

## **4.0 MILNE INLET**

### **4.01 General**

The containment facilities that we have been doing inspections on for the last 6 years are now rapidly changing in function with the construction underway at the Milne Inlet site.

Structures and facilities that were under construction during our inspection in 2013 have now been completed and new facilities are under construction.

Currently under construction is a large landfarm and contaminated snow containment facility which are being designed as contiguous structures.

Also reviewed was the active quarry from which blasted rock was being removed.

New facilities, just now under construction in August, were the two ore sediment ponds upon which construction was beginning and due for inspection and reporting in the second of two geotechnical inspections in the latter part of September from September 25<sup>th</sup> until September 30<sup>th</sup> as the shipping season draws to a close. This was done but the settling ponds were as yet incomplete as noted during this final review

### **4.02 Bulk Fuel Containment Facility**

This particular facility started to undergo decommissioning last summer season after having been in operation in excess of 5 years.

The oil impacted water had been removed and treated and the oil impacted sand/ gravel that was in the bottom of the structure and over the liner on the dykes had been removed from the south end of the structure and had been piled up in the north end where it had been covered to prevent an accumulation of further oil impacted water as noted during our first review in August. By September this facility had been decommissioned and the oil impacted material had been placed in the landfarm.

At the time of our August review roughly 60% of the former Bulk Fuel Containment Facility had been decommissioned and the facility was gone in September.

#### **Stability**

Our review of the area around the south end of the former Bulk Fuel Containment Facility showed no sign of oil or oil/water mixture and we conclude that the integrity of the liner has been maintained during the decommissioning process.

#### **Recommendations**

We have no recommendations at this time.

#### **4.03 Existing Polishing/Waste Stabilization Pond**

This particular PWSP is no longer part of the treatment process for sanitary sewage and in August was being pumped of effluent which was being transferred to the new effluent pond.

This transfer of effluent was part of the decommissioning of this PWSP. At the time of our second review in September, all effluent had been removed and the dykes were awaiting removal.

##### **Stability**

The structure is considered stable over the projected short life of the structure.

##### **Recommendations**

We have no recommendations at this time pending the immediate decommissioning.

#### **4.04 Barrel Fuel Storage**

##### **General Conditions**

As set out in our 2013 Geotechnical Inspection, this 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 two cell structure as Barrel Fuel Storage.

This structure around these two cells conforms to standardized drawings prepared by myself for such a structure.

The structure was in place during our first review but had been decommissioned at the time of our second review in September.

##### **Stability**

At the time of my August inspection, there was wet sand in the bottom of the two cells indicating the integrity of the liner.

Our review of the area around the cells, at the base of the exterior dyke slopes showed no sign of seepage, at that time.

There was no sign of oil impacted granular in the area following decommissioning.

##### **Recommendations.**

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

#### **4.05 Hazardous Waste Storage**

## **General Conditions**

This particular structure has been constructed as a two cell structure.

Due to an excess of hazardous waste in the two cells, a third temporary cell has been constructed for the very short term until the ship picks up the hazardous waste at the end of this summer season.

The third cell is constructed with a one piece liner and wood timber curb for this very short term and is contiguous with the south side of the structure.

This cell actually stores hazardous waste in containers, barrel fuel, and lubricant cubes.

## **Stability**

There is water ponding in both cells of the original structure confirming the integrity of the liner at this time.

Our review of the area around the dykes, at the base of the slopes, showed no sign of seepage. The structure is considered stable.

## **Recommendations**

We recommend that the use of the temporary third cell, recently constructed, be discontinued when the currently stored hazardous waste is shipped out by the end of this shipping season.

### **4.06 Oil and Antifreeze Containment**

This structure has been decommissioned and totally removed.

### **4.07 Jet "A" Pump Containment**

This structure has been decommissioned and totally removed since our 2013 inspection.

### **4.08 Fuel Tank Farm**

## **General Conditions**

This particular structure has been reported on both our 2012 and 2013 inspection reports.

Since both 2012 and 2013 the fuel tank farm has been expanded considerably with the addition of a number of new tanks.

At the time of our last inspection in 2013, the containment structure had been put in place for the entire tank farm but not all tanks were in place.

Since that time, all fuel tanks have been constructed.

There existed in place, a temporary ramp at the north west corner of the containment structure to facilitate the construction of the last tank and entry of crane(s) into the containment structure at the time of our August review.

This temporary ramp did not affect the integrity of the containment structure nor infringe upon the required capacity of the structure. The reamp had been removed by the time of our September review.

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

### **Stability**

We attach the Hatch Bulk Fuel Storage Site Grading Plan setting out the final tank and containment layout.

At both inspections we noted minor water ponding at the low end of the containment confirming the integrity of the liner.

### **Recommendations**

We have no recommendation for this structure.

## **4.09 New Effluent Pond**

### **General Conditions**

This particular effluent pond was first reported up on in 2013 but had not yet been put into operation.

This effluent pond has now been put into operation and sewage effluent from the Polishing/Waste Stabilization Pond was being transferred to permit the decommissioning of that structure at the time of our August review.

There was approximately 5' of freeboard at the time of our September review.

### **Stability**

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

### **Recommendations**

We have no recommendations with respect to the use of this structure having no negative comments on the construction of this structure.

## **4.10 Landfarm**

### **General Conditions**

The Landfarm was just under construction to facilitate the decommissioning of the contaminated soil in the north end of the former Bulk Fuel Containment Facility during our August review.

The Landform was constructed to accommodate approximately 9000 m<sup>3</sup> of oil contaminated soil and seasonal water accumulations.

At the time of our August review, the base and dykes of the structure had been formed and the HDPE liner had been installed with a geotextile protection on each side. At the time of our September review the cover had yet to be installed on a small section of the dyke but other areas were covered.

The landfarm had been put into operation at the time of our September review.

It appears as though the structure is being constructed in accordance with good construction practice for structures of this type.

### **Stability**

We see no reason to expect that the construction underway shall not produce a stable structure.

### **Recommendations**

We recommend that the remaining dyke structure without protective cover over it be covered as per the design drawings.

## **4.11 Contaminated Snow Containment**

### **General Conditions**

The construction of the contaminated snow containment structure is contiguous with the east end of the Landfarm.

At the time of our August review, the base and dykes of the structure had been formed and the HDPE liner had been placed with a geotextile protection on each side. At the time of our September review construction had been completed in accordance with design drawings.

It appears as though the structure has been constructed in accordance with good construction practice for structures of this type.

The snow containment facility has a containment volume of 929 m<sup>3</sup> based on estimates of snow volume provided by the Owner.

The structure has been constructed with good quality control.

### **Stability**

We have no reason to expect that the construction shall not produce a stable structure.

### **Recommendations**

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

## **4.12 Sediment Pond East**

### **General Conditions**

The construction of this sedimentation pond for drainage from the east side of the site is nearing completion.

The basin is shaped and the liner has been installed throughout the basin from inlet to the berms on the north side of the basin.

There has been no cover placed over the liner to this point and rip rap has not yet been placed in the outlet weir.

#### **Stability**

We have no reason to expect that construction underway shall not produce a stable structure when complete.

#### **Recommendations**

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

### **4.13 Sediment Pond West**

#### **General Conditions**

The construction of this sedimentation pond for drainage from the west side of the site is nearing completion in a manner similar to that on the east side.

As with the east side, the liner is in place over the basin but the liner has yet to be covered

#### **Stability**

We have no reason to expect that construction underway shall not produce a stable structure when complete.

#### **Recommendations**

We have no recommendations with respect to the construction at this time.

### **4.14 Quarry**

#### **General Conditions**

There is an active quarry to the south of the port development on the high rock outcrop.

As with our review in August, quarrying was underway in September and benches had been developed for the removal of substantial quantities of rock.

#### **Stability**

Rock faces appear stable.

#### **Recommendation**




We have no recommendations to be made with respect to the existing operation.

#### 4.15 Overview

Decommissioning is underway with the former structures constructed of sand and gravel and new long term structures are recently completed or under construction utilizing crushed quarried material with a projected long term serviceability.

Respectfully submitted,



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



## **PHOTOS**

### **Milne Inlet August Inspections**



Photo taken from the south east corner of the steel storage tank containment outside the containment looking north west.



Photo taken from atop the containment dyke looking west into the containment.



Photo taken from atop the soon to be decommissioned PWSP looking south.



Photo taken of central dyke in barrel fuel storage looking west.





Photos taken along rear dyke at hazardous waste storage area. Note water contained within dyke.



Photo shows temporary curbed area for hazardous waste awaiting immediate shipment.



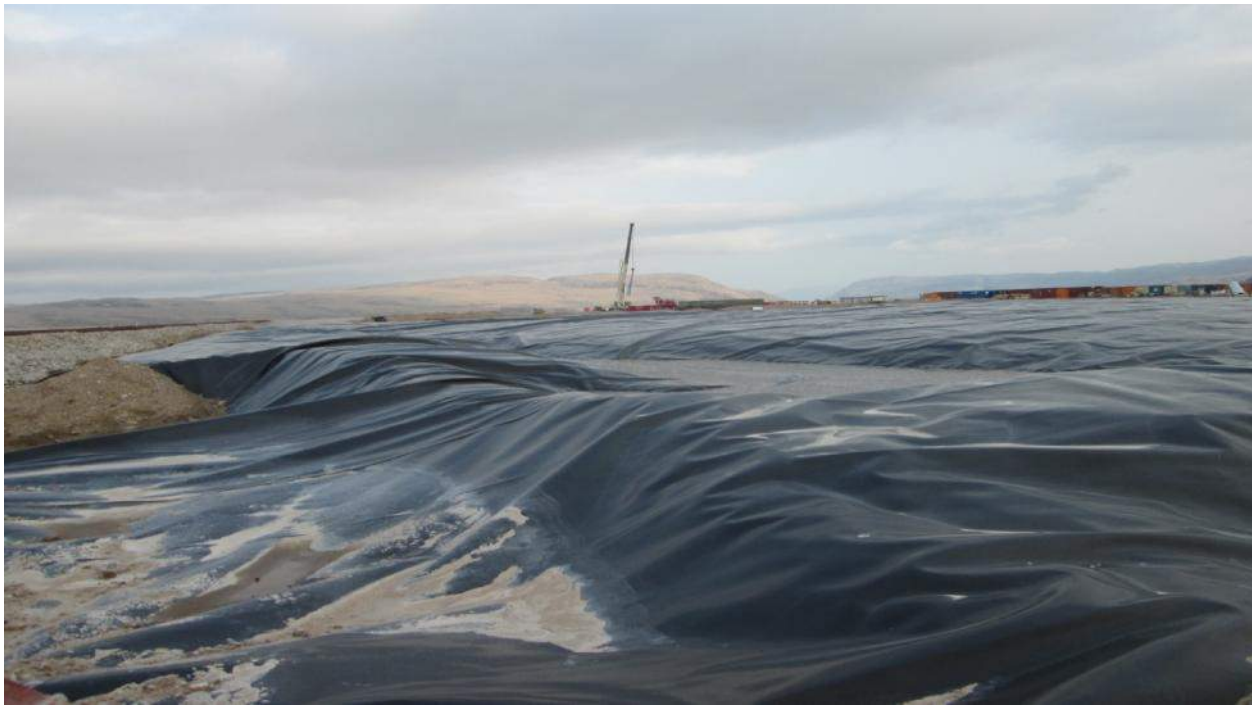


Photo taken looking north at the covered contaminated granular from the bulk fuel storage facility undergoing decommissioning.



Photo taken from atop the south west corner of the New Sewage Effluent Pond looking north east.



Photo taken looking into the sump at the north east corner of the Landfarm.



Photo taken from atop the dyke looking into the contaminated snow containment.



Photo taken looking at the quarry face in the quarry showing the well developed benches and cover removed from atop solid rock.

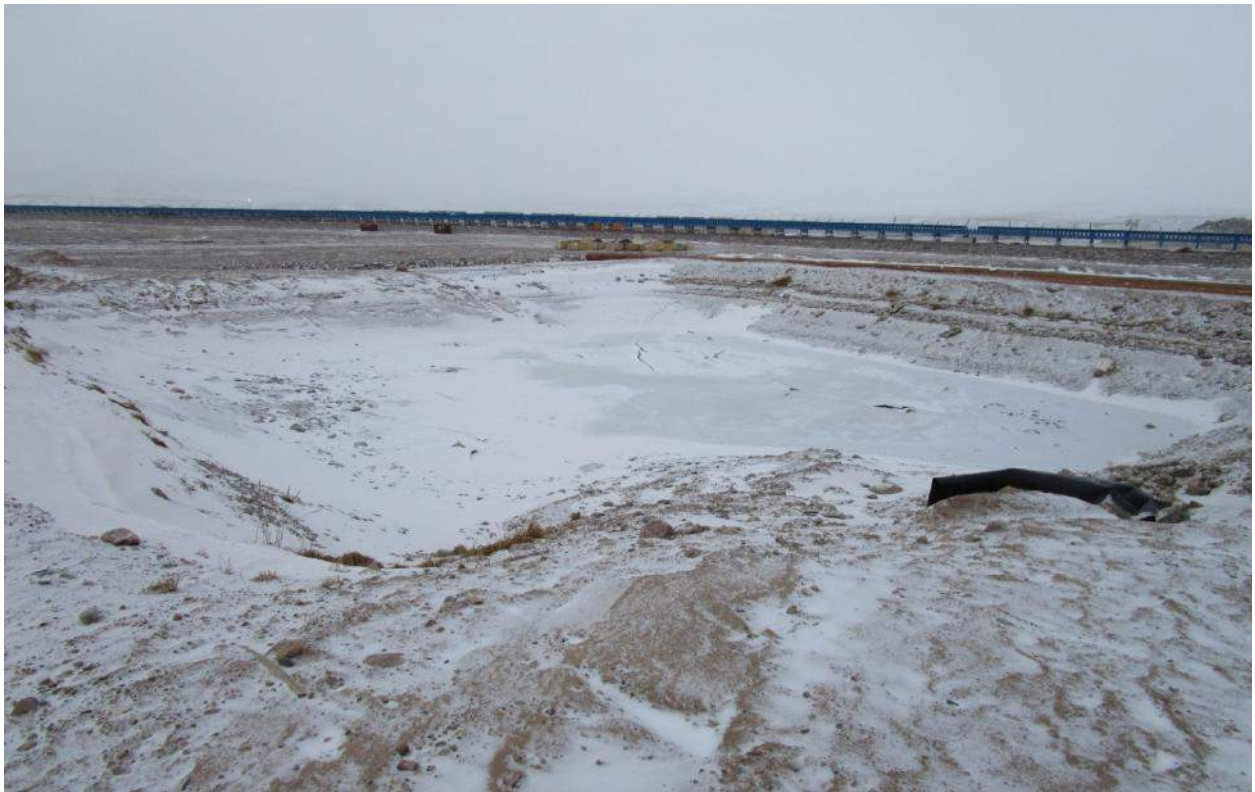
## **PHOTOS**

**Milne Inlet September Inspection**





Site of recently decommissioned bulk fuel containment



Existing PWSP now empty and being decommissioned





Site of recently decommissioned barrel fuel containment.



Hazardous waste storage containing bladder of contaminated material.



Fuel tank farm containment



New effluent pond