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August 31, 2020

Licensing
Nunavut Water Board
P.O. Box 119
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Re: July 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.

Dewatering of the Tailings Impoundment Area (TIA) and the Doris underground workings through the Robert's Bay Discharge System continued in July. Dewatering of the Doris underground workings through the mill tailings system to the TIA also continued this month.

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 July.

Sampling locations monitored under this licence (seasonally or when facilities are operational) are provided in Figure 6 through Figure 8 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 July 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).

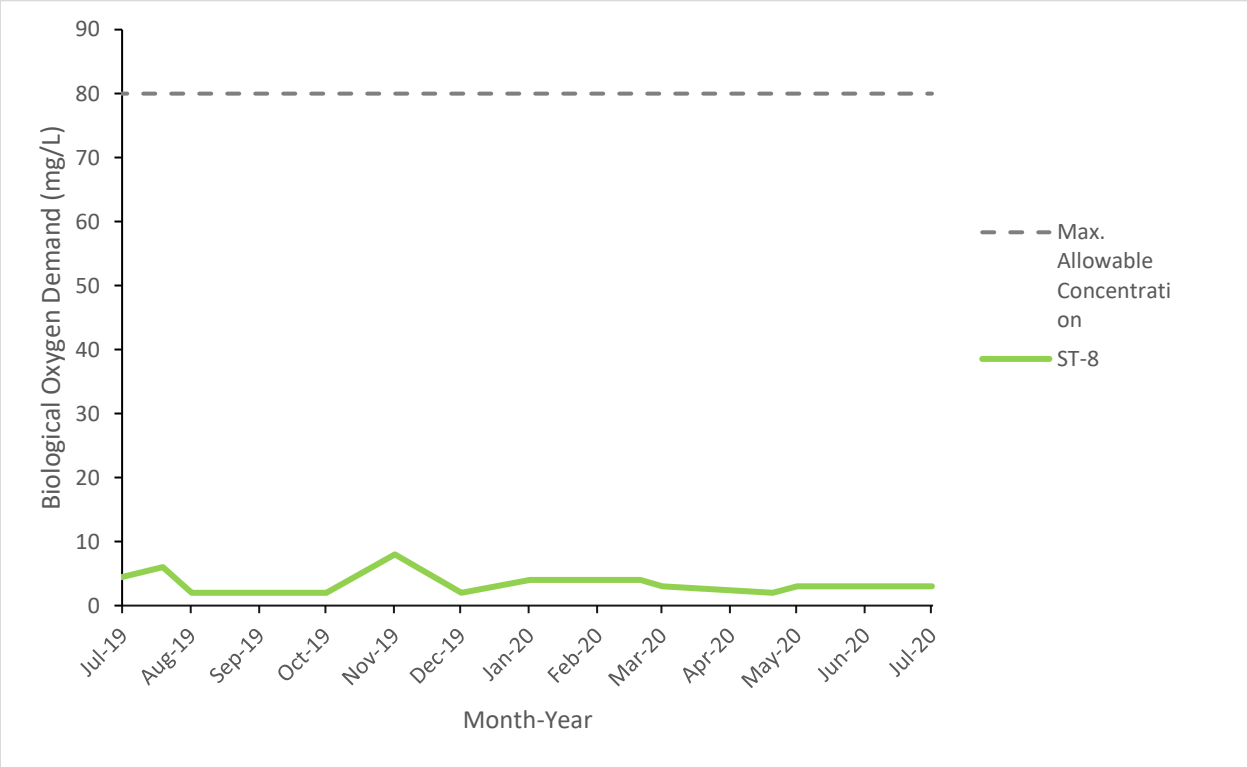
All parameters were compared to the applicable effluent quality limits outlined in Part D and Part F of the licence. No exceedances of effluent quality limits were observed in any samples collected this month. Results of all water quality monitoring are provided in Appendix A attached to this report.

Dewatering of the Roberts Bay Single Tank Farm was conducted in July following receipt of compliant water quality results in June. A total of 2 m^3 was discharged to tundra from the Roberts Bay Single Tank Farm (ST-6A).

A water quality sample was collected from the Madrid North Contact Water Pond (CWP) on July 6 and met the discharge criteria outlined in Part F Item 18(a) of the water licence. A total of 37 m^3 was discharged to the approved tundra discharge point.

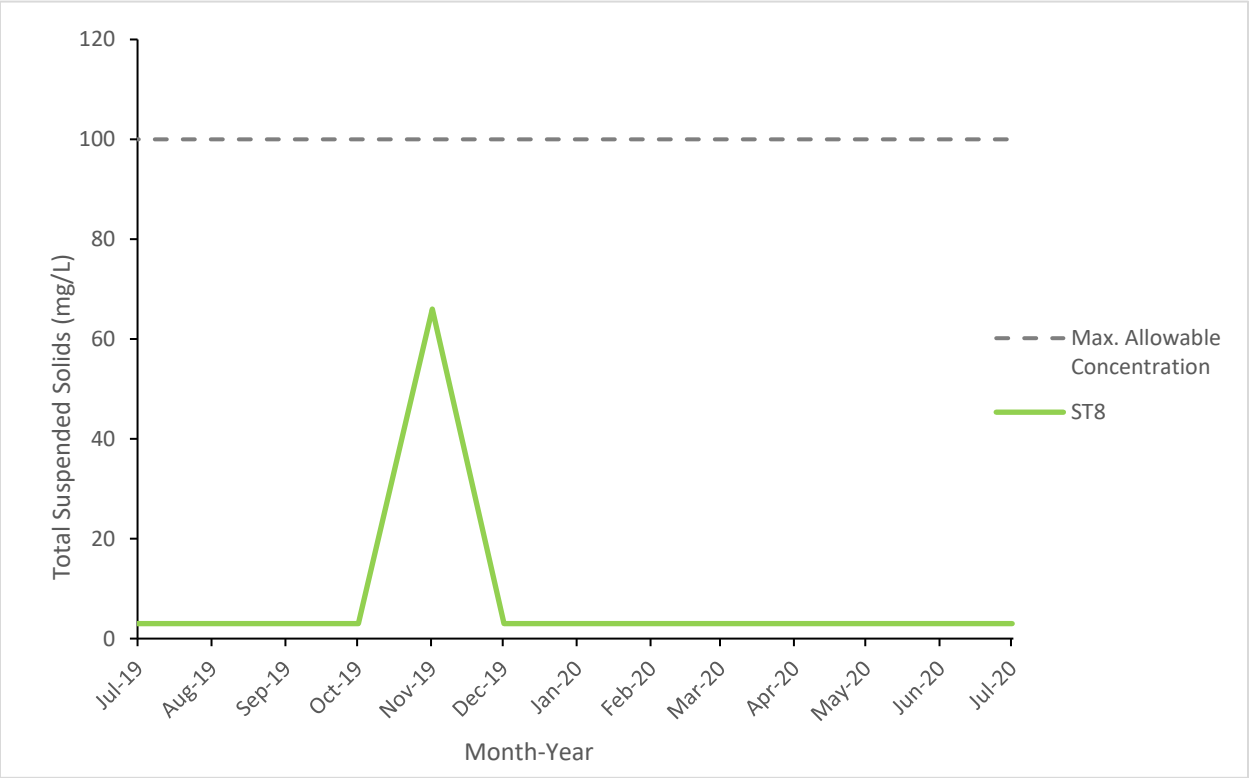
Figure 1 and 2 illustrates effluent quality characteristics for parameters of interest at select monitoring stations.

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, July 2020

Facility	Station Code	Discharge Volume (m^3)	Exceedances of Discharge Criteria	Discharge Location	Licence Reference
Doris Sedimentation Pond *	ST-1	7,634	N/A	Tailings Impoundment Area	Part F Item 17
Doris Contact Water Pond #1	ST-2	290	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	60	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	2	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	639	0	Tundra Discharge 13W 432933 7559057	Part F Item 5(b-c)
Doris Sewage Treatment Plant, Sludge	N/A	28	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	21,393	N/A	Robert's Bay; Tailings Impoundment Area	
Madrid North Contact Water Pond	MMS-1	37	0	Tailings Impoundment Area	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, Doris Plant Site Fuel Storage Area and Madrid North Contact Water Pond.

Notification of anticipated discharges was provided to the Inspector on May 11, 2020.

Table 2. Discharge from TIA to Roberts Bay, July 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	203,891	0
May	31	167,282	0
June	30	147,624	0
July	31	170,302	
Annual Cumulative	**194**	**977,672**	**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, July 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
Annual Total	7,694	0	76	672	352	778	9,572
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, July 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
Annual Cumulative	**473,541**

* 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, July 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
Cumulative Total	82,558	111,647	31,524	-29,089	713,358	39,164	1,501,077	696,069	252,353	240,637	11,763

* 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, July 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
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), July 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

* 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)

Empty cargo aircraft were utilized in July for waste backhaul from the Doris Camp. Table 8 below summarizes the type and volume of waste shipped offsite during this month. A total of 8 m^3 of waste oil was transported to Buffalo Airways Ltd. in Yellowknife for recycling in waste oil heaters at that facility.

Table 8. Waste Backhaul Summary, July 2020

Waste Type Shipped	Volume Shipped* (m^3)
Used Oil	8

* 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 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 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 freshet, major rain events and periods of sustained precipitation in July.

The Diversion Berm and associated check dam were observed to be functioning as designed and diverting non-contact water around the Doris site infrastructure. Photos of this infrastructure are provided in Figure 3 below.

Inspections were completed of site culverts throughout the month of July. No issues were identified with these water management structures. Figure 4 and 5 below shows the upstream and downstream conditions of culverts located at the Marine Outfall Berm Access Road and the Madrid All-Weather Road.

Figure 3. Diversion berm during July 2020

Figure 4. Culvert at Marine Outfall Berm Access Road upstream (left) and downstream (right)

Figure 5. Culverts at Madrid All-Weather Road.

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,

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

Figure 6. 2AM-DOH1335 SNP Monitoring Locations

Figure 7. 2AM-DOH1335 SNP Monitoring Locations

Figure 8. 2AM-DOH1335 SNP Monitoring Locations