# ANNUAL GEOTECHNICAL INSPECTION
# Baffinland Iron Mines Corporation
# Mary River Project

**Prepared for:**

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Reference 13-053
August 2013

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August 31, 2013

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**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.