MELIADINE GOLD PROJECT

ENVIRONMENTAL REPORT: JULY 2013

PRESENTED TO THE NUNAVUT WATER BOARD

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This monthly report is delivered under water license 2BB-MEL0914, PART J, items 13.

1. The Licensee shall maintain Monitoring Stations at the following locations:

Table 1: Monitoring stations

Monitoring Program Station Number	**Description**
MEL-1	Raw water supply intake at Meliadine Lake
MEL-2	Raw water supply intake at Pump Lake
MEL-3	Immediately downstream of old grey water sump prior to effluent entering wetland area, when flow is observed
MEL-3a	Immediately downstream of upgraded sump prior to the effluent entering upgraded wetland area, when flow is observed
MEL-4	At a point immediately upstream of the discharge from the wetland area / upgraded wetland area to Meliadine Lake
MEL-5	Point of discharge for the Bermed fuel containment facilities
MEL-6	Point of discharge for the contaminated soil storage
MEL-7	Final effluent discharge from the BIODISK treatment system
MEL-8	Point of discharge or runoff from the Non-Hazardous Waste Landfill

2. ***The Licensee shall measure and record, in cubic metres, the daily quantities of water utilized for camp, drilling and other purposes from all sources.***

   The consumption of fresh water for the site was **42.8m3/day** for the month of July 2013; 23.4m³/day for the drills and 19.4m³/day for the camp. During July, the majority of the drills were on the East property, so they were under the licence 2BE-MEP0813.

3. ***The Licensee shall provide the GPS co-ordinates of all locations where sources of water are utilized for all purposes.*** *In UTM nad 1983 zone 15.*

- Camp water source: East 541943.0 ; North 6989174.0

- Drilling water sources: East 539828.0 ; North 6987308.6
  East 539806.2 ; North 6988681.1

4. ***Licensee shall sample at Monitoring Program Station MEL-3, MEL-3a, MEL-4 and MEL-7, monthly during Sewage treatment, effluent discharge and during periods of flow at the point of entry into Meliadine Lake. Samples shall be analyzed for the following parameters:***

   Biochemical Oxygen Demand – BOD_5
   Total Suspended Solids
   Oil and Grease (and visual)
   Fecal Coliforms
   pH

MEL-4

Sample Mel 4		Date		
		24/06/2013	23/07/2013	29/07/2013
Field Measurments				
Water Temperature	oC	5.8	15.2	
pH	pH units	7.81	8.38	
Conductivity	(µS/cm)	0.02	0.03 mS	
Laboratory-Measured				
Fecal Coliforms	MPN/100mL	<3	380	<3
Total Coliforms	mg/L	<3	380	23
E. Coli	mg/L	<3	140	<3
Total Oil and Grease	mg/L	<1.0	-	-
Ion balance	%	Low EC	Low EC	Low EC
Biochemical Oxygen Demand	mg/L	<6.0	<6.0	<6.0
Ammonia as N	mg/L	0.012	0.37	<0.010
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020
Phosphorus (P)-Total	mg/L	0.024	0.33	0.041
Phosphorus (P)-Total Reactive	mg/L	0.004	0.27	<0.010
Total Kjeldahl Nitrogen	mg/L	<0.20	0.72	0.21
Total Suspended Solids	mg/L	<5.0	5	5
Phosphorus (P)-Total	mg/L	0.024	0.33	0.041
Alkalinity, Total (as CaCO3)	mg/L	13.9	22	16.5
Bicarbonate (HCO3)	mg/L	17	27	20.2
Carbonate (CO3)	mg/L	<0.60	<12	<0.60
Hydroxide (OH)	mg/L	<0.34	<6.8	<0.34
Calcium (Ca)-Dissolved	mg/L	5.12	6.78	6.56
Magnesium (Mg)-Dissolved	mg/L	0.88	1.1	1.09
Potassium (K)-Dissolved	mg/L	0.716	1.47	0.843
Sodium (Na)-Dissolved	mg/L	3.7	5.54	4.3
Chloride	mg/L	6.81	9.14	7.66
Conductivity	umhos/cm	59	84	67
Fluoride	mg/L	<0.10	<0.10	<0.10
Hardness (as CaCO3)	mg/L	16.8	22.2	18.8
Nitrate-N	mg/L	<0.050	0.067	<0.050
Nitrate and Nitrite as N	mg/L	<0.071	<0.071	<0.071
Nitrite-N	mg/L	<0.050	<0.050	<0.050
Sulfate	mg/L	2.9	3.63	3.15
TDS (Calculated)	mg/L	34	55	43.8
Aluminum (Al)-Total	mg/L	0.0098	0.0188	0.0252
Antimony (Sb)-Total	mg/L	<0.00020	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	0.00045	0.00108	0.00064
Barium (Ba)-Total	mg/L	0.00656	0.00752	0.00634
Beryllium (Be)-Total	mg/L	<0.00020	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L	<0.00020	<0.00020	<0.00020
Boron (B)-Total	mg/L	<0.010	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	5.16	6.95	5.93
Cesium (Cs)-Total	mg/L	<0.00010	<0.00010	<0.00010
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	<0.00020	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	0.00085	0.00112	0.00102
Iron (Fe)-Total	mg/L	<0.10	<0.10	<0.10
Lead (Pb)-Total	mg/L	<0.000090	0.000137	<0.000090
Lithium (Li)-Total	mg/L	<0.0020	<0.0020	<0.0020
Magnesium (Mg)-Total	mg/L	0.942	1.17	0.964
Manganese (Mn)-Total	mg/L	0.0154	0.0141	0.00657
Molybdenum (Mo)-Total	mg/L	<0.00020	<0.00020	<0.00020
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020
Phosphorus (P)-Total	mg/L	<0.10	0.31	<0.10
Potassium (K)-Total	mg/L	0.726	1.51	0.794
Rubidium (Rb)-Total	mg/L	0.00116	0.00183	0.00109
Selenium (Se)-Total	mg/L	<0.0010	<0.0010	<0.0010
Silicon (Si)-Total	mg/L	0.272	0.36	0.285
Silver (Ag)-Total	mg/L	<0.00010	<0.00010	<0.00010
Sodium (Na)-Total	mg/L	4.09	5.81	3.97
Strontium (Sr)-Total	mg/L	0.0243	0.0338	0.0291
Tellurium (Te)-Total	mg/L	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010
Thorium (Th)-Total	mg/L	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Total	mg/L	<0.00050	0.00064	0.00085
Tungsten (W)-Total	mg/L	<0.00010	<0.00010	<0.00010
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010
Vanadium (V)-Total	mg/L	<0.00020	<0.00020	<0.00020
Zinc (Zn)-Total	mg/L	0.0022	<0.0020	0.0022
Zirconium (Zr)-Total	mg/L	<0.00040	<0.00040	<0.00040
Oil & Grease	mg/L	<1.0	<1.0	<1.0
Turbidity	NTU	1.19	0.83	1.11
pH	pH units	7.29	7.52	7.43

MEL-7

All the parameters respected the license requirement during July.

Station: STP-OUT (MEL-7)		July			
DATE	Limits	02/07/2013	08/07/2013	16/07/2013	23/07/2013
Ammonia as N (mg/L)		20.2	15.8	10.4	17.4
Biochemical Oxygen Demand (mg/L)	80	<6.0	<6.0	6.6	6.5
Heterotrophic Plate Count (AAHB) (CFU/ml)		>3000	>3000	90.0	-
Nitrate-N (mg/L)		8.35	13.3	8.8	6.6
Nitrate and Nitrite as N (mg/L)		13.7	15.10	9.32	9.3
Nitrite-N (mg/L)		5.39	1.9	0.5	2.64
Oil & Grease-(IR) (mg/L)	5	<1.0	<1.0	<1.0	<1.0
Phosphorus (P)-Total (mg/L)		12.1	13.0	8.6	14.1
TKN (mg/L)		24.2	19.4	13.7	21.0
Total Suspended Solids (mg/L)	100	24.0	10.0	18.0	9.0
Transmitance (%T)		32.4	32.7	54.4	34.2
pH (pH units)	6.5-9	7.46	7.29	7.36	7.69
Fecal Coliforms (MPN/100ml)	1000	<3	3.0	3.0	<3
Total Coliforms (MPN/100ml)		9,300.0	4,300.0	43.0	150.0

5. ***The Licensee shall, prior to the release of effluent from the Bermed Fuel Containment Facilities at Monitoring Program Station MEL-5 and the contaminated soil storage at MEL-6 for the purpose of demonstrating compliance, sample for the parameters listed under Part D, item 17.***

   - A water release from the Bermed fuel containment facilities was done in July, after a water sampling and the reception of the authorization from inspector.

MEL-5 analysis results

Waterbody	Units	2BB Limit	MEL-5
Date Sampled			20/06/2013
Localisation			Bladder Berm
LAB			ALS LAB
Laboratory-Measured			
Benzene	mg/L	0.37	<0.00050
Toluene	mg/L	0.002	<0.0010
Ethyl benzene	mg/L	0.09	<0.00050
Xylenes	mg/L	-	<0.0015
Lead (Pb)-Total	mg/L	0.001	0.000477
Oil and Grease, Total	mg/L	15	<2.0
Phenols (4AAP)	mg/L	0.02	<0.0010

6. ***The Licensee shall obtain representative samples of the water column below any ice where required under part F, item 7. Monitoring shall include but not limited to the following:***

   Total Suspended Solids
   pH
   Electrical Conductivity, and
   Total trace Metals as determined by a standard ICP Scan (to include at a minimum, the following elements: Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Sn, Sr, Tl, Ti, U, V, Zn), and Trace Arsenic and Mercury.

   No sampling on ice in July.

7. The Licensee shall analyze the samples obtained at Monitoring Program Station MEL-8 for the following parameters:
pH
Total Suspended Solids (TSS)
Oil & Grease
Total Trace metals as determined by a standard ICP Scan (to include at a minimum, the following elements: Al, Ba, Cd, Cr, Cu, Pb, Ni, Se, Sn, Zn); and
Trace Arsenic and Mercury

The Non-Hazardous Waste Landfill is not constructed yet.