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MEADOWBANK DIVISION

## **Monitoring Program Summary Report**

**May 2011**

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 activity includes: water usage, sewage treatment plant discharge water quality and dewatering monitoring.

Additionally, a summary of the AEM internal spill reporting for the month is included.

## SECTION 2 • WATER MANAGEMENT

### 2.1 WATER USAGE

Freshwater usage for April and May 2011 is summarized in Table 2.1 below. A few minor revisions were made to the April data presented in last month's monthly monitoring report.

Freshwater usage for the month of May totals 99,743 m<sup>3</sup>. The consumption of fresh water for mine and mill operations (including production drills, batch plant and dust control) was 94,627 m<sup>3</sup> and the consumption of reclaim water in the mill was 167,012 m<sup>3</sup>.

**Table 2-1: Freshwater Usage (m<sup>3</sup>)**

	<b>April</b>	<b>May</b>
Camp	3,060	3,302
Mine & Mill Operations	80,930	94,627
Emulsion Plant		
Water Truck	2,464	1,814
<b>Total</b>	<b>86,454</b>	<b>99,743</b>

### 2.2 SEWAGE TREATMENT PLANT MONITORING

Five water samples were taken at the effluent of the sewage treatment plants (STP) in May. The results showed the system is working well. Table 2.2 presents the monitoring results.

**Table 2-2: STP Effluent Results**

<b>Date</b>	<b>Units</b>	<b>2-May-11</b>	<b>9-May-11</b>	<b>16-May-11</b>	<b>23-May-11</b>	<b>30-May-11</b>
Ammonia	mg/L	7.6	5.6	6.5	11.2	9.7
BOD-5	mg/L	1	2	2	2	3
COD (mg/L)	mg/L	59	36	22	32	16
Total Suspended Solids	mg/L	6	25	8	9	4
Nitrate-Nitrite	mg N/L	27.9	27.5	37.9	31.7	33.8
pH *	units	3.80	4.00	4.20	4.60	3.80
Total Phosphorus	mg/L	11.3	12.3	11.3	13.2	13.6
Fecal Coliform	UFC/100 mL	<2	4	8	2	<2
Total Coliform	UFC/100 mL	32	<10	104	80	48

## 2.3 DEWATERING OF SECOND PORTAGE ARM

Dewatering of the northwest arm of Second Portage Lake continued throughout the month. As of May 17, 2011 both water treatment plants were discharging effluent. As both discharges are released simultaneously to the environment, the average of the two discharges is used for regulatory purposes.

The pH and Aluminum concentrations at the outlets of the TSS water treatment plants were as follows:

- pH 24 hour minimum/maximum: 6.67/7.11 units (Limit is 6-9 units)
- Al 24 hour maximum concentration: 0.998 mg/L (Limit is 1.5 mg/L)

Table 2.3 summarizes the dewatering monitoring results for pH and Aluminum for the month.

The turbidity and Total Suspended Solids (TSS) concentrations at the outlets of the TSS water treatment plants were as follows:

- NTU 24 hour mean maximum concentration: 4.4 NTU (Maximum Limit is 30 NTU)
- TSS 24 hour mean maximum concentration: 15.5 mg/L (Maximum Limit is 22.5 mg/L)
- NTU 30 days mean maximum concentration: 1.8 NTU (Maximum Limit is 15 NTU)
- TSS 30 days mean maximum concentration: 6.0 mg/L (Maximum Limit is 15 mg/L)

Table 2.4 summarizes the dewatering monitoring results for turbidity and TSS for the month.

**Table 2-3: Dewatering Monitoring – pH and Al**

Date	DD-WTP-01		DD-WTP-02		Both WTP Outlets	
	pH	Total Al	pH	Total Al	pH 24-hour Mean	Al 24-hour Mean
	units	mg/L	units	mg/L	units	mg/L
2011-05-01	6.82					
2011-05-02	6.85	0.309				
2011-05-03	6.84					
2011-05-04	6.84					
2011-05-05	6.87					
2011-05-06	7.11					
2011-05-08	6.91					
2011-05-09	6.92	0.516				
2011-05-10	7.09					
2011-05-11	7.02					
2011-05-12	6.98					
2011-05-13	6.99					
2011-05-14	6.68					
2011-05-15	6.92					
2011-05-16	6.82					
2011-05-17	6.92		6.86		6.89	
2011-05-18	6.89	0.725	6.75	0.522	6.82	0.624
2011-05-19			6.78		6.78	
2011-05-20	6.94		6.94		6.94	
2011-05-21	6.68		6.80		6.74	
2011-05-23	6.82	0.535	6.68	1.460	6.75	0.998
2011-05-24	6.74		6.70		6.72	
2011-05-25	6.81		6.90		6.86	
2011-05-26	6.79		6.82		6.81	
2011-05-27	6.69		6.74		6.72	
2011-05-28	6.68		6.65		6.67	
2011-05-29	6.70		6.84		6.77	
2011-05-30	6.55	0.470	6.88	0.836	6.72	0.653
2011-05-31	6.98		6.79		6.89	

Table 2-4: Dewatering Monitoring – TSS and Turbidity

Date	DD-WTP-01(Out)		DD-WTP-02(Out)		Both WTP Outlets			
	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS	NTU 24-hour Mean	TSS 24-hour Mean	NTU 30-day Mean	TSS 30-day Mean
	NTU	mg/L	NTU	mg/L	NTU	mg/L	NTU	mg/L
2011-05-01	0.7	1	Not in operation		0.7	1	0.9	3.9
2011-05-02	0.9	1	Not in operation		0.9	1	0.9	3.7
2011-05-03	0.9	6	Not in operation		0.9	6	0.9	3.6
2011-05-04	0.8	8	Not in operation		0.8	8	0.9	3.5
2011-05-05	0.9	10	Not in operation		0.9	10	0.9	3.5
2011-05-06	1.9	6	Not in operation		1.9	6	1.0	3.6
2011-05-07	Not in operation		Not in operation					
2011-05-08	2.8	5	Not in operation		2.8	5	1.0	3.7
2011-05-09	1.1	4	Not in operation		1.1	4	1.0	3.6
2011-05-10	0.6	2	Not in operation		0.6	2	1.0	3.5
2011-05-11	0.5	8	Not in operation		0.5	8	1.0	3.6
2011-05-12	0.5	7	Not in operation		0.5	7	0.9	3.8
2011-05-13	1.4	2	Not in operation		1.4	2	0.9	3.8
2011-05-14	2.2	1	Not in operation		2.2	1	1.0	3.8
2011-05-15	1.9	2	Not in operation		1.9	2	1.0	3.7
2011-05-16	3.0	4	Not in operation		3.0	4	1.1	3.8
2011-05-17	3.0	6	1.2	1	2.1	4	1.1	3.8
2011-05-18	1.1	5	0.2	3	0.7	4	1.1	3.8
2011-05-19	Not in operation		0.7	10	0.7	10	1.1	4.0
2011-05-20	2.7	10	1.7	11	2.2	11	1.2	4.2
2011-05-21	2.0	10	1.5	11	1.8	11	1.2	4.4
2011-05-22	Not in operation		Not in operation					
2011-05-23	3.8	11	1.8	14	2.8	13	1.3	4.6
2011-05-24	4.1	6	3.0	5	3.5	6	1.3	4.5
2011-05-25	3.3	24	2.8	7	3.1	16	1.4	5.0
2011-05-26	3.0	8	3.6	9	3.3	9	1.5	5.3
2011-05-27	1.2	2	1.3	1	1.3	2	1.5	5.3
2011-05-28	1.3	1	1.2	2	1.3	2	1.5	5.3
2011-05-29	3.5	11	2.9	8	3.2	10	1.6	5.6
2011-05-30	3.4	8	2.0	8	2.7	8	1.7	5.7
2011-05-31	4.1	10	4.8	14	4.4	12	1.8	6.0

### SECTION 3 • SPILL MANAGEMENT SUMMARY

AEM has developed a system of tracking spills on-site. Table 3.1 summarizes the AEM internal spill reports for the month. No spills were reported to the GN spill hotline.

**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
2011-05-03	Reclaim Water	105 m <sup>3</sup>	South side of the power house (in the trench for mill piping)	Operator got stuck in the trench and pierced the pipe using his bucket to get out	Sucker truck pumped up the water and brought it to Tailing Pond; contaminated snow taken to Tailing Pond	N
2011-05-09	Hydraulic oil	10 L	Truck Shop	Broken hydraulic hose	Contaminated soil taken to Hazmat area	N
2011-05-09	Hydraulic oil	3 L	Air Strip Hill	Broken hydraulic hose	Contaminated soil taken to Hazmat area	N
2011-05-09	Hydraulic oil	5 L	Truck Shop	Broken hydraulic hose	Contaminated soil taken to Hazmat area	N
2011-05-11	Hydraulic oil	20 L	North Portage	Broken hydraulic hose	Contaminated soil taken to Hazmat area	N
2011-05-12	Hydraulic oil	25 L	Old Sana Crusher 2	Broken hydraulic hose	Contaminated soil taken to Hazmat area	N