95 Wellington Street W
Suite 1010
P.O. Box 44
Toronto, Ontario
M5J 2N7
416-628-0216

September 30, 2016

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

Re: August 2016 – Monthly Monitoring Report for Water Licence 2BB-BOS1217

This report is comprised of monitoring requirements as set out in Part J of water licence 2BB-BOS1217. Boston Camp was shut down in November 2011 and has not been reopened since that time. Activities at Boston are focussed on seasonal water management and licence compliance; the site remains in a Care and Maintenance status. Sampling locations monitored under this licence (seasonally or when facilities are operational) are provided in Figure 1.

Part J Item 2: Water Use Volumes

No water was used as the camp was not operational.

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

Effluent was not discharged at BOS-3 and no sludge was removed from the sewage disposal facility. The camp was not operational.

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

A discharge notification for these facilities was provided to the Inspector on May 4, 2016. In August, 7 m^3 of water was consolidated in Containment Pond (BOS-2C) from the Bulk Fuel Storage facility (BOS-5). This month 8 m^3 was discharged to tundra from the Containment Pond (BOS-2C) and 93 m^3 was discharged to tundra from the Portal (BOS-2P). No water was discharged from BOS-6 (Landfarm) 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. At this time, there are no water sources being used and no wastes being produced.

Part J Items 8 and 11 (also Part D Items 9 and 19): Sampling at Containment Pond, Minewater, Bulk Fuel Storage, and Landfarm

Water samples were collected during discharge from BOS-2C (Containment Pond) and BOS-2P (Portal) facilities during the month. No samples were collected from BOS-5 (Bulk Fuel Storage) as this water was consolidated into the Containment Pond (BOS-2C), as has occurred in past years. BOS-2C was sampled after water was added from BOS-5, and is tested for parameter requirements of both BOS-2 and BOS-5 from Part

D, Item 19 of the licence. No samples were collected from BOS-6 (Landfarm); there was no water in this facility to sample. Results for all August sampling are presented in Tables 1 and 2 below.

All water in BOS-5 was pumped to Containment Pond BOS-2C for consolidation purposes. Water in the Containment Pond BOS-2C met the criteria for discharge to tundra from BOS-5 (Part D Item 19), BOS-2 (Part D, Item 9) and the criteria for lead authorized by the Inspector on July 20, 2015 (0.01mg/L). This lead criteria is below that for BOS-2 (which is 0.2 mg/L average), but above that of BOS-5 (0.001 mg/L).

Water in BOS-2P (Portal) was compliant with criteria from Part D, Item 9 of the licence for discharge to tundra. Authorization from the Inspector to discharge from this facility was received on May 4, 2016.

Table 1: Water Quality Data Summary for BOS-2C (Containment Pond), August 2016

		Sample ID	BOS2C-14AUG16A	BOS2C-14AUG16B [1]	Part D Item 9	
		ALS ID	L1814245-1	L1814245-2	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
		Date Sampled	8/14/2016 1:30:00 PM	8/14/2016 1:30:00 PM		
Parameter	Units	Detection Limit	Water	Water		
Conductivity	µS/cm	2	816	810		
Hardness (as CaCO3)	mg/L	0.5	434	430		
pH	pH	0.1	7.35	7.36	6.0 - 9.5	6.0 - 9.5
Total Suspended Solids	mg/L	3	<3.0	<3.0	25	50
Alkalinity, Total (as CaCO3)	mg/L	1	69.5	64.5		
Nitrate (as N)	mg/L	0.025	<0.025 *	<0.025 *		
Nitrite (as N)	mg/L	0.005	<0.0050 *	<0.0050 *		
Sulfate (SO4)	mg/L	1.5	362	362		
Aluminum (Al)-Total	mg/L	0.005	<0.0050	<0.0050		
Antimony (Sb)-Total	mg/L	0.0005	0.00209	0.00234		
Arsenic (As)-Total	mg/L	0.0005	0.0306	0.0296	0.5	1.00
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	0.0000093	0.0000116		
Calcium (Ca)-Total	mg/L	0.1	104	103		
Chromium (Cr)-Total	mg/L	0.001	<0.0010	<0.0010		
Cobalt (Co)-Total	mg/L	0.0003	0.00503	0.00412		
Copper (Cu)-Total	mg/L	0.001	<0.0010	<0.0010	0.30	0.60
Iron (Fe)-Total	mg/L	0.03	<0.030	<0.030		
Lead (Pb)-Total	mg/L	0.0005	<0.00050	<0.00050	0.2/0.01^	0.40
Lithium (Li)-Total	mg/L	0.001	0.0142	0.0132		
Magnesium (Mg)-Total	mg/L	0.1	42.6	42.1		
Manganese (Mn)-Total	mg/L	0.0003	0.068	0.048		
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	0.0411	0.0359	0.50	1.00
Potassium (K)-Total	mg/L	2	9.4	9.4		
Selenium (Se)-Total	mg/L	0.00005	0.000105	0.000087		
Silver (Ag)-Total	mg/L	0.00002	<0.000020	<0.000020		
Sodium (Na)-Total	mg/L	2	6.5	6.5		
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	0.0892	0.0745	0.50	1.00
Oil and Grease	mg/L	5	<5.0	<5.0		15**
Oil And Grease (Visible Sheen)		n/a	NO	NO	No visible sheen	No visible sheen

		Sample ID	BOS2C-14AUG16A	BOS2C-14AUG16B [1]	Part D Item 9	
		ALS ID	L1814245-1	L1814245-2	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
		Date Sampled	8/14/2016 1:30:00 PM	8/14/2016 1:30:00 PM		
Parameter	Units	Detection Limit	Water	Water		
Phenols (4AAP)	mg/L	0.001	<0.0010	<0.0010		
Benzene	mg/L	0.0005	<0.00050	<0.00050		0.37**
Ethylbenzene	mg/L	0.0005	<0.00050	<0.00050		0.09**
Methyl t-butyl ether (MTBE)	mg/L	0.0005	<0.00050	<0.00050		
Styrene	mg/L	0.0005	<0.00050	<0.00050		
Toluene	mg/L	0.0005	<0.00050	<0.00050		0.002**
ortho-Xylene	mg/L	0.0005	<0.00050	<0.00050		
meta- & para-Xylene	mg/L	0.0005	<0.00050	<0.00050		
Xylenes	mg/L	0.00075	<0.00075	<0.00075		
TPH10-32	mg/L	1	<1.0	<1.0		
Acenaphthene	mg/L	0.00001	<0.000010	<0.000010		
Acenaphthylene	mg/L	0.00001	<0.000010	<0.000010		
Acridine	mg/L	0.00001	<0.000010	<0.000010		
Anthracene	mg/L	0.00001	<0.000010	<0.000010		
Benz(a)anthracene	mg/L	0.00001	<0.000010	<0.000010		
Benzo(a)pyrene	mg/L	0.00001	<0.0000050	<0.0000050		
Benzo(b)fluoranthene	mg/L	0.00001	<0.000010	<0.000010		
Benzo(g,h,i)perylene	mg/L	0.00001	<0.000010	<0.000010		
Benzo(k)fluoranthene	mg/L	0.00001	<0.000010	<0.000010		
Chrysene	mg/L	0.00001	<0.000010	<0.000010		
Dibenz(a,h)anthracene	mg/L	0.00001	<0.0000050	<0.0000050		
Fluoranthene	mg/L	0.00001	<0.000010	<0.000010		
Fluorene	mg/L	0.00001	<0.000010	<0.000010		
Indeno(1,2,3-c,d)pyrene	mg/L	0.00001	<0.000010	<0.000010		
Naphthalene	mg/L	0.00005	<0.000050	<0.000050		
Phenanthrene	mg/L	0.00002	<0.000020	<0.000020		
Pyrene	mg/L	0.00001	<0.000010	<0.000010		
Quinoline	mg/L	0.00005	<0.000050	<0.000050		

Bold/shading indicates exceedance of applicable criteria (see footnote); however, no exceedances observed.
*Detection Limit Raised: Dilution required due to high dissolved solids/electrical conductivity.
** Part D, Item 19 for the Bulk Fuel Storage Facility. Water was pumped from the Bulk Fuel Storage Facility to the Containment Pond to ensure maximum freeboard.
^ Discharge criteria authorized by the Inspector on July 20, 2015.
[1] Duplicate sample of BOS2C-14AUG16A.

Table 2: Water Quality Data Summary for BOS-2P (Portal), August 2016

		Sample ID	BOS2P-14AUG16	Part D Item 9	
		ALS ID	L1814241-1	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
		Date Sampled	8/14/2016 2:00:00 PM		
Parameter	Units	Detection Limit	Water		
Hardness (as CaCO3)	mg/L	0.5	438		
pH	pH	0.1	7.94	6.0 - 9.5	6.0 - 9.5
Total Suspended Solids	mg/L	3	<3.0	25	50
Aluminum (Al)-Total	mg/L	0.005	0.0863		
Antimony (Sb)-Total	mg/L	0.0005	0.00284		
Arsenic (As)-Total	mg/L	0.0005	0.17	0.5	1.0
Barium (Ba)-Total	mg/L	0.02	<0.020		
Beryllium (Be)-Total	mg/L	0.001	<0.0010		
Boron (B)-Total	mg/L	0.1	0.1		
Cadmium (Cd)-Total	mg/L	0.000005	0.00002		

Calcium (Ca)-Total	mg/L	0.1	114		
Chromium (Cr)-Total	mg/L	0.001	<0.0010		
Cobalt (Co)-Total	mg/L	0.0003	0.0611		
Copper (Cu)-Total	mg/L	0.001	0.0102	0.30	0.60
Iron (Fe)-Total	mg/L	0.03	0.195		
Lead (Pb)-Total	mg/L	0.0005	<0.00050	0.20	0.4/0.001
Lithium (Li)-Total	mg/L	0.001	0.0218		
Magnesium (Mg)-Total	mg/L	0.1	37.2		
Manganese (Mn)-Total	mg/L	0.0003	0.0736		
Molybdenum (Mo)-Total	mg/L	0.001	<0.0010		
Nickel (Ni)-Total	mg/L	0.001	0.232	0.50	1.00
Potassium (K)-Total	mg/L	2	7		
Selenium (Se)-Total	mg/L	0.00005	0.00108		
Silver (Ag)-Total	mg/L	0.00002	<0.000020		
Sodium (Na)-Total	mg/L	2	58.9		
Thallium (Tl)-Total	mg/L	0.0002	<0.00020		
Tin (Sn)-Total	mg/L	0.0005	<0.00050		
Titanium (Ti)-Total	mg/L	0.01	<0.010		
Uranium (U)-Total	mg/L	0.0002	0.00245		
Vanadium (V)-Total	mg/L	0.0005	<0.00050		
Zinc (Zn)-Total	mg/L	0.005	0.0068	0.50	1.00
Oil and Grease	mg/L	5	<5.0		
Oil And Grease (Visible Sheen)		n/a	NO	No visible sheen	No visible sheen

Bold/shading indicates exceedance of lowest criteria listed within Part D Item 9; however no exceedances observed.

Part J Item 9 and 10: Sewage Disposal Facility Effluent

No samples were taken from monitoring station BOS-3 or BOS-4 as the sewage disposal facility was not operational.

Part J Item 12 and 13: Seepage Monitoring

Seepage at Boston (BOS-8) is monitored seasonally when water is available to sample. No water was available for sampling at BOS-8 seepage locations this month.

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-BOS1217.

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 at 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

Figure 1. 2BB-BOS1217 SNP Monitoring Locations