



WATER LICENCE INSPECTION FORM

☒ Original
☐ Follow-Up Report

Licensee	Licensee Representative
Baffinland Iron Mines Corporation	Jim MILLARD/Allan KNIGHT
Licence No. / Expiry	Representative's Title
2AM-MRY1325	Environmental Manager
Land / Other Authorizations	Land / Other Authorizations
2BC-MRY1416	
Date of Inspection	Inspector
August 21-25, 2014	Robert SAVARD /Justin HACK
Activities Inspected	
<input checked="" type="checkbox"/> Camp <input checked="" type="checkbox"/> Roads/Hauling	<input type="checkbox"/> Drilling <input type="checkbox"/> Other: <input 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	A		Storage	A	
Flow Measure. Device	NI		Culverts / Bridges	C		Spills	A	
Source:	A		Drainage	A		Spill Plan	A	
Water Use:	A		Erosion / Sediment	C				
Recirculation (y /n)	NA		Mitigation Measures	A		Administrative		
			Reclamation Activities	A		Records	A	
			Materials Storage	C		Reports	A	
Waste Disposal			Signage	A		Plans	A	
Waste Water	A					Notifications	A	
Solid Waste	C		Monitoring			Other		
Hazardous Waste	C		Sample Collection / Analysis	A				
*The number in the comments field will correspond with specific comments provided below.								
Samples taken by Inspector:			Location(s): Camp Lake (Yard Swale), MS-C-E, MP-Q1-02					
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No								

SECTION 1	<input checked="" type="checkbox"/> Comments	<input type="checkbox"/> Non-Compliance with Act or Licence	<input type="checkbox"/> Action Required
<u>Background</u> <p>At the time of the inspection, Baffinland Iron Mines Corporation (BIMC) was in the construction phase of its operations. Major activities on site included quarrying, building construction, Tote road upgrades, upgrades to mine road leading to deposit 1, ore storage lay-down construction, and ore dock construction. Active mining for ore has not yet begun.</p> <u>Inspectors Statement</u> <p>On August 21-26 2014, 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>Inspectors were given a brief summary of activities occurring on site and a work completed to date to meet requirement of the previous inspection report from June 17-19 2014.</p> <p>Grab samples were taken on site to test for water quality at a yard swale running into Camp Lake, at monitoring location MS-C-E, and at quarry monitoring location MP-Q1-02.</p>			
SECTION 2	<input checked="" type="checkbox"/> Comments	<input type="checkbox"/> Non-Compliance with Act or Licence	<input type="checkbox"/> Action Required
<u>Mary River Site</u> Observations: <u>Sites of No Concern:</u> <div><div>1. Bladder Farm Decommissioning<ul style="list-style-type: none">Decommissioning work to continue into 2015 season. On site, one JET-A bladder, one P-50 bladder, and one bladder with hydrocarbon contaminated water remain within engineered secondary containment. No concerns noted.</div><div>2. Polishing and Stabilization Ponds 1,2 and 3<ul style="list-style-type: none">No concerns with site. Sites must be monitored and maintained according to Geotechnical Inspection reports.</div><div>3. Explosive Magazines enroute to Deposit 1<ul style="list-style-type: none">No concerns noted.</div><div>4. Drill sump at top of Deposit One</div></div>			



- Berms appeared to be stable and maintained. No concerns were noted.
- 5. Sewage Treatment Facility and Discharge Location (MS-MRY-01)
 - Records at the sewage treatment facility were checked to ensure effluent was meeting discharge criteria. Spills kits were noted on site. No concerns were noted.
- 6. Explosive Emulsion Plant
 - A general site inspection around the perimeter of the building was conducted.
 - Licensee proposed new water quality monitoring stations which were satisfactory to the Inspector. No concerns noted.
- 7. Water Treatment Facility
 - Records of water usage were available to the Inspector.
- 8. Waste Ash in barrels near incinerator
 - Barrels were in secondary containment. Progress was noted on meeting milestones of plan.
- 9. Inert Landfill
 - The landfill was being properly used for the disposal of inert, non-combustible waste only, including ash from the incinerator process.
 - The fence around the perimeter of the landfill was erected to control windblown debris.
 - Continue to monitor and maintain fence panelling as required.
- 10. Water Quality Monitoring Stations
 - All water quality monitoring stations were checked to ensure they were marked correctly.

Sites of Concern

1. Culvert Crossing on road to Explosive Magazines
 - The two culvert crossings adjacent to the explosive magazine require progressive sedimentation and erosion control measures to minimize sediment entering into watercourse.
 - Temporary and permanent erosion and sediment control measures can include, but are not limited to, slope stability and/or armouring of banks.
 - The actions are to be conducted in the dry if the licensee anticipates preventative measures may increase sediment loading.
2. Road to Deposit One from Camp
 - During construction of the road, it was noted sediment and erosion control measures were needed in areas leading to the deposit to prevent sediment from entering water.
 - Temporary and permanent erosion and sediment control measures can include, but are not limited to, slope stability and/or armouring of banks.
 - The actions are to be conducted in the dry if the licensee anticipates preventative measures may increase sediment loading.
3. Quarry Site (QMR2)
 - Quarry site was not inspected due to blasting preparation.
 - At the entrance of road entering into QMR2, mud was overtopping the berm walls at both sides directly above the culvert contributing to the sedimentation of the stream.
 - At the close out meeting, it was agreed by Baffinland that preventative measures would be taken.
4. Surface drainage (yard swale) to Camp Lake near MS-MRY-1.
 - Hydrocarbon sheen was noted on the surface of the yard swale during inspection.
 - Hydrocarbon absorbent pads were deployed to mitigate hydrocarbon contamination in water. Grab samples were taken in the swale to test water quality.
 - A silt curtain is currently installed at the last point of control to mitigate total suspended solids from entering Camp Lake.
 - Please continue to monitor and replace booms as required until freeze-up to prevent hydrocarbons from entering Camp Lake.
5. Open Burn Site (for approved clean combustibles)
 - Please see *Section 3 – Plans*.

Tote Road

Observations

The tote road is currently being upgraded to allow B-train trucks to haul iron ore to Milne Port. Part of these upgrades include widening the tote road, increasing culvert size, replacing culverts, extending culverts, cut and fill, and re-grading.

No Concerns

1. Four Single Span Bridges along Tote Road
 - No concerns were noted with armouring techniques implemented.
2. Water Intake Location at km 32.
 - No concerns were noted.



Concerns

1. Culverts

- It was noted that sediment erosion measures were needed to prevent sediment from entering water at culverts locations at km 97, 63, 38.
- Temporary and permanent erosion and sediment control measures can include, but are not limited to, slope stability and/or armouring of banks.
- The actions are to be conducted in the dry if the licensee anticipates preventative measures may increase sediment loading.
- Apply progressive reclamation procedures when removing any culverts.

2. Silt Fences

- Many silt fences along the road appeared to be unmaintained and collapsed in areas.
- Maintain where still required and remove where no longer required.

Milne Port Site

Observations

No Concerns

1. Water Quality Monitoring Stations

- Water quality monitoring stations were checked to ensure they were marked correctly.

2. New water withdrawal location.

- Baffinland has notified and verified the exact location (17W 503297/7975614) with the Inspector of a temporary water withdrawal location. The water is to be used in a boiler system. No concerns noted.

3. Sewage Treatment Facility

- Records, water licence, and spills kits were present as required. No concerns noted.

Concerns

1. Hazardous Waste Management

- A pallet containing tubs of 5 gallon oil was on the edge of the berm. After bringing this to Baffinland's attention, the pallet was moved into proper containment.
- Storage of fuel drums were also out of containment on the lip of a berm. Barrels are required to be within the berm to prevent spills and collision with equipment.
- A used secondary containment liner was noted as stored outside the Arctic Construction building. Baffinland has informed the Inspectors that this liner will be stored and backhauled on a sea lift in late 2014 or it will be stored at the contaminated soil facility until it can be processed in 2015.

2. Rotating Biological Contactor (RBC) Facility

- Outside the RBC facility there were five 5 gallon buckets. One of the buckets without a lid had been overtopping with unknown brown liquid. After bringing this to Baffinland's attention, all five buckets had been moved into proper containment.

3. Waste Management

- Waste diversion and separation needs to be improved to meet goals and objectives of the waste management plan.

4. Open Burn Site (for approved clean combustibles)

- Please see *Section 3 – Plans*.

6. Drilling/Road Salt (Calcium Chloride)

- Since the previous inspection, the salt has been moved to the bottom of the Quarry Q1 to make room for the ore lay-down area. Please ensure proper interim storage of salt and waste materials.
- Please see *Section 3-Plans*.

7. Overall Site

- Please continue to work on and keep site clean and free of construction debris. It is recommended that an overall site cleanup occur annually.

8. Quarry (Q1)

- Culvert at Q1 (MP-Q1-01) needs to be maintained to have sediment removed.

9. Polishing Waste and Stabilization Pond (MP-01a)

- There was evidence of dried algae noted on the lip of the berm beside the 'I.T.' Sea Can. Continue to monitor freeboard and manage adequately.



SECTION 3



Comments



Non-Compliance with Act or Licence



Action Required

Plans Required

Open Burn Site

Background

This is the third time seeing unapproved non-combustibles in the burn box at both the Mary River and Milne Inlet facilities. There was also debris from the burn box on the surrounding ground. See **Photo 2**.

Plan

During a discussion with Mr. Jim Millard, Baffinland Environmental Manager and site services representatives, it was agreed that Baffinland would temporarily cease all open burning at both locations. It was also agreed that Baffinland would clean all ash and material from both open burn boxes and clean all debris in the area around the open burn area.

Furthermore, it was agreed that a plan would be created and submitted to Water Inspectors Hack and Savard by **September 12, 2014** or prior to continuing open burning whichever date would be sooner. This plan would outline a process to ensure compliance with the waste management plan and would include site security, improved waste segregation procedures, education to staff and contractors, self compliance audits, and an adaptive management strategy to ensure compliance on an ongoing basis.

Drilling/Road Salt (Calcium Chloride) Storage at Milne Inlet Camp

Background

Drilling/Road Salt (Calcium Chloride) is stored near the quarry site at Milne Inlet site. This product is used primarily for drilling or dust suppression and is currently stored on pallets, in Quatrex bags on pallets and also on the ground in piles of debris which include wood, earth and broken bags (see **Photo 1**). Bags and debris associated with this storage were noted to be blowing around the site.

Plan

It was agreed at the close-out meeting that an action plan would be developed to address the storage of this product. This plan would outline segregate of the useable salt from the debris piles in order to continue to store and potentially use the salt for purposes related to the project. It was further agreed that the plan would be submitted to Water Inspectors Hack and Savard prior to **September 12, 2014**.

This plan would include activities with milestones to meet the overall objective of having the salt storage area sorted and managed in a way to prevent excess material being distributed around the site, and to be congruent with the waste management plan. This plan would have a completion date on or before September 30, 2015.

Inspector's Name

Justin Hack

Signature

Date

August 29, 2014

Inspector's Name

Robert Savard

Signature

Date

August 29, 2014



Photo Appendix



Photo 1: Salt bags contained with piles of debris.



Photo 2: Open burn facility at Milne showing debris outside facility and unapproved contents inside.