February 29, 2020

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

Water Resources Officer, CIRNAC
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0

RE: Water Licence 2AM-MRY1325 Monthly Surveillance Network Program (SNP) Report January 2020

The following is the monthly report for January 2020 as required under Part I, Item 21 of the Type 'A' Water Licence 2AM-MRY1325 (the Licence) which states:

"The Licensee shall submit to the Board, within thirty (30) days following the month being reported, a Monthly Monitoring Report. The Report shall include:

a) All data and information required by this Part and generated by the Monitoring Program in the tables of Schedule I

b) An assessment of data to identify areas of non-compliance with regulated discharge parameters referred to in Part F"

Monitoring Program

During the month of January 2020, water samples were collected as part of the Water Licence SNP.

Table 1.1 presents a list of samples/monitoring required under the Licence and the details concerning which water quality samples were collected along with sample date/laboratory identification number as appropriate. Analytical water quality testing results received are presented in Table 2.1 – 2.3. Water volumes consumed for domestic and industrial water purposes and the volumes of effluent discharged at the Mary River Mine Site and Milne Port are presented in Table 3.1.

Monitoring Program Results

Water Sampling and Analysis Results

Table 2.1 – 2.3 provides the analytical results related to the SNP sampling requirements for January 2020. There was one (1) exceedance of a site specific grab sample. Faecal coliforms were measured at 1,300 CFU/100 mL in the Mine Site Sewage Treatment Plant (STP) sample (MS-01B) collected on January 15, 2020, exceeding the permitted discharge limit for faecal coliforms of 1,000 CFU/100 mL. It is suspected that the high faecal coliforms result is due to sampling or external laboratory error.

At the time the sample was collected, the STP was functioning as designed. As a precaution, however, the UV bulbs were replaced following receipt of the external laboratory results on February 6. The monthly effluent sample for February was collected and sent for external laboratory analysis on February 4 prior to the replacement of the UV bulbs. The external laboratory results for the effluent discharge sample collected on February 4 indicate the sample contained 0 CFU/100 mL faecal coliforms, confirming the STP was functioning as designed prior to the UV bulb replacement and, therefore, at the time the January 15

sample was collected. The analytical results for the February 4 MS-01B sample are included in Table 2.1 – 2.3.

Flow and Volume Measurements

Table 3.1 provides a breakdown of volume measurements as required by Part I, Item 9 of the Licence for January 2020. There were no exceedances of the source specific daily volume withdrawal limits in January.

We trust that the information provided in this monthly report is acceptable and should you have any questions regarding this report please contact the undersigned.

Prepared by:

Connor Devereaux
Environmental Superintendent

Reviewed by:

Christopher Murray
Environmental & Regulatory Compliance Manager

cc: Justin Hack, Jeremy Fraser (CIRNAC)
Jared Ottenhof, Chris Spencer (QIA)
Tim Sewell, Megan Lorde-Hoyle, Lou Kamermans, Shawn Stevens, Sylvain Proulx, Francois Gaudreau, Brian Marshall, Amanda McKenzie (Baffinland)

Attachments

Attachments – Monthly Water Sampling Results: Table 1.1, Table 2.1 – 2.3, Table 3.1

Attachments

Monthly Water Sampling Results

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Table 1.1: Monitoring Program Water Sampling Summary for January 2020

Monitoring Program Station	Sampling Date	Lab ID Number	Comment
Milne Port			
MP-01 (Sewage Treatment Facility)	2020-01-15	L2406386-1	Volume reported daily during discharge
MP-0101 (Field Duplicate of MP-01)	2020-01-15	L2406386-3	Field Duplicate
MP-01A (Polishing Waste Stabilization Pond)	N/A	N/A	No flow
MP-01B (Sewage Treatment Facility)	N/A	N/A	No flow
MP-MRY-2 (Freshwater Intake at Phillips Creek)	N/A	N/A	No water withdrawal
MP-MRY-3 (Freshwater Intake from Km 32 Lake)	N/A	N/A	Withdrawal volume recorded daily
MP-02 (Milne Port Maintenance Shop)	N/A	N/A	No flow
MP-03 (Bulk Fuel Storage Facility Stormwater)	N/A	N/A	No flow
MP-04 (Landfarm Facility & Snow Containment Facility)	N/A	N/A	No flow
MP-05 Ore Stockpile Sedimentation Pond (East)	N/A	N/A	No flow
MP-06 Ore Stockpile Sedimentation Pond (West)	N/A	N/A	No flow
MP-C-A (Downstream of Construction Area)	N/A	N/A	No flow
MP-C-B (Downstream of Construction Area)	N/A	N/A	No flow
MP-C-B01 (Downstream of Construction Area)	N/A	N/A	No flow
MP-C-C (Downstream of Construction Area)	N/A	N/A	No flow
MP-C-D (Downstream of Construction Area)	N/A	N/A	No flow
MP-C-E (Downstream of Construction Area)	N/A	N/A	No flow
MP-C-F (Downstream of Construction Area)	N/A	N/A	No flow

Monitoring Program Station	Sampling Date	Lab ID Number	Comment
MP-C-G (Downstream of Construction Area)	N/A	N/A	No flow
MP-C-H (Downstream of Construction Area)	N/A	N/A	No flow
MP-Q1-01 (Downstream of Q1 Quarry)	N/A	N/A	No flow
MP-Q1-02 (Downstream of Q1 Quarry)	N/A	N/A	No flow
Mary River Mine Site			
MS-01 (Sewage Treatment Facility)	2020-01-15	L2406388-1	Discharge volume reported daily
MS-0101 (Field Duplicate of MS-01)	2020-01-15	L2406388-3	Field Duplicate
MS-01A (Mine Site Polishing Waste Stabilization Pond)	N/A	N/A	No flow
MS-01B (Sewage Treatment Facility)	2020-01-15	L2406402-1	Discharge volume reported daily
MS-02 (Mine Site Maintenance Shop)	N/A	N/A	No flow
MS-MRY-1 (Freshwater Intake Camp Lake)	N/A	N/A	Withdrawal volume recorded daily
MS-MRY-04A	N/A	N/A	No flow
MS-MRY-04B	N/A	N/A	No flow
MS-MRY-04C	N/A	N/A	No flow
MS-03 (Milne Site Bulk Fuel Storage Facility Stormwater)	N/A	N/A	No flow
MS-04 (Mine Site Fuel Unloading Station Stormwater)	N/A	N/A	No flow
MS-05 (Mine Site Landfarm Facility)	N/A	N/A	Not constructed
MS-06 (Ore Stockpile Pond Stormwater)	N/A	N/A	No flow
MS-07 (Run of Mine Ore Stockpile Pond Stormwater)	N/A	N/A	Not constructed
MS-08 (Mine Waste Rock Stockpile Pond)	N/A	N/A	No flow
MS-09 (Waste Rock Stockpile East Pond)	N/A	N/A	No flow

Monitoring Program Station	Sampling Date	Lab ID Number	Comment
MS-MRY-6 (Exploration Camp Bladder Farm Stormwater)	N/A	N/A	No flow
MS-MRY-9 (Deposit 1 Surface Water Drainage)	N/A	N/A	No flow
MS-MRY-10 (Deposit 1 Surface Water Drainage)	N/A	N/A	No flow
MS-MRY-13A (Downstream Non-Hazardous Landfill)	N/A	N/A	No flow
MS-MRY-13B (Downstream Non-Hazardous Landfill)	N/A	N/A	No flow
MS-C-A (Downstream of Construction and Borrow Areas)	N/A	N/A	No flow
MS-C-B (Downstream of Construction and Borrow Areas)	N/A	N/A	No flow
MS-C-C (Downstream of Construction and Borrow Areas)	N/A	N/A	No flow
MS-C-D (Downstream of Construction and Borrow Areas)	N/A	N/A	No flow
MS-C-E (Downstream of Construction and Borrow Areas)	N/A	N/A	No flow
MS-C-F (Downstream of Construction and Borrow Areas)	N/A	N/A	No flow
MS-C-G (Downstream of Construction and Borrow Areas)	N/A	N/A	No flow
MS-C-H (Downstream of Construction and Borrow Areas)	N/A	N/A	No flow
MQ-C-A (Downstream of QMR2 Quarry)	N/A	N/A	No flow
MQ-C-B (Downstream of QMR2 Quarry)	N/A	N/A	No flow
MQ-C-D (Downstream of QMR2 Quarry)	N/A	N/A	No flow

Monitoring Program Station	Sampling Date	Lab ID Number	Comment
Steensby Port			
Steensby Exploration Camp is presently inactive.	N/A	N/A	N/A

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Table 2.1: Water Quality Results for Water Licence Monitoring Location - MP-01

Analyte	Sample ID			MP-01	MP-0101
	ALS Laboratory Sample ID			L2406386-1	L2406386-3
	Sample Date & Time			15/01/2020 13:45	15/01/2020 13:45
	QA/QC Sample Type			N/A	Field Duplicate
	Units	LOR	Criteria[1]		
pH	pH units	0.10	6.0 - 9.5	7.52	7.52
Total Suspended Solids	mg/L	2.0	120	11.2	8.0
Ammonia, Total (as N)	mg/L	0.010	-	0.096	0.094
Total Kjeldahl Nitrogen	mg/L	0.15	-	1.95	1.43
Phosphorus, Total	mg/L	0.030	-	8.61	8.82
Fecal Coliforms	CFU/100 mL	0	10,000	0	1
BOD	mg/L	2.0	100	2.6	<2.0
Oil and Grease, Total	mg/L	2.0	-	<2.0	<2.0
	-	-	No Visible Sheen	No Visible Sheen	No Visible Sheen

Notes:

Bold highlight indicates result that exceeded the applicable water quality criteria.

[1] Type A Water Licence (2AM-MRY1325 - Amend. 1) - Table 5: Effluent Quality Discharge Limits for Sewage Treatment Facilities to the Ocean.

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Table 2.2: Water Quality Results for Water Licence Monitoring Location - MS-01

Analyte	Sample ID			MS-01	MS-0101
	ALS Laboratory Sample ID			L2406388-1	L2406388-3
	Sample Date & Time			15/01/2020 15:00	15/01/2020 15:00
	QA/QC Sample Type			N/A	Field Duplicate
	Units	LOR	Criteria[1]		
pH	pH units	0.10	6.0 - 9.5	7.75	7.77
Total Suspended Solids	mg/L	2.0	35	6.4	6.2
Ammonia, Total (as N)	mg/L	0.010	4.0	0.115	0.113
Total Kjeldahl Nitrogen	mg/L	0.15	-	1.38	1.20
Phosphorus, Total	mg/L	0.0060	4.0	1.10	1.10
Fecal Coliforms	CFU/100 mL	10	1000	110	80
BOD	mg/L	2.0	30	<2.0	<2.0
Oil and Grease, Total	mg/L	2.0	-	<2.0	<2.0
	-	-	No Visible Sheen	No Visible Sheen	No Visible Sheen

Notes:

Bold highlight indicates result that exceeded the applicable water quality criteria.

[1] Type A Water Licence (2AM-MRY1325 - Amend. 1) - Table 4: Effluent Quality Discharge Limits for Sewage Treatment Facilities to Freshwater Receiving Environment.

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Table 2.3: Water Quality Results for Water Licence Monitoring Location - MS-01B

Analyte	Sample ID			MS-01B	MS-01B	MS-01B-01
	ALS Laboratory Sample ID			L2406402-1	L2414001-1	L2414001-3
	Sample Date & Time			15/01/2020 15:00	04/02/2020 15:00	04/02/2020 15:00
	QA/QC Sample Type			N/A	N/A	Field Duplicate
	Units	LOR	Criteria[1]			
pH	pH units	0.10	6.0 - 9.5	8.01	7.29	7.36
Total Suspended Solids	mg/L	2.0	35	<2.0	<2.0	<2.0
Ammonia, Total (as N)	mg/L	0.010	4.0	0.059	0.132	0.710
Total Kjeldahl Nitrogen	mg/L	0.15	-	1.09	0.45	0.98
Phosphorus, Total	mg/L	0.0060	4.0	1.54	0.0216	0.0195
Fecal Coliforms	CFU/100 mL	100	1000	**1300**	0	0
BOD	mg/L	2.0	30	<2.0	<2.0	<2.0
Oil and Grease, Total	mg/L	2.0	-	<2.0	<2.0	<2.0
	-	-	No Visible Sheen	No Visible Sheen	No Visible Sheen	No Visible Sheen

Notes:

Bold highlight indicates result that exceeded the applicable water quality criteria.

[1] Type A Water Licence (2AM-MRY1325 - Amend. 1) - Table 4: Effluent Quality Discharge Limits for Sewage Treatment Facilities to Freshwater Receiving Environment.

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Table 3.1: Flow and Volume Measurements-Part I Item 11 - January 2020

DATE	Camp Lake Freshwater for Domestic Use - Daily Water (m^3) MS-MRY-1	Camp Lake Freshwater for Industrial Use - Daily Water (m^3) MS-MRY-1	Treated Sewage Effluent (m^3) from MS-01 to Discharge Location #1	Treated Sewage Effluent (m^3) from MS-01B to Discharge Location #1	Sewage Sludge Removed (m^3) from Mine Site WWTPs to Incinerator or Disposal Offsite (Backhaul)	Sewage Sludge Removed (m^3) from Mine Site WWTP to PWSP at Mine Site	Sewage Sludge Removed (m^3) from Lift Stations to PWSP at Mine Site	Km 32 Lake Milne Port Camp Daily Water (m^3) MP-MRY-3	Km 32 Lake Milne Port Camp Fresh Water Use for Industrial Purposes (m^3) MP-MRY-3	Treated Sewage Effluent (m^3) from MP-01 to Milne Port	Treated Sewage Effluent (m^3) from MP-01B to Milne Port	Sewage Sludge Removed (m^3) from Milne Port WWTP to Mine Site WWTP	Sewage Sludge Removed (m^3) from Milne Port WWTP to PWSP at Mine Site	Sewage Sludge Removed (m^3) from Milne Port WWTP to Incinerator or Disposal Offiste (Backhaul)	Sewage Sludge Removed (m^3) from Lift Stations to PWSP at Milne Port	Sewage Sludge Removed (m^3) from Milne Port WWTP to PWSP at Milne Port
1-Jan-20	162.9	8.6	36.0	86.2	1.1	0.0	0.0	37.7	0.0	61.0	0.0	0.0	0.0	0.3	0.0	0.0
2-Jan-20	104.4	0.0	36.0	98.1	0.9	0.0	0.0	40.7	0.0	60.0	0.0	0.0	0.0	0.2	0.0	0.0
3-Jan-20	136.6	0.0	35.0	83.3	0.4	0.0	0.0	30.0	0.0	52.0	0.0	0.0	0.0	0.3	0.0	0.0
4-Jan-20	73.2	0.0	21.0	72.2	0.4	0.0	0.0	35.6	0.0	53.0	0.0	0.0	0.0	0.3	0.0	0.0
5-Jan-20	108.7	0.0	37.0	75.3	0.9	0.0	0.0	31.2	0.0	57.0	0.0	0.0	0.0	0.3	0.0	0.0
6-Jan-20	149.4	0.0	17.0	82.4	2.6	0.0	0.0	34.4	0.0	55.0	0.0	0.0	0.0	0.3	0.0	0.0
7-Jan-20	117.8	0.0	15.0	84.5	2.1	0.0	0.0	34.7	20.4	54.0	0.0	0.0	0.0	0.3	0.0	0.0
8-Jan-20	134.5	0.0	42.0	72.6	1.2	12.0	0.0	39.9	0.0	57.0	0.0	0.0	0.0	0.3	0.0	1.0
9-Jan-20	149.4	0.0	33.0	106.1	1.6	12.0	0.0	38.4	0.0	59.0	0.0	0.0	0.0	0.3	0.0	0.0
10-Jan-20	87.6	0.0	17.0	83.1	1.7	12.0	0.0	24.2	0.0	57.0	0.0	0.0	0.0	0.3	0.0	0.0
11-Jan-20	108.2	11.2	32.0	93.3	1.8	12.0	0.0	53.3	0.0	58.0	0.0	0.0	0.0	0.0	0.0	2.0
12-Jan-20	129.0	22.0	31.0	73.5	1.7	12.0	0.0	42.8	0.0	55.0	0.0	0.0	0.0	0.0	0.0	2.0
13-Jan-20	118.7	0.0	31.0	104.5	1.5	12.0	0.0	39.8	0.0	54.0	0.0	0.0	0.0	0.3	0.0	0.0
14-Jan-20	152.3	25.3	32.0	85.6	1.6	0.0	0.0	34.7	0.0	61.0	0.0	0.0	0.0	0.3	0.0	0.0
15-Jan-20	133.0	0.0	32.0	88.2	1.4	0.0	0.0	34.5	0.0	60.0	0.0	0.0	0.0	0.2	0.0	0.0
16-Jan-20	131.6	6.9	32.0	101.7	1.5	0.0	0.0	37.3	0.0	54.0	0.0	0.0	0.0	0.3	0.0	0.0
17-Jan-20	165.7	9.1	31.0	89.8	1.7	0.0	0.0	38.6	0.0	58.0	0.0	0.0	0.0	0.5	0.0	0.0
18-Jan-20	92.8	6.9	28.0	94.6	1.5	0.0	0.0	50.4	0.0	63.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Jan-20	122.3	0.0	37.0	72.8	1.5	0.0	0.0	54.8	0.0	67.0	0.0	0.0	0.0	0.3	0.0	0.0
20-Jan-20	151.5	0.0	37.0	85.7	1.5	0.0	0.0	43.3	0.0	70.0	0.0	0.0	0.0	0.3	0.0	0.0
21-Jan-20	137.0	13.0	37.0	85.7	1.6	0.0	0.0	51.5	0.0	67.0	0.0	0.0	0.0	0.3	0.0	0.0
22-Jan-20	106.1	11.2	41.0	82.0	1.3	0.0	0.0	45.5	0.0	66.0	0.0	0.0	0.0	0.5	0.0	0.0
23-Jan-20	113.1	0.0	40.0	84.1	1.5	0.0	0.0	36.5	2.0	64.0	0.0	0.0	0.0	0.5	0.0	0.0
24-Jan-20	107.3	0.0	35.0	66.3	1.6	0.0	0.0	51.2	0.0	67.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Jan-20	136.2	11.2	36.0	76.4	1.3	0.0	0.0	37.1	0.0	63.0	0.0	0.0	0.0	0.3	0.0	0.0
26-Jan-20	72.3	5.2	37.0	66.6	1.6	0.0	0.0	44.4	0.0	60.0	0.0	0.0	0.0	0.5	0.0	1.0
27-Jan-20	153.4	9.1	37.0	98.7	1.6	0.0	0.0	48.1	0.0	63.0	0.0	0.0	0.0	0.5	0.0	0.0
28-Jan-20	188.7	0.0	37.0	81.7	1.6	0.0	0.0	44.4	2.0	59.0	0.0	0.0	0.0	0.5	0.0	0.0
29-Jan-20	168.0	7.2	37.0	106.6	1.1	0.0	0.0	51.8	0.0	61.0	0.0	0.0	0.0	0.3	0.0	0.0
30-Jan-20	146.1	0.0	35.0	106.9	1.3	0.0	0.0	42.4	0.0	59.0	0.0	0.0	0.0	0.3	0.0	0.0
31-Jan-20	151.6	12.7	37.0	95.0	1.4	0.0	0.0	36.1	0.0	50.0	0.0	0.0	0.0	0.3	0.0	0.0
Total	**4,009.4**	**159.4**	**1,021.0**	**2,683.5**	**44.1**	**72.0**	**0.0**	**1,265.3**	**24.4**	**1,844.0**	**0.0**	**0.0**	**0.0**	**9.4**	**0.0**	**6.0**

Notes:

WWTP - Waste Water Treatment Plant

PWSP - Polishing Waste Stabilization Pond