95 Wellington Street West
Suite 1010, P.O. Box 44
Toronto Dominion Centre
Toronto, Ontario M5J 2N7
416-628-021

Sent by Email

August 31, 2019

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

Re: July 2019 – Monthly Monitoring Report for Water Licence 2BB-BOS1727

This report is comprised of monitoring requirements as set out in Part J of water licence 2BB-BOS1727. Boston Camp is used to support seasonal surface exploration programs.

During the subject focus of this report, the Boston Camp was used to support a regional surface exploration program conducted in the 2BE-HOP1222 licence area. No surface exploration drilling was conducted under the 2BB-BOS1727 licence this month.

Sampling locations monitored under this licence (seasonally or when facilities are operational) are provided in Figure 1 at the end of this report.

Part J Item 2: Water Use Volumes

In July, water was extracted from Aimaokatalok Lake for domestic use at Boston Camp. All usage from water sources during the month were metered at the source. Daily water usage for the month is presented in Table 1.

Volumes of water used to support the regional surface exploration program are presented in the monthly monitoring report for licence 2BE-HOP1222.

Results of samples collected in July under monitoring station BOS-1A are provided in Appendix A.

Table 1: Daily water usage in cubic meters, July 2019.

Date	Domestic Water Consumption (m^3)	Drill Water Usage Total (m^3)	Total Daily Usage (m^3)
01-Jul	0	0	0
02-Jul	4	0	4
03-Jul	0	0	0
04-Jul	0	0	0
05-Jul	8	0	8
06-Jul	0	0	0
07-Jul	0	0	0
08-Jul	0	0	0
09-Jul	5	0	5
10-Jul	0	0	0
11-Jul	2	0	2
12-Jul	0	0	0
13-Jul	6	0	6
14-Jul	0	0	0
15-Jul	0	0	0
16-Jul	5	0	5
17-Jul	0	0	0
18-Jul	0	0	0
19-Jul	5	0	5
20-Jul	0	0	0
21-Jul	5	0	5
22-Jul	8	0	8
23-Jul	0	0	0
24-Jul	5	0	5
25-Jul	0	0	0
26-Jul	9	0	9
27-Jul	2	0	2
28-Jul	8	0	8
29-Jul	0	0	0
30-Jul	10	0	10
31-Jul	7	0	7
Monthly Total	89	0	89
Annual Total	102	0	102

Part J Item 3: Minewater Discharge Volumes

Minewater was not pumped from underground during this period.

Part J Items 4 and 5: Sewage Disposal Facility Daily Effluent Discharge and Sewage Sludge

Notification of discharge from the Sewage Disposal Facility was provided to the Inspector on May 16. Effluent discharge from the Sewage Disposal Facility (BOS-3) began on July 13 after receiving compliant effluent quality results for a sample collected on July 3. These results met the discharge criteria outlined in Part D Item 14 of the licence. A total of 44 m^3 of treated effluent was discharged to tundra this month.

No sludge was removed from the sewage disposal facility in July.

Part J Items 5: Daily Quantities of Effluent Discharged – Containment Pond, Bulk Fuel Storage, Landfarm and Portal Decline

Notification of discharge for the Containment Pond (BOS-2), the Bulk Fuel Storage facility (BOS-5) and the Portal Decline (BOS-9) was provided to the Inspector on May 16. Effluent quality was confirmed to meet discharge criteria prior to discharge from these facilities.

A total of 95m^3 of compliant effluent was discharged to the tundra from the Containment Pond (BOS-2) in July.

A total of 90 m^3 of compliant effluent was discharged to tundra from the Bulk Fuel Storage facility (BOS-5) through this month.

A total of 79m^3 of compliant effluent was discharged to tundra from the Portal Decline (BOS-9) in July.

No effluent was discharged from the Landfarm (BOS-6) this month.

Part J Items 6 and 7: Water Source and Waste Disposal Coordinates

GPS coordinates of locations of water sources and waste associated with camp and drilling activities are kept on file.

Waste generated at Boston Camp in July was sorted and stored as per the Hazardous and Non-Hazardous Waste Management Plans. This waste will be stored at Boston Camp and transported to the Doris Waste Management Facility via winter track in 2020.

Part J Items 8, 11 and 12 (also Part D Items 6, 17 and 19): Sampling at Containment Pond, Minewater, Bulk Fuel Storage, and Landfarm

Water quality samples were collected from the Containment Pond (BOS-2), the Bulk Fuel Storage facility (BOS-5), and the Portal Decline (BOS-9) prior to discharge from these facilities.

Effluent sampling was completed in June from the Containment Pond (BOS-2) and met the discharge criteria outlined in Part D Item 6 of this licence. Dewatering of this facility occurred in July as described above. No additional sampling was required at this facility in July as all water had been discharged from the facility.

Results of effluent quality sampling conducted in June from the Bulk Fuel Storage Facility (BOS-5) exceeded the *Maximum Concentration in Any Grab Sample* of Part D Item 19 of the licence for Total Arsenic and Total Lead. Water quality treatment was undertaken with an oil water separator containing activated carbon and Metsorb media. An additional sample was collected post-treatment on July 8 and met the discharge critieria outlined in Part D Item 19 of the licence. This facility was dewatered after receiving these compliant results.

Effluent sampling completed in June from the Portal Decline (BOS-9) met the *Maximum Concentration in Any Grab Sample* limits outlined in Part D Item 6 of the licence. Dewatering of this facility occurred in July as described above. No additional sampling was required at this facility in July as all water had been discharged from the facility.

Part J Item 9: Sewage Disposal Facility Effluent

Effluent samples were taken on July 3 at monitoring station BOS-3 prior to discharge from the Sewage Disposal Facility. Results of this sample met the discharge criteria outlined in Part D Item 14 of the licence. An additional sample collected on July 8 was also compliant with this criteria.

No samples were taken at monitoring station BOS-4 as no flow of treated sewage effluent was observed at the point prior to entry into Aimaokatalok Lake. All effluent had effectively been absorbed into the tundra prior to this point.

Part J Item 11: Seepage Monitoring

Seepage at Boston (BOS-8) is monitored seasonally when water is available to sample. No seepage was observed at the BOS-9 monitoring location during the month of July and no samples were collected.

Part J Item 14 (also Part F Item 7): Under-Ice Water Quality Sampling

Not applicable as on-ice drilling did not occur pertaining to licence 2BB-BOS1727.

Incident Reporting

Spill #19-301 – On July 28, 2019, a sewage spill was discovered at the north-west corner of the Boston Camp complex. An estimated 7000L of sewage and grey water from the north section of the camp was released to the camp pad beneath the building and onto the tundra north-west of the building.

A Fernco fitting on the main sewage line had disconnected at some point prior to occupying this section of the camp. It is believed that this fitting had been installed incorrectly and that freeze/thaw conditions over time contributed to the failure. It was also identified that the cribbing under this pipeline is in poor condition and may have contributed to the failure of the fitting. Access issues due to snow drifts when commissioning the camp and a miscommunication between cross-shifts resulted in pre-use inspections of this infrastructure to be overlooked prior to occupying this section of the camp.

Pooling material under the building and on the tundra was recovered into plastic totes for treatment in the Sewage Treatment Plant and lime was placed on the crush pad beneath the building to neutralize odours and bacteria. The failed Fernco fitting was replaced to reconnect the pipes and prevent further release of materials. An expansion joint was ordered and installed on the pipe to replace the Fernco fitting and reduce the risk of failure due to freeze/thaw conditions.

TMAC internally reviewed the incident and identified the following preventative actions in order to reduce the likelihood of a reoccurrence:

- Conduct pre-operational inspections of all sewage and greywater infrastructure during camp commissioning prior to occupying camp, including testing of all infrastructure with water to identify leaks, and document these inspections;
- Conduct daily operational inspections of all sewage and greywater infrastructure while camp is occupied and document these inspections;
- Use of expansion joint fittings for pipe connections where appropriate to reduce risk of failure due to freeze/thaw conditions;
- Conduct full assessment of all connections of sewage and grey water pipelines at Boston Camp and replace as necessary;
- Conduct full assessment of support and cribbing infrastructure for all pipelines at Boston Camp and replace as necessary.

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:
Candice Pederson, Resource Management Officer, CIRNAC
Oliver Curran, Vice President - Environmental Affairs, TMAC
Dan Gagnon, Mine General Manager, TMAC

Figure 1. 2BB-BOS1727 SNP Monitoring Locations