

September 29, 2014

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Re: August 2014 – 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 AANDC. Licence items include:

- Part E (Conditions applying to Water Use) Item 1;
- Part G (Conditions Applying to Waste Management and Waste Management Plans) Items 1, 3(b) and 23 (a), 24 (c, e), 28, 29, 30, 32;
- Part J (Conditions Applying to General and Aquatic Effects Monitoring) Items 4(a), 8, 12 (a, d, g), 14, 15, 16, 20 and 21(e, f).

Other monitoring requirements stipulated in the licence refer to facilities that have not been constructed. Doris Camp is currently operating in a care and maintenance phase with water management, drill exploration, and environmental compliance being the focus of current activities.

Part E: Conditions Applying to Water Use

Item 1: Water Usage and Part J, Item 12(a) Water Volume

415m³ of water was extracted from Windy Lake for Doris Camp domestic use this month as permitted by water licences 2BE-HOP1222 and 2AM-DOH1323. Water was also used for drilling from Doris and Windy Lakes in support of the Doris North mine, and water was used from Doris Lake for dust suppression on site roads. Water usage is presented in Table 1. Drills and dust suppression also utilized compliant berm discharge water when available, reducing freshwater lake use.

Table 1: Water usage, in cubic meters, August 2014

Water Usage	Domestic Water Use from Windy Lake ST-7a (m ³)	Monthly Drill Water Use – Doris and Windy Lakes (m ³)	Dust Suppression (m ³)	Annual Cumulative (m ³)
Monthly Total	415	621	168	3809*

* The Annual Cumulative volume shown above includes all water used from all sources under 2AM-DOH1323 to date, with the exception of water used during Jan – Apr for ice road development.

Schedule J: Water Quality Monitoring at Water Intake

Monthly water quality samples were taken from monitoring station ST-7a (Windy Lake raw water) in accordance with the Schedule J requirements of the licence. Water was not sampled at ST-7 (Doris Lake raw water) as the Doris Lake Pumpouse is not operating.

Table 2: Monthly Compliance Sample Results for ST-7a, August 2014

Sample ID			ST7A-08AUG14
ALS ID			L1499519-1
Date Sampled			8/8/2014 8:50:00 AM
Parameter	Units	Detection Limit	Results
Hardness (as CaCO ₃)	mg/L	0.5	75.1
pH	pH	0.1	7.91
Total Suspended Solids	mg/L	3	3
Ammonia, Total (as N)	mg/L	0.005	<0.0050
Nitrate (as N)	mg/L	0.005	<0.0050
Nitrite (as N)	mg/L	0.001	<0.0010
Orthophosphate-Dissolved (as P)	mg/L	0.001	<0.0010
Phosphorus (P)-Total	mg/L	0.002	0.0064
Cyanide, Total	mg/L	0.005	<0.0050
Cyanide, Free	mg/L	0.005	<0.0050
Escherichia Coli	MPN/100mL	1	-
Fecal Coliforms	CFU/100mL	1	15
Total Coliforms	MPN/100mL	1	-
Anabaena (Cyanophyceae)	cells/mL	1	-
Aphanizomenon (Cyanophyceae)	cells/mL	1	56
Aphanocapsa (Cyanophyceae)	cells/mL	1	-
Total cyanobacterial cell count	cells/mL	1	56
Gomphosphaeria (Cyanophyceae)	cells/mL	1	-
Oscillatoria (Cyanophyceae)	cells/mL	1	-
Planktolyngbya (Cyanophyceae)	cells/mL	1	-
Planktothrix (Cyanophyceae)	cells/mL	1	-
Pseudoanabaena (Cyanophyceae)	cells/mL	1	-
Unidentified	cells/mL	1	-
Aluminum (Al)-Total	mg/L	0.005	0.163
Antimony (Sb)-Total	mg/L	0.0005	<0.00050
Arsenic (As)-Total	mg/L	0.0005	<0.00050
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	<0.10
Cadmium (Cd)-Total	mg/L	0.00001	<0.000010
Calcium (Ca)-Total	mg/L	0.1	13
Chromium (Cr)-Total	mg/L	0.001	<0.0010
Cobalt (Co)-Total	mg/L	0.0003	<0.00030
Copper (Cu)-Total	mg/L	0.001	0.0012
Iron (Fe)-Total	mg/L	0.03	0.162
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	10.3
Manganese (Mn)-Total	mg/L	0.0003	0.00696
Mercury (Hg)-Total	mg/L	0.00001	<0.000010
Molybdenum (Mo)-Total	mg/L	0.001	<0.0010
Nickel (Ni)-Total	mg/L	0.001	<0.0010
Potassium (K)-Total	mg/L	2	4.4
Selenium (Se)-Total	mg/L	0.0001	<0.00010
Silver (Ag)-Total	mg/L	0.00002	<0.000020

Sodium (Na)-Total	mg/L	2	52.2
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	<0.00020
Vanadium (V)-Total	mg/L	0.001	<0.0010
Zinc (Zn)-Total	mg/L	0.005	<0.0050
Oil and Grease	mg/L	5	<5.0
Oil And Grease (Visible Sheen)		n/a	No
Microcystin	ug/L	0.2	<0.20
Biochemical Oxygen Demand	mg/L	2	<2

Part G: Conditions Applying to Waste Management and Waste Management Plans.

Item 1: Condition to Provide Notice of a Planned Discharge

Notification of planned discharges from facilities under this licence was provided to the Inspector May 24, 2014.

Item 3(b): Conditions Applying to Sewage Effluent Quality and Schedule J, Table 2 Monitoring Requirements: Discharge from Wastewater Treatment Plant in cubic metres.

Monthly compliance samples were taken from monitoring station ST-8 (Wastewater Treatment Plant Effluent) in accordance with the Schedule J requirements of the licence (Table 3). The reported pH was below criteria at the beginning of the month (Sample ST8B-08AUG14A and ST8B-08AUG14B are internal QA/QC replicates). The frequency of pH monitoring by site operations was increased and adjustments were made to the plant operation to neutralize the pH of the wastewater effluent. Monthly compliance samples were within criteria after these changes.

Table 3: Monthly Compliance Sample Results for ST-8B, August 2014

Sample ID			ST8B-08AUG14A	ST8B-08AUG14B	ST8B-29AUG14	Part G Item 3(b)	
ALS ID			L1499519-2	L1499519-4	L1510515-1	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
Date Sampled			8/8/2014 9:40:00 AM	8/8/2014 9:45:00 AM	8/29/2014 10:15:00 AM		
Parameter	Units	Detection Limit	Results	Results	Water		
pH	pH	0.1	5.29	5.31	7.36	6.0 - 9.0	9.0
Total Suspended Solids	mg/L	3	<3.0	<3.0	<3.0	100	100
Fecal Coliforms	CFU/ 100mL	1	<1	<1	<1	10,000	10,000
Biochemical Oxygen Demand (BOD ₅)	CFU/100mL	1	<2	<2	2	80	80
Oil and Grease	mg/L	5	<5.0	<5.0	<5.0	5	10
Oil And Grease (Visible Sheen)		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.

This month, 373 m³ of sewage effluent was discharged from the sewage treatment plant.

Schedule J, Table 2 Monitoring Requirements: Runoff from Waste Water Treatment Plant Discharge (ST-9)

Monthly compliance samples were taken from monitoring station ST-9 (Runoff from Wastewater Treatment Plant Discharge) in accordance with the Schedule J requirements of the licence (Table 4).

Table 4: Monthly Compliance Sample Results for ST-9, August 2014

Sample ID			ST9-08AUG14
ALS ID			L1499519-3
Date Sampled			8/8/2014 7:40:00 AM
Parameter	Units	Detection Limit	Results
pH	pH	0.10	7.83
Total Suspended Solids	mg/L	3.00	<3.0
Fecal Coliforms	CFU/ 100mL	1.00	3
Biochemical Oxygen Demand (BOD ₅)	CFU/100mL	1.00	<2
Oil and Grease	mg/L	5.00	<5.0
Oil And Grease (Visible Sheen)		n/a	No

Item 23(a): Water Discharged from the Sedimentation Pond (ST-1) and Reagent and Cyanide Storage Facility Sumps (ST-11) and Schedule J, Table 2 Monitoring Requirements

As described in the 2012 Interim Water Management Plan, the Sedimentation Pond (ST-1) is being used as a collection pond for the water that accumulates in the Pollution Control Pond (ST-2), the two Underflow Sumps (ST2S1 and ST2S2), and occasionally from various berms and containments in the project area. In addition, brine water generated during the drilling process is being consolidated within the Pollution Control Pond/Sedimentation Pond. The water in ST-1 is transferred to the Tailings Impoundment Area (TIA) when there is enough accumulated water for the pumps to operate effectively. At this time, no ST-1 water is being discharged to the tundra. Transfer of water from ST-1 to the TIA was initiated May 30, 2014. Volumes discharged during the month and the cumulative volume for the year are presented in Table 5. The water quality results for ST-1 are shown in Table 6.

Table 5: Water in cubic meters (m³) transferred from ST-1 to the TIA, August 2014

Parameters	Water volume transferred from ST-1 to TIA (m ³)
Monthly Cumulative	3441
Annual Cumulative	13241

Table 6: Water Quality Data Summary for Monitoring Station ST-1, August 2014

Sample ID			ST1-18AUG14	Part G Item 23(a)	
ALS ID			L1504869-1	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
Date Sampled			8/18/2014 4:45:00 PM		
Parameter	Units	Detection Limit	Water		
Hardness (as CaCO ₃)	mg/L	0.5	1220	-	-
pH	pH	0.1	8.01	6.0 - 9.0	9.0
Total Suspended Solids	mg/L	3	5	15.0	30.0
Alkalinity, Total (as CaCO ₃)	mg/L	1	126	-	-
Ammonia, Total (as N)	mg/L	0.005	15.5	2.0	4.0
Bromide (Br)	mg/L	0.5	1.7	-	-
Chloride (Cl)	mg/L	5	1220	-	-
Fluoride (F)	mg/L	0.2	0.49	-	-
Nitrate (as N)	mg/L	0.05	58.9	-	-
Nitrite (as N)	mg/L	0.01	0.485	-	-
Sulfate (SO ₄)	mg/L	5	188	-	-
Cyanide, Total	mg/L	0.005	<0.0050	1.0	2.0
Aluminum (Al)-Total	mg/L	0.005	0.0477	1.0	2.0
Antimony (Sb)-Total	mg/L	0.0005	<0.00050	-	-
Arsenic (As)-Total	mg/L	0.0005	0.00082	0.05	0.10
Barium (Ba)-Total	mg/L	0.02	0.068	-	-
Beryllium (Be)-Total	mg/L	0.001	<0.0010	-	-
Boron (B)-Total	mg/L	0.1	0.42	-	-
Cadmium (Cd)-Total	mg/L	0.00001	0.000141	-	-
Calcium (Ca)-Total	mg/L	0.1	395	-	-
Chromium (Cr)-Total	mg/L	0.001	<0.0010	-	-
Cobalt (Co)-Total	mg/L	0.0003	0.00248	-	-
Copper (Cu)-Total	mg/L	0.001	0.006	0.02	0.30
Iron (Fe)-Total	mg/L	0.03	0.258	0.30	0.60
Lead (Pb)-Total	mg/L	0.0005	<0.00050	0.01	0.02
Lithium (Li)-Total	mg/L	0.005	0.0439	-	-
Magnesium (Mg)-Total	mg/L	0.1	57.6	-	-
Manganese (Mn)-Total	mg/L	0.0003	0.708	-	-
Molybdenum (Mo)-Total	mg/L	0.001	0.0053	-	-
Nickel (Ni)-Total	mg/L	0.001	0.0035	0.05	0.10
Potassium (K)-Total	mg/L	2	23.8	-	-
Selenium (Se)-Total	mg/L	0.0001	0.00219	-	-
Silver (Ag)-Total	mg/L	0.00002	<0.000020	-	-
Sodium (Na)-Total	mg/L	2	413	-	-
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	0.025	-	-
Uranium (U)-Total	mg/L	0.0002	0.0013	-	-
Vanadium (V)-Total	mg/L	0.001	<0.0020 *	-	-
Zinc (Zn)-Total	mg/L	0.005	0.111	0.01	0.02
Oil and Grease	mg/L	5	<5.0	5	10
Oil And Grease (Visible Sheen)		n/a	NO	No Visible Sheen	No Visible Sheen

Bold/shading indicates exceedance of Part G Item 23(a) Maximum Concentration in a Grab Sample, however no water was discharged to tundra.

* Detection Limit Adjusted due to sample matrix effects.

The Reagent and Cyanide Storage Facility Sumps (ST-11) is not constructed. Monitoring was undertaken at the Pollution Control Pond (ST-2) this month in accordance with the requirements of Schedule J, Table 2 of the licence. Results are presented in Table 7 below.

Table 7: Water Quality Data Summary for Monitoring Station ST-2, August 2014

		Sample ID	ST2-18AUG14
		ALS ID	L1504869-2
		Date Sampled	8/18/2014 6:05:00 PM
Parameter	Units	Detection Limit	Results
Hardness (as CaCO ₃)	mg/L	0.5	1420
pH	pH	0.1	7.81
Total Suspended Solids	mg/L	3	6.1
Alkalinity, Total (as CaCO ₃)	mg/L	1	132
Ammonia, Total (as N)	mg/L	0.25	13.7
Bromide (Br)	mg/L	0.05	<2.5 *
Chloride (Cl)	mg/L	0.5	1680
Fluoride (F)	mg/L	0.02	<1.0 *
Nitrate (as N)	mg/L	0.025	87.2
Nitrite (as N)	mg/L	0.001	0.509
Sulfate (SO ₄)	mg/L	0.5	215
Cyanide, Total	mg/L	0.005	<0.0050
Aluminum (Al)-Total	mg/L	0.006	0.13
Antimony (Sb)-Total	mg/L	0.0005	<0.00050
Arsenic (As)-Total	mg/L	0.0005	0.00088
Barium (Ba)-Total	mg/L	0.02	0.076
Beryllium (Be)-Total	mg/L	0.001	<0.0010
Boron (B)-Total	mg/L	0.1	0.43
Cadmium (Cd)-Total	mg/L	0.00002	0.000189
Calcium (Ca)-Total	mg/L	0.1	456
Chromium (Cr)-Total	mg/L	0.001	<0.0010
Cobalt (Co)-Total	mg/L	0.0003	0.00423
Copper (Cu)-Total	mg/L	0.001	0.0076
Iron (Fe)-Total	mg/L	0.03	0.404
Lead (Pb)-Total	mg/L	0.0005	<0.00050
Lithium (Li)-Total	mg/L	0.005	0.0531
Magnesium (Mg)-Total	mg/L	0.1	69
Manganese (Mn)-Total	mg/L	0.0003	1.04
Molybdenum (Mo)-Total	mg/L	0.001	0.0064
Nickel (Ni)-Total	mg/L	0.001	0.0057
Potassium (K)-Total	mg/L	2	25.9
Selenium (Se)-Total	mg/L	0.0002	0.00257
Silver (Ag)-Total	mg/L	0.00002	<0.000020
Sodium (Na)-Total	mg/L	2	453
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	0.03
Uranium (U)-Total	mg/L	0.0002	0.00189
Vanadium (V)-Total	mg/L	0.002	<0.0020 *
Zinc (Zn)-Total	mg/L	0.005	0.0057
Oil and Grease	mg/L	5	<5.0
Oil And Grease (Visible Sheen)	-	n/a	NO

* Detection Limit Adjusted due to sample matrix effects.

Items 24(c): Landfarm Sump (ST-4) and Schedule J, Table 2 Monitoring Requirements

Compliance samples were not required from monitoring station ST-4 (Landfarm Sump) in accordance with the Schedule J requirements of the licence; no water was discharged from the facility during the month.

Items 24(e): Fuel Storage and Containment Facility Sumps (ST-5, ST-6a and ST-6b) and Schedule J, Table 2 Monitoring Requirements

No water was discharged from the Doris tank farm facility (ST-5) this month. Sampling was undertaken at the Roberts Bay tank farms (ST-6a and ST-6b) this month daily during discharges from the facilities. Results are presented in Tables 8 and 9 below.

A discharge notification for these facilities was provided to the Inspector May 24/14. All results were in compliance with the licence

Table 8: Water Quality Data Summary for Monitoring Station ST-6A, August 2014

Sample ID			ST6A-09AUG14	Part G Item 24(e)	
ALS ID			L1501181-1	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
Date Sampled			8/9/2014 5:55:00 PM		
Parameter	Units	Detection Limit	Results		
pH	pH	0.1	8.26	6.0– 9.0	9
Total Suspended Solids	mg/L	3	<3.0	15.0	30.0
Lead (Pb)-Total	mg/L	0.00005	<0.000050	0.01	0.02
Oil and Grease	mg/L	5	<5.0	5	10
Oil And Grease (Visible Sheen)		n/a	No		-
Benzene	mg/L	0.0005	<0.00050	0.37	-
Ethylbenzene	mg/L	0.0005	<0.00050	0.090	-
Toluene	mg/L	0.0005	<0.00050	0.002	-

Table 9: Water Quality Data Summary for Monitoring Station ST-6B, August 2014

Sample ID			ST6B-1AUG14	ST6B-09AUG14	Part G Item 24(e)	
ALS ID			L1496389-3	L1501181-2	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
Date Sampled			8/1/2014 9:55:00 AM	8/9/2014 11:40:00 AM		
Parameter	Units	Detection Limit	Results	Results		
pH	pH	0.1	8.25	8.35	6.0– 9.0	9
Total Suspended Solids	mg/L	3	4.5	15.3	15.0	30.0
Lead (Pb)-Total	mg/L	0.00005	<0.00020 *	<0.000050	0.01	0.02
Oil and Grease	mg/L	5	<5.0	<5.0	5	10
Oil And Grease (Visible Sheen)	-	n/a	No	No	-	-
Benzene	mg/L	0.0005	<0.00050	<0.00050	0.37	-
Ethylbenzene	mg/L	0.0005	<0.00050	<0.00050	0.090	-
Toluene	mg/L	0.0005	<0.00050	<0.00050	0.002	-

* Detection Limit was raised due to detection of analyte at comparable level in Method Blank.

Item 28, 29, 30 and Part J Item 8: Water Quality Discharged from Tailings Impoundment Area (TL-1, TL-2, TL-3 or TL-4.)

Throughout the month, water sampling was conducted on a weekly basis at the four stations associated with the tailings impoundment area discharge (TL-1 through TL-4). An exceedance of the Part G Item 30 criteria for aluminium was noted on one occasion at Doris Creek station TL-3, downstream of the TL-4 discharge. However, this concentration was higher than those measured at either TL-1 (Tail Lake discharge intake) or TL-4 (end-of-pipe discharge), and aluminium concentrations at the Doris Creek upstream station TL-2 (background) were consistently higher than at the TL-4 discharge for all sampling events during the month. This suggests the elevated aluminium concentrations at TL-3 are not a project-related effect.

Acute Lethality testing was conducted at sample station TL-4 (end-of-pipe discharge) this month. Results indicated that effluent at this station is non-acutely toxic to trout and daphnia. Results are presented in Tables 10 through 13 below.

Table 10: Water Quality Data Summary for Monitoring Station TL-1, August 2014

Sample ID			TL1-4AUG14	TL1-11AUG14	TL1-18AUG14	TL1-25AUG14
ALS ID			L1497306-1	L1501189-1	L1504905-1	L1509318-1
Date Sampled			8/4/2014 7:55:00 AM	08/11/2014 15:45	8/18/2014 1:30:00 PM	8/25/2014 1:35:00 PM
Parameter	Units	Detection Limit	Water	Water	Water	Water
Hardness (as CaCO ₃)	mg/L	0.5	63.3	66	62.9	74.6
pH	pH	0.1	7.75	8.09	7.91	7.78
Total Suspended Solids	mg/L	3	<3.0	3.3	<3.0	<3.0
Total Dissolved Solids	mg/L	10	158	172	162	176
Ammonia, Total (as N)	mg/L	0.005	0.0525	0.0377	0.0112	0.0632
Bromide (Br)	mg/L	0.05	0.073	0.093	0.082	0.093
Chloride (Cl)	mg/L	0.5	45.4	50.4	49	53.2
Fluoride (F)	mg/L	0.02	0.06	0.064	0.069	0.067
Nitrate (as N)	mg/L	0.005	0.196	0.0915	0.0299	0.0096
Nitrite (as N)	mg/L	0.001	0.0043	0.0024	<0.0010	<0.0010
Orthophosphate-Dissolved (as P)	mg/L	0.001	<0.0010	0.0014	<0.0010	0.0023
Phosphorus (P)-Total	mg/L	0.002	0.0225	0.0305	0.023	0.0254
Sulfate (SO ₄)	mg/L	0.5	4.04	5.72	4.46	4.17
Cyanide, Total	mg/L	0.005	<0.0050	<0.0050	<0.0050	<0.0050
Cyanide, Free	mg/L	0.005	<0.0050	<0.0050	<0.0050	<0.0050
Aluminum (Al)-Total	mg/L	0.005	0.0146	0.0109	0.009	0.0062
Antimony (Sb)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050
Arsenic (As)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050
Barium (Ba)-Total	mg/L	0.02	<0.020	<0.020	<0.020	<0.020
Beryllium (Be)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)-Total	mg/L	0.1	<0.10	<0.10	<0.10	<0.10
Cadmium (Cd)-Total	mg/L	0.00001	<0.000010	<0.000010	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	0.1	14.5	15.2	14	17
Chromium (Cr)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	0.0003	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)-Total	mg/L	0.001	0.0013	0.0012	<0.0010	0.0012
Iron (Fe)-Total	mg/L	0.03	0.204	0.275	0.201	0.494
Lead (Pb)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050
Lithium (Li)-Total	mg/L	0.005	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium (Mg)-Total	mg/L	0.1	6.59	6.8	6.81	7.83
Manganese (Mn)-Total	mg/L	0.0003	0.0236	0.0246	0.0215	0.0807
Mercury (Hg)-Total	mg/L	0.00001	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010
Nickel (Ni)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010
Potassium (K)-Total	mg/L	2	2.1	2.2	2.1	2.3
Selenium (Se)-Total	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010
Silver (Ag)-Total	mg/L	0.00002	<0.000020	<0.000020	<0.000020	<0.000020

Sample ID			TL1-4AUG14	TL1-11AUG14	TL1-18AUG14	TL1-25AUG14
ALS ID			L1497306-1	L1501189-1	L1504905-1	L1509318-1
Date Sampled			8/4/2014 7:55:00 AM	08/11/2014 15:45	8/18/2014 1:30:00 PM	8/25/2014 1:35:00 PM
Parameter	Units	Detection Limit	Water	Water	Water	Water
Sodium (Na)-Total	mg/L	2	21.8	25.7	24.1	26.6
Thallium (Tl)-Total	mg/L	0.0002	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050
Titanium (Ti)-Total	mg/L	0.01	<0.010	<0.010	<0.010	<0.010
Uranium (U)-Total	mg/L	0.0002	<0.00020	<0.00020	<0.00020	<0.00020
Vanadium (V)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L	0.005	<0.0050	0.0055	<0.0050	0.0062

Table 11: Water Quality Data Summary for Monitoring Station TL-2, August 2014

Sample ID			TL2-4AUG14	TL2-11AUG14	TL2-18AUG14	TL2-25AUG14	Part G Item 30
ALS ID			L1497306-2	L1501189-2	L1504905-2	L1509318-2	Maximum
Date Sampled			8/4/2014 8:10:00 AM	8/11/2014 4:00:00 PM	8/18/2014 1:40:00 PM	8/25/2014 2:25:00 PM	Concentration of Any Grab Sample (mg/L)*
Parameter	Units	Detection Limit	Water	Water	Water	Water	
Hardness (as CaCO ₃)	mg/L	0.5	49.4	50.6	48.5	49.2	-
pH	pH	0.1	7.74	7.78	7.83	7.72	6.0 - 9.0
Total Suspended Solids	mg/L	3	5.6	5.1	11.8	5.3	15.0
Total Dissolved Solids	mg/L	10	174	158	170	171	-
Ammonia, Total (as N)	mg/L	0.005	<0.0050	<0.0050	<0.0050	<0.0050	1.54
Bromide (Br)	mg/L	0.05	0.206	0.219	0.219	0.22	-
Chloride (Cl)	mg/L	0.5	64.8	65.9	64.7	65.7	150
Fluoride (F)	mg/L	0.02	0.057	0.056	0.059	0.057	-
Nitrate (as N)	mg/L	0.005	<0.0050	<0.0050	<0.0050	<0.0050	2.9
Nitrite (as N)	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	0.060
Orthophosphate-Dissolved (as P)	mg/L	0.001	<0.0010	0.0013	<0.0010	0.0012	-
Phosphorus (P)-Total	mg/L	0.002	0.0231	0.0245	0.0282	0.0249	-
Sulfate (SO ₄)	mg/L	0.5	2.79	2.82	3	2.77	-
Cyanide, Total	mg/L	0.005	<0.0050	<0.0050	<0.0050	<0.0050	0.010
Cyanide, Free	mg/L	0.005	<0.0050	<0.0050	<0.0050	<0.0050	0.005
Aluminum (Al)-Total	mg/L	0.005	0.068	0.0673	0.0874	0.0432	0.100
Antimony (Sb)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	-
Arsenic (As)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	0.0050
Barium (Ba)-Total	mg/L	0.02	<0.020	<0.020	<0.020	<0.020	-
Beryllium (Be)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	-
Boron (B)-Total	mg/L	0.1	<0.10	<0.10	<0.10	<0.10	-
Cadmium (Cd)-Total	mg/L	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	0.000017
Calcium (Ca)-Total	mg/L	0.1	8.88	9.05	8.68	8.83	-
Chromium (Cr)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	-
Cobalt (Co)-Total	mg/L	0.0003	<0.00030	<0.00030	<0.00030	<0.00030	-
Copper (Cu)-Total	mg/L	0.001	0.0015	0.0013	0.0013	0.0013	0.002
Iron (Fe)-Total	mg/L	0.03	0.167	0.138	0.148	0.083	0.300
Lead (Pb)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	0.001
Lithium (Li)-Total	mg/L	0.005	<0.0050	<0.0050	<0.0050	<0.0050	-
Magnesium (Mg)-Total	mg/L	0.1	6.61	6.79	6.5	6.59	-
Manganese (Mn)-Total	mg/L	0.0003	0.0241	0.0263	0.0188	0.0149	-
Mercury (Hg)-Total	mg/L	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	0.000026
Molybdenum (Mo)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	0.073
Nickel (Ni)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	0.025
Potassium (K)-Total	mg/L	2	2.3	2.5	2.4	2.4	-
Selenium (Se)-Total	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	0.0010

Sample ID			TL2-4AUG14	TL2-11AUG14	TL2-18AUG14	TL2-25AUG14	Part G Item 30
ALS ID			L1497306-2	L1501189-2	L1504905-2	L1509318-2	Maximum
Date Sampled			8/4/2014 8:10:00 AM	8/11/2014 4:00:00 PM	8/18/2014 1:40:00 PM	8/25/2014 2:25:00 PM	Concentration of Any Grab Sample (mg/L)*
Parameter	Units	Detection Limit	Water	Water	Water	Water	
Silver (Ag)-Total	mg/L	0.00002	<0.000020	<0.000020	<0.000020	<0.000020	0.0001
Sodium (Na)-Total	mg/L	2	32.2	33.3	33.4	32.5	-
Thallium (Tl)-Total	mg/L	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	0.0008
Tin (Sn)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	-
Titanium (Ti)-Total	mg/L	0.01	<0.010	<0.010	<0.010	<0.010	-
Uranium (U)-Total	mg/L	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	-
Vanadium (V)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	-
Zinc (Zn)-Total	mg/L	0.005	<0.0050	<0.0050	<0.0050	<0.0050	0.030

* Criteria applied from Part G Item 30 to determine relationship of background water quality to exceedances noted at TL-3, if any.

Table 12: Water Quality Data Summary for Monitoring Station TL-3, August 2014

Sample ID			TL3-4AUG14	TL3-11AUG14	TL3-18AUG14	TL3-19AUG14	TL3-25AUG14	Part G Item 30
ALS ID			L1497306-3	L1501189-3	L1504905-3	L1504905-6	L1509318-3	
Date Sampled			8/4/2014 8:30:00 AM	8/11/2014 4:40:00 PM	8/18/2014 1:50:00 PM	8/19/2014 12:00:00 PM	8/25/2014 2:40:00 PM	
Parameter	Units	Detection Limit	Water	Water	Water	Water	Water	Maximum Concentration of Any Grab Sample (mg/L)
Hardness (as CaCO ₃)	mg/L	0.5	51.3	51.5	52.3	-	49.2	-
pH	pH	0.1	7.76	7.79	7.81	-	7.73	6.0 - 9.0
Total Suspended Solids	mg/L	3	3.3	6.1	3.3	-	4.1	15.0
Total Dissolved Solids	mg/L	10	173	165	166	-	169	-
Ammonia, Total (as N)	mg/L	0.005	0.01	0.01	0.005	-	0.0067	1.54
Bromide (Br)	mg/L	0.05	0.198	0.209	0.209	-	0.207	-
Chloride (Cl)	mg/L	0.5	63.6	64.2	62.5	-	64.1	150
Fluoride (F)	mg/L	0.02	0.056	0.056	0.059	-	0.058	-
Nitrate (as N)	mg/L	0.005	<0.0050	<0.0050	<0.0050	-	<0.0050	2.9
Nitrite (as N)	mg/L	0.001	<0.0010	<0.0010	<0.0010	-	<0.0010	0.060
Orthophosphate-Dissolved (as P)	mg/L	0.001	<0.0010	0.0012	<0.0010	-	0.0013	-
Phosphorus (P)-Total	mg/L	0.002	0.0267	0.0226	0.0272	-	0.0229	-
Sulfate (SO ₄)	mg/L	0.5	2.86	2.8	2.74	-	2.73	-
Cyanide, Total	mg/L	0.005	<0.0050	<0.0050	<0.0050	-	<0.0050	0.010
Cyanide, Free	mg/L	0.005	<0.0050	<0.0050	<0.0050	-	<0.0050	0.005
Aluminum (Al)-Total	mg/L	0.005	0.115	0.0648	0.0623	-	0.0351	0.100
Antimony (Sb)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	-	<0.00050	-
Arsenic (As)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	-	<0.00050	0.0050
Barium (Ba)-Total	mg/L	0.02	<0.020	<0.020	<0.020	-	<0.020	-
Beryllium (Be)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	-	<0.0010	-
Boron (B)-Total	mg/L	0.1	<0.10	<0.10	<0.10	-	<0.10	-
Cadmium (Cd)-Total	mg/L	0.00001	<0.000010	<0.000010	<0.000010	-	<0.000010	0.000017
Calcium (Ca)-Total	mg/L	0.1	9.47	9.42	9.54	-	9.05	-
Chromium (Cr)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	-	<0.0010	-
Cobalt (Co)-Total	mg/L	0.0003	<0.00030	<0.00030	<0.00030	-	<0.00030	-
Copper (Cu)-Total	mg/L	0.001	0.0015	0.0012	0.0013	-	0.0013	0.002
Iron (Fe)-Total	mg/L	0.03	0.23	0.148	0.132	-	0.093	0.300
Lead (Pb)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	-	<0.00050	0.001
Lithium (Li)-Total	mg/L	0.005	<0.0050	<0.0050	<0.0050	-	<0.0050	-
Magnesium (Mg)-Total	mg/L	0.1	6.71	6.8	6.91	-	6.46	-
Manganese (Mn)-Total	mg/L	0.0003	0.0255	0.0255	0.0188	-	0.0166	-
Mercury (Hg)-Total	mg/L	0.00001	<0.000010	<0.000010	-	<0.000010	<0.000010	0.000026
Molybdenum (Mo)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	-	<0.0010	0.073
Nickel (Ni)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	-	<0.0010	0.025
Potassium (K)-Total	mg/L	2	2.4	2.5	2.5	-	2.3	-
Selenium (Se)-Total	mg/L	0.0001	<0.00010	<0.00010	<0.00010	-	<0.00010	0.0010

Sample ID			TL3-4AUG14	TL3-11AUG14	TL3-18AUG14	TL3-19AUG14	TL3-25AUG14	Part G Item 30
ALS ID			L1497306-3	L1501189-3	L1504905-3	L1504905-6	L1509318-3	Maximum Concentration of Any Grab Sample (mg/L)
Date Sampled			8/4/2014 8:30:00 AM	8/11/2014 4:40:00 PM	8/18/2014 1:50:00 PM	8/19/2014 12:00:00 PM	8/25/2014 2:40:00 PM	
Parameter	Units	Detection Limit	Water	Water	Water	Water	Water	
Silver (Ag)-Total	mg/L	0.00002	<0.000020	<0.000020	<0.000020	-	<0.000020	0.0001
Sodium (Na)-Total	mg/L	2	31.7	32.9	35.1	-	31.1	-
Thallium (Tl)-Total	mg/L	0.0002	<0.00020	<0.00020	<0.00020	-	<0.00020	0.0008
Tin (Sn)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	-	<0.00050	-
Titanium (Ti)-Total	mg/L	0.01	<0.010	<0.010	<0.010	-	<0.010	-
Uranium (U)-Total	mg/L	0.0002	<0.00020	<0.00020	<0.00020	-	<0.00020	-
Vanadium (V)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	-	<0.0010	-
Zinc (Zn)-Total	mg/L	0.005	<0.0050	<0.0050	<0.0050	-	<0.0050	0.030
Hexavalent Chromium	mg/L	0.001	<0.0010	<0.0010	<0.0010	-	<0.0010	0.0010
Oil and Grease	mg/L	5	<5.0	<5.0	<5.0	-	<5.0	5
Oil And Grease (Visible Sheen)		n/a	No	No	No	-	No	-

Bold/shading indicates exceedance of the greater of background concentration at station TL2 or Part G Item 30 - Maximum Concentration in a Grab Sample.

Table 13: Water Quality Data Summary for Monitoring Station TL-4, August 2014

Sample ID			TL4-4AUG14	TL4-11AUG14	TL4-18AUG14	TL4-19AUG14	TL4-25AUG14	Part G Item 28	
ALS ID			L1497306-4	L1501189-4	L1504905-4	L1504905-5	L1509318-4	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)
Date Sampled			8/4/2014 8:20:00 AM	8/11/2014 4:15:00 PM	8/18/2014 2:00:00 PM	8/19/2014 9:35:00 AM	8/25/2014 2:50:00 PM		
Parameter	Units	Detection Limit	Water	Water	Water	Water	Water		
Hardness (as CaCO ₃)	mg/L	0.5	58.4	58.2	57.7	-	61.8	-	-
pH	pH	0.1	7.81	7.86	7.8	-	7.69	6.0 - 9.5	6.0 - 9.5
Total Suspended Solids	mg/L	3	4.1	3.3	<3.0	-	<3.0	15.00	30.00
Total Dissolved Solids	mg/L	10	148	150	137	-	152	-	-
Ammonia, Total (as N)	mg/L	0.005	0.0559	0.044	0.132	-	1.07	6	-
Bromide (Br)	mg/L	0.05	0.076	0.087	0.079	-	0.087	-	-
Chloride (Cl)	mg/L	0.5	44.7	44.2	42	-	43.2	-	-
Fluoride (F)	mg/L	0.02	0.059	0.061	0.063	-	0.066	-	-
Nitrate (as N)	mg/L	0.005	0.222	0.152	0.0249	-	<0.0050	-	-
Nitrite (as N)	mg/L	0.001	0.0035	0.0024	0.0076	-	<0.0010	-	-
Orthophosphate-Dissolved (as P)	mg/L	0.001	<0.0010	0.0016	0.0026	-	0.0118	-	-
Phosphorus (P)-Total	mg/L	0.002	0.0156	0.022	0.0235	-	0.0165	-	-
Sulfate (SO ₄)	mg/L	0.5	3.06	2.74	2.44	-	2.67	-	-
Cyanide, Total	mg/L	0.005	<0.0050	<0.0050	<0.0050	-	<0.0050	1.00	2.00
Cyanide, Free	mg/L	0.005	<0.0050	<0.0050	<0.0050	-	<0.0050	-	-
Fecal Coliforms	CFU/100mL	1	-	-	-	<1	-	10,000	10,000
Aluminum (Al)-Total	mg/L	0.005	0.0161	0.0126	0.0096	-	0.0053	-	-
Antimony (Sb)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	-	<0.00050	-	-
Arsenic (As)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	-	<0.00050	0.50	1.00
Barium (Ba)-Total	mg/L	0.02	<0.020	<0.020	<0.020	-	<0.020	-	-
Beryllium (Be)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	-	<0.0010	-	-
Boron (B)-Total	mg/L	0.1	<0.10	<0.10	<0.10	-	<0.10	-	-
Cadmium (Cd)-Total	mg/L	0.00001	<0.000010	<0.000010	<0.000010	-	<0.000010	-	-
Calcium (Ca)-Total	mg/L	0.1	13.4	13.3	12.8	-	14.3	-	-
Chromium (Cr)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	-	<0.0010	-	-
Cobalt (Co)-Total	mg/L	0.0003	<0.00030	<0.00030	<0.00030	-	0.00071	-	-
Copper (Cu)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	-	0.0012	0.30	0.60
Iron (Fe)-Total	mg/L	0.03	0.222	0.204	0.156	-	0.092	-	-
Lead (Pb)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	-	<0.00050	0.20	0.40
Lithium (Li)-Total	mg/L	0.005	<0.0050	<0.0050	<0.0050	-	<0.0050	-	-
Magnesium (Mg)-Total	mg/L	0.1	6.08	6.09	6.23	-	6.37	-	-
Manganese (Mn)-Total	mg/L	0.0003	0.0242	0.0195	0.00908	-	4.24	-	-
Mercury (Hg)-Total	mg/L	0.00001	<0.000010	<0.000010	<0.000010	-	<0.000010	-	-
Molybdenum (Mo)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	-	<0.0010	-	-

Sample ID			TL4-4AUG14	TL4-11AUG14	TL4-18AUG14	TL4-19AUG14	TL4-25AUG14	Part G Item 28	
ALS ID			L1497306-4	L1501189-4	L1504905-4	L1504905-5	L1509318-4	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)
Date Sampled			8/4/2014 8:20:00 AM	8/11/2014 4:15:00 PM	8/18/2014 2:00:00 PM	8/19/2014 9:35:00 AM	8/25/2014 2:50:00 PM		
Parameter	Units	Detection Limit	Water	Water	Water	Water	Water		
Nickel (Ni)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	-	0.0011	0.50	1.00
Potassium (K)-Total	mg/L	2	2	2	2.1	-	2.3	-	-
Selenium (Se)-Total	mg/L	0.0001	<0.00010	<0.00010	<0.00010	-	<0.00010	-	-
Silver (Ag)-Total	mg/L	0.00002	<0.000020	<0.000020	<0.000020	-	<0.000020	-	-
Sodium (Na)-Total	mg/L	2	20	21.5	20.8	-	20.2	-	-
Thallium (Tl)-Total	mg/L	0.0002	<0.00020	<0.00020	<0.00020	-	<0.00020	-	-
Tin (Sn)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	-	<0.00050	-	-
Titanium (Ti)-Total	mg/L	0.01	<0.010	<0.010	<0.010	-	<0.010	-	-
Uranium (U)-Total	mg/L	0.0002	<0.00020	<0.00020	<0.00020	-	<0.00020	-	-
Vanadium (V)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010	-	<0.0010	-	-
Zinc (Zn)-Total	mg/L	0.005	0.0161	0.007	0.0317	-	0.15	0.50	1.00
BOD (BOD5)			-	-	-	2	-	80	160
Radium 226	Bq/L	n/a	<0.0100	<0.010	<0.01	-	< 0.01	0.37	1.11
LC50 – Rainbow Trout	%		-	>100*	-	-	-	-	-
LC50 – Daphnia magna	%		-	>100*	-	-	-	-	-

* LC50 = lethal concentration that results in mortality of 50% of the test organisms; a result of 100% indicates all organisms survived.

Item 32: Tailings Impoundment Area Discharge Volume – Comparison of Flows at TL-4 and TL-2

Water was discharged from the TIA starting June 19, 2014 and continued throughout this month. A comparison of flows is presented in Table 14.

Table 14: Comparison of Flows at TL-4 and TL-2, August 2014

Date	TL-4 Discharge (m ³)	10% of TL-2 Flow (Predicted) (m ³)
August-01-14	8066.36	10019
August-02-14	8050.45	9824
August-03-14	8064.85	9990
August-04-14	8084	10216
August-05-14	8075.44	9838
August-06-14	8074.14	9819
August-07-14	8077.77	9801
August-08-14	8082.88	9094
August-09-14	8090.75	8901
August-10-14	7986.54	8681
August-11-14	7695.39	8981
August-12-14	7683.63	8855
August-13-14	7666.26	8746
August-14-14	7146.9	7179
August-15-14	6696.19	7076
August-16-14	6251	7013
August-17-14	6273.88	5673
August-18-14	5103.92	5550
August-19-14	5217.7	5469
August-20-14	4740.69	4852
August-21-14	4494.84	4623
August-22-14	4203.06	4406
August-23-14	4992.15	5167
August-24-14	4948.61	5042
August-25-14	4912.82	4944
August-26-14	4711.35	4649
August-27-14	4303.3	4419
August-28-14	3605.24	4190
August-29-14	4457.86	4681
August-30-14	4459.72	4514
August-31-14	4186.85	4332

Schedule J: Tailings Impoundment Area Water Quality (TL-10)

Monitoring of water quality at TL-10 is not required during Care and Maintenance in accordance with Table 2 of Schedule J, but to support Part G, Item 33(b) water samples were collected at this station during the month at surface, mid-depth and near the bottom of the deepest portion of Tail Lake. Results are presented in Table 15 below.

Table 15: Water Quality Data Summary for Monitoring Station TL-10, August 2014

Sample ID			TL10-18AUG14S*	TL10-18AUG14M*	TL10-18AUG14D*
ALS ID			L1504883-1	L1504883-2	L1504883-3
Date Sampled			8/18/2014 6:15:00 PM	8/18/2014 6:20:00 PM	8/18/2014 6:30:00 PM
Parameter	Units	Detection Limit	Water	Water	Water
Hardness (as CaCO ₃)	mg/L	0.5	54	52.4	52.3
pH	pH	0.1	7.79	7.84	7.84
Redox Potential	mV	-1000	199	199	196
Total Suspended Solids	mg/L	3	3.1	<3.0	<3.0
Total Dissolved Solids	mg/L	10	147	136	133
Ammonia, Total (as N)	mg/L	0.005	<0.0050	<0.0050	<0.0050
Bromide (Br)	mg/L	0.05	0.085	0.087	0.088
Chloride (Cl)	mg/L	0.5	39.4	39.3	39.3
Fluoride (F)	mg/L	0.02	0.061	0.067	0.071
Nitrate (as N)	mg/L	0.005	<0.0050	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.001	<0.0010	<0.0010	<0.0010
Orthophosphate-Dissolved (as P)	mg/L	0.001	0.0013	0.0011	0.001
Phosphorus (P)-Total	mg/L	0.002	0.0206	0.0189	0.0183
Sulfate (SO ₄)	mg/L	0.5	2.05	2.04	2.05
Cyanide, Total	mg/L	0.005	<0.0050	<0.0050	<0.0050
Cyanide, Free	mg/L	0.005	<0.0050	<0.0050	<0.0050
Aluminum (Al)-Total	mg/L	0.005	0.0204	0.0198	0.0204
Antimony (Sb)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050
Arsenic (As)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050
Barium (Ba)-Total	mg/L	0.02	<0.020	<0.020	<0.020
Beryllium (Be)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010
Boron (B)-Total	mg/L	0.1	<0.10	<0.10	<0.10
Cadmium (Cd)-Total	mg/L	0.00001	<0.000010	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	0.1	11.7	11.4	11.3
Chromium (Cr)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	0.0003	<0.00030	<0.00030	<0.00030
Copper (Cu)-Total	mg/L	0.001	0.0011	<0.0010	<0.0010
Iron (Fe)-Total	mg/L	0.03	0.116	0.114	0.114
Lead (Pb)-Total	mg/L	0.0005	<0.00050	<0.00050	<0.00050
Lithium (Li)-Total	mg/L	0.005	<0.0050	<0.0050	<0.0050
Magnesium (Mg)-Total	mg/L	0.1	6.01	5.83	5.83
Manganese (Mn)-Total	mg/L	0.0003	0.0152	0.0146	0.015
Mercury (Hg)-Total	mg/L	0.00001	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010
Nickel (Ni)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010
Potassium (K)-Total	mg/L	2	2	<2.0	<2.0
Selenium (Se)-Total	mg/L	0.0001	<0.00010	<0.00010	<0.00010
Silver (Ag)-Total	mg/L	0.00002	<0.000020	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	2	19.7	19.1	19.1
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	<0.010	<0.010
Uranium (U)-Total	mg/L	0.0002	<0.00020	<0.00020	<0.00020
Vanadium (V)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L	0.005	<0.0050	<0.0050	<0.0050

*Sample ID: S denotes surface, M denotes middepth, D denotes near bottom.

Part J: Conditions Applying to General and Aquatics Effects Monitoring

Item 4(a): TIA Discharge Quality – Water Quality Comparison/Deviations

An exceedance of the Part G, Item 30 criteria for aluminium was noted at Doris Creek station TL-3 (downstream) of the TL-4 discharge. However, elevated aluminum concentrations observed during sampling events at upstream station TL-2 indicate aluminum concentrations are naturally elevated in this creek. Furthermore, water discharged from Tail Lake to Doris Creek during the same sampling event as measured at stations TL-1 (Tail Lake discharge intake) and TL-4 (end-of-pipe discharge), was not elevated in aluminum, indicating that concentrations in Doris Creek were most likely not elevated due to TIA discharge.

Item 8 and Schedule J, Monitoring Requirements: Acute Lethality Testing (TL-1 and TL-4)

Acute lethality testing was conducted at sample station TL-4 (end-of-discharge) this month. Results indicate that effluent is non-acutely toxic to Rainbow Trout and *Daphnia magna*.

Item 12d: Tonnages of Waste Rock Stored on the Temporary Waste Rock Pad

Underground mining did not occur during the month. The total volume of rock on the temporary waste rock pad is 189,607 tonnes, as per the December 2011 survey.

Item 12g: Tail Lake Ice Thickness

Ice thickness measurement at Tail Lake is not required during Care and Maintenance.

Item 14, 15, 16 and Schedule J, Monitoring Requirements: Thermal Monitoring

Thermal monitoring undertaken under this part is reported in the annual Geotechnical Inspection Report.

Item 20: Daily Visual Monitoring of Discharges to Tundra

Discharges to tundra occurred at stations ST-6A and ST-6B. During daily discharge sampling, visual observations were made and no erosion was noted.

Item 21 (e) Daily Visual Assessment of Suspended Sediment at TIA

During sample collection at station TL-1 and during weekly dam inspections, visual assessments were made for suspended sediment at the TIA. During the month, none was noted.

Item 21 (f) Doris North Camp Diversion Berm Effectiveness

During spring melt and after heavy rainfall events, visual observations were made of runoff associated with the diversion berm. No sedimentation was noted and water is effectively routed away from camp facilities.

Environmental Incident Reporting

There were no environmental incidents reported during the month.

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

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'John Roberts', with a stylized flourish at the end.

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

cc. Eva Paul, Water Resources Officer, AANDC