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December 21, 2016

Licensing
Nunavut Water Board
P.O. Box 119
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Re: November 2016 – 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, and additional requirements from INAC.

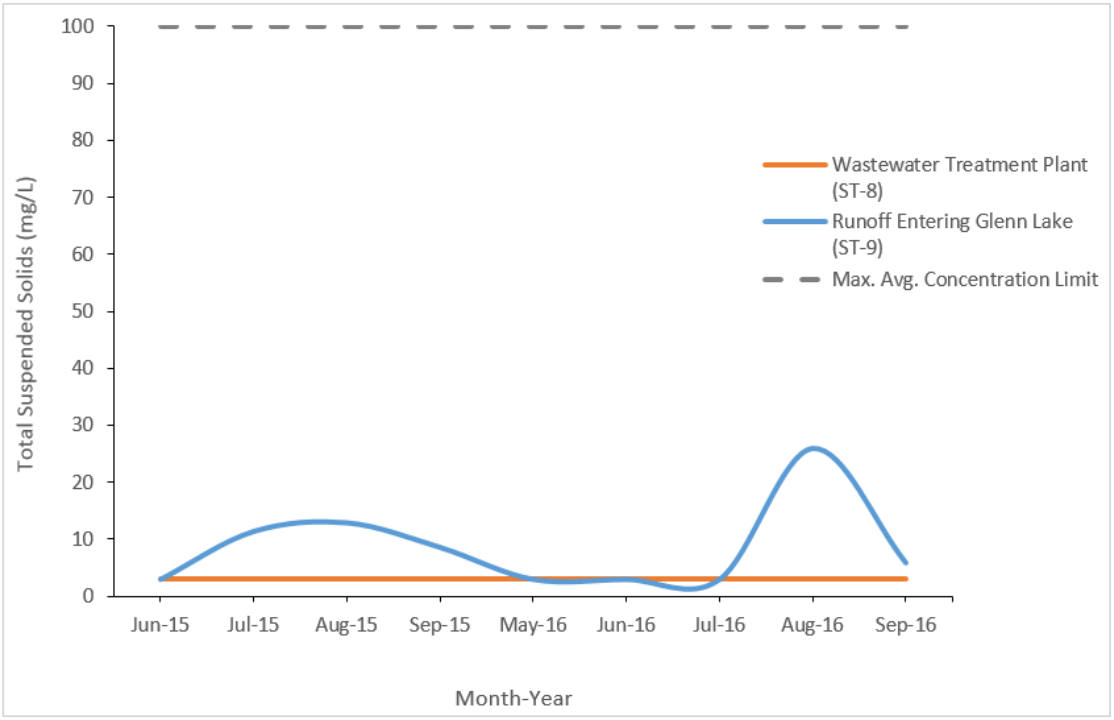
During the subject period of this report the focus of activities at Doris North was underground mining, construction, water management and environmental compliance. Sampling locations monitored under this licence (seasonally or when facilities are operational) are provided in Figure 3 at the end of this report.

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

Water quality sampling was conducted in November at monitoring stations identified in Schedule J of the licence (ST-1 through ST-11, TL-1 through TL-12). Results of this monitoring are provided in Appendix A.

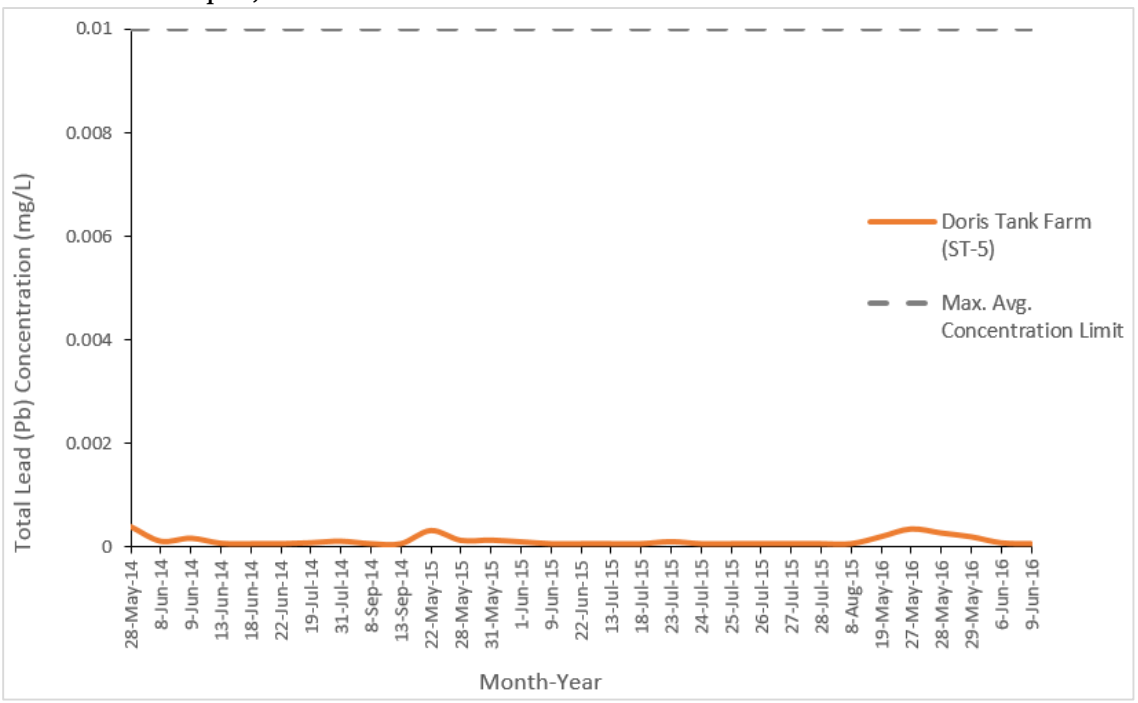
Figures 1 and 2 illustrate effluent quality characteristics for parameters of interest at select monitoring stations.

Figure 1. TSS Results for Wastewater Treatment Plant Discharge and Downstream Runoff Entering Glenn Lake Consistently Below Allowable Discharge Criteria, 2015-2016



Note: Maximum Average Concentration as per Part G Item 3(b).

Figure 2. Total Lead Concentrations in Effluent Discharge from Doris Tank Farm Sump (ST-5) Below Allowable Criteria in All Samples, 2014-2016



Note: Maximum Average Concentration as per Part G Item 24(e).

Flow and Volume Measurements (Part J Items 12, 13, and Schedule J)

Table 1. Effluent discharge, November 2016

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 23(a-d)
Pollution Control Pond	ST-2	0	N/A	Sedimentation Control Pond	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	Sedimentation Control Pond	Part G Item 24 (c, d, g)
Doris Tank Farm	ST-5	0	0	Sedimentation Control Pond	Part G Item 24 (e, f, g)
Rob Bay 5ML Tank Farm	ST-6a	0	0	Sedimentation Control Pond	Part G Item 24 (e, f, g)
Rob Bay Three 5ML Tank Farm	ST-6b	0	0	Sedimentation Control Pond	Part G Item 24 (e, f, g)
Wastewater Treatment Plant, Effluent	ST-8	793	0	Tundra Discharge 13W 432933 7559057	Part G Item 23(b-d)
Wastewater Treatment Plant, Sewage	N/A	4.87	N/A	Incinerated	Part J Item 12 (f)
Reagent and Cyanide Storage Facility Sump	ST-11	0	0	Facility not constructed	Part G Item 23 (a)
Effluent from Process Plant	TL-5	0	N/A	Facility not constructed	
Mine Water Discharge	TL-12	0	N/A	Facility not constructed	

Notification of planned discharges from facilities listed in Schedule J of this licence was provided to the Inspector on May 3, 2016 as per Part G Item 1.

Records of daily visual monitoring of discharged to tundra are maintained on file as per Part J Item 20.

Table 2. Discharge from TIA to Doris Creek, November 2016

Month	Number of days of discharge	Discharge Volume (m^3)	Exceedances of Discharge Criteria*
November	0	0	0
Annual Cumulative	**0**	**0**	**0**

* Discharge criteria outlined in Part G Items 28, 29, 30 and Part J Items 4, 8.
Notification of planned discharge from this facility was provided to the Inspector on May 3, 2016 as per Part G Item 26 (m).
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 for the Tailings Impoundment Area to Doris Creek this month.

Table 3. Water usage, November 2016

Water Usage	Usage by Water Source (m^3)		Total Usage (m^3)	
	Windy Lake (ST-7A)	Doris Lake (ST-7)	Monthly	Annual Cumulative
Domestic Water*	766	0	766	7,643
Doris Surface Exploration Drilling	0	0	0	334
All Other Industrial Water Use**	0	82	82	3,252
Dust Suppression	0	0	0	4,916
Total	**766**	**82**	**848**	**16,145**

* As permitted by water licences 2BE-HOP1222 and 2AM-DOH1323
** Includes industrial uses such as underground drilling, core processing, concrete batching, etc.
No water was applied for ice road development during the month. In total, 1,068 m^3 of water has been applied in 2016 for ice road development. These quantities are not included in the usage indicated in Table 3.

Table 4. Volume of Reclaim Water from the TIA, November 2016

Month	Reclaim Water * (m^3)
November	0
Annual Cumulative	**0**

* As per Part J Item 12(c)

Table 5. Waste Rock and Process Volumes, November 2016

Material	Waste Rock Stored Temporary Waste Rock Pile (tonnes)*	Waste Rock Backfilled Underground* (tonnes)	Dry Combined Tailings Placed in TIA** (tonnes)	Dry Cyanide Leach Residue** (tonnes)	Quantity of Ore Processed** (tonnes)
Monthly Total	14,698	0	0	0	0
Cumulative Total	**377,386**	**0**	**0**	**0**	**0**

* As per Part J Item 12(d, e)
** As per Part J Item 13. Daily disposal volumes of combined tailings and cyanide leach are presented in Appendix B.
Note: A discrepancy was discovered for the volumes of waste rock stored on the Temporary Waste rock pile reported in the October SNP. The correct monthly total for October was 16,815 tonnes with a cumulative total of 362,688 tonnes. This adjustment has been carried forward to the November SNP report.

Ice thickness measurement on the TIA as per Part J Item 12(g) is only required following deposition of tailings.

Summary of Assessments of Water Balance and Water Quality Model (Part G Item 33)

During Operations, monthly assessments will be conducted of the water balance and water quality model. Prior to entering Operations, this assessment is conducted annually and a summary provided in the Annual Report.

Thermal Monitoring (Part J Items 14 and 15)

Thermal monitoring undertaken as per Part J Items 14, 15 and Schedule J is reported in the annual Geotechnical Report.

Daily Visual Assessment of Suspended Sediment at TIA (Part J Item 21(e) and Part G Item 26(j))

No visual assessments for suspended sediment were conducted this month; the TIA was frozen.

Doris North Camp Diversion Berm Effectiveness (Part J Item 21(f))

Monitoring was not conducted on the Diversion Berm this month due to freezing conditions.

Incident Reporting

No incidents pertaining to this licence occurred during this month.

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

Yours sincerely,

M. John Roberts
Vice President, Environmental Affairs
Hope Bay Project
(416) 628-0216

cc. Eva Paul, Water Resources Officer, INAC

Appendix A: Water Quality Monitoring Program Results

Water quality samples were not collected for facilities that have not yet been constructed (ST-3, ST-11 and TL-5 through TL-9) or for facilities where no discharge occurred during the month (ST-4, ST-5, ST-6a, ST-6b and TL-1 through TL-12). No runoff from facilities occurred, therefore no samples were collected under monitoring station ST-10 (Part D Item 18).

Table 6. Water Intake Facilities, Doris Lake (ST7) and Windy Lake (ST7a), November 2016

		Sample ID	ST7-15NOV16	ST7A-01NOV16
		ALS ID	L1857948-1	L1851851-1
		Date Sampled	11/15/2016 07:55	11/01/2016 08:50
Parameter	**Units**	**Detection Limit**	**Water**	**Water**
Hardness (as CaCO3)	mg/L	0.5	52.5	74.2
pH	pH	0.1	7.84	7.95
Total Suspended Solids	mg/L	3	6.6	<3.0
Ammonia, Total (as N)	mg/L	0.005	0.012	<0.0050
Nitrate (as N)	mg/L	0.005	0.007	<0.0050
Nitrite (as N)	mg/L	0.001	<0.0010	<0.0010
Orthophosphate-Dissolved (as P)	mg/L	0.001	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	0.002	0.021	0.003
Cyanide, Total	mg/L	0.005	<0.0050	<0.0050
Cyanide, Free	mg/L	0.005	<0.0050	<0.0050
Fecal Coliform [1]	MPN/100mL	1	<1	<1*
Aluminum (Al)-Total	mg/L	0.005	0.0569	0.0385
Antimony (Sb)-Total	mg/L	0.0005	<0.00050	<0.00050
Arsenic (As)-Total	mg/L	0.0005	<0.00050	<0.00050
Barium (Ba)-Total	mg/L	0.02	<0.020	<0.020
Beryllium (Be)-Total	mg/L	0.001	<0.0010	<0.0010
Boron (B)-Total	mg/L	0.1	<0.10	<0.10
Cadmium (Cd)-Total	mg/L	0.000005	<0.0000050	<0.0000050
Calcium (Ca)-Total	mg/L	0.1	8.83	12.7
Chromium (Cr)-Total	mg/L	0.001	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	0.0003	<0.00030	<0.00030
Copper (Cu)-Total	mg/L	0.001	0.0021	<0.0010
Iron (Fe)-Total	mg/L	0.03	1.59	0.032
Lead (Pb)-Total	mg/L	0.0005	<0.00050	<0.00050
Lithium (Li)-Total	mg/L	0.001	0.0032	0.0034
Magnesium (Mg)-Total	mg/L	0.1	7.4	10.3
Manganese (Mn)-Total	mg/L	0.0003	0.0748	0.00098
Mercury (Hg)-Total	mg/L	0.000005	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.001	<0.0010	<0.0010
Nickel (Ni)-Total	mg/L	0.001	<0.0010	<0.0010
Potassium (K)-Total	mg/L	2	2.2	4.2
Selenium (Se)-Total	mg/L	0.00005	0.000066	<0.000050
Silver (Ag)-Total	mg/L	0.00002	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	2	31	56.7
Thallium (Tl)-Total	mg/L	0.0002	<0.00020	<0.00020
Tin (Sn)-Total	mg/L	0.0005	<0.00050	<0.00050
Titanium (Ti)-Total	mg/L	0.01	<0.010	<0.010
Uranium (U)-Total	mg/L	0.0002	<0.00020	<0.00020
Vanadium (V)-Total	mg/L	0.0005	<0.00050	<0.00050
Zinc (Zn)-Total	mg/L	0.005	0.007	<0.0050
Biochemical Oxygen Demand	mg/L	2	<2.0	<2.0
Oil and Grease	mg/L	5	<5.0	<5.0
Oil and Grease (Visible Sheen)	n/a	n/a	NO	NO

* Results on Lab Work Order L1851835-1 for Potable Water Station PDC10 (same location as ST-7a)

[1] Analytical methodology used by laboratory to determine Fecal coliform concentrations has changed. Results now presented as Most Probable Number per 100mL (MPN/100mL).

Table 7. Wastewater Treatment Plant (ST-8a, ST-8b), November 2016

			Sample ID	ST8A-08NOV16a	ST8A-08NOV16b*	ST8B-08NOV16	Part G Item 3(b)	
			ALS ID	L1855010-1	L1855010-4	L1855010-2	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
			Date Sampled	08/11/2016 8:31	08/11/2016 8:31	08/11/2016 8:18		
Parameter	**Units**	**Detection Limit**		**Water**	**Water**	**Water**		
pH	pH units	0.1		7.81	7.81	8.04	6.0 - 9.0	9
Total Suspended Solids	mg/L	3		<3.0	<3.0	<3.0	100	100
Fecal Coliform[1]	MPN/100mL	1		<1	<1	<1	10,000	10,000
Biochemical Oxygen Demand (BOD_5)	mg/L	2		2.0	<2.0	3.0	80	80
Oil and Grease	mg/L	5		<5.0	<5.0	<5.0	5	10
Oil and Grease (Visible Sheen)	n/a	n/a		NO	NO	NO	No Visible Sheen	No Visible Sheen

Bold/shading indicates exceedance of Part G Item 3(b) Maximum Concentration in a Grab Sample. No exceedances observed.

* Duplicate sample.

[1] Analytical methodology used by laboratory to determine Fecal coliform concentrations has changed. Results now presented as Most Probable Number per 100mL (MPN/100mL).

Appendix B: Disposal of Tailings and Cyanide Leach Residue

Table 8. Volumes of Tailings and Cyanide Leach Residue Disposal

Date	Dry Combined Tailings Placed in TIA* (tonnes)	Dry Cyanide Leach Residue* (tonnes)
Nov-01	0	0
Nov-02	0	0
Nov-03	0	0
Nov-04	0	0
Nov-05	0	0
Nov-06	0	0
Nov-07	0	0
Nov-08	0	0
Nov-09	0	0
Nov-10	0	0
Nov-11	0	0
Nov-12	0	0
Nov-13	0	0
Nov-14	0	0
Nov-15	0	0
Nov-16	0	0
Nov-17	0	0
Nov-18	0	0
Nov-19	0	0
Nov-20	0	0
Nov-21	0	0
Nov-22	0	0
Nov-23	0	0
Nov-24	0	0
Nov-25	0	0
Nov-26	0	0
Nov-27	0	0
Nov-28	0	0
Nov-29	0	0
Nov-30	0	0
Total	**0**	**0**

* As per Part J Item 13(a, b)

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