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**May 29, 2017**

Licensing  
Nunavut Water Board  
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**Re: April 2017 – Monthly Monitoring Report for Water Licence 2AM-DOH1323**

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This report is comprised of monitoring requirements as set out in Part J and Schedule J of water licence 2AM-DOH1323 Amendment 1, and additional requirements from INAC.

During the subject period of this report the focus of activities at Doris North was underground mining, construction, ore processing, water management and environmental compliance. Sampling locations monitored under this licence (seasonally or when facilities are operational) are provided in Figure 2 at the end of this report.

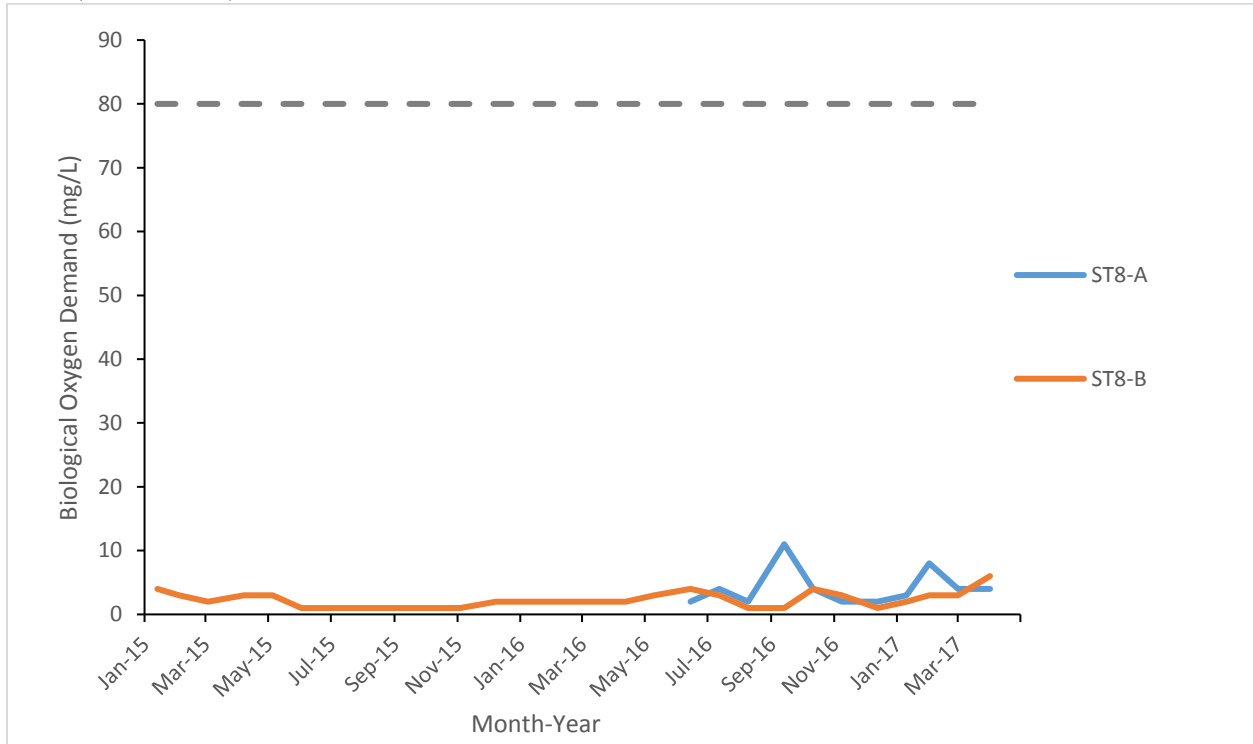
**Site Wide Water Quality Monitoring Program (Part J Items 3, 8, and Schedule J)**

Water quality sampling was conducted in April at monitoring stations identified in Schedule J of the licence (ST-1 through ST-13, TL-1 through TL-12). Water quality samples were not collected for monitoring stations that were inactive during the month being reported (e.g., facilities that had not yet been constructed, were frozen during the month, or were not operationally active). All parameters were compared to the applicable effluent quality limits with no exceedances observed. Results of this monitoring are attached to the report in Appendix A.

Elevated results were observed at ST8A for Total Suspended Solids (TSS) for the March sampling event, although they reported below the maximum allowable concentration for effluent discharge. Adaptive management practices were applied and treatment performance was improved within the unit. A notable decrease in TSS values was observed in the April results as illustrated in Figure 2.

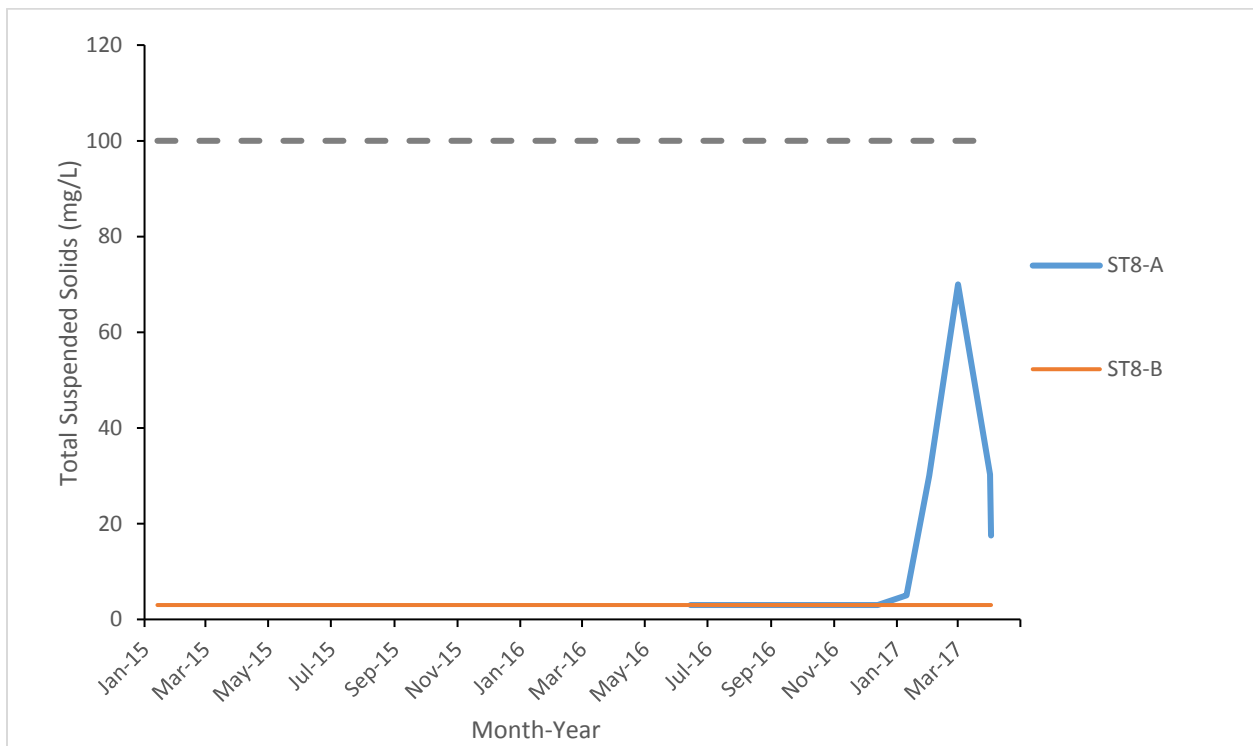
Figure 1 and 2 illustrates effluent quality characteristics for parameters of interest at select monitoring stations.

**Figure 1. Biological Oxygen Demand Results Consistently Below Discharge Criteria for Wastewater Treatment Plant (ST-8A, ST8B)**



Note: Maximum Average Concentration as per Part G Item 4(b).

**Figure 2. Total Suspended Solids Results Consistently Below Discharge Criteria for Wastewater Treatment Plant (ST-8A, ST8B)**



Note: Maximum Average Concentration as per Part G Item 4(b).

### Flow and Volume Measurements (Part J Items 11, 12, and Schedule J)

**Table 1. Effluent discharge, April 2017**

Facility	Station Code	Discharge Volume (m <sup>3</sup> )	Exceedances of Discharge Criteria	Discharge Location	Licence Reference
Sedimentation Pond	ST-1	0	0	Tailings Impoundment Area	Part G Item 22
Pollution Control Pond #1	ST-2	0	N/A	Tailings Impoundment Area	Part G Item 22
Landfill Sump	ST-3	0	0	Facility not constructed	Part G Item 24 (a, b, g)
Landfarm Sump	ST-4	0	0	Sedimentation Control Pond	Part G Item 24 (c, d, g)
Doris Tank Farm	ST-5	0	0	Sedimentation Control Pond	Part G Item 24 (e, f, g)
Rob Bay 5ML Tank Farm	ST-6a	0	0	Sedimentation Control Pond	Part G Item 24 (e, f, g)
Rob Bay Three 5ML Tank Farm	ST-6b	0	0	Sedimentation Control Pond	Part G Item 24 (e, f, g)
Wastewater Treatment Plant, Effluent	ST-8	822	0	Tundra Discharge 13W 432933 7559057	Part G Item 23(b-d)
Wastewater Treatment Plant, Sewage Cake	N/A	2.72	N/A	Tailings Impoundment Area	Part J Item 12 (g)
Reagent and Cyanide Storage Facility Sump	ST-11	0	0	Facility not constructed	Part G Item 23 (a)
Pollution Control Pond #2	ST-13	0	0	Tailings Impoundment Area	Part G Item 22
Mine Water Discharge	TL-12	0	N/A	Tailings Impoundment Area	Schedule J Table 2

Records of daily visual monitoring of discharged to tundra are maintained on file as per Part J Item 18.

**Table 2. Discharge from TIA to Doris Creek, April 2017**

Month	Number of days of discharge	Discharge Volume (m <sup>3</sup> )	Exceedances of Discharge Criteria*
January	0	0	0
February	0	0	0
March	0	0	0
April	0	0	0
<b>Annual Cumulative</b>	<b>0</b>	<b>0</b>	<b>0</b>

\* Discharge criteria outlined in Part G Items 29, 30, 31 and Part J Item 8.

A comparison of flows between TL-4 and TL-2 as per Part G Item 32 of the licence was not conducted as no water was discharged for the Tailings Impoundment Area to Doris Creek this month.

Table 3. Water usage, April 2017

Month	Windy Lake (ST-7A)				Doris Lake (ST-7)				Total Usage
	Domestic Water* (m³)	Surface Exploration (m³)	Industrial Usage** (m³)	Dust Suppression (m³)	Domestic Water* (m³)	Surface Exploration (m³)	Industrial Usage** (m³)	Dust Suppression (m³)	
January	849	0	15	0	0	0	0	0	864
February	801	0	0	0	0	0	0	0	801
March	925	1	0	0	0	0	32	0	958
April	873	0	2	0	0	0	608	0	1,483
Annual Total	3,448	1	17	0	0	0	640	0	4,106
Annual Allowance	22,995								480,000

\* As permitted by water licences 2BE-HOP1222 and 2AM-DOH1323

\*\* Includes industrial uses such as underground drilling, core processing, mill commissioning, concrete batching, etc.

April Ice Road Development: 0m³. Cumulative total for Ice Road Development in 2017: 16m³.

Table 4. Volume of Reclaim Water from the TIA, April 2017

Month	Reclaim Water (m³) *
January	31,200
February	94,080
March	107,880
April	100,800
Annual Cumulative	233,160

\* As per Part J Item 11(d)

Table 5. Waste Rock and Process Volumes, April 2017

Month	Waste Rock Stored Temporary Waste Rock Pile (tonnes)*	Waste Rock Returned Underground* (tonnes)	Quantity of Ore Processed** (tonnes)	Dry Tailings Placed in TIA** (tonnes)	Dry Cyanide Leach Tailings Placed Underground** (tonnes)	Volume of Void Space Underground (tonnes)	Volume of Void Space Underground (m³)
January	24,811	0	2,020	600	0	-	-
February	22,584	1,392	6,174	5,927	247	-	-
March	23,917	5,060	11,177	10,970	207	618,048	220,731
April	23,437	11,226	19,058	17,761	1,297	-162	-58
Cumulative Total	493,716	17,678	38,429	35,258	1,751	617,886	220,674

\* As per Part J Item 11(c, f)

\*\* As per Part J Item 12.

**Table 6. Doris Lake Water Level (ST-12), April 2017**

<b>Month</b>	<b>Minimum Water Level (masl)</b>	<b>Maximum Water Level (masl)</b>	<b>Mean Water Level (masl)</b>	<b>Water Level Change (masl)</b>	<b>Low Action Level Trigger (masl)*</b>
<b>January</b>	21.783	21.833	21.810	0.049	21.425
<b>February</b>	21.804	21.862	21.831	0.058	21.425
<b>March</b>	21.814	21.869	21.837	0.055	21.425
<b>April</b>	21.827	21.864	21.850	0.037	21.425

\* Low action level trigger is relative to the average water level value (September 10-30, 2016) measured in Doris Lake. Low action level trigger (-0.42 m) outlined in Section 5.4 of the Doris Aquatic Effects Monitoring Plan, August 2016.

Values presented in Table 6 have been corrected based on the most recent water elevation and primary benchmark survey conducted in April 2017.

### **Waste Management (Part G Item 12)**

Empty cargo aircraft were utilized for waste backhaul from the Doris Camp. Approximately 36 drums of hydrocarbon-contaminated plastic/rubber were transported to KBL Environmental in Yellowknife to arrange for final remediation/disposal.

### **Summary of Assessments of Water Balance and Water Quality Model (Part G Item 34)**

Average monthly water quality, hydrologic, and climatic monitoring data were collected while in operations during April. Data will contribute to the assessment of the water and load balance model, and will be compared to the predicted water quality and elevation within the TIA and will be reported in the annual report for 2017.

### **Thermal Monitoring (Part J Items 13 and 14)**

Thermal monitoring undertaken as per Part J Items 13, 14 and Schedule J is reported in the annual Geotechnical Report.

### **Doris North Camp Diversion Berm Effectiveness (Part J Item 19(d))**

Monitoring was not conducted on the Diversion Berm this month due to freezing conditions.

### **Incident Reporting**

Spill #17-102 – On April 7, 2017, a release of approximately 20L of sewage occurred while transferring the material from a vacuum truck to the Doris Camp Wastewater Treatment Plant (WWTP) for treatment. The operator stopped the transfer upon discovery of the spill in order to prevent further spillage, and contacted the Environmental department immediately. Upon inspection, it was discovered that a seal was missing from the hose line connected to the vacuum truck, which allowed material to release from the connection when the transfer was initiated. The seal was immediately replaced on the hose line prior to resuming the transfer. All contaminated snow was scraped from the ground surface and placed into the WWTP for treatment.

TMAC internally reviewed the incident to identify any corrective actions. The procedure was revised to include specific checks of the seal integrity of the hose line prior to connecting to the vacuum truck and initiating a transfer of this material. A pre-transfer operational checklist was implemented to reduce the potential for operator error while performing this task.

Yours sincerely,



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cc. Eva Paul, Water Resources Officer, INAC

Figure 2. 2AM-DOH-1323 SNP Monitoring Locations

