MEADOWBANK DIVISION

Monitoring Program Summary Report

October 2011

Type A Water License 2AM-MEA0815

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SECTION 1 • BACKGROUND

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 October 2011 is summarized in Table 2.1 below. Freshwater usage for the month totals 140,858 m^3. The consumption of fresh water for mine and mill operations (including production drills, batch plant and dust control) was 81,465 m^3 and the consumption of reclaim water in the mill was 191,984 m^3.

Table 2-1: Freshwater Usage (m^3)

	October
Camp	3,285
Mine & Mill Operations	81,465
Emulsion Plant	176
Water Truck	198
Total	**85,124**

2.2 SEWAGE TREATMENT PLANT MONITORING

Four water samples were taken at the effluents of the sewage treatment plants (STP) in October. Samples are now being collected from each of the discharges of the two sewage treatment plants: Seprotech and Little John (LJ). These two discharges continue to merge prior to being released into Stormwater Management Pond #1.

The results of each discharge show the systems are working well.

Table 2-2: Seprotech Effluent Results

Date	Units	3-Oct-11	10-Oct-11	18-Oct-11	24-Oct-11	31-Oct-11
Ammonia-Ammonium	mg N/L		13.6	11.4	4.1	11.3
BOD-5	mg/L		4	6	5	8
COD	mg/L		44	50	53	63
Total Suspended Solids	mg/L		17	19	12	25
Total Kjeldahl Nitrogen	mg N/L		17	13	7	39
Nitrite	mg N/L		0.01	<0.01	<0.01	0.05
Nitrate	mg N/L		37	32.3	27.7	33.4
pH *	units	3.9	4.1	3.9		5
Total Phosphorus	mg/L		12.7	12.5	11.4	13
Fecal Coliform	UFC/100 mL		6	8	20	200
Total Coliform	UFC/100 mL		60	52	140	1000

Table 2-3: LJ-Mix Effluent Results

Date	Units	3-Oct-11	10-Oct-11	18-Oct-11	24-Oct-11	31-Oct-11
Ammonia-Ammonium	mg N/L					39.8
BOD-5	mg/L					25
COD	mg/L					61
Total Suspended Solids	mg/L					25
Total Kjeldahl Nitrogen	mg N/L					100
Nitrite	mg N/L					6.3
Nitrate	mg N/L					15.6
pH *	units	7.4	6.9	6.7	7.4	7.1
Total Phosphorus	mg/L					12.4
Fecal Coliform	UFC/100 mL		68	<100	<1000	190
Total Coliform	UFC/100 mL		200	4800	<10,000	2000

2.3 DEWATERING

2.3.1 Northwest Arm of Second Portage Lake

Dewatering of the northwest arm of Second Portage Lake was completed on October 21, 2011.

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

- pH 24 hour minimum/maximum: 6.83/7.29 units (Limit is 6-9 units)
- Al 24 hour maximum concentration: 1.05 mg/L (Limit is 3.0 mg/L)

Table 2.4 summarizes the dewatering monitoring results for pH and Aluminum for the month.

Table 2-4: Second Portage Arm 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
2011-10-03	7.10	1.05			7.10	1.050
2011-10-11	7.29				7.29	
2011-10-12			6.83		6.83	
2011-10-18	7.21				7.21	
2011-10-19			6.87		6.87	

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

- NTU 24 hour mean maximum concentration: 7.9 NTU (Maximum Limit is 30 NTU)
- TSS 24 hour mean maximum concentration: 18 mg/L (Maximum Limit is 22.5 mg/L)
- NTU 30 days mean maximum concentration: 2.4 NTU (Maximum Limit is 15 NTU)
- TSS 30 days mean maximum concentration: 6 mg/L (Maximum Limit is 15 mg/L)

Table 2.5 summarizes the dewatering monitoring results for turbidity and TSS for the month.

Table 2-5: Second Portage Arm 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
2011-10-01	Not in operation		Not in operation					
2011-10-02	Not in operation		Not in operation					
2011-10-03	7.9	18	Not in operation		7.9	18	2.3	6
2011-10-04	Not in operation		Not in operation					
2011-10-05	Not in operation		Not in operation					
2011-10-06	Not in operation		Not in operation					
2011-10-07	Not in operation		Not in operation					
2011-10-08	Not in operation		Not in operation					
2011-10-09	Not in operation		Not in operation					
2011-10-10	Not in operation		Not in operation					
2011-10-11	3.6	5	Not in operation		3.6	5	2.4	6
2011-10-12	Not in operation		1.3	4	1.3	4	2.4	6
2011-10-13	Not in operation		Not in operation					
2011-10-14	Not in operation		Not in operation					
2011-10-15	0.7	4	Not in operation		0.7	4	2.3	6
2011-10-16	Not in operation		Not in operation					
2011-10-17	Not in operation		Not in operation					
2011-10-18	0.4	< 1	Not in operation		0.4	1	2.2	6
2011-10-19	Not in operation		0.8	2	0.8	2	2.1	6
2011-10-20	4.6	5	Not in operation		4.6	5	2.3	6
2011-10-21	SPL Dewatering Completed							

2.3.2 Bay Goose Impoundment Area

Dewatering of the Bay Goose impoundment area continued throughout the month. On October 22, 2011 Pump 1 effluent was transferred to water treatment plant #1 prior to discharge. In the afternoon of October 23, 2011 Pump 2 effluent was transferred to water treatment plant #2 prior to discharge. All effluent transferred through the water treatment plant is treated for TSS reduction prior to release.

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

- pH 24 hour minimum/maximum: 6.63/7.27 units (Limit is 6-9 units)
- Al 24 hour maximum concentration: 0.529 mg/L (Limit is 3.0 mg/L)

Table 2.6 summarizes the dewatering monitoring results for pH and Aluminum for the month.

Table 2-6: Bay Goose Impoundment Area Dewatering Monitoring – pH and Al

Date	BG-Pump-1 / BG-WTP-1		BG-Pump-2 / BG-WTP-2		Both Pumps / 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
2011-10-03	7.21	0.134	7.19	0.131	7.20	0.133
2011-10-10	6.73	0.145	6.81	0.152	6.77	0.149
2011-10-17	6.94	0.094	7.59	0.092	7.27	0.093
	Pipe Transfers to Water Treatment Plants					
2011-10-24	6.53	0.860	6.76	0.198	6.65	0.529
2011-10-31	6.62	0.096	6.64	0.357	6.63	0.227

The turbidity and TSS concentrations from the water intake pumps and at the outlets of the TSS water treatment plants were as follows:

- NTU 24 hour mean maximum concentration: 13.0 NTU (Maximum Limit is 30 NTU)
- TSS 24 hour mean maximum concentration: 21 mg/L (Maximum Limit is 22.5 mg/L)
- NTU 30 days mean maximum concentration: 6.4 NTU (Maximum Limit is 15 NTU)
- TSS 30 days mean maximum concentration: 5 mg/L (Maximum Limit is 15 mg/L)

Table 2.7 summarizes the dewatering monitoring results for turbidity and TSS from the water intake pumps; Table 2.8 summarizes the dewatering monitoring results for turbidity and TSS from the water treatment plant outlets.

Table 2-7: Bay Goose Impoundment Area Dewatering Monitoring – TSS and Turbidity from Intake Pumps

Date	BG-PUMP-1		BG-PUMP-2		Both Pumps			
	24-hour	Lab TSS	24-hour	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
2011-10-01	5.4	< 1	5.5	4	5.5	3	3.1	3
2011-10-02	8.2	8	9.4	7	8.8	8	3.3	3
2011-10-03	7.1	2	8.5	5	7.8	4	3.5	3
2011-10-04	9.0	3	9.5	2	9.3	3	3.7	3
2011-10-05	13.7	30	12.3	12	13.0	21	4.0	3
2011-10-06	9.4	8	9.2	8	9.3	8	4.2	4
2011-10-07	9.7	5	9.9	7	9.8	6	4.5	4
2011-10-08	8.7	6	8.2	8	8.5	7	4.7	4
2011-10-09	7.1	5	8.7	5	7.9	5	4.8	4
2011-10-10	8.6	4	7.4	5	8.0	5	5.0	4
2011-10-11	10.0	10	8.1	11	9.0	11	5.2	4
2011-10-12	7.2	5	7.3	4	7.2	5	5.4	4
2011-10-13	8.7	4	8.2	3	8.4	4	5.6	4
2011-10-14	6.6	3	7.6	6	7.1	5	5.7	5
2011-10-15	6.1	3	6.8	3	6.4	3	5.8	5
2011-10-16	5.4	3	4.9	3	5.2	3	5.9	5
2011-10-17	4.8	3	5.4	2	5.1	3	6.0	5
2011-10-18	4.9	4	4.4	5	4.6	5	6.1	5
2011-10-19	4.2	1	3.9	< 1	4.1	1	6.2	5
2011-10-20	3.9	1	4.0	1	3.9	1	6.2	4
2011-10-21	4.6	< 1	4.9	< 1	4.7	1	6.3	4
2011-10-22			4.6	1	4.6	1	6.4	4
2011-10-23			3.9	< 1	3.9	1	6.4	4

Table 2-8: Bay Goose Impoundment Area Dewatering Monitoring – TSS and Turbidity from WTP Outlets

Date	BG-WTP-1		BG-WTP-2		Both WTP Outlets			
	24-hour	Lab TSS	24-hour	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
2011-10-22	Not in operation							
2011-10-23	0.3	4			0.3	4	6.3	4
2011-10-24	0.1	1	1.8	2	0.9	2	6.2	4
2011-10-25	0.8	7	0.5	4	0.6	6	6.1	5
2011-10-26	0.2	5	0.1	5	0.2	5	6.0	5
2011-10-27	0.1	2	0.2	2	0.1	2	5.8	4
2011-10-28	0.9	< 1	2.0	< 1	1.4	1	5.7	4
2011-10-29	0.6	3	0.5	2	0.6	3	5.5	4
2011-10-30	1.9	2	0.6	2	1.3	2	5.4	4
2011-10-31	0.8	1	1.2	5	1.0	3	5.1	4

SECTION 3 • SPILL MANAGEMENT

AEM has developed a system of tracking spills on-site. Table 3.1 summarizes the AEM internal spill reports for the month. Six spills occurred on site; three 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
2011-10-10	Hydraulic oil	250 L	Truck Shop	Broken hydraulic hose	Contaminated soil taken to Hazmat area	Y
2011-10-13	Fuel	2300 L	Baker Lake refueling station	Over-filling	Contaminated soil taken to Quarry 5	Y
2011-10-13	Copper Sulfate	1000 kg	Mill	Improper storage	Contaminated soil taken to Hazmat area	N
2011-10-14	Oil	20 L	White Coverall	Pump puncture tote	Transfer oil with the lube truck and brought contaminated soil to Hazmat area	N
2011-10-21	Slurry	60 L	Storm water dike	Maintenance on the slurry pipe	Contaminated soil taken to tailings pond	N
2011-10-29	Fuel	280 L	North portage Pit	Air compressor detached itself from the drill	Contaminated soil taken to Quarry 22	Y