shear diamonds
Suite 220, 17010 – 103 Ave
Edmonton, AB T5S 1K7
Canada
Office: 780-435-0045

May 31, 2011

Phyllis Beaulieu, Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, Nunavut
X0B 1J0

Delivered by email.

RE: Water Licenses NWB1JER0410 Monthly Report- April 2011

Following is the monthly report for April 2011 as required under the Water License 2AM-JER0410. Results of water monitoring as proposed in section 5.0 of Appendix C (General Monitoring Plan) of the Care and Maintenance Plan submitted to the Water Board in January 2011 are included below.

JER-SWQ-01/ JER-SWF-04

The results from JER-SWQ-01, Waste Water Treatment are below. Please note that the sample was taken prior to the replacement of the filter media in the backwash and the associated pump. Additionally Shear has begun amending the black water with dog food to increase the nutrient supply to the Rotating Biological Contractor. A representative from Seprotech was on site in April to conduct an inspection of the unit, recommend repairs and to instruct on-site personnel on the correct maintenance and operation of the unit. The cubic meters of water discharge in April from the Waste Water Treatment at station JER-SWF-04 to the Process Kimberlite Containment Area was 107. This is a manual calculation as totalizer parts are on order.

ALS		Sample ID	Jer-SWQ-01
6/1/2011		ALS ID	L995890-1
L995890		Date Sampled	4/16/2011 7:30:00 AM
Analyte	Units	LOR	Water
pH	pH	0.1	7.75
Total Suspended Solids	mg/L	3	25
Total Kjeldahl Nitrogen	mg/L	0.2	12.8
Phosphorus (P)-Total	mg/L	0.02	5.1
Biochemical Oxygen Demand	mg/L	2	36
Oil and Grease	mg/L	1	<1.0

JER-SWF-01/ JER-SWF-03

The main station pump at Carat Lake Causeway is not operational at this time. The water taken for domestic purposed at this time is taken from Carat Lake by pump and transported by water truck to tanks within the accommodation unit. Volume drawn is calculated manually. 121.4 Cubic meters of water was drawn from Carat Lake in April. Below are the results from the water quality sampling at the intake area of Carat Lake.

ALS		Sample ID	DUPLICATE 1	SWQ-02	FIELD BLANK
6/1/2011		ALS ID	L995804-6	L995804-8	L995804-16
L995804		Date Sampled	4/13/2011	4/12/2011	4/14/2011
Analyte	Units	LOR	Water	Water	Water
Hardness (as CaCO3)	mg/L	0.5	11.2	-	<0.50
Total Suspended Solids	mg/L	3	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	5	14	11	<5.0
Temperature	Degree C	1	25	25	25
Turbidity	NTU	0.1	0.14	0.22	<0.10
Acidity (as CaCO3)	mg/L	5	<5.0	<5.0	<5.0
Alkalinity, Total (as CaCO3)	mg/L	5	8.8	7.1	<5.0
Ammonia-N	mg/L	0.005	0.0247	0.0261	<0.0050
Bicarbonate (HCO3)	mg/L	5	10.7	8.7	<5.0
Carbonate (CO3)	mg/L	5	<5.0	<5.0	<5.0
Chloride (Cl)	mg/L	0.5	<0.50	<0.50	<0.50
Conductivity (EC)	uS/cm	0.2	20.6	16.3	<0.20
Fluoride (F)	mg/L	0.05	<0.050	<0.050	<0.050
Hardness (as CaCO3)	mg/L	n/a	10.6	8.1	<1.0
Hydroxide (OH)	mg/L	5	<5.0	<5.0	<5.0
Ion Balance	%	n/a	Low EC	Low EC	Low TDS
Nitrate+Nitrite-N	mg/L	0.006	0.0875	0.0876	<0.0060
Nitrate-N	mg/L	0.006	0.0875	0.0876	<0.0060
Nitrite-N	mg/L	0.002	<0.0020	<0.0020	<0.0020
pH	pH	0.1	7.2	7.07	5.57
Orthophosphate-Dissolved (as P)	mg/L	0.001	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total Dissolved	mg/L	0.001	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	0.001	0.0034	0.002	<0.0010
TDS (Calculated)	mg/L	n/a	10.8	9.1	<1.0
Sulfate (SO4)	mg/L	0.05	1.25	1.3	<0.050
Total Organic Carbon	mg/L	1	4.6	4.3	<1.0
Calcium (Ca)-Total	mg/L	0.05	2.42	-	<0.050
Iron (Fe)-Total	mg/L	0.01	0.017	-	<0.010
Magnesium (Mg)-Total	mg/L	0.05	1.15	-	<0.050
Mercury (Hg)-Total	mg/L	0.00005	<0.000050	-	<0.000050
Phosphorus (P)-Total	mg/L	0.05	<0.050	-	<0.050
Potassium (K)-Total	mg/L	0.2	0.35	-	<0.20
Silicon (Si)-Total	mg/L	0.05	0.704	-	<0.050
Sodium (Na)-Total	mg/L	0.2	0.74	-	<0.20
Aluminum (Al)-Total	mg/L	0.0002	0.0244	-	<0.00020
Antimony (Sb)-Total	mg/L	0.000005	0.0000143	-	<0.0000050
Arsenic (As)-Total	mg/L	0.00002	0.000208	-	<0.000020
Barium (Ba)-Total	mg/L	0.00002	0.00345	-	0.000022
Beryllium (Be)-Total	mg/L	0.000002	0.0000042	-	<0.0000020
Bismuth (Bi)-Total	mg/L	0.000001	<0.0000010	-	<0.0000010
Boron (B)-Total	mg/L	0.005	<0.0050	-	<0.0050

Cadmium (Cd)-Total	mg/L	0.000005	0.0000061	-	<0.0000050
Chromium (Cr)-Total	mg/L	0.00005	0.000113	-	<0.000050
Cobalt (Co)-Total	mg/L	0.000005	0.0000232	-	<0.0000050
Copper (Cu)-Total	mg/L	0.00005	0.00188	-	0.000132
Lead (Pb)-Total	mg/L	0.000005	0.0000263	-	<0.0000050
Lithium (Li)-Total	mg/L	0.0002	0.00027	-	<0.00020
Manganese (Mn)-Total	mg/L	0.000005	0.00187	-	0.0000353
Molybdenum (Mo)-Total	mg/L	0.00001	0.000032	-	<0.000010
Nickel (Ni)-Total	mg/L	0.00005	0.000577	-	<0.000050
Selenium (Se)-Total	mg/L	0.00004	<0.000040	-	<0.000040
Silver (Ag)-Total	mg/L	0.000005	<0.0000050	-	<0.0000050
Strontium (Sr)-Total	mg/L	0.00001	0.00647	-	0.000014
Tellurium (Te)-Total	mg/L	0.00001	<0.000010	-	<0.000010
Thallium (Tl)-Total	mg/L	0.000001	0.0000054	-	<0.0000010
Thorium (Th)-Total	mg/L	0.000005	0.0000209	-	<0.0000050
Tin (Sn)-Total	mg/L	0.00001	0.000017	-	<0.000010
Titanium (Ti)-Total	mg/L	0.00005	0.000189	-	<0.000050
Tungsten (W)-Total	mg/L	0.00001	<0.000010	-	<0.000010
Uranium (U)-Total	mg/L	0.000001	0.000116	-	<0.0000010
Vanadium (V)-Total	mg/L	0.00001	0.000057	-	<0.000010
Yttrium (Y)-Total	mg/L	0.000005	0.000105	-	<0.0000050
Zinc (Zn)-Total	mg/L	0.0001	0.00165	-	0.00127
Zirconium (Zr)-Total	mg/L	0.00001	0.000065	-	<0.000010
Aluminum (Al)-Dissolved	mg/L	0.0002	0.0228	-	0.00035
Antimony (Sb)-Dissolved	mg/L	0.000005	0.0000109	-	<0.0000050
Arsenic (As)-Dissolved	mg/L	0.00002	0.000206	-	<0.000020
Barium (Ba)-Dissolved	mg/L	0.00002	0.00258	-	<0.000020
Beryllium (Be)-Dissolved	mg/L	0.000002	0.0000027	-	<0.0000020
Bismuth (Bi)-Dissolved	mg/L	0.000001	<0.0000010	-	<0.0000010
Boron (B)-Dissolved	mg/L	0.005	<0.0050	-	<0.0050
Cadmium (Cd)-Dissolved	mg/L	0.000005	<0.0000050	-	<0.0000050
Calcium (Ca)-Dissolved	mg/L	0.05	2.51 *	1.76	<0.050 *
Cesium (Cs)-Dissolved	mg/L	0.000005	<0.0000050	-	<0.0000050
Chromium (Cr)-Dissolved	mg/L	0.00005	0.000103	-	<0.000050
Cobalt (Co)-Dissolved	mg/L	0.000005	0.0000167	-	<0.0000050
Copper (Cu)-Dissolved	mg/L	0.00005	0.00186	-	0.000067
Gallium (Ga)-Dissolved	mg/L	0.00005	<0.000050	-	<0.000050
Iron (Fe)-Dissolved	mg/L	0.01	<0.010	-	<0.010
Lead (Pb)-Dissolved	mg/L	0.000005	0.0000093	-	<0.0000050
Lithium (Li)-Dissolved	mg/L	0.0002	0.00026	-	<0.00020
Magnesium (Mg)-Dissolved	mg/L	0.05	1.19 *	0.89	<0.050 *
Manganese (Mn)-Dissolved	mg/L	0.000005	0.000394	-	0.0000277
Mercury (Hg)-Dissolved	mg/L	0.00005	<0.000050	-	<0.000050
Molybdenum (Mo)-Dissolved	mg/L	0.00001	0.000029	-	<0.000010
Nickel (Ni)-Dissolved	mg/L	0.00005	0.000551	-	<0.000050
Phosphorus (P)-	mg/L	0.05	<0.050	-	<0.050

Dissolved					
Potassium (K)-Dissolved	mg/L	0.1	0.37 *	0.5	<0.10 *
Selenium (Se)-Dissolved	mg/L	0.00004	<0.000040	-	<0.000040
Silicon (Si)-Dissolved	mg/L	0.05	0.713	-	<0.050
Silver (Ag)-Dissolved	mg/L	0.000005	<0.0000050	-	<0.0000050
Sodium (Na)-Dissolved	mg/L	0.2	0.76 *	<1.0	<0.20 *
Strontium (Sr)-Dissolved	mg/L	0.00001	0.00672	-	<0.000010
Thallium (Tl)-Dissolved	mg/L	0.000001	0.0000043	-	<0.0000010
Tin (Sn)-Dissolved	mg/L	0.00001	<0.000010	-	<0.000010
Titanium (Ti)-Dissolved	mg/L	0.00005	0.000054	-	<0.000050
Uranium (U)-Dissolved	mg/L	0.000001	0.00012	-	<0.0000010
Vanadium (V)-Dissolved	mg/L	0.00001	0.000045	-	<0.000010
Zinc (Zn)-Dissolved	mg/L	0.0001	0.00242	-	0.00177

The Aquatic Effects Monitoring Program (AEMP) under-ice sampling was conducted in April. Lynne Lake and Key Lake were added to the waterbodies scheduled for sampling during the under-ice period detailed in the AEMP. Attempts to get samples from Ash Lake indicated that the lake freezes to the bottom.

Weekly inspections of the dams and dykes were undertaken during the month of April and temperature readings recorded and sent to a geotechnical engineer. Currently, there is a geotechnical engineer on site conducting training that includes the identification of maintenance issues and hazardous conditions as well as the correct method of reading ground temperature cables.

In April Shear Diamonds hired Andy Mcmullen of Bearwise to be on site and conduct a Bear Safety Audit of site. His investigations revealed a number of site-specific waste handling issues that were not known and thus were not specifically addressed in the Jericho Waste Management Plan. Action items identified in the audit included the need to move the incinerator closer to site in order to be connected to the main power source. This move will prevent the unit from being shut down prior to burn cycle completion and will improve supervision and operation of the incinerator.

Should you have any questions regarding the monthly report for April 2011 please contact the undersigned at (778)372-2750 or michelle@shearminerals.com

Regards,

Michelle Tanguay
Environment Manager