95 Wellington Street W

Suite 1010
P.O. Box 44
Toronto, Ontario
M5J 2N7
416-628-0216

Sent by Email

June 29, 2018

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

Re: May 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 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. Surface exploration drilling was conducted at one location in the Doris licence area this month; a pilot hole was drilled at the future location of the Doris Connector Vent Raise to guide development of the raise within the underground mine. Sampling locations monitored under this licence (seasonally or when facilities are operational) are provided in Figure 5 at the end of this report.

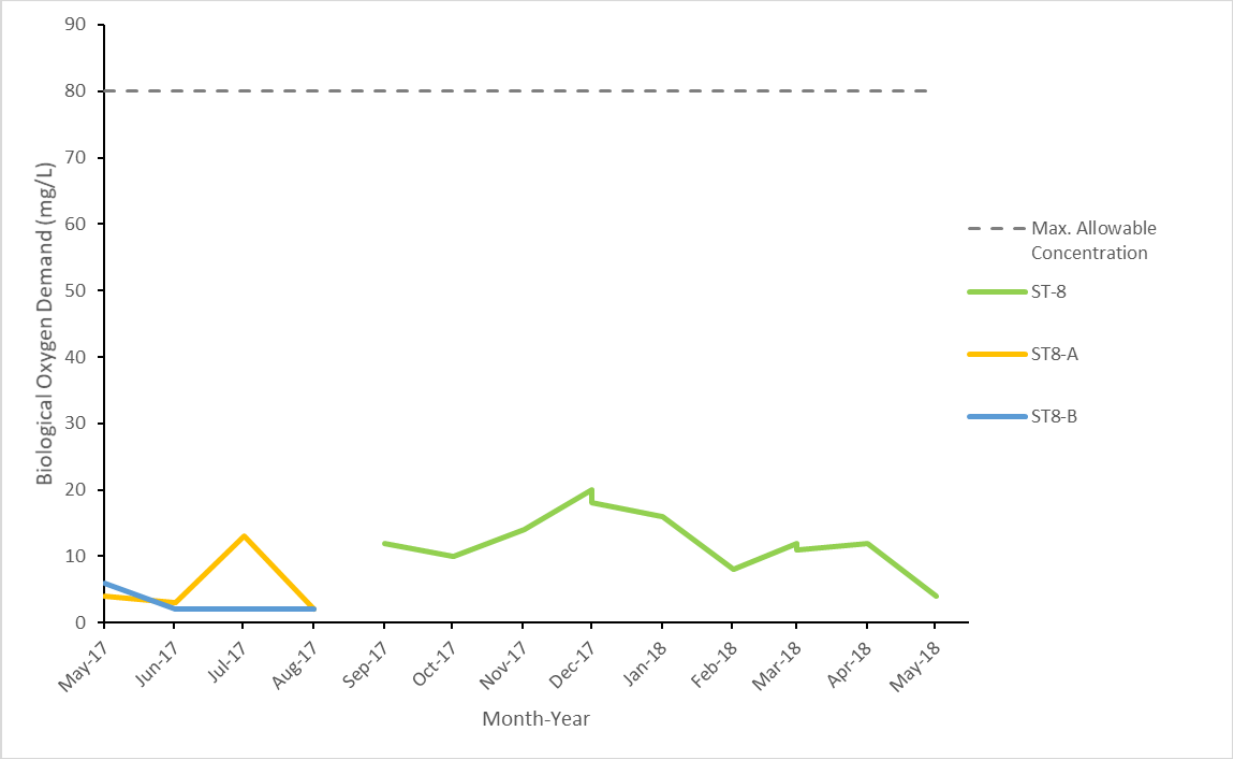
Site Wide Water Quality Monitoring Program (Part J Items 3, 8, and Schedule J)

Water quality sampling was conducted in May 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 and no exceedances were observed. Results of this monitoring are attached to the report in Appendix A.

In May, groundwater inflow accumulating underground from mine development occurring in the Doris Connector zone continued to be discharged to the Tailings Impoundment Area. Water quality samples of this effluent (TL-12) were collected from the discharge line and submitted for analysis. Results of this monitoring are provided in Appendix A of this report.

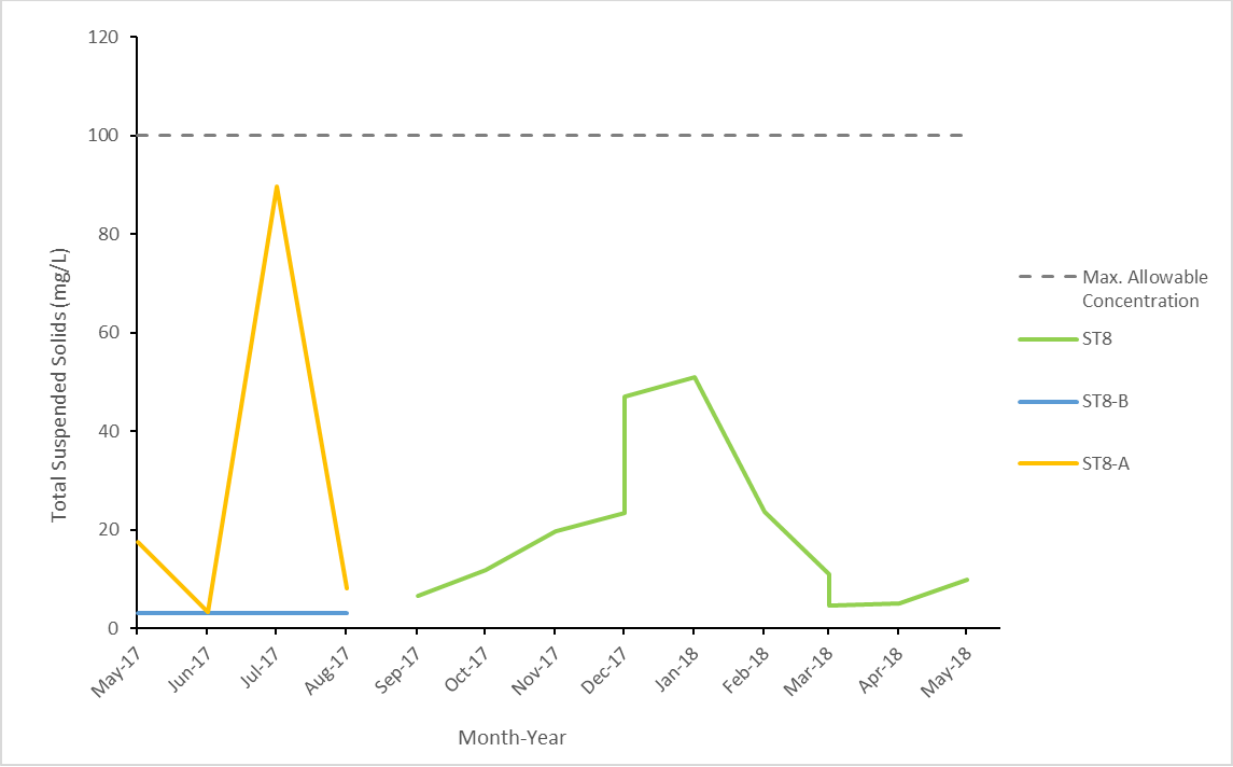
Figure 1 and 2 illustrates effluent quality characteristics for parameters of interest at select monitoring stations.

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, May 2018

Facility	Station Code	Discharge Volume (m^3)	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	Tundra Discharge 13W 432450 7559600	Part G Item 24 (c, d, g)
Doris Tank Farm	ST-5	0	0	Tundra Discharge 13W 432960 7559270	Part G Item 24 (e, f, g)
Rob Bay 5ML Tank Farm	ST-6a	0	0	Tundra Discharge 13W 432973 7563440	Part G Item 24 (e, f, g)
Rob Bay Three 5ML Tank Farm	ST-6b	0	0	Tundra Discharge 13W 432730 7563200	Part G Item 24 (e, f, g)
Wastewater Treatment Plant, Effluent	ST-8	1,165	0	Tundra Discharge 13W 432933 7559057	Part G Item 23(b-d)
Wastewater Treatment Plant, Sewage Sludge	N/A	26.3	N/A	Tailings Impoundment Area	Part J Item 12 (g)
Reagent and Cyanide Storage Facility Sump	ST-11	0	0	Tailings Impoundment Area	Part G Item 23 (a)
Pollution Control Pond #2	ST-13	0	0	Facility not constructed	Part G Item 22
Mine Water Discharge	TL-12	7,095	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, May 2018

Month	Number of days of discharge	Discharge Volume (m^3)	Exceedances of Discharge Criteria*
January	0	0	0
February	0	0	0
March	0	0	0
April	0	0	0
May	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, May 2018

Month	Windy Lake (ST-7A)	Doris Lake (ST-7)					Mine Inflow	Total Usage
	Domestic Water* (m^3)	Domestic Water* (m^3)	Surface Exploration (m^3)	Industrial Usage** (m^3)	Dust Suppression (m^3)	Winter Track (m^3)	Industrial Usage ^ (m^3)	
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
Annual Total	5,991	0	93	183	0	255	433	6,955
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, May 2018

Month	Reclaim Water (m^3) *
January	82,577
February	69,744
March	78,864
April	74,638
May	76,444
Annual Cumulative	**382,267**

* As per Part J Item 11(d)

Numbers rounded to the nearest cubic meter.

Table 5. Waste Rock and Process Volumes, May 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 (m^3)	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
Cumulative Total	131,355	93,180	0	40,808	558,692	114,926	889,096	318,628	146,118	139,798	6,299

* 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.

In April, a reconciliation of all materials mined from the underground was performed. It was discovered that the ore tonnages/volumes were being under reported and were thereby reconciled. This reconciliation resulted in an increase in the volumes of void space available for backfill. The reconciled cumulative void space available for backfill (tonnes and m^3) was reported in April; however the reconciled volume of void space created from mining activities (tonnes) was omitted from the April report. Reconciled volumes of void space created from mining activities are presented in Table 5 of this report.

^ A typo occurred in the April report for this volume. Waste rock produced from mining activity in April was reported as 25,608 tonnes and a cumulative total of 97,066 tonnes. The correct volume of waste rock produced in April was 25,068 tonnes and a cumulative total of 96,526 tonnes. This has been corrected in Table 5 of this report.

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

* 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 May. 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 May 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

Spill #18-205 - On May 31, 2018 a spill of 900L of DanaFloat 245 product occurred on the south side of the process plant building when an operator using a telehandler attempted to remove a 1000L tote of the product from a storage sea-can. The floor of the sea-can had a buildup of snow and ice, which caused the right fork to raise up and puncture the tote as the operator moved the telehandler forward. The DanaFloat 245 spilled from the tote into the sea-can and out the door onto the crush rock pad surrounding the sea-can. Contaminated crush was excavated from the camp pad surface; this included removing the storage sea-can of the punctured tote and adjacent sea-cans to excavate contaminated crush from product that had migrated beneath the sea-cans. All contaminated crush was removed and placed in the Tailings Impoundment Area for disposal. Photos of the spill and completed clean-up are provided in Figure 3 below.

Root Cause:

- A spotter was not used to guide the operator when attempting to remove the tote
- Some lights on the telehandler were not operational at the time of the incident. The work lights may have provided adequate illumination within the sea-can to identify that the forks were not lined up in the correct location.
- The sea-can from the vendor contained totes of other product, creating a need to move and handle totes multiple times to remove the required product.

Corrective Actions:

- Conduct site-wide safety presentations, department safety toolbox talks, and stop/corrects to emphasize to all departments the requirements of using a spotter when loading or unloading product from storage sea-cans.
- Instruct all Supervisors and Superintendents to conduct spot checks and/or stop and corrects for deficiencies on pre-op check sheets and ensure the optimal working condition of all equipment used in their scope of work.
- Discuss, form and implement a plan for the efficient layout of sea-cans to reduce congestion on the process plant laydown and allows for an effective delivery system of reagents, parts and materials.
- Review the possibility of raising sea-cans above grade to facilitate easier clean up of drifting snow during winter months, and allow for closing and positive seal of all doorways to prevent snow buildup within sea-cans.
- Inquire into the possibility of single product loads of reagents into sea-cans by vendors to eliminate the need to handle multiple containers to access the required ones and reduce the risk of a similar event from re-occurring. An alternative plan to be implemented during the summer weather to rearrange sea-cans currently on-site which contain multiple products.

Figure 3. Extent of DanaFloat 245 migration outside storage sea-can and placement of spill absorbent pads.

Figure 4. Completed clean-up of contaminated crush.

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

Yours sincerely,

Sarah Warnock
Environmental Supervisor
Hope Bay Project
(867) 988-6882

cc. Eva Paul, Water Resources Officer, INAC
Jonathan Mesher, Resource Management Officer, INAC

Figure 5. 2AM-DOH-1323 SNP Monitoring Locations