181 University Ave
Suite 300, P.O. Box 33
Toronto, Ontario M5H 3M7
416-628-0216

Sent by Email

November 30, 2020

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

Re: October 2020 – Monthly Monitoring Report for Water Licence 2AM-DOH1335

This report is comprised of the monitoring requirements set out in Part I and Schedule I of water licence 2AM-DOH1335 Amendment 2 (the licence), and additional requirements from CIRNAC.

During the subject period of this report, the focus of activities at Doris was underground mining, ore processing, water management and environmental compliance.

A travel embargo was placed on the Doris site by the Government of Nunavut due to positively confirmed cases of Covid-19, prohibiting the transportation of personnel and materials from the site. The restrictions were put in place in late September and extended into early October. Although the impacts to the Monitoring Program were minimal, monitoring station TL-12 was not sampled and tested as per the frequency outlined in Schedule I, Table 3 as a result of the restrictions.

Mine water was diverted to the Tailings Impoundment Area during the month of October.

Mining activities at the Madrid North Portal and Naartok East Crown Pillar Recovery Trench were suspended in March and remained inactive during the month of October.

Sampling locations monitored under this licence (seasonally or when facilities are operational) are provided in Figure 4 through Figure 6 at the end of this report.

Site Wide Water Quality Monitoring Program (Part I Item 3 and Schedule I)

Water quality sampling was conducted in October at monitoring stations identified in Schedule I of the licence (ST-1 through ST-13, TL-1 through TL-12 and MMS-1 through MMS-10). 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).

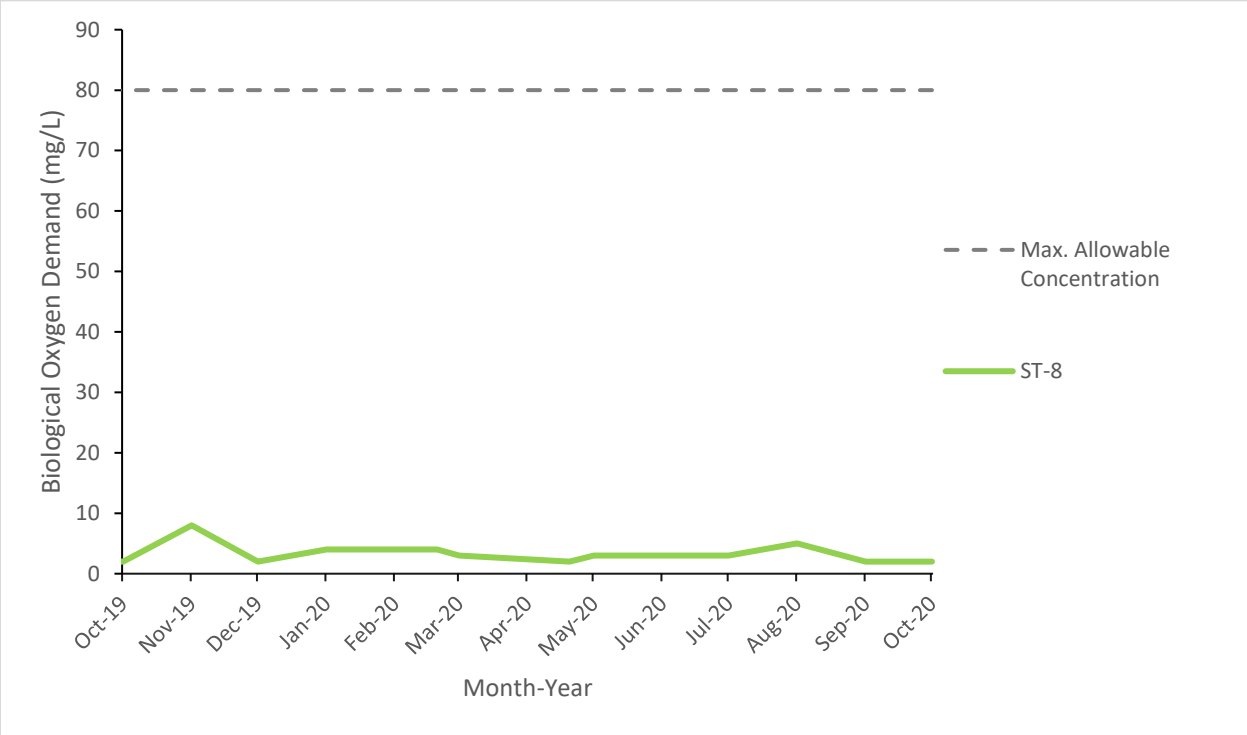
All parameters were compared to the applicable effluent quality limits outlined in Part D and Part F of the licence. No exceedances of effluent quality limits were observed in

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

Analytical results for both TL-6 and TL-7A collected in October are not included with this submission due to a service backlog with the laboratory utilized to process these particular samples. October analytical results for both monitoring stations will be included in the November 2020 Monthly Monitoring Report.

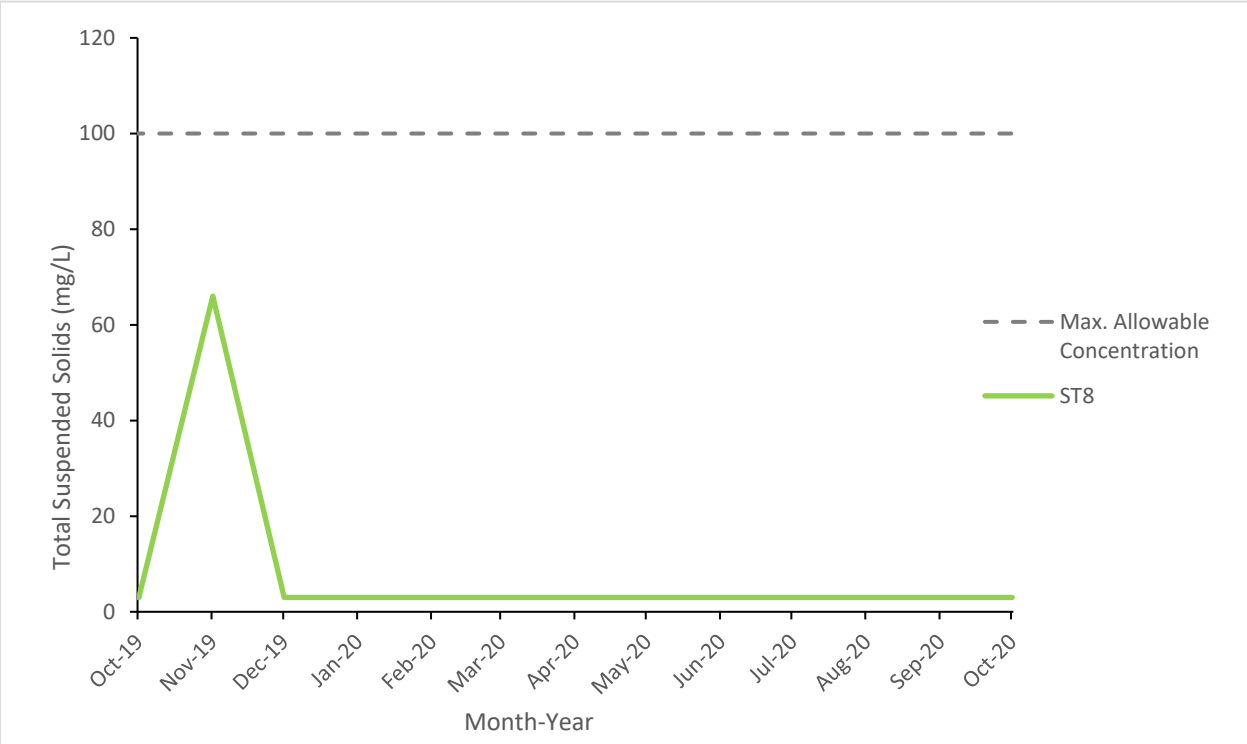
Figure 1 and 2 illustrates effluent quality characteristics for parameters of interest at select monitoring stations.

Figure 1. Biological Oxygen Demand Results Consistently Below Discharge Criteria for Wastewater Treatment Plant (ST8)



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

Figure 2. Total Suspended Solids Results Consistently Below Discharge Criteria for Wastewater Treatment Plant (ST8)



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

Flow and Volume Measurements (Part F, Part I and Schedule I)

Table 1. Effluent discharge, October 2020

Facility	Station Code	Discharge Volume (m^3)	Exceedances of Discharge Criteria	Discharge Location	Licence Reference
Doris Sedimentation Pond *	ST-1	0	N/A	Tailings Impoundment Area	Part F Item 17
Doris Contact Water Pond #1	ST-2	0	N/A	Tailings Impoundment Area	Part F Item 17, 18(a)
Non-Hazardous Landfill Sump	ST-3	0	0	Facility not constructed	Part F Item 18(a)
Landfarm Sump	ST-4	0	0	Tailings Impoundment Area	Part F Item 18(b)
Doris Plant Site Fuel Storage Area	ST-5	0	0	Tailings Impoundment Area	Part F Item 18(b)
Rob Bay Single 5ML Fuel Storage Area	ST-6a	0	0	Tundra Discharge 13W 432954 7563407	Part F Item 18(b)
Rob Bay Fuel Storage and Containment Berm	ST-6b	0	0	Tundra Discharge 13W 432878 7563130	Part F Item 18(b)
Doris Sewage Treatment Plant, Effluent	ST-8	706	0	Tundra Discharge 13W 432933 7559057	Part F Item 5(b-c)
Doris Sewage Treatment Plant, Sludge	N/A	31.5	N/A	Tailings Impoundment Area	Part I Item 5(f)
Doris Reagent and Cyanide Storage Facility Sump	ST-11	0	N/A	Tailings Impoundment Area	Part F Item 17
Doris Contact Water Pond #2	ST-13	0	N/A	Facility not constructed	Part F Item 17
Doris Mine Water Discharge	TL-12	49,807	N/A	Robert's Bay; Tailings Impoundment Area	
Madrid North Contact Water Pond	MMS-1	0	0	Tundra Discharge 13W 433203 7549806	Part F Item 17, 18(a)
Madrid South Primary Contact Water Pond	MMS-2	0	N/A	Facility not constructed	Part F Item 17, 18(a)
Madrid South Secondary Contact Water Pond	MMS-3	0	N/A	Facility not constructed	Part F Item 17, 18(a)
Madrid South Fuel Storage Facility	MMS-5	0	0	Facility not constructed	Part F Item 18(b)
Madrid North Connector	MMS-7	0	N/A	No dewatering occurring at this time	
Madrid North Fuel Storage Facility	MMS-8	0	0	Facility not constructed	Part F Item 18(b)
Madrid Mine Water Discharge	MMS-10	0	N/A	Facility not constructed	

Records of visual monitoring of discharge to tundra are maintained on file as per Part I Item 11.
* Note: Volume reported includes effluent transferred from the Doris Contact Water Pond #1, Landfarm Sump, and Doris Plant Site Fuel Storage Area. Notification of anticipated discharges was provided to the Inspector on May 11, 2020.

Table 2. Discharge from TIA to Roberts Bay, October 2020

Month	Number of days of discharge	Discharge Volume (m^3)	Exceedances of Discharge Criteria*
January	0	0	0
February	29	154,211	0
March	31	172,675	0
April	30	165,578	0
May	31	167,282	0
June	30	147,624	0
July	31	170,302	0
August	12	67,952	0
September	0	0	0
October	0	0	0
Annual Cumulative	**194**	**1,045,624**	**0**

* Discharge criteria as outlined in *Metal and Diamond Mining Effluent Regulations*.
Acute Lethality testing conducted as outlined in Part F Item 22 and Part I Item 14

Table 3. Water Usage, October 2020

Month	Windy Lake (ST-7A)	Doris Lake (ST-7)					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)	
January	1,492	0	0	289	0	93	1,874
February	1,448	0	76	138	0	445	2,107
March	1,529	0	0	20	0	208	1,757
April	759	0	0	13	0	32	804
May	733	0	0	0	0	0	733
June	729	0	0	7	112	0	848
July	1,004	0	0	205	240	0	1,449
August	809	0	0	209	0	0	1,018
September	685	0	0	145	0	0	830
October	695	0	0	185	0	0	880
Annual Total	9,883	0	76	1,211	352	778	12,300
Annual Allowance	**43,800**			**1,930,000**		**60,000**	**2,033,800**

As permitted by water licence 2AM-DOH1335 Part E Item 1 and Part I Item 5(a)(b).
* Includes industrial uses such as mining, core processing, concrete batching, etc.

Table 4. Volume of Reclaim Water from the TIA for Process Water, October 2020

Month	Reclaim Water (m^3) *
January	76,601
February	64,317
March	67,732
April	68,825
May	67,457
June	62,787
July	65,822
August	60,015
September	45,973
October	71,946
Annual Cumulative	**651,475**

* As per Part E Item 5 and Part I Item 5(c)
Numbers rounded to the nearest cubic meter.

Table 5. Doris Waste Rock and Ore Volumes, October 2020

Month	Waste Rock Management					Underground Void Space			Ore Processing and Tailings Management		
	Produced from Mining Activity (tonnes)	Backfilled Directly to Mine (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 Detoxified Tailings Placed Underground** (tonnes)
December Balance	-	-	-	-	781,072	-	1,547,057	682,081	-	-	-
January	28,787	19,646	2,040	9,141	781,072	26,949	1,547,057	682,081	29,858	28,606	1,229
February	17,050	18,344	2,640	-1,294	777,138	23,033	1,524,024	691,250	29,195	27,569	1,622
March	21,580	22,322	3,140	-742	773,256	4,798	1,519,226	694,085	41,517	39,696	1,813
April	5,709	10,124	4,336	-4,415	764,505	1,662	1,520,887	696,227	38,579	36,569	2,026
May	2,511	13,676	7,948	-11,165	745,392	-6,214	1,512,141	695,942	33,221	31,813	1,407
June	3,155	11,824	4,980	-8,669	731,743	-3,872	1,508,269	696,338	49,280	46,871	2,449
July	3,766	15,711	6,440	-11,945	713,358	-7,192	1,501,077	696,069	30,703	29,513	1,217
August	2,427	10,412	5,280	-7,985	700,093	-3,504	1,497,573	696,704	23,858	22,804	1,037
September	7,455	10,032	820	-2,577	696,696	7,241	1,504,814	699,583	12,105	11,513	681
October	2,030	11,832	4,560	-9,772	682,364	-3,946	1,500,869	699,802	33,852	32,145	1,608
Cumulative Total	94,500	143,923	42,184	-49,423	682,364	38,956	1,500,869	699,802	322,168	307,099	15,089

* As per Part I Item 5(d)(e)

** As per Part I Item 6

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 detoxified tailings was returned underground compared to the volume of void space created from new mining activities.

Table 6. Madrid North Waste Rock and Ore Volumes, October 2020

Month	Waste Rock Management						Underground Void Space			Ore Produced
	Produced from Mining Activity (tonnes)	Backfilled Directly to Mine (tonnes)	Returned Underground from Temporary Waste Rock Pile* (tonnes)	Moved to Temporary Waste Rock Pile (tonnes)*	Used for Construction (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 Produced** (tonnes)
December Balance	-	-	-	-	-	-	-	-	-	-
January	65,213	749	0	60,206	4,258	309,506	85,898	447,547	159,838	21,658
February	35,380	0	0	30,926	4,454	340,432	20,473	468,020	180,311	21,945
March	9,994	0	0	9,994	0	350,426	24,952	529,824	189,223	14,958
April	0	0	0	0	0	350,426	0	529,824	189,223	0
May	0	0	0	0	0	350,426	0	529,824	189,223	0
June	0	0	0	0	0	350,426	0	529,824	189,223	0
July	0	0	0	0	0	350,426	0	529,524	189,223	0
August	0	0	0	0	0	350,426	0	529,524	189,223	0
September	0	0	0	0	0	350,426	0	529,524	189,223	0
October	0	0	0	0	0	350,426	0	529,524	189,223	0
Cumulative Total	110,587	749	0	101,126	8,712	350,426	168,175	529,824	189,223	58,561

* As per Part I Item 5(d)(e)

** As per Part I Item 6

Note: Void space created from mining activities is determined as the sum of the initial 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 was returned underground compared to the volume of void space created from new mining activities.

Table 7. Doris Lake Water Level (ST-12), October 2020

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)^
January	21.712	21.748	21.726	-0.088	-0.103
February	21.698	21.729	21.713	0.031	-0.013
March	21.675	21.715	21.692	0.041	-0.021
April	21.645	21.690	21.667	0.045	-0.025
May	21.642	21.659	21.652	0.017	-0.015
June	21.647	22.222	21.961	0.575	0.309
July	21.839	22.120	21.965	0.281	0.004
August	21.727	21.832	21.765	0.105	-0.200
September	21.724	21.744	21.734	0.020	-0.031
October	21.725	21.760	21.744	0.035	0.010

* 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.

Waste Management (Part F Item 10 and 11)

In October, TMAC shipped hazardous waste offsite via empty cargo aircraft. Table 8 below summarizes the type and volume of waste shipped offsite during this month. All waste was transported to Yellowknife and will be received by KBL Environmental for final remediation and/or disposal.

Table 8. Waste Backhaul Summary, October 2020

Waste Type Shipped	Volume Shipped* (m^3)
Used Glycol	3
Kitchen Grease	2
Waste Leachate - Mix	4

* Numbers rounded to the nearest cubic meter.

Summary of Assessments of Water Balance and Water Quality Model (Part F Item 24 and Part I Item 12 c)

Average monthly water quality, hydrologic, and climatic monitoring data were collected while in operations during October. 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 2020.

Thermal Monitoring (Part I Items 7, 8 and Schedule I)

Thermal monitoring undertaken as per Part I Items 7, 8 and Schedule I is reported in the annual Geotechnical Report.

Site Freshet and Precipitation Conditions (Part I Item 12(d))

Visual monitoring was conducted during major rain events and periods of sustained precipitation in October.

No issues were identified at the Diversion Berm and associated check dam as surface water was observed to be frozen during the month of October. Photos of this infrastructure are provided in Figure 3 below.

Inspections were completed of site culverts throughout the month of October. No issues were identified with these water management structures as they were observed to be frozen due to the onset of winter.

Figure 3. Diversion berm during October 2020

Incident Reporting

No incidents pertaining to this licence occurred this month.

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

Yours sincerely,

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

Cc:
Omer Pasalic, Water Resources Officer, CIRNAC
Oliver Curran, Vice President - Environmental Affairs, TMAC

Figure 4. 2AM-DOH1335 SNP Monitoring Locations

Figure 5. 2AM-DOH1335 SNP Monitoring Locations

Figure 6. 2AM-DOH1335 SNP Monitoring Locations