

May 15, 2015

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**Re: April 2015 – Monthly Monitoring Report for Water Licence 2AM-DOH1323**

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

- 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 23 (a), 24 (c, e), 28, 29, 30, 32;
- Part J (Conditions Applying to General and Aquatic Effects Monitoring) Items 4(a), 8, 12 (a, d, g), 14, 15, 16, 20 and 21(e, f).

Other monitoring requirements stipulated in the licence refer to facilities that have not been constructed. During the subject period of this report the focus of activities at Doris North was surface exploration, underground test work, water management and environmental compliance. Sampling locations monitored under this licence (seasonally or when facilities are operational) are provided in Figure 1.

**Part E: Conditions Applying to Water Use**

**Item 1: Water Usage and Part J, Item 12(a) Water Volume**

291 m<sup>3</sup> of water was extracted from Windy Lake for Doris Camp domestic use this month as permitted by water licences 2BE-HOP1222 and 2AM-DOH1323. Water was not used under the 2AM-DOH1323 licence for drilling in support of the Doris North mine this month. Water used for drilling in March in support of the Regional Exploration program is reported under 2BE-HOP1222. No water was used for dust suppression this month. Water usage is presented in Table 1.

Table 1: Water usage, in cubic meters, April 2015

Water Usage	Domestic Water Use from Windy Lake ST-7a (m <sup>3</sup> )	All Other Water Use* (m <sup>3</sup> )	Total (m <sup>3</sup> )
Monthly Total	291	35	326
Annual Cumulative	646	41	687

*\*Includes industrial uses such as surface and underground drilling, dust suppression, concrete batching, etc.*

A total of 74 m<sup>3</sup> of water was applied for ice road development during the month, bringing the 2015 volume of water applied for ice road development under 2AM-DOH1323 to 1299 m<sup>3</sup>.

**Schedule J: Water Quality Monitoring at Water Intake**

Monthly water quality samples were taken from monitoring stations ST-7 (Doris Lake raw water) and ST-7A (Windy Lake raw water) in accordance with the Schedule J requirements of the licence. Water quality results are presented in Table 2 below.

Table 2: Monthly Compliance Sample Results for ST-7 and ST-7a, April 2015

Sample ID			ST7-14APR15	ST7A-21APR15
ALS ID			L1598654-1	L1601722-1
Date Sampled			4/14/2015 8:35:00 AM	4/21/2015 8:30:00 AM
Parameter			Water	Water
Hardness (as CaCO <sub>3</sub> )	mg/L	0.5	60.9	92.9
pH	pH	0.1	7.59	8.09
Total Suspended Solids	mg/L	3	<3.0	<3.0
Ammonia, Total (as N)	mg/L	0.005	0.007	<0.0050
Nitrate (as N)	mg/L	0.005	0.0304	<0.0050
Nitrite (as N)	mg/L	0.001	<0.0010	<0.0010
Orthophosphate-Dissolved (as P)	mg/L	0.001	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	0.002	0.0264	0.0043
Cyanide, Total	mg/L	0.005	<0.0050	<0.0050
Cyanide, Free	mg/L	0.005	<0.0050	<0.0050
Aluminum (Al)-Total	mg/L	0.005	0.0054	0.0099
Antimony (Sb)-Total	mg/L	0.0005	<0.00050	<0.00050
Arsenic (As)-Total	mg/L	0.0005	<0.00050	<0.00050
Barium (Ba)-Total	mg/L	0.02	<0.020	<0.020
Beryllium (Be)-Total	mg/L	0.001	<0.0010	<0.0010
Boron (B)-Total	mg/L	0.1	<0.10	<0.10
Cadmium (Cd)-Total	mg/L	0.000005	0.0000069	<0.0000050
Calcium (Ca)-Total	mg/L	0.1	10.8	16.3
Chromium (Cr)-Total	mg/L	0.001	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	0.0003	<0.00030	<0.00030
Copper (Cu)-Total	mg/L	0.001	0.103	0.001
Iron (Fe)-Total	mg/L	0.03	1.02	<0.030
Lead (Pb)-Total	mg/L	0.0005	0.0342	<0.00050
Lithium (Li)-Total	mg/L	0.001	0.0035	0.0035
Magnesium (Mg)-Total	mg/L	0.1	8.22	12.7
Manganese (Mn)-Total	mg/L	0.0003	0.0134	0.00094
Mercury (Hg)-Total	mg/L	0.000005	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.001	<0.0010	<0.0010
Nickel (Ni)-Total	mg/L	0.001	0.0019	<0.0010
Potassium (K)-Total	mg/L	2	3.4	5.2
Selenium (Se)-Total	mg/L	0.00005	<0.000050	0.000157
Silver (Ag)-Total	mg/L	0.00002	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	2	45.2	70.4
Thallium (Tl)-Total	mg/L	0.0002	<0.00020	<0.00020
Tin (Sn)-Total	mg/L	0.0005	0.0112	<0.00050
Titanium (Ti)-Total	mg/L	0.01	<0.010	<0.010
Uranium (U)-Total	mg/L	0.0002	<0.00020	0.00021
Vanadium (V)-Total	mg/L	0.0005	<0.00050	<0.00050
Zinc (Zn)-Total	mg/L	0.005	0.0634	<0.0050
Biochemical Oxygen Demand	mg/L	2	2	3
Oil and Grease	mg/L	5	<5.0	<5.0
Oil And Grease (Visible Sheen)		n/a	NO	NO
Fecal Coliforms	CFU/100mL	1	<1	<1
Total cyanobacterial cell count	cells/mL	1	-	<1
Microcystin	ug/L	0.20	-	<0.20

\* results on Lab Work Order L1601726-1 for Potable Water Station PDC10 (same location as ST-7a)

**Part G: Conditions Applying to Waste Management and Waste Management Plans.****Item 1: Condition to Provide Notice of a Planned Discharge**

Notification under this Part of planned discharges from facilities will be provided to the Inspector as required.

**Item 3(b): Conditions Applying to Sewage Effluent Quality and Schedule J, Table 2 Monitoring Requirements: Discharge from Wastewater Treatment Plant in cubic metres.**

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

Table 3: Monthly Compliance Sample Results for ST-8B, April 2015

Sample ID			ST8B-07APR15	Part G Item 3(b)	
ALS ID			L1595894-1	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
Date Sampled			4/7/2015 8:30:00 AM		
Parameter	Units	Detection Limit	Water		
pH	pH	0.1	7.48	6.0 - 9.0	9.0
Total Suspended Solids	mg/L	3	<3.0	100	100
Fecal Coliforms	CFU/ 100mL	1	<1	10,000	10,000
Biochemical Oxygen Demand (BOD <sub>5</sub> )	CFU/100mL	2	3.0	80	80
Oil and Grease	mg/L	5	<5.0	5	10
Oil And Grease (Visible Sheen)		n/a	no	No Visible Sheen	No Visible Sheen

This month, 239 m<sup>3</sup> of treated effluent was discharged from the sewage treatment plant.

**Schedule J, Table 2 Monitoring Requirements: Runoff from Waste Water Treatment Plant Discharge (ST-9)**

No water was available for sampling at location ST-9 (prior to entry into Glenn Lake) due to freezing conditions.

**Item 23(a): Water Discharged from the Sedimentation Pond (ST-1) and Reagent and Cyanide Storage Facility Sumps (ST-11) and Schedule J, Table 2 Monitoring Requirements**

No water was discharged at the Sedimentation Pond (ST-1) this month, and no water was pumped from the Pollution Control Pond (ST-2) to ST-1. No sampling was undertaken at ST-1 or ST-2 due to freezing conditions.

The Reagent and Cyanide Storage Facility Sumps (ST-11) is not constructed.

**Items 24(c): Landfarm Sump (ST-4) and Schedule J, Table 2 Monitoring Requirements**

No monitoring was conducted at station ST-4 (Landfarm Sump) in accordance with the Schedule J requirements of the licence; this facility was frozen.

**Items 24(e): Fuel Storage and Containment Facility Sumps (ST-5, ST-6a and ST-6b) and Schedule J, Table 2 Monitoring Requirements**

Compliance monitoring samples were not collected at the Doris Tank Farm (ST-5) and Roberts Bay tank farms (ST-6a and ST-6b) this month. These facilities are frozen and no discharges occurred.

**Item 28, 29, 30 and Part J Item 8: Water Quality Discharged from Tailings Impoundment Area (TL-1, TL-2, TL-3 or TL-4.)**

Compliance water sampling was not conducted this month at the four stations associated with the TIA discharge (TL-1 through TL-4) as no water was discharged from this facility.

**Item 32: Tailings Impoundment Area Discharge Volume – Comparison of Flows at TL-4 and TL-2**

No water was discharged from the TIA to Doris Creek this month; a comparison of flows was not conducted.

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

Monitoring at TL-10 is not required during Care and Maintenance.

**Part J: Conditions Applying to General and Aquatics Effects Monitoring**

**Item 4(a): TIA Discharge Quality – Water Quality Comparison/Deviations**

No water was discharged from the TIA this month and no water quality comparisons were made.

**Item 8 and Schedule J, Monitoring Requirements: Acute Lethality Testing (TL-1 and TL-4)**

No acute lethality testing was conducted during the month as no water was discharged from the TIA.

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

Underground test mining restarted in April 2015 and modifications to the existing vent raise were also started. The waste rock produced from the test mining program will be stored underground until September 2015 when more underground equipment is delivered to site on the sea lift and the waste rock can be hauled to surface. The total volume of waste rock on the temporary waste rock pad is 189,607 tonnes, as per the December 2011 survey.

**Item 12g: Tail Lake Ice Thickness**

Ice thickness measurement on the TIA is not required during Care and Maintenance.

**Item 14, 15, 16 and Schedule J, Monitoring Requirements: Thermal Monitoring**

Thermal monitoring undertaken under this part is reported in the annual Geotechnical Inspection Report.

**Item 20: Daily Visual Monitoring of Discharges to Tundra**

No discharges to tundra occurred during this period. During periods of discharge, monitoring observations will be documented.

**Item 21 (e) Daily Visual Assessment of Suspended Sediment at TIA**

The TIA was frozen during this month. No visual assessments were conducted.

**Item 21 (f) Doris North Camp Diversion Berm Effectiveness**

An assessment of effectiveness was not conducted on the Diversion Berm this month due to freezing conditions.

**Environmental Incident Reporting**

April 20, 2015 – While transporting 1000kg mega bags of cement powder to a seacan for storage at the Roberts Bay laydown, an equipment operator failed to notice a tear in the bag being moved. An estimated 50kgs of powder was spilled on the ground in a trail on the laydown. The MSDS for the product was reviewed and no harmful constituents were identified. The material was not spilled in any location where fines might be transported to water. The powder was cleaned up for proper disposal.

April 20, 2015 – A hydraulic fluid leak from a loader was detected on the pad at the Roberts Bay laydown at co-ordinates 68° 10' 28.4" N 106° 36' 54.7 W. The volume was estimated at 30 – 50 L, and area impacted approximately 5m<sup>2</sup>. Spill pads were immediately placed over the area to absorb the fluid, and the contaminated snow and ice was scraped up. All soiled materials were contained securely for appropriate disposal. As the estimated volume did not reach reportable levels under Schedule B of the Spill Reporting Regulations, no spill report was made to the NT-NU Hotline.

Should there be any questions regarding this monthly report, please contact John Roberts at [John.Roberts@tmacresources.com](mailto:John.Roberts@tmacresources.com).

Yours sincerely,



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