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November 5, 2013

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Re: September 2013 – Monthly Monitoring Report for Water Licence 2AM-DOH1323

This report is comprised of monitoring requirements as set out in Schedule J of water licence 2AM-DOH1323 and additional requirements from AANDC. Licence items include:

- Part D (Conditions Applying to Construction) Items 7 and 18;
- Part E (Conditions applying to Water Use) Item 1;
- Part G (Conditions Applying to Waste Management and Waste Management Plans) Items 1, 3(b) and 3 (e), 23 (a), 24 (c, e), 28, 29, 30, 32;
- Part J (Conditions Applying to General and Aquatic Effects Monitoring) Items 8, and 12 (d, g).

Other monitoring requirements stipulated in the licence refer to facilities that have not been constructed. Doris Camp is currently operating in a care and maintenance phase with water management, drill exploration, and environmental compliance being the focus of current activities.

Part D: Conditions Applying to Construction

Item 7. Construction Monitoring

Construction activities did not take place this month.

Item 18. Surface Runoff Effluent Quality Limits

Turbidity checks were conducted daily during periods of melt (May and June) along areas that had been constructed in 2011-2012. In 2013, these checks were conducted near the diversion berm, the sumps, the north dam and the vent raise. No turbid runoff with the potential to reach a water body was noted. No checks were conducted in September as there as there was no longer any runoff at these locations.

Part E: Conditions Applying to Water Use

Item 1: Water Usage

There was no water usage from Doris Lake this month (Table 1). Water for camp use was withdrawn from Windy Lake as permitted by water licences 2BE-HOP1222 and 2AM-DOH1323. The volume of water extracted from Windy Lake and its water quality results are presented in the September 2013 2BE-HOP1222 monthly monitoring report.

Table 1: Water Usage from Doris North (m^3), September 2013

Parameters	Water Use
Water Source	Doris Lake
Geographical Coordinates	68°8'17.04" N, 106°36'52.68"W
Monthly Cumulative	0 m^3

Annual Cumulative	0 m^3
2AM-DOH0713 Permitted Water Volume (Total Annual)	480,000 m^3

Schedule J: Water Quality Monitoring at Water Intake

Monthly compliance samples were taken from monitoring station ST-7 (Doris Lake raw water) in accordance with the Schedule J requirements of the licence (Table 2).

Table 2: Monthly Compliance Sample Results for ST-7, September 2013

	Sample ID	**ST7-03SEP13**
	ALS ID	**L1356965-10**
	Date Sampled	**9/3/2013 8:38:00 AM**
Parameters	**Units**	**Results**
Conductivity (EC)	uS/cm	341
Hardness (as CaCO3)	mg/L	66.8
pH	pH	7.67
Total Suspended Solids	mg/L	<3.0
Ammonia, Total (as N)	mg/L	<0.050
Nitrate (as N)	mg/L	0.056
Nitrite (as N)	mg/L	<0.050
Orthophosphate-Dissolved (as P)	mg/L	<0.0010
Phosphorus (P)-Total	mg/L	0.187
Cyanide, Total	mg/L	<0.0050
Cyanide, Free	mg/L	<0.0050
Fecal Coliforms	CFU/100mL	<1
Aphanizomenon (Cyanophyceae)	cells/mL	41400
Total cyanobacterial cell count	cells/mL	57800
Limnothrix (Cyanophyceae)	cells/mL	5020
Planktolyngbya (Cyanophyceae)	cells/mL	11100
Pseudoanabaena (Cyanophyceae)	cells/mL	251
Aluminum (Al)-Total	mg/L	0.0292
Antimony (Sb)-Total	mg/L	<0.00040
Arsenic (As)-Total	mg/L	<0.00040
Barium (Ba)-Total	mg/L	0.0039
Beryllium (Be)-Total	mg/L	<0.0010
Boron (B)-Total	mg/L	<0.050
Cadmium (Cd)-Total	mg/L	<0.000010
Calcium (Ca)-Total	mg/L	14.4
Chromium (Cr)-Total	mg/L	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020
Copper (Cu)-Total	mg/L	0.0013
Iron (Fe)-Total	mg/L	0.102
Lead (Pb)-Total	mg/L	<0.00010
Lithium (Li)-Total	mg/L	<0.010
Magnesium (Mg)-Total	mg/L	7.73
Manganese (Mn)-Total	mg/L	0.036
Mercury (Hg)-Total	mg/L	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.0050
Nickel (Ni)-Total	mg/L	<0.0020
Potassium (K)-Total	mg/L	2.47
Selenium (Se)-Total	mg/L	<0.00040
Silver (Ag)-Total	mg/L	<0.000020
Sodium (Na)-Total	mg/L	36.4
Thallium (Tl)-Total	mg/L	<0.00010
Tin (Sn)-Total	mg/L	<0.050
Titanium (Ti)-Total	mg/L	0.0011
Uranium (U)-Total	mg/L	<0.00010

	Sample ID	ST7-03SEP13
	ALS ID	L1356965-10
	Date Sampled	9/3/2013 8:38:00 AM
Parameters	**Units**	**Results**
Vanadium (V)-Total	mg/L	<0.0010
Zinc (Zn)-Total	mg/L	<0.0040
Calcium (Ca)-Dissolved	mg/L	13.9
Magnesium (Mg)-Dissolved	mg/L	7.77
Oil and Grease	mg/L	<1.0
Oil And Grease (Visible Sheen)		NO VISIBLE SHEEN
Microcystin	ug/L	2.56
Biological Oxygen Demand (BOD_5)	mg/L	<2

Part G: Conditions Applying to Waste Management and Waste Management Plans.

Item 1: Condition to Provide Notice of a Planned Discharge

On May 21, 2013 AANDC and the NWB were provided with a discharge notification for the discharge of ST4, ST5, ST6A, ST6B, and ST8.

Item 3(b): Conditions applying to sewage effluent quality

Monthly compliance samples were taken from monitoring station ST-8B (Sewage Treatment Plant Effluent) in accordance with the Schedule J requirements of the licence (Table 3).

Table 3: Monthly Compliance Sample Results for ST-8B, September 2013

	Sample ID	ST8B-03SEP13	Part G Item 3 (b)	
	ALS ID	L1356965-11	Maximum Average Concentration	Maximum Allowable Grab Sample Concentration
	Sample Date/Time	9/3/2013 8:15		
Parameter	**Units**	**Results**		
pH	pH	6.98	6.5 - 9.0	9
Total Suspended Solids	mg/L	<3.0	100	100
Biochemical Oxygen Demand (BOD_5)	mg/L	6	80	80
Oil and Grease	mg/L	4.2	5	10
Oil And Grease (Visible Sheen)		No Visible Sheen	No Visible Sheen	No Visible Sheen
Fecal Coliform	CFU/ 100mL	1	10,000	10,000

Sewage effluent discharge was sampled in September prior to entry into Glenn Lake (ST-9) and water quality results are presented in Table 4.

Table 4: Monthly Compliance Sample Results for ST-9, September 2013

	Sample ID	ST9-03SEP13
	ALS ID	L1356965-12
	Sample Date/Time	9/3/2013 9:40
Parameter	**Unit**	**Results**
Biological Oxygen Demand (BOD_5)	mg/L	<2
TSS	mg/L	<3.0
Fecal Coliform	CFU/100mL	<1
pH	pH unit	7.9
Oil & Grease (Visible Sheen)		No Visible Sheen
Oil & Grease	mg/L	<1.0

Item 3(e): Treated Sewage Effluent Release in cubic meters

This month, 237 m^3 of sewage effluent was discharged from the sewage treatment plant.

Item 23(a) and Items 24(c, e): Sedimentation pond, land farm, and fuel containment sumps

As described in the 2012 Interim Water Management Plan, the Sedimentation Pond (ST-1) is being used as a collection pond for the water that accumulates in the Pollution Control Pond (ST-2), the two Underflow Sumps (ST2-S1 and ST2-S2), and occasionally from various berms and containments in the project area. The water in ST-1 is transferred to the Tailings Impoundment Area (TIA) when there is enough accumulated water for the pumps to operate effectively. After the pumps were put away for the winter on September 6, remaining water in the above mentioned sumps was transferred to the TIA by vaccum truck. No ST-1 water was discharged to the tundra in 2013. Transfer of water from ST-1 to the TIA was initiated June 3, 2013 and the volume of water discharge to the TIA this month is presented in Table 5. The water quality results for ST-1 and ST-2 are shown in Table 6.

Table 5: Water in cubic meters (m^3) transferred from ST-1 to the TIA, September 2013

Parameters	Water volume transferred from ST-1 to TIA (m^3)
Monthly Cumulative	1580.82
Annual Cumulative	9905.82

Table 6: Water Quality Data Summary for Monitoring Station ST-1 and ST-2, September 2013

	Sample ID	ST1-02SEP13	ST2-02SEP13
	ALS ID	L1356965-5	L1356965-6
	Date Sampled	9/2/2013 9:45	9/2/2013 9:55
Parameters	**Units**	**Results**	
Hardness (as CaCO3)	mg/L	1760	3940
Total Suspended Solids	mg/L	<3.0	24
Alkalinity, Total (as CaCO3)	mg/L	140	136
Ammonia, Total (as N)	mg/L	18.7	55.1
Bicarbonate (HCO3)	mg/L	170	165
Carbonate (CO3)	mg/L	<5.0	<5.0
Chloride (Cl)	mg/L	1510	3580
Conductivity (EC)	uS/cm	5650	12100
Hardness (as CaCO3)	mg/L	1560	3710
Hydroxide (OH)	mg/L	<5.0	<5.0
Ion Balance	%	96.3	97.3
Nitrate and Nitrite (as N)	mg/L	68.7	171
Nitrate (as N)	mg/L	68.7	171
Nitrite (as N)	mg/L	<0.50	<1.0
pH	pH	7.77	7.48
TDS (Calculated)	mg/L	3130	6970
Sulfate (SO4)	mg/L	190	239
Cyanide, Total	mg/L	0.007	0.0409
Aluminum (Al)-Total	mg/L	0.11	<0.30
Antimony (Sb)-Total	mg/L	<0.0010	<0.010
Arsenic (As)-Total	mg/L	0.0012	<0.010
Barium (Ba)-Total	mg/L	0.0936	0.167
Beryllium (Be)-Total	mg/L	<0.0050	<0.050
Boron (B)-Total	mg/L	0.42	<1.0
Cadmium (Cd)-Total	mg/L	0.00018	<0.0010
Calcium (Ca)-Total	mg/L	575	1320
Chromium (Cr)-Total	mg/L	<0.0010	<0.010
Cobalt (Co)-Total	mg/L	0.004	<0.010
Copper (Cu)-Total	mg/L	0.0098	<0.010
Iron (Fe)-Total	mg/L	0.54	<1.0
Lead (Pb)-Total	mg/L	<0.00050	<0.0050
Lithium (Li)-Total	mg/L	0.06	<0.50
Magnesium (Mg)-Total	mg/L	78.3	157

Sample ID		ST1-02SEP13	ST2-02SEP13
ALS ID		L1356965-5	L1356965-6
Date Sampled		9/2/2013 9:45	9/2/2013 9:55
Parameters	**Units**	**Results**	
Manganese (Mn)-Total	mg/L	1.2	2.5
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020
Molybdenum (Mo)-Total	mg/L	0.0052	0.0053
Nickel (Ni)-Total	mg/L	0.0052	0.01
Potassium (K)-Total	mg/L	26.1	52.8
Selenium (Se)-Total	mg/L	0.0025	<0.010
Silver (Ag)-Total	mg/L	<0.00010	<0.0010
Sodium (Na)-Total	mg/L	456	953
Thallium (Tl)-Total	mg/L	<0.00050	<0.0050
Tin (Sn)-Total	mg/L	<0.050	<0.050
Titanium (Ti)-Total	mg/L	0.0039	<0.030
Uranium (U)-Total	mg/L	0.00168	0.0029
Vanadium (V)-Total	mg/L	<0.0010	<0.010
Zinc (Zn)-Total	mg/L	0.135	<0.30
Calcium (Ca)-Dissolved	mg/L	496	1230
Magnesium (Mg)-Dissolved	mg/L	78.3	155
Potassium (K)-Dissolved	mg/L	26.4	54.2
Sodium (Na)-Dissolved	mg/L	437	876
Oil and Grease	mg/L	<1.0	<1.0
Oil And Grease (Visible Sheen)		NO VISIBLE SHEEN	-

No water was discharged from the landfarm (ST-4), the Doris tank farm (ST-5) this month. Water was discharged from the Roberts Bay tank farms (ST6-A and ST6-B) and daily discharge water quality results are presented in Table 7. Approximately 54 m^3 was discharged from ST6-A and approximately 96 m^3 from ST6-B.

Table 7: Water Quality Data Summary for Monitoring Station ST-6A and ST-6B, September 2013

Sample ID		ST6B-20SEP13	ST6A-24SEP13	ST6A-29SEP13	ST6B-29SEP13
ALS ID		L1366424-1	L1368104-1	L1371632-1	L1371632-2
Date Sampled		9/20/2013 8:16	9/24/2013 13:00	9/29/2013 12:00	9/29/2013 12:00
Parameters	**Units**	**Results**			
Conductivity (EC)	uS/cm	1170	1070	1230	1630
pH	pH	8.34	8.07	7.96	8.13
Total Suspended Solids	mg/L	<3.0	14	<3.0	<3.0
Lead (Pb)-Total	mg/L	<0.000050	0.000285	0.000334	<0.000050
Oil and Grease	mg/L	<1.0	<1.0	<1.0	<1.0
Oil And Grease (Visible Sheen)		No visible sheen	-	No visible sheen	No visible sheen
Benzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	<0.00050	<0.00050	<0.00050	0.00063
Styrene	mg/L	<0.010	<0.010	<0.010	<0.010
Toluene	mg/L	<0.00050	<0.00050	<0.00050	0.00066
o-Xylene	mg/L	<0.00050	<0.00050	<0.00050	0.00277
m+p-Xylene	mg/L	<0.00050	<0.00050	<0.00050	0.00326
Xylenes	mg/L	<0.00071	<0.00071	<0.00071	0.00603

Item 28, 29, 30 and Part J Item 8: Water Discharged from Tailing Impoundment Area

Discharge from the Tailing Impoundment Area began June 21, 2013. Prior to the initiation of the discharge, sampling at TL-1 (TIA at the pump), TL-2 (Doris Creek upstream), and TL-3 (Doris Creek downstream) was started June 4, 2013 and continued every two days after that for over two weeks. Following the start of discharge, sampling at TL-4 (TIA discharge end of pipe) was initiated, and sampling at TL-1, TL-2, TL-3 was

continued every two days for two weeks then reduced to weekly. Discharge from Tail Lake ended September 6, 2013. Weekly water quality results for TL-1 are presented in Table 8, for TL-4 in Table 9, and for TL-2 and TL-3 in Table 10.

Samples at TL-10 (TIA deepest portion of lake) were taken September 18, 2013 (see section Schedule J below for details).

Table 8: Water Quality Results for TL-1, September 2013

	Sample ID	**TL1-02SEP13**
	ALS ID	**L1356965-1**
	Date Sampled	**9/2/2013 8:15:00 AM**
Parameters	**Units**	**Results**
Conductivity (EC)	uS/cm	217
Hardness (as CaCO3)	mg/L	54.2
pH	pH	7.51
Total Suspended Solids	mg/L	<3.0
Total Dissolved Solids	mg/L	140
Ammonia, Total (as N)	mg/L	<0.050
Chloride (Cl)	mg/L	38.9
Nitrate (as N)	mg/L	<0.050
Nitrite (as N)	mg/L	<0.050
Orthophosphate-Dissolved (as P)	mg/L	0.001
Phosphorus (P)-Total	mg/L	0.021
Cyanide, Total	mg/L	<0.0050
Cyanide, Free	mg/L	<0.0050
Aluminum (Al)-Total	mg/L	0.0652
Antimony (Sb)-Total	mg/L	<0.00040
Arsenic (As)-Total	mg/L	<0.00040
Barium (Ba)-Total	mg/L	0.0035
Beryllium (Be)-Total	mg/L	<0.0010
Boron (B)-Total	mg/L	<0.050
Cadmium (Cd)-Total	mg/L	<0.000010
Calcium (Ca)-Total	mg/L	11.6
Chromium (Cr)-Total	mg/L	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020
Copper (Cu)-Total	mg/L	<0.0010
Iron (Fe)-Total	mg/L	0.23
Lead (Pb)-Total	mg/L	<0.00010
Lithium (Li)-Total	mg/L	<0.010
Magnesium (Mg)-Total	mg/L	5.92
Manganese (Mn)-Total	mg/L	0.0148
Mercury (Hg)-Total	mg/L	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.0050
Nickel (Ni)-Total	mg/L	<0.0020
Potassium (K)-Total	mg/L	1.91
Selenium (Se)-Total	mg/L	<0.00040
Silver (Ag)-Total	mg/L	<0.000020
Sodium (Na)-Total	mg/L	18.2
Thallium (Tl)-Total	mg/L	<0.00010
Tin (Sn)-Total	mg/L	<0.050
Titanium (Ti)-Total	mg/L	0.0032
Uranium (U)-Total	mg/L	<0.00010
Vanadium (V)-Total	mg/L	<0.0010
Zinc (Zn)-Total	mg/L	<0.0040
Calcium (Ca)-Dissolved	mg/L	11.6
Magnesium (Mg)-Dissolved	mg/L	6.13

Table 9: Water Quality Results for TL-4, September 2013

Sample ID		TL4-02SEP13	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)
ALS ID		L1356965-4		
Date Sampled		9/2/2013 8:45		
Parameters	Units	Results		
Conductivity (EC)	uS/cm	217		
Hardness (as CaCO3)	mg/L	54.9		
pH	pH	7.57	Between 6.0-9.5	Between 6.0-9.5
Total Suspended Solids	mg/L	<3.0	15.00	30.00
Total Dissolved Solids	mg/L	136		
Ammonia, Total (as N)	mg/L	<0.050	6	-
Chloride (Cl)	mg/L	39.1		
Nitrate (as N)	mg/L	<0.050		
Nitrite (as N)	mg/L	<0.050		
Orthophosphate-Dissolved (as P)	mg/L	<0.0010		
Phosphorus (P)-Total	mg/L	<0.020		
Cyanide, Total	mg/L	<0.0050	1.00	2.00
Cyanide, Free	mg/L	<0.0050		
Aluminum (Al)-Total	mg/L	0.0672		
Antimony (Sb)-Total	mg/L	<0.00040		
Arsenic (As)-Total	mg/L	<0.00040	0.50	1.00
Barium (Ba)-Total	mg/L	0.0038		
Beryllium (Be)-Total	mg/L	<0.0010		
Boron (B)-Total	mg/L	<0.050		
Cadmium (Cd)-Total	mg/L	<0.000010		
Calcium (Ca)-Total	mg/L	11.7		
Chromium (Cr)-Total	mg/L	<0.0010		
Cobalt (Co)-Total	mg/L	<0.0020		
Copper (Cu)-Total	mg/L	<0.0010	0.30	0.60
Iron (Fe)-Total	mg/L	0.246		
Lead (Pb)-Total	mg/L	<0.00010	0.20	0.40
Lithium (Li)-Total	mg/L	<0.010		
Magnesium (Mg)-Total	mg/L	5.95		
Manganese (Mn)-Total	mg/L	0.0148		
Mercury (Hg)-Total	mg/L	<0.000020		
Molybdenum (Mo)-Total	mg/L	<0.0050		
Nickel (Ni)-Total	mg/L	<0.0020	0.50	1.00
Potassium (K)-Total	mg/L	1.93		
Selenium (Se)-Total	mg/L	<0.00040		
Silver (Ag)-Total	mg/L	<0.000020		
Sodium (Na)-Total	mg/L	18.2		
Thallium (Tl)-Total	mg/L	<0.00010		
Tin (Sn)-Total	mg/L	<0.050		
Titanium (Ti)-Total	mg/L	0.0028		
Uranium (U)-Total	mg/L	<0.00010		
Vanadium (V)-Total	mg/L	<0.0010		
Zinc (Zn)-Total	mg/L	<0.0040	0.50	1.00
Calcium (Ca)-Dissolved	mg/L	11.7		
Magnesium (Mg)-Dissolved	mg/L	6.26		
Radium 226	Bq/L	0.0063	0.37 Bq/L	1.11 Bq/L

Table 10: Water Quality Results for TL-2 and TL-3, September 2013

	Sample ID	TL2-02SEP13	TL3-02SEP13	Maximum Concentration of Any Grab Sample
	ALS ID	L1356965-2	L1356965-3	
	Date Sampled	9/2/2013 8:35:00 AM	9/2/2013 8:58:00 AM	
Parameters	**Units**	**Results**		
Conductivity (EC)	uS/cm	293	286	
Hardness (as CaCO3)	mg/L	52	56.4	
pH	pH	7.49	7.5	Between 6.0-9.0
Total Suspended Solids	mg/L	<3.0	<3.0	15.0
Total Dissolved Solids	mg/L	179	174	
Ammonia, Total (as N)	mg/L	<0.050	<0.050	1.54**
Chloride (Cl)	mg/L	65	61.9	150
Nitrate (as N)	mg/L	<0.050	<0.050	2.9
Nitrite (as N)	mg/L	<0.050	<0.050	0.060
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	
Phosphorus (P)-Total	mg/L	0.025	0.022	
Cyanide, Total	mg/L	<0.0050	<0.0050	0.010
Cyanide, Free	mg/L	<0.0050	<0.0050	0.005
Aluminum (Al)-Total	mg/L	0.0409	0.0641	0.100
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	0.0050
Barium (Ba)-Total	mg/L	0.0033	0.0047	
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	
Boron (B)-Total	mg/L	<0.050	<0.050	
Cadmium (Cd)-Total	mg/L	<0.000010	0.000012	0.000017
Calcium (Ca)-Total	mg/L	9.01	10.9	
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	0.0010
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	
Copper (Cu)-Total	mg/L	0.0013	**0.0021**	0.002
Iron (Fe)-Total	mg/L	0.128	0.274	0.300
Lead (Pb)-Total	mg/L	<0.00010	0.00018	0.001
Lithium (Li)-Total	mg/L	<0.010	<0.010	
Magnesium (Mg)-Total	mg/L	6.61	6.69	
Manganese (Mn)-Total	mg/L	0.0386	0.0605	
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	0.000026
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	0.073
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	0.025
Potassium (K)-Total	mg/L	2.26	2.15	
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	0.0010
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	0.0001
Sodium (Na)-Total	mg/L	31.9	29.1	
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	0.008
Tin (Sn)-Total	mg/L	<0.050	<0.050	
Titanium (Ti)-Total	mg/L	0.0018	0.0031	
Uranium (U)-Total	mg/L	<0.00010	<0.00010	
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	
Zinc (Zn)-Total	mg/L	<0.0040	**0.031**	0.030
Calcium (Ca)-Dissolved	mg/L	9.14	10.8	
Magnesium (Mg)-Dissolved	mg/L	7.09	7.17	
Hexavalent Chromium	mg/L	-	<0.0010	
Oil and Grease	mg/L	-	<1.0	5
Oil And Grease (Visible Sheen)		-	NO VISIBLE SHEEN	

Bolded values indicate values exceeding discharge criteria.

**As per Part G Item 28, during periods of discharge, water quality in Doris Creek at monitoring station TL-3 shall not exceed the greater of background water quality at the time of discharge as measured at monitoring station TL-2, or the criteria listed here.*

***at pH 7.5 and temperature of 20ºC*

Item 32: Tailings Impoundment Area Discharge Volume

Dewatering of the Tailings Impoundment Area commenced on June 21, 2013 and ended September 6, 2013. The daily discharge and maximum permitted discharge volumes for September are presented in Table 11.

Table 11: Daily Permitted and Actual Discharge Volumes for the TIA Dewatering Program, September 2013

Date	TL-2 Discharge Volume (m^3/day)	Max. Discharge Volume Allowed 10% of TL-2 (m^3/day)	Total Daily Vol. Discharged TL- 1 (m^3/day)	Total Daily Vol. Discharged TL- 4 (m^3/day)
September 1, 2013	6,718	672	644.09	645.97
September 2, 2013	6,436	644	616.75	622.47
September 3, 2013	6,169	617	589.91	601.40
September 4, 2013	5,915	592	570.72	574.88
September 5, 2013	5,675	567	531.42	558.35
September 6, 2013	5,446	523	379.23	370.59

Schedule J: Tailings Impoundment Area Water Quality (TL-10)

Water quality at station TL-10, at a shallow (S), mid (M), and deep (D) depth of the water column, is provided in Table 12.

Table 12: Water Quality Data Summary for Monitoring Station TL-10, September 2013

Sample ID		TL10S-18SEPT13	TL10M-18SEPT13	TL10D-18SEPT13
ALS ID		L1366424-2	L1366424-3	L1366424-4
Date Sampled		9/18/2013 16:00	9/18/2013 16:11	9/18/2013 16:17
Parameters	Units	Results		
Conductivity (EC)	uS/cm	208	207	207
Hardness (as CaCO3)	mg/L	54.8	30.4	53.9
pH	pH	7.81	7.78	7.78
Redox Potential	mV	162	160	158
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	131	123	127
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	39.1	39.3	38.9
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	<0.020	<0.020	<0.020
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050
Aluminum (Al)-Total	mg/L	0.0367	0.0446	0.0425
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040
Barium (Ba)-Total	mg/L	0.0035	0.0033	0.0033
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	11.6	11.8	12.2
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020
Copper (Cu)-Total	mg/L	<0.0010	<0.0010	<0.0010
Iron (Fe)-Total	mg/L	0.069	0.068	0.069
Lead (Pb)-Total	mg/L	<0.00010	<0.00010	<0.00010
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010
Magnesium (Mg)-Total	mg/L	5.9	6.02	5.99

Sample ID		TL10S-18SEPT13	TL10M-18SEPT13	TL10D-18SEPT13
ALS ID		L1366424-2	L1366424-3	L1366424-4
Date Sampled		9/18/2013 16:00	9/18/2013 16:11	9/18/2013 16:17
Parameters	Units	Results		
Manganese (Mn)-Total	mg/L	0.005	0.0049	0.005
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020
Potassium (K)-Total	mg/L	1.74	1.79	1.8
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	18.5	19.2	19
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050
Titanium (Ti)-Total	mg/L	0.0011	0.0013	<0.0010
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L	0.0055	0.0041	<0.0040
Calcium (Ca)-Dissolved	mg/L	12.2	12.2	12
Magnesium (Mg)-Dissolved	mg/L	5.92	<0.10	5.78

Part J: Conditions Applying to General and Aquatics Effects Monitoring

Item 12d: Tonnages of Waste Rock Stored on the Temporary Waste Rock Pad

Underground mining is no longer occurring. Waste rock has not been removed from the pile. The total volume of rock on the temporary waste rock pad is 182,716 tonnes, as per the December 2011 survey.

Item 12g: Tail Lake Ice Thickness

There was no ice was on Tail Lake this month

Environmental Incident Reporting

No incidents pertaining to this licence occurred during this month.

Should there be any questions regarding this monthly report, please contact Katsky Venter or Léa-Marie Bowes-Lyon, ESR Site Managers for TMAC Resources Inc. at (867) 988-0569 or Katsky.Venter@tmacresources.com or Lea-Marie.Bowes-Lyon@tmacresources.com.

Yours sincerely,

Léa-Marie Bowes-Lyon

Digitally signed by Léa-Marie Bowes-Lyon
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Date: 2013.11.05 19:04:23 -07'00'

Léa-Marie Bowes-Lyon
Tenure and Permitting Manager
Hope Bay Project