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Re: August 2014 – 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. The project is currently operating in a care and maintenance status with seasonal water management and licence compliance being the focus of activities under 2BB-BOS1217.

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.

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

Effluent was not discharged from BOS-2C, BOS-5 or BOS-6 this month. The total surface runoff discharged directly from the portal (BOS-2P) was 154 m^3.

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. Non-saline drill cuttings generated under Hope Bay Regional Exploration Program drilling near the Boston Advanced Exploration Project were deposited to a location to the south of Boston camp at N67º 39' 10.8" W106º 22' 53.6" as part of historic drill site reclamation activities.

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

Samples were collected from BOS-2C (Containment Pond) and BOS-2P (Portal) during the month. No samples were collected at BOS-5 (Bulk Fuel Storage) and BOS-6 (Landfarm); there was no water at these facilities to sample. Samples collected from BOS-2C include parameter requirements for monitoring station BOS-5 from Part D, Item 19 of the licence, as the containment pond facility has in the past been utilized as a temporary holding location for effluent from the bulk fuel storage facility. Results for all August sampling are presented in Tables 1 and 2 below.

Water in BOS-2C met the criteria for discharge to tundra under Part D, Items 9 and 19 after oil/water separation treatment (sample ID BOS2C-28AUG14B). Water was not discharged to the environment from this facility due to freezing conditions. Water in BOS-2P (Portal) was compliant with Part D, Item 9 criteria; 59.05 m^3 was discharged directly to tundra on August 12, 2014 and 95.02 m^3 was discharged directly to tundra on August 28, 2014, based on prior authorization from the Inspector.

Table 1. BOS-2C (Containment Pond) Water Quality Results, August 2014

		Sample ID	BOS2C-12AUG14	BOS2C-28AUG14A	BOS2C-28AUG14B	Part D Item 9	
		ALS ID	L1503333-1	L1510550-1	L1510550-2	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
		Date Sampled	8/12/2014 4:30:00 PM	8/28/2014 11:15:00 AM	8/28/2014 3:50:00 PM		
Parameter	Units	Detection Limit	Water	Water	Water		
Conductivity	µS/cm	2	30500	1020	1020		
Hardness (as CaCO3)	mg/L	0.5	544	547	548		
pH	pH	0.1	7.1	7.98	7.9		6.0 - 9.5
Total Suspended Solids	mg/L	3	3.8	<3.0	3.1	25	50
Alkalinity, Total (as CaCO3)	mg/L	1	43.9	72.6	71.5		
Nitrate (as N)	mg/L	0.25	<0.050 *	<0.050 *	<0.050 *		
Nitrite (as N)	mg/L	0.05	<0.010 *	<0.010 *	<0.010 *		
Sulfate (SO4)	mg/L	5	445	469	473		
Aluminum (Al)-Total	mg/L	0.005	0.0505	0.0139	0.0177		
Antimony (Sb)-Total	mg/L	0.0005	0.00412	0.00387	0.0035		
Arsenic (As)-Total	mg/L	0.0005	0.118	0.0784	0.0408	0.5	1.00
Barium (Ba)-Total	mg/L	0.02	0.023	0.022	0.024		
Beryllium (Be)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010		
Boron (B)-Total	mg/L	0.1	0.18	0.18	<0.10		
Cadmium (Cd)-Total	mg/L	0.00001	0.000047	0.000028	0.000014		
Calcium (Ca)-Total	mg/L	0.1	133	133	134		
Chromium (Cr)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010		
Cobalt (Co)-Total	mg/L	0.0003	0.0044	0.00325	0.00262		
Copper (Cu)-Total	mg/L	0.001	0.0089	0.0075	<0.0010	0.30	0.60
Iron (Fe)-Total	mg/L	0.03	0.303	0.154	0.094		
Lead (Pb)-Total	mg/L	0.0005	**0.00286**	**0.00147**	0.00087	0.20	0.4/0.001**
Lithium (Li)-Total	mg/L	0.005	0.0149	0.0173	0.0175		
Magnesium (Mg)-Total	mg/L	0.1	51.5	52.4	51.6		
Manganese (Mn)-Total	mg/L	0.0003	0.00749	0.00312	0.00453		
Mercury (Hg)-Total	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Molybdenum (Mo)-Total	mg/L	0.001	0.0037	0.0035	0.0025		
Nickel (Ni)-Total	mg/L	0.001	0.0483	0.0472	0.031	0.50	1.00
Potassium (K)-Total	mg/L	2	9.3	9.2	9.2		
Selenium (Se)-Total	mg/L	0.0001	0.00038	0.00035	0.00028		
Silver (Ag)-Total	mg/L	0.00002	<0.000020	<0.000020	<0.000020		
Sodium (Na)-Total	mg/L	2	11.5	10.7	10.6		
Thallium (Tl)-Total	mg/L	0.0002	<0.00020	<0.00020	<0.00020		
Tin (Sn)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050		
Titanium (Ti)-Total	mg/L	0.01	<0.010	0.016	0.016		
Uranium (U)-Total	mg/L	0.0002	0.00039	0.00042	0.00143		

Vanadium (V)-Total	mg/L	0.001	<0.0010	<0.0010	0.002		
Zinc (Zn)-Total	mg/L	0.005	0.0076	0.0051	0.0213	0.50	1.00
Oil and Grease	mg/L	5	<5.0	<5.0	<5.0		15**
Oil And Grease (Visible Sheen)		n/a	No	No	No	No visible sheen	No visible sheen
Phenols (4AAP)	mg/L	0.001	0.0029 *	0.0013	<0.0010		
Benzene	mg/L	0.0005	<0.00050	<0.00050	<0.00050		0.37**
Ethylbenzene	mg/L	0.0005	<0.00050	<0.00050	<0.00050		0.09**
Methyl t-butyl ether (MTBE)	mg/L	0.0005	<0.00050	<0.00050	<0.00050		
Toluene	mg/L	0.0005	<0.00050	<0.00050	<0.00050		0.002**
ortho-Xylene	mg/L	0.0005	<0.00050	<0.00050	<0.00050		
meta- & para-Xylene	mg/L	0.0005	<0.00050	<0.00050	<0.00050		
Xylenes	mg/L	0.00075	<0.00075	<0.00075	<0.00075		
EPH10-19 (sg)	mg/L	0.25	<0.25	<0.25	<0.25		
EPH19-32 (sg)	mg/L	0.25	<0.25	<0.25	<0.25		
Acenaphthene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Acenaphthylene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Acridine	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Anthracene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Benz(a)anthracene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Benzo(a)pyrene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Benzo(b)fluoranthene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Benzo(g,h,i)perylene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Benzo(k)fluoranthene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Chrysene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Dibenz(a,h)anthracene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Fluoranthene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Fluorene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Indeno(1,2,3-c,d)pyrene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Naphthalene	mg/L	0.00005	<0.000050	<0.000050	<0.000050		
Phenanthrene	mg/L	0.00002	<0.000020	<0.000020	<0.000020		
Pyrene	mg/L	0.00001	<0.000010	<0.000010	<0.000010		
Quinoline	mg/L	0.00001	<0.000040 *	<0.000020 *	<0.000010		

Bold/shading indicates exceedance of applicable criteria
* Detection limit adjusted due to sample matrix effects.
** Part D, Item 19 criteria for BOS-5

Table 2. BOS-2P (Portal) Water Quality Results, August 2014

			Sample ID	**BOS2P-12AUG14**	**BOS2P-28AUG14A**	**BOS2P-28AUG14B**	**Part D Item 9**	
			ALS ID	**L1503350-1**	**L1510510-1**	**L1510510-2**	**Maximum Average Concentration (mg/L)**	**Maximum Concentration in any Grab Sample (mg/L)**
			Date Sampled	**8/12/2014 12:25:00 PM**	**8/28/2014 10:55:00 AM**	**8/28/2014 10:55:00 AM**		
Parameter	**Units**	**Detection Limit**		**Results**	**Water**	**Water**		
pH	pH	0.1		7.71	7.8	7.81	6.0 - 9.5	6.0 - 9.5
Total Suspended Solids	mg/L	3		<3.0	<3.0	<3.0	25	50
Arsenic (As)-Total	mg/L	0.0005		0.0703	0.123	0.126	0.5	1.0
Copper (Cu)-Total	mg/L	0.001		0.0029	0.0052	0.0059	0.30	0.60
Lead (Pb)-Total	mg/L	0.0005		<0.00050	<0.00050	<0.00050	0.20	0.4
Nickel (Ni)-Total	mg/L	0.001		0.0831	0.201	0.2	0.50	1.00
Zinc (Zn)-Total	mg/L	0.005		0.0092	0.0125	0.0143	0.50	1.00
Oil And Grease (Visible Sheen)		n/a		No	No	No	No visible sheen	No visible sheen

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. Opportunistic sampling was conducted once at BOS-8 seepage locations this month (Table 4).

Table 4. BOS-8 (Waste Rock/Ore Storage Pad) Water Quality Results, August 2014

		Sample ID	BOS8C-28AUG14
		ALS ID	L1510513-1
		Date Sampled	8/28/2014 11:50:00 AM
Parameter	**Units**	**Detection Limit**	**Water**
Conductivity	µS/cm	2	1500
Hardness (as CaCO3)	mg/L	0.5	762
pH	pH	0.1	7.6
Total Suspended Solids	mg/L	3	<3.0
Ammonia, Total (as N)	mg/L	0.005	0.0146
Sulfate (SO4)	mg/L	5	575
Aluminum (Al)-Total	mg/L	0.005	0.0216
Antimony (Sb)-Total	mg/L	0.0005	0.00317
Arsenic (As)-Total	mg/L	0.0005	0.0272
Barium (Ba)-Total	mg/L	0.02	0.021
Beryllium (Be)-Total	mg/L	0.001	<0.0010
Boron (B)-Total	mg/L	0.1	0.14
Cadmium (Cd)-Total	mg/L	0.00001	0.000018
Calcium (Ca)-Total	mg/L	0.1	155
Chromium (Cr)-Total	mg/L	0.001	<0.0010
Cobalt (Co)-Total	mg/L	0.0003	0.0105
Copper (Cu)-Total	mg/L	0.001	0.0041
Iron (Fe)-Total	mg/L	0.03	0.054
Lead (Pb)-Total	mg/L	0.0005	<0.00050
Lithium (Li)-Total	mg/L	0.005	<0.0050
Magnesium (Mg)-Total	mg/L	0.1	91
Manganese (Mn)-Total	mg/L	0.0003	0.299
Molybdenum (Mo)-Total	mg/L	0.001	<0.0010
Nickel (Ni)-Total	mg/L	0.001	0.132
Potassium (K)-Total	mg/L	2	12.7
Selenium (Se)-Total	mg/L	0.0001	0.00084
Silver (Ag)-Total	mg/L	0.00002	<0.000020
Sodium (Na)-Total	mg/L	2	67.9
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	0.017
Uranium (U)-Total	mg/L	0.0002	0.00042
Vanadium (V)-Total	mg/L	0.001	<0.0010
Zinc (Zn)-Total	mg/L	0.005	<0.0050

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

Not applicable as on-ice drilling is not occurring 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,

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cc. Eva Paul, Water Resources Officer, AANDC