# APPENDIX E.8.4

# INITIAL AND FOLLOW-UP SPILL REPORTS

# (PART 3 OF 4)

June 15, 2018

Resource Management Officer
Nunavut Field Operations
Indigenous and Northern Affairs Canada
Box 100
Iqaluit, NU X0A 0H0
Jonathan.mesher@aandc-aadnc.gc.ca

Manager, Major Projects
Qikiqtani Inuit Association
P.O. Box 219
Iqaluit, NU X0A 0H0

**Re: Follow-up to Spill #18-180, Reported on May 18, 2018, Mary River Project - Water Licence No. 2AM-MRY1325**

**Summary:**
At approximately 13:00 HRS on May 16th, 2018, during the execution of the daily freshet monitoring program at the Mary River Mine Site, environmental technicians observed sediment-laden water to be breaching the series of sediment ponds/check dams that have been constructed along the Camp Lake Jetty access road. Elevated levels of suspended solids were observed from sediment impacted snow melt which mobilized due to the overland flow. In addition to the implementation of erosion and sediment control measures, water quality sampling was conducted of water entering Camp Lake.

**Immediate and Follow-Up Action:**
Personnel worked to re-direct flow so that it travelled through the series of check dams, as well as installed silt fencing and spring berms at strategic locations to minimize flow, increase retention time in sediment ponds, and reduce further mobilization of sediment prior to water entering Camp Lake. Once short-term erosion and sediment control mitigation measures were implemented, controls for longer-term solutions to minimize similar occurrences at this location were constructed. The existing series of check dams down the Camp Lake Jetty access road drainage channel were excavated and reinforced, as well as reinforcing and increasing the capacity of the existing settling pond structures.

**Recommendations:**
Continued monitoring during freshet conditions and routine maintenance of check dams and settling ponds (i.e. excavation of material) on an as-needed basis.

**Current Status:**
Conditions at Camp Lake Jetty, as well as other freshet monitoring locations, are currently being sampled and assessed on a daily basis. A more comprehensive Freshet Report will be submitted to document the water quality of water bodies and surface water drainages near Project infrastructure and summarize the corrective actions implemented to address sediment releases and other areas of concern identified during freshet 2018.

Should you require further information or clarification on the above noted spill, please feel free to contact William Bowden or Connor Devereaux at (647) 253-0596 x6016.

Prepared by:

Bryan Lukeman
Environmental Coordinator

Reviewed by:

Connor Devereaux
Environmental Superintendent

Attach: Photos, Map, NT-NU Spill Report
cc. Grant Goddard, Sylvain Proulx, Gerald Rogers, Francois Gaudreau, Tim Sewell, William Bowden (Baffinland), Stephen Bathory (QIA), Ian Parsons, Jeremy Fraser (INAC)

**Photo 1. May 15, 2018: Sediment-laden water flowing into spring berm before entering Camp Lake**

**Photo 2. May 22, 2018: Camp Lake Jetty access road drainage channel check dam**

**Photo 3. May 22, 2018: Camp Lake Jetty access road drainage channel check dams and berm**

**Photo 4. May 22, 2018: Typical check dam/berm cross section**

**Photo 5: May 21, 2018: Reinforcement of berms/check dams at Camp Lake Jetty, during frozen conditions**


**Figure 1 – Overview map of sediment release location**

# NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

Northwest Territories | Nunavut | Canada

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

| | | | | |
|---|---|---|---|---|
| A | REPORT DATE: MONTH – DAY – YEAR<br>05-18-2018 | REPORT TIME<br>21:20 | ☒ ORIGINAL SPILL REPORT, OR<br>☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT | REPORT NUMBER<br>18 - 180 |
| B | OCCURRENCE DATE: MONTH – DAY – YEAR<br>05-16-2018 | OCCURRENCE TIME<br>13:00 | | |
| C | LAND USE PERMIT NUMBER (IF APPLICABLE)<br>IOL - Commercial Lease No.: Q13C301 | WATER LICENCE NUMBER (IF APPLICABLE)<br>2AM-MRY1325 Type "A" | | |
| D | GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION<br>Mary River Project Mine Site, Baffin Island, NU | REGION<br>☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN | | |
| E | LATITUDE<br>DEGREES MINUTES SECONDS | LONGITUDE<br>DEGREES MINUTES SECONDS | | |
| F | RESPONSIBLE PARTY OR VESSEL NAME<br>Baffinland Iron Mines Corp. | RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION<br>2275 Middle Road East, Suite 300, Oakville, ON L6H 0C3 | | |
| G | ANY CONTRACTOR INVOLVED<br>N/A | CONTRACTOR ADDRESS OR OFFICE LOCATION<br>N/A | | |
| H | PRODUCT SPILLED<br>Sediment-laden water | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES<br>Unquantified at present time | U.N. NUMBER<br>N/A | |
| | SECOND PRODUCT SPILLED (IF APPLICABLE)<br>N/A | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES<br>N/A | U.N. NUMBER<br>N/A | |
| I | SPILL SOURCE<br>Melting snow, overland flow | SPILL CAUSE<br>Rapid melt | AREA OF CONTAMINATION IN SQUARE METRES<br>N/A | |
| J | FACTORS AFFECTING SPILL OR RECOVERY<br>Snow covered area, high flow | DESCRIBE ANY ASSISTANCE REQUIRED<br>N/A | HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT<br>N/A | |

K — ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS

On May 16, 2018, warming temperatures resulting in snowmelt runoff containing sediment-laden water observed to be flowing down the Camp Lake ditching/check dams at 13:00; water samples were subsequently taken. The source of the drainage was snow melt from the Weatherhaven parking area and Camp Lake access road. The event resulted in sediment-laden water flowing onto and under the ice of Camp Lake. In accordance with the Surface Water Management Plan, sedimentation mitigation measures were implemented including silt fences and spring berms in an attempt to settle sediments prior to discharge. With freshet conditions present, daily monitoring of the water quality is ongoing; initial water quality sample results were submitted to ALS lab for analysis. This spill is being reported as required by the conditions of Water License no. 2AM-MRY1325, Part H, item 9 (b) pursuant to subsection 12(3) of the Nunavut Waters and Nunavut Surface Rights Tribunal Act and as required by subsection 38(4) of the Fisheries Act.

| | | | | | |
|---|---|---|---|---|---|
| L | REPORTED TO SPILL LINE BY<br>Connor Devereaux | POSITION<br>Env Superintendent | EMPLOYER<br>Baffinland | LOCATION CALLING FROM<br>647.253.0596 | TELEPHONE<br>Ext. 6016 |
| M | ANY ALTERNATE CONTACT<br>Tim Sewell | POSITION<br>Head of HSE | EMPLOYER<br>Baffinland | ALTERNATE CONTACT LOCATION<br>647.253.0596 | ALTERNATE TELEPHONE<br>Ext. 6054 |

REPORT LINE USE ONLY

| | | | | | |
|---|---|---|---|---|---|
| N | RECEIVED AT SPILL LINE BY | POSITION<br>STATION OPERATOR | EMPLOYER | LOCATION CALLED<br>YELLOWKNIFE, NT | REPORT LINE NUMBER<br>(867) 920-8130 |

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

| AGENCY | CONTACT NAME | CONTACT TIME | REMARKS |
|---|---|---|---|
| LEAD AGENCY | | | |
| FIRST SUPPORT AGENCY | | | |
| SECOND SUPPORT AGENCY | | | |
| THIRD SUPPORT AGENCY | | | |

PAGE 1 OF 1

**Figure 2 – NT-NU Spill report**

June 16, 2018

Resource Management Officer
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Box 100
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Jonathan.mesher@aandc-aadnc.gc.ca

Manager, Major Projects
Qikiqtani Inuit Association
P.O. Box 219
Iqaluit, NU X0A 0H0

**Re: Follow-up to Spill #18-182, Reported on May 19, 2018, Mary River Project - Water Licence No. 2AM-MRY1325**

**Summary:**
At approximately 15:00 HRS on May 17th, 2018, during the execution of the daily freshet monitoring program at the Mary River Mine Site, environmental technicians observed sediment-laden water to be flowing at multiple locations at the Mary River Mine Site (SDLT and CLT). Elevated levels of suspended solids were observed from sediment impacted snow melt which mobilized as a result of increased overland flow. In addition to the implementation of erosion and sediment control measures in accordance with the Surface Water Management Plan, water quality sampling was conducted of water entering the receiving water bodies. SDLT reports to Sheardown Lake, while CLT reports to Camp Lake.

**Immediate and Follow-Up Action:**
Upon discovery of the elevated instream TSS conditions at these drainages, personnel worked to install sedimentation mitigation measures, including silt fences and spring berms, in accordance with the Surface Water Management Plan, in an attempt to slow flow and settle sediments prior to entering the streams.

In the days leading up to freshet, snow pack around the inlets and outlets of select culvert locations was excavated, including the SDLT and CLT crossings, to reduce the volume of snow melt and thus, the amount of overland flow present to mobilize sediment. The excess snow was removed and transported to the approved snow dump areas. By reducing the excess snow at these locations, the severity and frequency of elevated instream TSS events has been reduced.

**Recommendations:**
Continued monitoring during freshet conditions and routine maintenance of sediment fences and spring berms, where applicable.

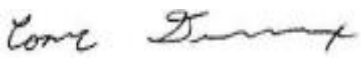
**Current Status:**
Conditions at SDLT and CLT, as well as other freshet monitoring locations, are currently being sampled and assessed on a daily basis. A more comprehensive Freshet Report will be submitted to document the water quality of water bodies and surface water drainages near Project infrastructure and summarize the corrective actions implemented to address sediment releases and other areas of concern identified during freshet 2018.

Should you require further information or clarification on the above noted spill, please feel free to contact William Bowden or Connor Devereaux at (647) 253-0596 x6016.

Prepared by:

Bryan Lukeman
Environmental Coordinator

Reviewed by:



Connor Devereaux
Environmental Superintendent

Attach: Photos, Map, NT-NU Spill Report
cc. Grant Goddard, Sylvain Proulx, Gerald Rogers, Francois Gaudreau, Tim Sewell, William Bowden (Baffinland), Stephen Bathory (QIA), Ian Parsons, Jeremy Fraser (INAC)

Photo 1. May 17, 2018: Viewing downstream of sediment-laden water at CLT entering Camp Lake

Photo 2. May 17, 2018: Viewing downstream of SDLT of sediment-laden water entering Sheardown Lake

**Photo 3. May 9, 2018: Removal of excess snowpack from road crossing above SDLT**

**Photo 4. May 9, 2018: Removal of excess snowpack from road crossing above SDLT**

**Photo 5. May 9, 2018: Removal of excess snowpack from road crossing above SDLT**


**Photo 6. May 13, 2018: Removal of excess snowpack from road crossing above CLT**


**Figure 1 – Overview map of sediment release location**

# NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

| | | | | |
|---|---|---|---|---|
| A | REPORT DATE: MONTH – DAY – YEAR: 05-19-2018 | REPORT TIME: 21:00 | X ORIGINAL SPILL REPORT, OR ☐ UPDATE # TO THE ORIGINAL SPILL REPORT | REPORT NUMBER: 18 - 182 |
| B | OCCURRENCE DATE: MONTH – DAY – YEAR: 05-17-2018 | OCCURRENCE TIME: 15:00 | | |
| C | LAND USE PERMIT NUMBER (IF APPLICABLE): IOL - Commercial Lease No.: Q13C301 | WATER LICENCE NUMBER (IF APPLICABLE): 2AM-MRY1325 Type "A" | | |
| D | GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION: Mary River Project Mine Site, Baffin Island, NU | REGION: ☐ NWT X NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN | | |
| E | LATITUDE: DEGREES MINUTES SECONDS | LONGITUDE: DEGREES MINUTES SECONDS | | |
| F | RESPONSIBLE PARTY OR VESSEL NAME: Baffinland Iron Mines Corp. | RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION: 2275 Middle Road East, Suite 300, Oakville, ON L6H 0C3 | | |
| G | ANY CONTRACTOR INVOLVED: N/A | CONTRACTOR ADDRESS OR OFFICE LOCATION: N/A | | |
| H | PRODUCT SPILLED: Sediment-laden water | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES: Unquantified | U.N. NUMBER: N/A | |
| | SECOND PRODUCT SPILLED (IF APPLICABLE): N/A | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES: N/A | U.N. NUMBER: N/A | |
| I | SPILL SOURCE: Melting snow, overland flow | SPILL CAUSE: Rapid melt | AREA OF CONTAMINATION IN SQUARE METRES: N/A | |
| J | FACTORS AFFECTING SPILL OR RECOVERY: Snow covered area, high flow | DESCRIBE ANY ASSISTANCE REQUIRED: N/A | HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT: N/A | |

K — ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS

On May 17, 2018, warming temperatures resulting in snowmelt runoff containing sediment-laden water observed to be flowing at multiple locations at the Mary River Mine Site (SDLT and CLT). The source of the sedimentation was snow melt from surrounding mine site infrastructure. The event resulted in sediment-laden water flowing onto and under the ice of Camp Lake and Sheardown Lake which are currently frozen. In accordance with the Surface Water Management Plan, sedimentation mitigation measures were implemented including silt fences and spring berms in an attempt to settle sediments prior to discharge. With freshet conditions present, daily monitoring of the water quality is ongoing; initial water quality sample results were submitted to ALS lab for analysis. This spill is being reported as required by the conditions of Water License no. 2AM-MRY1325, Part H, item 9 (b) pursuant to subsection 12(3) of the Nunavut Waters and Nunavut Surface Rights Tribunal Act and as required by subsection 38(4) of the Fisheries Act.

| | | | | | |
|---|---|---|---|---|---|
| L | REPORTED TO SPILL LINE BY: Connor Devereaux | POSITION: Env Superintendent | EMPLOYER: Baffinland | LOCATION CALLING FROM: 647.253.0596 | TELEPHONE: Ext. 6016 |
| M | ANY ALTERNATE CONTACT: Tim Sewell | POSITION: Head of HSE | EMPLOYER: Baffinland | ALTERNATE CONTACT LOCATION: 647.253.0596 | ALTERNATE TELEPHONE: Ext. 6054 |

REPORT LINE USE ONLY

| | | | | | |
|---|---|---|---|---|---|
| N | RECEIVED AT SPILL LINE BY | POSITION: STATION OPERATOR | EMPLOYER | LOCATION CALLED: YELLOWKNIFE, NT | REPORT LINE NUMBER: (867) 920-8130 |

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ LA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

| AGENCY | CONTACT NAME | CONTACT TIME | REMARKS |
|---|---|---|---|
| LEAD AGENCY | | | |
| FIRST SUPPORT AGENCY | | | |
| SECOND SUPPORT AGENCY | | | |
| THIRD SUPPORT AGENCY | | | |

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**Figure 2 – NT-NU Spill report**

Baffinland

July 05, 2018

Resource Management Officer
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Jonathan.mesher@aandc-aadnc.gc.ca

Manager, Major Projects
Qikiqtani Inuit Association
P.O. Box 219
Iqaluit, NU X0A 0H0

**Re: Follow-up to Spill #18-209, Reported on June 05, 2018, Mary River Project - Water Licence No. 2AM-MRY1325**

**Summary:**

As part of Baffinland's 2018 Tote Road monitoring program, on May 30th, a crossing located at Km 86 (BG27) was identified from received sample results to be flowing above applicable water licence criteria for total suspended solids (TSS). The sediment was generated by the melting snow pack adjacent to the road and other sample results indicate natural sedimentation upstream is also contributing to the elevated TSS in the stream.

**Immediate and Follow-Up Action:**

Upon discovery of the elevated TSS conditions downstream of the culvert crossing, personnel installed sedimentation mitigation measures. Mitigation measures included riprap armoring of the ditches and silt fences to slow flow velocities and settle sediments prior to entering the culvert and stream, as outlined in the Surface Water Management Plan.

**Recommendations:**

Continued monitoring during summer rain events and routine maintenance of sediment control measures will be completed on an as-needed basis.

**Current Status:**

Conditions at BG27 improved following the installation of sediment control measures, with TSS levels returning to below applicable water licence criteria. A more comprehensive Freshet Report will be submitted to document the water quality of surface water crossings along the Tote Road and summarize the areas of concern identified during freshet 2018.

Should you require further information or clarification on the above noted spill, please feel free to contact William Bowden or Connor Devereaux at (647) 253-0596 x6016.

Prepared by:

Dominic Ritgen
Environmental Coordinator

Reviewed by:

Connor Devereaux
Environmental Superintendent

Attach: Photos, Map, NT-NU Spill Report
cc. Grant Goddard, Sylvain Proulx, Gerald Rogers, Francois Gaudreau, Tim Sewell, William Bowden (Baffinland), Stephen Bathory (QIA), Ian Parsons, Jeremy Fraser (INAC)

Photo 1. May 30, 2018: Viewing downstream BG27 entering waterbody

Photo 2. May 30, 2018: Viewing Upstream of BG27

2275 Upper Middle Road East, Suite 300 | Oakville, ON, Canada L6H 0C3
Main: 416.364.8820 | Fax: 416.364.0193 | www.baffinland.com

Photo 3. June 6, 2018: Bank armoring with riprap

Photo 4. June 6, 2018: Bank armoring with riprap

Photo 5. June 6, 2018: Silt fence being installed upstream of crossing

Photo 6. June 7, 2018: Water flowing clear following mitigation measures in place


Figure 1 – Overview map of sediment release location

# NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

| | | | | |
|---|---|---|---|---|
| A | REPORT DATE: MONTH – DAY – YEAR: 06-05-2018 | REPORT TIME: 19:00 HRS | ☒ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT | REPORT NUMBER: 18 - 209 |
| B | OCCURRENCE DATE: MONTH – DAY – YEAR: Unknown | OCCURRENCE TIME: Unknown | | |
| C | LAND USE PERMIT NUMBER (IF APPLICABLE): IOL - Commercial Lease No.: Q13C301 | WATER LICENCE NUMBER (IF APPLICABLE): 2AM-MRY1325 Type "A" | | |
| D | GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION: Mary River Project Tote Road, Baffin Island, NU | REGION: ☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN | | |
| E | LATITUDE: DEGREES - MINUTES - SECONDS - | LONGITUDE: DEGREES - MINUTES - SECONDS - | | |
| F | RESPONSIBLE PARTY OR VESSEL NAME: Baffinland Iron Mines Corp. | RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION: 2275 Middle Road East, Suite 300, Oakville, ON L6H 0C3 | | |
| G | ANY CONTRACTOR INVOLVED: N/A | CONTRACTOR ADDRESS OR OFFICE LOCATION: N/A | | |
| H | PRODUCT SPILLED: Sediment / discoloured water | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES: Unquantified | U.N. NUMBER: N/A | |
| | SECOND PRODUCT SPILLED (IF APPLICABLE): N/A | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES: N/A | U.N. NUMBER: N/A | |
| I | SPILL SOURCE: Freshet melting snowpack | SPILL CAUSE: Sediment impacted water | AREA OF CONTAMINATION IN SQUARE METRES: N/A | |
| J | FACTORS AFFECTING SPILL OR RECOVERY: Poor access | DESCRIBE ANY ASSISTANCE REQUIRED: N/A | HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT: N/A | |

K — ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS

As part of Baffinland's 2018 Tote Road monitoring program, crossings are being monitored for turbid water and sediment impacted drainage upon the start of flows. On May 30, 2018, one crossing- BG27 (Km 86) was identified from received sample results to be flowing above applicable water licence criteria for total suspended solids (TSS) downstream of the crossing . The sediment appears to be generated by the melting snow pack adjacent to the road, however sample results indicate natural sedimentation upstream is also contributing to the elevated TSS in the stream. Sedimentation mitigation measure such as silt fences, jute, spring berms and rip rap are planned and will be installed where possible based on safe access, snow, ice cover and frozen ground. The Tote Road monitoring program is ongoing. This spill is being reported as required by the conditions of Water License no. 2AM-MRY1325, Part H, item 9 (b) pursuant to subsection 12(3) of the Nunavut Waters and Nunavut Surface Rights Tribunal Act and as required by subsection 38(4) of the Fisheries Act.

| | | | | | |
|---|---|---|---|---|---|
| L | REPORTED TO SPILL LINE BY: William Bowden | POSITION: Env Superintendent | EMPLOYER: Baffinland | LOCATION CALLING FROM: 647.253.0596 | TELEPHONE: Ext. 6016 |
| M | ANY ALTERNATE CONTACT: Tim Sewell | POSITION: Head of HSE | EMPLOYER: Baffinland | ALTERNATE CONTACT LOCATION: 647.253.0596 | ALTERNATE TELEPHONE: Ext 6054 |

REPORT LINE USE ONLY

| | | | | | |
|---|---|---|---|---|---|
| N | RECEIVED AT SPILL LINE BY | POSITION: STATION OPERATOR | EMPLOYER | LOCATION CALLED: YELLOWKNIFE, NT | REPORT LINE NUMBER: (867) 920-8130 |

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

| AGENCY | CONTACT NAME | CONTACT TIME | REMARKS |
|---|---|---|---|
| LEAD AGENCY | | | |
| FIRST SUPPORT AGENCY | | | |
| SECOND SUPPORT AGENCY | | | |
| THIRD SUPPORT AGENCY | | | |

PAGE 1 OF 1

Figure 2 – NT-NU Spill report

July 09, 2018

Resource Management Officer
Nunavut Field Operations
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Manager, Major Projects
Qikiqtani Inuit Association
P.O. Box 219
Iqaluit, NU X0A 0H0

**Re: Follow-up to Spill #18-214, Reported on June 09, 2018, Mary River Project - Water Licence No. 2AM-MRY1325**

**Summary:**

On June 8th, 2018, runoff from the tundra was observed to be flowing into the adjacent ditches between kilometer 107 and 108 along the Mine Haul Road. Upon investigation, surface water runoff from the surrounding tundra entered two culverts resulted in sediment impacted water entering Mary River tributary (non fish bearing). Surface water was immediately diverted away from the Mary River tributary preventing any potential sedimentation impact.

**Immediate and Follow-Up Action:**

Culvert inlets along the Mine Haul Road drainage ditch were blocked off to divert water away from the Mary River catchment area preventing any further sediment laden water. The check dam at the end of the magazine road was also excavated to capture suspended solids.

**Recommendations:**

Additional monitoring during summer rain events and routine maintenance of sediment control measures will be initiated and completed as required. A water management engineering review associated with the Mine Haul Road will be undertaken and remedial action implemented.

**Current Status:**

Culvert inlets remain blocked and are functioning to prevent water flow towards the Mary River tributary.

Should you require further information or clarification on the above noted spill, please feel free to contact William Bowden or Connor Devereaux at (647) 253-0596 x6016.

Prepared by:

Dominic Ritgen
Environmental Coordinator

Reviewed by:

Connor Devereaux
Environmental Superintendent

Attach: Photos, Map, NT-NU Spill Report
cc. Tim Sewell, Grant Goddard, Sylvain Proulx, Gerald Rogers, Francois Gaudreau, William Bowden (Baffinland), Stephen Bathory (QIA), Ian Parsons, Jeremy Fraser (INAC)

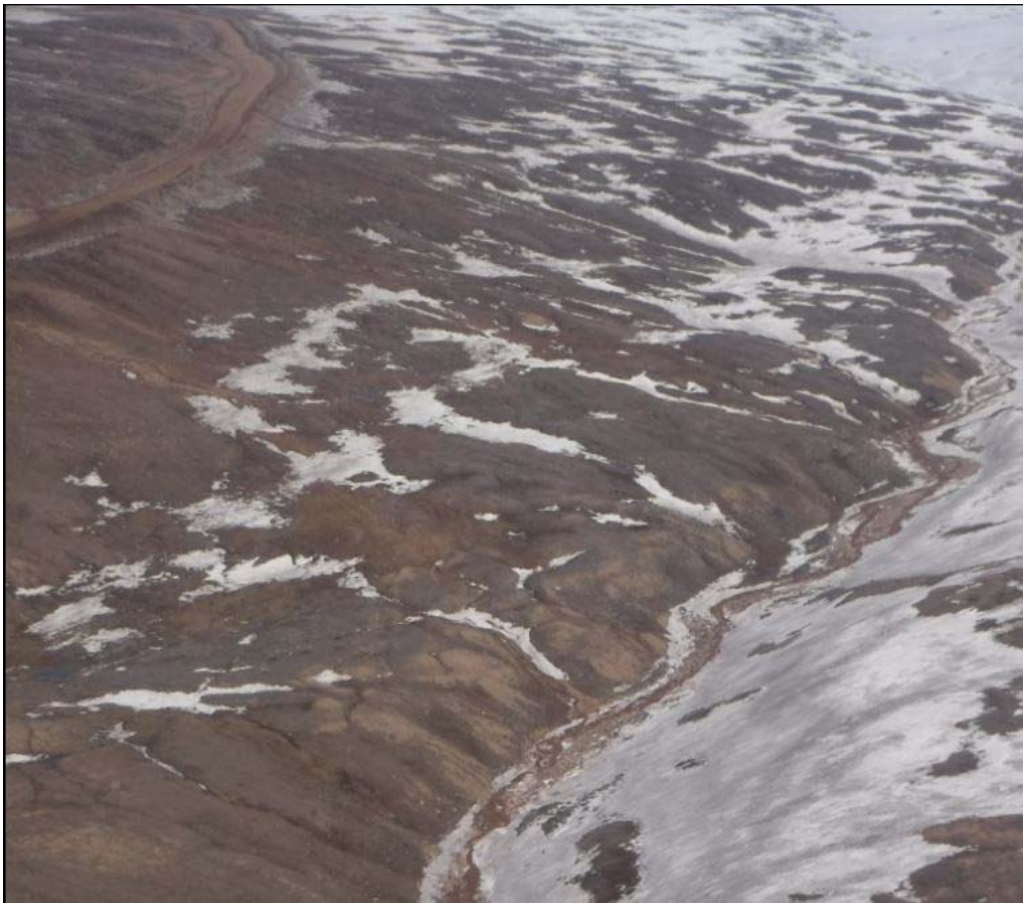

Photo 1. June 9, 2018: Mine Haul Road and Mary River Tributary

Photo 2. June 13, 2018: Mary River downstream of Mary River Tributary

Photo 3. June 10, 2018: Minimal flow from culvert outlet after inlet was blocked off to divert runoff from the Mine Haul Road

Photo 4. July 9, 2018: Reinforcement of Check Dams as part of ongoing maintenance

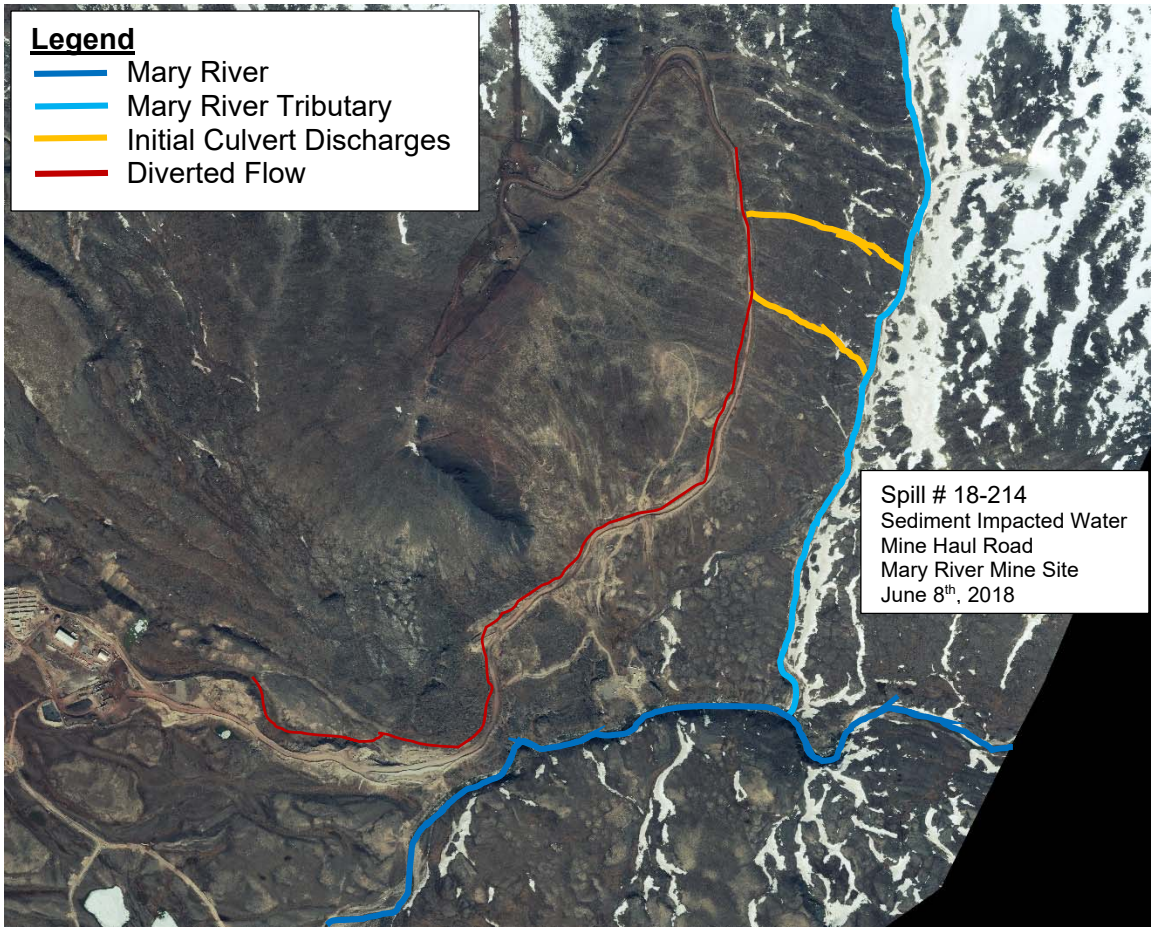

Figure 1 – Overview map of sediment release locations

# NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

| | | | | |
|---|---|---|---|---|
| A | REPORT DATE: MONTH – DAY – YEAR: 06-09-2018 | REPORT TIME: 21:00 | ☒ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT | REPORT NUMBER: 18 - 214 |
| B | OCCURRENCE DATE: MONTH – DAY – YEAR: 06-08-2018 | OCCURRENCE TIME: Unknown | | |
| C | LAND USE PERMIT NUMBER (IF APPLICABLE): IOL - Commercial Lease: Q13C301 | WATER LICENCE NUMBER (IF APPLICABLE): 2AM-MRY1325 Type "A" | | |
| D | GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION: Mary River Mine Site, Baffin Island, NU | REGION: ☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN | | |
| E | LATITUDE: DEGREES MINUTES SECONDS | LONGITUDE: DEGREES MINUTES SECONDS | | |
| F | RESPONSIBLE PARTY OR VESSEL NAME: Baffinland Iron Mines Corp. | RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION: 2275 Middle Road East, Sutie 300, Oakville, ON L6H 0C3 | | |
| G | ANY CONTRACTOR INVOLVED: N/A | CONTRACTOR ADDRESS OR OFFICE LOCATION: N/A | | |
| H | PRODUCT SPILLED: Sediment | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES: Unquantifiable | U.N. NUMBER: N/A | |
| | SECOND PRODUCT SPILLED (IF APPLICABLE): N/A | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES: N/A | U.N. NUMBER: N/A | |
| I | SPILL SOURCE: Spring freshet/melt | SPILL CAUSE: Rapid snow melt | AREA OF CONTAMINATION IN SQUARE METRES: N/A | |
| J | FACTORS AFFECTING SPILL OR RECOVERY: Steep embankment, poor access | DESCRIBE ANY ASSISTANCE REQUIRED: N/A | HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT: N/A | |

K — ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS

On June 8th, 2018, runoff from the tundra was observed to be flowing into the adjacent ditches between kilometer 107 and 108 along the Mine Haul Road. Upon initial investigation, it appears surface water runoff through two culverts has resulted in sediment impacted water entering Mary River tributary. Sedimentation mitigation measures such as check dams and silt fences/curtains are being implemented in an attempt to settle sediments prior to discharge to the receiving environment. Surface water is also being diverted away from problematic areas to locations that will minimize flows towards Mary River. A follow up report will be provided with further information on mitigation measures. This incident is being reported as required by the conditions of Water License no. 2AM-MRY1325, Part H, item 9(b) pursuant to subsection 12(3) of the Nunavut Waters and Nunavut Surface Rights Tribunal Act and as required by subsection 38(4) of the Fisheries Act.

| | | | | | |
|---|---|---|---|---|---|
| L | REPORTED TO SPILL LINE BY: Connor Devereaux | POSITION: Env. Superintendent | EMPLOYER: Baffinland | LOCATION CALLING FROM: 416-364-8820 | TELEPHONE: ext. 6016 |
| M | ANY ALTERNATE CONTACT: Tim Sewell | POSITION: Head of Environment | EMPLOYER: Baffinland | ALTERNATE CONTACT LOCATION: 416-364-8820 | ALTERNATE TELEPHONE: ext. 6054 |

REPORT LINE USE ONLY

| | | | | | |
|---|---|---|---|---|---|
| N | RECEIVED AT SPILL LINE BY | POSITION: STATION OPERATOR | EMPLOYER | LOCATION CALLED: YELLOWKNIFE, NT | REPORT LINE NUMBER: (867) 920-8130 |

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

| AGENCY | CONTACT NAME | CONTACT TIME | REMARKS |
|---|---|---|---|
| LEAD AGENCY | | | |
| FIRST SUPPORT AGENCY | | | |
| SECOND SUPPORT AGENCY | | | |
| THIRD SUPPORT AGENCY | | | |

PAGE 1 OF 1

Figure 2 – NT-NU Spill report

July 15, 2018

Resource Management Officer
Nunavut Field Operations
Indigenous and Northern Affairs Canada
Box 100
Iqaluit, NU X0A 0H0
Jonathan.Mesher@aandc-aadnc.gc.ca

Manager, Major Projects
Qikiqtani Inuit Association
P.O. Box 219
Iqaluit, NU X0A 0H0

**Re: Follow-up to Spill #18-232, Reported on June 15, 2018, Mary River Project - Water Licence No. 2AM-MRY1325**

**Summary:**

On June 14 2018, during an inspection a spill was discovered at the Port Site Hazardous Waste Berm #1 (MP-HWB-01). Upon investigation, it was determined that the source of the spill was caused by damage to a waste oil tote. The spill is contained within the MP-HWB-01 which is an engineered lined containment berm. Estimates of product released is approx. one cubic metre.

**Immediate and Follow-Up Action:**

Upon discovery of the spill, crews cleaned up waste oil using absorbent pads and the contaminated berm cover material was removed. Clean material was then placed in the influenced areas to return the berm back to its original condition. The damaged tote was pumped out and packed for backhaul disposal. The remaining water in MP-HWB-01 was transferred to the contaminated snow dump to be treated utilizing the oily water treatment facility

**Recommendations:**

Standard Operating Procedures (SOP) have been reviewed by operators working within containment facilities.

**Current Status:**

The containment berm has been cleaned of all oil and contaminated material. Influenced area has been replaced with clean cover material.

Should you require further information or clarification on the above noted spill, please feel free to contact William Bowden or Connor Devereaux at (647) 253- 0596 x6016.

Prepared by:

Dominic Ritgen
Environmental Coordinator

Reviewed by:

Connor Devereaux
Environmental Superintendent

Attach: Photos, Map, Baffinland NT-NU Spill Report

cc. Tim Sewell, Grant Goddard, Sylvain Proulx, William Bowden, Gerald Rogers, Francois Gaudreau (Baffinland), Stephen Bathory (QIA), Ian Parsons, Jeremy Fraser (INAC).

**Photo 1. MP-HWB-01 oil spill**

**Photo 2. MP-HWB-01 after clean up**

2275 Upper Middle Road East, Suite 300 | Oakville, ON, Canada L6H 0C3
Main: 416.364.8820 | Fax: 416.364.0193 | www.baffinland.com


**Figure 1. Map of spill location**

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Baffinland

# NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

| | | | | |
|---|---|---|---|---|
| A | REPORT DATE: MONTH – DAY – YEAR: 06-15-2018 | REPORT TIME: 21:00 | ☒ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT | REPORT NUMBER: 18 - 232 |
| B | OCCURRENCE DATE: MONTH – DAY – YEAR: Unknown | OCCURRENCE TIME: Unknown | | |
| C | LAND USE PERMIT NUMBER (IF APPLICABLE): IOL - Commercial Lease: Q13C301 | WATER LICENCE NUMBER (IF APPLICABLE): 2AM-MRY1325 Type "A" | | |
| D | GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION: Mary River Mine Site, Baffin Island, NU | REGION: ☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN | | |
| E | LATITUDE: DEGREES 71 MINUTES 53 SECONDS 12 | LONGITUDE: DEGREES 80 MINUTES 53 SECONDS 14 | | |
| F | RESPONSIBLE PARTY OR VESSEL NAME: Baffinland Iron Mines Corp. | RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION: 2275 Middle Road East, Sutie 300, Oakville, ON L6H 0C3 | | |
| G | ANY CONTRACTOR INVOLVED: N/A | CONTRACTOR ADDRESS OR OFFICE LOCATION: N/A | | |
| H | PRODUCT SPILLED: Waste Oil | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES: Approx. 1 cubic meter | U.N. NUMBER: N/A | |
| | SECOND PRODUCT SPILLED (IF APPLICABLE): N/A | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES: N/A | U.N. NUMBER: N/A | |
| I | SPILL SOURCE: Damaged plastic tote | SPILL CAUSE: Punctured tote | AREA OF CONTAMINATION IN SQUARE METRES: N/A | |
| J | FACTORS AFFECTING SPILL OR RECOVERY: On water in lined berm | DESCRIBE ANY ASSISTANCE REQUIRED: N/A | HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT: N/A | |

K — ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS

On June 14 2018, during an inspection a spill was discovered at the Port Site Hazardous Waste Berm #1 (MP-HWB-01). Upon investigation, it is suspected that the source of the spill was caused by damage to a waste oil tote during the winter months. The spill is contained within the MP-HWB-01 which is an engineered lined containment berm. The facility is located approximately 100 m from the nearest water body. Initial estimates of product released is approx. 1 cubic metre. The free product will be removed and disposed of and the remaining water in MP-HWB-01 will be treated utilizing the oily water treatment facility. A detailed report of the of the incident will be provided within the thirty day reporting period. This incident is being reported as required by the conditions of Water License no. 2AM-MRY1325, Part H, item 9(b) pursuant to subsection 12(3) of the Nunavut Waters and Nunavut Surface Rights Tribunal Act.

| | | | | | |
|---|---|---|---|---|---|
| L | REPORTED TO SPILL LINE BY: Connor Devereaux | POSITION: Env. Superintendent | EMPLOYER: Baffinland | LOCATION CALLING FROM: 416-364-8820 | TELEPHONE: ext. 6016 |
| M | ANY ALTERNATE CONTACT: Tim Sewell | POSITION: Head of Environment | EMPLOYER: Baffinland | ALTERNATE CONTACT LOCATION: 416-364-8820 | ALTERNATE TELEPHONE: ext. 6054 |

REPORT LINE USE ONLY

| | | | | | |
|---|---|---|---|---|---|
| N | RECEIVED AT SPILL LINE BY | POSITION: STATION OPERATOR | EMPLOYER | LOCATION CALLED: YELLOWKNIFE, NT | REPORT LINE NUMBER: (867) 920-8130 |

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

| AGENCY | CONTACT NAME | CONTACT TIME | REMARKS |
|---|---|---|---|
| LEAD AGENCY | | | |
| FIRST SUPPORT AGENCY | | | |
| SECOND SUPPORT AGENCY | | | |
| THIRD SUPPORT AGENCY | | | |

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**Figure 2. Baffinland NT NU spill report**

July 20, 2018

Jonathan Mesher, Resource Management Officer
Nunavut Field Operations
Iqaluit Office
Indigenous Affairs and Northern Development Canada
Box 100
Iqaluit, NU X0A 0H0

Curtis Didham, Enforcement Officer
David MacDonald, Enforcement Officer
Environment and Climate Change Canada
933 Mivvik Street
Iqaluit, NU X0A 0H0

**Re: Follow-up to Spill #18-244, Reported on June 20, 2018, Mary River Project - Water Licence No. 2AM-MRY1325**

**Summary:**

On June 19th, personnel monitoring the Waste Rock Stockpile Pond (MS-08) and facility's ditching, observed an overflow of water from the west drainage ditch of the facility. This water under normal operating conditions reports the Waste Rock Stockpile Pond. Upon investigation, the overflow was resultant of specific berm walls being insufficient to contain the surface water flow sourcing from the stockpile and reporting to the Waste Rock Stockpile Pond at a crossing where a culvert was installed which resulted in pooling water and overflow.

Baffinland took immediate action and arrested the overflow. The capacity of the west drainage ditch was increased to eliminate pooling within the ditch at the culvert and the overflow was contained. The perimeter emergency ditch was extended to contain overflow runoff still located at the spill location and as a future preventative action. The overflow water was tested and determined to have pH levels below 6.0 after the incident was initially identified. However, follow up water quality monitoring of the over flow spill location indicated pH levels above 6, having returned to above applicable MMER and Water licence criteria. The overflow occurred on a flat IOL tundra plateau >5km away from the nearest fisheries receiving water bodies of Camp Lake and Camp Lake Tributary. Water quality monitoring results down gradient of the spill location and further downstream in potential receiving environments are presented in this follow-up report.

As per MMER Reporting section 31(1)
31(2)

(a) Waste rock surface water runoff overflowed the west drainage ditch at one discrete location, which reports to the Waste Rock Stockpile Pond. Monitoring of the overflow indicates water quality was below applicable pH guidelines on initial onset of the incident.
(b) The estimated quantity of the deposit is unknown, however was arrested within the hour of being identified. Monitoring of the Waste Rock facility the previous day to the incident occurring had not identified the overflow occurring.
(c) Exceedances of pH concentrations were deposited at the overflow location identified on the west drainage ditch.
(d) No deleterious substances were deposited through the Final Discharge Point.
(e) Camp Lake and Camp Lake Tributary would be the ultimate receiving body of water. It is located >5km away from the seepage
(f) An Acute lethality test was conducted downstream on Camp Lake Tributary, a potential fisheries receiving water body, and is presented in this follow up as sample ID L1-02.
(g) N/A
(h) See summary above for circumstances of deposit. The west drainage ditch berm wall was increased in size and the capacity of the drainage ditch increased to eliminate potential pooling water. The emergency containment ditch down gradient of the spill was extended to capture overflow water in the immediate spill location down gradient of the west ditch overflow.

Baffinland

**Immediate and Follow-Up Action:**

The overflow was arrested upon discovery and monitoring of the over flow location was initiated. The west drainage ditch berm wall was increased in size and the capacity of the drainage ditch was increased to eliminate pooling within the ditch and promote flow from the ditch into the Waste Rock Stockpile Pond. Overflow water was captured by extending the emergency ditch around the west perimeter of the pond and culvert overflow location.

**Recommendations:**

Ensure effective drainage ditching flow path into the Waste Rock Stockpile Pond with earth works as required. Continued daily monitoring of both the drainage ditch and emergency ditches that are resident of the Waste Rock Stockpile Facility to safeguard against future incidents. .

**Current Status:**

The West drainage ditch is flowing as intended and no further overflow has been observed from either drainage ditch resident of the facility during daily monitoring.

Should you require further information or clarification on the above noted spill, please feel free to contact William Bowden or Connor Devereaux at (647) 253-0596 x6016.

Prepared by:

William Bowden
Environmental Superintendent

Reviewed by:

Simon Fleury
Mine Manager

Attach: Photos, Map, Monitoring Results, NT-NU Spill Report

cc. Tim Sewell, Grant Goddard, Sylvain Proulx, Gerald Rogers, Francois Gaudreau, Connor Devereaux (Baffinland), Stephen Bathory (QIA), Ian Parsons, Jeremy Fraser (INAC)


Photo 1. June 19th, 2018 -Heavy equipment support upon discovery to arrest over flow from West Drainage Ditch.

Photo 2. June 20th, 2018 – West drainage ditch inflow into the Waste Rock Stockpile Pond following berm reinforcement.

2275 Upper Middle Road East, Suite 300 | Oakville, ON, Canada L6H 0C3
Main: 416.364.8820 | Fax: 416.364.0193 | www.baffinland.com

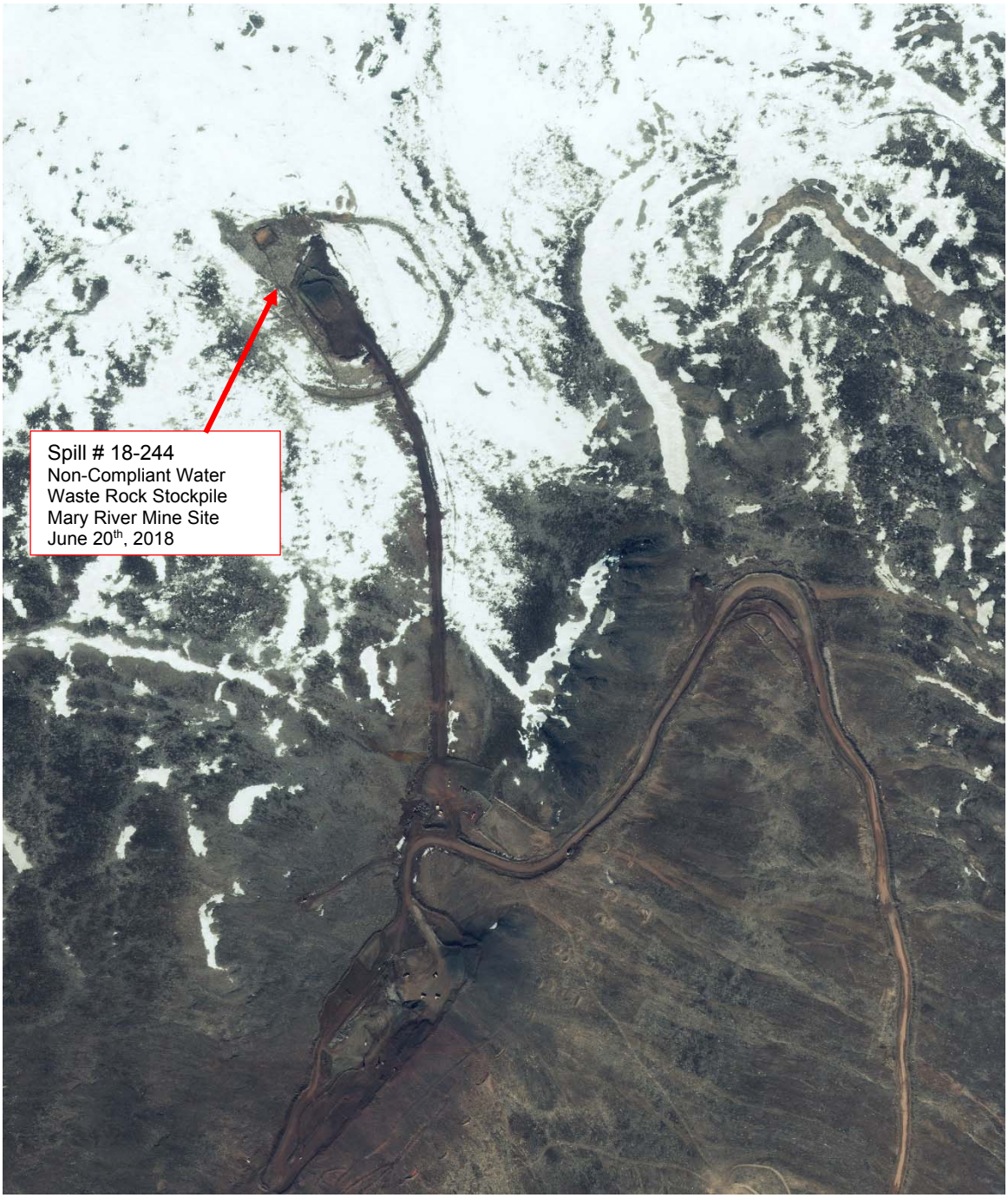


Figure 1 – Overview map of overflow location

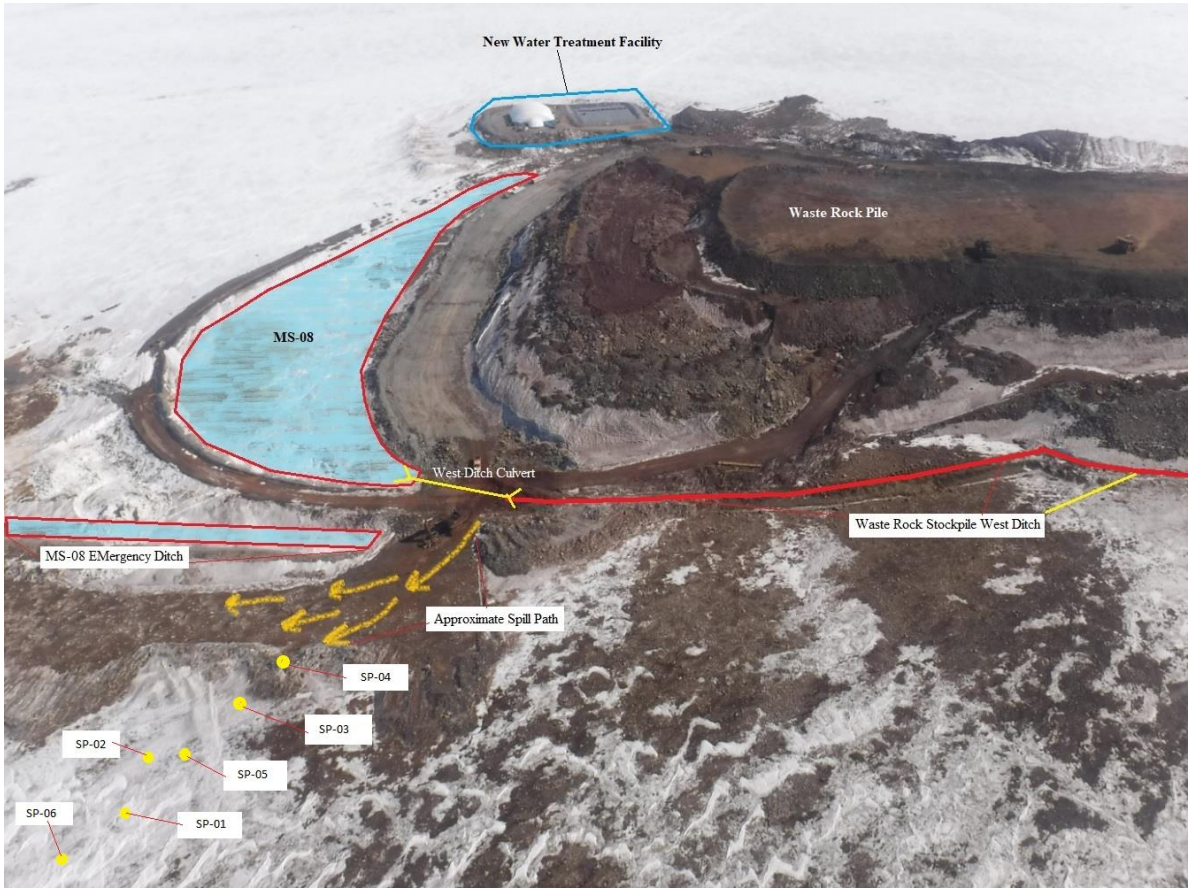

Figure 2 – Detailed map of spill location

Overflow In-Situ Monitoring Data

| Date | Sample ID | Sample Time | pH | Temp. ($^{O}$C) | Specific Conductivity (µs/cm) | Dissolved Oxygen (%) | Turbidity (NTU) | GPS Location |
|---|---|---|---|---|---|---|---|---|
| 19-Jun-18 | SP-01 | 18:20 | 5.32 | 4.3 | 3168 | 85.1 | 52.33 | 71˚20'41"N 79˚14' 36"E |
| 19-Jun-18 | SP-02 | 18:30 | 5.4 | 5.5 | 3170 | 86.9 | 12.8 | 71˚20' 42"N 79˚14' 43"E |
| 19-Jun-18 | SP-03 | 18:35 | 6.03 | 5.5 | 2695 | 79.2 | 0.29 | 71˚20' 43"N 79˚14' 51"E |
| 19-Jun-18 | SP-04 | 18:40 | 6.38 | 5.7 | 2142 | 86.24 | 53.02 | 71˚20' 44"N 79˚14' 54"E |
| 19-Jun-18 | SP-05 | 18:55 | 5.77 | 6.1 | 2964 | 5.77 | 5.7 | 71˚20' 42"N 79˚14' 44"E |
| 19-Jun-18 | SP-06 | 19:05 | 5.49 | 5.1 | 3117 | 79 | 50.1 | 71˚20' 39"N 79˚14' 30"E |
| 20-Jun-18 | SP-01 | 12:25 | 6.07 | 7.5 | 2663 | 53.6 | 105 | 71˚20' 41"N 79˚14' 36"E |
| 20-Jun-18 | SP-03 | 12:45 | 6.67 | 4.5 | 1873 | 90.1 | 0 | 71˚20' 43"N 79˚14' 51"E |
| 20-Jun-18 | SP-04 | 12:55 | 6.81 | 5.5 | 1983 | 100.6 | 0.72 | 71˚20' 44"N 79˚14' 54"E |
| 20-Jun-18 | SP-05 | 13:00 | 6.57 | 7.6 | 1865 | 85.8 | 1.03 | 71˚20' 42"N 79˚14' 44"E |
| 22-Jun-18 | SP-01 | 1:16 | 6.34 | 2.7 | 816 | 85.2 | 2.09 | 71˚20' 41"N 79˚14' 36"E |
| 22-Jun-18 | SP-02 | 1:25 | 6.5 | 3.5 | 1374 | 78.3 | 13.04 | 71˚20' 42"N 79˚14' 43"E |
| 22-Jun-18 | SP-03 | 1:30 | 6.62 | 2.7 | 1593 | 79.7 | 1.15 | 71˚20' 43"N 79˚14' 51"E |
| 22-Jun-18 | SP-04 | 1:37 | 7.32 | 3.3 | 1119 | 91.1 | 1.05 | 71˚20' 44"N 79˚14' 54"E |
| 22-Jun-18 | SP-05 | 1:43 | 7.15 | 3.8 | 1165 | 87.5 | 2.2 | 71˚20' 42"N 79˚14' 44"E |
| 22-Jun-18 | SP-06 | 1:50 | 6.81 | 3.2 | 915 | 72.8 | 32.95 | 71˚20' 39"N 79˚14' 30"E |

Camp Lake Tributary Receiving Environment

| ALS | | Sample ID | L1-02 |
|---|---|---|---|
| 7/20/2018 | | ALS ID | L2122777-4 |
| L2122777 | | Date Sampled | 7/3/2018 11:50:00 AM |
| Analyte | Units | LOR | Water |
| Conductivity | umhos/cm | 3 | 105 |
| Hardness (as CaCO3) | mg/L | 10 | 51 |
| pH | pH units | 0.1 | 7.95 |
| Total Suspended Solids | mg/L | 2 | <2.0 |
| Total Dissolved Solids | mg/L | 10 | 49 * |
| Turbidity | NTU | 0.1 | 0.72 |
| Alkalinity, Total (as CaCO3) | mg/L | 10 | 48 |
| Ammonia, Total (as N) | mg/L | 0.02 | <0.020 |
| Bromide (Br) | mg/L | 0.1 | <0.10 |
| Chloride (Cl) | mg/L | 0.5 | 0.91 |
| Nitrate and Nitrite as N | mg/L | 0.021 | 0.022 |
| Nitrate (as N) | mg/L | 0.02 | 0.022 |
| Nitrite (as N) | mg/L | 0.005 | <0.0050 |
| Total Kjeldahl Nitrogen | mg/L | 0.15 | <0.15 |
| Phosphorus, Total | mg/L | 0.003 | 0.0036 |
| Sulfate (SO4) | mg/L | 0.3 | 5.51 |
| Dissolved Organic Carbon | mg/L | 0.5 | 1.94 |
| Total Organic Carbon | mg/L | 0.5 | 2.16 |
| Mercury (Hg)-Total | mg/L | 0.00001 | <0.000010 |
| Aluminum (Al)-Total | mg/L | 0.003 | 0.0112 |
| Antimony (Sb)-Total | mg/L | 0.0001 | <0.00010 |
| Arsenic (As)-Total | mg/L | 0.0001 | <0.00010 |
| Barium (Ba)-Total | mg/L | 0.00005 | 0.0072 |
| Beryllium (Be)-Total | mg/L | 0.0005 | <0.00050 |
| Bismuth (Bi)-Total | mg/L | 0.0005 | <0.00050 |
| Boron (B)-Total | mg/L | 0.01 | <0.010 |
| Cadmium (Cd)-Total | mg/L | 0.00001 | <0.000010 |
| Calcium (Ca)-Total | mg/L | 0.05 | 10.5 |
| Chromium (Cr)-Total | mg/L | 0.0005 | <0.00050 |
| Cobalt (Co)-Total | mg/L | 0.0001 | <0.00010 |
| Copper (Cu)-Total | mg/L | 0.0005 | 0.00167 |
| Iron (Fe)-Total | mg/L | 0.03 | <0.030 |
| Lead (Pb)-Total | mg/L | 0.00005 | <0.000050 |
| Lithium (Li)-Total | mg/L | 0.001 | <0.0010 |
| Magnesium (Mg)-Total | mg/L | 0.05 | 6.44 |
| Manganese (Mn)-Total | mg/L | 0.00007 | 0.000293 |
| Molybdenum (Mo)-Total | mg/L | 0.00005 | 0.000274 |
| Nickel (Ni)-Total | mg/L | 0.0005 | 0.00053 |
| Potassium (K)-Total | mg/L | 0.2 | 1.19 |
| Selenium (Se)-Total | mg/L | 0.001 | <0.0010 |
| Silicon (Si)-Total | mg/L | 0.1 | 0.58 |
| Silver (Ag)-Total | mg/L | 0.00001 | <0.000010 |
| Sodium (Na)-Total | mg/L | 0.05 | 0.601 |

| ALS | | Sample ID | L1-02 |
|---|---|---|---|
| 7/20/2018 | | ALS ID | L2122777-4 |
| L2122777 | | Date Sampled | 7/3/2018 11:50:00 AM |
| Analyte | Units | LOR | Water |
| Strontium (Sr)-Total | mg/L | 0.0001 | 0.00532 |
| Thallium (Tl)-Total | mg/L | 0.0001 | <0.00010 |
| Tin (Sn)-Total | mg/L | 0.0001 | <0.00010 |
| Titanium (Ti)-Total | mg/L | 0.01 | <0.010 |
| Uranium (U)-Total | mg/L | 0.00001 | 0.000472 |
| Vanadium (V)-Total | mg/L | 0.001 | <0.0010 |
| Zinc (Zn)-Total | mg/L | 0.003 | <0.0030 |
| Aluminum (Al)-Dissolved | mg/L | 0.003 | 0.0062 |
| Antimony (Sb)-Dissolved | mg/L | 0.0001 | <0.00010 |
| Arsenic (As)-Dissolved | mg/L | 0.0001 | <0.00010 |
| Barium (Ba)-Dissolved | mg/L | 0.00005 | 0.00717 |
| Beryllium (Be)-Dissolved | mg/L | 0.0005 | <0.00050 |
| Bismuth (Bi)-Dissolved | mg/L | 0.0005 | <0.00050 |
| Boron (B)-Dissolved | mg/L | 0.01 | <0.010 |
| Cadmium (Cd)-Dissolved | mg/L | 0.00001 | <0.000010 |
| Calcium (Ca)-Dissolved | mg/L | 0.05 | 10.2 |
| Chromium (Cr)-Dissolved | mg/L | 0.0005 | <0.00050 |
| Cobalt (Co)-Dissolved | mg/L | 0.0001 | <0.00010 |
| Copper (Cu)-Dissolved | mg/L | 0.0005 | 0.00159 |
| Iron (Fe)-Dissolved | mg/L | 0.03 | <0.030 |
| Lead (Pb)-Dissolved | mg/L | 0.00005 | <0.000050 |
| Lithium (Li)-Dissolved | mg/L | 0.001 | <0.0010 |
| Magnesium (Mg)-Dissolved | mg/L | 0.05 | 6.29 |
| Manganese (Mn)-Dissolved | mg/L | 0.00007 | 0.000165 |
| Mercury (Hg)-Dissolved | mg/L | 0.00001 | <0.000010 |
| Molybdenum (Mo)-Dissolved | mg/L | 0.00005 | 0.000293 |
| Nickel (Ni)-Dissolved | mg/L | 0.0005 | <0.00050 |
| Potassium (K)-Dissolved | mg/L | 0.2 | 1.21 |
| Selenium (Se)-Dissolved | mg/L | 0.001 | <0.0010 |
| Silicon (Si)-Dissolved | mg/L | 0.1 | 0.55 |
| Silver (Ag)-Dissolved | mg/L | 0.00001 | <0.000010 |
| Sodium (Na)-Dissolved | mg/L | 0.05 | 0.607 |
| Strontium (Sr)-Dissolved | mg/L | 0.0001 | 0.00521 |
| Thallium (Tl)-Dissolved | mg/L | 0.0001 | <0.00010 |
| Tin (Sn)-Dissolved | mg/L | 0.0001 | <0.00010 |
| Titanium (Ti)-Dissolved | mg/L | 0.01 | <0.010 |
| Uranium (U)-Dissolved | mg/L | 0.00001 | 0.000456 |
| Vanadium (V)-Dissolved | mg/L | 0.001 | <0.0010 |
| Zinc (Zn)-Dissolved | mg/L | 0.003 | <0.0030 |
| Phenols (4AAP) | mg/L | 0.001 | 0.0016 |
| Chlorophyll a | ug/L | 0.1 | 0.18 |
| Phaeophytin a | ug/L | 0.1 | 0.18 |

AQUATOX
**AquaTox Testing & Consulting Inc.**
B-11 Nicholas Beaver Rd.
Puslinch ON N0B 2J0
Tel: (519) 763-4412 Fax: (519) 763-4419

# TOXICITY TEST REPORT
***Daphnia magna***


Work Order : 236482
Sample Number : 55347

## SAMPLE IDENTIFICATION

| | | | |
|---|---|---|---|
| Company : | ALS Laboratory Group, Waterloo | Sampled By : | Not provided |
| Location : | Waterloo ON | Time Collected : | 16:20 |
| Job Number : | L2117340 | Date Collected : | 2018-06-20 |
| Substance : | L2117340-1 L1-02 | Date Received : | 2018-06-22 |
| Sampling Method : | Not provided | Date Tested : | 2018-06-22 |
| Sample Description : | Clear, light yellow, odourless. | Temp. on arrival : | 19.0° C |

Test Method : Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna.* Environment Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016 amendments).

## 48-h TEST RESULTS

| Substance | Effect | Value |
|---|---|---|
| Control | Mean Immobility | 0.0 % |
| | Mean Mortality | 0.0 % |
| 100% | Mean Immobility | 0.0 % |
| | Mean Mortality | 0.0 % |

The results reported relate only to the sample tested.

## REFERENCE TOXICANT DATA

| | | | |
|---|---|---|---|
| Toxicant : | Sodium Chloride | Historical Mean LC50 : | 6.0 g/L |
| Date Tested : | 2018-06-12 | Warning Limits (± 2SD) : | 5.6 - 6.4 g/L |
| LC50 : | 6.6 g/L* | Organism Batch : | Dm18-11 |
| 95% Confidence Limits : | 6.3 - 6.9 g/L | Analyst(s) : | MDS, SEW, AW |
| Statistical Method : | Spearman-Kärber | | |

## *Daphnia magna* CULTURE HEALTH DATA

| | | | |
|---|---|---|---|
| Time to First Brood : | 7 days | Mean Young Per Brood : | 28.7 |
| Culture Mortality : | 2.2% (previous 7 days) | | |

## TEST CONDITIONS

| | | | |
|---|---|---|---|
| Sample Treatment : | None | Number of Replicates : | 3 |
| pH Adjustment : | None | Test Organisms / Replicate : | 10 |
| Test Aeration : | None | Total Organisms / Test Level : | 30 |
| Organism Batch : | Dm18-11 | Organism Loading Rate : | 15.0 mL/organism |
| | | Test Method Deviation(s) : | None |

*Note: The reference toxicant test result exceeded the 95% warning limits for historical data. No other unusual circumstances were observed and therefore the test result is considered acceptable.

***Date:*** 2018-06-26
*yyyy-mm-dd*

***Approved by:*** Nancy Hughes
*Project Manager*

AQUATOX

# TOXICITY TEST REPORT

***Daphnia magna***



Work Order: 236482
Sample Number: 55347

| | Hardness (mg/L as $CaCO_3$) | Hardness Adjustment | pH | D.O. (mg/L) | Cond. (µmhos/cm) | Temp. (°C) | $O_2$ Sat. (%)* | Total Pre-Aeration Time (h) @ 30 mL/min/L |
|---|---|---|---|---|---|---|---|---|
| **Initial Water Chemistry:** | 48 | None | 8.1 | 9.5 | 85 | 20.0 | 109 | 0:30 |

**0 hours**

Date & Time 2018-06-22 13:50
Technician: CZN/TZL

| Test Conc. (%) | Mortality | Immobility | pH | D.O. | Cond. | Temp. | $O_2$ Sat. (%)* | Hardness |
|---|---|---|---|---|---|---|---|---|
| 100A | 0 | 0 | 8.1 | 9.2 | 99 | 20.0 | 106 | 48 |
| 100B | 0 | 0 | 8.1 | 9.2 | 99 | 20.0 | 106 | 48 |
| 100C | 0 | 0 | 8.1 | 9.2 | 99 | 20.0 | 106 | 48 |
| Control A | 0 | 0 | 8.6 | 8.6 | 769 | 20.0 | 100 | 240 |
| Control B | 0 | 0 | 8.6 | 8.6 | 769 | 20.0 | 100 | 240 |
| Control C | 0 | 0 | 8.6 | 8.6 | 769 | 20.0 | 100 | 240 |

Notes:

**24 hours**

Date & Time 2018-06-23 13:50
Technician: MDS

| Test Conc. (%) | Mortality | Immobility | pH | D.O. | Cond. | Temp. |
|---|---|---|---|---|---|---|
| 100A | – | 0 | – | – | – | 20.0 |
| 100B | – | 0 | – | – | – | 20.0 |
| 100C | – | 0 | – | – | – | 20.0 |
| Control A | – | 0 | – | – | – | 20.0 |
| Control B | – | 0 | – | – | – | 20.0 |
| Control C | – | 0 | – | – | – | 20.0 |

Notes:

**48 hours**

Date & Time 2018-06-24 13:50
Technician: MDS

| Test Conc. (%) | Mortality | Immobility | pH | D.O. | Cond. | Temp. |
|---|---|---|---|---|---|---|
| 100A | 0 | 0 | 8.1 | 8.5 | 92 | 21.0 |
| 100B | 0 | 0 | 8.2 | 8.4 | 99 | 21.0 |
| 100C | 0 | 0 | 8.3 | 8.5 | 95 | 21.0 |
| Control A | 0 | 0 | 8.6 | 8.4 | 780 | 21.0 |
| Control B | 0 | 0 | 8.6 | 8.4 | 777 | 21.0 |
| Control C | 0 | 0 | 8.6 | 8.3 | 777 | 21.0 |

Notes:

Control organisms showing stress: 0
Organism Batch : Dm18-11

Number immobile does not include number of mortalities.

– = not measured/not required

* adjusted for actual temp. & barometric pressure

Test Data Reviewed By: JL
Date: 2018-06-26

AquaTox Testing & Consulting Inc.
B-11 Nicholas Beaver Rd.
Puslinch ON N0B 2J0
Tel: (519) 763-4412 Fax: (519) 763-4419

# TOXICITY TEST REPORT
## Rainbow Trout



Work Order : 236482
Sample Number : 55347

## SAMPLE IDENTIFICATION

| | | | |
|---|---|---|---|
| Company : | ALS Laboratory Group, Waterloo | Sampled By : | Not provided |
| Location : | Waterloo ON | Time Collected : | 16:20 |
| Job Number : | L2117340 | Date Collected : | 2018-06-20 |
| Substance : | L2117340-1 L1-02 | Date Received : | 2018-06-22 |
| Sampling Method : | Not provided | Date Tested : | 2018-06-22 |
| Sample Description : | Clear, light yellow, odourless. | Temp. on arrival : | 19.0°C |

Test Method : Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 and February 2016 amendments).

## 96-h TEST RESULTS

| Substance | Effect | Value |
|---|---|---|
| Control | Mean Immobility | 0.0 % |
| | Mean Mortality | 0.0 % |
| 100% | Mean Immobility | 0.0 % |
| | Mean Mortality | 0.0 % |

The results reported relate only to the sample tested and as received.

## POTASSIUM CHLORIDE REFERENCE TOXICANT DATA

| | | | |
|---|---|---|---|
| Organism Batch : | T18-14 | Date Tested : | 2018-06-08 |
| LC50 : | 3308 mg/L | Historical Mean LC50 : | 3710 mg/L |
| 95% Confidence Limits : | 3012 - 3772 mg/L | Warning Limits (± 2SD) : | 3074 - 4476 mg/L |
| Statistical Method : | Linear Regression (MLE) | Analyst(s) : | FS, TA, AW |

## TEST FISH

| | | | |
|---|---|---|---|
| Control Fish Sample Size : | 10 | Cumulative stock tank mortality: | 0 % (prev. 7 days) |
| Mean Fish Weight (± 2 SD) : | 0.39 ± 0.20 g | Mean Fish Fork Length (± 2 SD) : | 36.7 ± 6.9 mm |
| Range of Weights : | 0.21 - 0.52 g | Range of Fork Lengths (mm) : | 30 - 40 mm |
| Fish Loading Rate : | 0.2 g/L | | |

## TEST CONDITIONS

| | | | |
|---|---|---|---|
| Test Organism : | *Oncorhynchus mykiss* | Volume Tested (L) : | 19 |
| Sample Treatment : | None | Number of Replicates : | 1 |
| pH Adjustment : | None | Organisms Per Replicate : | 10 |
| Test Aeration : | Yes | Total Organisms Per Test Level : | 10 |
| Pre-aeration/Aeration Rate : | 6.5 ± 1 mL/min/L | Test Method Deviation(s) : | None |

*Date:* 2018-06-26
*yyyy-mm-dd*

*Approved by:* Nancy Meays
*Project Manager*

Work Order: 236482
Sample Number: 55347

| Total Pre-Aeration Time (h) | | pH | D.O. (mg/L) | Cond. (µmhos/cm) | Temp. (°C) | $O_2$ Sat. (%)* |
|---|---|---|---|---|---|---|
| 0:30 | **Initial Water Chemistry:** | 7.7 | 9.1 | 84 | 16.0 | – |
| | Chemistry after 30min air: | 7.7 | 9.3 | 86 | 16.0 | 99 |

**0 hours**

Date & Time 2018-06-22 13:50
Technician: TA

| Test Conc. (%) | Mortality | Immobility | pH | D.O. | Cond. | Temp. | $O_2$ Sat. (%)* |
|---|---|---|---|---|---|---|---|
| 100 | 0 | 0 | 7.7 | 9.3 | 86 | 16.0 | 99 |
| Control | 0 | 0 | 8.1 | 9.7 | 872 | 14.5 | 99 |

Notes:

**24 hours**

Date & Time 2018-06-23 13:50
Technician: TA(SF)

| Test Conc. (%) | Mortality | Immobility | pH | D.O. | Cond. | Temp. |
|---|---|---|---|---|---|---|
| 100 | 0 | 0 | – | – | – | 14.0 |
| Control | 0 | 0 | – | – | – | 14.0 |

Notes:

**48 hours**

Date & Time 2018-06-24 13:50
Technician: TA(SF)

| Test Conc. (%) | Mortality | Immobility | pH | D.O. | Cond. | Temp. |
|---|---|---|---|---|---|---|
| 100 | 0 | 0 | – | – | – | 14.0 |
| Control | 0 | 0 | – | – | – | 14.0 |

Notes:

**72 hours**

Date & Time 2018-06-25 13:50
Technician: MW(FS)

| Test Conc. (%) | Mortality | Immobility | pH | D.O. | Cond. | Temp. |
|---|---|---|---|---|---|---|
| 100 | 0 | 0 | – | – | – | 15.0 |
| Control | 0 | 0 | – | – | – | 15.0 |

Notes:

**96 hours**

Date & Time 2018-06-26 13:50
Technician: FS

| Test Conc. (%) | Mortality | Immobility | pH | D.O. | Cond. | Temp. |
|---|---|---|---|---|---|---|
| 100 | 0 | 0 | 7.9 | 8.8 | 89 | 15.0 |
| Control | 0 | 0 | 8.1 | 9.5 | 821 | 15.0 |

Notes:

Control organisms showing stress: 0
Organism Batch : T18-14

"–" = not measured/not required
Number immobile does not include number of mortalities.
* adjusted for actual temp. & barometric pressure

Test Data Reviewed By: JC
Date: 2018-06-26

# CHAIN OF CUSTODY RECORD

AQUATOX

AquaTox Work Order No: 236482.


**Shipping Address:** AquaTox Testing & Consulting Inc.
B-11 Nicholas Beaver Road
Puslinch, Ontario Canada N0B 2J0

**Voice:** (519) 763-4412 **Fax:** (519) 763-4419


| | |
|---|---|
| P.O. Number: | 4500040417 |
| Field Sampler Name (print): | |
| Signature: | |
| Affiliation: | ALS Env |
| Sample Storage (prior to shipping): | |
| Custody Relinquished by: | RH |
| Date/Time Shipped: | 22-Jun-18 |

| | |
|---|---|
| Client: | ALS Environmental Waterloo Q# 162705399-18 |
| Phone: | 519-886-6910 |
| Fax: | 519-886-9047 |
| Contact: | Wayne Smith / Rick Hawthorne |

| Sample Identification | | | | | Analyses Requested | | | | | | | | | Sample Method and Volume | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Collected (yyyy-mm-dd) | Time Collected (e.g. 14:30, 24 hr clock) | L2117340-1 Sample Name | AquaTox Sample Number | Temp. on arrival | Rainbow Trout Single Concentration | Rainbow Trout LC50 | *Daphnia magna* Single Concentration | *Daphnia magna* LC50 | Fathead Minnow Survival & Growth | *Ceriodaphnia dubia* Survival & Reproduction | *Lemna minor* Growth | *Pseudokirchneriella subcapitata* Growth | Other (please specify below) | Grab | Composite | # of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.) |
| 2018-06-20 | 1620 | L1-02 | 55347 | 19.0 | X | | X | | | | | | | | | 1 Pail |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

**For Lab Use Only**

| | |
|---|---|
| Received By: | RD |
| Date: | 2018 06-22 |
| Time: | 11:30 |
| Storage Location: | |
| Storage Temp.(°C) | |

Please list any special requests or instructions:
~~Regular~~ Baffinland Toxicity Tests
Rush w/ daily updates

ALS Environmental

**L2117340**

WATERLOO

## Subcontract Request Form

**Subcontract To:**

**AQUATOX TESTING AND CONSULTING**
11B NICHOLAS BEAVER ROAD
RR3
GUELPH,ON N1H 6H9

**NOTES:** Please reference on final report and invoice: PO# *L2117340*
ALS requires QC data to be provided with your final results.

**Please see enclosed** 1 **sample(s) in** 0 **Container(s)**

| SAMPLE NUMBER | ANALYTICAL REQUIRED | DATE SAMPLED / DUE DATE | Priority Flag |
|---|---|---|---|
| **L2117340-1 L1-02** | | **6/ 20/ 2018** | **E** |
| | Special Request Aquatox (SPECIAL REQUEST2-AQT 14) | 6/28/2018 | |
| | Special Request Aquatox (SPECIAL REQUEST-AQT 14) | 6/28/2018 | |

Subcontract Info Contact: Sarah Houm (519) 886-6910
Analysis and reporting info contact: Rick Hawthorne
60 NORTHLAND ROAD, UNIT 1
WATERLOO,ON N2V 2B8
Phone: (519) 886-6910 Email: Rick.Hawthorne@alsglobal.com

**Please email confirmation of receipt to:** **Rick.Hawthorne@alsglobal.com**

Shipped By: _____ Date Shipped: _____

Received By: _____ Date Received: _____

Verified By: _____ Date Verified: _____

Temperature: _____

Sample Integrity Issues: _____

Northwest Territories | Nunavut | Canada

# NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

| | | | | |
|---|---|---|---|---|
| A | REPORT DATE: MONTH – DAY – YEAR<br>06-20-2018 | REPORT TIME<br>19:00 | [X] ORIGINAL SPILL REPORT, OR<br>☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT | REPORT NUMBER<br>18 - 244 |
| B | OCCURRENCE DATE: MONTH – DAY – YEAR<br>06-19-2018 | OCCURRENCE TIME<br>Unknown | | |
| C | LAND USE PERMIT NUMBER (IF APPLICABLE)<br>IOL - Commercial Lease: Q13C301 | WATER LICENCE NUMBER (IF APPLICABLE)<br>2AM-MRY1325 Type "A" | | |
| D | GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION<br>Mary River Mine Site, Baffin Island, NU | REGION<br>☐ NWT [X] NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN | | |
| E | LATITUDE<br>DEGREES 71 MINUTES 20 SECONDS 38 | LONGITUDE<br>DEGREES 79 MINUTES 14 SECONDS 19 | | |
| F | RESPONSIBLE PARTY OR VESSEL NAME<br>Baffinland Iron Mines Corp. | RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION<br>2275 Middle Road East, Suite 300, Oakville, ON L6H 0C3 | | |
| G | ANY CONTRACTOR INVOLVED<br>N/A | CONTRACTOR ADDRESS OR OFFICE LOCATION<br>N/A | | |
| H | PRODUCT SPILLED<br>Surface Water | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES<br>Unquantifiable | U.N. NUMBER<br>N/A | |
| | SECOND PRODUCT SPILLED (IF APPLICABLE)<br>N/A | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES<br>N/A | U.N. NUMBER<br>N/A | |
| I | SPILL SOURCE<br>Waste Rock Stockpile | SPILL CAUSE<br>High overland flow | AREA OF CONTAMINATION IN SQUARE METRES<br>N/A | |
| J | FACTORS AFFECTING SPILL OR RECOVERY<br>Drainage to tundra | DESCRIBE ANY ASSISTANCE REQUIRED<br>N/A | HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT<br>N/A | |

K — ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS

On June 19th, Environmental personnel monitoring the Waste Rock Stockpile Pond (MS-08), observed water seeping out of the west drainage ditch. The seepage was tested and determined to have pH levels below 6.0. The capacity of the drainage ditch was increased to eliminate pooling within ditch and seepage contained. The perimeter emergency ditch was also extended to contain seepage runoff. Preliminary testing indicates impacted water was in the immediate vicinity of the waste rock stockpile. Water quality monitoring results and corrective actions will be presented in the follow-up report. The seepage occurred on IOL located > 3 km from nearest fish bearing water. This spill is being reported as required by the conditions of water license no. 2AM-MRY1325, Part H , item 9(b); under the Fisheries Act as required by section 31 of the Metal Mining Effluent Regulations; and as required by the Government of Nunavut's, Environmental Protection Act paragraph 5.1(a).

| | | | | | |
|---|---|---|---|---|---|
| L | REPORTED TO SPILL LINE BY<br>Connor Devereaux | POSITION<br>Env. Superintendent | EMPLOYER<br>Baffinland | LOCATION CALLING FROM<br>416-364-8820 | TELEPHONE<br>ext. 6016 |
| M | ANY ALTERNATE CONTACT<br>Tim Sewell | POSITION<br>Head of Environment | EMPLOYER<br>Baffinland | ALTERNATE CONTACT LOCATION<br>416-364-8820 | ALTERNATE TELEPHONE<br>ext. 6054 |

REPORT LINE USE ONLY

| | | | | | |
|---|---|---|---|---|---|
| N | RECEIVED AT SPILL LINE BY | POSITION<br>STATION OPERATOR | EMPLOYER | LOCATION CALLED<br>YELLOWKNIFE, NT | REPORT LINE NUMBER<br>(867) 920-8130 |

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

| AGENCY | CONTACT NAME | CONTACT TIME | REMARKS |
|---|---|---|---|
| LEAD AGENCY | | | |
| FIRST SUPPORT AGENCY | | | |
| SECOND SUPPORT AGENCY | | | |
| THIRD SUPPORT AGENCY | | | |

PAGE 1 OF 1

Figure 3 – NT-NU Spill report

August 22, 2018

Jonathan Mesher, Resource Management Officer
Nunavut Field Operations
Indigenous and Northern Affairs Canada
Box 100
Iqaluit, NU X0A 0H0

Curtis Didham, Enforcement Officer
Environment and Climate Change Canada
933 Mivvik Street
Iqaluit, NU X0A 0H0

**Re: Follow-up to Spill #18-286, Reported on July 23, 2018**
**Mary River Project - Water Licence No. 2AM-MRY1325**

**Summary:**

On July 22, 2018, authorities were notified that a tug owned by Group Ocean (OCEAN K. RUSBY) had experienced equipment malfunction on the starboard oil pump z-drive clutch while travelling through Eclipse Sound. The vessel reported to be slowly loosing gear oil, and proceeded to the intended destination, Milne Inlet Port. The OCEAN K. RUSBY arrived and docked at the Baffinland Port Ship Loader dock that evening. Baffinland proactively deployed oil containment booms and sorbents around the vessel immediately, containing the release and the oil circuit was blanked. Group Ocean reported to regulators that approximately 30 liters of gear oil was released during the incident prior to boom containment at the Baffinland Port Ship Loader dock. A sheen and minor product was visible by helicopter reconnaissance travelling up the channel into Milne Inlet. Spill recovery efforts were initiated. Helicopter reconnaissance continued and showed that the release was readily dissipating through weather and wave action. A call was held with Group Ocean and the Canadian Coast Guard (CCG) on July 24th in which the CCG stated that spill recovery methods were not recommended.

**Immediate and Follow-Up Action:**

Upon the tug's arrival at the Milne Port Ship Loading dock, emergency response and spill containment procedures were activated immediately around the OCEAN K. RUSBY, under the Spill at Sea Response Plan (SSRP) and the Shipboard Oil Pollution Emergency Response Plan (SOPEP). On July 23rd OCEAN K. RUSBY was moved from the west side of the dock to the east side of the dock for safety and operations rationale. During the vessel move, double spill containment booms remained in place, encircling the vessel and were tightened and locked in place upon completion. On July 27th divers surveyed the hull of the vessel and assessed the equipment malfunction and damage. Residual product was cleaned and recovered from the damaged engine and hull of the tug with sorbents. Once no further sheen was observed on the hull or within the spill containment booms the OCEAN K. RUSBY was released after being cleared for use by CCG.

**Recommendations:**

Baffinland will continue to ensure marine spill response equipment is stocked and response personnel are trained in safe and efficient deployment. Update and evaluate spill response materials available at Milne Port: Mount vertical spill boom anchors on the Ship Loader Dock for decreased deployment time.

**Current Status:**

OCEAN K. RUSBY has ceased operation of the affected engine and is currently operating in Milne Inlet. No sheen or impact visible in the Inlet from the incident.

Should you require further information or clarification on the above noted spill, please feel free to contact William Bowden or Connor Devereaux at (647) 253-0596 x6016

Prepared by:

Ben Widdowson
Environmental Coordinator

Reviewed by:

William Bowden
Environmental Superintendent

Attach: Photos, Map, NT-NU Spill Report

cc. Sylvain Proulx, Gerald Rogers, Francois Gaudreau, Jared Gardner Tim Sewell, Connor Devereaux (Baffinland), Stephen Bathory, Fai Ndofor (QIA), Erik Allain, Ian Parsons (INAC)


**Photo 1 – OCEAN K. RUSBY at Milne Port upon arrival with two spill containment booms in place, July 22nd, 2018.**

2275 Upper Middle Road East, Suite 300 | Oakville, ON, Canada L6H 0C3
Main: 416.364.8820 | Fax: 416.364.0193 | www.baffinland.com

**Photo 2 – July 24th, 02:00. Vessel following relocation contained within double booms.**


**Photo 3 – OCEAN K. RUSBY at East side of Milne Port Ship Loading dock with two spill containment booms in place, July 27th, 2018.**


**Figure 1 – Map of spill containment location at Milne Inlet.**

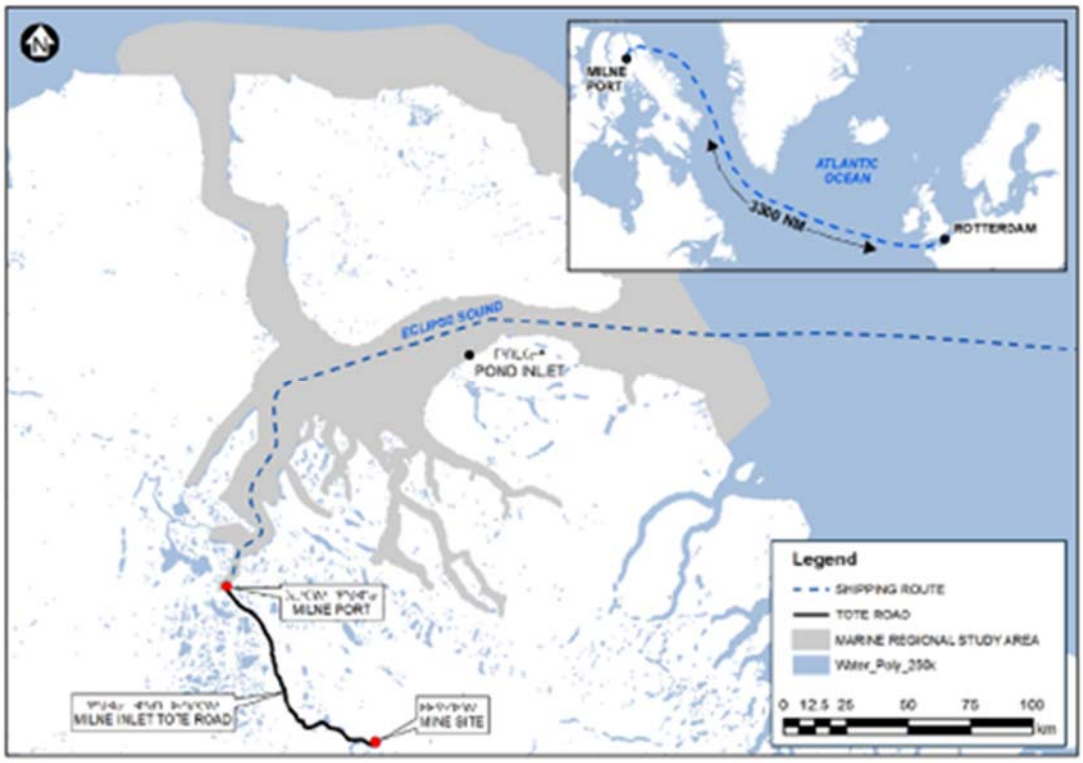


**Figure 2 – Shippping route and map.**

Northwest Territories | Nunavut | Canada

# NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

| | | | | |
|---|---|---|---|---|
| A | REPORT DATE: MONTH – DAY – YEAR<br>07-22-2018 | REPORT TIME<br>23:45 | [X] ORIGINAL SPILL REPORT, OR<br>☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT | REPORT NUMBER<br>____-_____ |
| B | OCCURRENCE DATE: MONTH – DAY – YEAR<br>07-22-2018 | OCCURRENCE TIME<br>unknown | | |
| C | LAND USE PERMIT NUMBER (IF APPLICABLE)<br>IOL - Commercial Lease: Q13C301 | WATER LICENCE NUMBER (IF APPLICABLE)<br>2AM-MRY1325 Type "A" | | |
| D | GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION<br>Mary River Milne Inlet Site, Baffin Island, NU | REGION<br>☐ NWT [X] NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN | | |
| E | LATITUDE<br>DEGREES MINUTES SECONDS | LONGITUDE<br>DEGREES MINUTES SECONDS | | |
| F | RESPONSIBLE PARTY OR VESSEL NAME<br>OCEAN K. RUSBY | RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION<br>105, Abraham-Martin, #500 Quebec, QC G1K 8N1 | | |
| G | ANY CONTRACTOR INVOLVED<br>Groupe Ocean | CONTRACTOR ADDRESS OR OFFICE LOCATION<br>105, Abraham-Martin, #500 Quebec, QC G1K 8N1 | | |
| H | PRODUCT SPILLED<br>Gear Oil | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES<br>Approx. 30 litres | U.N. NUMBER<br>N/A | |
| | SECOND PRODUCT SPILLED (IF APPLICABLE)<br>N/A | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES<br>N/A | U.N. NUMBER<br>N/A | |
| I | SPILL SOURCE<br>Ocean Tug | SPILL CAUSE<br>Mechanical Failure | AREA OF CONTAMINATION IN SQUARE METRES<br>unknown | |
| J | FACTORS AFFECTING SPILL OR RECOVERY<br>spill on water | DESCRIBE ANY ASSISTANCE REQUIRED | HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT<br>N/A | |

K — ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS

On July 22, 2018, the NORDREG, Canadian Coast Guard, and Department of Ocean and Fisheries was notified that OCEAN K. RUSBY had experienced equipment malfunction on the starboard oil pump z-drive clutch while travelling through Eclipse Sound. The vessel reported to be slowly loosing gear oil, and proceeded to the intended destination, Milne Inlet. OCEAN K. RUSBY arrived and docked at the Baffinland Port Ship Loader dock that evening. An oil containment boom and sorbents were deployed around the vessel and the oil circuit was blanked. Groupe Ocean reported to regulators that approximately 30 liters of gear oil was released during the incident prior to boom containment at the Baffinland Port Ship Loader dock. A sheen was visible by helicopter reconnaissance travelling up the channel into Milne Inlet. The investigation is ongoing and further details will be provided in the follow-up report. Reporting as required by Water Licence 2AM-MRY1325, Part H, Items 9 & 10. Arctic Waters Pollution Prevention Act S. 5(1), and Fisheries Act subsection 38(4).

| | | | | | |
|---|---|---|---|---|---|
| L | REPORTED TO SPILL LINE BY<br>William Bowden | POSITION<br>Env. Superintendent | EMPLOYER<br>Baffinland | LOCATION CALLING FROM<br>Mary River | TELEPHONE<br>416 364 8820 |
| M | ANY ALTERNATE CONTACT<br>Tim Sewell | POSITION<br>Head of HSE | EMPLOYER<br>Baffinland | ALTERNATE CONTACT LOCATION | ALTERNATE TELEPHONE<br>6016 |

REPORT LINE USE ONLY

| | | | | | |
|---|---|---|---|---|---|
| N | RECEIVED AT SPILL LINE BY | POSITION<br>STATION OPERATOR | EMPLOYER | LOCATION CALLED<br>YELLOWKNIFE, NT | REPORT LINE NUMBER<br>(867) 920-8130 |

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

| AGENCY | CONTACT NAME | CONTACT TIME | REMARKS |
|---|---|---|---|
| LEAD AGENCY | | | |
| FIRST SUPPORT AGENCY | | | |
| SECOND SUPPORT AGENCY | | | |
| THIRD SUPPORT AGENCY | | | |

PAGE 1 OF _____

**Figure 2 – NT-NU Spill report**

September 12, 2018

Resource Management Officer
Nunavut Field Operations
Crown-Indigenous Relations and Northern Affairs Canada
Box 100
Iqaluit, NU X0A 0H0
Jonathan.mesher@aandc-aadnc.gc.ca

Manager, Major Projects
Qikiqtani Inuit Association
P.O. Box 219
Iqaluit, NU X0A 0H0

**Re: Follow-up to Spill #18-324, Reported on August 13, 2018**
**Mary River Project - Water Licence No. 2AM-MRY1325**

**Summary:**
On August 12, 2018 at approximately 12:00hrs, an operator was filling the second compartment of fuel tanker (FLT-004) at the designated Milne Port Fueling Module, when the operator determined that fuel had begun to release from the tanker overflow. The operator immediately stopped the pump, closed the valve and utilized sorbents to arrest and contain the release. Approximately 200L of diesel fuel was released to the ground surface impacting an approximate area of 15m2 within the lined engineered containment berm of the refueling area. The spill occurred >100 m to the nearest water course and had no possibility of migration from the affected area.

**Immediate and Follow-Up Action:**
The operator immediately shut off the fuel pump, closed the valves and laid down spill pads to contain the spill. The contaminated material was removed and properly disposed of in the landfarm. New material was placed and leveled to return the lined refueling area cover substrate back to its original state. Standard operating procedures have been reviewed with operators and the importance of monitoring levels at all times.

**Recommendations:**
Procurement of overfill protection system that can be outfitted on all fuel trucks used at the Project to eliminate operator error.

**Current Status:**
The refueling and transportation of fuel continues and no further incidents have occurred.

Should you require further information or clarification on the above noted spill, please feel free to contact William Bowden or Connor Devereaux at (647) 253-0596 x6016.

Prepared By:

Connor Devereaux
Environmental Superintendent

Reviewed by:

James Martin
Surface Works Superintendent

Attach: Photos, Map, NT-NU Spill Report

cc. Tim Sewell, Grant Goddard, Sylvain Proulx, Gerald Rogers, Francois Gaudreau, William Bowden (Baffinland), Fai Ndofor (QIA), Justin Hack, Jeremy Fraser (INAC)

**Photo 1. Spill location before clean-up**

**Photo 2. Spill location following clean-up**


**Figure 1 – Map of spill location**

# NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

| | | | | |
|---|---|---|---|---|
| A | REPORT DATE: MONTH – DAY – YEAR<br>08-13-2018 | REPORT TIME<br>13:00 | ☒ ORIGINAL SPILL REPORT, OR<br>☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT | REPORT NUMBER<br>18 - 324 |
| B | OCCURRENCE DATE: MONTH – DAY – YEAR<br>08-12-2018 | OCCURRENCE TIME<br>12:00 | | |
| C | LAND USE PERMIT NUMBER (IF APPLICABLE)<br>IOL - Commercial Lease: Q13C301 | WATER LICENCE NUMBER (IF APPLICABLE)<br>2AM-MRY1325 Type "A" | | |
| D | GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION<br>Mary River Mine Site, Baffin Island, NU | REGION<br>☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN | | |
| E | LATITUDE<br>DEGREES 71 MINUTES 53 SECONDS 08 | LONGITUDE<br>DEGREES 80 MINUTES 53 SECONDS 34 | | |
| F | RESPONSIBLE PARTY OR VESSEL NAME<br>Baffinland Iron Mines Corp. | RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION<br>2275 Middle Road East, Suite 300, Oakville, ON L6H 0C3 | | |
| G | ANY CONTRACTOR INVOLVED<br>N/A | CONTRACTOR ADDRESS OR OFFICE LOCATION<br>N/A | | |
| H | PRODUCT SPILLED<br>Arctic Diesel | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES<br>Approx. 200L | U.N. NUMBER<br>N/A | |
| | SECOND PRODUCT SPILLED (IF APPLICABLE)<br>N/A | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES<br>N/A | U.N. NUMBER<br>N/A | |
| I | SPILL SOURCE<br>Fuel tanker | SPILL CAUSE<br>Fueling of tanker | AREA OF CONTAMINATION IN SQUARE METRES<br>15m2 | |
| J | FACTORS AFFECTING SPILL OR RECOVERY<br>None | DESCRIBE ANY ASSISTANCE REQUIRED<br>N/A | HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT<br>N/A | |

K — ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS

On August 12, 2018 at approximately 12:00hrs, an operator was filling the second compartment of fuel tanker (FLT-004) at the designated Milne Port Fueling Module, when the operator determined that fuel had begun to release from the tanker overflow. The operator immediately stopped the pump, closed the valve and utilized sorbents to arrest and contain the release. Approximately 200L of diesel fuel was released to the ground surface impacting an approximate area of 15m2 within the lined engineered containment berm of the refueling area. The contaminated material was removed and properly disposed of in the landfarm. The spill occurred >100 m to the nearest water course and had no possibility of migration from the affected area. The investigation is ongoing and further details will be provided in the follow-up report. This spill is being reported as required by the conditions of NWB Water License no. 2AM-MRY1325, Part H, item 9 (b) pursuant to subsection 12(3) of the Nunavut Waters and Nunavut Surface Rights Tribunal Act.

| | | | | | |
|---|---|---|---|---|---|
| L | REPORTED TO SPILL LINE BY<br>William Bowden | POSITION<br>Env. Superintendent | EMPLOYER<br>Baffinland | LOCATION CALLING FROM<br>Mary River | TELEPHONE<br>416 364 8820 |
| M | ANY ALTERNATE CONTACT<br>Tim Sewell | POSITION<br>Head of HSE | EMPLOYER<br>Baffinland | ALTERNATE CONTACT LOCATION | ALTERNATE TELEPHONE<br>ext. 6016 |

REPORT LINE USE ONLY

| | | | | | |
|---|---|---|---|---|---|
| N | RECEIVED AT SPILL LINE BY | POSITION<br>STATION OPERATOR | EMPLOYER | LOCATION CALLED<br>YELLOWKNIFE, NT | REPORT LINE NUMBER<br>(867) 920-8130 |

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

| AGENCY | CONTACT NAME | CONTACT TIME | REMARKS |
|---|---|---|---|
| LEAD AGENCY | | | |
| FIRST SUPPORT AGENCY | | | |
| SECOND SUPPORT AGENCY | | | |
| THIRD SUPPORT AGENCY | | | |

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**Figure 2 – NT-NU Spill report**