlined ditches of the Crusher pad

Photo Log # **Location Baffinland**

Photo 2



Description: Crusher Pad expansion For Construction

Photo Log #	Location Baffinland	
Photo 3	N	W

Description: Lack of dust control

Photo Log #	Location: Baffinland	
Photo 4	N	W

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.

Attachment 2: Response Summary Table

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Baffinland

Table A.1 - Response to CIRNAC Water License Inspection - May, 2019

#	Description of Concern or Finding	Recommended Action	Response
1) Ore Crushing Area and Associated Water/Waste Management Structures			
1a	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.	1. 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 15th, 2019 the inspector will proceed with further enforcement.	Baffinland has reinstated the 3m buffer at the Crusher facility perimeter road. Baffinland engaged NWB to determine if the proposed change is a modification to an approved structure and if this would require submissions under PART G of the water license 2AM-MRY1325. 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 the attached field directive signed by a Professional Engineer registered in NT/NU. Baffinland received correspondence from the NWB that the described change is in line with current water license 2AM-MRY1325 and no modification was necessary. Per Schedule D, Item 1 (d), this field decision will be documented in the Construction Summary Report (CSR) currently under development for the Crusher Pad Facility and Sedimentation Pond.

Baffinland

Table A.1 - Response to CIRNAC Water License Inspection - May, 2019

#	Description of Concern or Finding	Recommended Action	Response
1b	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 is 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.	2. 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 surrounding Ore Crusher Pad are constructed with the approved materials in the approved design.	Baffinland retained Golder to further assess the slope of the ditches surrounding the facility. Golder assessed the design and the construction materials to determine if any restoration/remediation to the constructed ditches is required. It is suggested by Golder that remediation of this area should involve the excavation and possible reuse of slumped material to construct the ditch slope to a minimum 2H:1V gradient. Baffinland will be executing the following recommendations to address the slope of the ditches: • Sediment and erosion mitigation measures shall be in place prior to construction. • The runoff in the ditch shall be diverted or contained upstream prior to construction – construction shall be carried out in the dry. • Remediation shall be carried out along the entire ditch length for which cracking is identified. • The remediation shall restore the profile of the ditch so that it drains freely. • Existing slumped material shall be excavated and replaced in compacted lifts to form a 2H:1V slope adjacent to the ditch. Baffinland will evaluate the effectiveness of the above remedial measures and will continue to access the functionality of the water management structures.
1c	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).		

Baffinland

Table A.1 - Response to CIRNAC Water License Inspection - May, 2019

#	Description of Concern or Finding	Recommended Action	Response
1d	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).		Baffinland is committed to controlling dust sources on the Project. Additional shrouds were installed at the Mine Site crusher in 2019. The function of the shrouds is monitored regularly through Baffinland's preventative maintenance program and replaced if damaged through equipment interaction. Baffinland is actively considering and/or implementing new methods for reducing dust generation through reengineering of equipment designs to minimize dust generation.

Baffinland

Table A.1 - Response to CIRNAC Water License Inspection - May, 2019

#	Description of Concern or Finding	Recommended Action	Response
2) Waste Rock Stockpile and Associated Water/Waste Management Structures			
2a	During the inspection it was noted that there was still significant snow cover surrounding the waste rock stockpile.		Baffinland continues to manage snow in advance of freshet where possible.
2b	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).		No response required.
2c	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).		The perimeter road and ditches are constructed but not currently tied in, and at this time pond repairs are ongoing. Baffinland will continue to implement the approved design for the expansion of the WRF. Photos are included in Attachment 3.
2d	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.		Baffinland has commenced the repairs and expansion to the waste rock facility pond. Field crews are currently onsite and work continues.

Baffinland

Table A.1 - Response to CIRNAC Water License Inspection - May, 2019

#	Description of Concern or Finding	Recommended Action	Response
3) Hazardous Waste Berms (HWB) at the Mine Site			
3a	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.	3. The licensee is to remove all Hazardous material from any damaged containers and place it in sound containers.	The for construciton and as built documentation is availible on the NWB registry for all hazardous waste berms. Baffinland has provided the link (ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2B/2BB%20-%20Bulk%20Sampling/2BB-MRY1114%20BIMC/3%20TECH/5%20CONSTRUCTION%20(J)/090316%202BB-MRY0710%20J4%20As-Built%20Bulk%20Fuel%20Storage%20Facility%20Part%201-ILAE.pdf) to the requested As-built Drawings for MS-HWB-7 (March 16, 2009). As recommended following previous Geotechnical Inspections, Baffinland previously added additional sand to the berm walls. This was an addition to the As-built drawings and was based on recommendations provided by the inspecting Professional Engineer. Baffinland will continue to implement the hazardous waste management program on site. The noted damaged hazardous waste containers will have residual product removed, and the containers prepared for backhaul by an authorized third party waste contractor.
3b	The inspector noted damaged containers within the Hazardous Waste Berm, Section 4.4.2 of 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).		In accordance with the Hazardous Material and Hazardous Waste Management Plan, damaged totes are to be placed into secondary containment, residual product safely removed and transferred into a new, sound tote. Once transferred, the totes are prepared for removal from site by an authorized third party waste contractor.

Baffinland

Table A.1 - Response to CIRNAC Water License Inspection - May, 2019

#	Description of Concern or Finding	Recommended Action	Response
4) Hazardous Waste Berms (HWB) at the Milne Inlet			
4a	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).	The inspector is requesting that the licensee remove the contaminated soil and appropriately dispose of it. (See Photo 8). 4. The Licensee is to remove all damaged containers and transfer the hazardous material to sound containers. (see Photo 7). The Inspector also noted rips in the liner of the facility that require repairs. (see Photo 9).	In the northern section of the berm where some staining was identified, the contaminated soil has been carefully cleaned up, soil removed and taken to the landfarm for further remediation. In keeping with best practices for working in areas where hazardous waste is stored, Baffinland tries to limit the traffic and overall volume of in-berm work. Operators are trained to carefully maneuver equipment to prevent any damage to liner. In accordance with the Hazardous Material and Hazardous Waste Management Plan, damaged totes are to be placed into secondary containment, residual product safely removed and transferred into a new, sound tote. Once transferred, the totes are prepared for removal from site by an authorized third party waste contractor. Baffinland has retained Layfield to complete repairs to the liner. This work is scheduled to commence in Q3 2019. In the interim, regular inspections are conducted to ensure the facility is functioning as intended.
4b	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).		Through routine inspections, the scattered absorbent material observed has been removed and the site has been prepped for material backhaul by a third party contractors. The noted damaged containers have been taken out of service, the residual product transferred and placed into new, sound containers. This transfer of product took place in an engineered lined area in accordance with the approved Waste Management Plan. The new totes containing hazardous product, have been prepared for backhaul by an authorized third party contractor.

Baffinland

Table A.1 - Response to CIRNAC Water License Inspection - May, 2019

#	Description of Concern or Finding	Recommended Action	Response
4c	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).		Baffinland has retained Layfield to repair the liner noted in this region. This work is scheduled to commence in Q3 2019
4d	The Inspector also noted rips in the liner of the facility that require repairs. (see Photo 9).		
5) Laydown #2 at Mine Site			
5a	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.	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.	Ongoing maintenance is underway to properly regrade and drain the noted area at Laydown #2. The water will be redirected to prevent significant pooling. It should be noted that no visible sheen was observed in the water upon inspection.
5b	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).		

Baffinland

Table A.1 - Response to CIRNAC Water License Inspection - May, 2019

#	Description of Concern or Finding	Recommended Action	Response
6) Ore Stockpile Pad and Related Water/Waste Management Structures at Milne Inlet			
6a	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.	4. The licensee is to repair/ Key-in the liners at MP-05 and MP-06 to ensure all runoff is proper captured. For the construction of the ditches, provide stamped drawings.	Baffinland retained Layfield to conduct repairs and key-in the liners at MP-05 and MP-06 to ensure all runoff is proper captured. Photos have been provided in Attachment 3.
6b	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.		
6c	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.		Baffinland provided the Ore Pad IFC and as built documentation to CIRNAC in September 2018. The documents are signed and stamped by a Professional Engineer registered in Nunavut.
6d	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.		Baffinland has retained Layfield to conduct repairs to the noted ditch leading into MP-05. Photos have been provided in Attachment 3.

Baffinland

Table A.1 - Response to CIRNAC Water License Inspection - May, 2019

#	Description of Concern or Finding	Recommended Action	Response
7) Tote Road Bridges			
7a	During the inspection there was sediment noted below the bridges.	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.	The bridges along the Tote Road were inspected under Part D, Item 18 of Baffinland's Type "A" Water License 2AM-MRY1325 Amendment No. 1. Baffinland is required to conduct biannual geotechnical inspections of the specified Project infrastructure. For both the KM 80 and KM 97 bridges the inspection noted that the abutments of this bridge are stable and no scour in the river-bed was noted during the site visit. The abutments show no differential settlement or any structural discrepancy like cracking on the foundation concrete. At Bridge 80, there are two historic abutments, located immediately adjacent to the "new" ones, providing support to the new abutments and road embankment. Therefore, removal of these structures is not recommended by the Professional Engineer onsite during the geotechnical inspection. To maintain the stability of the currently used bridge abutments, Baffinland will keep the two old abutments in place since they provide support to the adjacent new structures.
7b	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.		

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Table A.1 - Response to CIRNAC Water License Inspection - May, 2019

#	Description of Concern or Finding	Recommended Action	Response
8) Air Terminal Jet A Storage			
8a	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.	6. The licensee is to repair the liner at the Jet "A" storage.	Baffinland has repaired the liner at the Jet A storage area. Photos are included in Attachment 3.
8b	There were rips in the Liner of this containment structure it appears to have hydrocarbons in the pooling water.		
9) Access Road to the Mine Site Effluent Outfall			
9a	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.	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.	Baffinland is committed to evaluating the appropriate water management structures to mitigate impacts to surface water around the Project. Additionally, upgrades to this area are part of the Phase 2 mine site water management strategy.
9b	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)		

Baffinland

Table A.1 - Response to CIRNAC Water License Inspection - May, 2019

#	Description of Concern or Finding	Recommended Action	Response
10) Erosion Control Installed at Camp Lake			
10a	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 license allows for construction of water management structures in emergency situations.	9. The licensee is to submit the required documents in PART G of the license 2AM-MRY1325 and seek approval for the water management structures constructed leading into Camp Lake.	The CLSP silt sedimentation control berms and check dams are located along the access road to the Camp Lake water intake jetty. The primary purpose of these check dams is to collect fine soil particles that are eroded from the adjacent road and slopes, and to prevent the siltation around the water intake structure. The check dams were inspected during the July 2019 Geotechnical Inspection, and the berms were found to be stable, and the check dams fully functional. The area is going to be further surveyed and Baffinland will be providing as built documentation for this construction of the water management structures under emergency conditions.
10b	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 license 2AM-MRY1325 and seek approval for these water management structures. (see photos 19 and 20 for photos of the construction mentioned above).		

Attachment 3: Site Photos

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Photo 1: Ongoing Construction of WRF East Perimeter Road and Collection Ditch

Photo 2: Ongoing Construction of WRF West Perimeter Road and Collection Ditch

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Photo 3: MP-06 Liner Key-In Repairs

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Photo 4: MP-06 Liner Key-In Repairs

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Photo 5: MP-05 Ditch Liner Repairs

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Photo 6: Jet A Storage

Photo 7: Jet A Storage

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