



MEADOWBANK DIVISION

## **Monitoring Program Summary Report**

**November 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 November 2012 is summarized in Table 2.1 below. Total freshwater used for the month was 84,816 m<sup>3</sup>. The total amount of reclaim water used in the mill for November was 262,199 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 978,343 m<sup>3</sup>. The completion of our action plan is in progress and by the end of 2012 we anticipate that our freshwater usage will be reduced to below our current water use limit.

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

	<b>November</b>
Freshwater Storage Tank	8,4648
Emulsion Plant	168.3
Water Truck	0
<b>Total</b>	<b>84,816</b>
<b>Year to date total</b>	<b>978,343</b>

## 2.2 SEWAGE TREATMENT PLANTS

Four (4) effluent wastewater samples were taken from the onsite sewage treatment plants (STP's) in November.

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	5-Nov-12	13-Nov-12	19-Nov-12	26-nov-12
Ammonia	mg N/L	<0.05	<0.05	<0.05	<0.05
Ammonia-Ammonium	mg N/L	9.1	2.8	6.3	9.9
Total Kjeldahl Nitrogen	mg N/L	11	4	4	14
BOD-5	mg/L	5	3	9	17
COD	mg/L	81	38	58	62
Total Suspended Solids	mg/L	13	6	15	10
Nitrate	mg N/L	21	17.4	19.4	18.3
Nitrite	mg N/L	0.03	0.01	0.01	0.05
Total Phosphorus	mg/L	4.5	9.9	9.2	9
pH *	units	5.6	5.4	5.2	5.7
Fecal Coliform	UFC/100 mL	12	< 4	12	88
Total Coliform	UFC/100 mL	80	< 100	1500	6000

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

Date	Units	05-nov-12	13-nov-12	19-nov-12	26-nov-12
Ammonia	mg N/L	<0.05	0.09	0.1	<0.05
Ammonia-Ammonium	mg N/L	21.6	24.6	37.1	10.4
Total Kjeldahl Nitrogen	mg N/L	23	32	31	17
BOD-5	mg/L	15	23	48	7
COD	mg/L	61	76	80	40
Total Suspended Solids	mg/L	17	33	21	11
Nitrate	mg N/L	17.7	17.2	24	22.6
Nitrite	mg N/L	0.34	0.3	0.35	0.01
Total Phosphorus	mg/L	6.8	9.5	8.2	10.8
pH *	units	6.6	7.1	6.9	5.4
Fecal Coliform	UFC/100 mL	168	3600	340	290
Total Coliform	UFC/100 mL	800	24000	1800	290

### **2.3 ATTENUATION POND EFFLUENT**

We discharged effluent to the environment from the Portage Attenuation Pond in Third Portage Lake diffuser from November 1<sup>st</sup> to November 12<sup>th</sup>. The discharge of the Portage Attenuation Pond is stop for the winter.

Two (2) weekly effluent samples were taken from the Actiflow® Water Treatment Plant (ST-9). No exceeding can be observed for the month of November.

The sample results are shown in table 2.3.1 next page.

**Table 2.3.1: ST-9 - Effluent Monitoring**

Parameters	Type of result	Maxium Limits	Units	2012-11-05 07:55	2012-11-12 07:10
Ammonia-Nitrogen	G.S.	32	mg N/L	9.6	8.3
Ammonia-Nitrogen	M.A.C.	16	mg N/L	10	9.7
Chloride	G.S.	2000	mg/L	33.4	55.1
Chloride	M.A.C.	1000	mg/L	25.4	30.9
Cyanide Total	G.S.	1	mg/L	0.25	0.21
Cyanide Total	M.A.C.	0.5	mg/L	0.2	0.2
Nitrate	G.S.	40	mg N/L	13	12.7
Nitrate	M.A.C.	20	mg N/L	15.4	15.3
pH**	G.S.	6-9.0	pH Unit	6.77	6.91
pH**	M.A.C.	6-9.0	pH Unit	7.2	7.2
C10-C50	G.S.	6	mg/L	0.1	0.1
C10-C50	M.A.C.	3	mg/L	0.1	0.1
TSS	G.S.	30	mg/L	6	4
TSS	M.A.C.	15	mg/L	5	4
Turbidity**	G.S.	15	NTU	0.65	1.16
Turbidity **	M.A.C.	15	NTU	1	1.1
total-phosporus	G.S.	2	mg/L	0.01	< 0.01
Total-phosporus	M.A.C.	1	mg/L	0.015	0.015
aluminum	G.S.	1.5	mg/L	1.27	0.962
aluminum	M.A.C.	1.5	mg/L	0.933	0.856
arsenic	G.S.	0.6	mg/L	0.0078	0.0121
arsenic	M.A.C.	0.3	mg/L	0.005	0.006
cadmium	G.S.	0.004	mg/L	0.00004	< 0.00002
cadmium	M.A.C.	0.002	mg/L	0.00004	0.000035
copper	G.S.	0.2	mg/L	0.0067	0.0058
copper	M.A.C.	0.1	mg/L	0.0053	0.005
mercury	G.S.	0.0008	mg/L	< 0.00001	< 0.00001
mercury	M.A.C.	0.0004	mg/L	0.00001	0.00001
nickel	G.S.	0.4	mg/L	0.047	0.0426
nickel	M.A.C.	0.2	mg/L	0.006	0.031
lead	G.S.	0.2	mg/L	< 0.0003	0.0014
lead	M.A.C.	0.1	mg/L	0.006	0.006
zinc	G.S.	0.8	mg/L	< 0.001	0.008
zinc	M.A.C.	0.4	mg/L	0.005	0.005
Dissolved aluminum	G.S.	1	mg/L	< 0.01	0.04
Dissolved aluminum	M.A.C.	1	mg/L	0.255	0.263

- \*\* indicate the analysis was performed by the environmental department
- **M.A.C.:** The Maximum Average Concentration means the average concentration of any four consecutively collected samples taken from the identical sampling location and taken during any given timeframe.
- **G.S.:** Grab sample result means an undiluted quantity of material collected at a particular time and place that may be representative of the total substance being sampled at the time and place it was collected

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

In November, no monitoring was done on the Diversion Ditch because everything is frozen.

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## 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 eighteen (18) spills occurred on site and four (3) was reported to the GN spill hotline. AEM conduct 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
2012-11-01	oil-water	3 L	vault road	a tire of a 50 tons vehicle (#1536) exploded. The interior of the tire contained water (resulting from condensation) and oil (from air compressor that inflated the tire) the mixture of these two liquids went out from the hole of the flat tire.	Soil was collected and disposed of at CSP.	N
2012-11-01	calcium chloride	100 L	in front of door B	Broken valve	tote and soil was brought inside	Y
2012-11-05	Coolant	30 L	End of truck shop	found near of 2 pails containing coolant	We immediately sent a mechanic to install absorbent pads to contain the coolant on the ground, put the absorbent pads and coolant in 5 gallon pails where pick-up and dispose of in the bin in the shop.	N
2012-11-11	Slurry	2500 L	Mill door a-b	Power failure, overflow of the pump box	blocked the seeping door, built berms, collect material and sent it to the tailing pond	Y
2012-11-11	stripping solution	500 L	Mill door c	Power failure, overflow of the barren solution box	blocked the seeping door, collect material and sent it back in the process	Y
2012-11-14	oil	20 L	Push back pit	broken fitting on BAC 07	Soil was collected and disposed of at CSP.	N
2012-11-17	calcium chloride	1500 L	Mill door B	Punctured totes in a c-can	None, calcium chloride is used on the site for dust control.	N
2012-11-18	lime powder	4 Kg	Mill door A	leaking lime bag during transportation	Shoveled it, put it in a pale and send it in the tailing pond	N
2012-11-21	Envirobend	80 L	Mill Overhead door "B"	a zoom boom transported a tote inside mill, smaller forklift trying to pick up tote inside the Mill puncturing the tote in process of lifting it up	shoveled content and placed into a different tote and dispersed at Tailings pump	N
2012-11-22	hydraulic oil	5 L	goose pit	Busted hydraulic hose	drill was shut down immediately spill pads were laid down on the deck of the drill. Spill was picked up and brought to incinerator.	N
2012-11-22	engine oil	50 L	Pit B	connecting rod in the engine of 992 loader #3 came apart and punched a hole in the oil pan	picked up absorbent pads and taken to CSP	N
2012-11-23	transmission fluid	95 L	west road sana crusher/waste dump	transmission line broke	pick up and brought to CSP	N
2012-11-25	hydraulic oil	20 L	push back phase 2	developed a leak in hydraulic hose and in the process of taking it off for repair a quantity of oil was spilled on the ground.	covered the oil with absorbent pads. Mechanic picked up the pads after installing the new pipe.	N
2012-11-22	compressor oil	20 L	pattern 5081-273	compressor oil hose	drill was shut down immediately spill pads were laid down on the spill. The hose was repaired. Spill was picked up and brought to incinerator.	N
2012-11-27	hydraulic oil	150 L	pattern 5081-273 Pit B	The mounting brackets bolts broke causing the hydraulic line going to the swing motor to come free.	Absorbent pads were used to clean surface oil. Pads were brought to our Hazmat location and put in proper location.	Y
2012-11-27	Coolant	20 L	maintenance parking	2 haul trucks. HTR 04 & HTR 08. Radiator leak on both trucks	Already asked Jean Noel to clean these spills. Will be done today	N
2012-11-29	hydraulic oil	30 L	mid pit access	driveshaft broke off causing hydraulic hose to be pulled off pump	absorbent pads were used to pick up the hydraulic oil then disposed of at incinerator	N
2012-11-29	hydraulic oil	60 L	push back	broken hydraulic hose grader 3	absorbent pad were used to pickup oil then disposed of at incinerator	N