



372 Bay Street
Suite 901
Toronto, Ontario
M5H 2W9
416-628-0216

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Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU
X0B 1J0

Re: October 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 October 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 in support of water licence 2AM-DOH1323 (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 Water for camp use was withdrawn from Windy Lake as permitted by water licences 2BE-HOP1222 and 2AM-DOH1323.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 2BE-HOP1222 monthly monitoring report.

Table 1: Water Usage from Doris North (m³), October 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		ST7-01OCT13
ALS ID		L1371632-3
Date Sampled		10/1/2013 9:00:00 AM
Parameters	Units	Results
Conductivity (EC)	uS/cm	301
Hardness (as CaCO ₃)	mg/L	57.2
pH	pH	7.6
Total Suspended Solids	mg/L	8
Ammonia, Total (as N)	mg/L	<0.050
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	0.033
Cyanide, Total	mg/L	<0.0050
Cyanide, Free	mg/L	<0.0050
Fecal Coliforms	CFU/100mL	<1
Aphanizomenon (Cyanophyceae)	cells/mL	103000
Aphanothece (Cyanophyceae)	cells/mL	480
Total cyanobacterial cell count	cells/mL	117000
Limnothrix (Cyanophyceae)	cells/mL	3650
Planktolyngbya (Cyanophyceae)	cells/mL	7100
Pseudoanabaena (Cyanophyceae)	cells/mL	3070
Aluminum (Al)-Total	mg/L	0.025
Antimony (Sb)-Total	mg/L	<0.00040
Arsenic (As)-Total	mg/L	<0.00040
Barium (Ba)-Total	mg/L	0.0032
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	11.9
Chromium (Cr)-Total	mg/L	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020
Copper (Cu)-Total	mg/L	0.0015
Iron (Fe)-Total	mg/L	0.075
Lead (Pb)-Total	mg/L	<0.00010
Lithium (Li)-Total	mg/L	<0.010
Magnesium (Mg)-Total	mg/L	7
Manganese (Mn)-Total	mg/L	0.0241
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	2.29
Selenium (Se)-Total	mg/L	<0.00040
Silver (Ag)-Total	mg/L	<0.000020
Sodium (Na)-Total	mg/L	37.7
Thallium (Tl)-Total	mg/L	<0.00010
Tin (Sn)-Total	mg/L	<0.050

Sample ID		ST7-01OCT13
ALS ID		L1371632-3
Date Sampled		10/1/2013 9:00:00 AM
Parameters	Units	Results
Titanium (Ti)-Total	mg/L	0.0016
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
Magnesium (Mg)-Dissolved	mg/L	7.21
Oil and Grease	mg/L	<1.0
Oil And Grease (Visible Sheen)		NO VISIBLE SHEEN
Microcystin	ug/L	<0.20
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, October 2013

Sample ID		ST8B-01OCT13	Part G Item 3 (b)	
ALS ID		L1371632-5	Maximum Average Concentration	Maximum Allowable Grab Sample Concentration
Sample Date/Time		10/1/2013 8:20		
Parameter	Units	Results		
pH	pH	7.23	6.5 - 9.0	9
Total Suspended Solids	mg/L	<3.0	100	100
Biochemical Oxygen Demand (BOD ₅)	mg/L	2	80	80
Oil and Grease	mg/L	<1	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

No water was available for sampling at locations ST-9 (prior to entry into Glenn Lake) due to cold temperatures and snow cover.

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

This month, 237 m³ 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 vacuum 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 4: Water in cubic meters (m³) transferred from ST-1 to the TIA, October 2013

Parameters	Water volume transferred from ST-1 to TIA (m ³)
Monthly Cumulative	507
Annual Cumulative	10,412.82

Table 5: Water Quality Data Summary for Monitoring Station ST-1 and ST-2, October 2013

Sample ID		ST1-05OCT13A	ST1-05OCT13B	ST2-05OCT13
ALS ID		L1375228-1	L1375228-2	L1375228-3
Date Sampled		10/5/2013 4:12:00 PM	10/5/2013 4:30:00 PM	10/5/2013 4:48:00 PM
Parameters	Units	Results		
Hardness (as CaCO ₃)	mg/L	444	436	1450
Total Suspended Solids	mg/L	<3.0	<3.0	15
Alkalinity, Total (as CaCO ₃)	mg/L	108	103	155
Ammonia, Total (as N)	mg/L	2.46	2.34	10.7
Bicarbonate (HCO ₃)	mg/L	132	126	189
Carbonate (CO ₃)	mg/L	<5.0	<5.0	<5.0
Chloride (Cl)	mg/L	323	321	1310
Conductivity (EC)	uS/cm	1540	1530	5320
Hardness (as CaCO ₃)	mg/L	414	414	1550
Hydroxide (OH)	mg/L	<5.0	<5.0	<5.0
Ion Balance	%	100	102	102
Nitrate and Nitrite (as N)	mg/L	17.8	17.9	77.8
Nitrate (as N)	mg/L	17.8	17.9	77.8
Nitrite (as N)	mg/L	<0.050	<0.050	<0.50
pH	pH	7.96	7.97	7.95
TDS (Calculated)	mg/L	839	836	3150
Sulfate (SO ₄)	mg/L	83.8	83	332
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050
Aluminum (Al)-Total	mg/L	0.103	0.0927	0.056
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00050
Arsenic (As)-Total	mg/L	0.00056	0.00060	0.00270
Barium (Ba)-Total	mg/L	0.0260	0.0259	0.101
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0025
Boron (B)-Total	mg/L	0.171	0.173	0.527
Cadmium (Cd)-Total	mg/L	0.000042	0.000040	0.000151
Calcium (Ca)-Total	mg/L	137	135	441
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	0.0056
Copper (Cu)-Total	mg/L	0.0083	0.0082	0.0178
Iron (Fe)-Total	mg/L	0.502	0.466	0.287
Lead (Pb)-Total	mg/L	0.00017	0.00013	<0.00025
Lithium (Li)-Total	mg/L	0.015	0.015	0.058
Magnesium (Mg)-Total	mg/L	24.5	24.2	84.7
Manganese (Mn)-Total	mg/L	0.236	0.232	0.922
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	0.0083
Nickel (Ni)-Total	mg/L	0.0030	0.0028	0.0074
Potassium (K)-Total	mg/L	9.73	9.65	28.1
Selenium (Se)-Total	mg/L	0.00125	0.00116	0.00504
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000050
Sodium (Na)-Total	mg/L	143	147	496
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00025
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050
Titanium (Ti)-Total	mg/L	0.0038	0.0038	0.0017

Sample ID		ST1-05OCT13A	ST1-05OCT13B	ST2-05OCT13
ALS ID		L1375228-1	L1375228-2	L1375228-3
Date Sampled		10/5/2013 4:12:00 PM	10/5/2013 4:30:00 PM	10/5/2013 4:48:00 PM
Parameters	Units	Results		
Uranium (U)-Total	mg/L	0.00051	0.00050	0.00337
Vanadium (V)-Total	mg/L	0.0012	0.0010	0.0014
Zinc (Zn)-Total	mg/L	0.175	0.178	<0.015
Calcium (Ca)-Dissolved	mg/L	126	127	469
Magnesium (Mg)-Dissolved	mg/L	24.2	23.6	92
Potassium (K)-Dissolved	mg/L	8.75	8.42	25.7
Sodium (Na)-Dissolved	mg/L	130	132	488
Oil and Grease	mg/L	<1.0	<1.0	<1.0
Oil And Grease (Visible Sheen)		NO VISIBLE SHEEN	NO VISIBLE SHEEN	NO VISIBLE SHEEN

No water was discharged from the landfarm (ST-4), the Doris tank farm (ST-5), or the Roberts Bay tank farms (ST6-A and ST6-B) this month.

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

Dewatering of the Tailings Impoundment Area commenced on June 21, 2013 and ended September 6, 2013. No water was discharged from the TIA this month.

Item 32: Tailings Impoundment Area Discharge Volume

No water was discharged from the TIA this month.

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

No water was discharged from the TIA this month and no water was sampled.

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

Ice began forming on Tail Lake this month, but was not thick enough to safely measure.

Environmental Incident Reporting

One incident pertaining to this licence occurred during this month:

2013, Oct 29 - 0.5 L of diesel fuel was spilled onto the Doris airstrip during plane refueling. It was determined that the refueling line cap had not been placed on the line and the line was not equipped with a valve. The spilled material was cleaned up and only fuel lines equipped with valves preventing any fuel leakage will be used for plane refuelling in the future.

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,

Katsky Venter

Katsky Venter
Environmental Site Manager
Hope Bay Project