



MEADOWBANK DIVISION

## **Monitoring Program Summary Report**

**December 2012**

Type A Water License 2AM-MEA0815

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## SECTION 1 • **BACKGROUND**

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As required under Part I, Item 25 of Type A Water License 2AM-MEA0815, this report documents the water management and monitoring activity at the mine site for the month. This includes water usage, Portage Attenuation Pond discharge water quality and sewage treatment plant discharge water quality (to onsite storm water management pond).

In addition, a summary of spills/actions for the month is included.

## SECTION 2 • WATER MANAGEMENT

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### 2.1 WATER USAGE

Freshwater usage for December 2012 is summarized in Table 2.1 below. Total freshwater used for the month was 65,551 m<sup>3</sup>. The total amount of reclaim water used in the mill for December was 261,808 m<sup>3</sup>. The yearly freshwater used is actually over the quantity prescribe of 700,000 m<sup>3</sup> by our licence. The total freshwater used to date is 1,043,894 m<sup>3</sup>.

In the summer 2012, engineering was completed for our action plan to decrease fresh water consumption. We finalized the implementation of our action plan in mid-December 2012. Since the summer, 2012, we have increased our recirculation of reclaim water by 80% (72% in the second quarter of 2012) which has reduced our fresh water consumption by almost 40 m<sup>3</sup>/hr (which represents a reduction of 350,000 m<sup>3</sup> per year). The ratio of water used (m<sup>3</sup>) per tonne milled decreased significantly, by 24 m<sup>3</sup>/tonne (46 m<sup>3</sup>/tonne (Q3 2010) to 22 m<sup>3</sup>/tonne in Q4 2012).

With the completion of this action plan, AEM should be able to achieve our current limit of 700,000 m<sup>3</sup> /year in 2013 and no amendment for the increase of the fresh water use should be needed. We will continue during the year to investigate other measures to reduce our water consumption of fresh water. If the situation changes during the year, AEM will advise the Nunavut Water Board accordingly.

**Table2-1: Freshwater Usage (m<sup>3</sup>)**

	<b>December</b>
Freshwater Storage Tank	<b>65,389</b>
Emulsion Plant	162.1
Water Truck	0
<b>Total</b>	<b>65,551</b>
<b>Year to date total</b>	<b>1,043,894</b>

## 2.2 SEWAGE TREATMENT PLANTS

Three (3) effluent wastewater samples were taken from the onsite sewage treatment plants (STP's) in December.

The Seprotech STP results are shown in Table 2.2.1 below; the LJ-Mix STP results are shown in Table 2.2.2. The results of the discharge show the system was working well. The effluent is discharged to the onsite stormwater pond and is not discharged to the natural environment.

**Table 2.2.1: Seprotech Effluent Results**

Date	Units	3-Dec-12	10-Dec-12	17-Dec-12
Ammonia	mg N/L	<0.05	0.08	<0.05
Ammonia-Ammonium	mg N/L	14.8	19.6	16.1
Total Kjeldahl Nitrogen	mg N/L	20	24	19
BOD-5	mg/L	12	14	13
COD	mg/L	63	173	85
Total Suspended Solids	mg/L	23	22	13
Nitrate	mg N/L	19	19.7	18.2
Nitrite	mg N/L	0.45	0.84	0.56
Total Phosphorus	mg/L	9.7	11.3	11.4
pH *	units	6.3	6.5	6
Fecal Coliform	UFC/100 mL	136	56	84
Total Coliform	UFC/100 mL	2 500	1000	1000

**Table 2.2.2: LJ-Mix Effluent Results**

Date	Units	3-Dec-12	10-Dec-12	17-Dec-12
Ammonia	mg N/L	<0.05	<0.05	<0.05
Ammonia-Ammonium	mg N/L	14.1	15.2	14
Total Kjeldahl Nitrogen	mg N/L	20	18	20
BOD-5	mg/L	3	10	18
COD	mg/L	43	75	91
Total Suspended Solids	mg/L	11	28	30
Nitrate	mg N/L	27	21.1	18.8
Nitrite	mg N/L	0.04	0.25	0.22
Total Phosphorus	mg/L	11.5	11	12
pH *	units	6.1	5.1	6
Fecal Coliform	UFC/100 mL	40	< 10	20
Total Coliform	UFC/100 mL	200	< 100	100

### **2.3 ATTENUATION POND EFFLUENT**

For the month of December there is no effluent from the attenuation pond ST-9.

### **2.4 ST-6 NON CONTACT WATER**

In December, the cold temperature did not allow the water to circulate at the North Cell Diversion Water Ditch (ST-6), therefore no water was pump so there was no effluent.

## SECTION 3 • SPILL MANAGEMENT

AEM has developed a system of tracking spills on-site. Table 3.1 summarizes the AEM spill reports for the month. Five (5) spills occurred on site and none (0) were reported to the GN spill hotline since they were all under a 100 L. AEM conducted the activities of containment and clean-up.

**Table 3-1: Summary of AEM Internal Spill Reports**

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up action taken	Reported to Spill Hot Line
2012-12-02	glycol	2 Liters	Genset no.1	the engine had a hard shutdown, coolant start boiling inside the rad creating an overflow that leaked on the floor.	contaminated material was cleaned up with shovel and absorbent pads	N
2012-12-03	Transmission oil	40 Liters	West Toad / Bay goose	hose connecting retarder to the transmission broke	absorbing towels were put on the transmission oil, contaminated soil was collected	N
2012-12-15	Hydraulic oil	5 Liters	Push Back blast pattern 5116402	Busted O-ring on hydraulic pump	drill was shut down, spill pads were laid down on the spill	N
2012-12-22	emulsion, diesel, anti-freeze	60 Liters	AWPR KM 103	truck went off road causing the truck to roll over, occurred during the blizzard - poor visibility	Emulsion was scooped up with shovels and placed in 45 g. sealed drum, fuel tank was plugged to stop leaking.	N
2012-12-29	Engine Oil	10 Liters	Genset no.3	Oil line failed	placed a pail where the oil was leaking	N