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Re: July 2013 – Monthly Monitoring Report for Water Licence 2AM-DOH0713

This report is comprised of monitoring requirements as set out in Schedule J of water licence 2AM-DOH0713 and additional requirements from AANDC. Licence items include:

- Part D (Conditions Applying to Construction) Items 7 and 19;
- Part E (Conditions applying to Water Use) Item 1;
- Part G (Conditions Applying to Waste Management and Waste Management Plans) Items 3(e) and 3 (b), Item 21 (a) and 22 (e);
- Part J (Conditions Applying to General and Aquatic Effects Monitoring) Items 12 and 14.

Other monitoring requirements stipulated in the licence refer to facilities that have not been constructed. Doris Camp was re-opened on March 25th, 2013, in a care and maintenance phase with water management, drill exploration, and environmental compliance being the focus of current activities.

Part D: Conditions Applying to Construction

Item 7. Construction Monitoring

Construction activities did not take place this month.

Item 19. Surface Runoff Effluent Quality Limits

Turbidity checks were conducted daily during periods of melt (May and June) along areas that had been constructed in 2011-2012. In 2013, these checks were conducted near the diversion berm, the sumps, the north dam and the vent raise. No turbid runoff with the potential to reach a water body was noted. No checks were conducted in July as there as there was no longer any runoff at these locations.

Part E: Conditions Applying to Water Use

Item 1: Water Usage

There was no water usage from Doris Lake this month (Table 1). Water for camp use was withdrawn from Windy Lake as permitted by water licences 2BE-HOP1222 and 2AM-DOH0713. The volume of water extracted from Windy Lake and its water quality results are presented in the July 2013 2BE-HOP1222 monthly monitoring report.

Table 1: Water Usage from Doris North (m^3), July 2013

Parameters	Water Use
Water Source	Doris Lake
Geographical Coordinates	68°8'17.04" N, 106°36'52.68"W

Monthly Cumulative	0 m^3
Annual Cumulative	0 m^3
2AM-DOH0713 Permitted Water Volume (Total Annual)	480,000 m^3

Schedule J: Water Quality Monitoring at Water Intake

Monthly compliance samples were taken from monitoring station ST-7 (Doris Lake raw water) in accordance with the Schedule J requirements of the licence (Table 2).

Table 2: Monthly Compliance Sample Results for ST-7, July 2013

	Sample ID	**ST7-02JUL13**
	ALS ID	**L1325440-14**
	Sample Date/Time	**7/2/2013 8:15:00 AM**
Parameter	**Unit**	**Results**
Conductivity (EC)	uS/cm	307
Hardness (as CaCO3)	mg/L	56.4
pH	pH	7.77
Total Suspended Solids	mg/L	<3.0
Ammonia, Total (as N)	mg/L	<0.050
Nitrate (as N)	mg/L	<0.050
Nitrite (as N)	mg/L	<0.050
Orthophosphate-Dissolved (as P)	mg/L	<0.0010
Phosphorus (P)-Total	mg/L	0.024
Cyanide, Total	mg/L	<0.0050
Cyanide, Free	mg/L	<0.0050
Aphanizomenon (Cyanophyceae)	cells/mL	26700
Total cyanobacterial cell count	cells/mL	52600
Limnothrix (Cyanophyceae)	cells/mL	6910
Planktolyngbya (Cyanophyceae)	cells/mL	18600
Pseudoanabaena (Cyanophyceae)	cells/mL	384
Aluminum (Al)-Total	mg/L	0.0237
Antimony (Sb)-Total	mg/L	<0.00040
Arsenic (As)-Total	mg/L	<0.00040
Barium (Ba)-Total	mg/L	0.0035
Beryllium (Be)-Total	mg/L	<0.0010
Boron (B)-Total	mg/L	<0.050
Cadmium (Cd)-Total	mg/L	<0.000010
Calcium (Ca)-Total	mg/L	10.6
Chromium (Cr)-Total	mg/L	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020
Copper (Cu)-Total	mg/L	0.0017
Iron (Fe)-Total	mg/L	0.189
Lead (Pb)-Total	mg/L	<0.00010
Lithium (Li)-Total	mg/L	<0.010
Magnesium (Mg)-Total	mg/L	6.88
Manganese (Mn)-Total	mg/L	0.0297
Mercury (Hg)-Total	mg/L	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.0050
Nickel (Ni)-Total	mg/L	<0.0020
Potassium (K)-Total	mg/L	2.28
Selenium (Se)-Total	mg/L	<0.00040
Silver (Ag)-Total	mg/L	<0.000020
Sodium (Na)-Total	mg/L	33.4

	Sample ID	**ST7-02JUL13**
	ALS ID	**L1325440-14**
	Sample Date/Time	**7/2/2013 8:15:00 AM**
Parameter	**Unit**	**Results**
Thallium (Tl)-Total	mg/L	<0.00010
Tin (Sn)-Total	mg/L	<0.050
Titanium (Ti)-Total	mg/L	<0.0010
Uranium (U)-Total	mg/L	<0.00010
Vanadium (V)-Total	mg/L	<0.0010
Zinc (Zn)-Total	mg/L	<0.0040
Calcium (Ca)-Dissolved	mg/L	11.4
Magnesium (Mg)-Dissolved	mg/L	6.79
Oil and Grease	mg/L	<1.0
Oil And Grease (Visible Sheen)		No visible sheen present.
Microcystin	ug/L	<0.20

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

Item 1: Condition to Provide Notice of a Planned Discharge

On May 21, 2013 AANDC and the NWB were provided with a discharge notification for the discharge of ST4, ST5, ST6A, and ST6B.

Item 3(b): Conditions applying to sewage effluent quality

Monthly compliance samples were taken from monitoring station ST-8B (Sewage Treatment Plant Effluent) in accordance with the Schedule J requirements of the licence (Table 3).

Table 3: Monthly Compliance Sample Results for ST-8B, July 2013

	Sample ID	**ST8B-02Jul13**	**Part G Item 3 (b)**	
	ALS ID	**L1325440-6**	**Maximum Average Concentration**	**Maximum Allowable Grab Sample Concentration**
	Sample Date/Time	**7/2/2013 7:40:00 AM**		
Parameter	**Units**	**Results**		
pH	pH	6.62	6.5 - 9.0	9
Total Suspended Solids	mg/L	<3.0	100	100
Biochemical Oxygen Demand	mg/L	4	80	80
Oil and Grease	mg/L	2.3	5	10
Oil And Grease (Visible Sheen)		No Visible Sheen	No Visible Sheen	No Visible Sheen
Fecal Coliform	CFU/ 100mL	<1	10,000	10,000

Sewage effluent discharge was sampled in July prior to entry into Glenn Lake (ST-9) and water quality results are presented in Table 4.

Table 4: Monthly Compliance Sample Results for ST-9, July 2013

	Sample ID	**ST9-02Jul13**
	ALS ID	**L1325440-12**
	Sample Date/Time	**7/2/2013 8:10:00 AM**
Parameter	**Unit**	**Results**
BOD_5	mg/L	4
TSS (mg/L)	mg/L	6
Fecal Coliform	CFU/100mL	2
pH (pH unit)	pH unit	7.77
Oil & Grease (Visible Sheen)		No Visible Sheen
Oil & Grease (mg/L)	mg/L	1.2

Item 3(e): Treated Sewage Effluent Release in cubic meters

This month, 259 m^3 of sewage effluent was discharged from the sewage treatment plant.

Item 21 (a) and Items 22 (c), (e): Sedimentation pond, land farm, and fuel containment sumps

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 (STS1 and STS2), and occasionally from various berms and containments in the project area. 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 June 3, 2013 and the volume of water discharge to the TIA this month is presented in Table 5.

Table 5: Water in cubic meters (m^3) transferred from ST-1 to the TIA, July 2013

Parameters	Water volume transferred from ST-1 to TIA (m^3)
Monthly Cumulative	1872.84
Annual Cumulative	6038.39

The water quality results for ST-1 and ST-2 are shown in Table 6, as are June ST-2 results as these were not presented in the June monthly report.

Table 6: Water Quality Data Summary for Monitoring Station ST-1 and ST-2, June and July 2013

Sample ID		ST1-04JUN13	ST2-04JUN13	ST1-08JUL13	ST2-08JUL13
ALS ID		L1313624-1	L1313624-2	L1329538-7	L1329538-8
Sample Date/Time		6/4/2013 14:36	6/4/2013 14:25	7/8/2013 11:45	7/8/2013 11:30
Parameter	**Unit**	**Results**			
Conductivity (EC)	uS/cm	2710	4980	5130	6770
Hardness (as CaCO3)	mg/L	705	1380	1350	1810
pH	pH	7.64	7.58	7.74	7.78
Total Suspended Solids	mg/L	11	27	9	37
Ammonia, Total (as N)	mg/L	10.4	32.6	25.8	38.6
Nitrate (as N)	mg/L	32.7	71.5	79.5	122
Nitrite (as N)	mg/L	0.205	<0.50	<0.50	<0.50
Sulfate (SO4)	mg/L	54.6	57.7	151	264
Cyanide, Total	mg/L	<0.0050	0.0185	0.0109	0.0102
Cyanide, Free	mg/L	<0.0050	0.007	-	-
Aluminum (Al)-Total	mg/L	0.34	0.686	0.256	0.160
Antimony (Sb)-Total	mg/L	<0.00050	<0.00050	<0.0010	<0.0010
Arsenic (As)-Total	mg/L	0.0006	0.00072	0.0011	<0.0010
Barium (Ba)-Total	mg/L	0.0522	0.0834	0.0984	0.0934
Beryllium (Be)-Total	mg/L	<0.0025	<0.0025	<0.0050	<0.0050
Boron (B)-Total	mg/L	0.102	0.198	0.47	0.34
Cadmium (Cd)-Total	mg/L	0.000073	0.000118	0.00025	0.00014
Calcium (Ca)-Total	mg/L	249	484	554	466
Chromium (Cr)-Total	mg/L	0.0025	0.0025	0.0013	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020	0.0029	0.0044	0.0026
Copper (Cu)-Total	mg/L	0.0057	0.0065	0.0080	0.0088
Iron (Fe)-Total	mg/L	0.594	0.957	0.53	0.22

Sample ID		ST1-04JUN13	ST2-04JUN13	ST1-08JUL13	ST2-08JUL13
ALS ID		L1313624-1	L1313624-2	L1329538-7	L1329538-8
Sample Date/Time		6/4/2013 14:36	6/4/2013 14:25	7/8/2013 11:45	7/8/2013 11:30
Parameter	**Unit**	**Results**			
Lead (Pb)-Total	mg/L	0.00027	0.00027	<0.00050	<0.00050
Lithium (Li)-Total	mg/L	0.032	0.069	0.063	0.059
Magnesium (Mg)-Total	mg/L	34.2	49.4	87.5	62.5
Manganese (Mn)-Total	mg/L	0.556	0.679	1.25	0.836
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	0.0052	<0.0050
Nickel (Ni)-Total	mg/L	0.0036	0.0037	0.0053	0.0038
Potassium (K)-Total	mg/L	13.2	26.2	32.1	25.9
Selenium (Se)-Total	mg/L	0.00074	0.00086	0.0042	0.0025
Silver (Ag)-Total	mg/L	<0.000050	<0.000050	<0.00010	<0.00010
Sodium (Na)-Total	mg/L	197	348	505	398
Thallium (Tl)-Total	mg/L	<0.00025	<0.00025	<0.00050	<0.00050
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050	<0.050
Titanium (Ti)-Total	mg/L	0.0091	0.0384	0.0122	0.0032
Uranium (U)-Total	mg/L	0.00057	0.00059	0.00169	0.00108
Vanadium (V)-Total	mg/L	0.0016	0.0026	0.0014	<0.0010
Zinc (Zn)-Total	mg/L	0.06	<0.015	0.090	0.118
Calcium (Ca)-Dissolved	mg/L	231	474	443	575
Magnesium (Mg)-Dissolved	mg/L	31.1	47.8	59.8	89.4
Oil and Grease	mg/L	<1.0	<1.0	<1.0	1.2
Oil And Grease (Visible Sheen)		no visible sheen	no visible sheen	no visible sheen	no visible sheen

No water was discharged from the landfarm (ST-4), the Doris tank farm (ST-5), or the Roberts Bay tank farms (ST-6A and ST-6B) this month.

Item 26, 27, 28 and Part J Item 8: Water Discharged from Tailing Impoundment Area

Discharge from the Tailing Impoundment Area began June 21, 2013. Prior to the initiation of the discharge, sampling at TL-1 (TIA at the pump), TL-2 (Doris Creek upstream), and TL-3 (Doris Creek downstream) was started June 4, 2013 and continued every two days after that for over two weeks. Following the start of discharge, sampling at TL-4 (TIA discharge end of pipe) was initiated, and sampling at TL-1, TL-2, TL-3 was continued every two days for two weeks. Samples at TL-10 (TIA deepest portion of lake) were taken July 21, 2013 (see section Schedule J below for details).

Monthly water quality results for TL-1 are presented in Table 7, for TL-4 in Table 8, and for TL-2 and TL-3 in Table 11 at the end of this report.

Water collected from TL-4 was shown to be non-acutely toxic to trout or daphnia on July 15th, 2013. Acute lethality testing at TL-1 on June 17th (prior to the initiation of discharge) also indicated that this water was non-acutely toxic to trout or daphnia.

Table 7: Water Quality Results for TL-1, July 2013

Sample ID		TL1-02JUL13	TL1-04JUL13	TL1-08JUL13	TL1-15JUL13	TL1-29JUL13	TL1-22JUL13
ALS ID		L1325440-8	L1328047-1	L1329538-1	L1333107-1	L1340951-1	L1336695-1
Sample Date/Time		7/2/2013 7:45	7/5/2013 8:04	7/8/2013 9:54	7/15/2013 10:21	7/29/2013 8:05	7/22/2013 2:02
Parameter	**Units**	**Results**					
Conductivity (EC)	uS/cm	202	206	202	179	203	199
Hardness (as CaCO3)	mg/L	51.3	55.7	50.6	48.9	51.7	51.3
pH	pH	8.52	7.53	7.64	7.06	7.73	7.94
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0	4	<3.0	<3.0
Total Dissolved Solids	mg/L	122	135	118	115	130	108
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	37.1	37.8	37.7	35.4	37.7	36.6
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	0.024	0.022	0.021	<0.020	0.024	0.022
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Aluminum (Al)-Total	mg/L	0.0123	0.0151	0.0131	0.0081	0.008	0.0108
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.00052	<0.00040
Barium (Ba)-Total	mg/L	<0.0030	<0.0030	0.003	<0.0030	<0.0030	<0.0030
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	11.9	12.2	11.4	10.4	12.1	11.4
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Copper (Cu)-Total	mg/L	0.0013	0.0014	0.0011	<0.0010	<0.0010	0.0018
Iron (Fe)-Total	mg/L	0.271	0.248	0.243	0.172	0.254	0.169
Lead (Pb)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Magnesium (Mg)-Total	mg/L	5.87	5.9	5.92	5.2	5.54	6.22
Manganese (Mn)-Total	mg/L	0.019	0.0095	0.0279	0.0153	0.0208	0.0206
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Potassium (K)-Total	mg/L	1.82	1.91	1.85	1.78	1.82	1.81
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	18.3	17.5	16.9	16	16.8	17.2
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Titanium (Ti)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Sample ID		TL1-02JUL13	TL1-04JUL13	TL1-08JUL13	TL1-15JUL13	TL1-29JUL13	TL1-22JUL13
ALS ID		L1325440-8	L1328047-1	L1329538-1	L1333107-1	L1340951-1	L1336695-1
Sample Date/Time		7/2/2013 7:45	7/5/2013 8:04	7/8/2013 9:54	7/15/2013 10:21	7/29/2013 8:05	7/22/2013 2:02
Parameter	Units	Results					
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L	<0.0040	<0.0040	<0.0040	<0.0040	0.0044	<0.0040
Calcium (Ca)-Dissolved	mg/L	11.7	12.7	10.8	10.9	11.6	11
Magnesium (Mg)-Dissolved	mg/L	5.38	5.83	5.75	5.25	5.53	5.79

Table 8: Water Quality Results for TL-4, July 2013

Sample ID		TL4-02JUL13	TL4-04JUL13	TL4-08JUL13	TL4-15JUL13	TL4-22JUL13	TL4-29JUL13	Maximum Average Concentration	Maximum Allowable Grab Sample Concentration
ALS ID		L1325440-11	L1328047-4	L1329538-4	L1333107-4	L1336695-4	L1340951-4		
Sample Date/Time		7/2/2013 8:00	7/5/2013 8:50	7/8/2013 8:00	7/15/2013 10:21	7/22/2013 14:39	7/29/2013 8:05		
Parameter	Units	Results							
Conductivity (EC)	uS/cm	193	274	201	187	198	202		
Hardness (as CaCO3)	mg/L	50.7	50.3	49.6	48.1	52.8	55.2		
pH	pH	8.04	7.47	7.49	7.57	7.7	7.54	6.0-9.5	6.0-9.5
Total Suspended Solids	mg/L	<3.0	5	<3.0	6	<3.0	<3.0	15.00	30.00
Total Dissolved Solids	mg/L	114	155	120	116	115	126		
Ammonia, Total (as N)	mg/L	<0.050	<0.050	0.086	<0.050	0.055	IP	6	-
Chloride (Cl)	mg/L	36.1	62.7	37.9	36.7	36.7	37.7		
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Orthophosphate-Dissolved	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Phosphorus (P)-Total	mg/L	0.023	0.021	<0.020	<0.020	0.029	0.023		
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	1.00	2.00
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		
Fecal Coliforms	CFU/100mL	-	-	-	<1	-	-	10,000	10,000
Aluminum (Al)-Total	mg/L	0.011	0.051	0.019	0.0097	0.0106	0.008		
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040		
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.50	1.00
Barium (Ba)-Total	mg/L	<0.0030	0.0033	0.0032	<0.0030	<0.0030	<0.0030		
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		
Calcium (Ca)-Total	mg/L	11	9.89	11.4	11.7	11.4	12.7		
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020		
Copper (Cu)-Total	mg/L	<0.0010	0.0015	0.0013	<0.0010	0.0018	<0.0010	0.30	0.60
Iron (Fe)-Total	mg/L	0.246	0.238	0.275	0.192	0.304	0.279		
Lead (Pb)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.20	0.40
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010		
Magnesium (Mg)-Total	mg/L	5.52	6.9	5.83	5.36	6.19	5.74		
Manganese (Mn)-Total	mg/L	0.0333	0.0349	0.0279	0.0128	0.026	0.0181		
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	-		

	Sample ID	TL4-02JUL13	TL4-04JUL13	TL4-08JUL13	TL4-15JUL13	TL4-22JUL13	TL4-29JUL13	Maximum Average Concentration	Maximum Allowable Grab Sample Concentration
	ALS ID	L1325440-11	L1328047-4	L1329538-4	L1333107-4	L1336695-4	L1340951-4		
	Sample Date/Time	7/2/2013 8:00	7/5/2013 8:50	7/8/2013 8:00	7/15/2013 10:21	7/22/2013 14:39	7/29/2013 8:05		
Parameter	Units	Results							
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.50	1.00
Potassium (K)-Total	mg/L	1.76	2.38	1.84	1.87	1.83	1.89		
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040		
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020		
Sodium (Na)-Total	mg/L	17.6	32	17.5	16.7	17.4	17		
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Titanium (Ti)-Total	mg/L	<0.0010	0.0022	0.001	<0.0010	<0.0010	<0.0010		
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Zinc (Zn)-Total	mg/L	<0.0040	<0.0040	0.0116	0.0062	0.0131	0.01	0.50	1.00
Calcium (Ca)-Dissolved	mg/L	11.1	9.68	10.6	10.5	11.5	-		
Magnesium (Mg)-Dissolved	mg/L	5.6	6.34	5.65	5.3	5.86	-		
Radium 226	Bq/L	0.0015	0.0028	0.0010	0.0037	0.0011	0.0047	0.37	1.11
Acute Lethality - Daphnia					non lethal				
Acute Lethality - Trout					non lethal				
Biochemical Oxygen	mg/L	-	-	-	6	-	-	80	160

Item 30: Tailings Impoundment Area Discharge Volume

Dewatering of the Tailings Impoundment Area commenced on June 21, 2013. The daily discharge and maximum permitted discharge volumes for July are presented in Table 9.

Table 9: Daily Permitted and Actual Discharge Volumes for the TIA Dewatering Program, July 2013

Date	TL-2 Discharge Volume (m^3/day)	Max. Discharge Volume Allowed 10% of TL-2 (m^3/day)	Total Daily Vol. Discharged TL- 1 (m^3/day)	Total Daily Vol. Discharged TL- 4 (m^3/day)
Monday, July 01, 2013	71,587	7,159	*6714.27*	5932.28
Tuesday, July 02, 2013	69,911	6,991	*6509.52*	5765.40
Wednesday, July 03, 2013	70,503	7,050	*6538.33*	5765.12
Thursday, July 04, 2013	69,285	6,929	*6385.67*	5617.41
Friday, July 05, 2013	67,040	6,704	*6394.72*	5637.07
Saturday, July 06, 2013	64,988	6,499	*6297.92*	5544.65
Sunday, July 07, 2013	62,590	6,259	*6827.80*	6015.18
Monday, July 08, 2013	60,154	6,015	*6707.62*	5907.70
Tuesday, July 09, 2013	57,266	5,727	*6491.73*	5695.21
Wednesday, July 10, 2013	54,776	5,478	*6478.10*	5651.84
Thursday, July 11, 2013	52,839	5,284	*5794.37*	5095.44
Friday, July 12, 2013	50,185	5,019	*5625.94*	4959.54
Saturday, July 13, 2013	47,939	4,794	4461.37	4397.75
Sunday, July 14, 2013	46,697	4,670	4509.46	4488.95
Monday, July 15, 2013	45,725	4,572	4284.55	4351.39
Tuesday, July 16, 2013	44,930	4,493	4348.39	4265.00
Wednesday, July 17, 2013	43,626	4,363	3998.59	4101.36
Thursday, July 18, 2013	42,827	4,283	4112.28	4006.18
Friday, July 19, 2013	42,316	4,232	4119.06	4104.97
Saturday, July 20, 2013	40,354	4,035	3936.80	4015.91
Sunday, July 21, 2013	38,549	3,855	3895.05	3931.26
Monday, July 22, 2013	37,199	3,720	3699.33	3749.60
Tuesday, July 23, 2013	36,551	3,655	3700.76	3652.65
Wednesday, July 24, 2013	36,018	3,602	3547.23	3562.27
Thursday, July 25, 2013	34,828	3,483	3173.26	3152.99
Friday, July 26, 2013	33,252	3,325	3304.04	3290.14
Saturday, July 27, 2013	32,210	3,221	3206.96	3208.94
Sunday, July 28, 2013	30,331	3,033	3084.49	3078.22
Monday, July 29, 2013	29,868	2,987	2957.21	2985.26
Tuesday, July 30, 2013	29,051	2,905	2899.94	2899.52
Wednesday, July 31, 2013	27,152	2,715	2755.67	2759.68

Italicized values indicate meter readings recorded when flowmeter was improperly installed. Flowmeter was reinstalled on July 13th.

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

Water quality at station TL-10 is provided in Table 10.

Table 10: Water Quality Data Summary for Monitoring Station TL-10, July 2013

Sample ID		**TL10-21JUL13S Shallow**	**TL10-21JUL13M Mid**	**TL10-21JUL13D Deep**
ALS ID		**L1336695-7**	**L1336695-8**	**L1336695-9**
Sample Date/Time		**7/21/2013 6:09:00 PM**	**7/21/2013 6:19:00 PM**	**7/21/2013 6:25:00 PM**
Parameter	**Units**	**Results**		
Dissolved Oxygen	mg/L	12.24	12.19	12.17
Conductivity (EC)	uS/cm	195	191	190
Hardness (as CaCO3)	mg/L	49.7	48.4	49.4
pH	pH	7.89	7.78	7.74

Sample ID		TL10-21JUL13S Shallow	TL10-21JUL13M Mid	TL10-21JUL13D Deep
ALS ID		L1336695-7	L1336695-8	L1336695-9
Sample Date/Time		7/21/2013 6:09:00 PM	7/21/2013 6:19:00 PM	7/21/2013 6:25:00 PM
Parameter	**Units**	**Results**		
Redox Potential	mV	150	146	136
Total Suspended Solids	mg/L	5	<3.0	<3.0
Total Dissolved Solids	mg/L	100	109	103
Ammonia, Total (as N)	mg/L	<0.050	0.078	0.085
Chloride (Cl)	mg/L	35.9	35.6	35.7
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	<0.020	<0.020	0.022
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050
Aluminum (Al)-Total	mg/L	0.0183	0.016	0.018
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040
Barium (Ba)-Total	mg/L	0.0178	0.0033	0.0032
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	10.1	10.9	10.5
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020
Copper (Cu)-Total	mg/L	0.0017	0.0018	0.0016
Iron (Fe)-Total	mg/L	0.132	0.129	0.137
Lead (Pb)-Total	mg/L	<0.00010	<0.00010	<0.00010
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010
Magnesium (Mg)-Total	mg/L	5.85	6.22	5.88
Manganese (Mn)-Total	mg/L	0.0169	0.0172	0.017
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020
Potassium (K)-Total	mg/L	1.72	1.76	1.74
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	16.4	16.7	16.5
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050
Titanium (Ti)-Total	mg/L	<0.0010	<0.0010	<0.0010
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L	0.0155	<0.0040	<0.0040
Calcium (Ca)-Dissolved	mg/L	10.5	10.2	10.5
Magnesium (Mg)-Dissolved	mg/L	5.73	5.58	5.63

Part J: Conditions Applying to General and Aquatics Effects Monitoring

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

Underground mining is no longer occurring. Waste rock has not been removed from the pile. The total volume of rock on the temporary waste rock pad is 182,716 tonnes, as per the December 2011 survey.

Item 12g: Tail Lake Ice Thickness

There was no ice was on Tail Lake this month

Environmental Incident Reporting

July 22, 2013 – The fuel truck operator was refuelling a vehicle with diesel in the parking lot of the camp. When the truck started pumping fuel, the fuel tank's condensation valve let out a spray from the tank onto the ground. The content of the spray is mainly water with some fuel and estimated to be 0.25 L. All contaminated material was removed and given to waste management for appropriate off-site disposal and the vehicles condensation tank was emptied.

Should there be any questions regarding this monthly report, please contact Katsky Venter or Léa-Marie Bowes-Lyon, ESR Site Managers for TMAC Resources Inc. at (867) 988-0568
or Katsky.Venter@Newmont.com or Lea-Marie.Bowes-Lyon@Newmont.com.

Yours sincerely,

Lea-Marie Bowes-Lyon

Digitally signed by Lea-Marie Bowes-Lyon
DN: cn=Lea-Marie Bowes-Lyon, o=Newmont Mining Corporation, ou=Environment and Social Responsibility, email=lea-marie.bowes-lyon@newmont.com, c=CA
Date: 2013.09.09 11:06:47 -06'00'

Léa-Marie Bowes-Lyon
Environmental and Social Responsibility Site Manager
Hope Bay Project

Table 11: Water Quality Results for TL-2 and TL-3, July 2013

	Sample ID	TL2-02JUL13	TL2-04JUL13A	TL2-04JUL13B	TL2-08JUL13	TL2-15JUL13	TL2-22JUL13	TL2-29JUL13	TL3-02JUL13	TL3-04JUL13	TL3-08JUL13	TL3-15JUL13	TL3-22JUL13	TL3-29JUL13	Maximum Concentration of Any Grab Sample from TL-2*
	ALS ID	L1325440-9	L1328047-2	L1328047-5	L1329538-2	L1333107-2	L1336695-2	L1340951-2	L1325440-10	L1328047-3	L1329538-3	L1333107-3	L1336695-3	L1340951-3	
	Sample Date/Time	7/2/2013 8:00	7/5/2013 8:20	7/5/2013 8:25	7/8/2013 8:11	7/15/2013 10:21	7/22/2013 14:30	7/29/2013 8:05	7/2/2013 7:50	7/5/2013 8:40	7/8/2013 7:56	7/15/2013 10:21	7/22/2013 14:46	7/29/2013 8:05	
Parameter	**Units**														
Conductivity (EC)	uS/cm	292	279	281	277	265	274	274	285	193	270	261	266	268	
Hardness (as CaCO3)	mg/L	52.4	52.4	52.4	48.0	48.4	50.0	48.0	51.8	51.7	48.7	47.9	49.8	48.6	
pH	pH	7.68	7.42	7.45	7.43	7.3	7.62	7.58	7.76	7.57	7.38	7.37	7.52	7.48	6.0-9.0
Total Suspended Solids	mg/L	4	<3.0	4	5	6	<3.0	8	4	<3.0	6	9	13	10	15.00
Total Dissolved Solids	mg/L	177	161	166	154	148	147	161	158	120	151	148	141	158	
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050	0.129	<0.050	<0.050	<0.050	<0.050	<0.050	0.074	<0.050	0.084	<0.050	1.54**
Chloride (Cl)	mg/L	67.8	64.9	64.8	63.7	62.8	64.7	63.9	65	36.3	61	60.3	64.6	61.8	150
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	2.9
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.060
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Phosphorus (P)-Total	mg/L	0.024	0.024	0.024	0.029	0.025	0.029	0.024	0.023	0.032	0.023	0.022	0.031	0.023	
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.010
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.005
Fecal Coliforms	CFU/100mL	-	-	-	-	-	-	-	-	-	-	-	-	-	10,000
Aluminum (Al)-Total	mg/L	0.0263	0.0484	0.046	0.0537	0.0368	0.0388	0.0702	0.0244	0.0184	0.0511	0.0362	0.0508	0.0397	0.100
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.0050
Barium (Ba)-Total	mg/L	0.0034	0.0033	0.0034	0.0035	0.0032	<0.0030	0.0034	0.0032	<0.0030	0.0032	0.0032	<0.0030	0.0031	
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000017
Calcium (Ca)-Total	mg/L	9.61	10.3	9.58	8.94	9.56	9.32	9.38	9.21	11.5	10.2	9.76	9.26	9.59	
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Copper (Cu)-Total	mg/L	0.0014	0.0015	0.0015	0.0015	0.0013	0.0023	0.0015	0.0013	<0.0010	0.0015	0.0013	0.0024	0.0014	0.002
Iron (Fe)-Total	mg/L	0.165	0.234	0.237	0.169	0.154	0.118	0.185	0.161	0.268	0.181	0.157	0.135	0.132	
Lead (Pb)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00018	<0.00010	<0.00010	<0.00010	<0.00010	0.001
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Magnesium (Mg)-Total	mg/L	7	7.01	7.05	6.94	6.02	6.83	6.65	6.66	5.97	6.75	6.15	6.88	6.54	
Manganese (Mn)-Total	mg/L	0.0396	0.046	0.0456	0.0338	0.0288	0.0215	0.0219	0.0318	0.0134	0.0283	0.0238	0.0219	0.0187	
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000026
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.073
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.025
Potassium (K)-Total	mg/L	2.36	2.39	2.41	2.31	2.3	2.19	2.29	2.24	1.88	2.31	2.27	2.17	2.23	
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.0010
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.0001
Sodium (Na)-Total	mg/L	34.9	32.9	32.7	31.5	30.5	31.1	30.9	32	17.6	29.9	29.4	29.6	29.2	
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0008
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Titanium (Ti)-Total	mg/L	0.0011	0.0025	0.0026	0.0022	0.0011	<0.0010	0.0026	<0.0010	0.0016	0.002	0.0012	0.0013	0.0014	
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Zinc (Zn)-Total	mg/L	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0087	<0.0040	0.0171	<0.0040	<0.0040	<0.0040	0.0052	0.030
Calcium (Ca)-Dissolved	mg/L	9.98	9.81	9.73	8.64	9.22	9.11	8.72	9.99	11.4	8.83	9.29	9.48	9.33	
Magnesium (Mg)-Dissolved	mg/L	6.68	6.78	6.82	6.42	6.16	6.63	6.37	6.51	5.62	6.47	5.99	6.35	6.15	
Hexavalent Chromium	mg/L	-	-	-	-	-	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010
Oil and Grease	mg/L	-	-	-	-	-	-	***	<1.0	1.2	<1.0	<1.0	<1.0	***	5
Oil And Grease (Visible Sheen)		-	-	-	-	-	-	***	No visible sheen	No visible sheen	No visible sheen	No visible sheen	No visible sheen	***	

**As per Part G Item 28, during periods of discharge, water quality in Doris Creek at monitoring station TL-3 shall not exceed the greater of background water quality at the time of discharge as measured at monitoring station TL-2, or the criteria listed here.*

***at pH 7.5 and temperature of 20°C*

**** The Oil and Grease results for this sample were not received by the lab so could not be analyzed.*