

APPENDIX D
AS BUILT REPORTS

APPENDIX D.1
CONSTRUCTION SUMMARY REPORT- MILNE PORT OFF-SPEC PWSP

APPENDIX D.2
GEOTECHNICAL INSPECTION



October 31, 2013

Phyllis Beaulieu, Manager of Licensing
Nunavut Water Board
P.O. Box 119, Gjoa Haven NU X0B 1J0

Dear Ms. Beaulieu:

Re: Baffinland Iron Mines Corporation (BIMC) - Submission of 2013 Annual Geotechnical Inspection, Water Licences Type 'A' No. 2AM-MRY1325 and Type 'B' 2BB-MRY1114

1. INTRODUCTION

Under Part D, Item 19, of Baffinland Iron Mines Corporation (BIMC) Water Licences Type 'A' 2AM-MRY1325 and Type 'B' 2BB-MRY1114, there are requirements to conduct geotechnical inspections of specified Mary River Project (the 'Project') infrastructure. Part D, Item 19, of the Type 'A' Licence states that:

"The Licensee shall conduct inspections of the earthwork, geological regime, and the hydrological regime of the Project Biannually during the summer or as otherwise approved by the Board in writing. The inspection shall be conducted by a Geotechnical Engineer and the inspection report shall be submitted to the Board within sixty (60) days of the inspection, with a covering letter from the Licensee outlining an implementation plan to respond to the Engineer's recommendations."

During 2013, the geotechnical field inspection was conducted by Barry H. Martin Consulting Engineer and Architect (Barry Martin) of Timmins, Ontario. The focus of the inspection was on Water Licence related infrastructure at its two main camp sites, known as the Mary River Mine Site and Milne Port Site Camps. Mr. Barry Martin was the design engineer of record for much of the Project infrastructure at the camps. Since 2008, as part of the Type 'B' Licence requirements, BIMC had retained Mr. Martin, then with GENIVAR Consultants to complete each of its annual Water License geotechnical inspections of infrastructure. Barry Martin was on the Project site August 29, 30, and 31, 2013. The 2013 report was completed and submitted to Baffinland on October 29. During the 2012 inspection, the containment structures reviewed at the respective camps included the following:

Mary River Mine Site Camp

- Bulk Fuel Storage Facility Containment
- Generator Fuel Storage Facility Containment
- Polishing/Waste Stabilization Pond No.1
- Polishing/Waste Stabilization Ponds No.2 and No.3 (Constructed as a 2 cell structure)
- Helicopter Fuel Cell Containment
- Barrel Fuel Containment (Constructed as a 2 cell structures)
- Stove Oil Storage
- Enviro-Tank Storage (Constructed contiguous with hazardous waste storage and stove oil storage).
- Hazardous Waste Storage
- Jet fuel Tank and Pump Containment
- Solid Waste Disposal Site.

- Waste Oil Storage Containment

Milne Port Camp Site

- Bulk Fuel Storage Facility Containment
- Polishing/Waste Stabilization Pond
- Barrel Fuel Storage (Constructed as a 2 cell structure)
- Hazardous Waste Storage (Constructed as a 2 cell structure)
- Oil and Antifreeze Containment
- Jet "A" Pump Containment
- 5M Litre Steel Fuel Storage Tank Containment, now expanded to contain 48.25 m litres.
- New Effluent Pond to accommodate the new camp.

Attached, herewith, is Barry Martin's 2013 geotechnical report which presents the 2013 findings and recommendations for the aforementioned structures. Sections 2.0 and 3.0 of this letter summarize Baffinland's plan for implementing Genivar's recommendations. In some cases, corrective actions were taken while Barry Martin was on site.

The recommendations as presented in the geotechnical report for infrastructure and the implementation plan for each are presented in Sections 2.0 and 3.0, below. Where this is no mention of particular infrastructure, there were no recommendations for same.

2. MARY RIVER MINE CAMP RECOMMENDATIONS

- **Bulk Fuel Storage Facility Containment**

There was a minor concern at the load-out end of the facility where the gravel ramps over the berm had worn down and some gravel from the ramps had migrated into the loading area at the end of the dyke. Mr. Martin noted in his report that some gravel was removed while he was on site and that with the gravel removed, there are no further recommendations for this infrastructure.

- **Generator Fuel Storage Facility Containment**

There was a small amount of water ponded in the bottom of the containment at the time of the inspection. BIMC subsequently removed this water while Mr. Martin was at site and this was noted in his report.

Based on the need to contain 110 % of the bladder volume in the event of a fuel spill, the maximum volume of fuel permitted to be stored in the bladder in this facility as it is constructed, is 77,376 litres (76 cm height).

BIMC Action: BIMC will continue to control the amount of fuel to the stated volume as per current practice.

- **Polishing/Waste Stabilization Pond No. 1**

Some minor tears to the liner were noted at the top of the dyke likely originating from past activity. These tears were subsequently patched by Layfield Plastics in early September.



It was recommended that an elevation monitoring program on the top of the berm be continued during 2014.

BIMC Action: BIMC will ensure that one round of elevation monitoring measurements will be completed prior to the 2014 annual inspection.

- **Polishing/Waste Stabilization Pond Nos. 2 and 3**

It was recommended that an elevation monitoring program on the top of the berm be continued during 2014.

BIMC Action: BIMC will ensure that one round of elevation monitoring measurements will be completed prior to the 2014 annual inspection.

3. MILNE PORT CAMP RECOMMENDATIONS

There were no recommendations made for infrastructure located at the Milne Port Camp based on the attached geotechnical inspection report.

We trust that this submittal satisfies the requirements the geotechnical requirements as outlined in our water licence. Should you have any questions, please do not hesitate to contact Jim Millard, Environmental Manager, at 902-403-1337 or by e-mail at jim.millard@baffinland.com.

Best Regards,

Baffinland Iron Mines Corporation

A handwritten signature in black ink, appearing to read "J. Millard", written over a horizontal line.

James Millard, M.Sc., P.Geo.
Environmental Manager

Attach: Annual Geotechnical Inspection 2013, prepared by Barry Martin Consulting Engineer and Architect for BIMC, dated August 31, 2013.

cc. Stephen Bathory, (QIA)
Justin Hack, Erik Allain (AANDC)
Erik Madsen, Michael Anderson, Stephen Ranger (Baffinland)

ANNUAL GEOTECHNICAL INSPECTION
Baffinland Iron Mines Corporation
Mary River Project



Prepared for:

Mr. Dave McCann
Baffinland Iron Mines Corporation
2275 Upper Middle Road East, Suite 300
Oakville, Ontario L6H 0C3

Prepared by:

Mr. Barry H. Martin, P. Eng., MRAIC
Consulting Engineer and Architect
1499 Kraft Creek Road
Timmins, Ontario P4N 7C3

Reference 13-053
August 2013

**Barry H. Martin, P. Eng., MRAIC
Consulting Engineer and Architect**

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Timmins, Ontario P4N 7C3
705-268-5621 (tel)
705-360-3106 (cell)
barrymartin1499@gmail.com (e-mail)

August 31, 2013

Baffinland Iron Mines Corporation
2275 Upper Middle Road East, Suite 300
Oakville, Ontario L6H 0C3

Attention: Dave McCann
david.maccann@baffinland.com

**RE: ANNUAL GEOTECHNICAL INSPECTION 2013-08-31
BAFFINLAND IRON MINES CORPORATION
OUR REFERENCE NO. 13-053**

1.0 INTRODUCTION

Barry H. Martin Consulting Engineer and Architect completed the 6th annual water licence geotechnical inspection of the on-site containment structures at Baffinland Iron Mines Corporation Mary River Project.

The earthwork structures designed to carry water or waste were inspected in accordance with Dam Safety Guidelines 2007 and the solid waste disposal site, was inspected using similar guidelines set out.

The previous 5 annual water license geotechnical inspections were completed by Mr. Martin working on behalf of B. H. Martin Consultants Ltd and GENIVAR Inc. Mr. Martin was the design Engineer on all original structures.

The containment structures for the operation are located at two main campsites comprising the Mary River project being the Mary River site itself and the Milne Inlet site at the sea coast.

The soil structures reviewed are the following:

Mary River Mine Site

1. Bulk Fuel Storage Facility Containment
2. Generator Fuel Storage Facility Containment
3. Polishing Waste Stabilization Pond No. 1
4. Polishing Waste Stabilization Pond No.2 and No. 3 (Constructed as a 2 cell structure)
5. Helicopter Fuel Cell Containment.
6. Barrel Fuel Containment (Constructed as a 2 cell structure).
7. Stove Oil Storage
8. Enviro-Tank Storage (Constructed contiguous with hazardous waste storage and stove oil storage)
9. Hazardous Waste Storage
10. Jet Fuel Tank and Pump Containment
11. Solid Waste Disposal Site
12. Waste Oil Storage Containment

A site plan for the Mary River site showing most containment structures is attached.

Milne Inlet Site

1. Bulk Fuel Containment Facility
2. Polishing/Waste Stabilization Pond
3. Barrel Fuel Storage (Constructed as a 2 cell structure)
4. Hazardous Waste Storage (Constructed as a 2 cell structure)
5. Oil and Antifreeze Containment
6. Jet "A" Pump Containment
7. 5 M Litre Steel Fuel Storage Tank Containment which has now been expanded to contain 48.25m litres

8. New Effluent Pond to accommodate the new camp

This report presents the findings.

2.0 METHODOLOGY FOR INSPECTION

The geotechnical inspector was Mr. Barry H. Martin, P. Eng., who reviewed the sites on August 29, 30 and 31, 2013. The inspections were focused principally on the following aspects:

1. The structures were inspected for conformance with the design basis as presented in as-constructed and as-built drawings (provided in the first annual report).
2. The structures were specifically inspected for settlement, cracking and seepage through the berms.
3. The areas around the sites were examined for evidence of seepage.

Construction drawings are attached for new structures.

Photographs were taken to document observations made during the inspection and are attached.

3.01 MARY RIVER CAMP

3.01 General

There had not been a particularly large amount of rainfall in the month immediately preceding the inspection, although there had been a large amount of precipitation at the end of July.

Hence, it was expected that there would be some water in the containment dykes.

The weather at the time of the inspection was at freezing and minor snow flurries had occurred in the week preceding the inspection as well as during the inspection.

A monitoring surveillance program is in place to test storm water that does accumulate within the dykes. As required, water that does not meet water license effluent requirements is treated on site prior to release.

At the Bulk Fuel Storage Facility Containment , the water that collects within the dyke is treated at the end of the containment structure.

We report on the Waste Oil Storage Containment for the first time.

3.02 Bulk Fuel Storage Facility

General Conditions

The containment structure has not varied from its use as noted in the 2009 report. Some bladders are empty and some bladders are currently full.

Stability

At the time of our review, the water had not been removed for a period from within the containment and water was ponding just above the level of the gravel within the bottom of the containment. There was still considerable factor of safety against failure of oil holding bladders within the dykes with the water level as it exists.

The structure was visually inspected for any signs of cracking or subsidence. There was no indication of any settlement seepage or cracking in the soil structures that formed the dykes. As well, there was no indication of seepage at the base of the structure around the exterior. The soil structure is considered to be stable in the present condition and is in conformance with the design basis for the facility.

There had been a considerable amount of precipitation prior to our inspection. The presence of the water in the gravel to just above the level of the top of the gravel is an indication of the integrity of the liner.

Capacity

There was a minor concern at the load-out end of the facility where the gravel ramps over the berm have worn down and some gravel from the ramps had migrated into the loading area at the end of the dyke.

Some gravel was removed while we were on site to return this area to its design intent.

Recommendations

With the gravel removed, we have no further recommendations with respect to this structure.

3.03 Generator Fuel Storage Containment

General Conditions

The containment structure has not varied from its use since our 2010 annual inspection. At that time our recommendation was to limit the fuel contained in this containment facility to 77,376 litres.

There is currently one bladder in this containment facility that has a capacity when full of 120,000 litres. This bladder contains 77,376 litres when the bladder is 32" high. The guideline for Baffinland Iron Mines is to fill this bladder to no more than 76 cm (30") which represents 70,097 litres.

There is a sign posted to limit the bladder height at 30".

At the time of our visit on August 29, 2013, the bladder height was measured at 20". There was a small amount of water ponding in the bottom of the containment at the time of our review.

Stability

The structure was visually inspected for any signs of subsidence or cracking and no such indications were noted. There was no sign of seepage at the base of the structure noted. The soil structure is considered to be stable in its present condition and is in conformance with our design principles.

Recommendation

We recommended that the small amount of water ponding above the bottom of the containment be removed by creating a sump in the gravel and pumping out the water to below the gravel surface. This was done while we were on site.

We recommend that Baffinland Iron Mines continue to control the fuel in the bladder at a height of 30".

3.04 Polishing/Waste Stabilization Pond No. 1

General Conditions

PWSP No. 1 continues to be utilized as a holding facility for sewage plant effluent that does not meet water effluent quality criteria.

Currently the pond is be used primarily as a repository for sewage sludge that is periodically removed from the RBC.

The supernatant from PWSP No. 1 is periodically decanted to PWSPs Nos. 2 and 3 where it is tested and treated as required to meet Water Licence effluent requirements.

At the time of our visit there was considerable freeboard to accommodate further sewage and the structure readily conforms to its design intent.

Stability

Our review of the area around the pond at the base of the slopes showed no sign of seepage and hence we conclude that the liner has been effective in containing sewage and there are no tears or ruptures in the membrane, excepting some minor tears from past activity at the top of the dyke well above the allowable effluent level in the structure in the horizontal portion of the membrane.

A review of the top of the dyke showed no indication of cracking or settlement which would indicate stresses within the structure.

Most tears that had occurred in the liner on the top of the dyke have been patched during the period between reviews in 2008 and 2009 and are holding well. As well, there are no signs of weather related deterioration of the liner where it is exposed.

Monitoring points have been set up on the top of the dyke and have been monitored since 2009. Settlements of approximately 26 cm have occurred since that time. These settlements have not led to any stress cracks in the structure. These settlements are an indication of consolidation in the berm structure and the active layer beneath the dyke and are not considered to be of any concern.

There appears to be no sign of erosion of the dykes, even with the large amount of precipitation that occurred this current summer season.

Recommendations

We recommend that monitoring of the top of the berm continue on an annual basis through 2014. With the excellent condition of the dyke construction, we see no reason to complete this function other than annually prior to the next inspection.

3.05 Polishing Ponds/Waste Stabilization Ponds #2 and #3

General Conditions

This structure was designed and constructed as a 2 cell structure.

Treated sewage effluent from the RBC is currently discharged to PWSPs Nos. 2 and 3. The treated effluent is tested for Water Licence effluent requirements, treated if necessary, and discharged to the environment.

At the time of our visit there was considerable freeboard to accommodate further sewage and the structure readily conforms to its design intent.

Stability

Our review of the area around the pond at the base of the slopes showed no sign of seepage and hence we conclude that the liner has been effective in containing the sewage and there are no tears or ruptures in the membrane.

Longitudinal cracking which appeared in the dykes of PWSP#3 due to the melt of permafrost wedges in 2009 has not reoccurred and we consider this structure to be stable in its present condition.

Monitoring points have been set upon the top of the dyke and have been monitored since 2009. Settlements in the order of up to 26 cm have occurred since that time. These settlements have not led to any stress cracks in the structure.

There appears to be no sign of erosion of the dykes and plants are continuing to seed themselves on the dykes. This growth is minimal however.

Recommendations

We recommend that monitoring of the top of the berm continue on an annual basis through 2014. With the excellent condition of the dyke construction, we see no reason to complete this function other than annually prior to the next inspection.

3.06 Helicopter Fuel Tank Containment

General Conditions

The structure was designed and constructed as a single cell structure that contains a 1000 gal fuel storage tank.

The structure currently conforms to its design intent,

In the past, a liner clad wood curb had been added to the top of the berm to prevent the erosion of gravel off the berm, caused by pulling the fuel hose from within the dyke out to the helicopters to provide them with fuel.

Stability

Our review of the area around the pond at the base of the slopes showed no sign of seepage. There is a minor amount of water ponding in the bottom of the containment indicating the integrity of the liner.

A review of the exterior and the top of the berms showed no sign of cracking or settlement which would indicate stress within the structure.

The structure is considered to be stable in its present condition.

Recommendation

We have no recommendations with respect to this structure.

3.07 Barrel Fuel Containment

General Conditions

This particular structure which we called "Barrel Fuel Containment" in our previous inspection reports is a two cell structure which is currently used to accommodate cubes of lubricant in one cell and a number of stove fuel barrels on skids and a number of fuel dispensing tanks in the other cell.

Stability

Our review of the area around this containment structure showed no sign of seepage. This shows that there is reasonably little chance of tearing or rupture of the membrane having taken place.

A review of the exterior and top of the dyke showed no sign of cracking or settlement which would indicate stresses within the structure.

The structure is considered to be stable in its present condition.

Recommendations

We have no recommendations with respect to this structure.

3.08 Hazardous Waste Storage

General Conditions

This particular cell was constructed contiguous with an existing cell, which is referred to on site as the "Enviro Tank Storage", from drawings by our office in 2010 and conforms to our drawings. It is also contiguous with the Stove Oil Storage cell.

This structure contains barrels and containers of hazardous waste.

Stability

Our review of the area around this cell at the base of the slopes, showed no sign of seepage.

The structure appears stable in its present condition.

Recommendation

There are no recommendations at this time.

3.09 Enviro Tank Storage

General Conditions

This particular structure is constructed contiguous with the Hazardous Waste Storage constructed in 2010 and the Stove Oil Storage cell. It is now empty.

Our review of the area around this cell at the base of the slopes showed no sign of seepage.

The structure is stable in its present condition.

Recommendations

There are no recommendations at this time.

3.10 Stove Oil Storage

General Conditions

This particular structure had been used to store barrels of stove fuel in 2011

The structure is currently empty.

This structure was constructed in accordance with a standardized drawing provided by this office utilizing a one piece liner.

Stability

Our review of the area around the containment structure shows no sign of seepage. This shows that there is reasonably little chance of tearing or rupture of the membrane having taken place.

A review of the exterior and the top of the dyke showed no sign of cracking or settlement which would indicate stresses with the structure.

The structure is considered to be stable in its present condition.

3.11 Jet Fuel Tank and Pump Containment

This particular structure was reconstructed based on our recommendation of the 2012 Geotechnical Inspection.

The construction was completed in accordance with our recommendations for such structures and the liner was constructed as a one piece liner with geotextile protection on both sides and gravel over the geotextile as protection.

The construction appears proper and the structure is in excellent condition.

Minor water ponding confirms the integrity of the liner.

Stability

Our review of the area around this cell at the base of the slopes showed no sign of seepage.

The structure is stable in its present condition.

Recommendations.

There are no recommendations at this time.

3.12 Solid Waste Disposal Site

Berms appear stable and no erosion appears to have taken place.

Solid waste is being placed at the edge of the site and progressively covered.

The disposal is being done in exact conformity with plans prepared and guidelines set out for disposal of solid waste.

3.12 Waste oil Storage Containment

This particular structure has been used to store small amounts of waste oil.

The structure was constructed in accordance with standardized drawings designed by myself and utilized a one piece liner.

Stability

Our review of the area around the containment structure showed no sign of seepage.

There was water ponding in the bottom of the containment structure proving the integrity of the liner.

A review of the exterior and top of the dyke showed no sign of cracking or settlement which would indicate stresses within the structure.

The structure is considered to be stable in its present condition.

Recommendations

We have no recommendations with respect to this structure.

3.13 Overview

This report is the 6th annual Geotechnical Inspection at the Mary River and Milne Inlet sites on behalf of Baffinland Iron Mines Corporation.

Over this five year period between the first and sixth inspections we have noted the following:

1. The weather conditions are such that little or no erosion takes place from wind or rain and the dykes constructed of the sand/gravel soil remain stable at slopes of 3:1 and 4:1.
2. The dykes, after a 5 year period still have only minor vegetation growing on the horizontal surfaces and it shall most certainly take decades for the dykes to naturally vegetate to form a stabilized surface.

Nonetheless, there has been no erosion to the surface over the last 5 year period.

3. With the construction of the new camp and facilities in process much of what has been reported on is due for demolition in the immediate future.

4.0 MILNE INLET

4.01 General

As with Mary River, the containment facilities over the 5 years that we have been doing Annual Geotechnical Inspections for, have changed in function from their initial use.

In order to maintain continuity, we have maintained the same names as with previous reports.

For example, the Hazardous Waste Containment structure is still a containment structure that is in excellent condition, but it is no longer being used to contain hazardous waste. Instead, this structure is now used to contain cubes of lubricant and barrel fuel. In this report, it still referred to as Hazardous Waste Containment as was its first use for continuity in the reports.

As well, there are new geotechnical structures that have been added to the list of geotechnical structures. These new geotechnical structures are the pads upon which the very large 12M litre and smaller fuel tanks sit upon, the containment dykes around this very large tank farm and the new effluent pond for the new sewage plant.

These structures have been reviewed.

4.2 Bulk Fuel Containment Facility

General Conditions.

This particular containment has been in place for in excess of five years. It is currently being decommissioned and the last of the fuel is being removed from a small number of remaining bladders.

As well, the last of the oil impacted water contained in this containment area is being treated.

The dykes around this containment areas have remained stable and the ponding of water confirms the integrity of the liner.

It is intended that the oil impacted sand in the containment facility be landfarmed in the next season being 2014. We understand that this oil impacted sand shall remain in the containment area until the landfarm treatment area is constructed.

The structure around the fuel bladders and the area formerly occupied by fuel bladders conforms to the original design.

A review of the interior of the containment showed minor ponding of water. The ponding of water, although minor, confirms the integrity of the structure.

The treatment system used to treat the water which collects in the structure, is in place and operational and we understand shall remain so until the structure is decommissioned.

Stability

Our review of the area around the pond at the base of the slopes, showed no sign of oil, water, or oil/water mixture and hence we conclude that the integrity of the liner, has been maintained. There were no tears or ruptures in the liner observed.

There was no sign of any settlements or seepage, at the base of the soil structures forming the dykes.

The structure is considered to be stable in its present condition.

Recommendations

The performance of the structure has been tested since 2009 with the ponding of water. The observations noted during past inspections have supported the conservative design of the structure. We have no recommendations at this time.

4.03 Existing Polishing/Waste Stabilization Pond

General Conditions

This particular pond is the original PWSP that was constructed prior to 2008, is associated with the original sewage plant, and is servicing the man camp that is still in place.

The PWSP was designed as storage and polishing of effluent from the man camp that could not be immediately released to the environment.

The camp was occupied with a large construction crew and the sewage plant was operating as designed. The PWSP was not being utilized to contain additional effluent at the time of our review.

There was considerable capacity remaining in the PWSP at the time of our inspection.

Currently the PWSP conforms to the design basis for the facility.

Stability

With the PWSP constructed as it is, the structure is considered stable for long term use.

There was no sign of seepage at the bottom of the dyke. There were no signs of settlement or cracking, which are signs of stress in the structure.

Recommendations

Currently, the Milne Inlet PWSP conforms to the design intent and we have no recommendations.

4.04 Barrel Fuel Storage

General Conditions

This particular structure is constructed as a two cell structure.

This structure was originally intended for use as barrel fuel storage. However with time, this structure's use changed to that of storing lubricant cubes as well as barrel storage.

For continuity, we continue to refer to this storage/containment structure as Barrel Fuel Storage.

The structure around these two cells conforms to standardized drawings, prepared by our office for such a structure.

At the time of our inspection, there were two cells in use with minor water ponding in the bottom of the two cells.

Stability

Our review of the area around the ponds, at the base of the slopes, showed no signs of seepage.

The structures are considered stable in their present conditions.

Recommendations

We have no recommendations with respect to this structure at this time.

4.05 Hazardous Waste Storage

General Conditions

This particular structure is constructed as a 2 cell structure.

The structure conforms to the design basis for the facility.

At the time of our last inspection, this structure was utilized to store hazardous waste contained in barrels.

Since last year, the waste has been tested and hazardous materials have been removed and are in the process of being shipped out off site. Materials that have proven to be non-hazardous are currently in barrels adjacent to the structure awaiting disposal.

This containment structure, is now used as containment for barrel fuel and lubricant cubes.

The minor ponding of water in the bottom of the cells confirms the integrity of the liner.

Stability

Our review of the area around the dykes, at the base of the slopes, showed no sign of seepage.

There were no signs of stress noted in the structure. The structure is considered stable in its present condition.

Recommendations

Currently, this containment structure conforms to the design intent and we have no recommendations.

4.06 Oil and Antifreeze Containment

General Conditions

This particular structure is located between the air strip and the Bulk Fuel Storage.

The structure around this containment area conforms to standardized drawings prepared under my direction in the past.

Stability

Our review of the area around the structure at the base of the slopes, showed no signs of seepage.

There was no signs of stress in the dykes and the structure is considered stable.

Recommendations

We have no recommendations with respect to this structure.

4.07 Jet "A" Pump Containment

General Conditions

This small cell on the north side and adjacent to the Bulk Fuel Storage Containment is to control spillage during refuelling.

There was water ponding above the sand cover which confirms the integrity of the liner.

Stability

Our review of the area around the base of the dykes, showed no sign of seepage.

There was no cracking or settlement observed in the dyke structures.

Recommendations

We have no recommendations at this time with respect to this structure.

4.08 Fuel Tank Farm

General Conditions

This particular structure was discussed in the 2012 Annual Geotechnical Report as "5M litre Steel Fuel Storage Tank Containment".

The fuel storage facility has been considerably expanded since 2012.

There has been a second 5m litre tank constructed and two 12M litre tanks are under construction.

Pads have been constructed for one more 12 M litre tank and 3 more 0.75 M litre tanks which were being delivered as the report was being written.

We noted the following:

1. The containment structure was put in place prior to the construction of the tanks and the pads for the tanks were constructed with the containment dykes.
2. The dykes that had been constructed as containment for the initial 5 M litre tank, were incorporated into the overall dyke construction for the entire tank farm.
3. The drainage of the tank farm structure now utilizes the sump constructed for the initial tank.
4. The dykes incorporate rip-rap on the exterior of the dyke.
5. We would classify the quality of the work in the construction of the dykes and pads, including the base of the structure as exceptionally good and of a quality that should last for decades.

Stability

We noted no sign of weakness in any of the construction.

Design

We attach a copy of the design drawings of the fuel storage site being the following Hatch drawings:

2613-10-35-001
2613-10-035-002
2613-10-035-004

These drawings set out the plan, section, and details of the containment structure. The construction conforms to these drawings.

4.09 New Effluent Pond

General Conditions

This New Effluent Pond was constructed in 2013 to accommodate the new sewage plant and serve as a PWSP for this new plant which had yet to be put into operation at the time of our inspection.

We noted the following;

1. The pond has a design capacity of 1080 m³ with 1.0 m freeboard.
2. The dyke is constructed of 150 mm crushed mine rock material that is not subject to erosion.
3. The dyke has a summer design capacity of 2230 m³ with 0.3 m freeboard.
4. The quality of construction is such that this structure should last for many decades.

Stability

We noted no sign of weakness in any of the construction.

Design

We attach a copy of the following Hatch drawing:

2735-10-035-0001
2735-10-035-0002

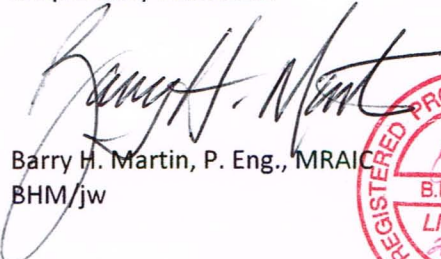
These drawings set out the plan, section, and details of the Effluent Pond construction.

4.10 Overview

The permanent facilities for Milne Inlet are currently under construction and many of the facilities reported on are scheduled for decommissioning over the next 12 months as the new facilities are constructed.

Design drawings and photos of new facilities have been included with this report.

Respectfully submitted


Barry H. Martin, P. Eng., MRAIC
BHM/jw



APPENDIX D.3
PHOTO JOURNAL

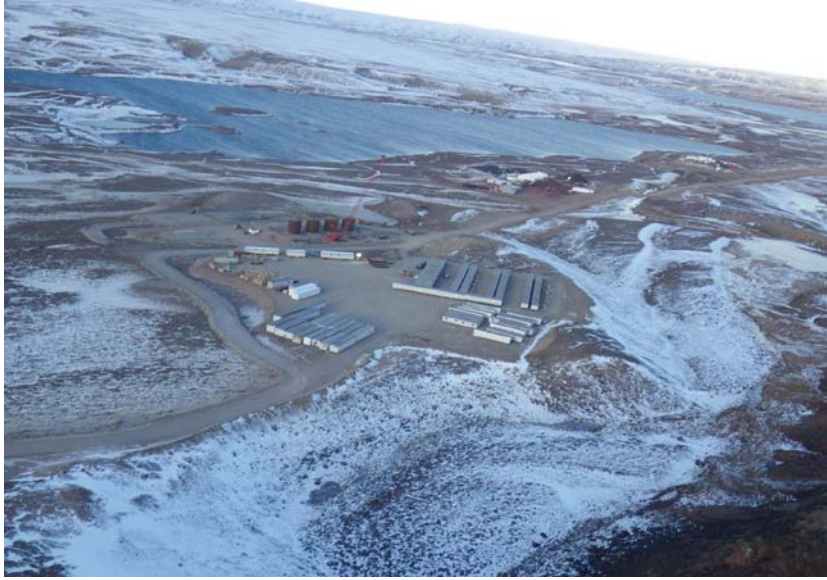


PHOTO 1 Mary River Mine Site Complex Aerial Layout #1 – During 2013 Construction Program

[illegible]

PHOTO 2 Mary River Mine Site Complex Aerial Layout #2 – During 2013 Construction Program

[illegible]

[illegible]

PHOTO 4 Mary River Mine Site Safety Meeting



PHOTO 5 Mary River Mine Site Complex Overall Progress
November 2013

ወጋኒው ስነምርሳፊ፤፤ ልጋዲው ለርሲብኝ ወልላኪ 2013-፡፡



PHOTO6 5 Geochemical Investigation Drilling Equipment at Deposit #1

ወዲኛ ነጠልሮፊሮረረሙሴሮ ነጠጋዲረረረረ፡፡ ለርሲብኛ ርልቦሙ
ስነምርሳፊ፤፤ ሲካሰር፤፤ 1



PHOTO 7 New Baffinland Equipment arrived on the 2013 Sea Lift
 ᓄᐸᐸ ᓄᓗᓂ ᐱᐸᐱᐸᐸᐸᐸᐸᐸ ᐸᐸᐸᐸᐸᐸᐸᐸᐸ 2013-ᐸᐸᐸᐸᐸ ᐸᐸᐸᐸᐸᐸᐸᐸᐸ



PHOTO 8 Mine Site Camp Pad June 2013
 ᐸᐸᐸᐸᐸᐸᐸᐸᐸ ᓄᐸᐸᐸᐸᐸᐸᐸᐸ ᐸᐸᐸᐸᐸᐸᐸᐸᐸ ᐸᐸ 2013



PHOTO 9 Installation of Sewage Truck Building
ᐱᓴᐅᐅᐅᐅᐅᐅ ᐃᐸᓴᐅᐅᐅᐅᐅᐅ ᐆᑲᐅᐅᐅᐅᐅᐅᐅ



PHOTO 10 Internal components of the Wastewater Treatment Facility utilizing MBR Technology



PHOTO 11 Wastewater Treatment Facility utilizing MBR Technology and adjacent Sewage Truck Building

ΔΓ΄ΰΰΰΰ ΰΰΰΰΰΰΰΰ ΰΰΰΰΰΰΰΰ ΰΰΰΰΰΰΰΰ MBR
 ΰΰΰΰΰΰΰΰΰΰΰΰΰΰ ΰΰΰΰ ΰΰΰΰΰΰΰΰΰ ΰΰΰΰΰΰΰΰΰΰ
 ΰΰΰΰΰΰΰΰΰΰΰΰΰΰ



PHOTO 12 Wastewater Treatment Facility utilizing MBR Technology and adjacent Sewage Truck Building (alternate view) November 2013

ΔΓ΄ΰΰΰΰ ΰΰΰΰΰΰΰΰ ΰΰΰΰΰΰΰΰ ΰΰΰΰΰΰΰΰ MBR
 ΰΰΰΰΰΰΰΰΰΰΰΰΰΰ ΰΰΰΰ ΰΰΰΰΰΰΰΰΰ ΰΰΰΰΰΰΰΰΰΰ
 ΰΰΰΰΰΰΰΰΰΰΰΰΰΰ (ΰΰΰΰΰΰΰΰ ΰΰΰΰΰΰΰ) ΰΰΰΰ 2013



PHOTO 13 Water (Fresh) Treatment System Installation November 2013

ፈገጌ (ፈገገብፊ) ካረጋጅነው ለሰርዝናል ብሔራዊ የፖለቲካ
ዕለቱ 2013-7



PHOTO 14 Water Building - Mechanical Installation November 2013

ΔΛ⁵β⁵Δ⁶ – ΔΔ_{CD}ΔΠ⁵Γ⁶ Δ⁵βρ⁶CD⁵Γ⁶ 2013-Γ



PHOTO 15 Potable Water Building October 2013
 ԲԱԲԻՆԼԱՆԴԻ ՍԵՐՎԻՍԻՆԳ ՍԵՆԿԵՐՆԵՐԻՆԳԻ ՍԵՆԿԵՐՆԵՐԻՆԳ 2013-Դ



PHOTO 16 Raw Water Intake Pipeline
 ԿՐԻՍՏԻՆԱՆԻ ՍԵՐՎԻՍԻՆԳ ՍԵՆԿԵՐՆԵՐԻՆԳԻ ՍԵՆԿԵՐՆԵՐԻՆԳ ԴՆԵՐԻՆԳ



PHOTO 17 Boom deployment and Silt Curtain installation at Camp Lake for Raw Water Jetty

[illegible]

PHOTO 18 Mine Site Raw Water Jetty Silt Curtain at Camp Lake

፲፭ኛው ልዩ ኅዳሴ/ሚያዝያ ፳፻፲፭ ዓ.ም. ስለሚከሰት የፍትሕ ምክር ቤቱ ስለሚሰራው



PHOTO 19 Sheardown Lake Winter Water Quality Sampling 2013
 ᐱᐅᓂᓴᓂᓂ ᐱᐅᓂᓴᓂᓂ ᐱᐅᓂᓴᓂᓂ ᐱᐅᓂᓴᓂᓂ 2013-ᐱ



PHOTO 20 Winter Water Quality Sampling Program Sheardown Lake
 ᐱᐅᓂᓴᓂᓂ ᐱᐅᓂᓴᓂᓂ ᐱᐅᓂᓴᓂᓂ ᐱᐅᓂᓴᓂᓂ ᐱᐅᓂᓴᓂᓂ ᐱᐅᓂᓴᓂᓂ
 ᐱᐅᓂᓴᓂᓂ



PHOTO 21 Steel Tank Bulk Fuel Storage Facility Pad August 2013

ካልናኒ ሳኔርድኒፋይሽን ፕላንት ፕላትፎርም ስራ ላይ ሲሆን ጥቅምት 2013

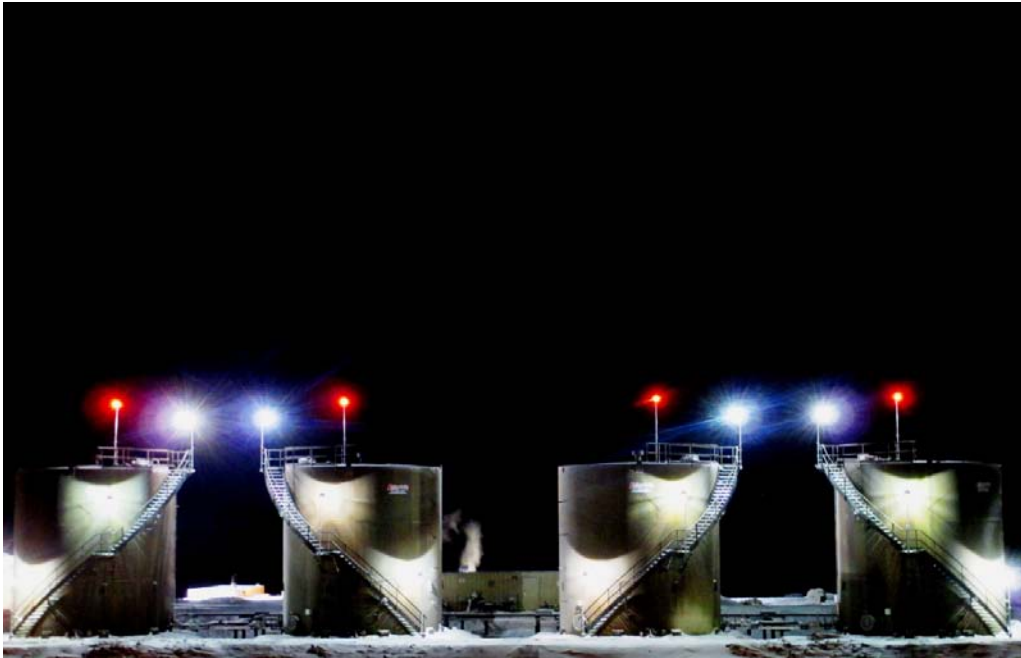


PHOTO 22 Installing arctic liner at Steel Tank Bulk Fuel Storage Facility engineering containment structure August 2013

ፕላንት ፕላትፎርም ስራ ላይ ሲሆን ጥቅምት 2013 ላይ ካልናኒ ሳኔርድኒፋይሽን ፕላንት ፕላትፎርም ስራ ላይ ሲሆን ጥቅምት 2013 ላይ



PHOTO 23 Steel Tank Bulk Fuel Storage Facility September 2013
 ልናኑልጽ ንብርሃናዊናፍንግጽ ድምፅናፍንግጽ ጋንባልፍጽፍጽ ፖለቲካ 2013

[illegible]

D.3.2 Milne Port Photo Sheet

Δ^bΛΡ^c∫^qΔ^q ∫^c Δ^bC^qΔ^qΔ^c Δ^bΔ^cΔ^qΔ^c Δ^cΔ^qΔ^c



PHOTO 1 Aerial View - Steel Tank Bulk Fuel Storage Facility and infrastructure laydown June 2013

[illegible]

PHOTO 2 Aerial View – Milne Port Infrastructure Layout June 2013

ክፍሊ ርዕሰ ምክር ቤቱ - ልዩ ምክር ቤቱ ለጥያቄው ለጥያቄው ለጥያቄው
ለጥያቄው ለጥያቄው ለጥያቄው



PHOTO 3 Aerial View - Steel Tank Bulk Fuel Storage Facility and infrastructure laydown September 2013

[illegible]

PHOTO 4 Aerial View – Infrastructure Layout September 2013

ኖቬሌርባር ርዕሰ - ቅጥፋት/የሪፖርት ልማት ዓመት 2013



PHOTO 5 Sealift vessel in Milne Port August 2013
 ԾԴՎՐՎԵԾ՝ ԾԴԵՐԾՈՒ ՃԵՆԵՐՎՐՎՐՎՐ ԵՇԵՐՏՅԱՆ ԸՅՈՒՆ 2013



PHOTO 6 Marine Mammal Monitoring near Milne Port during sealift (Bruce Head) August 2013
 ᑕᓚᐅᖁᒥᐅᑦ >Δᔪᑦ ᖃᐅᔨᔭᖃᑕᐅᑐገᑎᑦ ᖃᑕᑏᒋᗣᓂ ΔᑲΛᑭᑦᑐᖁᑦᐱᑦ ᑐᑕᑲᑦᖄᔭᓴᑕ
 ᐅᒥᐱᑦᐱᑦᐱᑦᐱᑦ ገᑭᐅᔨᔪᖃᑕᑎᑦᐱᑦᐱᑦᐱᑦᐱᑦ (>ᔪᑦ HΔᐱᖁ) ᐱᔫᔭᑎ 2013

[illegible]

የዋናው የፍትሕ ምክር ቤት የፍትሕ ምክር ቤት ምክር ቤት (PWSP)
የፍትሕ ምክር ቤት ምክር ቤት ምክር ቤት ምክር ቤት ምክር ቤት ምክር ቤት
የፍትሕ ምክር ቤት ምክር ቤት ምክር ቤት ምክር ቤት ምክር ቤት ምክር ቤት



PHOTO 9 Aerial View – PWSP completed and operational September 2013
 ንጉሥ ምኒልክ ደንበር - የዋና-ምስራቅ ባለፈው የጨው ፎካል ስቴዲየም
 በጥቅምት 2013 ዓ.ም. ሲጀምር



PHOTO 10 Construction of Steel Tank Bulk Fuel Storage Facility Pad July
2013
ካቢት ፲፱ ክልላዊ ምርጫ ተከላኪነት ድምጽ ማስተላለፊያ ሆስፒታል
፳፰ ነሐሴ ፳፻፲፮



PHOTO 13 300 Ton crane placing 1st 750,000L Jet A Tank
August 2013

300 ፕላንት ስርዓት ለጥጥር ለጥጥር ለጥጥር ለጥጥር ለጥጥር 750,000
ሰላም ለጥጥር ለጥጥር ለጥጥር ለጥጥር ለጥጥር 2013



PHOTO 14 Installing roof on Tank #1 August 2013

ᐊᖅᓂᓄᐁᐃᑦ ᑐᓂ ᖅᓴᒪ ᖅᓕᐅᔭᖅᐸᐊᖅᐅᓯᑦᐱᓂ ᐃᑦᐅᐅ 1 ᐊᓯᐱ 2013

[illegible]

PHOTO 16 Aerial View – Milne Port Infrastructure Layout September 2013
 ແບ່ງປັດຕິຍະ ຕາມລຳດັບ – ລະບົບພື້ນທີ່ໂຄງສ້າງ ປີ 2013



PHOTO 17 Construction of Waste Management Building
 ካዊኒታሪክ ካሚኒታሪ ነጥብ ለጥገና ለሚገኝ ልገሪ



PHOTO 18 Internal view of secondary chamber of new incinerator
 ለጥገና ለሚገኝ ልገሪ ለሚገኝ ልገሪ ለሚገኝ ልገሪ



PHOTO 19 Hazardous Waste waiting sealift backhaul at Milne Port

ᐅᓗᓕᓕᓐᓂᓐ ᐃᓕᓕᓐᓂᓐ ᐅᓕᓐᓂᓐᓂᓐ ᐅᓕᓐᓂᓐᓂᓐᓂᓐ
ᐃᓕᓕᓐᓂᓐᓂᓐᓂᓐ ᐃᓕᓐᓂᓐᓂᓐᓂᓐ ᐅᓕᓐᓂᓐᓂᓐ



PHOTO 20 Milne Port Bulk Fuel Bladder Farm Decommissioning
August 2013

ᐃᓕᓐᓂᓐᓂᓐᓂᓐ ᐅᓕᓐᓂᓐᓂᓐ ᐃᓕᓐᓂᓐᓂᓐ ᐃᓕᓐᓂᓐᓂᓐ
ᐃᓕᓐᓂᓐᓂᓐᓂᓐᓂᓐ ᐃᓕᓐᓂᓐᓂᓐᓂᓐ



PHOTO 21 Sump pump in Bulk Fuel Bladder Farm during Decommissioning September 2013

[illegible]

PHOTO 22 North west view of sump pump in Milne Port Fuel Bladder farm during decommissioning September 2013

[illegible]

ልፍኃጋጋ ሥራ ምክር ቤቱ ለልጅ ምክር ቤቱ ልማት
 ልማት ምክር ቤቱ ልማት ምክር ቤቱ ልማት ምክር ቤቱ ልማት
 ልማት ምክር ቤቱ ልማት ምክር ቤቱ ልማት ምክር ቤቱ ልማት



ዲፕሎማሲ ልግና፡ጉልብ ልግና (ልግና፡ጉልብ) ለጥብቅ 2013



PHOTO 1 Site overview of Steensby Port exploration camp September 2013
 Δσ^βΛ^υΣ Cδ^τΔ^αα^λΔ^ι β^ρΛ^ς ρ^βε^ςΔ^ς Δ^ςβ^ςΔ^ςΛ^ςΣ ρ^αα^λβ^λΠ^δ Δ^αα^λβ^λΔ^ςβ^ς
 ρ^λΛ^λ 2013



PHOTO 2 Steensby Port Exploration camp September 2013
 བུ་རྒྱལ་གྲོང་ཁྱེད་ཀྱི་སྤྱི་ཚུན་འབྲེལ་གྱི་མཉམ་སྐྱེད་ཆེད་ཀྱི་ཕྱི་ལོ་༢༠༡༣



PHOTO 3 Water sampling near Steensby Port
 ΔΓΨ ΞΒΔΓΗΠ ΞΒΘΓΛΣ ΞΨΞ ΔΒΔΨ ΔΒΒΔΛ



PHOTO 3 Aerial Site Layout Steensby Port August 2013
 ΞΒΛΒΔΒ ΔΒΒΔΒΔΒ ΔΒΒΒΒΒΒ ΞΨΞ ΔΒΒΔΛ ΔΒΒ
 2013



PHOTO 1 Pre-drilling area at Milne Port (on ice)
ᐱᑭᓂᐸᓄᓂ-ᓂᑯᑦᑐᑦᕕᑦ ᓄᔪᕈᓴ ᕕᑦᕕᓂᑦᑐᑦᕕᓂᑦ ᑐᓚᑦᕕᑦᓄᑦᓴᓂ (ᓂᑯᒃ)



PHOTO 2 Drilling operations at Milne Port (on ice)
σᵀᵇᵛσᶜᵇ ᐱᑦᐱᐱᐱᐱᐱᐱ Δᵇᐱᑦᑕᑕᑕᑕᑕᑕ ᑕᑕᵇᑕᑕᑕᑕᑕᑕ (ᑭᑕᑕ)



PHOTO 3 Post-drilling operations at Milne Port (on ice)
ᓂᐅᖃᑦᑦᑦᑦᑦᑦᑦᑦᑦᑦ ᐱᑦᑦᑦᑦᑦᑦᑦᑦ ᐃᖃᐱᑦᑦᑦᑦᑦᑦᑦ ᑦᑦᑦᑦᑦᑦᑦᑦᑦ (ᑦᑦᑦᑦ)



PHOTO 1 Aerial view of Milne Inlet-Mary River Mine Site Tote Road 2013
 ᖃᖃᓕᓕᓕᓕ ᑕᑯᑯᓐᑯ ᐃᖃᐱᑭᑯᓐᓐᓐᓐ ᖃᖃᓐᓐᓐᓐᓐᓐ ᐃᓐᓐᓐᓐᓐᓐ ᐃᓐᓐᓐᓐᓐᓐ
 ᐃᓐᓐᓐᓐᓐᓐ 2013



PHOTO 2 Aerial view of Milne Inlet-Mary River Mine Site Tote Road 2013
 ᖃᖃᓕᓕᓕᓕ ᑕᑯᑯᓐᑯ ᐃᖃᐱᑭᑯᓐᓐᓐᓐ ᖃᖃᓐᓐᓐᓐᓐᓐ ᐃᓐᓐᓐᓐᓐᓐ ᐃᓐᓐᓐᓐᓐᓐ
 ᐃᓐᓐᓐᓐᓐᓐ ᐃᓐᓐᓐᓐᓐᓐ 2013



PHOTO 3 Milne Inlet Tote Road July 2013
 Δᑲᐱᑭᑦᑦᑦᑦᑦᑦ ᑲᑭᑦᑦᑦᑦᑦᑦ ᑦᑦᑦᑦᑦᑦᑦᑦ ᑦᑦᑦᑦᑦᑦᑦᑦ ᑦᑦᑦᑦᑦᑦᑦᑦ 2013

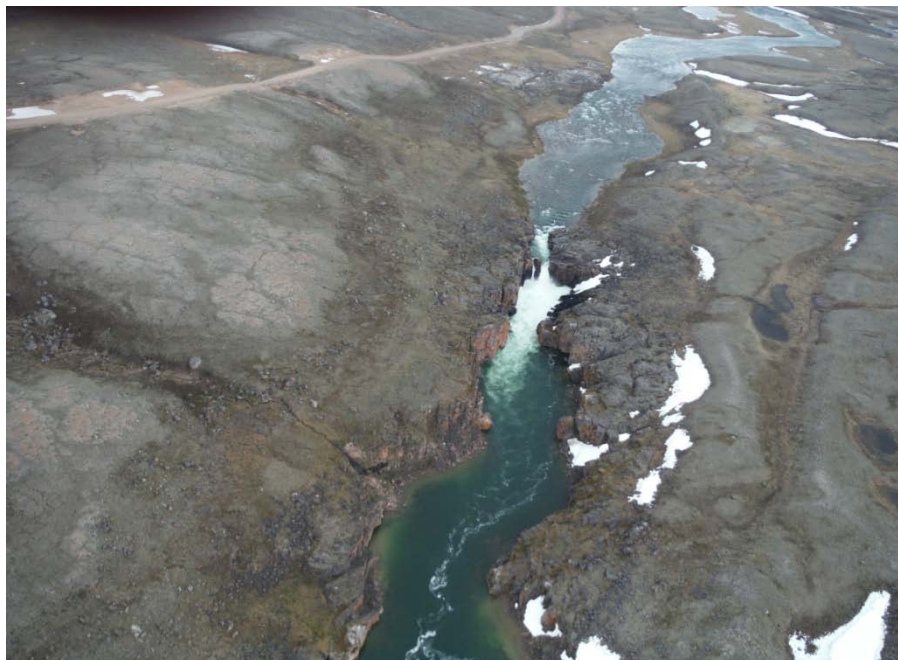


PHOTO 4 Milne Inlet Tote Road Aerial View near Km 13
 Δᑲᐱᑭᑦᑦᑦᑦᑦᑦ ᑲᑭᑦᑦᑦᑦᑦᑦ ᑦᑦᑦᑦᑦᑦᑦᑦ ᑦᑦᑦᑦᑦᑦᑦᑦ ᑦᑦᑦᑦᑦᑦᑦᑦ ᑦᑦᑦᑦᑦᑦᑦᑦ ᑦᑦᑦᑦᑦᑦᑦᑦ 13 ᑦᑦᑦᑦᑦᑦᑦᑦ

**D.3.7 Milne Port Bulk Fuel Transfer Photo
Sheet**

Δ⁶ΛΡ⁵Ϯ⁴ϥ³Δ² Ϯ¹Ϯ⁶Δ⁵σ Δ⁴Δ³Δ²Δ¹
Δ⁶Δ⁵Δ⁴Δ³Δ²Δ¹ Δ⁶Δ⁵Δ⁴Δ³Δ²Δ¹
Δ⁶Δ⁵Δ⁴Δ³Δ²Δ¹



PHOTO 3 Milne Port Marine Spill Emergency Response Team Training
 ᐃᑲᐱᑦᑕᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ
 ᐱᑕᑦᑕᑦᑕᑦ ᑕᑦᑕᑦᑕᑦᑕᑦ



PHOTO 4 Overview of Milne Port Steel Tank Bulk Fuel Storage Facility and fuel delivery ship during fuel transfer September 2013

ᑕᑦᑕᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ
 ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ
 ᑕᐱᑦᑕᑦᑕᑦ ᑕᐱᑦᑕᑦᑕᑦ



PHOTO 5 Ship-to-Shore floating hose and Milne Port Marine Emergency Response Team

[illegible]

PHOTO 4 Jana Desgagne, fuel supply vessel Milne Port 2013

ከዚህ በፊት ለጥያቄው ማረጋገጫ ማስፈጸም ሲቀጥል፣

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