



95 Wellington Street West
Suite 1010, P.O. Box 44
Toronto Dominion Centre
Toronto, Ontario M5J 2N7
416-628-021

Sent by Email

August 31, 2018

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

Re: July 2018 – 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 Amendment 1, and additional requirements from CIRNAC.

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 3 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 July 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 outlined in Part G of the licence.

Water quality samples collected in July from the Robert's Bay Single Tank Farm (ST-6A) and Robert's Bay 3x 5ML Tank Farm (ST-6B) exceeded the tundra discharge criteria for Total Suspended Solids (TSS); no other parameters in these samples exceeded the discharge criteria. On June 20, 2018, the Inspector granted permission to use water from the Tank Farm facilities for dust suppression on site roads if TSS is the only parameter to exceed the allowable discharge limits. Water accumulating in the Robert's Bay 3x 5ML Tank Farm was used for dust suppression in July. Water accumulating in the Doris Tank Farm and the Robert's Bay Single Tank Farm was transported to the Tailings Impoundment Area.

No other exceedances of effluent quality limits were observed in any samples collected this month.

Analysis for Fecal Coliforms was not completed for water quality samples collected from the Wastewater Treatment Plant (ST-8) and the runoff downstream of the Wastewater Treatment Plant discharge location (ST-9) due to a laboratory error. The laboratory provided results for Total Coliform for these samples, but failed to complete analysis for Fecal Coliforms. Results of this sampling are provided in Appendix A.

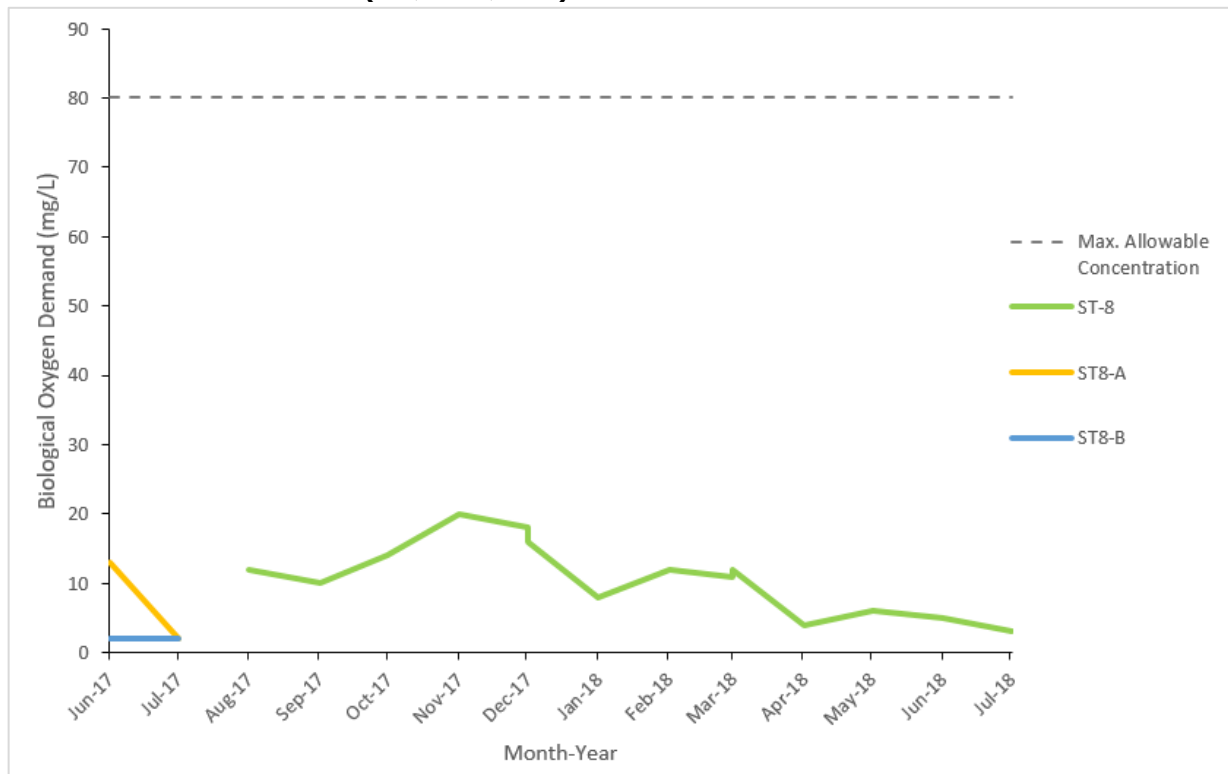
Analytical results for both TL-6 and TL-7 are not included with this submission due to a service backlog with the laboratory utilized to process these particular samples. July analytical results will be submitted upon receipt.

Groundwater inflow accumulating underground from mine development occurring in the Doris Connector zone continued to be discharged to the Tailings Impoundment Area this month. Water quality samples of this effluent (TL-12) were collected from the discharge line and submitted for analysis.

Results of all water quality monitoring are provided in Appendix A attached to this report.

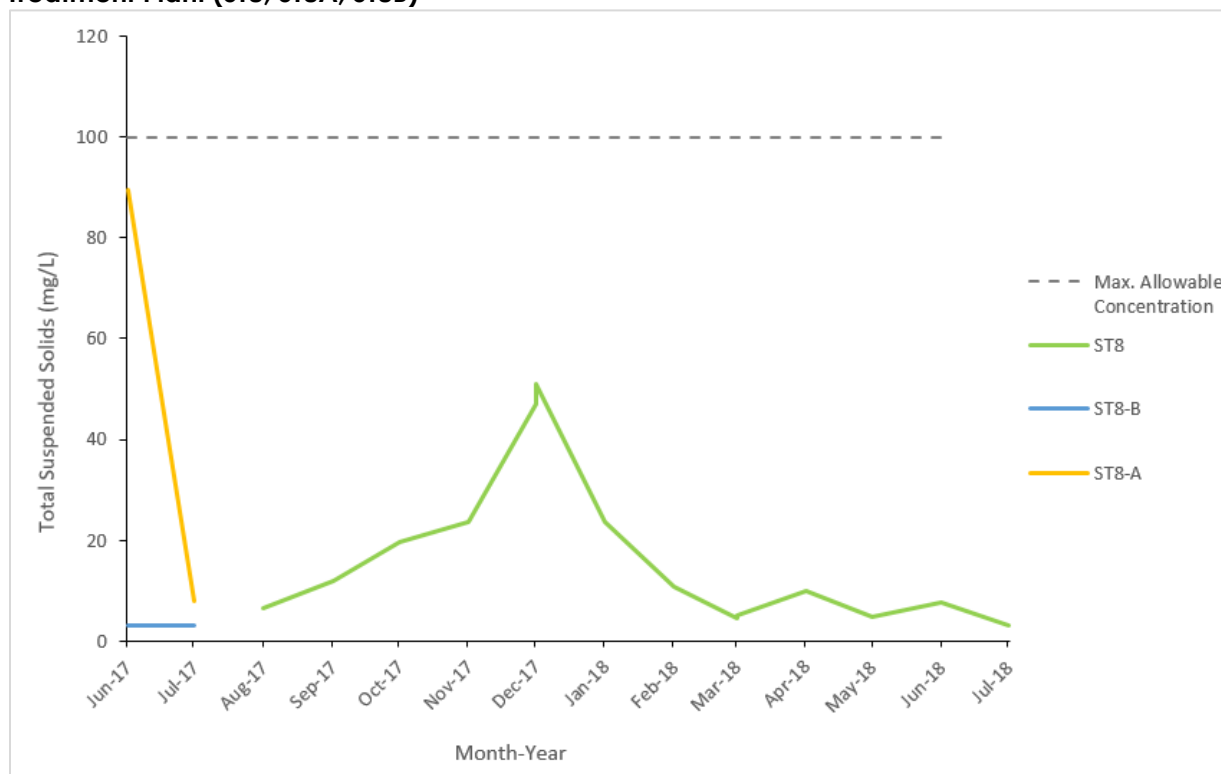
Figure 1 and 2 illustrates effluent quality characteristics for parameters of interest at select monitoring stations.

Figure 1. Biological Oxygen Demand Results Consistently Below Discharge Criteria for Wastewater Treatment Plant (ST8, ST8A, 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 (ST8, ST8A, 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, July 2018

Facility	Station Code	Discharge Volume (m ³)	Exceedances of Discharge Criteria	Discharge Location	Licence Reference
Sedimentation Pond	ST-1	6,876	N/A	Tailings Impoundment Area	Schedule J Table 2
Pollution Control Pond #1	ST-2	225	N/A	Tailings Impoundment Area	Schedule J Table 2
Landfill Sump	ST-3	0	0	Facility not constructed	Part G Item 23 (a, b, g)
Landfarm Sump	ST-4	10	0	Tundra Discharge 13W 432450 7559600	Part G Item 23 (c, d, g)
Doris Tank Farm	ST-5	182	0	Tailings Impoundment Area	Part G Item 23 (e, f, g)
Rob Bay 5ML Tank Farm	ST-6a	168	1	Tailings Impoundment Area	Part G Item 23 (e, f, g)
Rob Bay Three 5ML Tank Farm	ST-6b	1,128	1	Dust suppression on site roads (1,114 m ³) and Tailings Impoundment Area (14 m ³)	Part G Item 23 (e, f, g)
Wastewater Treatment Plant, Effluent	ST-8	1,095	0	Tundra Discharge 13W 432933 7559057	Part G Item 4 (b-d)
Wastewater Treatment Plant, Sewage Sludge	N/A	30.9	N/A	Tailings Impoundment Area	Part J Item 11 (g)
Reagent and Cyanide Storage Facility Sump	ST-11	0	0	Tailings Impoundment Area	Schedule J Table 2
Pollution Control Pond #2	ST-13	0	0	Facility not constructed	Schedule J Table 2
Mine Water Discharge	TL-12	11,202	N/A	Tailings Impoundment Area	Schedule J Table 2

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

Table 2. Discharge from TIA to Doris Creek, July 2018

Month	Number of days of discharge	Discharge Volume (m³)	Exceedances of Discharge Criteria*
January	0	0	0
February	0	0	0
March	0	0	0
April	0	0	0
May	0	0	0
June	0	0	0
July	0	0	0
Annual Cumulative	0	0	0

* 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 from the Tailings Impoundment Area to Doris Creek this month.

Table 3. Water usage, July 2018

Month	Windy Lake (ST-7A)	Doris Lake (ST-7)					Mine Inflow	Total Usage
	Domestic Water* (m³)	Domestic Water* (m³)	Surface Exploration (m³)	Industrial Usage** (m³)	Dust Suppression (m³)	Winter Track (m³)	Industrial Usage ^ (m³)	
January	1,051	0	0	0	0	119	433	1,603
February	1,277	0	0	34	0	136	0	1,447
March	1,231	0	0	29	0	0	0	1,260
April	1,208	0	0	74	0	0	0	1,282
May	1,224	0	93	46	0	0	0	1,363
June	1,115	0	4	45	669	0	0	1,833
July	1,064	0	0	78	1,863	0	0	3,005
Annual Total	8,170	0	97	306	2,532	255	433	11,793
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, concrete batching, etc.

^ Discharge of groundwater inflow from mine development in the Doris Connector zone to the Tailings Impoundment Area began in February. Mine water inflow is no longer being recycled into underground sumps for use in mining activities. The volume of inflow discharged to the TIA is presented in Table 1 above.

Table 4. Volume of Reclaim Water from the TIA, July 2018

Month	Reclaim Water (m³) *
January	82,577
February	69,744
March	78,864
April	74,638
May	76,444
June	69,120
July	66,699
Annual Cumulative	518,086

* As per Part J Item 11(d)

Numbers rounded to the nearest cubic meter.

Table 5. Waste Rock and Process Volumes, July 2018

Month	Waste Rock Management					Underground Void Space			Ore Processing and Tailings Management		
	Produced from Mining Activity (tonnes)*	Backfilled Directly to Underground Stopes (tonnes)*	Returned Underground from Temporary Waste Rock Pile* (tonnes)	Moved to Temporary Waste Rock Pile (tonnes)*	Cumulative on Temporary Waste Rock Pile (tonnes)	Volume Created from Mining Activities (tonnes)	Cumulative Volume Available for Backfill (tonnes)	Cumulative Volume Available for Backfill (m³)	Quantity of Ore Processed** (tonnes)	Total Dry Tailings Placed in TIA** (tonnes)	Total Dry Cyanide Leach Tailings Placed Underground** (tonnes)
December Balance	-	-	-	-	542,884	-	774,674	277,762	-	-	-
January	22,951	25,584	0	0	542,884	16,558	790,728	283,496	25,219	23,916	1,304
February	21,415	20,308	0	1,107	543,991	22,438	813,166	291,510	27,036	25,615	1,434
March	27,092	20,360	0	6,732	550,723	13,547	826,713	296,348	31,375	30,366	1,008
April	25,068	17,536	0	7,532	558,255	22,069	848,783	304,230	33,619	32,209	1,403
May	34,829	9,392	0	25,437	583,692	40,314	889,096	318,628	28,869	27,692	1,150
June	26,985	16,856	0	10,129	593,821	31,176	930,962	333,580	25,826	24,527	1,296
July	30,141	27,253	0	12,661	606,482	32,854	963,815	345,313	31,843	30,030	1,453
Cumulative Total	188,481	137,289	0	63,598	606,482	189,645	963,815	345,313	203,787	194,355	9,048

* As per Part J Item 11 (e, f)

** As per Part J Item 12.

Note: Void space created from mining activities is determined as the sum of the initial void space as calculated in March 2017 and void space created each month from mining activities. A negative volume of void space created in a month indicates that a higher volume of waste rock and dry cyanide leach tailings was returned underground compared to the volume of void space created from new mining activities.

Table 7. Doris Lake Water Level (ST-12), July 2018

Month	Minimum Water Level (masl)	Maximum Water Level (masl)	Mean Water Level (masl)	Monthly Water Level Variation (masl)**	Comparison of Mean Water Level from Month to Month (masl)^	Low Action Level Trigger (masl)*
January	21.672	21.689	21.679	0.017	0.003	21.346
February	21.674	21.689	21.681	0.015	0.002	21.346
March	21.681	21.694	21.686	0.013	0.005	21.346
April	21.680	21.692	21.687	0.012	0.001	21.346
May	21.703	21.711	21.707	0.008	0.020	21.346
June	21.709	22.389	22.073	0.680	0.366	21.346
July	21.902	22.244	22.063	0.342	-0.010	21.346

* Low action level trigger is relative to the average water level value (September 10-30, 2017) measured in Doris Lake. Low action level trigger (-0.42 m) outlined in Section 5.4 of the Doris Aquatic Effects Monitoring Plan, September 2016.

** Monthly Water Level Variation is calculated as the difference between the Maximum Water Level and the Minimum Water Level measured during the month.

^ Comparison of the change in water level from month to month. This value is calculated by subtracting the Mean Water Level of the current month from the Mean Water Level of the previous month (e.g. February Mean Water level - January Mean Water level). A positive value from this calculation indicates a rise in water level since the previous month; a negative value from this calculation indicates a drop in water level since the previous month. Note: Water level surveys were performed in June to calibrate the two pressure transducer stations installed in Doris Lake. Based on these surveys there was an adjustment of +2.0cm to the constant added to the data to determine the water elevation. This has resulted in a 2cm step increase between the data from April and May.

**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 July. 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 2018.

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))

Visual monitoring was conducted during July to evaluate the diversion berm's efficacy of diverting runoff away from the camp pad. The diversion berm was observed to be functioning as per its design purpose.

Incident Reporting

No incidents pertaining to this license occurred during the month of July.

Should there be any questions regarding this monthly report, please contact enviro@tmacresources.com.

Yours sincerely,



Kyle Conway
Environmental Supervisor
Hope Bay Project
(867) 988-6882 ext. 102

cc. Jonathan Mesher, Resource Management Officer, CIRNAC
Jeremy Fraser, Water Resources Officer, CIRNAC

Figure 3. 2AM-DOH-1323 SNP Monitoring Locations

