

Appendix C.2 – Photos



Photo 1 –Outfall to Camp Lake Tributary #1 on July 4, 2016



Photo 2 – Camp Lake Tributary #1 on July 4, 2016

Appendix C.3 – Photos



Photo 1– Checkdam #5 constructed at Km 108.5. Picture taken on July 5, 2016.



Photo 2 – Silt Fences and Checkdam #5 at Km 108.5. Picture taken on July 5, 2016.



Photo 4 - New ditch with geotextile and rip rap up from Km 108.5. Picture taken on July 5, 2016



Photo 4 - New ditch with geotextile and rip rap at downhill from Km 108.5. Picture taken on July 5, 2016

Appendix C.4 – Photos



Photo 1 – Update on stable slope face by Camp Lake Tributary #1. Picture taken on July 7, 2016

Appendix C.5 – Photos at various locations along the Tote Road



Photo 1 – BG-31. New culvert installation at Km 82 reduces siltation downstream



Photo 2 – BG -31 flowing clear downstream of culvert



Photo 3 – BG-28 flowing clear at Km 86.5.



Photo 4- Rip rap in ditch at Km 85



Photo 5: Rip rap in ditch at Km 85



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. 2 for Period July 9 to July 22, 2016**

July 22, 2016

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Spill Report 16-176 - Camp Lake Tributaries and Camp Lake.

Spill Report 16-181- Mine Haul Road to Mary River and Sheardown Lake Tributary.

Spill Report 16-198 - Camp Lake Tributary 1

Spill Report 16-202 - Milne Inlet Tote Road, Tributaries to Mary Lake, David Lake, and Muriel Lake.

Spill Report 16-202 – Update 1 - Milne Inlet Tote Road, Tributaries to Muriel Lake (BG-31) and David Lake (BG-28)

Appendix B - Surface Water Quality and acute Toxicity Results for Affected Areas

- B.1 - Sample IDs and Locations
- B.2 - Water Quality and Results
- B.3 - Acute Toxicity Results

**Appendix C - Sequence of Events and Actions Taken by Spill Report and Other Concerns
(With Photos)**

- C.1- Spill Report 16-158
- C.2- Spill Report 16-176
- C.3- Spill Report 16-181
- C.4- Spill Report 16-198
- C.5- Spill Report 16-202
- C.6- Milne and Mine Site Drainage Works
- C.7- Removal of Impacted Snow: Milne Beach and Tote Road Bridges

Report Basis

The document provided, herein, is the second 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 July 9 through July 22. 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 and July 8 Bi-Weekly Report No. 1.

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 22, the potentially affected drainages continue to run visually clear of sediment, and the residual snow pack in upstream areas have been fully released. Based on visual observations, Freshet flows have subsided. Lake ice is no longer present on the larger lakes of the area (Camp Lake, Sheardown Lake, David Lake, Muriel Lake, and Mary Lake). There were minor rainfall 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 provided assistance:

- Nuna East Ltd. - A Construction Team consisting of Nuna East Ltd. Equipment operator supported by Baffinland Mine Operations personnel continued to work on completion of the Mine Crusher Pad ditching project.
- Technical advisors from AMEC Foster Wheeler and Kemira Chemical were available to site personnel during the reporting period for the purpose of providing technical guidance on water treatment of runoff if required. However, their services were not required during the reporting period due to the clear flows.
- Initial consultation with Golder and AMEC Foster Wheeler has taken place to discuss the Dust Mitigation Action Plan and the Tote Road and Mine Hall Road Mitigation Action Plan.

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 data provided in the June 24 and July 8 reports, as well as new results that became available during the current reporting period. New sampling locations with corresponding laboratory results include the Mary River (upstream and downstream of the Mine Site), and various stream crossings along the Tote Road (upstream and downstream of the road) where unauthorized releases were reported. 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 results have 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 July 9 to July 22 reporting period, there were no exceedances of the Type A Water Licence criteria. 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 periodic 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 and July 8, 2016, Report on Actions Taken.

In the case of the Milne Ore Pad and the Mine Site Ore Pad drainage and collection systems, construction of ditch systems were completed by June 15 and July 15, respectively. As of those dates, the ditching systems were functional and currently performance is under observation and evaluation. Construction Summary Reports (CSRs) for the facilities are currently in preparation and will be submitted to the Nunavut Water Board within three months after the substantial completion of construction.

4.2. Detailed work completed by area of concern

Any new work actions taken during the July 9 to July 22 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 is subdivided as follows:

- 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 23 to August 5, 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 have been substantially completed by the established July 17, 2016, deadline.

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 appropriate.

5.4. Long-term action plans

Longer term action plans related to Dust Mitigation and Tote Road Action Plans as related to drainage considerations are underway and 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 19, 2016



Photo 2 – Upstream at Sheardown Lake Tributary on July 19, 2016



Photo 3 – Flow conditions at Landfill Gate Tributary on July 19, 2016

Appendix C.2 – Photos



Photo 1 – Camp Lake Tributary #1 on July 19, 2016

Appendix C.4 – Photos



Photo 1 – Update on stable slope face by Camp Lake Tributary #1 on July 22, 2016.

Appendix C.5 – Photos at various locations along the Tote Road



Photo 1 – Water flowing downstream of CV223 on July 22, 2016



Photo 2 – Outlet of CV223 with armoured slope on July 22, 2016



Photo 3 – Clear flow at outlet of BG-17 with armoured banks on July 22, 2016



Photo 4 – Outlet of BG-28 flowing clear on July 17, 2016



Photo 5 – BG-29 flowing clear at outlet on July 22, 2016



Photo 6 – BG -31 flowing clear downstream of culvert on July 17, 2016

Appendix C.6 - Photos



Photo 1 – Aerial view of completed ditch work at the Mine Site Crusher Pad on July 18, 2016



Photo 2 – Completed ditch work at the Milne Port Ore Pad on July 18, 2016



Photo 3 – Aerial view of completed ditch work at the Milne Port Ore Pad on July 18, 2016



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. 3 for Period July 23 to August 5, 2016**

August 5, 2016

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Spill Report 16-198 - Camp Lake Tributary 1
Spill Report 16-202 - Milne Inlet Tote Road, Tributaries to Mary Lake, David Lake, and Muriel Lake.
Spill Report 16-202 – Update 1 - Milne Inlet Tote Road, Tributaries to Muriel Lake (BG-31) and David Lake (BG-28)

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- B.1 - Sample IDs and Locations
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- B.3 - Acute Toxicity Results

**Appendix C - Sequence of Events and Actions Taken by Spill Report and Other Concerns
(With Photos)**

- C.1 - Spill Report 16-158
- C.2 - Spill Report 16-176
- C.3 - Spill Report 16-181
- C.4 - Spill Report 16-198
- C.5 - Spill Report 16-202
- C.6 - Milne and Mine Site Drainage Works
- C.7 - Removal of Impacted Snow: Milne Beach and Tote Road Bridges

Report Basis

The document provided, herein, is the third -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 July 23 through August 5. 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 and the July 8 and July 22 Bi-Weekly Reports Nos. 1 and 2.

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 reported.

As of August 5, the potentially affected drainages continue to run, for the most part, visually clear of sediment. There were moderate rainfall events during the reporting period which resulted in some minor turbidity in Camp Lake Tributary and tributaries discharging to Mary River, especially during the early August period. Sampling has been completed for this period and results are forthcoming and will be provided in the next bi-weekly report. A natural sedimentation event, unrelated to Project activities, occurred upstream on Mary River (10 km upstream of Deposit No. 1) during the reporting period, causing the waters of Mary River to flow visually brown in colour in the vicinity of the Mine Site.

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 provided assistance:

-) In early August, Golder was selected as the key consultant to support Baffinland in the development of the Dust Mitigation Action Plan and the Tote Road and Mine Haul Road Mitigation Action Plans.

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 data provided in the June 24, July 8, and July 22 reports, as well as new results that became available 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 results have 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 July 23 to August 5 reporting period, there were no exceedances of the Type A Water Licence criteria. Minor turbid conditions were observed along Camp Lake Tributary outlet, however, water samples from early August period were not available for this location for inclusion in this report. These results will be included during the next reporting period.

Due to the acceptable 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 periodic 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 reports provided on June 24, July 8, and July 22, 2016 (Reports on Actions Taken).

In the case of the Milne Ore Pad and the Mine Site Ore Pad drainage and collection systems, construction of ditch systems were completed by June 15 and July 15, respectively. As of those dates, the ditching systems were functional and currently performance is under observation and evaluation. Construction Summary Reports (CSRs) for the facilities are currently in preparation and will be submitted to the Nunavut Water Board within three months after the substantial completion of construction.

4.2. Detailed work completed by area of concern

Any new work actions taken during the July 23 to August 5 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 is subdivided as follows:

Appendix C.1: Spill Report 16-158 - Sheardown Lake Tributaries and Sheardown Lake.
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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 August 6 to 19, 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 have been substantially completed by the established July 17, 2016, deadline.

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 are underway and 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 25, 2016



Photo 2 – Upstream at Sheardown Lake Tributary on July 25, 2016



Photo 3 – Flow conditions at Landfill Gate Tributary on July 25, 2016



Photo 4 – Outlet at Landfill Gate Tributary on July 25, 2016

Appendix C.2 – Photos



Photo 1 – Camp Lake Tributary #1 on July 25, 2016



Photo 2 – Upstream Camp Lake Tributary #1 on July 25, 2016

Appendix C.3 – Photos Not Required (No Change from Report Update No. 1)

Appendix C.4 – Photos



Photo 1 – Update on stable slope face by Camp Lake Tributary #1 on August 1, 2016.