



MEADOWBANK DIVISION

Monitoring Program Summary Report

September 2012

Type A Water License 2AM-MEA0815

Table of Contents

SECTION 1 •BACKGROUND 1

SECTION 2 •WATER MANAGEMENT 2

 2.1 WATER USAGE 2

 2.2 SEWAGE TREATMENT PLANTS 2

 2.3 ATTENUATION POND EFFLUENT..... 4

 2.4 ST-6 NON CONTACT WATER..... 6

SECTION 3 •SPILL MANAGEMENT 7

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 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

2.1 WATER USAGE

Freshwater usage for September 2012 is summarized in Table 2.1 below. Total freshwater used for the month was 76,081 m³. The total amount of reclaim water used in the mill for September was 235,191 m³. The yearly freshwater used is actually over the quantity prescribe of 700,000 m³ by our licence. The total freshwater used to date is 815,525 m³. 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 (m³)

	September
Freshwater Storage Tank	75,945
Emulsion Plant	136
Water Truck	0
Total	76,081
Year to date total	815,525

2.2 SEWAGE TREATMENT PLANTS

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

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-Sep-12	10-Sep-12	18-Sep-12	24-Sep-12
Ammonia	mg N/L	0.06	<0.05	<0.05	<0.05
Ammonia-Ammonium	mg N/L	9.5	7.7	19.5	8.4
Total Kjeldahl Nitrogen	mg N/L	15	14	21	13
BOD-5	mg/L	11	10	20	9
COD	mg/L	93	56	81	79
Total Suspended Solids	mg/L	20	29	4	14
Nitrate	mg N/L	19.2	20	20.8	20.3
Nitrite	mg N/L	0.37	0.13	0.73	0.05
Total Phosphorus	mg/L	7.3	7.8	11.3	12.5
pH *	units	6.1	5.3	6.3	5.3
Fecal Coliform	UFC/100 mL	68	108	220	10
Total Coliform	UFC/100 mL	200	600	1 100	100

Table 2.2.2: LJ-Mix Effluent Results

Date	Units	3-Sep-12	10-Sep-12	18-Sep-12	24-Sep-12
Ammonia	mg N/L	<0.05	<0.05	<0.05	<0.05
Ammonia-Ammonium	mg N/L	9.3	10.3	14.9	15.2
Total Kjeldahl Nitrogen	mg N/L	18.0	17.0	15.0	20.0
BOD-5	mg/L	30	8	9	19
COD	mg/L	119	65	71	86
Total Suspended Solids	mg/L	40	44	4	22
Nitrate	mg N/L	23.60	22.30	25.20	23.60
Nitrite	mg N/L	0.07	0.20	0.16	0.24
Total Phosphorus	mg/L	8.2	8.8	11.1	12.3
pH *	units	5.8	5.4	6.4	5.4
Fecal Coliform	UFC/100 mL	240	1 300	104	40
Total Coliform	UFC/100 mL	1 000	4 000	300	1700

2.3 ATTENUATION POND EFFLUENT

In September, we discharged effluent to the environment from the Portage Attenuation Pond in Third Portage Lake diffusor.

Four (4) weekly effluent samples were taken from the Actiflow® Water Treatment Plant (ST-9). Two Nitrate exceeding of the maximum average concentration (mean the average concentration of any four consecutively collected samples) occurs in September with results of 22.4 mg/L and 26.1 mg/L. The level of Nitrate has dropped back to 5.9 mg/L at the end of the month. Investigation indicates that nitrate concentration in pit sumps were high. Reviewing of procedure for emulsion management is ongoing.

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	2012-09-03 09:35	2012-09-11 08:45	2012-09-18 08:00	2012-09-26 09:15
Ammonia-Nitrogen	G.S.	32	mg N/L	14.2	10.4	15.8	4.2
Ammonia-Nitrogen	M.A.C.	16	mg N/L	9.25	10.825	14.05	11.15
Chloride	G.S.	2000	mg/L	20	19.3	24	25
Chloride	M.A.C.	1000	mg/L	18.875	16.475	20.5	22.075
Cyanide Total	G.S.	1	mg/L	0.292	0.156	0.138	0.105
Cyanide Total	M.A.C.	0.5	mg/L	0.263	0.2635	0.18225	0.17275
Nitrate	G.S.	40	mg N/L	27	18.6	23.9	5.9
Nitrate	M.A.C.	20	mg N/L	18.325	22.4	26.1	18.95
pH**	G.S.	6-9.0	pH Unit	7.38	7.26	7.25	7.71
pH**	M.A.C.	6-9.0	pH Unit	7.2025	7.2775	7.355	7.4
C10-C50	G.S.	6	mg/L	0.1	< 0.1	< 0.1	< 0.1
C10-C50	M.A.C.	3	mg/L	0.1	< 0.1	< 0.1	< 0.1
TSS	G.S.	30	mg/L	2	4	4	4
TSS	M.A.C.	15	mg/L	5	3.25	2.75	3.5
Turbidity**	G.S.	15	NTU	0.09	0.5	2.2	0.53
Turbidity **	M.A.C.	15	NTU	0.585	0.395	0.7225	0.83
total-phosporus	G.S.	2	mg/L	< 0.01	0.01	0.01	0.03
Total-phosporus	M.A.C.	1	mg/L	0.015	0.015	0.01	0.015
aluminum	G.S.	1.5	mg/L	0.572	0.625	0.885	0.952
aluminum	M.A.C.	1.5	mg/L	0.652	0.6355	0.66525	0.7585
arsenic	G.S.	0.6	mg/L	< 0.0005	0.0038	0.0023	0.0054
arsenic	M.A.C.	0.3	mg/L	< 0.00245	0.00185	0.0023	0.003
cadmium	G.S.	0.004	mg/L	< 0.00002	0.00003	0.00007	< 0.00002
cadmium	M.A.C.	0.002	mg/L	< 0.00005	0.0000525	0.000065	0.000035
copper	G.S.	0.2	mg/L	0.01	0.0058	0.007	0.0018
copper	M.A.C.	0.2	mg/L	0.0225975	0.0064725	0.0082	0.00615
mercury	G.S.	0.0008	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
mercury	M.A.C.	0.0004	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
nickel	G.S.	0.4	mg/L	0.019	0.0243	0.0308	0.0248
nickel	M.A.C.	0.2	mg/L	0.01565	0.014	0.021575	0.024725
lead	G.S.	0.2	mg/L	< 0.0003	< 0.0003	0.0099	0.0119
lead	M.A.C.	0.1	mg/L	< 0.0003	< 0.0003	0.0027	0.0056
zinc	G.S.	0.8	mg/L	< 0.001	< 0.001	0.009	< 0.001
zinc	M.A.C.	0.4	mg/L	< 0.00275	< 0.0025	0.0045	0.003
Dissolved aluminum	G.S.	1	mg/L	0.12	0.06	0.04	0.91
Dissolved aluminum	M.A.C.	1	mg/L	0.0625	0.0675	0.075	0.2825

- ** 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

For the current month, no exceeding of the parameter ask in part F of the licence have been observed at the North Cell Diversion Water Ditch (Non-contact water) station ST-6, as demonstrated in table 2.4.1

Table 2.4.1: North Cell Diversion Water Ditch (Non-contact water)

Date	Units	Limits	05-sept-12
TSS	mg/l	30	2

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, seven (7) spills occurred on site and one (1) 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
2012-09-01	Diesel	10 L	Refueling Station	Equipment failure	Contamination removed, remediated with new material	No
2012-09-11	Antifreeze	65 L	Bay Goose Pit	Equipment Failure	Contamination removed	No
2012-09-11	Hydraulic Oil	50 L	Nova Camp	Equipment Failure	Contamination removed, remediated with new material	No
2012-09-12	Tailing Slurry	5000 L	Mill	Rupture of a pipe division (Y)	Vacuum truck was used to reclaim the water from the mill, contention of the material with berm, all the material bring at the tailing pond	Yes
2012-09-19	Diesel	25 L	Pit C	Equipment Failure	Removed the contaminated material to the contaminated soil pad	No
2012-09-25	Diesel	50 L	Baker Lake Tank Farm	Human error	Removed contaminated material, remediated with new material	No
2012-09-30	Antifreeze	35 L	Maintenance	Equipment Failure	Remove contaminated material, remediated with new material	No