

**MELIADINE GOLD PROJECT  
MONTHLY ENVIRONMENTAL REPORT MAY 2012**



**MELIADINE GOLD PROJECT**

**MONTHLY ENVIRONMENTAL REPORT: MAY 2012**

**PRESENTED TO THE NUNAVUT WATER BOARD**

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MELIADINE GOLD PROJECT  
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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	Status
MEL-1	Raw water supply intake at Meliadine Lake	Active (volume cubic metres)
MEL-2	Raw water supply intake at Pump Lake	Active (volume cubic metres)
MEL-3	Immediately downstream of old grey water sump prior to effluent entering wetland area, when flow observed	Active
MEL-3a	Immediately downstream of upgraded sump prior to the effluent entering upgraded wetland area, when flow is observed	Active
MEL-4	At a point immediately upstream of the discharge from the wetland area / upgraded wetland area to Meliadine Lake	Active
MEL-5	Point of discharge for the Bermed Fuel Containment Facilities	Active
MEL-6	Point of discharge for the contaminated soil storage	Active
MEL-7	Final effluent discharge from the BIODISK treatment system	Active

**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 **218,9 m<sup>3</sup>/day** for the month of May 2012

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**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**

- Camp water source: East 541943,0 ; North 6989174,0

Table 2: Drilling sources of water May 2012

East	North
538455	6988028
538594	6986944
540132	6987360
540735	6987091
542169	6986061
542362	6984981
540448	6986843

**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<sub>5</sub>  
Total Suspended Solids  
Oil and Grease (and visual)  
Fecal Coliforms  
pH

Here are the MEL-7 results for May. As you can see, we are actually working on the system improvement and we take water samples weekly instead of monthly to be able to react rapidly in case of problematic.

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Table 3 MEL-7 results

Station: STP-OUT		April			May			
DATE	Limits	03/04/2012	10/04/2012	23/04/2012	02/05/2012	07/05/2012	22/05/2012	30/06/2012
Ammonia as N		85.9	129.0	36.9	37.4	138.0	113.0	x
Biochemical Oxygen Demand	80	88.0	47.1	15.0	10.2	10.2	13.2	24.4
Heterotrophic Plate Count (AAHB)		>3000	>3000	>3000	960.0	>3000	>3000	>3000
Nitrate-N		12.2	<0.25	<0.050	57.2	0.4	5.6	10.1
Nitrate and Nitrite as N		14.70	16.50	56.40	57.20	X	52.40	59.00
Nitrite-N		2.5	16.5	56.4	<0.050	31.5	46.9	48.9
Oil & Grease-(IR)	5	<1.0	4.9	2.1	<1.0	4.9	<1.0	<1.0
Phosphorus (P)-Total		12.6	15.7	14.5	8.7	19.6	24.7	16.8
TKN		95.8	143.0	41.4	37.9	116.0	99.0	71.8
Total Suspended Solids	100	260.0	66.0	71.7	63.3	16.0	13.0	73.3
Transmittance		27.1	18.3	x	35.5	19.2	13.5	21.9
pH	6.5-9	7.4	8.0	5.9	4.3	7.7	7.9	7.68
Fecal Coliforms	1000	110,000.0	110,000.0	2,300.0	4.0	7,500.0	330.0	2,300.0
Total Coliforms		110,000.0	110,000.0	21,000.0	9.0	12,000.0	OVERGROWN	15,000.0

The first visit of the consultant for the waste water management was in April and in May we see a good improvement of the water quality.

- 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.**

➤ No effluent release in May.

- 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.**

Here are the analysis results of the samples taken in April.

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Table 4: Pump lake results

Parameters	Unit	Limits	Pump Lake (A8)	Pump Lake (A8)	Pump Lake (A8)	Pump Lake (A8)	Pump Lake (A8)	Pump Lake (A8)	Pump Lake (A8)	Pump Lake (A8)	Pump Lake (A8)	Pump Lake (A8)
			P7 (initial) 24/01/2012	P7 (mid) 03/02/2012	P7 (mid) 03/02/2012	P7 (mid) 23/02/2012	P7 (mid) 03/03/2012	P7 (mid) 10/03/2012	P7 (mid) 31/03/2012	P7 (mid) 07/04/2012	P7 (mid) 06/05/2012	P7 (mid) 21/05/2012
Chloride	mg/L		73.7	78.8	79	95.2	96.3	103	128	125	134	
Conductivity	umhos/cm		406	437	435	526	531	575	694	692	740	542
Hardness (as CaCO3)	mg/L			181	169	221	230	258	297	288	307	211
Mercury (Hg)-Total	mg/L	0.000026	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020
Sodium Adsorption Ratio									0.52	0.41	0.47	0.28
Sulfate									17.4		16.6	<5.0
TDS (Calculated from EC)	mg/L								451	450	481	352
Total Suspended Solids	mg/L	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	13	<5.0	<5.0	<5.0
pH	pH units	6.5-9.0	7.21	7.13	7.16	7.26	7.43	7.15	7.1	7.06	7	7.19
Aluminum (Al)-Total	mg/L	0.1	0.0099	0.0116	0.0081	<0.0050	<0.0050	0.0097	<0.0050	0.0052	<0.050	0.0236
Antimony (Sb)-Total	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.0020	0.00022
Arsenic (As)-Total	mg/L	0.005	0.00187	0.00211	0.00198	0.00213	0.00218	0.00228	0.0021	0.00178	<0.0020	0.00213
Barium (Ba)-Total	mg/L		0.0489	0.0584	0.0553	0.0688	0.0751	0.0828	0.0925	0.0831	0.102	0.0695
Beryllium (Be)-Total	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.0020	<0.00020
Bismuth (Bi)-Total	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.0020	<0.00020
Boron (B)-Total	mg/L	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.10	<0.010
Cadmium (Cd)-Total	mg/L	Hardness dependent	0.000198	0.000304	0.000258	0.000183	0.000182	0.000037	0.000026	0.000029	0.00012	0.000288
Calcium (Ca)-Total	mg/L		53.5	58.5	54.4	72.8	76.8	83.7	95	97	102	74.1
Cesium (Cs)-Total	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Chromium (Cr)-Total	mg/L		0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.010	0.0013
Cobalt (Co)-Total	mg/L		<0.00020	0.00025	0.00024	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.0020	0.00027
Copper (Cu)-Total	mg/L	Hardness dependent	0.00194	0.00219	0.00201	0.00179	0.0018	0.00187	0.00272	0.00534	0.009	0.00478
Iron (Fe)-Total	mg/L	0.3	0.14	0.19	0.18	0.19	0.2	0.17	0.16	<0.10	<1.0	0.29
Lead (Pb)-Total	mg/L	Hardness dependent	0.000205	0.00047	0.000428	0.000142	0.000198	0.0001	0.00145	0.000819	0.00314	0.00116
Lithium (Li)-Total	mg/L		0.0156	0.0175	0.0179	0.0215	0.0228	0.0197	0.0304	0.026	0.031	0.0228
Magnesium (Mg)-Total	mg/L		6.88	8.47	8.15	9.63	9.29	11.9	14.4	11.2	12.8	6.34
Manganese (Mn)-Total	mg/L		0.112	0.184	0.171	0.0739	0.0418	0.0563	0.0462	0.0122	0.153	0.0908
Molybdenum (Mo)-Total	mg/L		0.00025	0.00028	0.0003	0.00036	0.00023	0.00027	0.00033	0.00028	<0.0020	0.00049
Nickel (Ni)-Total	mg/L	Hardness dependent	0.0025	0.0023	0.002	0.0033	<0.0020	0.0028	0.0029	0.0029	<0.020	0.0028
Phosphorus (P)-Total	mg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<1.0	<0.10
Potassium (K)-Total	mg/L		2.9	3.53	3.34	3.94	3.98	4.28	5.2	4.7	6.3	4.30
Rubidium (Rb)-Total	mg/L		0.00284	0.00343	0.00326	0.00393	0.00422	0.00403	0.00536	0.00497	0.0062	0.00431
Selenium (Se)-Total	mg/L	0.001	0.0014	0.0019	0.002	0.0023	0.0073	0.0018	<0.0010	<0.0010	<0.010	<0.0010
Silicon (Si)-Total	mg/L		2.34	2.19	2.14	2.96	2.94	3.57	3.76	3.26	4.09	1.79
Silver (Ag)-Total	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Sodium (Na)-Total	mg/L		10.9	9.36	8.66	13	13.7	16.8	20.5	15.8	18.9	9.37
Strontium (Sr)-Total	mg/L		0.325	0.394	0.372	0.458	0.435	0.452	0.562	0.646	0.61	0.579
Tellurium (Te)-Total	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.0020	<0.00020
Thallium (Tl)-Total	mg/L	0.0008	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Thorium (Th)-Total	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Tin (Sn)-Total	mg/L		<0.00020	<0.00020	<0.00020	<0.00040	<0.00020	<0.00020	<0.00020	<0.00020	<0.0020	-
Titanium (Ti)-Total	mg/L		0.0003	0.00055	0.00047	0.00021	0.00029	0.0007	0.0006	0.00063	<0.0020	0.00149
Tungsten (W)-Total	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.010	0.00287
Uranium (U)-Total	mg/L	0.015	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Vanadium (V)-Total	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.0020	<0.00020
Zinc (Zn)-Total	mg/L	0.03	0.0138	0.0081	0.0082	0.0058	0.0212	0.0073	0.0065	0.0168	0.066	0.0437
Zirconium (Zr)-Total	mg/L		<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0040	<0.00040
Oil/Grease-(IR)	mg/L						<1.0	<1.0				

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Table 5: Bud lake results

			2012-BUD-03 (initial)	2012-BUD-03 (mid)	2012-BUD-03 (mid)	2012-BUD-03 (mid)	2012-BUD-03 (mid)
Parameters	Unit	Limits	07/03/2012	31/03/2012	07/04/2012	06/05/2012	21/05/2012
Chloride	mg/L		66.3	79.6	92.1	99.4	24.0
Conductivity	umhos/cm		427	504	565	616	152
Hardness (as CaCO3)	mg/L		201	198	238	263	49.4
Mercury (Hg)-Total	mg/L	0.000026	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020
Oil & Grease-(IR)	mg/L		<1.0				
Sodium Adsorption Ratio				0.48	0.4	0.44	0.21
Sulfate	mg/L			14.1		17.4	5.17
TDS (Calculated from EC)	mg/L			327	368	400	98
Total Suspended Solids	mg/L	10	11	<5.0	8	270	17
pH	pH units	6.5-9.0	7	6.97	7.06	6.89	7.04
Aluminum (Al)-Total	mg/L	0.1	0.0051	0.0057	0.0751	0.78	0.0478
Antimony (Sb)-Total	mg/L		<0.00020	<0.00020	0.00035	<0.0020	<0.00020
Arsenic (As)-Total	mg/L	0.005	0.00156	0.00135	0.00217	0.188	0.0130
Barium (Ba)-Total	mg/L		0.0698	0.0849	0.0812	0.237	0.0292
Beryllium (Be)-Total	mg/L		0.0002	<0.00020	<0.00020	<0.0020	<0.00020
Bismuth (Bi)-Total	mg/L		<0.00020	<0.00020	<0.00020	<0.0020	<0.00020
Boron (B)-Total	mg/L	1.5	<0.010	<0.010	0.014	<0.10	<0.010
Cadmium (Cd)-Total	mg/L	Hardness dependent	0.000035	0.000043	0.000058	0.00011	0.000078
Calcium (Ca)-Total	mg/L		67	64	80.6	88.1	16.8
Cesium (Cs)-Total	mg/L		<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Chromium (Cr)-Total	mg/L		<0.0010	<0.0010	0.0021	<0.010	<0.0010
Cobalt (Co)-Total	mg/L		0.00025	0.00042	0.00101	0.0036	0.0004
Copper (Cu)-Total	mg/L	Hardness dependent	0.0017	0.00214	0.00811	0.0121	0.002
Iron (Fe)-Total	mg/L	0.3	0.2	0.32	0.66	51.6	3.83
Lead (Pb)-Total	mg/L	Hardness dependent	<0.000090	0.000204	0.00226	0.00241	0.000629
Lithium (Li)-Total	mg/L		0.0169	0.0222	0.0264	0.029	0.0033
Magnesium (Mg)-Total	mg/L		8.16	9.34	8.97	10.4	1.81
Manganese (Mn)-Total	mg/L		0.323	0.452	0.534	0.889	0.132
Molybdenum (Mo)-Total	mg/L		<0.00020	0.00026	0.00031	0.0025	0.00028
Nickel (Ni)-Total	mg/L	Hardness dependent	0.0027	0.0026	0.0035	<0.020	<0.0020
Phosphorus (P)-Total	mg/L		<0.20	<0.20	<0.20	<1.0	<0.10
Potassium (K)-Total	mg/L		3.43	3.68	4.07	4.65	0.911
Rubidium (Rb)-Total	mg/L		0.00332	0.00429	0.00461	0.006	0.00105
Selenium (Se)-Total	mg/L	0.001	0.0016	<0.0010	<0.0010	<0.010	<0.0010
Silicon (Si)-Total	mg/L		2.41	2.07	2.2	4.96	0.484
Silver (Ag)-Total	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Sodium (Na)-Total	mg/L		14.6	15.4	14	16.3	3.46
Strontium (Sr)-Total	mg/L		0.335	0.465	0.527	0.516	0.113
Tellurium (Te)-Total	mg/L		<0.00020	<0.00020	<0.00020	<0.0020	<0.00020
Thallium (Tl)-Total	mg/L	0.0008	<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Thorium (Th)-Total	mg/L		<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Tin (Sn)-Total	mg/L		<0.00020	<0.00020	0.00043	<0.0020	<0.00020
Titanium (Ti)-Total	mg/L		0.00042	0.00047	0.00251	0.0416	0.00212
Tungsten (W)-Total	mg/L		<0.0010	<0.0010	<0.0010	<0.010	0.00013
Uranium (U)-Total	mg/L	0.015	<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Vanadium (V)-Total	mg/L		<0.00020	<0.00020	0.00023	<0.0020	0.00031
Zinc (Zn)-Total	mg/L	0.03	0.0063	0.0081	0.0203	0.027	0.0109
Zirconium (Zr)-Total	mg/L		<0.00040	<0.00040	<0.00040	<0.0040	<0.00040

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*Table 6: Woody lake results*

			2012-Woody-04 (initial)	2012-Woody-04 (Mid)	2012-Woody-04 (Mid)	2012-Woody-04 (Mid)	2012-Woody-04 (Mid)
Parameters	Unit	Limits	07/03/2012	31/03/2012	07/04/2012	06/05/2012	21/05/2012
Chloride	mg/L		86.9	95.2	104	109	48.8
Conductivity	umhos/cm		506	523	576	596	263
Hardness (as CaCO3)	mg/L		216	219	240	245	71.8
Mercury (Hg)-Total	mg/L	0.000026	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020
Oil & Grease-(IR)	mg/L		<1.0				
Sodium Adsorption Ratio				0.37	0.32	0.32	0.17
Sulfate	mg/L			12.2		13.3	5.89
TDS (Calculated from EC)	mg/L			340	375	388	171
Total Suspended Solids	mg/L	10	<5.0	<5.0	6	<5.0	<5.0
pH	pH units	6.5-9.0	7.03	6.97	7.11	6.93	7.19
Aluminum (Al)-Total	mg/L	0.1	<0.0050	0.0057	0.0248	<0.050	0.0155
Antimony (Sb)-Total	mg/L		<0.00020	<0.00020	0.00035	<0.0020	<0.00020
Arsenic (As)-Total	mg/L	0.005	0.00173	0.0014	0.00138	<0.0020	0.00072
Barium (Ba)-Total	mg/L		0.0761	0.0761	0.0737	0.0906	0.0226
Beryllium (Be)-Total	mg/L		<0.00020	<0.00020	<0.00020	<0.0020	<0.00020
Bismuth (Bi)-Total	mg/L		<0.00020	<0.00020	<0.00020	<0.0020	<0.00020
Boron (B)-Total	mg/L	1.5	<0.010	<0.010	0.01	<0.10	<0.010
Cadmium (Cd)-Total	mg/L	Hardness dependent	0.000048	0.000048	0.000075	<0.00010	0.000199
Calcium (Ca)-Total	mg/L		74.3	74	84	85.5	25.8
Cesium (Cs)-Total	mg/L		<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Chromium (Cr)-Total	mg/L		0.0013	<0.0010	0.0022	<0.010	0.0024
Cobalt (Co)-Total	mg/L		<0.00020	0.00029	<0.00020	<0.0020	<0.00020
Copper (Cu)-Total	mg/L	Hardness dependent	0.00188	0.00162	0.0067	0.0052	0.00199
Iron (Fe)-Total	mg/L	0.3	0.18	0.21	0.14	<1.0	0.11
Lead (Pb)-Total	mg/L	Hardness dependent	0.000102	0.000147	0.000744	0.00145	0.000814
Lithium (Li)-Total	mg/L		0.0233	0.027	0.0275	0.03	0.006
Magnesium (Mg)-Total	mg/L		7.5	8.22	7.47	7.6	1.83
Manganese (Mn)-Total	mg/L		0.0628	0.115	0.0645	0.151	0.0397
Molybdenum (Mo)-Total	mg/L		0.00023	0.00022	0.00026	<0.0020	<0.00020
Nickel (Ni)-Total	mg/L	Hardness dependent	0.0032	0.003	0.0039	<0.020	<0.0020
Phosphorus (P)-Total	mg/L		<0.20	<0.20	<0.20	<1.0	<0.10
Potassium (K)-Total	mg/L		3.87	4.11	5.36	4.36	1.85
Rubidium (Rb)-Total	mg/L		0.00368	0.00391	0.00469	0.0045	0.00149
Selenium (Se)-Total	mg/L	0.001	0.0023	<0.0010	<0.0010	<0.010	<0.0010
Silicon (Si)-Total	mg/L		2.66	2.47	2.41	2.76	0.562
Silver (Ag)-Total	mg/L	0.0001	<0.00010	<0.00010	0.00022	<0.0010	<0.00010
Sodium (Na)-Total	mg/L		12.2	12.5	11.4	11.5	3.35
Strontium (Sr)-Total	mg/L		0.47	0.56	0.666	0.596	0.216
Tellurium (Te)-Total	mg/L		<0.00020	<0.00020	<0.00020	<0.0020	<0.00020
Thallium (Tl)-Total	mg/L	0.0008	<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Thorium (Th)-Total	mg/L		<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Tin (Sn)-Total	mg/L		<0.00020	<0.00020	0.00032	<0.0020	<0.00020
Titanium (Ti)-Total	mg/L		0.00056	0.0426	0.00123	<0.0020	0.00063
Tungsten (W)-Total	mg/L		<0.0010	<0.0010	<0.0010	<0.010	<0.00010
Uranium (U)-Total	mg/L	0.015	<0.00010	<0.00010	<0.00010	<0.0010	<0.00010
Vanadium (V)-Total	mg/L		0.00027	<0.00020	<0.00020	<0.0020	<0.00020
Zinc (Zn)-Total	mg/L	0.03	0.008	<0.0020	0.0166	<0.020	0.0195
Zirconium (Zr)-Total	mg/L		<0.00040	<0.00040	<0.00040	<0.0040	<0.00040