Appendix D

Sequence of Events and Actions Taken by Spill Report and Other Concerns (With Photos)

(Refer to Biweekly Report No. 6 for Complete List of Actions Taken)

Appendix D.1 - Photos

Photo 1 – Silt fence installation along road to prevent road runoff from directly discharging into Sheardown Lake Tributary (SDLT) near CV186.

Photo 2 – May 9th 2016. Flocculant stations installed along Sheardown Lake Tributary SDLT and LDFG.

Photo 3 – Treated Jute installed at Check Dam #1 to capture sediments within runoff.

Photo 4 – Sand bag check dams installed along Sheardown Lake Tributary LDFG near landfill access road.

Photo 5 - Improved water clarity and total suspended solid levels at outfall of Sheardown Lake Tributary SDLT following implementation of siltation control measures.

Appendix D.2 – Photos

Photo 1 –Airstrip runoff entering Camp Lake Tributary #1.

Photo 2 – Swale draining airstrip runoff lined with 6” aggregate and treated jute to capture sediments.

Photo 3 – May 30th 2016. Daily sampling and monitoring of Camp Lake Tributary #1 discharge at Camp Lake outfall.

Photo 4 – Improved water clarity and total suspended solid levels at Camp Lake Tributary #1 following implementation of siltation control measures.

Appendix D.3 – Photos

Photo 1– April 28th 2016. Construction of Check Dam # 4 near the end of Magazine Access Road.

Photo 2 – Mine Haul Road runoff pooling upstream of Check Dam # 4

Photo 3 – Flocculant dosing system treating water upstream of Check Dam #4.


Photo 4 – Discharge of flocculant dosing system at Check Dam #4.

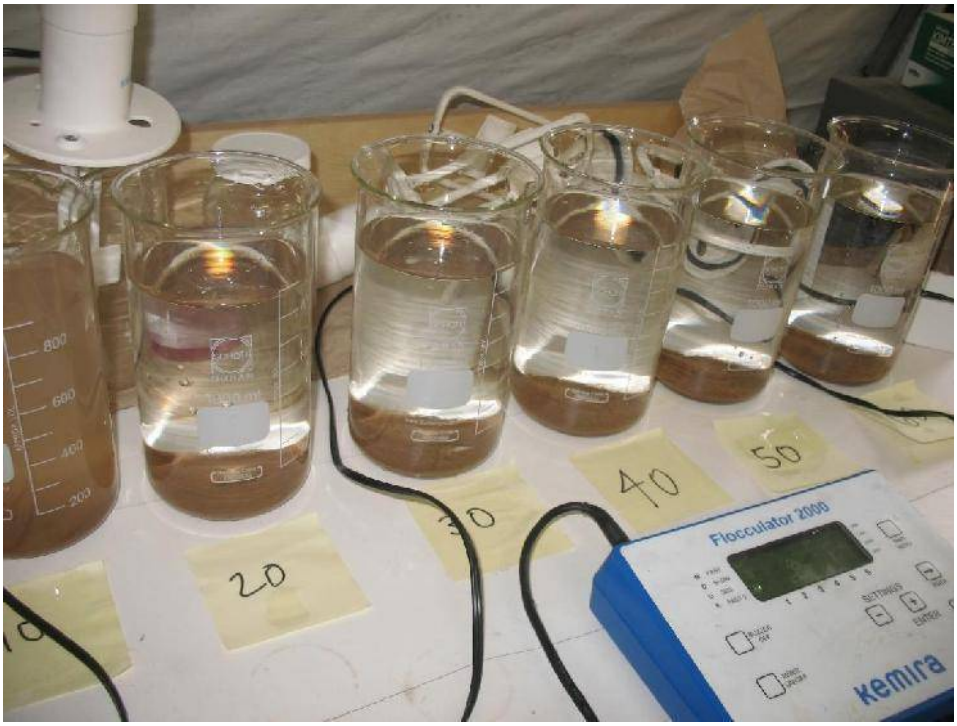


Photo 5 – Laboratory testing for flocculant dosing optimization.


Photo 6 – Check dam constructed at outlet of Sheardown Valley along Mine Haul Road.

Photo 7 – Sediment deposit removal along upper reaches of Sheardown Lake Tributary SDLT (downstream of km 104.5 of the Mine Haul Road).

Appendix D.4 – Photos

Photo 1 – May 29th 2016. Silt fence installation around sediment deposit from slumping stream bank along Camp Lake Tributary #1.

Photo 2 – June 3rd 2016. Snow along slumping slope face and sediment deposit removed.

Photo 3 – June 3rd 2016. Slumping stream bank lined with geotextile to protect underlying soil from erosion.

Photo 4 – June 4th 2016.Slumping stream bank reinforced with 6” aggregate.

km 97 - CV223

Constructed Drainage Controls Partially Implemented or Completed.

km 91.1

Photos Prior to Construction of Drainage Controls

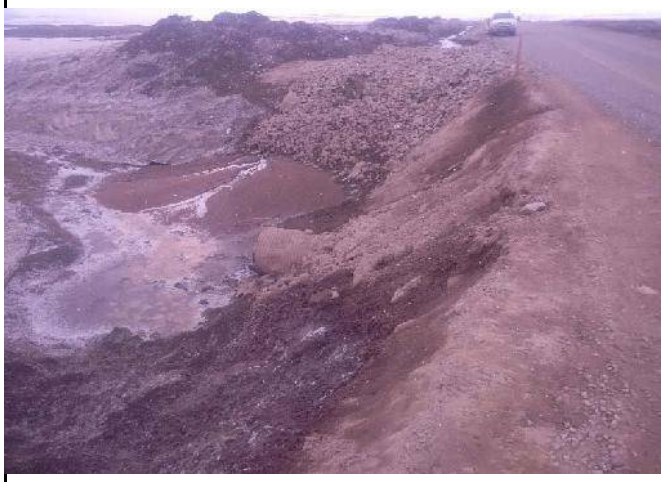
Constructed Drainage Controls Partially Implemented or Completed.

km 82.2

Constructed Drainage Controls Partially Implemented or Completed.

km 96 - CV224

Photos Prior to Construction of Drainage Controls



Constructed Drainage Controls Partially Implemented or Completed.

km 90 - BG17

Photos Prior to Construction of Drainage Controls

Constructed Drainage Controls Partially Implemented or Completed.

Appendix D.6 – Photos of Milne Ore Stock Pile Drainage Works Construction

Photo 1 – June 6 2016.

Photo 2 – June 7 2016.

Photo 3 – June 7 2016.

Photo 4 – June 2 2016.

Appendix D.7 – Photos of Impacted Snow Removal from Milne Beach

Photo 1 – May 20-21 2016.

Photo 2 – May 20-21 2016.

Photo 3 – June 1 2016.

Photo 4-June 1 2016

Photos of removal of Dirty Snow Material from Bridge Km17

Photo 5 – May 21 2016.

BIWEEKLY REPORTS

(ABBREVIATED)

Baffinland

Report on Actions Taken:

June 7th 2016, Fisheries Act Direction (File number: 4408-2016-05-10-001) and Response to June 16, 2016, INAC Letter of Non-Compliance

Bi-Weekly Report No. 1 for Period June 25 to July 9, 2016

July 8, 2016

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- D.7 - Removal of Impacted Snow: Milne Beach and Tote Road Bridges

Report Basis

The document provided, herein, is the first bi-weekly progress report as required under the June 7 Fisheries Direction provided by Environment Canada (page 6, Measures to be Taken, Item 1) and reports on the period June 25 through July 8. Specifically, the bi-weekly reports are to provide updates on the actions taken to address sedimentation issues and ongoing actions being taken at the site to address Items 2 and 3 as outlined in the Fisheries Direction. Previous actions, including pre-freshet actions, were reported on in the June 24th, 2016, Report on Actions Taken.

1. Unauthorized Releases and Contributing Factors

A number of unauthorized releases of sediment were reported to Environment Canada, Indigenous and Northern Affairs Canada, and the NT-NU Spill Line during the month of May and June. These included the Spill Report numbers 16-158, 16-176, 16-181, 16-198, 116-202, and 116-202 Update No. 1. Copies of the original Spill Reports are provided in Appendix A. During the current reporting period, there were no further unauthorized sediment releases.

As of July 8, the potentially affected drainages continue to run visually clear of sediment, and the residual snow pack in upstream areas has been substantially released. Based on visual observations, Freshet flows have peaked and is now waning. Lake ice is still present on the larger lakes of the area (Camp Lake, Sheardown Lake, David Lake, Muriel Lake, and Mary Lake) but there is significant melt out from the shorelines. There were no significant rainfall or snowfall events during the reporting period.

2. Retention of Third Party Expertise

When sediment release events were first observed and reported, third party expertise was retained and these individuals were brought to site. A list of those individuals and support provided was detailed in the June 24th, 2016, Report on Actions Taken. We continue discussions with those various individuals to provide advice as warranted. During the reporting period, the following consultants/contractors visited site and provided assistance.

- Nuna East Ltd. - A Construction Engineer and Construction Team from Nuna East Ltd. constructed/installed additional sedimentation control structures along the Mine Haul Road and Tote Road during the reporting period. These areas requiring work were further developed based on observed conditions during freshet. This list of additional priority areas is provided as Table C.4.2 (Appendix C).
- AMEC Foster Wheeler and Kemira Chemical – A process engineering team was retained to continue to study and test the effectiveness of various polymers in treating sediment laden waters that were observed along the Mine Haul Road. Intermediate level water treatment professionals continue to be brought to site over the reporting period in late May to further study the viability polymer treatment of sediment-impacted runoff waters. Several polymers have been selected for further study and procurement.

3. Water Quality and Acute Toxicity Sampling Results for Areas of Concern

Spill Reports for sediment releases are provided in Appendix A. Potential receivers for the sediment releases included Sheardown Lake, Sheardown Lake Tributary, Camp Lake, Camp Lake Tributaries, Mary River and Mary River Tributaries, David Lake and David Lake Tributaries, Muriel Lake and Muriel Lake Tributaries.

Available water quality and acute toxicity results for Sheardown Lake, Camp Lake, and Mary River systems are provided in Appendix B. These results include results provided in the June 24 initial report as well as any new results reported during the current reporting period. GPS coordinates and maps are provided to show approximate sample locations as well as the location of structures that were installed to mitigate the sediment concerns. Water quality data has been compared to the Effluent Quality Discharge Limits for Contact Water (Table 11) provided in the Type “A” Water Licence No. 2AM-MRY1325 for the Mary River Project, which are summarized in the table below:

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of any Grab Sample (mg/L)
Total Suspended Solids (TSS)	15	30
Oil and Grease	No Visible Sheen	No Visible Sheen
pH	Between 6.0 and 9.5	Between 6.0 and 9.5

Note that in areas where there is or has been active construction, the following effluent discharge limits apply:

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of any Grab Sample (mg/L)
Total Suspended Solids (TSS)	50	100
Oil and Grease	No Visible Sheen	No Visible Sheen
pH	Between 6.0 and 9.5	Between 6.0 and 9.5

During the current June 25 to July 8 reporting period, there were no exceedances of the Type A Water Licence criteria. A number of laboratory TSS and turbidity results remain in progress (IP). These include results from Mary River (upstream and downstream), and at various stream crossings along the Tote Road (upstream and downstream) where there were unauthorized releases. Field turbidity values for the Tote Road stream crossings are available and included in Appendix B.

Due to the excellent water quality results over the reporting period for the areas of concern, further acute toxicity analyses was not performed. Previous acute toxicity analyses have shown non-lethal results from the discharge water samples that were collected and reported previously.

Water sampling will continue on a regular basis, and additional data, including laboratory results that are in progress for this reporting period, will be included in future bi-weekly update reports.

4. Corrective Measures for Reported Spills and Other Concerns

4.1. Immediate actions undertaken to address issues

A number of immediate actions were undertaken to address sediment releases to water bodies that were documented in the Spill Reports submitted to authorities. These actions were presented previously in the June 24th, 2016, Report on Actions Taken.

In the case of the Milne Ore Pad drainage and collection system, construction of ditches commenced in late May and were substantially completed in mid-June. The ditching system is currently functional and performance is under observation and assessment. A Hatch Consulting representative completed a site tour of the facility for the purpose of collection of data for the purpose of the as-built construction documents. Secondary ditch, berm, and swale construction for Mine Site Crusher Stockpile area was in progress during the reporting period. Primary/main ditch construction was completed during 2015.

4.2. Detailed work completed by area of concern

Any new work actions taken during the June 25 to July 8 reporting period for the areas of concern are provided in Appendix C. Actions, if taken, are appended to the overall action list provided in the previous work action lists. In addition, new photos for the current reporting period are provided as warranted.

Appendix C.1: Spill Report 16-158 - Sheardown Lake Tributaries and Sheardown Lake.
Appendix C.2: Spill Report 16-176 - Camp Lake Tributaries and Camp Lake.

Appendix C.3: Spill Report 16-181- Mine Haul Road to Mary River and Sheardown Lake Tributary.
Appendix C.4: Spill Report 16-198 - Camp Lake Tributary 1
Appendix C.5: Spill Report 16-202 and Update No. 1 - Milne Inlet Tote Road, Tributaries to Mary Lake, David Lake, and Muriel Lake.
Appendix C.6: Milne Port Ore Stockpile Drainage Collection System.
Appendix C.7: Milne Port Beach
Appendix C.8: Sediment on and under bridges along Tote Road.

5. Next Steps

5.1. Bi-weekly update reports

Bi-weekly update reports will continue to be provided including any additional construction work completed and additional water sampling data. The next report will cover the period from July 9 to July 22, 2016.

5.2. Completed construction repairs

Construction repairs for the areas of concern including the Milne Port Ore Stockpile Drainage system and the Mine Site Crusher Stockpile Pad will be substantially completed by July 17, 2016.

5.3. Lessons-learned

Baffinland will conduct an extensive review and analyses of lessons- learned with regard to sedimentation issues along the roads and at the camps. Key conclusions and recommendations will be provided in the Completion Report which will be provided to regulators and inspectors. Baffinland will be open to any comments and recommendations received and will make revisions as is appropriate.

5.4. Long-term action plans

Longer term action plans related to dust mitigation and Tote Road work as related to drainage considerations will be provided by September 30, 2016.

5.5. Completion Report

A completion report that summarizes the results of all work to date and is signed off by the CEO of the company will be provided by September 30, 2016.

Appendix A

NT-NU Spill Reports

(Refer to Report No. 1)

Appendix B

Surface Water Quality and Acute Toxicity Results for Affected Areas

(Refer to Biweekly Report No. 6)

Appendix C

Sequence of Events and Actions Taken by Spill Report and Other Concerns (With Photos)

(Refer to Biweekly Report No. 6 for Complete List of Actions Taken)

Appendix C.1 - Photos

Photo 1 – Outlet at Sheardown Lake Tributary on July 4, 2016

Photo 2 – Sheardown Lake Tributary upstream of CV186 on July 4, 2016

Photo 3 – No flow conditions at Landfill Gate Tributary on July 7, 2016