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May 28, 2020

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

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 April 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).

Doris Lake ice thickness (ST-12) was measured in April. Ice on Doris Lake was 1.82m thick.

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.

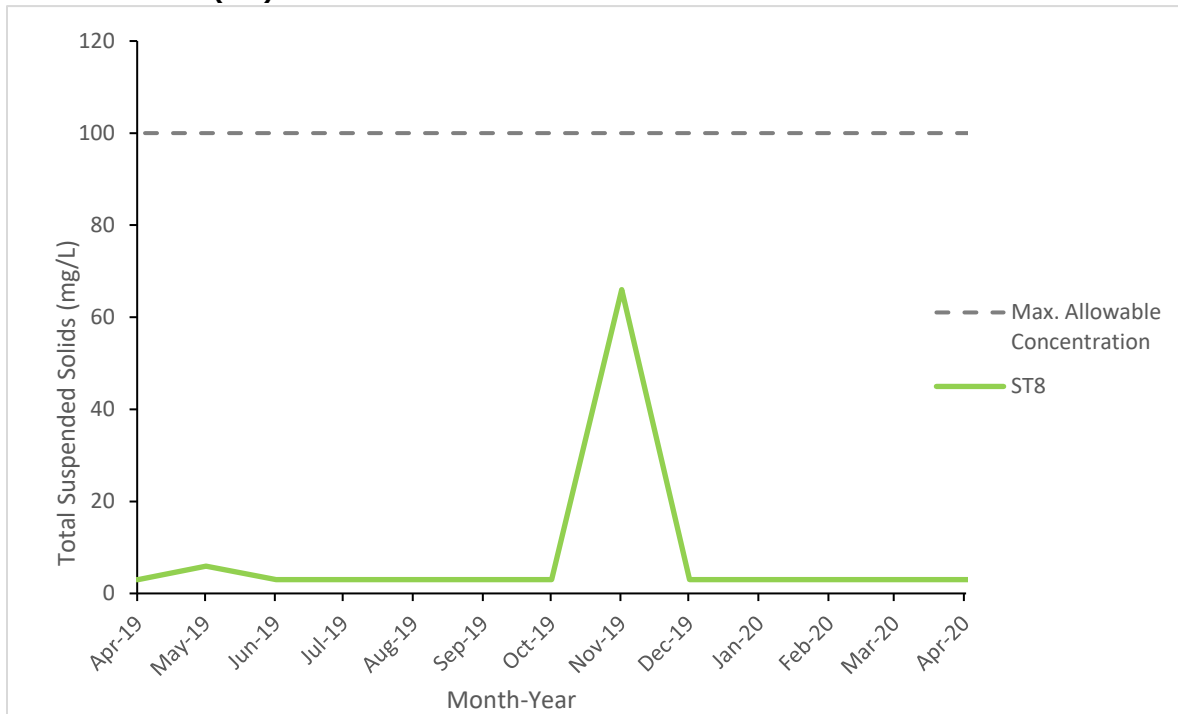
Figure 1 and 2 illustrates effluent quality characteristics for parameters of interest at select monitoring stations.

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, April 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 432904 7563494	Part F Item 18(b)
Rob Bay Fuel Storage and Containment Berm	ST-6b	0	0	Tailings Impoundment Area	Part F Item 18(b)
Doris Sewage Treatment Plant, Effluent	ST-8	721	0	Tundra Discharge 13W 432933 7559057	Part F Item 5(b-c)
Doris Sewage Treatment Plant, Sludge	N/A	23.0	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	59,378	N/A	Robert's Bay; Tailings Impoundment Area	
Madrid North Contact Water Pond	MMS-1	0	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, Rob Bay Fuel Storage and Containment Berm and Doris Mine Water Discharge.

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

Month	Number of days of discharge	Discharge Volume (m³)	Exceedances of Discharge Criteria*
January	0	0	0
February	29	154,211	0
March	31	172,675	0
April	30	203,891	0
Annual Cumulative	90	530,777	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, April 2020

Month	Windy Lake (ST-7A)	Doris Lake (ST-7)					Total Usage
	Domestic Water (m³)	Domestic Water (m³)	Surface Exploration (m³)	Industrial Usage* (m³)	Dust Suppression (m³)	Winter Track (m³)	
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
Annual Total	5,228	0	76	460	0	778	6,542
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, April 2020

Month	Reclaim Water (m³) *
January	76,601
February	64,317
March	67,732
April	68,825
Annual Cumulative	277,475

* 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, April 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 (m³)	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
Cumulative Total	67,417	60,312	7,820	7,105	773,256	54,780	1,519,226	694,085	100,570	95,871	4,664

* 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, April 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 (m³)	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
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), April 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

* 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 April 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 6 m³ of waste oil was transported to Buffalo Airways Ltd. in Yellowknife for recycling in waste oil heaters at that facility. All other waste was transported to KBL Environmental in Yellowknife to arrange for final remediation and/or disposal.

Table 8. Waste Backhaul Summary, April 2020

Waste Type Shipped	Volume Shipped* (m³)
Water contaminated with Hydrocarbons	16
Used Oil	10
Used Oil & Glycol Mix	2
Used Glycol	4
Waste Leachate - Mix	3

* 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 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 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 April.

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 April. No issues were identified with these water management structures as they were observed to be frozen.

Figure 3. Diversion berm frozen during April 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,



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Figure 4. 2AM-DOH1335 SNP Monitoring Locations



Figure 5. 2AM-DOH1335 SNP Monitoring Locations



Figure 6. 2AM-DOH1335 SNP Monitoring Locations

