



WATER LICENCE INSPECTION FORM

☒ Original  
☐ Follow-Up Report

|                                                   |                                                |                                                            |                                                  |
|---------------------------------------------------|------------------------------------------------|------------------------------------------------------------|--------------------------------------------------|
| Licensee                                          |                                                | Licensee Representative                                    |                                                  |
| Baffinland Iron Mines Corporation (BIMC)          |                                                | William Bowden                                             |                                                  |
| Licence No. / Expiry                              |                                                | Representative's Title                                     |                                                  |
| 2AM-MRY1325                                       |                                                | Environmental Superintendent                               |                                                  |
| Land / Other Authorizations                       |                                                |                                                            |                                                  |
| 8BC-MRY1416, 2BE-MRY1421                          |                                                | N2014X0012, N2014Q0016, N2014C0013                         |                                                  |
| Date of Inspection                                |                                                | Inspector                                                  |                                                  |
| June 22 – 24, 2018                                |                                                | Jonathan Mesher                                            |                                                  |
| Activities Inspected                              |                                                |                                                            |                                                  |
| <input type="checkbox"/> Municipality             | <input type="checkbox"/> Drilling              | <input checked="" type="checkbox"/> Mining                 | <input checked="" type="checkbox"/> Construction |
| <input checked="" type="checkbox"/> Roads/Hauling | <input type="checkbox"/> Other: BIMC Main Camp | <input checked="" type="checkbox"/> Other: Milne Camp Area | <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 |
| Intake/Screen                                                                            |  | A              |             | Water Management Structures  |                     | C                  |         |
| Flow Measure. Device                                                                     |  | A              |             | Culverts / Bridges           |                     | A                  |         |
| Source:                                                                                  |  | A              |             | Drainage                     |                     | A                  |         |
| Water Use:                                                                               |  | A              |             | Erosion / Sediment           |                     | A                  |         |
| Recirculation ( y /n)                                                                    |  |                |             | Mitigation Measures          |                     | A                  |         |
|                                                                                          |  |                |             | Reclamation Activities       |                     | A                  |         |
|                                                                                          |  |                |             | Materials Storage            |                     | C                  |         |
| Waste Disposal                                                                           |  |                |             | Signage                      |                     | A                  |         |
| Waste Water                                                                              |  | A              |             |                              |                     |                    |         |
| Solid Waste                                                                              |  | C              |             | Monitoring                   |                     |                    |         |
| Hazardous Waste                                                                          |  | C              |             | Sample Collection / Analysis |                     |                    |         |
|                                                                                          |  |                |             |                              |                     |                    |         |
| *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 |
| <b>Inspectors Statement</b>                                                                                                                                                                                                                                                                                                                                                                                                      |                                              |                                                             |                                          |
| On June22-24, 2018, 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 related infrastructure, and the Milne Port area.                                                                                                                                                                                         |                                              |                                                             |                                          |
| <b>Summary of Report</b>                                                                                                                                                                                                                                                                                                                                                                                                         |                                              |                                                             |                                          |
| At the time of inspection, the Licensee was undertaking activities related to the operation of an open-pit iron ore mine at the Milne Port (Milne Inlet), Mine site (Mary River), Tote Road. Construction activities on site include; construction of the new BIMC 800 man camp at Mary River site, maintenance along the tote road and construction of an emergency waste water management system at the waste rock stock pile. |                                              |                                                             |                                          |
| <b>Inspection</b>                                                                                                                                                                                                                                                                                                                                                                                                                |                                              |                                                             |                                          |
| 1. Ore Crushing Area and associated water management structures                                                                                                                                                                                                                                                                                                                                                                  |                                              |                                                             |                                          |
| a. The height of the outer berm wall of the ditches that surrounds the crusher pad appears to be inconsistent in height and in inconsistent with the approved design drawings. See figure 1.                                                                                                                                                                                                                                     |                                              |                                                             |                                          |
| b. The ditches surrounding this facility appear to have low points.                                                                                                                                                                                                                                                                                                                                                              |                                              |                                                             |                                          |
| I. This observation leads the inspector to believe that the water management structures surrounding the ore crusher pad are not built to the approved design drawings. See figure 1.                                                                                                                                                                                                                                             |                                              |                                                             |                                          |
| c. As mentioned in previous Inspection reports, the slope of the pad appears to be inconsistent with the approved design drawings.                                                                                                                                                                                                                                                                                               |                                              |                                                             |                                          |
| I. Due to the inability of the licensee to keep the gradient of the pad consistent with the approved design, the Inspector is requesting that; the licensee develop a plan to keep this facility operating as intended or design the crusher pad in such a way that no contact water will leave with facility regardless of its slope.                                                                                           |                                              |                                                             |                                          |



- d. In the drawings developed by Golder Associates Corporation and BIMC it shows that there should be eight metres (8m) of space between the stockpile and the ditches for single lane traffic. See figure 1. When the inspector questioned the Baffinland employees of required 8m/ single lane road between the stockpile and the ditches, the Baffinland employees were unaware of this requirement.
  - I. Baffinland is required to ensure that all water and waste management structures are operating as approved by the Nunavut Water Board.
  - II. The inspector is requesting that Baffinland review the construction drawings developed by Golder Associates and provided by Baffinland to ensure that this facility is built in accordance with the specifications originally provided to CIRNAC and the.
- e. It appears that Iron Ore is being used as construction material near the Crusher Pad. BIMC is to remove this Iron Ore or provide the required study/technical evidence that this ore has been approved for the use of Iron Ore as construction material.
- f. The inspector is requesting that BIMC re-evaluate the "Limit of Stock Stockpile" as indicated on the construction drawings, it appears that Baffinland is stockpiling Iron Ore outside the highlighted area. This discrepancy may cause issues while calculating the required volume of the Ore stockpile sedimentation pond.

## **2. Waste Rock Stockpile and associated water management structures**

- a. At the time of the inspection the licensee was treating water from the leaking sedimentation pond for low levels of PH and TSS.
- b. Prior to the inspection the Licensee had reported a spill (spill report # 18-244) that occurred at the waste rock stockpile West drainage ditch of the, this location was identified as an area of concern in the past two Water Licence Inspection reports November 2017 and May 2018. The licensee has made two modifications to this water management structure; one being the construction of the road over the ditch to access the emergency ditch constructed to collect seeping waste, the second being the increase of capacity of the ditch. See figure 3 for the spill location.
  - I. The licensee is to submit a modification request for the two modifications made to this water management structure and ensure that no modifications are made to water management structures unless authorized by the Nunavut Water Board (NWB).
- c. See figures 4 and 5 for photos of the Waste Rock Stockpile.

## **3. Polishing Waste Stabilization Ponds**

- a. No concerns were noted about the operation of this facility.

## **4. Hazardous Waste Berms**

- a. The Hazardous Waste Berm HWB #7 has rips in the liner. See Figure # 6 .
  - I. The licensee is to remove all hazardous waste from this facility until the liner is repaired or provide the inspector and the NWB with a report outlining short term measures put in place to ensure that no waste is capable of leaving this facility.

## **5. Jet A/ Aircraft fuel storage**

- a. The berm liner of this facility has a rip.
- b. The licensee is to fix this liner and provide the inspector and the NWB with photos of the repair in order to continue to use this as secondary containment.

## **6. Camp Lake Jetty**

- a. In the previous report high levels of TSS were noted at this location. The licensee has increased the capacity of the check dams, deployed silt fences and pop up berms. At the time of this inspection no concerns were noted.

## **7. Land Fill**

- a. Land fill appears to be properly capped.
- b. Inspector noted that the fence is in poor condition.
- c. The inspector noted potentially hazardous material in the land fill. The waste found in this facility consisted of; drip trays, aerosol canisters, absorbent pads, oil jugs and gas containers.



- I. This is the second time this summer that the inspector has noted potentially hazardous material in the non-hazardous landfill. Baffinland continues to blame other departments for this failure to comply with the licence, in the eyes of the NWB and CIRNA Baffinland is a single cooperation and blaming other departments is no excuse.
- II. The inspector is requesting that Baffinland develop a plan to prevent this non-compliance issue from reoccurring. If the licensee fails to comply with the licence CINRAC may proceed with further enforcement action in the future. See figure 7-9 for photos of the waste mentioned.

#### **8. Effluent Outfall**

- a. No concerns noted regarding this deposit of waste.

#### **9. Ore Stockpile Pad and associated water management structures**

- a. As mentioned in previous Inspection reports, the slope of the pad appears to be inconsistent with the approved design drawings.
  - I. Due to the inability of the licensee to keep the gradient of the pad consistent with the approved design, the Inspector is requesting that the licensee develop a plan to keep this facility operating as intended or design the ore stockpile pad in such a way that no contact water will leave with facility regardless of its slope.
- b. The Licensee is currently dumping snow at the south end of this facility. This snow is laden with Ore and the water generated from this snow dump does not appear to be flowing to the sedimentation ponds.
  - II. The inspector is requesting that BIMC relocate the snow stockpile to ensure that this contact water/snow flows into the sedimentation ponds and not to the surrounding environment. See figure 10 for ore stockpile snow dump.
- c. In the previous inspection the inspector noted, "Ore bulk sample remains appear to be removed as requested by the inspector in a previous inspection." During this inspection more snow has melted exposing more Ore, it appears the licensee has removed some ore and covered the rest with crushed rock. See Figure 11.
  - III. The licensee is to remove all Ore from this location or provide the required study/technical evidence that it has been approved for the use as construction material
- d. East and west Sedimentation Pond appears to be in good condition

#### **10. Fuel Module at Milne port**

- a. During the last inspection the inspector noted surface water leaving this facility and requested the as built drawings for this facility, nothing has been provided to the inspector.
- b. The Licensee is to return this facility to its approved design. See figure 12 for the fuel module.

#### **11. Contaminated Snow dump**

- a. No issues or concerns with this facility, seems to be operating as intended.
- b.

#### **12. Land Farm**

- a. This facility appears to be over capacity and the licensee does not appear to be treating the soil.
- b. Please provide the inspector and the NWB with Baffinland's plan to remediate this contaminated soil.

#### **13. Exploration drilling at approximately 71°18'53.26"N, 79° 6'57.20"W**

- a. At the time of the inspection the licensee was drilling on deposit No. 2.
- b. The Licensee was improperly handling the drill waste. PART F, Item 4 of the licence 2BE-MRY1421, states that; "The Licensee shall dispose of all drill waste, including water, chips, muds and salts (CaCl<sub>2</sub>) in any quantity or concentration, from land-based drilling, in a properly constructed Sump or an appropriate natural depression located at a distance of at least thirty one (31) metres from the ordinary High Water Mark of any adjacent Water body, where direct flow into a Water body is not possible and no additional impacts are created."



- c. The drill waste was not being deposited in a properly constructed sump or natural depression. The licensee is to discontinue their current practice of depositing drill waste, to ensure the licensee is adhering to the licence and not improperly depositing waste the inspector is requesting that the licensee provide photos of all sumps form the 2018 Exploration drilling program. See photo 13 for the improper deposit of waste.

| SECTION 2                                                                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Comments | <input type="checkbox"/> Non-Compliance with Act or Licence | <input checked="" type="checkbox"/> Action Required |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------|-----------------------------------------------------|
| 1. Due to the inability of the licensee to keep the gradient of the ore crushing pad consistent with the approved design, the Inspector is requesting that; the licensee develop a plan to keep this facility operating as intended or design the crusher pad in such a way that no contact water will leave with facility regardless of its slope.                                               |                                   |                                                             |                                                     |
| 2. The inspector is requesting that Baffinland review the construction drawings developed by Golder Associates and provided by Baffinland to ensure that Ore crusher pad and water management structures are built in accordance with the specifications originally provided to CIRNAC and the NWB.                                                                                               |                                   |                                                             |                                                     |
| 3. It appears that Iron Ore is being used as construction material near the Crusher Pad. BIMC is to remove this Iron Ore or provide the required study/technical evidence that it has been approved for the use as construction material. See figure 3.                                                                                                                                           |                                   |                                                             |                                                     |
| 4. The inspector is requesting that BIMC re-evaluate the “Limit of Stock Stockpile” of the ore crushing pad indicated on the construction drawings, it appears that Baffinland is stockpiling Iron Ore outside the highlighted area. This discrepancy may cause issues while calculating the required volume of the Ore stockpile sedimentation pond.                                             |                                   |                                                             |                                                     |
| 5. The licensee is to submit a modification request for the two modifications made to the waste rock stockpile ditches and ensure that no modifications are made to water management structures unless authorized by the Nunavut Water Board (NWB).                                                                                                                                               |                                   |                                                             |                                                     |
| 6. The licensee is to remove all hazardous waste from the ripped hazardous waste berm until the liner is repaired or provide the inspector and the NWB with a report outlining short term measures put in place to ensure that no waste is capable of leaving this this facility. See figure 6 for a photo of the rip.                                                                            |                                   |                                                             |                                                     |
| 7. The licensee is to fix this liner of the Jet fuel storage berm and provide the inspector and the NWB with photos of the repair in order to continue to use this as secondary containment                                                                                                                                                                                                       |                                   |                                                             |                                                     |
| 8. The inspector is requesting that Baffinland develop a plan to prevent the deposit of potentially hazardous waste in the non-hazardous landfill from reoccurring, if the licensee fails to comply with the licence CINRA may proceed with further enforcement action in the future. See figure 7-9 for photos of the waste mentioned.                                                           |                                   |                                                             |                                                     |
| 9. Due to the inability of the licensee to keep the gradient of the ore stockpile pad consistent with the approved design, the Inspector is requesting that the licensee develop a plan to keep this facility operating as intended or design the ore stockpile pad in such a way that no contact water will leave with facility regardless of its slope.                                         |                                   |                                                             |                                                     |
| 10. The inspector is requesting that BIMC relocate the snow stockpile to ensure that this contact water/snow flows into the sedimentation ponds and not to the surrounding environment. See figure 10 for ore stockpile snow dump.                                                                                                                                                                |                                   |                                                             |                                                     |
| 11. The licensee is to remove all Ore from bulk sample location or provide proof that is has been approved for construction material.                                                                                                                                                                                                                                                             |                                   |                                                             |                                                     |
| 12. Please provide the inspector and the NWB with Baffinland’s plan to remediate this contaminated soil.                                                                                                                                                                                                                                                                                          |                                   |                                                             |                                                     |
| 13. The licensee is to discontinue their current practice of depositing drill waste, to ensure the licensee is adhering to the licence and not improperly depositing waste the inspector is requesting that the licensee provide photos of all sumps form the 2018 Exploration drilling program. See photo 13 for the improper deposit of waste. See Figure 13 for the licensee’s lack of a sump. |                                   |                                                             |                                                     |





|                  |  |
|------------------|--|
| Inspector's Name |  |
| Jonathan Mesher  |  |
| Signature        |  |
|                  |  |
| Date             |  |
| August 13,2018   |  |



Figure 1: Inconsistent ditch height, land of 8m between ditch and stockpile, ditch inconsistent with approved drawings.





Figure 2: Ore being used as construction material.



Figure 3: area of the spill from the Waste Rock Stockpile and modification of ditch.





Figure 4: East side of Waste Rock Stockpile.

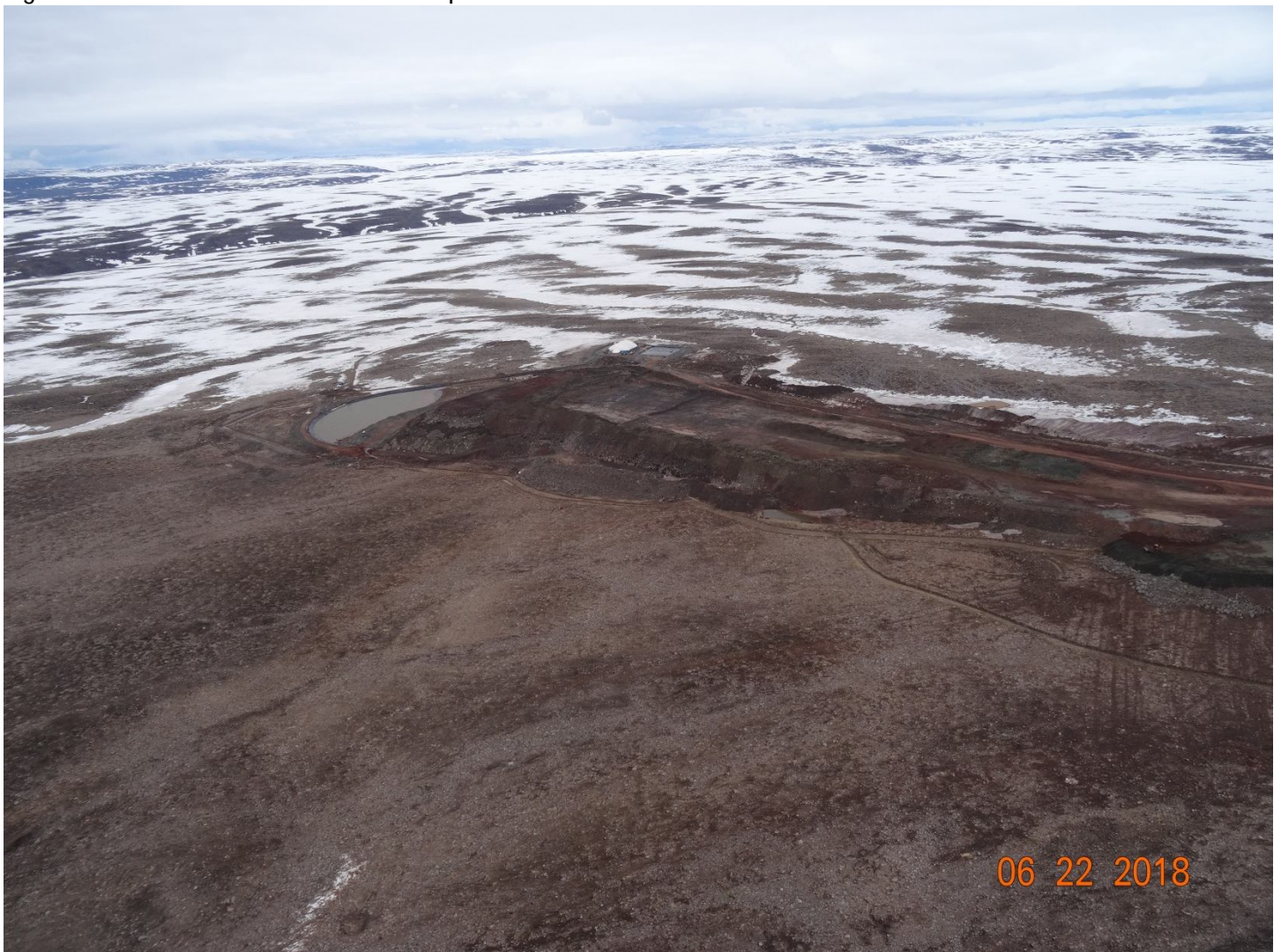


Figure 5: West side of Waste Rock Stockpile.





Figure 6: Hazardous waste secondary containment liner rip.



Figure 7: landfill waste





Figure 8: Landfill waste



Figure 9: Landfill waste





Figure 10: snow dump melt entering the environment.



Figure 11: left over ore from the bulk sample to be remediated.





Figure 12: fuel module in Milne port.



Figure 13: Lack of a sump as required in the licence.