Attachment X.II. Water Chemistry

List of Tables

Table X.II-1
Historical Water Chemistry Data for Lakes in the Kiggavik Project Area, 1974-1991

Parameter	Units	Guidelines		Willow Lake Sub-Basin																
				Meadow Lake	Felsenmeer Lake	Escarpment Lake				Drum Lake	Lin Lake	Scotch Lake				Jaeger Lake				
				Jul-86	Jul-86	Jul-86	Jun-88	Jul-88	Aug-89	Jul-86	Aug-79	Aug-79	Aug-80	Jul-86	Jul-88	Aug-79	Aug-80	Jun-88	Jul-88	Aug-89
		SSWQO[e]	CWQG[f]	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1
Conventional Parameters (Laboratory-Measured)																				
pH	pH units	-	6.5-9.0	6.4	6.1	5.8	6.00	6.75	6.70	5.6	-	-	-	5.9	6.95	-	-	6.40	7.15	6.90
Specific Conductivity	µS/cm	-	-	25	14	13	20/21	19	10.2	18	-	-	-	14	20	-	-	47	13	15.4
Total Alkalinity	mg/L	-	-	8	3	2	5	4	4.6	2	-	-	-	3	4	-	-	17	5	6.6
Alkalinity (pH 3.8)	mg $CaCO_3$/L	-	-	-	-	-	13	12	-	-	-	-	-	-	14	-	-	25	15	-
Gran alkalinity	mg $CaCO_3$/L	-	-	-	-	-	8	-	3.3	-	-	-	-	-	-	-	-	18	-	5.1
Total Hardness	mg $CaCO_3$/L	-	-	-	-	-	-	4	3.5	-	-	-	-	-	5	-	-	-	5	5.5
Total Dissolved Solids	mg/L	-	-	15	34	9	-	<10	2	31/37	-	-	-	13	<10	-	-	-	<10	15
Total Suspended Solids	mg/L	-	-	-	-	-	-	-	2	-	-	-	-	-	2.6	-	-	-	1.5	4
Turbidity	NTU	-	-	-	-	-	0.75	-	-	-	-	-	-	-	-	-	-	0.57	-	-
True Colour (Co-Pt)	-	-	-	-	-	-	20	16	11	-	-	-	-	-	8/8	-	-	37	12	9
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0.64	-	-	-	1.58	-
Absorbance at 254 nm	-	-	-	-	-	-	-	0.116	0.115	-	-	-	-	-	0.066	-	-	-	0.089	0.107
Nutrients																				
Ammonia as nitrogen	mg N/L	[g]	[g]	-	-	-	0.03	0.03	0.029	-	-	-	-	-	0.03/0.03	-	-	0.12	0.02	0.035
Nitrate	mg/L	-	13 [h]	<0.003	<0.003	0.003	<0.01	0.02	0.01	<0.003	-	-	-	<0.003	<0.02	-	-	0.13	<0.02	0.01
Nitrite	mg/L	-	0.197 [i]	<0.1	<0.1	<0.1	<0.001	0.001	0.002	<0.1	-	-	-	<0.1	0.002	-	-	0.004	0.001	0.002
Total Kjeldahl Nitrogen	mg/L	-	-	0.47	0.23	0.37	0.37	0.21	0.21	0.45	-	-	-	0.20	0.22	-	-	0.65/0.66	0.22	0.24
Total Phosphorous	mg/L	-	-	<0.001	<0.001	0.004	0.009	0.004	0.003	0.002	-	-	-	<0.001	0.004	-	-	0.009	0.004	0.003
Soluble Reactive Phosphorous	mg/L	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	0.001	<0.001	<0.001
Orthophosphate-P	mg/L	-	-	<0.1	<0.1	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-
Total Organic Carbon	mg/L	-	-	8.5	4.0	5.5	-	-	-	8.0	-	-	-	4.5	-	-	-	-	-	-
Dissolved Inorganic Carbon	mg/L	-	-	-	-	-	1.5	1.5	0.7	-	-	-	-	-	1.5	-	-	4.5	1.5	1
Dissolved Organic Carbon	mg/L	-	-	-	-	-	6.0	3.5	2.9	-	-	-	-	-	3.0	-	-	8/8	3.0	2.8
Major Ions																				
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	2.8	1.4	1.05	2.00	0.95	0.85	2.1	-	-	-	1.30	1.20	-	-	5.75	1.30/1.30	1.55
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	0.34	0.25	0.25	0.42/0.42	0.41	0.40	0.17	-	-	-	0.29	0.37	-	-	0.80	0.34/0.36	0.25
Fluoride	mg/L	-	-	0.068	0.042	0.028	-	0.06	0.03	0.048	-	-	-	0.048	0.06	-	-	-	0.06/0.06	0.04
Hydroxide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	1.14	0.54	0.40	0.79	0.40	0.30	0.62	-	-	-	0.46	0.45	-	-	1.72	0.45/0.45	0.45
Potassium	mg/L	-	-	0.40	0.15	0.15	0.325	0.15	0.25	0.20	-	-	-	0.15	0.25	-	-	0.640	0.15/0.15	0.20
Silica (as $Si0_2$)	mg/L	-	-	-	-	-	-	0.58	0.56	-	-	-	-	-	0.16	-	-	-	0.08	0.20/0.22
Silicates	mg/L	-	-	-	-	-	0.97	-	-	-	-	-	-	-	-	-	-	0.43/0.43	-	-
Sodium	mg/L	-	-	0.5	<0.5	<0.5	0.54/0.52	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-	-	0.72/0.76	<0.5	<0.5
Sulphate	mg/L	-	-	0.28	0.038	0.34	0.60/0.60	0.6	0.30	0.28	-	-	-	0.42	0.3	-	-	0.85	0.20/0.30	0.30
Sum of ions	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																				
Aluminum	mg/L	0.005-0.1 [j]	0.005-0.1 [j]	*<0.08*	*<0.02*	**0.06**	**0.065**	0.045	0.025	**0.1**	-	-	-	**0.02**	0.020	-	-	**0.050**	0.035	0.025
Antimony	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	µg/L	5	5	-	<1	<1	-	<1	<1	<1	<0.5	<0.5	<0.2	<1	<1	<0.5	<0.2	-	<1	<1
Barium	mg/L	-	-	0.075	0.025	0.030	0.06	0.03	0.03	0.05	-	-	-	0.055	0.04	-	-	0.13	0.03/0.04	0.04
Beryllium	mg/L	-	-	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	-	-	-	-	-	-
Boron	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/L	0.000017 [j]	0.000017 [j]	*<0.01*	*<0.01*	*<0.01*	-	**0.0004**	**0.0003**	*<0.01*	**0.0005**	*<0.0005*	**0.002**	*<0.01*	**0.0003**	*<0.0005*	**0.002**	-	**0.0002**	**0.0002**
Chromium	mg/L	-	0.0010/0.0089 [k]	*<0.01*	*<0.01*	*<0.01*	-	0.004/0.004	0.001	*<0.01*	<0.0005	*<0.5*	<0.0005	*<0.01*	*<0.001*	<0.0005	<0.0005	-	*<0.001*	*<0.001*
Cobalt	mg/L	-	-	<0.01	<0.01	<0.01	-	0.001	<0.001/<0.001	<0.01	-	-	-	<0.01	<0.001	-	-	-	0.001	<0.001
Copper	mg/L	0.002 [l]	0.002 [l]	**0.005**	*<0.005*	*<0.005*	0.001	0.0005	<0.0005	*<0.005*	**0.00422** [d]	**0.0029** [d]	0.0008	**0.005**	0.0005	**0.0143** [d]	0.0014	0.001	0.0005	0.0005
Iron	mg/L	0.3	0.3	0.27	0.16	0.05	0.04	0.06	0.05	0.11	-	-	-	0.09	0.08	-	-	**0.65**	0.04	0.05
Lead	mg/L	0.001 [m]	0.001 [m]	*<0.05*	*<0.05*	*<0.05*	*<0.001*	<0.0005	<0.0005	*<0.05*	**0.15/0.14**	**0.14/0.11**	**0.002**	*<0.05*	<0.0005	**0.59**	**0.002**	*<0.001*	<0.0005	<0.0005
Manganese	mg/L	-	-	<0.01	<0.01	<0.01	0.0055	0.003	0.002	<0.01	-	-	-	<0.01	0.001	-	-	0.032	0.001	0.002
Mercury	µg/L	0.026 [n]	0.026 [n]	-	<0.02	<0.02	-	*<0.05*	*<0.05*	<0.02	*<10*	*<10*	<0.01	<0.02	*<0.05*	*<10*	<0.01	-	*<0.05*	*<0.05*
Molybdenum	mg/L	-	0.073	<0.01	<0.01	<0.01	-	-	-	<0.01	-	-	-	<0.01	-	-	-	-	-	-
Nickel	mg/L	0.025 [o]	0.025 [o]	<0.01	<0.01	<0.01	<0.001	0.001	<0.001	<0.01	-	-	-	<0.01	<0.001	-	-	<0.001	<0.001	<0.001
Selenium	µg/L	1 [p]	1.0 [p]	-	<0.5	<0.5	-	<0.1	<0.1	<0.5	<0.5	<0.5	-	<0.5	<0.1	<0.5	-	-	<0.1	0.1

Table X.II-1
Historical Water Chemistry Data for Lakes in the Kiggavik Project Area, 1974-1991

Parameter	Units	Guidelines		Willow Lake Sub-Basin																
				Meadow Lake	Felsenmeer Lake	Escarpment Lake				Drum Lake	Lin Lake	Scotch Lake				Jaeger Lake				
				Jul-86	Jul-86	Jul-86	Jun-88	Jul-88	Aug-89	Jul-86	Aug-79	Aug-79	Aug-80	Jul-86	Jul-88	Aug-79	Aug-80	Jun-88	Jul-88	Aug-89
		SSWQO[e]	CWQG[f]	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1
Silicon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.0001	0.0001	0.00002	<0.00001	-	-	*<0.0001*	*<0.0001*	0.00002	-	-	-	-	*<0.0001*	-	-	-	*<0.0001*	*<0.0001*
Strontium	mg/L	-	-	-	-	<0.01	-	-	-	-	-	-	-	0.01	-	-	-	-	-	-
Tellurium	µg/L	-	-	-	-	-	-	-	-	-	<2	<2	-	-	-	<2	-	-	-	-
Thallium	mg/L	-	0.0008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	µg/L	15	-	-	-	-	1.0	-	-	-	<0.5	<0.5	<0.5	-	0.38	<0.5	<0.5	1.5	8.6	<0.5
Uranium - preconcentrated	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium - whole water	µg/L	-	-	0.005	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/L	-	-	<0.01	<0.01	0.005	-	-	-	<0.01	-	-	-	<0.005	-	-	-	-	-	-
Zinc	mg/L	0.03	0.03	-	-	0.00001	-	<0.005	<0.005	-	**2.42**	**1.69**	**2.8**	<0.00001	<0.005	**8.19**	0.0036	-	<0.005	<0.005
Radionuclides																				
Lead-210	Bq/L	-	-	-	-	-	<0.2	-	-	-	<0.04	0.07	<0.02	-	-	<0.04	<0.02	<0.2	-	-
Lead-210	pCi/L	-	-	-	-	-	-	-	-	-	<1	2	<0.5	-	-	<1	<0.5	-	-	-
Polonium-210	Bq/L	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	0.008±0.005	-	-
Polonium-210 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polonium-210 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radium-226	Bq/L	-	-	-	-	-	<0.005	-	-	-	0.015	0.037	<0.007	-	<0.0014	0.026	0.13	<0.005	<0.0016	0.00096
Radium-226	pCi/L	-	-	-	-	-	-	-	-	-	0.4	1.0	<0.2	-	-	0.7	0.2	-	-	-
Radium-226 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radium-226 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium	µg/L	-	-	-	-	-	-	-	-	-	8	1	-	-	-	1	-	-	-	-
Thorium-228	Bq/L	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	0.00059	-	<0.02	-	0.0012	-
Thorium-228	pCi/L	-	-	-	-	-	-	-	-	-	-	-	<0.3	-	-	-	<0.3	-	-	-
Thorium-228 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-228 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-230	Bq/L	-	-	-	-	-	<0.005	-	-	-	-	-	<0.01	-	0.000087	-	<0.01	<0.005	0.00077	-
Thorium-230	pCi/L	-	-	-	-	-	-	-	-	-	-	-	<0.3	-	-	-	<0.3	-	-	-
Thorium-230 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-230 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232	Bq/L	-	-	-	-	-	<0.005	-	-	-	0.03	<0.004	<0.01	-	0.000059	0.004	<0.01	<0.005	0.00018	-
Thorium-232	pCi/L	-	-	-	-	-	-	-	-	-	-	-	<0.3	-	-	-	<0.3	-	-	-
Thorium-232 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table X.II-1
Historical Water Chemistry Data for Lakes in the Kiggavik Project Area, 1974-1991

Parameter	Units	Guidelines		Willow Lake Sub-Basin													Lower Lake Sub-Basin		
				Pointer Lake						Pointer Lake 1	Pointer Lake 2	Upstream[a] Pointer Tributary	Downstream[a] Pointer Tributary	Pointer Tributary	Sik Sik Lake		Mushroom Lake		
				Aug-80	Jul-86	Jun-88	Jul-88	Jun-89	Mar-91	Aug-89		Jul-88	Jul-88	Jul-88	Aug-79	Jul-86	Mar-91	Jun-91	Jul/Aug 1991
		SSWQO[e]	CWQG[f]	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 10	n = 1	n = 1
Conventional Parameters (Laboratory-Measured)																			
pH	pH units	-	6.5-9.0	-	5.8	6.20	6.75	6.35	6.45	6.70	6.70	-	-	7.05	-	6.2	6.95	6.70	6.90
Specific Conductivity	µS/cm	-	-	-	14	61	11	11	141	11.0	11.4	-	-	116	-	35	50/46	29.6	20.3
Total Alkalinity	mg/L	-	-	-	3	20	4	4.4	53	5.2	5.2	-	-	13	-	12	15	6	4
Alkalinity (pH 3.8)	mg $CaCO_3$/L	-	-	-	-	27	14	-	-	-	-	-	-	23	-	-	-	-	-
Gran alkalinity	mg $CaCO_3$/L	-	-	-	-	20	-	2.6	56	3	3.7	-	-	-	-	-	16	5.8	3.8
Total Hardness	mg $CaCO_3$/L	-	-	-	-	-	4	4.0	57	4.0	4.5	-	-	44	-	-	15.9	9.0	9.5
Total Dissolved Solids	mg/L	-	-	-	28	-	<10	20	-	18	14	-	-	80	-	29	-	24	23
Total Suspended Solids	mg/L	-	-	-	-	-	1.5	<2	-	<2	2	-	-	-	-	-	-	<2	<2
Turbidity	NTU	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (Co-Pt)	-	-	-	-	-	41/40	10	16	-	8/8	8	-	-	73	-	-	-	14	9
Chlorophyll a	µg/L	-	-	-	-	-	1.10	-	-	-	-	-	-	-	-	-	-	-	-
Absorbance at 254 nm	-	-	-	-	-	-	0.076	0.124	-	0.086	0.084	-	-	0.404	-	-	-	-	-
Nutrients																			
Ammonia as nitrogen	mg N/L	[g]	[g]	-	-	0.05	0.02	0.05	0.025	0.033	0.031	-	-	0.01	-	-	0.029	0.013	0.008
Nitrate	mg/L	-	13[h]	-	0.032	0.24	<0.02	0.01	<0.01	0.01	<0.01	-	-	<0.02	-	<0.003	<0.01	<0.01	<0.01
Nitrite	mg/L	-	0.197[i]	-	<0.1	<0.001	0.001	0.002	<0.01	0.002	0.002	-	-	0.002	-	<0.1	<0.01	<0.01	<0.01
Total Kjeldahl Nitrogen	mg/L	-	-	-	0.36	0.67	0.17/0.18	0.22	1.34	0.21	0.21	-	-	0.44	-	0.44	0.46	0.21	0.24
Total Phosphorous	mg/L	-	-	-	<0.001	0.012	0.003	0.005	0.015	0.005	0.004	-	-	0.005	-	<0.001	0.009	0.006	0.006
Soluble Reactive Phosphorous	mg/L	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	-	-	<0.001	<0.001	<0.001
Orthophosphate-P	mg/L	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-
Total Organic Carbon	mg/L	-	-	-	4.5	-	-	-	-	-	-	-	-	-	-	8.0	-	-	-
Dissolved Inorganic Carbon	mg/L	-	-	-	-	6.0	1.5	1.2	13.4	0.9	0.8	-	-	4.0	-	-	3.5	1.6	1.9
Dissolved Organic Carbon	mg/L	-	-	-	-	9.0	2.5	2.7	26	3.2	2.6	-	-	9.0	-	-	6.7	3.8/3.8	3.6
Major Ions																			
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	-	1.45	7.30	1.10	0.95	16.7/16.8	1.1	1.15	-	-	13.3	-	5	4.8	2.3	2.3
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	0.29	1.60	0.30	0.51	3.2	0.31	0.31	-	-	22	-	0.66	0.74	0.35	0.36
Fluoride	mg/L	-	-	-	0.046	-	0.06	0.02	0.16	0.01	<0.01	-	-	0.32/0.35	-	0.100	0.15	0.06	0.09
Hydroxide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	-	0.44	2.23	0.40	0.35	5.2/5.2	0.35	0.35	-	-	2.60	-	1.52	1.5	0.80	0.80
Potassium	mg/L	-	-	-	0.10	0.825	0.20	0.45	2.0/2.1	0.25	0.25	-	-	1.25	-	0.40	0.75	0.35	0.3
Silica (as SiO_2)	mg/L	-	-	-	-	-	0.10	0.34	-	0.18	0.14	-	-	2.5	-	-	-	-	0.28
Silicates	mg/L	-	-	-	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	<0.5	0.96/0.98	<0.5	<0.5	2.5/2.5	<0.5	<0.5	-	-	1.5	-	<0.5	0.5	<0.5	<0.5
Sulphate	mg/L	-	-	-	0.26	1.30	0.3	0.65	3.2	0.30	0.30	-	-	2.9	-	0.30	0.99	0.5	0.5
Sum of ions	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																			
Aluminum	mg/L	0.005-0.1[j]	0.005-0.1[j]	-	**0.02**	**0.050**	0.035	**0.02**	**0.08/0.10**	0.025	0.015	-	-	0.138	-	**0.04**	<0.02	0.04	0.02
Antimony	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	µg/L	5	5	<0.2	<1	-	<1	<1	*<5*	<1	<1	-	-	<1	<0.5	-	-	*<2/<5*	<2
Barium	mg/L	-	-	-	0.035	0.16	0.02	0.02	0.34/0.37	0.03	0.03	-	-	0.14	-	0.065	0.04	0.02	0.02
Beryllium	mg/L	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-
Boron	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/L	0.000017[j]	0.000017[j]	**0.0002**	*<0.01*	-	**0.0002**	**0.017**	**0.0002/0.0004**	**0.0003**	**0.0003**	-	-	**0.0003/0.0004**	*<0.0005*	*<0.01*	-	*<0.002*	*<0.002*
Chromium	mg/L	-	0.0010/0.0089[k]	<0.0005	*<0.01*	-	0.001	*<0.001*	*<0.001/<0.002*	*<0.001*	*<0.001*	-	-	*<0.001* /0.001	<0.0005	*<0.01*	-	*<0.01*	*<0.01*
Cobalt	mg/L	-	-	-	<0.01	-	0.001/0.001	<0.001	0.001/0.001	<0.001	<0.001	-	-	0.001	-	<0.01	-	<0.01	<0.01
Copper	mg/L	0.002[l]	0.002[l]	0.0014	*<0.005*	**0.002**	0.0005	0.001	**0.004/0.004**	0.0005	0.0005	-	-	**0.0045**	**0.00626**[d]	*<0.005*	-	**0.005**	*<0.005*
Iron	mg/L	0.3	0.3	-	0.05	**0.98**	0.06	0.07	**0.5**	0.03	0.04	-	-	**2.5/2.5**	-	0.22	0.04	0.04	0.14
Lead	mg/L	0.001[m]	0.001[m]	**0.002**	*<0.05*	*<0.001*	<0.0005	<0.0005	<0.0005/*<0.001*	<0.0005	0.0005	-	-	**0.0010**	**0.33**	*<0.05*	-	*<0.02*	**0.02**
Manganese	mg/L	-	-	-	<0.01	0.088	0.001	0.014	0.076	0.001	0.002	-	-	0.113	-	<0.01	-	<0.01	<0.01
Mercury	µg/L	0.026[n]	0.026[n]	**0.03**	<0.02	-	*<0.05*	*<0.05*	-	*<0.05*	*<0.05*	-	-	*<0.05*	*<10*	-	-	*<0.05*	*<0.05*
Molybdenum	mg/L	-	0.073	-	<0.01	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-
Nickel	mg/L	0.025[o]	0.025[o]	-	<0.01	0.003	<0.001	<0.001	0.004/0.004	<0.001	<0.001	-	-	0.001/0.002	-	<0.01	-	<0.01	<0.01
Selenium	µg/L	1[p]	1.0[p]	-	<0.5	-	<0.1	<0.1	*<2/<5*	<0.1	0.1	-	-	<0.1	<0.5	-	-	*<2*	*<2*

Table X.II-1
Historical Water Chemistry Data for Lakes in the Kiggavik Project Area, 1974-1991

Parameter	Units	Guidelines		Willow Lake Sub-Basin												Lower Lake Sub-Basin		
				Pointer Lake						Pointer Lake 1	Pointer Lake 2	Upstream[a] Pointer Tributary	Downstream[a] Pointer Tributary	Pointer Tributary	Sik Sik Lake	Mushroom Lake		
				Aug-80	Jul-86	Jun-88	Jul-88	Jun-89	Mar-91	Aug-89		Jul-88	Jul-88	Jul-88	Aug-79	Jul-86	Mar-91	Jun-91	Jul/Aug 1991
		SSWQO[e]	CWQG[f]	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 10	n = 1	n = 1
Silicon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.0001	0.0001	-	-	-	*<0.0001*	*<0.0001* /**0.0001**	*<0.0001*	*<0.0001*	*<0.0001*	-	-	*<0.0001*	-	-	-	**0.00054**	**0.00028**
Strontium	mg/L	-	-	-	0.01	-	-	-	0.13/0.13	-	-	-	-	-	-	0.03	0.03	0.01	0.02
Tellurium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-	-	-
Thallium	mg/L	-	0.0008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	µg/L	15	-	<0.5	<0.2	1.0	0.71	-	-	-	-	0.14	0.2	11	<0.5	-	-	-	<0.5
Uranium - preconcentrated	µg/L	-	-	-	-	-	-	-	-	0.15	-	-	-	-	-	-	-	0.5	0.5
Uranium - whole water	µg/L	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-
Vanadium	mg/L	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-
Zinc	mg/L	0.03	0.03	0.0036	<0.00001	-	<0.005	<0.005	0.005	<0.005	<0.005	-	-	<0.005	0.00356	<0.00001	-	-	<0.01
Radionuclides																			
Lead-210	Bq/L	-	-	<0.2	<0.1	<0.2	-	-	-	-	-	<0.03	0.48	-	<0.04	-	-	-	-
Lead-210	pCi/L	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	<1	-	-	-	-
Polonium-210	Bq/L	-	-	-	0.037	<0.005	-	-	-	-	-	<0.03	0.47	-	-	-	-	-	-
Polonium-210 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	0.0029	-	-	-	-	-	-	-	-	-
Polonium-210 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radium-226	Bq/L	-	-	0.13	<0.5	<0.005	<0.0015	-	-	-	-	<0.02	0.88	-	<0.004	-	-	-	<0.002
Radium-226	pCi/L	-	-	0.2	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-
Radium-226 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	0.0022	-	-	-	-	-	-	-	<0.002	<0.002
Radium-226 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	-	-
Thorium-228	Bq/L	-	-	<0.02	-	-	0.0015	-	-	-	-	-	-	0.0084	-	-	-	-	-
Thorium-228	pCi/L	-	-	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-228 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	0.0004	-	-	-	-	-	-	-	-	-
Thorium-228 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-230	Bq/L	-	-	<0.01	<0.005	<0.005	0.00037	-	-	-	-	0.20	0.45	0.070	-	-	-	-	-
Thorium-230	pCi/L	-	-	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-230 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-
Thorium-230 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232	Bq/L	-	-	<0.01	<0.001	<0.005	0.00037	-	-	-	-	-	-	0.0038	0.006	-	-	-	-
Thorium-232	pCi/L	-	-	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	<0.00005	-	-	-	-	-	-	-	-	-
Thorium-232 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table X.II-1
Historical Water Chemistry Data for Lakes in the Kiggavik Project Area, 1974-1991

Parameter	Units	Guidelines		Lower Lake Sub-Basin										Caribou Lake Sub-Basin				
				Cigar Lake			Knee Lake Outlet	Lunch Lake Inlet from Cigar Lake	Andrew Lake Outlet to Judge Sissons Lake		Shack Lake Inlet from Andrew Lake	Shack Lake Inlet from Mushroom Lake	2 km Upstream from Lower Lake Inlet	Ridge Lake			Ridge Lake Surface	Ridge Lake Bottom
				Mar-91	Jun-91	Jul/Aug 1991	Aug-90	Aug-90	Jun-91	Jul/Aug 1991	Aug-90	Aug-90	Aug-90	Jul-86	Jul-88	Aug-89	Mar-91	
		SSWQO[e]	CWQG[f]	n = 10	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 10	n = 10
Conventional Parameters (Laboratory-Measured)																		
pH	pH units	-	6.5-9.0	6.35	6.35	6.70	7.10	6.80	6.45	7.20	7.00	7.05	7.10	6.2	7.10/7.10	7.05	7.00	6.70
Specific Conductivity	µS/cm	-	-	53	21.1	14.3	33/32	12.9	22.1	38.6	27	24	31	18	19	17.4	47	48
Total Alkalinity	mg/L	-	-	12	3	2	12	6	4	7	9/8	10	11	5	7/7	8.1	13	12
Alkalinity (pH 3.8)	mg $CaCO_3$/L	-	-	-	-	-	-	-	-	-	-	-	-	-	16/16	-	-	-
Gran alkalinity	mg $CaCO_3$/L	-	-	13.0	3.2	2.4	-	-	4.3	7.5	-	-	-	-	-	6.9	13.8	12.6
Total Hardness	mg $CaCO_3$/L	-	-	12.4	7.0	7.5	-	-	8.0	18.0	-	-	-	-	8	7.0	13.9	12.4
Total Dissolved Solids	mg/L	-	-	-	15	28	-	-	23	28	-	-	-	7	<10	10	-	-
Total Suspended Solids	mg/L	-	-	-	<2	<2	-	-	<2	<2	-	-	-	-	-	4	-	-
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (Co-Pt)	-	-	-	-	14	9	19	7	20	14	14	13	12/12	-	12	12	-	-
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Absorbance at 254 nm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.089	0.109	-	-
Nutrients																		
Ammonia as nitrogen	mg N/L	[g]	[g]	0.094	0.010	0.025	-	-	0.056	0.027	-	-	-	-	0.03	0.03	0.018	-
Nitrate	mg/L	-	13 [h]	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.003	<0.02	0.01	<0.01	<0.01
Nitrite	mg/L	-	0.197 [i]	0.01	<0.01	<0.01	-	-	<0.01	<0.01	-	-	-	<0.1	0.001	0.003	<0.01	<0.01
Total Kjeldahl Nitrogen	mg/L	-	-	0.69	0.25	0.39	-	-	0.32	0.47	-	-	-	0.31	0.20	0.22	0.35/0.35	-
Total Phosphorous	mg/L	-	-	0.011	0.008	0.008	0.003	0.002	0.009	0.009	0.002	0.001	0.002	0.003	0.005	0.003	0.011	-
Soluble Reactive Phosphorous	mg/L	-	-	0.003	<0.001	<0.001	-	-	<0.001	<0.001	-	-	-	-	0.005	<0.001	0.003	-
Orthophosphate-P	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-
Total Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	3.5	-	-	-	-
Dissolved Inorganic Carbon	mg/L	-	-	3.3	<0.5	3.9	-	-	<0.5	3.9	-	-	-	-	2.5	1.5	3.0	2.8
Dissolved Organic Carbon	mg/L	-	-	6.6	4.1	4.2	-	-	4.5	6.3	-	-	-	-	3.0	2.7	6.0	4.9
Major Ions																		
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	0.1	1.85	2.1	4.3	1.55	2.1	4.6	3.3	3.0	4.0	1.85	1.95	1.75	4.3	-
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	1.07	0.44	0.32	0.27	0.27	0.42	0.95	1.34	0.38	0.38	0.35	0.57	0.39	0.65	0.59
Fluoride	mg/L	-	-	0.19	0.07	0.15	0.430	0.130	0.07	0.23	0.250	0.090	0.180	0.046	0.07	0.04	0.07	0.07
Hydroxide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	0.05	0.50	0.60	1.30	0.50	0.65	1.60	1.10	1.10	1.30	0.68	0.75	0.65	1.55	-
Potassium	mg/L	-	-	0.1	0.35	0.3	0.15	0.10	0.45	0.5	0.15	0.10	0.10	0.25	0.35	0.40	0.85	-
Silica (as $Si0_2$)	mg/L	-	-	-	-	0.48	-	-	-	0.18	-	-	-	-	0.58	0.74	-	-
Silicates	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	0.5	<0.5	<0.5	2.0	1.5	<0.5	0.5	1.0	1.5	2.0	<0.5	<0.5	<0.5	0.5	-
Sulphate	mg/L	-	-	0.54	0.3	0.2	0.70	0.30	0.3	0.3	0.30	0.20	0.40	0.44	0.5	0.40	0.81	0.81
Sum of ions	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																		
Aluminum	mg/L	0.005-0.1 [j]	0.005-0.1 [j]	**0.02**	**0.04**	0.04	0.05	0.05	**0.04**	0.02	0.04	0.01	0.02	**0.04**	0.055	0.035	0.02	-
Antimony	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	µg/L	5	5	2	<2	<2	<2	<2	2	<2	<2	<2	<2	<1	<1	<1	<2	-
Barium	mg/L	-	-	0.01	0.02	0.02	0.08	0.02	0.02	0.04	0.05	0.02	0.04	0.050	0.05	0.05	0.1	-
Beryllium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-
Boron	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromide	mg/L	-	-	-	-	-	<0.05	<0.05	-	-	<0.05	<0.05	<0.05	-	-	-	-	-
Cadmium	mg/L	0.000017 [j]	0.000017 [j]	**0.002**	*<0.002*	*<0.002*	*<0.002*	*<0.002*	*<0.002*	*<0.002*	*<0.002*	*<0.002*	*<0.002*	*<0.01*	**0.0003**	**0.0004**	**0.0004**	-
Chromium	mg/L	-	0.0010/0.0089 [k]	*<0.002*	*<0.01*	*<0.01*	*<0.001*	*<0.001*	*<0.01*	*<0.01*	*<0.001*	*<0.001*	*<0.001*	*<0.01*	0.002	0.005	*<0.001*	-
Cobalt	mg/L	-	-	0.001	<0.01	<0.01	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.01	<0.001	<0.001	<0.001	-
Copper	mg/L	0.002 [l]	0.002 [l]	**0.0025**	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	0.0005	*<0.005*	**0.0025**	-
Iron	mg/L	0.3	0.3	<0.02	0.06	0.22	0.23	0.13	0.06	0.24	0.16	0.12	0.17	0.07	0.08	0.10/0.10	0.04	-
Lead	mg/L	0.001 [m]	0.001 [m]	**0.001**	*<0.02*	*<0.02*	*<0.001*	*<0.001*	*<0.02*	*<0.02*	*<0.001*	*<0.001*	*<0.001*	*<0.05*	<0.0005	<0.0005	**0.002**	-
Manganese	mg/L	-	-	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.002	0.003	0.002	-
Mercury	µg/L	0.026 [n]	0.026 [n]	-	**0.3**	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	<0.02	*<0.05*	*<0.05*	*<0.05*	-
Molybdenum	mg/L	-	0.073	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-
Nickel	mg/L	0.025 [o]	0.025 [o]	0.002	<0.01	<0.01	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.01	0.002	<0.001	0.002	-
Selenium	µg/L	1 [p]	1.0 [p]	*<2*	*<2*	**2**	*<1*	*<1*	*<2*	*<2*	*<1*	*<1*	*<1*	<0.5	<0.1	<0.1	*<2*	-

Table X.II-1
Historical Water Chemistry Data for Lakes in the Kiggavik Project Area, 1974-1991

Parameter	Units	Guidelines		Lower Lake Sub-Basin										Caribou Lake Sub-Basin				
				Cigar Lake			Knee Lake Outlet	Lunch Lake Inlet from Cigar Lake	Andrew Lake Outlet to Judge Sissons Lake		Shack Lake Inlet from Andrew Lake	Shack Lake Inlet from Mushroom Lake	2 km Upstream from Lower Lake Inlet	Ridge Lake			Ridge Lake Surface	Ridge Lake Bottom
				Mar-91	Jun-91	Jul/Aug 1991	Aug-90	Aug-90	Jun-91	Jul/Aug 1991	Aug-90	Aug-90	Aug-90	Jul-86	Jul-88	Aug-89	Mar-91	
		SSWQO[e]	CWQG[f]	n = 10	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 10	n = 10
Silicon	mg/L	-	-	-	-	-	-	-	0.52	0.18	-	-	-	-	-	-	-	-
Silver	mg/L	0.0001	0.0001	*<0.0001*	**0.00034**	**0.00048**	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	-	*<0.0001*	*<0.0001*	*<0.0001*	-
Strontium	mg/L	-	-	<0.01	0.01	0.01	-	-	0.01	0.04	-	-	-	0.02	-	0.00001	0.03	-
Tellurium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	mg/L	-	0.0008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	µg/L	15	-	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	-	-
Uranium - preconcentrated	µg/L	-	-	-	0.5	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Uranium - whole water	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-
Zinc	mg/L	0.03	0.03	<0.005	-	0.02	<0.005	<0.005	0.01	<0.01	<0.005	<0.005	<0.005	<0.00001	<0.005	<0.005	<0.0010/<0.0010	-
Radionuclides																		
Lead-210	Bq/L	-	-	-	-	-	<0.04	<0.04	-	-	<0.04	<0.04	0.08	-	-	-	-	-
Lead-210	pCi/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polonium-210	Bq/L	-	-	-	-	-	0.04	<0.01	-	-	<0.01	<0.01	0.01	-	-	-	-	-
Polonium-210 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polonium-210 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radium-226	Bq/L	-	-	0.002	-	-	<0.005	<0.005	<0.002	<0.002	<0.005	<0.005	<0.005	-	-	0.0008	-	-
Radium-226	pCi/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radium-226 - preconcentrated	Bq/L	-	-	-	<0.002	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Radium-226 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-228	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-228	pCi/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-228 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-228 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-230	Bq/L	-	-	-	-	-	<0.02	<0.02	-	-	<0.02	<0.02	<0.02	-	-	-	-	-
Thorium-230	pCi/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-230 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-230 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232	pCi/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table X.II-1
Historical Water Chemistry Data for Lakes in the Kiggavik Project Area, 1974-1991

Parameter	Units	Guidelines		Caribou Lake Sub-Basin						Judge Sissons Lake Sub-Basin										
				Cirque Lake		Crash Lake			Caribou Lake	Inlet of Judge Sissons Lake			Judge Sissons Lake							
				Jul-86	Aug-89	Aug-79	Aug-80	Jul-86	Jul-86	Aug-79	Aug-79	Aug-80	Aug-79	Jul-86	Jul-88	Aug-89	Mar-91			
		SSWQO[e]	CWQG[f]	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 10	n = 10	n = 10	n = 10
Conventional Parameters (Laboratory-Measured)																				
pH	pH units	-	6.5-9.0	5.9	6.70	-	-	6.2	6.4	-	-	-	-	6.3	7.25	7.00	6.95	5.45	6.95	6.90
Specific Conductivity	µS/cm	-	-	10	8.0	-	-	22	20	-	-	-	-	25	22	20.0	24	3	39	35
Total Alkalinity	mg/L	-	-	2	4.4	-	-	7	5	-	-	-	-	7	9	8.9	10	<1	8	8
Alkalinity (pH 3.8)	mg $CaCO_3$/L	-	-	-	-	-	-	-	-	-	-	-	-	-	21	-	-	-	-	-
Gran alkalinity	mg $CaCO_3$/L	-	-	-	2.5	-	-	-	-	-	-	-	-	-	-	7.2	10.1	0.1	8.8	8.7
Total Hardness	mg $CaCO_3$/L	-	-	-	3.3	-	-	-	-	-	-	-	-	-	8	8.0	10.2/9.8	<1	8.2	7.8
Total Dissolved Solids	mg/L	-	-	12/14	2	-	-	24/27	33	-	-	-	-	33	<10	20	-	-	-	-
Total Suspended Solids	mg/L	-	-	-	4	-	-	-	-	-	-	-	-	-	1.1	<2	-	-	-	-
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (Co-Pt)	-	-	-	-	10	-	-	-	-	-	-	-	-	-	6	6	-	-	-	-
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	1.48	-	-	-	-	-
Absorbance at 254 nm	-	-	-	-	0.079	-	-	-	-	-	-	-	-	-	0.060	0.063	-	-	-	-
Nutrients																				
Ammonia as nitrogen	mg N/L	[g]	[g]	-	0.026	-	-	-	-	-	-	-	-	-	0.02	0.026	0.023	<0.005	0.028	0.019
Nitrate	mg/L	-	13 [h]	<0.003	<0.01	-	-	<0.003	<0.003	-	-	-	-	0.003	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrite	mg/L	-	0.197 [i]	<0.1	0.002	-	-	<0.1	<0.1	-	-	-	-	<0.1	0.001	0.002	<0.01	<0.01	<0.01	<0.01
Total Kjeldahl Nitrogen	mg/L	-	-	0.18	0.16	-	-	0.44	0.33	-	-	-	-	0.22	0.18	0.18	0.18	0.04	0.19	0.17
Total Phosphorous	mg/L	-	-	<0.001	0.004	-	-	0.007	0.004	-	-	-	-	<0.001	0.004	0.001	0.008	0.002	0.01	0.01
Soluble Reactive Phosphorous	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	0.003	0.002	0.003	0.003
Orthophosphate-P	mg/L	-	-	<0.1	-	-	-	<0.1	<0.1	-	-	-	-	<0.1	-	-	-	-	-	-
Total Organic Carbon	mg/L	-	-	4.0	-	-	-	5.0	4.5	-	-	-	-	4.5	-	-	-	-	-	-
Dissolved Inorganic Carbon	mg/L	-	-	-	0.7	-	-	-	-	-	-	-	-	-	2.5/2.5	1.6	2.4/2.4	<0.5	2.1	2.1
Dissolved Organic Carbon	mg/L	-	-	-	1.8	-	-	-	-	-	-	-	-	-	2.5/2.5	2.3	3.0	<0.5	2.7	2.5
Major Ions																				
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	0.85	0.85	-	-	2.2	1.9	-	-	-	-	3	2.2	2.1	2.9	0.05	2.6	2.6
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	0.27	0.17	-	-	0.28	0.41	-	-	-	-	0.50	0.5	0.43	0.56	0.22	0.52	0.52
Fluoride	mg/L	-	-	0.044	0.03	-	-	0.048	0.060	-	-	-	-	0.06	0.11	<0.01	0.04	<0.01	0.03	0.03
Hydroxide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	0.34	0.30	-	-	0.80	0.58	-	-	-	-	0.84	0.70	0.60	0.85	<0.05	0.8	0.75
Potassium	mg/L	-	-	0.10	0.15	-	-	0.20	0.30	-	-	-	-	0.35	0.30	0.40	0.60	<0.05	0.55	0.45
Silica (as $Si0_2$)	mg/L	-	-	-	0.26	-	-	-	-	-	-	-	-	-	0.16	0.14	-	-	-	-
Silicates	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	<0.5	<0.5	-	-	<0.5	<0.5	-	-	-	-	<0.5	<0.5	<0.5	1.0	<0.5	1.0	1.0
Sulphate	mg/L	-	-	0.24	0.20	-	-	0.28	0.32	-	-	-	-	0.70	0.7	0.45	0.63	<0.1	0.54	0.54
Sum of ions	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																				
Aluminum	mg/L	0.005-0.1 [j]	0.005-0.1 [j]	**0.02**	0.020	-	-	**0.04**	**0.02**	-	-	-	-	*<0.02*	0.020	0.005	<0.02	*<0.02*	<0.02	<0.02
Antimony	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	µg/L	5	5	-	<1/<2	<0.5	<0.2	-	<1	<0.5	-	<0.2	<0.5	<1	<1	<1	<2/<2	-	-	-
Barium	mg/L	-	-	0.030	0.03	-	-	0.050	0.025	-	-	-	-	0.04	0.03	0.03	0.03	<0.01	0.03	0.03
Beryllium	mg/L	-	-	<0.005	-	-	-	<0.005	<0.005	-	-	-	-	<0.005	-	-	-	-	-	-
Boron	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/L	0.000017 [j]	0.000017 [j]	*<0.01*	**0.0003**	*<0.0005*	**0.002**	*<0.01*	*<0.01*	*<0.0005*	**0.002**	**0.002**	*<0.0005*	*<0.01*	**0.0003**	**0.0007**	*<0.0002* /**0.0002**	-	-	-
Chromium	mg/L	-	0.0010/0.0089 [k]	*<0.01*	*<0.001*	<0.0005	<0.0005	*<0.01*	*<0.01*	<0.0005	-	<0.0005	<0.0005	*<0.01*	*<0.001*	0.003	*<0.001/<0.001*	-	-	-
Cobalt	mg/L	-	-	<0.01	<0.001	-	-	<0.01	<0.01	-	-	-	-	<0.01	0.001	<0.001	<0.001/<0.001	-	-	-
Copper	mg/L	0.002 [l]	0.002 [l]	*<0.005*	*<0.005*	**0.0148** [d]	-	*<0.005*	*<0.005*	0.00011 [d]	-	0.0012	0.00012 [d]	*<0.005*	0.0005/0.0005	**0.0020**	**0.0020/0.0020**	-	-	-
Iron	mg/L	0.3	0.3	0.10	0.15	-	-	0.11	0.06	-	-	-	-	0.04	0.06	0.04/0.04	<0.02	<0.02	<0.02	<0.02
Lead	mg/L	0.001 [m]	0.001 [m]	*<0.05*	<0.0005	**0.84**	**0.002**	*<0.05*	*<0.05*	**0.011**	**0.002**	**0.002**	**0.012**	*<0.05*	**0.001**	**0.001**	0.0005/**0.0015**	-	-	-
Manganese	mg/L	-	-	<0.01	0.009	-	-	<0.01	<0.01	-	-	-	-	0.02	0.004	0.004	<0.002/<0.002	-	-	-
Mercury	µg/L	0.026 [n]	0.026 [n]	-	*<0.05*	*<10*	0.02	-	**0.06**	-	0.01	0.01	*<10*	<0.02	*<0.05*	*<0.05*	<0.05	-	-	-
Molybdenum	mg/L	-	0.073	<0.01	-	-	-	<0.01	<0.01	-	-	-	-	<0.01	-	-	-	-	-	-
Nickel	mg/L	0.025 [o]	0.025 [o]	<0.01	<0.001	-	-	<0.01	<0.01	-	-	-	-	<0.01	<0.001	<0.001	<0.001/0.001	-	-	-
Selenium	µg/L	1 [p]	1.0 [p]	-	<0.1	<0.5	-	-	<0.5	<0.5	-	-	<0.5	<0.5	<0.1	<0.1	*<2/<2*	-	-	-

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Historical Water Chemistry Data for Lakes in the Kiggavik Project Area, 1974-1991

Parameter	Units	Guidelines		Caribou Lake Sub-Basin						Judge Sissons Lake Sub-Basin										
				Cirque Lake		Crash Lake			Caribou Lake	Inlet of Judge Sissons Lake	Judge Sissons Lake									
				Jul-86	Aug-89	Aug-79	Aug-80	Jul-86	Jul-86	Aug-79	Aug-79	Aug-80	Aug-79	Jul-86	Jul-88	Aug-89	Mar-91			
		SSWQO[e]	CWQG[f]	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 10	n = 10	n = 10	n = 10
Silicon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.0001	0.0001	-	*<0.0001*	-	-	-	0.00001	-	-	-	-	-	*<0.0001*	*<0.0001*	*<0.0001* /**0.0002**	-	-	-
Strontium	mg/L	-	-	<0.01	<0.00001	-	-	0.02	-	-	-	-	-	0.02	-	0.01	0.02	<0.01	0.01	0.01
Tellurium	µg/L	-	-	-	-	<2	-	-	-	<2	-	-	<2	-	-	-	-	-	-	-
Thallium	mg/L	-	0.0008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	µg/L	15	-	-	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.1	1.1	-	-	-	-	-
Uranium - preconcentrated	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.08	-	-	-	-
Uranium - whole water	µg/L	-	-	-	-	-	-	-	0.005	-	-	-	-	-	-	0.5	-	-	-	-
Vanadium	mg/L	-	-	<0.005	-	-	-	<0.005	<0.01	-	-	-	-	<0.005	-	-	-	-	-	-
Zinc	mg/L	0.03	0.03	<0.00001	<0.005	**8.53**	0.0024	<0.00001	-	**0.07**	0.004	0.0016	**0.08**	<0.00001	<0.005	<0.005	<0.005	-	-	-
Radionuclides																				
Lead-210	Bq/L	-	-	-	-	<0.04	<0.02	-	-	0.04	<0.04	0.026	-	<0.03	-	-	-	-	-	-
Lead-210	pCi/L	-	-	-	-	<1	<0.5	-	-	1	0.7	<0.5	<1	-	-	-	-	-	-	-
Polonium-210	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.03	-	-	-	-	-	-
Polonium-210 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0026	-	-	-	-
Polonium-210 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radium-226	Bq/L	-	-	-	0.0012	0.037	<0.007	-	-	<0.004	0.011	0.03	-	<0.02	<0.0015	-	-	-	-	-
Radium-226	pCi/L	-	-	-	-	1.0	<0.2	-	-	<0.1	0.8	0.8	0.3	-	-	-	-	-	-	-
Radium-226 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0004	-	-	-	-
Radium-226 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium	µg/L	-	-	-	-	<1	-	-	-	<1	-	-	<1	-	-	-	-	-	-	-
Thorium-228	Bq/L	-	-	-	-	-	<0.01	-	-	-	-	<0.01	-	-	0.0012	-	-	-	-	-
Thorium-228	pCi/L	-	-	-	-	-	<0.3	-	-	-	<0.3	<0.3	-	-	-	-	-	-	-	-
Thorium-228 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	-	-	-	-
Thorium-228 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-230	Bq/L	-	-	-	-	-	<0.01	-	-	-	-	<0.01	-	<0.002	0.00025	-	-	-	-	-
Thorium-230	pCi/L	-	-	-	-	-	<0.3	-	-	-	<0.3	<0.3	-	-	-	-	-	-	-	-
Thorium-230 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00026	-	-	-	-
Thorium-230 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232	Bq/L	-	-	-	-	<0.04	<0.01/0.01	-	-	<0.004	<0.004	<0.01	-	-	0.00012	-	-	-	-	-
Thorium-232	pCi/L	-	-	-	-	-	<0.3	-	-	-	<0.3	<0.3	-	-	-	-	-	-	-	-
Thorium-232 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00002	-	-	-	-
Thorium-232 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table X.II-1
Historical Water Chemistry Data for Lakes in the Kiggavik Project Area, 1974-1991

Parameter	Units	Guidelines		Judge Sissons Lake Sub-Basin			Skinny Lake Sub-Basin					Kavisilik Lake Sub-Basin	Squiggly Lake Sub-Basin	Baker Lake Sub-Basin [r]			
				Judge Sissons Lake		Outlet of Judge Sissons Lake	Skinny Lake					Kavisilik Lake	Squiggly Lake	Baker Lake	Baker Lake 1	Baker Lake 2	Baker Lake 3
				Jun-91	Jul/Aug 1991	Aug-80	Jul-86	Jun-88	Jul-88	Jun-89	Aug-89	Aug-80	Aug-80	1974-1982	Aug-89		
		SSWQO[e]	CWQG[f]	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1
Conventional Parameters (Laboratory-Measured)																	
pH	pH units	-	6.5-9.0	6.70	6.85	-	6.1	6.30	7.05	6.50	6.95	-	-	5.6 to 7.2	7.15	7.15	7.20/7.20
Specific Conductivity	µS/cm	-	-	28.3	20.6	-	16	25	14	11.3	16.1	-	-	32 to 2,180	129.0	129.0	129.0
Total Alkalinity	mg/L	-	-	6	3	-	3	7	5	6.0	6.7	-	-	3.0 to 12.0	10.5	10.4	10.6/10.8
Alkalinity (pH 3.8)	mg $CaCO_3$/L	-	-	-	-	-	-	15	14	-	-	-	-	-	-	-	-
Gran alkalinity	mg $CaCO_3$/L	-	-	6.4	3.6	-	-	9	-	4.5	5	-	-	-	9.1	8.9	9.3/9.6
Total Hardness	mg $CaCO_3$/L	-	-	9.5/8.5	9.5	-	-	-	5	5.5	5.5	-	-	-	19.0	19.0	18.5
Total Dissolved Solids	mg/L	-	-	22	22	-	6	-	<10	20	60	-	-	17 to 1,040	75	80	65
Total Suspended Solids	mg/L	-	-	<2	<2	-	-	-	-	4	10	-	-	-	<2	6	4
Turbidity	NTU	-	-	-	-	-	-	0.49	-	-	-	-	-	-	-	-	-
True Colour (Co-Pt)	-	-	-	<1	2	-	-	12	11	14	9	-	-	-	10	7	7
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Absorbance at 254 nm	-	-	-	-	-	-	-	-	0.086	0.118	0.088	-	-	-	0.073	0.073	0.073
Nutrients																	
Ammonia as nitrogen	mg N/L	[g]	[g]	0.011	0.005	-	-	0.01	0.03	0.047	0.038	-	-	-	0.034	0.034	0.034
Nitrate	mg/L	-	13 [h]	<0.01	<0.01	-	<0.003	0.06	<0.02	0.02	<0.01	-	-	-	0.06	0.02	0.02
Nitrite	mg/L	-	0.197 [i]	<0.01	<0.01	-	<0.1	<0.001	0.002	0.002	0.002	-	-	-	0.003	0.003	0.003
Total Kjeldahl Nitrogen	mg/L	-	-	0.18	0.20	-	0.38	0.30	0.18	0.22	0.30/0.30	-	-	<0.5 to 41	0.26	0.26	0.23
Total Phosphorous	mg/L	-	-	0.003	0.003	-	0.002	0.007	0.004	0.003	0.003	-	-	<0.003 to 0.033	0.005	0.009	0.006
Soluble Reactive Phosphorous	mg/L	-	-	0.002	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	<0.001	<0.001	<0.001
Orthophosphate-P	mg/L	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon	mg/L	-	-	-	-	-	4.0	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	mg/L	-	-	0.7	1.7	-	-	2.5	1.5	1.7/1.7	1.1	-	-	-	2.2/2.1	2.1	2.2
Dissolved Organic Carbon	mg/L	-	-	2.4	2.2	-	-	4.5	3.0	2.8	2.5	-	-	-	2.6	2.6	2.7
Major Ions																	
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	2.7/2.3	2.6	-	1.45	2.65	1.40	1.45	1.45	-	-	1.8 to 24	3.2	3.2	3.2
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	0.44	0.46	-	0.25	0.32	0.32	0.42	0.39	-	-	3.2 to 580	28	29	29
Fluoride	mg/L	-	-	0.04	0.03	-	0.126	-	0.18	0.11	0.15	-	-	-	0.05	0.06	0.08
Hydroxide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	0.75/0.70	0.75	-	0.54	0.95	0.50	0.50	0.50	-	-	-	2.70	2.60	2.60
Potassium	mg/L	-	-	0.35/0.35	0.4	-	0.15	0.325	0.25	0.40	0.25	-	-	0.5 to 12	1.10	1.10	1.05
Silica (as SiO_2)	mg/L	-	-	-	0.05	-	-	-	0.24	0.6	0.24	-	-	-	0.52	0.44	0.44
Silicates	mg/L	-	-	-	-	-	-	0.47	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	<0.5/<0.5	<0.5	-	<0.5	0.50/0.49	<0.5	<0.5	<0.5	-	-	-	15.0	14.5	14.5
Sulphate	mg/L	-	-	0.6	0.5	-	0.40	0.55	0.5	0.65	0.40	-	-	1.7 to 68	4.60	4.60	4.80
Sum of ions	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																	
Aluminum	mg/L	0.005-0.1 [j]	0.005-0.1 [j]	0.02/0.02	<0.02	-	**0.04**	**0.030**	0.055	0.03	0.020	-	-	**<0.1 to 0.1**	0.015	0.015	0.015
Antimony	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	µg/L	5	5	2	<2	<0.2	-	-	<1/<2	<1	<1	<0.2	<0.2	-	<1	<1	<1
Barium	mg/L	-	-	0.03/0.03	0.03	-	0.035	0.06/0.06	0.03	0.03	0.04	-	-	<0.1 to 0.1	0.02	0.02	0.02
Beryllium	mg/L	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-
Boron	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/L	0.000017 [j]	0.000017 [j]	*<0.002*	*<0.002*	-	*<0.01*	-	**0.0005**	**0.0008**	**0.0002**	**0.002**	-	*<0.001* to **0.001**	*<0.0004*	**0.0002**	**0.0003**
Chromium	mg/L	-	0.0010/0.0089 [k]	*<0.01*	*<0.01*	<0.0005	*<0.01*	-	0.012/0.013	*<0.001*	*<0.001*	<0.0005	<0.0005	*<0.01* to 0.01	*<0.001*	*<0.001*	*<0.001*
Cobalt	mg/L	-	-	<0.01	<0.01	-	<0.01	-	<0.001	<0.001/<0.001	<0.001	-	-	<0.001 to 0.001	<0.001	<0.001	<0.001
Copper	mg/L	0.002 [l]	0.002 [l]	*<0.005*	*<0.005*	0.0008	*<0.005*	**0.0025**	0.0015	<0.0005	<0.0005	0.0008	0.0008	<0.001 to 0.001	<0.0005	<0.0005	<0.0005
Iron	mg/L	0.3	0.3	0.02/0.02	<0.02	-	0.08	0.025	0.08	0.08	0.07	-	-	<0.005 to 0.005	0.03	0.03	0.04
Lead	mg/L	0.001 [m]	0.001 [m]	*<0.02*	*<0.02*	-	*<0.05*	*<0.001*	<0.0005	**0.001**	<0.0005	**0.002**	**0.0020**	*<0.004* to **0.005**	<0.0005	<0.0005	<0.0005
Manganese	mg/L	-	-	<0.01	<0.01	-	<0.01	0.0026	0.003	0.016	0.003	-	-	<0.01 to 0.012	0.008	0.008	0.008
Mercury	µg/L	0.026 [n]	0.026 [n]	*<0.05*	*<0.1*	-	-	-	*<0.05*	*<0.05*	*<0.05*	*0.05*	<0.01	-	*<0.05*	*<0.05*	*<0.05*
Molybdenum	mg/L	-	0.073	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-
Nickel	mg/L	0.025 [o]	0.025 [o]	<0.01	<0.01	-	<0.01	0.004	0.001	<0.001	<0.001	-	-	<0.005 to 0.005	<0.001	<0.001	<0.001
Selenium	µg/L	1 [p]	1.0 [p]	*<2*	*<2*	-	-	-	<0.1	<0.1	<0.1	-	-	-	0.1	<0.1	0.1

Table X.II-1
Historical Water Chemistry Data for Lakes in the Kiggavik Project Area, 1974-1991

Parameter	Units	Guidelines		Judge Sissons Lake Sub-Basin			Skinny Lake Sub-Basin					Kavisilik Lake Sub-Basin	Squiggly Lake Sub-Basin	Baker Lake Sub-Basin [r]			
				Judge Sissons Lake		Outlet of Judge Sissons Lake	Skinny Lake					Kavisilik Lake	Squiggly Lake	Baker Lake	Baker Lake 1	Baker Lake 2	Baker Lake 3
				Jun-91	Jul/Aug 1991	Aug-80	Jul-86	Jun-88	Jul-88	Jun-89	Aug-89	Aug-80	Aug-80	1974-1982	Aug-89		
		SSWQO[e]	CWQG[f]	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1
Silicon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.0001	0.0001	**0.00014/0.00016**	0.00005	-	-	-	*<0.0001*	*<0.0001*	*<0.0001*	-	-	-	*<0.0001*	*<0.0001*	*<0.0001*
Strontium	mg/L	-	-	0.01/0.01	0.01	-	0.01	-	-	<0.00001	0.00001	-	-	-	0.00003	0.00003	0.00003
Tellurium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	mg/L	-	0.0008	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	µg/L	15	-	-	<0.5	<0.5	<0.1	0.5	-	<0.5	-	<0.5	<0.5	-	-	-	-
Uranium - preconcentrated	µg/L	-	-	0.5	0.5	-	-	-	-	-	-	-	-	-	0.37	-	-
Uranium - whole water	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-
Vanadium	mg/L	-	-	-	-	-	<0.005	-	-	-	-	-	-	<0.001 to 0.003	-	-	-
Zinc	mg/L	0.03	0.03	-	<0.01	-	<0.00001	-	<0.005	<0.005	<0.005	0.0028	**4.6**	<0.001 to 0.006	<0.005	<0.005	<0.005
Radionuclides																	
Lead-210	Bq/L	-	-	-	-	<0.02	<0.03	<0.2	-	-	-	0.033	<0.02	-	-	-	-
Lead-210	pCi/L	-	-	-	-	-	-	-	-	-	-	0.9	<0.5	-	-	-	-
Polonium-210	Bq/L	-	-	-	-	-	<0.03	<0.005	-	-	-	-	-	-	-	-	-
Polonium-210 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0028	-	-
Polonium-210 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radium-226	Bq/L	-	-	-	<0.002	0.03	<0.02	<0.005	-	-	-	0.007	<0.007	-	-	-	-
Radium-226	pCi/L	-	-	-	-	-	-	-	-	-	-	0.2	<0.2	-	-	-	-
Radium-226 - preconcentrated	Bq/L	-	-	<0.002	<0.002	-	-	-	-	-	-	-	-	-	0.0016	-	-
Radium-226 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-228	Bq/L	-	-	-	-	<0.01	-	-	-	-	-	<0.01	<0.01	-	-	-	-
Thorium-228	pCi/L	-	-	-	-	-	-	-	-	-	-	<0.3	<0.3	-	-	-	-
Thorium-228 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0006	-	-
Thorium-228 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-230	Bq/L	-	-	-	-	<0.01	<0.002	<0.005	-	-	-	<0.01	0.02	-	-	-	-
Thorium-230	pCi/L	-	-	-	-	-	-	-	-	-	-	<0.3	0.5	-	-	-	-
Thorium-230 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0008	-	-
Thorium-230 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232	Bq/L	-	-	-	-	<0.01	-	<0.005	-	-	-	<0.01	<0.01/0.01	-	-	-	-
Thorium-232	pCi/L	-	-	-	-	-	-	-	-	-	-	<0.3	<0.3	-	-	-	-
Thorium-232 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0001	-	-
Thorium-232 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table X.II-1
Historical Water Chemistry Data for Lakes in the Kiggavik Project Area, 1974-1991

Parameter	Units	Guidelines		Unknown Lake									Background Lake			
				Unnamed Lake[c]	Field Blank	Drill Site Drainage	Drill Site Control	Ore Body Creek	Snow Sample			Snowmelt	Background Range			
				Aug-79	Aug-89	Jul-86	Jul-86	Jun-89	Jun-88	Jun-89	1991	Jul-88	1979	1980	1988-1989	Jun 1988-89
		SSWQO[e]	CWQG[f]	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 10	n = 1	n = 1	n = 1	n = 1	n = 1
Conventional Parameters (Laboratory-Measured)																
pH	pH units	-	6.5-9.0	-	5.45	6.1	6.1	5.90/5.85	4.3/4.3	5.50	4.95/4.95	-	6.1 to 8.0	4.1 to 6.5	6.70 to 7.25	6.00 to 6.50
Specific Conductivity	µS/cm	-	-	-	1.3	195	36	13.7	5	4.1	6	-	-	0 to 31	8 to 22	11 to 61
Total Alkalinity	mg/L	-	-	-	1.8	6	5	2.7/2.7	<1	2.7	<1/<1	-	0.05 to 38	-	4 to 9	4.4 to 27
Alkalinity (pH 3.8)	mg $CaCO_3$/L	-	-	-	-	-	-	-	6/6	-	-	-	-	-	-	-
Gran alkalinity	mg $CaCO_3$/L	-	-	-	0.2	-	-	1.0/0.8	2/2	1.6	<0.1/<0.1	-	-	-	-	2.6 to 20
Total Hardness	mg $CaCO_3$/L	-	-	-	<0.5	-	-	3.5	-	2.0	<1	-	-	-	-	4.0 to 5.5
Total Dissolved Solids	mg/L	-	-	-	5	117	34	15	-	5	-	-	-	-	-	20
Total Suspended Solids	mg/L	-	-	-	<2	-	-	6	-	100	-	-	-	-	-	<2 to 4
Turbidity	NTU	-	-	-	-	-	-	-	0.71	-	-	-	-	-	-	-
True Colour (Co-Pt)	-	-	-	-	<1	-	-	16	<2	6	-	-	-	-	6 to 16	12 to 41
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Absorbance at 254 nm	-	-	-	-	0.000	-	-	0.121	-	0.042	-	-	-	-	-	-
Nutrients																
Ammonia as nitrogen	mg N/L	[g]	[g]	-	0.025	-	-	0.033	0.07	0.058	0.018	-	-	-	-	0.01 to 0.12
Nitrate	mg/L	-	13 [h]	-	<0.01	0.003	0.36	0.04	0.06	<0.01	0.03	-	-	-	<0.01 to 0.02	<0.01 to 0.24
Nitrite	mg/L	-	0.197 [i]	-	<0.001	<0.1	<0.1	0.002	<0.001	0.001	<0.01	-	-	-	-	<0.001 to 0.004
Total Kjeldahl Nitrogen	mg/L	-	-	-	<0.02	0.46	0.25	0.16	0.18	0.27	0.03	-	-	-	-	0.22 to 0.67
Total Phosphorous	mg/L	-	-	-	<0.001	0.01	0.006	0.004	0.005	0.023	0.005	-	-	-	<0.001 to 0.005	0.003 to 0.012
Soluble Reactive Phosphorous	mg/L	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	0.003	-	-	-	-	<0.001 to 0.001
Orthophosphate-P	mg/L	-	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-
Total Organic Carbon	mg/L	-	-	-	-	7.5	6.0	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	mg/L	-	-	-	<0.5	-	-	0.7	<0.5	1.5	<0.5	-	-	-	-	1.2 to 6
Dissolved Organic Carbon	mg/L	-	-	-	<0.2	-	-	2.8	0.5	0.9	0.5	-	-	-	-	2.7 to 9
Major Ions																
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	-	<0.05	25	3.7	1.05	<0.05	0.55	0.1	-	-	-	0.85 to 2.2	0.95 to 7.3
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	<0.01	46	0.37	1.43	0.58	0.26	0.47	-	-	-	0.17 to 0.57	0.32 to 1.6
Fluoride	mg/L	-	-	-	<0.01	0.30	0.50	0.09	-	0.02	<0.01	-	-	-	<0.01 to0.18	0.02 to 0.11
Hydroxide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	-	<0.05	3.9	1.34	0.2	0.06	0.15	0.1	-	-	-	0.15 to 0.75	0.35 to 2.23
Potassium	mg/L	-	-	-	<0.05	3.20	0.45	0.35	<0.05	0.25	0.1	-	-	-	0.15 to 0.40	0.325 to 0.825
Silica (as $Si0_2$)	mg/L	-	-	-	<0.02	-	-	0.62/0.62	-	1.34	-	-	-	-	-	-
Silicates	mg/L	-	-	-	-	-	-	-	0.22	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	<0.5	2.5	0.5	<0.5	0.18/0.20	<0.5	<0.5	-	-	-	<0.5 to 0.5	<0.5 to 0.98
Sulphate	mg/L	-	-	-	<0.1	41	6.50	1.05	0.35	<0.1	0.27	-	-	-	<1 to 0.65	0.55 to 1.3
Sum of ions	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																
Aluminum	mg/L	0.005-0.1 [j]	0.005-0.1 [j]	-	*<0.005*	**1.52**	**0.42**	**0.085**	**1.250**	**0.46**	*<0.02*	-	-	-	0.005 to 0.055	**0.02 to 0.065**
Antimony	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	µg/L	5	5	<0.5	<1/<2	-	-	<1	-	<1	<2	-	<0.5	0.2	1	<1
Barium	mg/L	-	-	-	<0.01	0.23	0.045	0.01	<0.01	0.03	<0.01	-	-	-	0.02 to 0.05	0.02 to 0.16
Beryllium	mg/L	-	-	-	-	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Boron	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/L	0.000017 [j]	0.000017 [j]	*<0.0005*	**0.0002**	*<0.01*	*<0.01*	**0.0004/0.0005**	-	**0.0007**	*<0.0002*	-	*<0.0005* to **0.0005**	*<0.0005* to **0.002**	*<0.0002* to **0.0007**	**0.0008 to 0.0017**
Chromium	mg/L	-	0.0010/0.0089 [k]	<0.0005	*<0.001*	*<0.01*	*<0.01*	0.001	-	0.002/0.002	<0.001	-	0.011 to 0.84	*<0.005*	*<0.001* to 0.013	*<0.001*
Cobalt	mg/L	-	-	-	<0.001	<0.01	<0.01	<0.002	-	<0.001	<0.001	-	-	-	<0.001 to 0.001	<0.001 to 0.001
Copper	mg/L	0.002 [l]	0.002 [l]	**0.00451** [d]	<0.0005	**0.01**	**0.015**	**0.0025**	**0.390**	**0.0025/0.0030**	0.0005	-	**0.11 to 14.8** [b]	0.0008 to **0.002**	<0.0005 to **0.0020**	<0.0005 to **0.0025**
Iron	mg/L	0.3	0.3	-	<0.01	**1.55**	0.19	0.25	**0.31**	**0.58**	<0.02	-	-	-	0.03 to 0.15	0.025 to **0.98**
Lead	mg/L	0.001 [m]	0.001 [m]	**0.23**	<0.0005	*<0.05*	*<0.05*	<0.0005	**0.001**	**0.0055/0.0060**	<0.0005	-	-	**0.002**	<0.0005 to **0.001**	<0.0005 to **0.001**
Manganese	mg/L	-	-	-	<0.001	0.09	<0.01	0.018	0.0038	0.023/0.024	<0.002	-	-	-	0.001 to 0.009	0.014 to 0.088
Mercury	µg/L	0.026 [n]	0.026 [n]	*<10*	*0.05*	-	-	*<0.05*	-	*<0.05*	*<0.05*	-	*<10*	<0.01 to **0.05**	*<0.05* to **0.05**	*<0.05*
Molybdenum	mg/L	-	0.073	-	-	0.02	0.02	-	-	-	-	-	-	-	-	-
Nickel	mg/L	0.025 [o]	0.025 [o]	-	<0.001	<0.01	<0.01	0.001	0.02	<0.001/0.001	0.001	-	-	-	<0.001 to 0.002	<0.001 to 0.004
Selenium	µg/L	1 [p]	1.0 [p]	<0.5	<0.1	-	-	<0.1	-	<0.1	*<2*	-	<0.5	-	<0.1 to 0.1	<0.1

Table X.II-1
Historical Water Chemistry Data for Lakes in the Kiggavik Project Area, 1974-1991

Parameter	Units	Guidelines		Unknown Lake									Background Lake			
				Unnamed Lake[c]	Field Blank	Drill Site Drainage	Drill Site Control	Ore Body Creek	Snow Sample			Snowmelt	Background Range			
				Aug-79	Aug-89	Jul-86	Jul-86	Jun-89	Jun-88	Jun-89	1991	Jul-88	1979	1980	1988-1989	Jun 1988-89
		SSWQO[e]	CWQG[f]	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 10	n = 1	n = 1	n = 1	n = 1	n = 1
Silicon	mg/L	-	-	-	<0.1	-	-	<0.1/0.1	-	<0.1	<0.1	-	-	-	-	0.43 to 0.97
Silver	mg/L	0.0001	0.0001	-	-	**0.00033**	0.00003	-	-	-	<0.00001	-	-	-	*<0.0001*	*<0.0001*
Strontium	mg/L	-	-	-	<0.01	-	-	0.01	-	<0.01	-	-	-	-	-	<0.01
Tellurium	µg/L	-	-	<2	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	mg/L	-	0.0008	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	mg/L	-	-	-	-	-	-	4.6	1.0	<0.5	-	0.56	<0.5	<0.5 to 0.8	-	-
Uranium	µg/L	15	-	<0.5	-	-	-	-	-	-	-	-	-	-	0.08 to 8.6	<0.5
Uranium - preconcentrated	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium - whole water	µg/L	-	-	-	-	0.005	0.005	-	-	-	-	-	-	-	-	-
Vanadium	mg/L	-	-	-	<5	<0.01	<0.01	<5	-	<5	<5	-	0.07 to 8.53 [b]	0.0016 to 0.0046	-	-
Zinc	mg/L	0.03	0.03	0.00263	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005
Radionuclides																
Lead-210	Bq/L	-	-	0.04	-	-	-	-	<0.2	-	-	-	<0.04 to 0.07	<0.02 to 0.033	-	-
Lead-210	pCi/L	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Polonium-210	Bq/L	-	-	-	-	-	-	-	0.026±0.006	-	-	-	-	-	0.0026 to 0.008	-
Polonium-210 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polonium-210 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radium-226	Bq/L	-	-	0.019	-	-	-	-	0.007±0.005	-	-	-	<0.004 to 0.037	0.007 to 0.13	0.00096 to 0.0016	-
Radium-226	pCi/L	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Radium-226 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radium-226 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium	µg/L	-	-	<1	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-228	Bq/L	-	-	-	-	-	-	-	-	-	-	0.0089	-	<0.01 to 0.02	-	-
Thorium-228	pCi/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-228 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-228 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-230	Bq/L	-	-	-	-	-	-	-	<0.005	-	-	0.054	-	<0.01 to 0.02	0.000087 to 0.002	-
Thorium-230	pCi/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-230 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-230 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232	Bq/L	-	-	<0.004	-	-	-	-	<0.005	-	-	0.0019	<0.004 to 0.03	<0.01	-	-
Thorium-232	pCi/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232 - preconcentrated	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thorium-232 - whole water	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: BEAK 1990, BEAK 1992b.

Notes: Multiple entries for single stations and parameters represent laboratory replicates; Composite samples consisting of water from several lakes were analyzed but are not included in this analysis. The waterbodies included in the composite samples include: Drum-Scotch-Sik Sik Lakes; Meadow-Escarpment-Felsenmeer Lakes; Ridge-Cirque Lakes; Crash-Caribou Lakes.

Values that are equal to or exceed the SSWQO are bolded. Values that are equal to or exceed the CWQG are underlined. Non-detect values that are higher than one or more guideline are italized.

[a] = Upstream and downstream of mineralized area.

[b] = Sample contamination by Cu and Zn strongly suspected.

[c] = Unnamed Lake draining into north end of Caribou Lake.

[d] = Original document states the mesaured unit is µg/mL, but based on results from other studies in the project area this is assumed to be an error with the actual unit being µg/L.

[e] = Saskatchewan Environment's (2006) Saskatchewan Surface Water Quality Objectives (SSWQO).

[f] = Canadian Council of Ministers of the Environment's (CCME) Canadian water quality guidelines (CWQG) for the protection of aquatic life - freshwater (CCME 2007).

[g] = The guidelines for ammonia are dependent on temperature and pH; however, the guideline could not be calculated due to lack of water temperature information.

[h] = The guideline for nitrate is 13 mg NO_3/L or 2.9 mg N/L. It was assumed that the reported values were expressed in mg NO_3/L.

[i] = The guideline for nitrite is 0.197 mg NO_2/L or 0.06 mg N/L.

[j] = The guidelines for aluminum are pH-dependent; the guideline is 0.005 mg/L at pH<6.5; 0.1 mg/L at pH≥6.5. Field pH values were used in the screening.

[k] = The guidelines for cadmium are hardness-dependent; at hardnesses ranging from 0 to 48.5 mg/L as $CaCO_3$, the guideline is 0.000017 mg/L.

[l] = The guideline for chromium is speciation-dependent; the guideline is 0.0089 mg/L for trivalent chromium and 0.0010 mg/L for hexavalent chromium.

[m] = The guidelines for copper are hardness-dependent; at hardnesses ranging from 0 to 120 mg/L as $CaCO_3$, the guideline is 0.002 mg/L.

[n] = The guidelines for lead are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.001 mg/L.

[o] = Mercury objective is for inorganic mercury only.

[p] = The guidelines for nickel are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.025 mg/L.

[q] = Selenium guideline is based on waterborne exposure. However, selenium has a bioaccumulation pathway similar to mercury; therefore, the guideline may not be protective of effects through reproductive impairment due to maternal transfer, resulting in embryotoxicity and teratogenicity (Chapman et al. 2009).

[r] = Conducted by the Water Survey of Canada (BEAK 1990).

n = number of samples analyzed; µS/cm = microSiemens per centimetre; µg/L = micrograms per litre; mg/L = milligrams per litre; mg $CaCO_3$/L = milligrams of calcium carbonate per litre; nm = nanometre; Bq/L = Becquerels per litre; pCi/L = picoCuries per litre; NTU = Nephlometric Turbity Units; % = percent; < = less than; NO_3 = nitrate; N = nitrogen; NO_2 = nitrite; Jun = June; Jul = July; Aug = August.

Table X.II-2
Water Chemistry Data for Lakes and Streams in the Kiggavik Project Area, Fall 2007

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin					Lower Lake Sub-Basin					Caribou Lake Sub-Basin						Skinny Lake Sub-Basin	QA/QC			
					Pointer Lake		Pointer/Rock Stream	Sik Sik Lake	Willow Lake	End Grid Lake	Andrew Lake	Shack Lake	Shack/Lower Stream	Lower Lake	Ridge Lake	Cirque Lake	Crash Lake	Crash/Fox Stream	Fox Lake	Fox/Caribou Stream	Skinny Lake	Duplicate 1	Duplicate 2	Field Blank	Trip Blank
					P-WQ5	P-WQ6	P-WQ3	P-WQ4	P-WQ1	S-WQ8	S-WQ7	S-WQ4	S-WQ3	S-WQ2	F-WQ12	F-WQ10	F-WQ8	F-WQ7	F-WQ6	F-WQ5	O-WQ2	DUP1	DUP2	FIELD	TRIP
		SSWQO[a]	CWQG[b]		28-Aug-07	27-Aug-07	27-Aug-07	25-Aug-07	28-Aug-07	28-Aug-07	27-Aug-07	26-Aug-07	26-Aug-07	28-Aug-07	2-Sep-07	1-Sep-07	31-Aug-07	31-Aug-07	30-Aug-07	30-Aug-07	3-Sep-07	27-Aug-07	30-Aug-07	26-Aug-07	27-Aug-07
Conventional Parameters (Field-Measured)																								
Dissolved Oxygen	mg/L	[c]	[c]	-	11.85	11.84	12.11	11.92	12.06	11.89	11.63	11.97	11.98	11.84	11.88	11.77	12.08	12.11	11.64	12.02	11.65	12.11	12.02	-	-
Water Temperature	°C	-	-	-	7.16	7.70	7.37	6.30	7.60	6.80	7.42	7.37	8.71	8.34	7.74	6.96	5.16	4.95	7.72	7.34	8.01	7.37	7.34	-	-
pH	pH units	-	6.5-9.0	-	9.90	8.38	7.35	7.76	8.63	7.66	7.59	7.96	7.54	7.46	7.29	7.29	7.31	7.06	7.55	7.25	7.14	7.35	7.25	-	-
Specific Conductivity	µS/cm	-	-	-	12	14	12	54	18	25	30	33	33	34	17	11	25	25	16	7	16	12	7	-	-
Conventional Parameters (Laboratory-Measured)																								
pH	pH units	-	6.5-9.0	0.07	6.88	6.94	7	7.17	7.12	7.28	7.24	6.82	6.78	6.8	7.16	6.89	7.24	7.26	7.14	7.08	7.06	6.52	7.09	5.77	6.44
Specific Conductivity	µS/cm	-	-	1	13	15	14	63	19	28	32	39	37	38	19	12	27	29	18	16	17	14	16	<1	<1
Total Alkalinity	mg $CaCO_3$/L	-	-	1	6	5	4	32	6	14	13	18	14	13	2	4	9	13	6	8	<1	6	8	1	3
Total Hardness	mg $CaCO_3$/L	-	-	1	6	6	6	28	8	13	14	18	16	18	8	5	13	13	8	7	7	6	7	<1	<1
Total Suspended Solids	mg/L	-	-	1	3	2	4	10	2	3	4	3	2	<1	<1	1	<1	<1	<1	1	<1	3	<1	<1	<1
Turbidity	NTU	-	-	0.1	1.6	1.5	1.6	4.6	1.8	1.9	1.8	1.6	1.3	1.2	1.1	2.2	3	4.4	0.7	0.6	0.9	1.7	0.6	0.1	0.1
Nutrients																								
Ammonia as Nitrogen	mg N/L	0.24[d]	0.24[d]	0.01	0.23	0.07	0.09	0.07	0.1	0.09	0.1	**0.35**	0.03	0.08	0.08	0.03	0.08	0.1	0.04	0.14	0.08	0.06	0.07	0.06	0.08
Nitrate and Nitrite as Nitrogen	mg N/L	-	-	0.01	0.02	0.04	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	0.02	<0.01	0.01	<0.01	0.01	<0.01	0.01
Total Kjeldahl Nitrogen	mg/L	-	-	0.05	0.84	0.4	0.42	0.69	0.4	0.46	0.6	1.3	0.5	0.95	0.22	0.35	0.62	0.25	0.32	0.32	0.12	0.44	0.52	0.1	0.63
Total Phosphorus	mg/L	-	-	0.01	<0.01	<0.01	<0.01	0.08	<0.01	0.03	<0.01	0.06	0.06	0.05	0.01	0.03	0.02	<0.01	<0.01	0.02	<0.01	0.02	<0.01	0.06	<0.01
Major Ions																								
Bicarbonate	mg/L	-	-	1	7	6	5	39	7	17	16	22	17	16	2	5	11	16	7	10	<1	7	10	1	4
Calcium	mg/L	-	-	0.1	1.4	1.5	1.4	7.2	2.1	3.3	3.8	4.6	4.1	4.6	1.9	1.3	3.3	3.1	2	1.8	1.8	1.4	1.8	<0.1	<0.1
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	-	0.1	0.3	0.4	0.3	1.2	0.4	0.8	2.3	1.7	1.7	1.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.2	<0.1	<0.1
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	0.5	0.5	0.5	2.5	0.7	1.2	1.2	1.5	1.3	1.5	0.8	0.5	1.2	1.2	0.8	0.7	0.7	0.5	0.7	<0.1	<0.1
Potassium	mg/L	-	-	0.1	0.3	0.3	<0.1	0.5	0.2	0.3	0.4	0.4	0.2	0.4	0.5	0.2	0.3	0.4	0.5	0.2	0.3	0.2	0.2	<0.1	<0.1
Sodium	mg/L	-	-	0.1	0.3	0.3	0.2	0.8	0.3	0.5	0.5	0.6	0.5	0.6	0.4	0.2	0.5	0.5	0.4	0.3	0.4	0.3	0.3	<0.1	<0.1
Sulphate	mg/L	-	-	0.2	0.5	0.8	0.5	0.7	0.7	0.8	0.5	0.6	0.6	1	0.7	0.6	1.1	1.1	0.4	0.4	0.5	0.5	0.4	<0.2	<0.2
Sum of Ions	mg/L	-	-	1	11	10	8	52	12	24	25	32	25	26	7	8	18	23	11	14	4	10	14	1	4
Total Metals																								
Aluminum	mg/L	0.005-0.1[e]	0.005-0.1[e]	0.0005	0.024	0.027	0.024	0.048	0.021	0.029	0.03	0.026	0.029	0.027	0.035	0.066	**0.12**	**0.18**	0.019	0.017	0.028	0.024	0.02	0.0011	<0.0005
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	0.1	0.1	0.1	0.5	0.2	0.2	<0.1	0.2	0.1	0.1	<0.1	0.1	0.2	0.2	0.2	0.1	<0.1	0.1	0.1	<0.1	<0.1
Barium	mg/L	-	-	0.0005	0.032	0.036	0.033	0.093	0.042	0.025	0.05	0.05	0.048	0.039	0.05	0.044	0.072	0.072	0.038	0.034	0.044	0.033	0.035	<0.0005	<0.0005
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.000017[f]	0.000017[f]	0.0001	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*
Chromium	mg/L	-	0.0010/0.0089[g]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.002[h]	0.002[h]	0.0002	0.0007	0.0008	0.0007	0.001	0.0008	0.0006	0.0009	0.0008	0.0009	0.0009	0.0007	0.0009	0.0017	0.0014	0.0006	0.0006	0.0006	0.0007	0.0007	<0.0002	0.0006
Iron	mg/L	0.3	0.3	0.0005	0.061	0.067	0.075	**0.43**	0.086	0.15	0.11	0.15	0.14	0.19	0.042	0.14	0.14	0.17	0.056	0.07	0.054	0.071	0.08	0.0019	0.0034
Lead	mg/L	0.001[i]	0.001[i]	0.0001	0.0009	**0.0026**	0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0005	0.0008	0.0002	0.0001	0.0001	0.0001	0.0003	0.0008	0.0001	0.0001	0.0002
Manganese	mg/L	-	-	0.0005	0.0031	0.0032	0.0042	0.016	0.0031	0.0035	0.0031	0.0036	0.0042	0.0044	0.0013	0.0085	0.0027	0.0036	0.0006	0.0046	0.0024	0.0041	0.004	<0.0005	<0.0005
Mercury[j]	µg/L	0.026[k]	0.026[l]	0.05	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*
Molybdenum	mg/L	-	0.073	0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0005	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0001	<0.0001	0.0006	<0.0001
Nickel	mg/L	0.025[m]	0.025[m]	0.0001	0.0004	0.0003	0.0003	0.0006	0.0004	0.0004	0.0004	0.0004	0.0005	0.0006	0.0004	0.0006	0.0012	0.0011	0.0004	0.0004	0.0003	0.0003	0.0004	<0.0001	0.0005
Selenium	mg/L	0.001[n]	0.001[n]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Silver	mg/L	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.012	0.013	0.012	0.052	0.018	0.02	0.056	0.052	0.049	0.041	0.014	0.012	0.02	0.02	0.014	0.013	0.013	0.012	0.013	<0.0005	<0.0005
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	0.0016	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0018	0.0022	<0.0001	<0.0001	<0.0001	<0.0001	0.0021	<0.0001	<0.0001	<0.0001	0.0002
Titanium	mg/L	-	-	0.0002	0.0003	0.0005	0.0004	0.0016	0.0005	0.0006	0.0004	0.0005	0.0006	0.0005	0.0004	0.0017	0.0014	0.0022	0.0002	0.0003	0.0004	0.0005	0.0008	<0.0002	<0.0002
Uranium	µg/L	15	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	0.0001	0.0001	0.0001	0.0003	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001
Zinc	mg/L	0.03	0.03	0.0005	0.0014	0.0067	0.0012	0.011	0.0024	<0.0005	0.0087	0.0008	0.0009	0.0042	<0.0005	0.0011	0.011	0.001	0.0009	0.0007	0.0031	0.0016	0.0007	<0.0005	0.0042

Table X.II-2
Water Chemistry Data for Lakes and Streams in the Kiggavik Project Area, Fall 2007

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin					Lower Lake Sub-Basin					Caribou Lake Sub-Basin						Skinny Lake Sub-Basin	QA/QC			
					Pointer Lake		Pointer/Rock Stream	Sik Sik Lake	Willow Lake	End Grid Lake	Andrew Lake	Shack Lake	Shack/Lower Stream	Lower Lake	Ridge Lake	Cirque Lake	Crash Lake	Crash/Fox Stream	Fox Lake	Fox/Caribou Stream	Skinny Lake	Duplicate 1	Duplicate 2	Field Blank	Trip Blank
		SSWQO[a]	CWQG[b]		P-WQ5	P-WQ6	P-WQ3	P-WQ4	P-WQ1	S-WQ8	S-WQ7	S-WQ4	S-WQ3	S-WQ2	F-WQ12	F-WQ10	F-WQ8	F-WQ7	F-WQ6	F-WQ5	O-WQ2	DUP1	DUP2	FIELD	TRIP
					28-Aug-07	27-Aug-07	27-Aug-07	25-Aug-07	28-Aug-07	28-Aug-07	27-Aug-07	26-Aug-07	26-Aug-07	28-Aug-07	2-Sep-07	1-Sep-07	31-Aug-07	31-Aug-07	30-Aug-07	30-Aug-07	3-Sep-07	27-Aug-07	30-Aug-07	26-Aug-07	27-Aug-07
Dissolved Metals																								
Aluminum	mg/L	-	-	0.0005	0.011	0.012	0.016	0.012	0.019	0.0083	0.013	0.0086	0.011	0.016	0.015	0.021	0.062	0.074	0.0085	0.0087	0.0098	0.0084	0.01	-	-
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	-
Arsenic	µg/L	-	-	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.1	<0.1	<0.1	<0.1	0.1	0.1	0.2	0.2	0.1	<0.1	<0.1	0.1	0.1	-	-
Barium	mg/L	-	-	0.0005	0.03	0.032	0.031	0.087	0.04	0.026	0.048	0.048	0.047	0.038	0.049	0.041	0.069	0.069	0.036	0.033	0.042	0.03	0.032	-	-
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	-	-
Cadmium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Chromium	mg/L	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Copper	mg/L	-	-	0.0002	0.0007	0.0009	0.0008	0.0012	0.0009	0.0007	0.0009	0.001	0.001	0.0009	0.0008	0.0009	0.0017	0.0014	0.0007	0.0007	0.0006	0.0008	0.0008	-	-
Iron	mg/L	-	-	0.0005	0.01	0.014	0.013	0.12	0.022	0.047	0.04	0.039	0.045	0.12	0.011	0.047	0.079	0.083	0.028	0.032	0.017	0.012	0.029	-	-
Lead	mg/L	-	-	0.0001	0.0002	<0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0002	0.0001	<0.0001	0.0001	0.0001	0.0002	<0.0001	0.0001	-	-
Manganese	mg/L	-	-	0.0005	0.0009	0.0009	0.0024	0.0039	0.0028	0.0013	0.0018	0.0023	0.0028	0.0036	0.0013	0.0027	0.0026	0.0031	0.0008	0.0034	0.0006	0.0011	0.0066	-	-
Molybdenum	mg/L	-	-	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0004	0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	-	-
Nickel	mg/L	-	-	0.0001	0.0003	0.0004	0.0003	0.0006	0.0003	0.0004	0.0004	0.0002	0.0003	0.0004	0.0004	0.0005	0.001	0.001	0.0004	0.0004	0.0003	0.0003	0.0004	-	-
Selenium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0001	-	-
Silver	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Strontium	mg/L	-	-	0.0005	0.012	0.013	0.012	0.047	0.018	0.02	0.054	0.046	0.044	0.037	0.015	0.012	0.019	0.02	0.014	0.013	0.012	0.012	0.014	-	-
Thallium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	-
Tin	mg/L	-	-	0.0001	0.0017	<0.0001	<0.0001	<0.0001	0.0008	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0018	0.0022	<0.0001	<0.0001	<0.0001	<0.0001	0.0022	<0.0001	<0.0001	-	-
Titanium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	0.0004	0.0005	0.0004	0.0002	<0.0002	0.0002	0.0003	<0.0002	0.0002	0.0007	0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	-
Uranium	µg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-
Vanadium	mg/L	-	-	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Zinc	mg/L	-	-	0.0005	0.003	0.0041	0.0061	0.0088	0.0049	0.0023	0.0065	0.0028	0.0028	0.0046	0.0024	0.0027	0.0064	0.0017	0.0039	0.0049	0.0022	0.0033	0.0036	-	-
Radionuclides																								
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polonium-210	Bq/L	-	-	0.005	<0.005	0.007	0.005	<0.005	<0.005	0.007	0.009	0.006	0.006	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	0.006	0.008	<0.005	<0.005
Radium-226	Bq/L	-	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	0.007	0.006	<0.005	<0.005	<0.005	<0.005	<0.005
Thorium-230	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01

Notes: Values that are equal to or exceed the SSWQO are bolded. Values that are equal to or exceed the CWQG are underlined. Non-detect values that are higher than one or more guideline are italized.

[a] = Saskatchewan Environment's (2006) Saskatchewan Surface Water Quality Objectives (SSWQO).

[b] = Canadian Council of Ministers of the Environment's (CCME) Canadian water quality guidelines (CWQG) for the protection of aquatic life - freshwater (CCME 2007).

[c] = Guideline for Cold-water biota- early stages (9.5 mg/L), other stages (6.5 mg/L).

[d] = The guidelines for ammonia are dependent on temperature and pH; therefore, the guideline for each station was calculated and the lowest overall value was used for screening.

[e] = The guidelines for aluminum are pH-dependent; the guideline is 0.005 mg/L at pH<6.5; 0.1 mg/L at pH≥6.5. Field pH values were used in the screening.

[f] = The guidelines for cadmium are hardness-dependent; at hardnesses ranging from 0 to 48.5 mg/L as $CaCO_3$, the guideline is 0.000017 mg/L.

[g] = The guideline for chromium is speciation-dependent; the guideline is 0.0089 mg/L for trivalent chromium and 0.0010 mg/L for hexavalent chromium.

[h] = The guidelines for copper are hardness-dependent; at hardnesses ranging from 0 to 120 mg/L as $CaCO_3$, the guideline is 0.002 mg/L.

[i] = The guidelines for lead are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.001 mg/L.

[j] = Mercury was determined on a nitric-acid preserved sample as a potassium dichromate/nitric-acid perserved sample was not supplied.

[k] = Mercury objective is for inorganic mercury only.

[l] = Mercury guidelines differ depending on mercury type: inorganic mercury = 0.026 µg/L; methylmercury = 0.004 µg/L.

[m] = The guidelines for nickel are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.025 mg/L.

[n] = Selenium guideline is based on waterborne exposure. However, selenium has a bioaccumulation pathway similar to mercury; therefore, the guideline may not be protective of effects through reproductive impairment due to maternal transfer, resulting in embryotoxicity and teratogenicity (Chapman et al. 2009).

DL = detection limit; QA/QC = quality assurance/quality control; ºC = degrees Celsius; mg/L = milligrams per litre; µg/L = micrograms per litre; mg $CaCO_3$/L = milligrams of calcium carbonate per litre; µS/cm = microSiemens per centimetre; NTU = Nephelometric Turbidity Unit; Bq/L = Becquerels per litre; < = less than; - = not applicable or not collected; Aug = August; Sep = September.

Table X.II-3
Water Chemistry Data for Lakes in the Kiggavik Project Area, Summer 2008

Parameters	Units	Guidelines		DL	Willow Lake Sub-Basin	Lower Lake Sub-Basin		Caribou Lake Sub-Basin			Judge Sissons Lake Sub-Basin					QA/QC	
					Pointer Lake	Mushroom Lake	Lower Lake	Fox Lake	Caribou Lake		Judge Sissons Lake					Field Blank	Trip Blank
					PRL-001-U08	MSL-001-U08	LWL-001-U08	FXL-001-U08	CBL-001-U08	CBL-001-U08 (DUP 3-U08)	JSL-001-U08	JSL-002-U08	JSL-003-U08	JSL-004-U08	JSL-005-U08	FIELD BLANK-U08	TRIP BLANK-U08
		SSWQO[a]	CWQG[b]		31-Jul-08	25-Jul-08	28-Jul-08	3-Aug-08	2-Aug-08		25-Jul-08	25-Jul-08	27-Jul-08	27-Jul-08	26-Jul-08	---	---
Conventional Parameters (Field-Measured)																	
Water Temperature	°C	-	-	-	14.80	17.14	13.10	15.80	15.63	15.63	9.78	8.64	14.89	15.16	11.16	-	-
pH	pH Unit	-	6.5-9.0	-	7.55	7.13	7.75	7.22	7.45	7.45	6.98	6.81	7.24	7.04	7.05	-	-
Conventional Parameters (Laboratory-Measured)																	
pH	pH Unit	-	6.5-9.0	0.07	6.45	7.08	7.22	6.87	6.85	6.84	6.90	6.86	6.78	7.06	6.92	6.03	5.90
Specific Conductivity	µS/cm	-	-	1	13	21	36	16	19	19	21	21	18	21	20	<1	<1
Total Alkalinity	mg $CaCO_3$/L	-	-	1	6	10	21	10	9	9	9	10	8	10	10	1	<1
Total Hardness	mg $CaCO_3$/L	-	-	1	6	9	17	7	8	8	9	10	8	9	9	<1	<1
Total Dissolved Solids	mg/L	-	-	1	18	22	37	18	18	21	19	19	16	17	18	<1	2
Total Suspended Solids	mg/L	-	-	1	<1	<1	2	2	<1	<1	<1	<1	<1	<1	<1	<1	<1
Turbidity	NTU	-	-	0.1	0.8	0.5	1.5	0.7	0.8	0.8	0.4	1.1	2	0.5	1.8	0.3	<0.1
Nutrients																	
Ammonia as Nitrogen	mg N/L	1.16[c]	1.16[c]	0.01	0.02	<0.01	<0.01	<0.01	0.02	0.13	<0.01	<0.01	0.09	<0.01	0.02	<0.01	<0.01
Nitrate	mg N/L	-	13	0.04	<0.04	<0.04	<0.04	0.09	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Nitrate and Nitrite as Nitrogen	mg N/L	-	-	[d]	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Kjeldahl Nitrogen	mg N/L	-	-	0.05	0.10	0.20	0.62	0.23	0.29	0.27	0.28	0.34	0.31	1.50	0.30	<0.05	<0.05
Total Nitrogen	mg/L	-	-	0.05	0.10	0.20	0.62	0.25	0.29	0.27	0.28	0.34	0.31	1.50	0.30	<0.05	<0.05
Total Phosphorus	mg/L	-	-	0.01	0.04	<0.01	<0.01	0.03	0.02	0.02	<0.01	<0.01	0.04	0.04	0.03	<0.01	<0.01
Dissolved Phosphorus	mg/L	-	-	0.01	0.03	<0.01	<0.01	0.03	0.01	0.06	<0.01	<0.01	0.03	0.03	0.05	-	0.02
Total Carbon	mg/L	-	-	1	5	6	12	6	6	6	5	5	5	5	5	<1	<1
Inorganic Carbon	mg/L	-	-	1	2	2	5	2	2	2	2	2	2	2	2	<1	<1
Total Organic Carbon	mg/L	-	-	0.2	3.50	3.60	7.00	3.60	4.00	3.90	2.70	2.60	2.90	2.70	2.50	<0.2	<0.2
Dissolved Organic Carbon	mg/L	-	-	0.2	3.70	4.00	7.30	3.90	4.00	4.00	2.80	2.60	2.90	2.80	2.50	-	<0.2
Major Ions																	
Bicarbonate	mg/L	-	-	1	7	12	26	12	11	11	11	12	10	12	12	1	<1
Calcium	mg/L	-	-	0.1	1.5	2.4	4.5	1.7	2.1	2.1	2.4	2.5	2.1	2.3	2.3	<0.1	<0.1
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	-	0.1	0.4	0.5	1.4	0.3	0.4	0.4	0.5	0.6	0.5	0.4	0.5	<0.1	<0.1
Fluoride	mg/L	-	-	0.01	0.04	0.08	0.22	0.06	0.04	0.04	0.04	0.04	0.04	0.03	0.03	<0.01	<0.01
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	0.5	0.8	1.4	0.6	0.7	0.7	0.8	0.8	0.7	0.7	0.7	<0.1	<0.1
Potassium	mg/L	-	-	0.1	0.2	0.2	0.4	0.2	0.4	0.3	0.4	0.3	0.2	0.2	0.3	<0.1	<0.1
Sodium	mg/L	-	-	0.1	0.2	0.3	0.6	0.2	0.3	0.2	0.4	0.4	0.3	0.3	0.3	<0.1	<0.1
Sulphate	mg/L	-	-	0.2	0.4	0.4	0.7	0.5	<0.2	0.7	0.6	0.5	0.4	0.5	0.4	<0.2	<0.2
Sum of Ions	mg/L	-	-	1	10	17	35	16	15	16	16	17	14	16	17	1	<1
Total Metals																	
Aluminum	mg/L	0.005-0.1[e]	0.005-0.1[e]	0.0005	0.0190	0.0150	0.0190	0.0150	0.0180	0.0180	0.0030	0.0026	0.0064	0.0041	0.0032	0.0007	<0.0005
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	0.1	0.1	0.2	0.2	0.2	0.2	<0.1	0.1	0.1	0.1	<0.1	<0.1	<0.1
Barium	mg/L	-	-	0.0005	0.0370	0.0210	0.0440	0.0350	0.0280	0.0280	0.0320	0.0320	0.0240	0.0230	0.0290	<0.0005	<0.0005
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.000017[f]	0.000017[f]	0.0001	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*
Chromium	mg/L	-	0.0010/0.0089[g]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0026	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.002[h]	0.002[h]	0.0002	0.0007	0.0007	0.0012	0.0007	0.0010	0.0012	0.0003	0.0004	0.0004	0.0006	0.0003	<0.0002	<0.0002
Iron	mg/L	0.3	0.3	0.0005	0.0490	0.0610	**0.3200**	0.0430	0.0550	0.0560	0.0280	0.0280	0.0340	0.0280	0.0220	0.0009	0.0006
Lead	mg/L	0.001[i]	0.001[i]	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Manganese	mg/L	-	-	0.0005	0.0020	0.0056	0.0045	0.0010	0.0014	0.0014	0.0069	0.0072	0.0039	0.0025	0.0048	<0.0005	<0.0005
Mercury	µg/L	0.026[j]	0.026[k]	0.05	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*
Molybdenum	mg/L	-	0.073	0.0001	0.0001	0.0001	0.0001	0.0002	<0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0003	<0.0001
Nickel	mg/L	0.025[l]	0.025[l]	0.0001	0.0004	0.0004	0.0008	0.0004	0.0005	0.0007	0.0007	0.0005	0.0006	0.0005	0.0004	<0.0001	<0.0001
Selenium	mg/L	0.001[m]	0.001[m]	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001
Silver	mg/L	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.0120	0.0170	0.0410	0.0120	0.0120	0.0120	0.0130	0.0130	0.0110	0.0100	0.0120	<0.0005	<0.0005
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001

Table X.II-3
Water Chemistry Data for Lakes in the Kiggavik Project Area, Summer 2008

Parameters	Units	Guidelines		DL	Willow Lake Sub-Basin	Lower Lake Sub-Basin		Caribou Lake Sub-Basin			Judge Sissons Lake Sub-Basin					QA/QC	
					Pointer Lake	Mushroom Lake	Lower Lake	Fox Lake	Caribou Lake		Judge Sissons Lake					Field Blank	Trip Blank
					PRL-001-U08	MSL-001-U08	LWL-001-U08	FXL-001-U08	CBL-001-U08	CBL-001-U08 (DUP 3-U08)	JSL-001-U08	JSL-002-U08	JSL-003-U08	JSL-004-U08	JSL-005-U08	FIELD BLANK-U08	TRIP BLANK-U08
		SSWQO[a]	CWQG[b]		31-Jul-08	25-Jul-08	28-Jul-08	3-Aug-08	2-Aug-08		25-Jul-08	25-Jul-08	27-Jul-08	27-Jul-08	26-Jul-08	---	---
Titanium	mg/L	-	-	0.0002	0.0002	<0.0002	0.0003	0.0002	0.0003	0.0003	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.0002	<0.0002
Uranium	µg/L	15	-	0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0002	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Zinc	mg/L	0.03	0.03	0.0005	0.0040	0.0032	0.0100	0.0027	0.0035	0.0080	0.0032	0.0037	0.0025	0.0029	0.0034	0.0037	0.0070
Dissolved Metals																	
Aluminum	mg/L	-	-	0.0005	0.0130	0.0100	0.0100	0.0110	0.0120	0.0120	0.0019	0.0024	0.0029	0.0029	0.0017	-	<0.0005
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002
Arsenic	µg/L	-	-	0.1	0.1	<0.1	0.2	0.2	0.2	0.2	0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1
Barium	mg/L	-	-	0.0005	0.0350	0.0230	0.0450	0.0320	0.0280	0.0280	0.0320	0.0320	0.0240	0.0230	0.0290	-	<0.0005
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
Cadmium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Chromium	mg/L	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	-	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	-	<0.0001
Copper	mg/L	-	-	0.0002	0.0007	0.0007	0.0011	0.0006	0.0011	0.0011	0.0003	0.0002	0.0002	0.0002	0.0002	-	<0.0002
Iron	mg/L	-	-	0.0005	0.0170	0.0350	0.1700	0.0230	0.0350	0.0350	0.0079	0.0075	0.0130	0.0110	0.0073	-	<0.0005
Lead	mg/L	-	-	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	<0.0001	<0.0001	0.0001	-	<0.0001
Manganese	mg/L	-	-	0.0005	<0.0005	0.0029	0.0017	0.0006	<0.0005	<0.0005	0.0038	0.0036	<0.0005	0.0006	0.0020	-	<0.0005
Molybdenum	mg/L	-	-	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Nickel	mg/L	-	-	0.0001	0.0004	0.0005	0.0008	0.0004	0.0005	0.0005	0.0007	0.0005	0.0005	0.0005	0.0004	-	<0.0001
Selenium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Silver	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Strontium	mg/L	-	-	0.0005	0.0130	0.0180	0.0420	0.0120	0.0120	0.0120	0.0130	0.0130	0.0120	0.0100	0.0120	-	<0.0005
Thallium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002
Tin	mg/L	-	-	0.0001	0.0001	0.0005	0.0051	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	-	0.0001
Titanium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002
Uranium	µg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1
Vanadium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0002	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Zinc	mg/L	-	-	0.0005	0.0032	0.0043	0.0099	0.0026	0.0049	0.0055	0.0110	0.0110	0.0028	0.0073	0.0100	-	0.0076
Radionuclides																	
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polonium-210	Bq/L	-	-	0.005	<0.005	<0.005	0.008	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	Bq/L	-	-	0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thorium-228	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-230	Bq/L	-	-	0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Notes: Values that are equal to or exceed the SSWQO are bolded. Values that are equal to or exceed the CWQG are underlined. Non-detect values that are higher than one or more guideline are italized.

[a] = Saskatchewan Environment's (2006) Saskatchewan Surface Water Quality Objectives (SSWQO).

[b] = Canadian Council of Ministers of the Environment's (CCME) Canadian water quality guidelines (CWQG) for the protection of aquatic life - freshwater (CCME 2007).

[c] = The guidelines for ammonia are dependent on temperature and pH; therefore, the guideline for each station was calculated and the lowest overall value was used for screening.

[d] = Nitrate values were calculated using the equation Nitrate Concentration = Nitrate-Nitrite Concentration * 62/14; non-detect values were substituted with the detection limit in calculations.

[e] = The guidelines for aluminum are pH-dependent; the guideline is 0.005 mg/L at pH<6.5; 0.1 mg/L at pH ≥6.5. Field pH values were used in the screening.

[f] = The guidelines for cadmium are hardness-dependent; at hardnesses ranging from 0 to 48.5 mg/L as $CaCO_3$, the guideline is 0.000017 mg/L.

[g] = The guideline for chromium is speciation-dependent; the guideline is 0.0089 mg/L for trivalent chromium and 0.0010 mg/L for hexavalent chromium.

[h] = The guidelines for copper are hardness-dependent; at hardnesses ranging from 0 to 120 mg/L as $CaCO_3$, the guideline is 0.002 mg/L.

[i] = The guidelines for lead are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.001 mg/L.

[j] = Mercury objective is for inorganic mercury only.

[k] = Mercury guidelines differ depending on mercury type: inorganic mercury = 0.026 µg/L; methylmercury = 0.004 µg/L.

[l] = The guidelines for nickel are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.025 mg/L.

[m] = Selenium guideline is based on waterborne exposure. However, selenium has a bioaccumulation pathway similar to mercury; therefore, the guideline may not be protective of effects through reproductive impairment due to maternal transfer, resulting in embryotoxicity and teratogenicity (Chapman et al. 2009).

DL = detection limit; QA/QC = quality assurance/quality control; °C = degrees Celsius; mg/L = milligrams per litre; µg/L = micrograms per litre; mg $CaCO_3$/L = milligrams of calcium carbonate per litre; µS/cm = microSiemens per centimetre; NTU = Nephelometric Turbidity Unit; Bq/L = Becquerels per litre; < = less than; - = not applicable or not collected; Jul = July; Aug = August.

Table X.II-4
Water Chemistry Data for Lakes in the Kiggavik Project Area, Fall 2008

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin						Lower Lake Sub-Basin						
					Pointer Lake			Sik Sik Lake	Rock Lake	Willow Lake	Mushroom Lake	End Grid Lake	Cigar Lake	Knee Lake	Lunch Lake	Andrew Lake	Shack Lake
					PRL-001-F08	PRL-001-F08 (DUP 7-F08)	PRL-002-F08	SSL-001-F08	ROL-001-F08	WLL-001-F08	MSL-001-F08	EGL-001-F08	CGL-001-F08	KNL-001-F08	LUL-001-F08	ANL-001-F08	SHL-001-F08
		SSWQO[a]	CWQG[b]		2-Sep-08		2-Sep-08	4-Sep-08	4-Sep-08	5-Sep-08	4-Sep-08	3-Sep-08	26-Aug-08	26-Aug-08	27-Aug-08	2-Sep-08	3-Sep-08
Conventional Parameters (Field-Measured)																	
Water Temperature	ºC	-	-	-	8.28	8.28	8.90	7.64	7.55	7.49	8.21	9.06	8.65	6.01	7.03	8.09	9.11
pH	pH Unit	-	6.5-9.0	-	6.94	6.94	6.65	7.56	7.50	7.07	6.96	7.56	**6.36**	6.82	7.42	7.52	7.65
Conventional Parameters (Laboratory-Measured)																	
pH	pH Unit	-	6.5-9.0	0.07	6.76	6.77	6.82	7.55	6.99	7.03	7.07	7.13	6.83	7.54	7.32	7.14	7.14
Specific Conductivity	µS/cm	-	-	1	15	15	21	62	22	21	25	31	13	48	40	36	36
Total Alkalinity	mg $CaCO_3$/L	-	-	1	1	6	7	28	6	7	11	21	4	23	12	10	12
Total Hardness	mg $CaCO_3$/L	-	-	1	6	6	10	31	11	10	12	15	4	22	18	16	17
Total Dissolved Solids	mg/L	-	-	1	15	17	57	58	27	23	25	34	13	41	39	34	38
Total Suspended Solids	mg/L	-	-	1	2	1	2	2	2	2	<1	2	<1	10	5	2	3
Turbidity	NTU	-	-	0.1	1	1.1	0.9	1.6	1.4	1.3	1.1	1.4	0.7	6	2.2	2.2	1.2
Nutrients																	
Ammonia as Nitrogen	mg N/L	1.98[c]	1.98[c]	0.01	0.06	0.02	0.08	<0.01	<0.01	0.02	<0.01	0.06	0.03	<0.01	0.06	0.04	0.02
Nitrate	mg N/L	-	13	[d]	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Nitrate and Nitrite as Nitrogen	mg N/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Kjeldahl Nitrogen	mg N/L	-	-	0.05	0.45	0.42	0.47	0.83	0.35	0.28	0.36	0.66	0.27	0.43	0.5	0.64	0.57
Total Nitrogen	mg/L	-	-	0.05	0.45	0.42	0.47	0.83	0.35	0.29	0.36	0.66	0.27	0.43	0.5	0.64	0.57
Total Phosphorus	mg/L	-	-	0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Phosphorus	mg/L	-	-	0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02
Total Carbon	mg/L	-	-	1	4	6	8	18	7	4	7	12	4	13	10	10	11
Inorganic Carbon	mg/L	-	-	1	<1	2	2	7	2	2	3	5	1	6	3	3	3
Total Organic Carbon	mg/L	-	-	0.2	3.8	3.9	5.9	11	5.6	2.3	4.6	6.7	3.3	7.7	7	7.3	7.4
Dissolved Organic Carbon	mg/L	-	-	0.2	4.1	4.3	5.7	12	6.1	5	5	7.4	3.4	7.8	7.4	8.4	8.2
Major Ions																	
Bicarbonate	mg/L	-	-	1	1	7	9	34	7	9	13	26	5	28	15	12	15
Calcium	mg/L	-	-	0.1	1.6	1.6	2.4	7.8	2.6	2.4	3.0	3.9	1.1	6.2	4.7	4.3	4.4
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	-	0.1	0.4	0.3	0.4	1.5	0.5	0.4	0.5	0.8	0.4	0.5	3.4	2.3	1.6
Fluoride	mg/L	-	-	0.01	0.02	0.02	0.04	0.1	0.1	0.04	0.09	0.09	0.07	0.45	0.29	0.22	0.18
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	0.6	0.6	0.9	2.7	1.0	0.9	1.0	1.4	0.4	1.7	1.5	1.4	1.4
Potassium	mg/L	-	-	0.1	0.3	0.2	0.5	0.7	0.3	0.2	0.3	0.4	0.2	0.4	0.4	0.5	0.4
Sodium	mg/L	-	-	0.1	0.3	0.3	0.4	1.0	0.4	0.3	0.5	0.6	0.3	0.7	0.7	0.7	0.6
Sulphate	mg/L	-	-	0.2	0.5	0.4	1.7	0.9	0.7	0.5	0.6	1.1	0.2	1.1	0.7	0.8	0.8
Sum of Ions	mg/L	-	-	1	5	10	15	49	13	14	19	34	8	39	26	22	24
Metals																	
Aluminum	mg/L	0.005-0.1[e]	0.005-0.1[e]	0.0005	0.0210	0.0190	0.0360	0.0180	0.0260	0.0240	0.0230	0.0220	**0.0180**	0.0570	0.0300	0.0310	0.0220
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	0.2	0.1	0.2	0.4	0.2	0.2	0.1	0.2	<0.1	0.2	0.2	0.1	0.2
Barium	mg/L	-	-	0.0005	0.0370	0.0370	0.0530	0.0920	0.0570	0.0480	0.0230	0.0300	0.0140	0.0980	0.0700	0.0550	0.0460
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
Cadmium	mg/L	0.000017[f]	0.000017[f]	0.0001	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*
Chromium	mg/L	-	0.0010/0.0089[g]	0.0005	<0.0005	<0.0005	0.0009	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0021	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001
Copper	mg/L	0.002[h]	0.002[h]	0.0002	0.0008	0.0008	0.0015	0.0011	0.0008	0.0009	0.0009	0.0008	0.0005	0.0015	0.0013	0.0012	0.0011
Iron	mg/L	0.3	0.3	0.0005	0.0450	0.0440	0.0630	0.1300	0.1200	0.0860	0.0650	0.0520	0.0290	**0.3200**	0.1400	0.1000	0.1200
Lead	mg/L	0.001[i]	0.001[i]	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	0.0003	0.0002	0.0001	0.0001	0.0001
Manganese	mg/L	-	-	0.0005	0.0024	0.0023	0.0020	0.0100	0.0036	0.0020	0.0055	0.0005	0.0033	0.0058	0.0061	0.0020	0.0025
Mercury	µg/L	0.026 [j]	0.026 [k]	0.05	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*
Molybdenum	mg/L	-	0.073	0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001
Nickel	mg/L	0.025[l]	0.025[l]	0.0001	0.0004	0.0004	0.0007	0.0007	0.0005	0.0004	0.0005	0.0006	0.0002	0.0006	0.0005	0.0005	0.0006
Selenium	mg/L	0.001[m]	0.001[m]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Silver	mg/L	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.0130	0.0130	0.0180	0.0550	0.0230	0.0200	0.0200	0.0220	0.0084	0.0950	0.0810	0.0590	0.0450
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Table X.II-4
Water Chemistry Data for Lakes in the Kiggavik Project Area, Fall 2008

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin						Lower Lake Sub-Basin						
					Pointer Lake			Sik Sik Lake	Rock Lake	Willow Lake	Mushroom Lake	End Grid Lake	Cigar Lake	Knee Lake	Lunch Lake	Andrew Lake	Shack Lake
					PRL-001-F08	PRL-001-F08 (DUP 7-F08)	PRL-002-F08	SSL-001-F08	ROL-001-F08	WLL-001-F08	MSL-001-F08	EGL-001-F08	CGL-001-F08	KNL-001-F08	LUL-001-F08	ANL-001-F08	SHL-001-F08
		SSWQO[a]	CWQG[b]		2-Sep-08		2-Sep-08	4-Sep-08	4-Sep-08	5-Sep-08	4-Sep-08	3-Sep-08	26-Aug-08	26-Aug-08	27-Aug-08	2-Sep-08	3-Sep-08
Tin	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	mg/L	-	-	0.0002	0.0002	0.0002	0.0003	0.0002	0.0002	0.0004	0.0005	0.0002	<0.0002	0.0018	0.0005	0.0004	0.0002
Uranium	µg/L	15	-	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.1	0.2	<0.1
Vanadium	mg/L	-	-	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0002	0.0001	0.0001	0.0001
Zinc	mg/L	0.03	0.03	0.0005	0.0058	0.0050	0.0087	0.0042	0.0023	0.0023	0.0015	0.0025	0.0059	0.0022	0.0044	0.0029	0.0045
Dissolved Metals																	
Aluminum	mg/L	-	-	0.0005	0.0110	0.0094	0.0240	0.0160	0.0160	0.0120	0.0094	0.0170	0.0100	0.0037	0.0081	0.0180	0.0120
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	-	-	0.1	0.2	0.2	0.2	0.4	0.2	0.2	0.1	0.2	<0.1	0.2	0.1	0.1	0.2
Barium	mg/L	-	-	0.0005	0.0400	0.0360	0.0520	0.0900	0.0570	0.0480	0.0230	0.0300	0.0130	0.0950	0.0670	0.0560	0.0480
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	-	-	0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0044	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	-	-	0.0002	0.0008	0.0008	0.0013	0.0038	0.0008	0.0008	0.0008	0.0009	0.0006	0.0013	0.0012	0.0012	0.0010
Iron	mg/L	-	-	0.0005	0.0092	0.0088	0.0300	0.0470	0.0530	0.0360	0.0230	0.0600	0.0057	0.0420	0.0170	0.0450	0.0520
Lead	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Manganese	mg/L	-	-	0.0005	0.0150	<0.0005	0.0006	0.0007	0.0021	0.0005	0.0006	0.0013	<0.0005	0.0015	0.0005	0.0011	0.0012
Molybdenum	mg/L	-	-	0.0001	0.0004	<0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0002	0.0001	<0.0001	<0.0001
Nickel	mg/L	-	-	0.0001	0.0004	0.0003	0.0007	0.0007	0.0005	0.0004	0.0004	0.0006	0.0002	0.0005	0.0004	0.0005	0.0006
Selenium	mg/L	-	-	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	<0.0001	0.0002	0.0002	<0.0001	<0.0001	<0.0001	0.0002	<0.0001
Silver	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.0220	0.0130	0.0180	0.0520	0.0230	0.0200	0.0200	0.0210	0.0083	0.0940	0.0790	0.0590	0.0450
Thallium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	0.0002	0.0001	<0.0001	0.0001	0.0001	0.0001	0.0002	0.0062	0.0002	0.0002	0.0001	0.0001	0.0006
Titanium	mg/L	-	-	0.0002	<0.0002	0.0005	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Uranium	µg/L	-	-	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.1	0.1	<0.1
Vanadium	mg/L	-	-	0.0001	0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001
Zinc	mg/L	-	-	0.0005	0.0057	0.0067	0.0039	0.0029	0.0036	0.0061	0.0045	0.0065	0.0023	0.0037	0.0032	0.0023	0.0012
Radionuclides																	
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polonium-210	Bq/L	-	-	0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.010	0.010	0.006
Radium-226	Bq/L	-	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	0.007	0.008	<0.005	<0.005	0.006
Thorium-228	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-230	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
Thorium-232	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01

Table X.II-4
Water Chemistry Data for Lakes in the Kiggavik Project Area, Fall 2008

Parameter	Units	Guidelines		DL	Lower Lake Sub-Basin		Caribou Lake Sub-Basin						Judge Sissons Lake Sub-Basin					
					Lower Lake		Ridge Lake	Cirque Lake	Crash Lake	Fox Lake	Caribou Lake	Calf Lake	Judge Sissons Lake					
					LWL-001-F08	LWL-001-F08 (DUP 8-F08)	RDL-001-F08	CQL-001-F08	CRL-001-F08	FXL-001-F08	CBL-001-F08	CFL-001-F08	JSL-001-F08	JSL-002-F08	JSL-006-F08	JSL-007-F08	JSL-007-F08 (DUP 5-F08)	JSL-008-F08
		SSWQO[a]	CWQG[b]		5-Sep-08		6-Sep-08	7-Sep-08	6-Sep-08	7-Sep-08	6-Sep-08	5-Sep-08	28-Aug-08	26-Aug-08	28-Aug-08	29-Aug-08		29-Aug-08
Conventional Parameters (Field-Measured)																		
Water Temperature	ºC	-	-	-	6.92	6.92	6.59	5.96	4.71	6.44	6.97	7.14	10.40	11.49	8.80	7.79	7.79	6.95
pH	pH Unit	-	6.5-9.0	-	7.08	7.08	7.13	7.04	7.01	7.07	7.13	6.89	7.02	6.68	6.91	7.04	7.04	7.02
Conventional Parameters (Laboratory-Measured)																		
pH	pH Unit	-	6.5-9.0	0.07	7.30	7.27	6.94	6.48	7.01	6.79	6.98	7.00	7.13	7.25	7.18	7.16	7.15	7.20
Specific Conductivity	µS/cm	-	-	1	43	42	19	13	29	20	21	23	21	22	21	21	21	27
Total Alkalinity	mg $CaCO_3$/L	-	-	1	16	17	9	6	14	10	6	5	9	12	9	6	9	10
Total Hardness	mg $CaCO_3$/L	-	-	1	20	20	9	6	14	9	10	10	9	9	9	9	9	13
Total Dissolved Solids	mg/L	-	-	1	45	46	17	19	35	21	24	24	15	16	17	16	18	32
Total Suspended Solids	mg/L	-	-	1	2	2	1	3	<1	<1	2	2	<1	<1	<1	<1	<1	2
Turbidity	NTU	-	-	0.1	1.2	1.2	1.2	2	3.1	0.7	1	1.5	0.4	0.4	0.5	1	1.2	1.5
Nutrients																		
Ammonia as Nitrogen	mg N/L	1.98[c]	1.98[c]	0.01	0.04	0.05	<0.01	0.02	<0.01	<0.01	0.02	0.03	0.04	0.02	0.04	0.05	<0.01	<0.01
Nitrate	mg N/L	-	13	[d]	<0.04	0.09	0.09	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Nitrate and Nitrite as Nitrogen	mg N/L	-	-	0.01	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Kjeldahl Nitrogen	mg N/L	-	-	0.05	0.6	0.79	0.21	0.26	0.28	0.32	0.36	0.45	0.19	0.18	0.19	0.24	0.27	0.44
Total Nitrogen	mg/L	-	-	0.05	0.6	0.81	0.23	0.26	0.28	0.32	0.36	0.45	0.19	0.18	0.19	0.24	0.27	0.44
Total Phosphorus	mg/L	-	-	0.01	0.09	<0.01	0.05	0.03	0.01	0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01
Dissolved Phosphorus	mg/L	-	-	0.01	0.07	0.04	0.05	<0.01	0.04	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Total Carbon	mg/L	-	-	1	13	13	6	5	10	7	6	7	5	6	5	7	5	10
Inorganic Carbon	mg/L	-	-	1	4	4	2	2	4	3	2	2	2	3	2	4	2	2
Total Organic Carbon	mg/L	-	-	0.2	9	9	3.9	3.6	6.7	4.4	4.4	5.3	2.7	2.6	2.6	3	2.9	7.8
Dissolved Organic Carbon	mg/L	-	-	0.2	10	9.5	3.4	2.6	4.7	3.3	4.2	4.7	2.7	3	2.8	2.8	3.2	8.2
Major Ions																		
Bicarbonate	mg/L	-	-	1	20	21	11	7	17	12	7	6	11	15	11	7	11	12
Calcium	mg/L	-	-	0.1	5.4	5.3	2.1	1.4	3.5	2.2	2.5	2.7	2.4	2.4	2.4	2.4	2.4	3.3
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	-	0.1	1.1	1.1	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.7
Fluoride	mg/L	-	-	0.01	0.15	0.16	0.02	0.01	0.02	0.03	0.02	0.03	0.04	0.01	0.06	0.03	0.02	0.03
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	1.7	1.7	0.8	0.6	1.4	0.8	0.8	0.9	0.7	0.7	0.7	0.7	0.7	1.1
Potassium	mg/L	-	-	0.1	0.5	0.3	0.4	0.2	0.3	0.3	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4
Sodium	mg/L	-	-	0.1	0.8	0.6	0.4	0.3	0.5	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.5
Sulphate	mg/L	-	-	0.2	1.5	1.2	0.6	0.5	1.0	0.4	0.7	0.8	0.6	0.6	0.5	0.6	0.6	1.1
Sum of Ions	mg/L	-	-	1	31	31	16	10	24	17	12	12	16	20	16	12	16	19
Metals																		
Aluminum	mg/L	0.005-0.1[e]	0.005-0.1[e]	0.0005	0.0320	0.0260	0.0420	0.0620	**0.1200**	0.0130	0.0200	0.0240	0.0060	0.0020	0.0032	0.0130	0.0140	0.0420
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2
Barium	mg/L	-	-	0.0005	0.0460	0.0460	0.0540	0.0470	0.0760	0.0390	0.0300	0.0300	0.0290	0.0300	0.0290	0.0300	0.0300	0.0300
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.000017[f]	0.000017[f]	0.0001	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*
Chromium	mg/L	-	0.0010/0.0089[g]	0.0005	<0.0005	<0.0005	**0.0022**	**0.0015**	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Copper	mg/L	0.002[h]	0.002[h]	0.0002	0.0013	0.0012	0.0009	0.0009	0.0013	0.0006	0.0012	0.0009	0.0003	0.0003	0.0003	0.0003	0.0003	0.0009
Iron	mg/L	0.3	0.3	0.0005	0.1800	0.1800	0.0440	0.1100	0.1600	0.0430	0.0440	0.0910	0.0290	0.0200	0.0280	0.0550	0.0560	0.1400
Lead	mg/L	0.001[i]	0.001[i]	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001
Manganese	mg/L	-	-	0.0005	0.0049	0.0048	0.0018	0.0120	0.0038	0.0008	0.0019	0.0035	0.0040	0.0035	0.0040	0.0045	0.0046	0.0039
Mercury	µg/L	0.026 [j]	0.026 [k]	0.05	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*
Molybdenum	mg/L	-	0.073	0.0001	<0.0001	<0.0001	0.0002	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0006	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	mg/L	0.025[l]	0.025[l]	0.0001	0.0009	0.0009	0.0005	0.0006	0.0010	0.0004	0.0005	0.0005	0.0004	0.0004	0.0002	0.0003	0.0003	0.0007
Selenium	mg/L	0.001[m]	0.001[m]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001
Silver	mg/L	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.0420	0.0420	0.0150	0.0120	0.0210	0.0140	0.0140	0.0140	0.0140	0.0120	0.0120	0.0130	0.0130	0.0220
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Table X.II-4
Water Chemistry Data for Lakes in the Kiggavik Project Area, Fall 2008

Parameter	Units	Guidelines		DL	Lower Lake Sub-Basin		Caribou Lake Sub-Basin						Judge Sissons Lake Sub-Basin					
					Lower Lake		Ridge Lake	Cirque Lake	Crash Lake	Fox Lake	Caribou Lake	Calf Lake	Judge Sissons Lake					
					LWL-001-F08	LWL-001-F08 (DUP 8-F08)	RDL-001-F08	CQL-001-F08	CRL-001-F08	FXL-001-F08	CBL-001-F08	CFL-001-F08	JSL-001-F08	JSL-002-F08	JSL-006-F08	JSL-007-F08	JSL-007-F08 (DUP 5-F08)	JSL-008-F08
		SSWQO[a]	CWQG[b]		5-Sep-08		6-Sep-08	7-Sep-08	6-Sep-08	7-Sep-08	6-Sep-08	5-Sep-08	28-Aug-08	26-Aug-08	28-Aug-08	29-Aug-08		29-Aug-08
Tin	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	mg/L	-	-	0.0002	0.0003	0.0003	0.0003	0.0008	0.0013	0.0002	0.0006	0.0004	0.0004	<0.0002	0.0003	0.0002	0.0002	0.0013
Uranium	µg/L	15	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0002	0.0001	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Zinc	mg/L	0.03	0.03	0.0005	0.0029	0.0050	0.0033	0.0043	0.0025	0.0059	0.0072	0.0075	0.0013	0.0013	0.0042	0.0013	0.0041	0.0024
Dissolved Metals																		
Aluminum	mg/L	-	-	0.0005	0.0170	0.0170	0.0100	0.0200	0.0700	0.0085	0.0087	0.0087	0.0019	0.0014	0.0019	0.0031	0.0028	0.0240
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	-	-	0.1	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2
Barium	mg/L	-	-	0.0005	0.0460	0.0450	0.0510	0.0440	0.0740	0.0390	0.0290	0.0300	0.0290	0.0280	0.0290	0.0290	0.0290	0.0300
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	-	-	0.0005	<0.0005	0.0006	<0.0005	0.0016	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0017	0.0029	<0.0005
Cobalt	mg/L	-	-	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	-	-	0.0002	0.0013	0.0012	0.0007	0.0009	0.0013	0.0006	0.0011	0.0008	0.0006	0.0004	0.0004	0.0003	0.0004	0.0010
Iron	mg/L	-	-	0.0005	0.1000	0.1000	0.0120	0.0270	0.1100	0.0220	0.0160	0.0300	0.0050	0.0033	0.0072	0.0140	0.0140	0.0590
Lead	mg/L	-	-	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Manganese	mg/L	-	-	0.0005	0.0032	0.0031	<0.0005	0.0014	0.0033	0.0005	<0.0005	0.0008	<0.0005	<0.0005	0.0008	0.0008	0.0009	0.0022
Molybdenum	mg/L	-	-	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Nickel	mg/L	-	-	0.0001	0.0009	0.0009	0.0004	0.0006	0.0010	0.0004	0.0004	0.0004	0.0003	0.0004	0.0002	0.0003	0.0003	0.0008
Selenium	mg/L	-	-	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001
Silver	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.0420	0.0420	0.0150	0.0120	0.0210	0.0150	0.0140	0.0140	0.0120	0.0120	0.0130	0.0130	0.0130	0.0220
Thallium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0002	0.0001	<0.0001	0.0001	<0.0001
Titanium	mg/L	-	-	0.0002	0.0002	<0.0002	<0.0002	0.0002	0.0009	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002
Uranium	µg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Zinc	mg/L	-	-	0.0005	0.0072	0.0041	0.0030	0.0071	0.0043	0.0180	0.0038	0.0043	0.0092	0.0046	0.0029	0.0018	0.0021	0.0015
Radionuclides																		
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polonium-210	Bq/L	-	-	0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	Bq/L	-	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thorium-228	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-230	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Table X.II-4
Water Chemistry Data for Lakes in the Kiggavik Project Area, Fall 2008

Parameter	Units	Guidelines		DL	Siamese Lake Sub-Basin		Skinny Lake Sub-Basin	Squiggly Lake Sub-Basin	QA/QC	
					Siamese Lake		Skinny Lake	Squiggly Lake	Field Blank	Trip Blank
					SML-001-F08	SML-002-F08	SKL-001-F08	SQL-001-F08	FIELD BLANK-F08	TRIP BLANK-F08
		SSWQO[a]	CWQG[b]		31-Aug-08	30-Aug-08	1-Sep-08	1-Sep-08	---	---
Conventional Parameters (Field-Measured)										
Water Temperature	ºC	-	-	-	10.61	10.76	8.36	8.68	-	-
pH	pH Unit	-	6.5-9.0	-	6.62	6.79	6.86	6.58	-	-
Conventional Parameters (Laboratory-Measured)										
pH	pH Unit	-	6.5-9.0	0.07	6.88	7.03	6.71	6.61	5.54	4.68
Specific Conductivity	µS/cm	-	-	1	15	15	17	13	<1	<1
Total Alkalinity	mg $CaCO_3$/L	-	-	1	6	6	8	5	2	<1
Total Hardness	mg $CaCO_3$/L	-	-	1	7	6	7	6	<1	<1
Total Dissolved Solids	mg/L	-	-	1	12	12	18	12	1	<1
Total Suspended Solids	mg/L	-	-	1	1	<1	<1	<1	<1	<1
Turbidity	NTU	-	-	0.1	0.5	0.4	0.5	0.5	0.1	<0.1
Nutrients										
Ammonia as Nitrogen	mg N/L	1.98[c]	1.98[c]	0.01	0.07	0.02	<0.01	<0.01	0.04	<0.01
Nitrate	mg N/L	-	13	[d]	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Nitrate and Nitrite as Nitrogen	mg N/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Kjeldahl Nitrogen	mg N/L	-	-	0.05	0.1	0.11	0.19	0.49	0.11	<0.05
Total Nitrogen	mg/L	-	-	0.05	0.1	0.11	0.19	0.49	0.11	<0.05
Total Phosphorus	mg/L	-	-	0.01	0.02	<0.01	0.01	<0.01	0.03	0.04
Dissolved Phosphorus	mg/L	-	-	0.01	0.04	<0.01	<0.01	0.01	-	-
Total Carbon	mg/L	-	-	1	4	4	5	3	<1	<1
Inorganic Carbon	mg/L	-	-	1	2	2	2	1	<1	<1
Total Organic Carbon	mg/L	-	-	0.2	2	2.3	3.2	1.9	0.2	0.4
Dissolved Organic Carbon	mg/L	-	-	0.2	2.4	2.1	2.2	1.3	-	-
Major Ions										
Bicarbonate	mg/L	-	-	1	7	7	10	6	2	<1
Calcium	mg/L	-	-	0.1	1.8	1.7	1.8	1.4	<0.1	<0.1
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	-	0.1	0.4	0.4	0.4	0.3	<0.1	<0.1
Fluoride	mg/L	-	-	0.01	<0.01	<0.01	0.15	<0.01	<0.01	<0.01
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	0.5	0.5	0.7	0.5	<0.1	<0.1
Potassium	mg/L	-	-	0.1	0.3	0.2	0.2	0.3	<0.1	<0.1
Sodium	mg/L	-	-	0.1	0.3	0.3	0.4	0.3	<0.1	<0.1
Sulphate	mg/L	-	-	0.2	0.5	0.6	0.5	0.5	<0.2	<0.2
Sum of Ions	mg/L	-	-	1	11	11	14	9	2	<1
Metals										
Aluminum	mg/L	0.005-0.1[e]	0.005-0.1[e]	0.0005	0.0036	0.0040	0.0099	0.0077	<0.0005	0.0007
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	0.1	<0.1	0.1	<0.1	<0.1	<0.1
Barium	mg/L	-	-	0.0005	0.0500	0.0490	0.0430	0.0210	<0.0005	<0.0005
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.000017[f]	0.000017[f]	0.0001	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*
Chromium	mg/L	-	0.0010/0.0089[g]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.002[h]	0.002[h]	0.0002	0.0003	0.0002	0.0005	0.0004	0.0002	0.0002
Iron	mg/L	0.3	0.3	0.0005	0.0180	0.0140	0.0410	0.0140	0.0009	0.0016
Lead	mg/L	0.001[i]	0.001[i]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001
Manganese	mg/L	-	-	0.0005	0.0032	0.0027	0.0025	0.0016	<0.0005	<0.0005
Mercury	µg/L	0.026 [j]	0.026 [k]	0.05	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*
Molybdenum	mg/L	-	0.073	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0001
Nickel	mg/L	0.025[l]	0.025[l]	0.0001	0.0002	0.0002	0.0003	0.0002	<0.0001	<0.0001
Selenium	mg/L	0.001[m]	0.001[m]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Silver	mg/L	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.0140	0.0130	0.0120	0.0068	<0.0005	<0.0005
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Table X.II-4
Water Chemistry Data for Lakes in the Kiggavik Project Area, Fall 2008

Parameter	Units	Guidelines		DL	Siamese Lake Sub-Basin		Skinny Lake Sub-Basin	Squiggly Lake Sub-Basin	QA/QC	
					Siamese Lake		Skinny Lake	Squiggly Lake	Field Blank	Trip Blank
					SML-001-F08	SML-002-F08	SKL-001-F08	SQL-001-F08	FIELD BLANK-F08	TRIP BLANK-F08
		SSWQO[a]	CWQG[b]		31-Aug-08	30-Aug-08	1-Sep-08	1-Sep-08	---	---
Tin	mg/L	-	-	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Titanium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Uranium	µg/L	15	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	mg/L	0.03	0.03	0.0005	0.0058	0.0068	0.0050	0.0085	0.0043	0.0042
Dissolved Metals										
Aluminum	mg/L	-	-	0.0005	0.0013	0.0016	0.0065	0.0036	-	-
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	-
Arsenic	µg/L	-	-	0.1	<0.1	<0.1	0.1	<0.1	-	-
Barium	mg/L	-	-	0.0005	0.0490	0.0470	0.0420	0.0210	-	-
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	-	-
Cadmium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Chromium	mg/L	-	-	0.0005	0.0019	<0.0005	<0.0005	<0.0005	-	-
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Copper	mg/L	-	-	0.0002	0.0003	0.0002	0.0005	0.0003	-	-
Iron	mg/L	-	-	0.0005	0.0021	0.0022	0.0170	0.0035	-	-
Lead	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Manganese	mg/L	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-
Molybdenum	mg/L	-	-	0.0001	<0.0001	0.0001	<0.0001	<0.0001	-	-
Nickel	mg/L	-	-	0.0001	0.0002	0.0002	0.0003	0.0002	-	-
Selenium	mg/L	-	-	0.0001	0.0001	0.0001	<0.0001	<0.0001	-	-
Silver	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Strontium	mg/L	-	-	0.0005	0.0140	0.0130	0.0130	0.0067	-	-
Thallium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	-
Tin	mg/L	-	-	0.0001	0.0002	0.0001	0.0010	0.0001	-	-
Titanium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	-
Uranium	µg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	-	-
Vanadium	mg/L	-	-	0.0001	<0.0001	<0.0001	0.0001	<0.0001	-	-
Zinc	mg/L	-	-	0.0005	0.0043	0.0032	0.0047	0.0039	-	-
Radionuclides										
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polonium-210	Bq/L	-	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	Bq/L	-	-	0.005	0.006	0.009	<0.005	<0.005	0.005	<0.005
Thorium-228	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-230	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Notes: Values that are equal to or exceed the SSWQO are bolded. Values that are equal to or exceed the CWQG are underlined. Non-detect values that are higher than one or more guideline are italized.

[a] = Saskatchewan Environment's (2006) Saskatchewan Surface Water Quality Objectives (SSWQO).

[b] = Canadian Council of Ministers of the Environment's (CCME) Canadian water quality guidelines (CWQG) for the protection of aquatic life - freshwater (CCME 2007).

[c] = The guidelines for ammonia are dependent on temperature and pH; therefore, the guideline for each station was calculated and the lowest overall value was used for screening.

[d] = Nitrate values were calculated using the equation Nitrate Concentration = Nitrate-Nitrite Concentration * 62/14; non-detect values were substituted with the detection limit in calculations.

[e] = The guidelines for aluminum are pH-dependent; the guideline is 0.005 mg/L at pH<6.5; 0.1 mg/L at pH ≥6.5. Field pH values were used in the screening.

[f] = The guidelines for cadmium are hardness-dependent; at hardnesses ranging from 0 to 48.5 mg/L as $CaCO_3$, the guideline is 0.000017 mg/L.

[g] = The guideline for chromium is speciation-dependent; the guideline is 0.0089 mg/L for trivalent chromium and 0.0010 mg/L for hexavalent chromium.

[h] = The guidelines for copper are hardness-dependent; at hardnesses ranging from 0 to 120 mg/L as $CaCO_3$, the guideline is 0.002 mg/L.

[i] = The guidelines for lead are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.001 mg/L.

[j] = Mercury objective is for inorganic mercury only.

[k] = Mercury guidelines differ depending on mercury type: inorganic mercury = 0.026 µg/L; methylmercury = 0.004 µg/L.

[l] = The guidelines for nickel are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.025 mg/L.

[m] = Selenium guideline is based on waterborne exposure. However, selenium has a bioaccumulation pathway similar to mercury; therefore, the guideline may not be protective of effects through reproductive impairment due to maternal transfer, resulting in embryotoxicity and teratogenicity (Chapman et al. 2009).

DL = detection limit; QA/QC = quality assurance/quality control; °C = degrees Celsius; mg/L = milligrams per litre; mg $CaCO_3$/L = milligrams of calcium carbonate per litre; µg/L = micrograms per litre; µS/cm = microSiemens per centimetre; NTU = Nephelometric Turbidity Unit; Bq/L = Becquerels per litre; < = less than; - = not applicable or not collected; Aug = August; Sep = September.

Table X.II-5
Water Chemistry Data for Lakes and Streams in the Kiggavik Project Area, 2009

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin										
					Northeast Inflow of Pointer Lake		Sik Sik Lake		Sik Sik/Rock Stream			Rock Lake		Rock/Willow Stream	
		SSWQO[a]	CWQG[b]		NEPLS-WQ001-P09	NEPLS-WQ002-F09	SSL-WQ01-U09	SSL-WQ001-F09	SSROS-WQ001-P09	SSROS-WQ001-P09 (DUP P09)	SSROS-WQ002-F09	ROL-WQ01-U09	ROL-WQ001-F09	ROWIS-WQ001-P09	ROWIS-WQ002-F09
					22-Jun-09	24-Aug-09	22-Jul-09	18-Aug-09	22-Jun-09	22-Jun-09	23-Aug-09	22-Jul-09	19-Aug-09	22-Jun-09	23-Aug-09
Conventional Parameters (Field-Measured)															
Dissolved Oxygen	mg/L	6.5/9.5[c]	6.5/9.5[c]	-	10.66	11.31	10.32	10.69	10.03	-	10.46	10.56	10.57	12.58	12.03
Water Temperature	ŰC	-	-	-	14.4	5.77	13.27	12.35	8.32	-	13.11	12.36	10.51	9.74	8.21
pH	pH Unit	-	6.5-9.0	-	6.68	7.87	7.56	8.21	7.65	-	7.68	7.56	8.12	7.25	8.03
Specific Conductivity	ÕS/cm	-	-	-	16	39	52	58	21	-	45	13	16	16	17
Conventional Parameters (Laboratory-Measured)															
pH	pH Unit	-	6.5-9.0	0.07	6.56	6.75	7.53	7.26	7.04	7.04	7.20	6.92	6.67	6.60	6.96
Specific Conductivity	ÕS/cm	-	-	1	17	40	56	62	26	26	46	15	17	18	19
Total Alkalinity	mg $CaCO_3$/L	-	-	1	4	7	26	28	10	10	26	6	4	6	3
Total Hardness	mg $CaCO_3$/L	-	-	1	7	17	25	29	11	11	22	6	6	7	8
Total Dissolved Solids	mg/L	-	-	1	20	45	49	48	28	27	45	12	19	18	20
Total Suspended Solids	mg/L	-	-	1	3	<1	3	3	1	<1	<1	1	3	<1	1
Turbidity	NTU	-	-	0.1	0.9	6.2	1.5	1.4	0.9	1.1	1.1	1.1	2.8	0.8	0.7
Nutrients															
Ammonia as Nitrogen	mg/L	0.421[d]	0.421[d]	0.01	0.10	<0.01	0.04	0.02	0.11	0.13	0.02	<0.01	<0.01	0.10	<0.01
Nitrite+Nitrate as N	mg/L	-	-	0.03/0.04	-[m]	-[m]	0.04	-[m]	-[m]	-[m]	-[m]	0.04	-[m]	-[m]	-[m]
Total Kjeldahl Nitrogen	mg/L	-	-	0.05	-[m]	0.52	0.85	0.79	-[m]	-[m]	0.69	0.27	0.26	-[m]	0.38
Total Nitrogen	mg/L	-	-	0.05	-[m]	-[m]	0.89	-[m]	-[m]	-[m]	-[m]	0.31	-[m]	-[m]	-[m]
Total Phosphorus	mg/L	-	-	0.01	<0.01	0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Phosphorus	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Carbon	mg/L	-	-	1	7	4	17	19	7	9	9	6	5	4	4
Total Inorganic Carbon	mg/L	-	-	1	1	2	6	7	2	2	6	1	1	1	<1
Total Organic Carbon	mg/L	-	-	0.2	6.0	2.7	11	12	6.1	6.2	3.1	4.2	3.8	4.6	3.7
Dissolved Organic Carbon	mg/L	-	-	0.2	5.0	2.9	11	11	6.1	6.7	3.1	3.8	4.2	5.0	3.7
Major Ions															
Bicarbonate	mg/L	-	-	1	5	9	32	34	12	12	32	7	5	7	4
Calcium	mg/L	-	-	0.1	1.5	4.3	6.4	7.2	2.9	2.9	5.5	1.5	1.6	1.8	1.9
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	-	0.1	0.3	2.6	1.3	1.4	0.5	0.5	0.7	0.3	<1	0.6	0.3
Fluoride	mg/L	-	-	0.01	0.05	0.11	0.13	0.14	0.08	0.08	0.10	0.06	0.07	0.05	0.06
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	0.7	1.6	2.2	2.6	1.0	1.0	2.0	0.5	0.6	0.6	0.7
Potassium	mg/L	-	-	0.1	0.4	0.3	0.7	0.7	0.3	0.3	0.3	0.3	0.2	0.3	0.2
Sodium	mg/L	-	-	0.1	0.4	0.6	0.9	1.0	0.4	0.4	0.8	0.3	0.3	0.3	0.3
Sulphate	mg/L	-	-	0.2	0.6	3.7	0.7	0.9	0.5	0.5	0.7	0.5	0.5	0.8	0.6
Sum of Ions	mg/L	-	-	1	9	22	44	48	18	18	43	11	8	12	8
Organics															
Chlorophyll *a*	mg/m^3	-	-	0.1	-	-	-	4.2/5.0	-	-	2.1/2.1	-	3.4/3.4	-	2.5/3.2

Table X.II-5
Water Chemistry Data for Lakes and Streams in the Kiggavik Project Area, 2009

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin										
					Northeast Inflow of Pointer Lake		Sik Sik Lake		Sik Sik/Rock Stream			Rock Lake		Rock/Willow Stream	
		SSWQO[a]	CWQG[b]		NEPLS-WQ001-P09	NEPLS-WQ002-F09	SSL-WQ01-U09	SSL-WQ001-F09	SSROS-WQ001-P09	SSROS-WQ001-P09 (DUP P09)	SSROS-WQ002-F09	ROL-WQ01-U09	ROL-WQ001-F09	ROWIS-WQ001-P09	ROWIS-WQ002-F09
					22-Jun-09	24-Aug-09	22-Jul-09	18-Aug-09	22-Jun-09	22-Jun-09	23-Aug-09	22-Jul-09	19-Aug-09	22-Jun-09	23-Aug-09
Total Metals															
Aluminum	mg/L	0.005-0.1[e]	0.005-0.1[e]	0.0005	0.079	0.094	0.025	0.015	0.016	0.017	0.017	0.017	0.040	0.027	0.023
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	Õg/L	5	5	0.1	0.2	0.2	0.5	0.5	0.3	0.2	0.3	0.1	0.2	0.1	0.2
Barium	mg/L	-	-	0.0005	0.063	0.095	0.084	0.090	0.052	0.050	0.087	0.038	0.044	0.044	0.045
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.000017[f]	0.000017[f]	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chromium	mg/L	-	0.0010/0.0089[g]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	0.0004	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.002[h]	0.002[h]	0.0002	-[m]	**0.0035**	0.0010	0.0012	-[m]	-[m]	0.0004	0.0006	0.0007	-[m]	0.0006
Iron	mg/L	0.3	0.3	0.0005	0.087	0.048	**0.30**	0.15	**0.51**	**0.39**	**0.49**	0.077	0.14	0.072	0.093
Lead	mg/L	0.001[i]	0.001[i]	0.0001	-[m]	<0.0001	<0.0001	0.0001	-[m]	-[m]	<0.0001	<0.0001	0.0001	-[m]	<0.0001
Manganese	mg/L	-	-	0.0005	0.0007	0.0008	0.0092	0.011	0.0073	0.0056	0.0062	0.0031	0.0027	0.0025	0.0030
Mercury	Õg/L	0.026[j]	0.026[j]	0.005/0.02	<0.005	<0.02	<0.005	<0.02	<0.005	<0.005	<0.02	<0.005	<0.02	<0.005	<0.02
Molybdenum	mg/L	-	0.073	0.0001	0.0002	0.0003	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001
Nickel	mg/L	0.025[k]	0.025[k]	0.0001	-[m]	0.0016	0.0006	0.0016	-[m]	-[m]	0.0007	0.0003	0.0003	-[m]	0.0003
Selenium	mg/L	0.001[l]	0.001[l]	0.0001	<0.0001	0.0001	<0.0001	0.0002	<0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001
Silver	mg/L	0.0001	0.0001	0.0001	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*
Strontium	mg/L	-	-	0.0005	0.013	0.031	0.044	0.048	0.019	0.018	0.038	0.012	0.015	0.013	0.016
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	mg/L	-	-	0.0002	0.0008	0.0005	0.0005	0.0006	0.0003	0.0003	0.0002	0.0002	0.0006	0.0004	0.0003
Uranium	Õg/L	15	-	0.1	<0.1	0.2	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	-[m]	0.0001	0.0001	0.0001	-[m]	-[m]	0.0001	<0.0001	0.0001	-[m]	0.0001
Zinc	mg/L	0.03	0.03	0.0001	-[m]	0.0021	<0.0005	0.0015	-[m]	-[m]	0.0022	0.0007	0.0005	-[m]	<0.0005
Dissolved Metals															
Aluminum	mg/L	-	-	0.0005	0.055	0.085	0.0085	0.0083	0.0087	0.010	0.012	0.0075	0.0046	0.018	0.0082
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	Õg/L	-	-	0.1	0.1	0.2	0.4	0.5	0.2	0.2	0.3	0.1	0.1	0.1	0.2
Barium	mg/L	-	-	0.0005	0.061	0.096	0.082	0.090	0.047	0.048	0.088	0.037	0.043	0.043	0.043
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	-	-	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chromium	mg/L	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001
Copper	mg/L	-	-	0.0002	0.0011	0.0035	0.0010	0.0011	0.0008	0.0007	0.0013	0.0007	0.0007	0.0008	0.0005
Iron	mg/L	-	-	0.0005	0.067	0.039	0.15	0.060	0.18	0.19	0.35	0.041	0.040	0.042	0.032
Lead	mg/L	-	-	0.0001	<0.0001	0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0008	<0.0001	<0.0001	<0.0001
Manganese	mg/L	-	-	0.0005	0.0006	0.0006	0.0012	0.0005	0.0039	0.0040	0.0055	0.0018	0.0008	0.0019	0.0019
Molybdenum	mg/L	-	-	0.0001	<0.0001	0.0003	0.0001	0.0001	0.0002	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001
Nickel	mg/L	-	-	0.0001	0.0009	0.0016	0.0006	0.0007	0.0004	0.0004	0.0007	0.0003	0.0003	0.0004	0.0003
Selenium	mg/L	-	-	0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	0.0002	0.0001

Table X.II-5
Water Chemistry Data for Lakes and Streams in the Kiggavik Project Area, 2009

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin										
					Northeast Inflow of Pointer Lake		Sik Sik Lake		Sik Sik/Rock Stream			Rock Lake		Rock/Willow Stream	
		SSWQO[a]	CWQG[b]		NEPLS-WQ001-P09	NEPLS-WQ002-F09	SSL-WQ01-U09	SSL-WQ001-F09	SSROS-WQ001-P09	SSROS-WQ001-P09 (DUP P09)	SSROS-WQ002-F09	ROL-WQ01-U09	ROL-WQ001-F09	ROWIS-WQ001-P09	ROWIS-WQ002-F09
					22-Jun-09	24-Aug-09	22-Jul-09	18-Aug-09	22-Jun-09	22-Jun-09	23-Aug-09	22-Jul-09	19-Aug-09	22-Jun-09	23-Aug-09
Silver	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.013	0.031	0.044	0.049	0.019	0.018	0.038	0.013	0.015	0.013	0.016
Thallium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	0.0001	0.0016	0.0002	0.0007	0.0003	0.0002	0.0003	0.0001	0.0001	0.0001	0.0005
Titanium	mg/L	-	-	0.0002	0.0004	0.0004	0.0002	0.0003	<0.0002	0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002
Uranium	Õg/L	-	-	0.1	<0.1	0.2	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001
Zinc	mg/L	-	-	0.0001	0.0016	- [m]	0.0009	- [m]	0.0014	0.0015	- [m]	0.0015	- [m]	0.0011	- [m]
Radionuclides															
Lead-210	Bq/L	-	-	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02
Polonium-210	Bq/L	-	-	0.005	0.008	<0.005	<0.005	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	Bq/L	-	-	0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	0.006
Thorium-228	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-230	Bq/L	-	-	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Table X.II-5
Water Chemistry Data for Lakes and Streams in the Kiggavik Project Area, 2009

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin				Lower Lake Sub-Basin	Judge Sissons Lake Sub-Basin				
					Willow Lake		Willow/Judge Sissons Stream		Andrew Lake	Judge Sissons Lake				
		SSWQO[a]	CWQG[b]		WIL-WQ01-U09	WIL-WQ001-F09	WIJSS-WQ001-P09	WIJSS-WQ002-F09	ANL-WQ001-F09	JSL-WQ001-F09	JSL-WQ002-U09	JSL-WQ002-F09	JSL-WQ006-F09	JSL-WQ006-F09 (DUP1-F09)
					22-Jul-09	23-Aug-09	22-Jun-09	22-Aug-09	21-Aug-09	21-Aug-09	22-Jul-09	20-Aug-09	20-Aug-09	20-Aug-09
Conventional Parameters (Field-Measured)														
Dissolved Oxygen	mg/L	6.5/9.5[c]	6.5/9.5[c]	-	10.37	10.38	12.05	11.75	11.19	9.88	12.86	10.03	10.88	10.88
Water Temperature	ÚC	-	-	-	12.90	10.80	12.84	9.83	9.80	11.26	5.60	11.58	10.83	10.83
pH	pH Unit	-	6.5-9.0	-	7.49	8.15	7.22	7.87	7.33	7.24	7.52	7.66	7.88	7.88
Specific Conductivity	ÕS/cm	-	-	-	15	17	17	17	31	21	21	21	21	21
Conventional Parameters (Laboratory-Measured)														
pH	pH Unit	-	6.5-9.0	0.07	7.01	6.74	6.90	6.71	6.94	6.85	7.10	6.87	6.88	6.85
Specific Conductivity	ÕS/cm	-	-	1	17	18	18	17	31	22	23	22	21	21
Total Alkalinity	mg $CaCO_3$/L	-	-	1	4	3	6	3	14	8	10	7	7	9
Total Hardness	mg $CaCO_3$/L	-	-	1	7	8	8	8	14	10	10	10	9	9
Total Dissolved Solids	mg/L	-	-	1	14	21	19	23	35	22	15	18	21	18
Total Suspended Solids	mg/L	-	-	1	1	<1	<1	1	2	<1	1	<1	<1	<1
Turbidity	NTU	-	-	0.1	0.7	1.1	0.8	2.7	2.2	0.7	0.7	0.8	0.7	1
Nutrients														
Ammonia as Nitrogen	mg/L	0.421[d]	0.421[d]	0.01	<0.01	<0.01	0.11	<0.01	0.03	<0.01	<0.01	<0.01	0.01	<0.01
Nitrite+Nitrate as N	mg/L	-	-	0.03/0.04	0.03	-[m]	-[m]	-[m]	-[m]	-[m]	0.04	-[m]	-[m]	-[m]
Total Kjeldahl Nitrogen	mg/L	-	-	0.05	0.39	<0.05	-[m]	0.37	0.43	0.21	0.28	0.23	0.22	0.23
Total Nitrogen	mg/L	-	-	0.05	0.42	-[m]	-[m]	-[m]	-[m]	-[m]	0.32	-[m]	-[m]	-[m]
Total Phosphorus	mg/L	-	-	0.01	<0.01	0.02	<0.01	0.02	<0.01	<0.01	0.01	<0.01	0.01	<0.01
Dissolved Phosphorus	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01
Total Carbon	mg/L	-	-	1	5	5	7	5	9	5	5	5	5	7
Total Inorganic Carbon	mg/L	-	-	1	1	1	1	1	3	2	2	2	2	4
Total Organic Carbon	mg/L	-	-	0.2	3.6	3.7	5.3	4.2	5.6	3.0	2.7	3.1	2.6	3.0
Dissolved Organic Carbon	mg/L	-	-	0.2	3.8	3.9	5.4	4.4	6.0	3.3	2.9	3.2	2.8	3.2
Major Ions														
Bicarbonate	mg/L	-	-	1	5	4	7	4	17	10	12	9	9	11
Calcium	mg/L	-	-	0.1	1.7	2.0	2.0	2.0	3.5	2.5	2.6	2.5	2.3	2.3
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	-	0.1	0.4	0.4	0.6	0.4	1.8	<1	0.5	0.4	0.4	<1
Fluoride	mg/L	-	-	0.01	0.06	0.07	0.05	0.08	0.27	0.06	0.05	0.06	0.06	0.06
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	0.6	0.7	0.7	0.7	1.2	0.8	0.8	0.8	0.8	0.8
Potassium	mg/L	-	-	0.1	0.3	0.2	0.4	0.2	0.3	0.3	0.4	0.4	0.3	0.4
Sodium	mg/L	-	-	0.1	0.3	0.3	0.4	0.3	0.5	0.3	0.4	0.3	0.3	0.3
Sulphate	mg/L	-	-	0.2	0.4	0.5	0.8	0.6	0.5	0.5	0.6	0.6	0.5	0.6
Sum of Ions	mg/L	-	-	1	9	8	12	8	25	15	17	14	15	16
Organics														
Chlorophyll *a*	mg/m^3	-	-	0.1	-	2.1/2.7	-	2.3/3.3	3.0/3.1	1.4/1.6	-	1/1.5	-	-

Table X.II-5
Water Chemistry Data for Lakes and Streams in the Kiggavik Project Area, 2009

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin				Lower Lake Sub-Basin	Judge Sissons Lake Sub-Basin				
					Willow Lake		Willow/Judge Sissons Stream		Andrew Lake	Judge Sissons Lake				
		SSWQO[a]	CWQG[b]		WIL-WQ01-U09	WIL-WQ001-F09	WIJSS-WQ001-P09	WIJSS-WQ002-F09	ANL-WQ001-F09	JSL-WQ001-F09	JSL-WQ002-U09	JSL-WQ002-F09	JSL-WQ006-F09	JSL-WQ006-F09 (DUP1-F09)
					22-Jul-09	23-Aug-09	22-Jun-09	22-Aug-09	21-Aug-09	21-Aug-09	22-Jul-09	20-Aug-09	20-Aug-09	20-Aug-09
Total Metals														
Aluminum	mg/L	0.005-0.1[e]	0.005-0.1[e]	0.0005	0.013	0.014	0.028	0.020	0.023	0.0017	0.0065	0.0067	0.0039	0.0042
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	Õg/L	5	5	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.3	0.1	0.1	0.1
Barium	mg/L	-	-	0.0005	0.039	0.043	0.046	0.042	0.050	0.030	0.032	0.030	0.031	0.030
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.000017[f]	0.000017[f]	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chromium	mg/L	-	0.0010/0.0089[g]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.002[h]	0.002[h]	0.0002	0.0006	0.0006	- [m]	0.0007	0.0009	0.0004	0.0004	0.0005	0.0003	0.0004
Iron	mg/L	0.3	0.3	0.0005	0.054	0.051	0.081	0.063	0.10	0.021	0.051	0.027	0.028	0.024
Lead	mg/L	0.001[i]	0.001[i]	0.0001	<0.0001	0.0001	- [m]	<0.0001	0.0001	0.0004	0.0008	0.0006	0.0003	0.0003
Manganese	mg/L	-	-	0.0005	0.0017	0.0015	0.0030	0.0031	0.0015	0.0038	0.016	0.0048	0.0037	0.0032
Mercury	Õg/L	0.026[j]	0.026[j]	0.005/0.02	<0.005	<0.02	<0.005	<0.02	<0.02	<0.02	<0.005	<0.02	<0.02	<0.02
Molybdenum	mg/L	-	0.073	0.0001	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001
Nickel	mg/L	0.025[k]	0.025[k]	0.0001	0.0003	0.0003	- [m]	0.0004	0.0004	0.0003	0.0008	0.0004	0.0003	0.0003
Selenium	mg/L	0.001[l]	0.001[l]	0.0001	<0.0001	0.0001	0.0002	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001
Silver	mg/L	0.0001	0.0001	0.0001	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*
Strontium	mg/L	-	-	0.0005	0.014	0.016	0.014	0.016	0.048	0.012	0.013	0.012	0.013	0.013
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0018	0.0013	0.0013	0.0010	0.0009
Titanium	mg/L	-	-	0.0002	0.0002	0.0006	0.0002	0.0003	0.0003	<0.0002	0.0002	0.0004	<0.0002	<0.0002
Uranium	Õg/L	15	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	<0.0001	0.0001	- [m]	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	mg/L	0.03	0.03	0.0001	<0.0005	0.0008	- [m]	0.0030	0.0026	0.0009	0.0012	0.0013	<0.0005	<0.0005
Dissolved Metals														
Aluminum	mg/L	-	-	0.0005	0.0085	0.0036	0.018	0.0073	0.0063	0.0006	<0.0005	0.0007	0.0015	0.0009
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	Õg/L	-	-	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Barium	mg/L	-	-	0.0005	0.038	0.044	0.045	0.041	0.050	0.029	0.031	0.029	0.030	0.029
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	-	-	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chromium	mg/L	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	-	-	0.0002	0.0009	0.0006	0.0009	0.0007	0.0010	0.0002	0.0003	0.0005	0.0003	0.0003
Iron	mg/L	-	-	0.0005	0.029	0.013	0.051	0.024	0.020	0.0043	0.014	0.005	0.0058	0.0048
Lead	mg/L	-	-	0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001
Manganese	mg/L	-	-	0.0005	0.0007	<0.0005	0.0025	0.0021	0.0006	<0.0005	0.012	0.0008	<0.0005	<0.0005
Molybdenum	mg/L	-	-	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	mg/L	-	-	0.0001	0.0003	0.0003	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0002	0.0002
Selenium	mg/L	-	-	0.0001	<0.0001	<0.0001	0.0003	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001

Table X.II-5
Water Chemistry Data for Lakes and Streams in the Kiggavik Project Area, 2009

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin				Lower Lake Sub-Basin	Judge Sissons Lake Sub-Basin				
					Willow Lake		Willow/Judge Sissons Stream		Andrew Lake	Judge Sissons Lake				
		SSWQO[a]	CWQG[b]		WIL-WQ01-U09	WIL-WQ001-F09	WIJSS-WQ001-P09	WIJSS-WQ002-F09	ANL-WQ001-F09	JSL-WQ001-F09	JSL-WQ002-U09	JSL-WQ002-F09	JSL-WQ006-F09	JSL-WQ006-F09 (DUP1-F09)
					22-Jul-09	23-Aug-09	22-Jun-09	22-Aug-09	21-Aug-09	21-Aug-09	22-Jul-09	20-Aug-09	20-Aug-09	20-Aug-09
Silver	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.014	0.016	0.014	0.016	0.049	0.013	0.013	0.012	0.012	0.013
Thallium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	0.0001	0.0061	0.0002	0.0004	0.0002	0.0019	0.0013	0.0013	0.0061	0.0061
Titanium	mg/L	-	-	0.0002	0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Uranium	Õg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	mg/L	-	-	0.0001	0.0020	- [m]	0.0012	- [m]	- [m]	- [m]	<0.0005	- [m]	- [m]	- [m]
Radionuclides														
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polonium-210	Bq/L	-	-	0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.05	<0.005	<0.005
Radium-226	Bq/L	-	-	0.005	<0.005	<0.005	<0.005	0.007	0.007	<0.005	<0.005	<0.005	<0.005	<0.005
Thorium-228	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-230	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Table X.II-5
Water Chemistry Data for Lakes and Streams in the Kiggavik Project Area, 2009

Parameter	Unit	Guidelines		DL	Judge Sissons Lake Sub-Basin		Aniguq River Sub-Basin		QA/QC			
					Judge Sissons Lake		Aniguq River		Trip Blank		Field Blank	
		SSWQO[a]	CWQG[b]		JSL-WQ007-F09	JSL-WQ008-F09	AQR-WQ001-F09	AQR-WQ002-F09	TRIP BLANK-P09	TRIP BLANK-F09	FIELD BLANK-P09	FIELD BLANK-F09
					21-Aug-09	22-Aug-09	25-Aug-09	24-Aug-09	---	---	---	---
Conventional Parameters (Field-Measured)												
Dissolved Oxygen	mg/L	6.5/9.5[c]	6.5/9.5[c]	-	10.69	11.01	11.54	12.29	-	-	-	-
Water Temperature	ÚC	-	-	-	9.69	8.10	10.02	10.31	-	-	-	-
pH	pH Unit	-	6.5-9.0	-	8.35	8.12	8.09	7.92	-	-	-	-
Specific Conductivity	ÕS/cm	-	-	-	21	24	30	28	-	-	-	-
Conventional Parameters (Laboratory-Measured)												
pH	pH Unit	-	6.5-9.0	0.07	6.89	6.90	7.20	7.18	5.52	5.39	5.45	5.52
Specific Conductivity	ÕS/cm	-	-	1	21	25	30	29	<1	1	<1	2
Total Alkalinity	mg $CaCO_3$/L	-	-	1	9	12	22	13	<1	<1	<1	<1
Total Hardness	mg $CaCO_3$/L	-	-	1	9	11	11	12	<1	<1	<1	<1
Total Dissolved Solids	mg/L	-	-	1	22	25	26	29	<1	<1	<1	2
Total Suspended Solids	mg/L	-	-	1	<1	<1	2	<1	<1	<1	<1	<1
Turbidity	NTU	-	-	0.1	1.3	0.9	40	38	0.2	0.2	0.1	<0.1
Nutrients												
Ammonia as Nitrogen	mg/L	0.421[d]	0.421[d]	0.01	<0.01	<0.01	0.04	<0.01	0.02	<0.01	0.02	<0.01
Nitrite+Nitrate as N	mg/L	-	-	0.03/0.04	-[m]	-[m]	-[m]	-[m]	-	-	-	-
Total Kjeldahl Nitrogen	mg/L	-	-	0.05	0.26	0.35	0.35	0.33	-	<0.05	-	0.07
Total Nitrogen	mg/L	-	-	0.05	-[m]	-[m]	-[m]	-[m]	-	-	-	-
Total Phosphorus	mg/L	-	-	0.01	0.02	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	0.01
Dissolved Phosphorus	mg/L	-	-	0.01	0.01	<0.01	<0.01	0.03	-	-	-	<0.01
Total Carbon	mg/L	-	-	1	5	7	8	7	<1	<1	<1	<1
Total Inorganic Carbon	mg/L	-	-	1	2	3	5	3	<1	<1	<1	<1
Total Organic Carbon	mg/L	-	-	0.2	3.0	3.9	2.9	3.9	<0.2	<0.2	<0.2	<0.2
Dissolved Organic Carbon	mg/L	-	-	0.2	3.2	4.3	3.1	4	-	0.2	<0.2	<0.2
Major Ions												
Bicarbonate	mg/L	-	-	1	11	15	27	16	<1	<1	<1	<1
Calcium	mg/L	-	-	0.1	2.3	2.9	3.1	3.3	<0.1	<0.1	<0.1	<0.1
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	-	0.1	0.4	0.7	1.7	0.8	<0.1	<0.1	<0.1	<0.1
Fluoride	mg/L	-	-	0.01	0.06	0.11	0.04	0.05	0.01	0.01	0.01	0.01
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	0.8	0.9	0.8	1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	-	-	0.1	0.4	0.4	0.4	0.4	<0.1	<0.1	<0.1	<0.1
Sodium	mg/L	-	-	0.1	0.3	0.4	1.1	0.6	<0.1	<0.1	<0.1	<0.1
Sulphate	mg/L	-	-	0.2	0.6	0.5	0.7	0.8	<0.2	<0.2	<0.2	<0.2
Sum of Ions	mg/L	-	-	1	16	21	35	23	<1	<1	<1	<1
Organics												
Chlorophyll *a*	mg/m^3	-	-	0.1	1.7/1.8	2.9/2.9	2.4/2.6	0.5/0.7	-	-	-	-

Table X.II-5
Water Chemistry Data for Lakes and Streams in the Kiggavik Project Area, 2009

Parameter	Unit	Guidelines		DL	Judge Sissons Lake Sub-Basin		Aniguq River Sub-Basin		QA/QC			
					Judge Sissons Lake		Aniguq River		Trip Blank		Field Blank	
		SSWQO[a]	CWQG[b]		JSL-WQ007-F09	JSL-WQ008-F09	AQR-WQ001-F09	AQR-WQ002-F09	TRIP BLANK-P09	TRIP BLANK-F09	FIELD BLANK-P09	FIELD BLANK-F09
					21-Aug-09	22-Aug-09	25-Aug-09	24-Aug-09	---	---	---	---
Total Metals												
Aluminum	mg/L	0.005-0.1[e]	0.005-0.1[e]	0.0005	0.010	0.0089	0.0074	0.013	<0.0005	<0.0005	<0.0005	<0.0005
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	Õg/L	5	5	0.1	0.1	0.1	0.1	0.2	<0.1	<0.1	<0.1	<0.1
Barium	mg/L	-	-	0.0005	0.031	0.028	0.027	0.034	<0.0005	<0.0005	<0.0005	<0.0005
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.000017[f]	0.000017[f]	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chromium	mg/L	-	0.0010/0.0089[g]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.002[h]	0.002[h]	0.0002	0.0004	0.0005	0.0003	0.0004	-	0.0002	-	<0.0002
Iron	mg/L	0.3	0.3	0.0005	0.056	0.079	0.029	0.041	<0.0005	<0.0005	0.0005	<0.0005
Lead	mg/L	0.001[i]	0.001[i]	0.0001	0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	-	<0.0001
Manganese	mg/L	-	-	0.0005	0.0043	0.0029	0.0039	0.0025	<0.0005	<0.0005	<0.0005	<0.0005
Mercury	Õg/L	0.026[i]	0.026[i]	0.005/0.02	<0.02	<0.02	<0.02	<0.02	<0.005	<0.02	<0.005	<0.02
Molybdenum	mg/L	-	0.073	0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001
Nickel	mg/L	0.025[k]	0.025[k]	0.0001	0.0003	0.0003	0.0002	0.0003	-	<0.0001	-	<0.0001
Selenium	mg/L	0.001[i]	0.001[i]	0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0002	<0.0001	<0.0001
Silver	mg/L	0.0001	0.0001	0.0001	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*
Strontium	mg/L	-	-	0.0005	0.013	0.020	0.015	0.016	<0.0005	<0.0005	<0.0005	<0.0005
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	mg/L	-	-	0.0002	0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Uranium	Õg/L	15	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	-	<0.0001
Zinc	mg/L	0.03	0.03	0.0001	0.0011	0.0010	0.0015	0.002	-	0.0008	-	0.0007
Dissolved Metals												
Aluminum	mg/L	-	-	0.0005	0.0019	0.0036	0.0025	0.0059	-	-	-	<0.0005
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	<0.0002
Arsenic	Õg/L	-	-	0.1	0.2	0.1	0.1	0.2	-	-	-	<0.1
Barium	mg/L	-	-	0.0005	0.030	0.027	0.027	0.034	-	-	-	0.0006
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	<0.01
Cadmium	mg/L	-	-	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001
Chromium	mg/L	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001
Copper	mg/L	-	-	0.0002	0.0004	0.0004	0.0003	0.0004	-	-	-	0.0003
Iron	mg/L	-	-	0.0005	0.014	0.032	0.0075	0.026	-	-	-	0.0007
Lead	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001
Manganese	mg/L	-	-	0.0005	0.0012	0.0014	0.0006	0.002	-	-	-	<0.0005
Molybdenum	mg/L	-	-	0.0001	<0.0001	<0.0001	0.0001	0.0001	-	-	-	0.0004
Nickel	mg/L	-	-	0.0001	0.0003	0.0003	0.0002	0.0003	-	-	-	<0.0001
Selenium	mg/L	-	-	0.0001	<0.0001	<0.0001	0.0002	0.0001	-	-	-	<0.0001

Table X.II-5
Water Chemistry Data for Lakes and Streams in the Kiggavik Project Area, 2009

Parameter	Unit	Guidelines		DL	Judge Sissons Lake Sub-Basin		Aniguq River Sub-Basin		QA/QC			
					Judge Sissons Lake		Aniguq River		Trip Blank		Field Blank	
		SSWQO[a]	CWQG[b]		JSL-WQ007-F09	JSL-WQ008-F09	AQR-WQ001-F09	AQR-WQ002-F09	TRIP BLANK-P09	TRIP BLANK-F09	FIELD BLANK-P09	FIELD BLANK-F09
					21-Aug-09	22-Aug-09	25-Aug-09	24-Aug-09	---	---	---	---
Silver	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001
Strontium	mg/L	-	-	0.0005	0.013	0.020	0.016	0.016	-	-	-	<0.0005
Thallium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	<0.0002
Tin	mg/L	-	-	0.0001	0.0001	0.0011	0.0001	0.0001	-	-	-	0.0005
Titanium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	<0.0002
Uranium	Õg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	<0.1
Vanadium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001
Zinc	mg/L	-	-	0.0001	- [m]	- [m]	- [m]	- [m]	-	-	-	-
Radionuclides												
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polonium-210	Bq/L	-	-	0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	Bq/L	-	-	0.005	0.01	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005
Thorium-228	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-230	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
Thorium-232	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Notes: Values that are equal to or exceed the SSWQO are bolded. Values that are equal to or exceed the CWQG are underlined. Non-detected values that are higher than one or more guideline are italicized.

[a] = Saskatchewan Environment's (2006) Saskatchewan Surface Water Quality Objectives (SSWQO).

[b] = Canadian Council of Ministers of the Environment's (CCME) Canadian water quality guidelines (CWQG) for the protection of aquatic life - freshwater (CCME - 2007).

[c] = The guidelines for dissolved oxygen for cold-water biota are 9.5 mg/L for early life stages and 6.5 mg/L for other life stages.

[d] = The guidelines for ammonia are dependent on temperature and pH; therefore, the guideline for each station was calculated and the lowest overall value was used for screening.

[e] = The guidelines for aluminum are pH-dependent; the guideline is 0.005 mg/L at pH<6.5; 0.1 mg/L at pH>6.5. Field pH values were used in the screening.

[f] = The guidelines for cadmium are hardness-dependent; at hardnesses ranging from 0 to 48.5 mg/L as $CaCO_3$, the guideline is 0.000017 mg/L.

[g] = The guideline for chromium is speciation-dependent; the guideline is 0.0089 mg/L for trivalent chromium and 0.0010 mg/L for hexavalent chromium.

[h] = The guidelines for copper are hardness-dependent; at hardnesses ranging from 0 to 120 mg/L as $CaCO_3$, the guideline is 0.002 mg/L.

[i] = The guidelines for lead are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.001 mg/L.

[j] = Mercury objective is for inorganic mercury only.

[k] = The guidelines for nickel are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.025 mg/L.

[l] = Selenium guideline is based on waterborne exposure. However, selenium has a bioaccumulation pathway similar to mercury; therefore, the guideline may not be protective of effects through reproductive impairment due to material transfer, resulting in embryotoxicity and teratogenicity (Chapman et al. 2009).

[m] = Data quality was assessed by batch using the results of field duplicates, field blanks, and trip blanks. Data for certain parameters were removed from the dataset if the results of the field duplicates had low reproductibility (high relative percent difference between duplicates coupled with low laboratory precision) or if there were measurable concentrations in field or trip blanks.

DL = detection limit; QA/QC = quality assurance/quality control; ÚC = degrees Celsius; mg/L = milligrams per litre; Õg/L = micrograms per litre; ÕS/cm = microSiemens per centimetre; NTU = Nephelometric Turbidity Unit; Bq/L = Becquerels per litre; mg/m^3 = milligrams per cubic metre; mg $CaCO_3$/L = milligrams of calcium carbonate per litre; < = less than; - = not applicable or not collected; Jun = June; Jul = July; Aug = August.

Table X.II-6
Water Chemistry Data for Streams in the Kiggavik Project Area, Spring 2008

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin							Lower Lake Sub-Basin				
					Northeast Inflow of Pointer Lake	Northwest Inflow of Pointer Lake		Pointer/Rock Stream	Sik Sik/Rock Stream	Rock/Willow Stream	Willow/Judge Sissons Stream	Mushroom/End Grid Stream	End Grid/Shack Stream	Cigar/Lunch Stream	Knee/Lunch Stream	Lunch/Andrew Stream
					NEPLS-001-P08	NWPLS-001-P08	NWPLS-001-P08 (DUP 2-P08)	PRROS-001-P08	SSROS-001-P08	ROWIS-001-P08	WIJSS-001-P08	MSEGS-001-P08	EGSHS-001-P08	CGLUS-001-P08	KNLUS-001-P08	LUANS-001-P08
		SSWQO[a]	CWQG[b]		22-Jun-08	21-Jun-08		20-Jun-08	19-Jun-08	18-Jun-08	18-Jun-08	23-Jun-08	23-Jun-08	22-Jun-08	23-Jun-08	22-Jun-08
Conventional Parameters (Field-Measured)																
Water Temperature	°C	-	-	-	4.92	6.21	6.21	1.91	2.44	3.38	3.08	7.16	10.14	5.88	10.55	4.12
pH	pH Unit	-	6.5-9.0	-	7.22	7.26	7.26	7.18	6.62	6.70	7.07	7.20	7.27	7.23	7.27	7.17
Conventional Parameters (Laboratory-Measured)																
pH	pH Unit	-	6.5-9.0	0.07	6.79	6.90	6.88	7.03	6.92	7.11	6.87	6.88	6.91	6.79	6.88	6.85
Specific Conductivity	µS/cm	-	-	1	16	19	19	18	14	18	17	20	21	14	21	15
Total Alkalinity	mg $CaCO_3$/L	-	-	1	4	6	7	9	6	7	6	7	10	6	9	7
Total Hardness	mg $CaCO_3$/L	-	-	1	7	9	9	7	6	7	7	9	10	6	10	7
Total Dissolved Solids	mg/L	-	-	1	18	11	25	16	14	12	16	20	23	10	26	10
Total Suspended Solids	mg/L	-	-	1	5	8	2	2	6	2	4	1	1	2	2	2
Turbidity	NTU	-	-	0.1	2	0.6	1	0.7	1.5	0.6	1.3	0.6	0.5	0.9	0.5	0.8
Nutrients																
Ammonia as Nitrogen	mg N/L	2.68 [c]	2.68 [c]	0.01	0.02	0.06	0.02	0.05	0.03	0.07	0.02	0.04	0.03	<0.01	0.05	<0.01
Nitrate	mg N/L	-	13	0.04	0.09	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.08	0.09
Nitrate and Nitrite as Nitrogen	mg N/L	-	-	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01 [b]	0.01 [b]	0.01	0.02 [b]	0.02
Total Kjeldahl Nitrogen	mg N/L	-	-	0.05	0.42	0.46	0.46	0.34	0.49	0.4	0.49	0.4	0.36	0.34	0.36	0.4
Total Nitrogen	mg/L	-	-	0.05	0.44	0.47	0.47	0.35	0.5	0.41	0.5	0.41	0.37	0.35	0.38	0.42
Total Phosphorus	mg/L	-	-	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01	0.02	<0.01	<0.01	0.03
Dissolved Phosphorus	mg/L	-	-	0.01	0.02	<0.01	<0.01	0.01	0.04	0.01	0.03	0.02	<0.01	0.02	0.03	0.01
Total Carbon	mg/L	-	-	1	9	10	10	8	7	7	9	7	9	7	10	8
Inorganic Carbon	mg/L	-	-	1	1	2	2	2	2	2	2	2	2	2	2	2
Total Organic Carbon	mg/L	-	-	0.2	8.3	8.3	8.3	5.5	5	5.4	5.7	5.2	6.3	5.1	7.2	5.7
Dissolved Organic Carbon	mg/L	-	-	0.2	8.8	8.3	8.5	5.6	5.2	5.5	5.7	5.2	6.3	5	7.2	5.8
Major Ions																
Bicarbonate	mg/L	-	-	1	5	7	9	11	7	9	7	9	12	7	11	9
Calcium	mg/L	-	-	1	1.6	2.2	2.2	2	1.4	1.8	1.8	2.3	2.5	1.4	2.6	1.8
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	-	0.1	0.3	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.3	0.4
Fluoride	mg/L	-	-	0.01	0.04	0.07	0.08	0.06	0.06	0.05	0.05	0.03	0.08	0.09	0.24	0.09
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	0.7	0.8	0.8	0.6	0.5	0.6	0.6	0.8	0.9	0.5	0.8	0.6
Potassium	mg/L	-	-	0.1	0.5	0.3	0.2	0.4	0.3	0.4	0.4	0.9	1.2	0.2	0.7	0.2
Sodium	mg/L	-	-	0.1	0.4	0.3	0.3	0.3	0.2	0.3	0.3	2.4	3.8	0.3	1.7	0.3
Sulphate	mg/L	-	-	0.2	0.6	1.3	1.3	0.6	0.3	0.6	0.6	0.7	0.7	0.3	0.7	0.4
Sum of Ions	mg/L	-	-	1	9	12	14	16	10	13	11	17	22	10	18	13
Total Metals																
Aluminum	mg/L	0.005-0.1 [d]	0.005-0.1 [d]	0.0005	0.0840	0.0810	0.0710	0.0220	0.0220	0.0240	0.0310	0.0320	0.0330	0.0290	0.0600	0.0400
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	<0.1	0.1	<0.1
Barium	mg/L	-	-	0.0005	0.0570	0.0660	0.0640	0.0510	0.0270	0.0450	0.0460	0.0220	0.0230	0.0210	0.0510	0.0310
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.000017 [e]	0.000017 [e]	0.0001	*<0.0001*	**0.0001**	**0.0001**	*<0.0001*	**0.0001**	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*
Chromium	mg/L	-	0.0010/0.0089 [f]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0046	<0.0005
Cobalt	mg/L	-	-	0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Copper	mg/L	0.002 [g]	0.002 [g]	0.0002	0.0014	0.0017	0.0015	0.0005	0.0004	0.0006	0.0006	0.0007	0.0008	0.0005	0.0013	0.0008
Iron	mg/L	0.3	0.3	0.0005	0.2300	**0.3500**	0.1600	0.0960	**0.4300**	0.0910	0.1300	0.0660	0.0770	0.0600	0.0890	0.0760
Lead	mg/L	0.001 [h]	0.001 [h]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Manganese	mg/L	-	-	0.0005	0.0060	0.0057	0.0029	0.0110	0.0250	0.0120	0.0140	0.0083	0.0049	0.0110	0.0034	0.0056
Mercury	µg/L	0.026 [i]	0.026 [j]	0.05	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*
Molybdenum	mg/L	-	0.073	0.0001	<0.0001	0.0002	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Nickel	mg/L	0.025 [k]	0.025 [k]	0.0001	0.0013	0.0011	0.0010	0.0004	0.0003	0.0004	0.0004	0.0005	0.0007	0.0003	0.0007	0.0004
Selenium	mg/L	0.001 [l]	0.001 [l]	0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Silver	mg/L	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.0130	0.0210	0.0200	0.0160	0.0100	0.0140	0.0150	0.0150	0.0140	0.0110	0.0380	0.0230
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001
Titanium	mg/L	-	-	0.0002	0.0005	0.0005	0.0004	0.0003	0.0003	0.0002	0.0004	0.0004	0.0003	<0.0002	0.0005	0.0002

Table X.II-6
Water Chemistry Data for Streams in the Kiggavik Project Area, Spring 2008

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin							Lower Lake Sub-Basin				
					Northeast Inflow of Pointer Lake	Northwest Inflow of Pointer Lake		Pointer/Rock Stream	Sik Sik/Rock Stream	Rock/Willow Stream	Willow/Judge Sissons Stream	Mushroom/End Grid Stream	End Grid/Shack Stream	Cigar/Lunch Stream	Knee/Lunch Stream	Lunch/Andrew Stream
					NEPLS-001-P08	NWPLS-001-P08	NWPLS-001-P08 (DUP 2-P08)	PRROS-001-P08	SSROS-001-P08	ROWIS-001-P08	WIJSS-001-P08	MSEGS-001-P08	EGSHS-001-P08	CGLUS-001-P08	KNLUS-001-P08	LUANS-001-P08
		SSWQO[a]	CWQG[b]		22-Jun-08	21-Jun-08		20-Jun-08	19-Jun-08	18-Jun-08	18-Jun-08	23-Jun-08	23-Jun-08	22-Jun-08	23-Jun-08	22-Jun-08
Uranium	µg/L	15	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.2	<0.1
Vanadium	mg/L	-	-	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001
Zinc	mg/L	0.03	0.03	0.0005	0.0032	0.0029	0.0029	0.0071	0.0053	0.0036	0.0052	0.0031	0.0059	0.0029	0.0064	0.0021
Dissolved Metals																
Aluminum	mg/L	-	-	0.0005	0.0770	0.0660	0.0690	0.0160	0.0130	0.0170	0.0180	0.0260	0.0270	0.0230	0.0550	0.0360
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	-	-	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	<0.1	0.1	<0.1
Barium	mg/L	-	-	0.0005	0.0540	0.0610	0.0600	0.0500	0.0240	0.0440	0.0410	0.0210	0.0230	0.0210	0.0490	0.0310
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	-	-	0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Chromium	mg/L	-	-	0.0005	0.0007	0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	<0.0005	0.0032	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	-	-	0.0002	0.0015	0.0016	0.0018	0.0007	0.0005	0.0006	0.0007	0.0008	0.0008	0.0005	0.0013	0.0007
Iron	mg/L	-	-	0.0005	0.0940	0.1100	0.0900	0.0680	0.0630	0.0670	0.0780	0.0450	0.0560	0.0460	0.0680	0.0520
Lead	mg/L	-	-	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Manganese	mg/L	-	-	0.0005	0.0023	0.0026	0.0024	0.0098	0.0130	0.0110	0.0110	0.0055	0.0024	0.0100	0.0028	0.0054
Molybdenum	mg/L	-	-	0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Nickel	mg/L	-	-	0.0001	0.0013	0.0010	0.0011	0.0005	0.0003	0.0004	0.0004	0.0005	0.0007	0.0003	0.0007	0.0004
Selenium	mg/L	-	-	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0002	<0.0001	0.0001	0.0001	<0.0001	0.0001
Silver	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.0130	0.0200	0.0190	0.0160	0.0100	0.0150	0.0150	0.0150	0.0150	0.0110	0.0380	0.0230
Thallium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	0.0001	0.0002	<0.0001	0.0003	0.0004	0.0005	0.0011	0.0001	0.0001	0.0001	0.0001	0.0001
Titanium	mg/L	-	-	0.0002	0.0003	0.0003	0.0003	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	0.0003	<0.0002	0.0003	<0.0002
Uranium	µg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	<0.1
Vanadium	mg/L	-	-	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	mg/L	-	-	0.0005	0.0089	0.0080	0.0081	0.0058	0.0077	0.0056	0.0032	0.0027	0.0044	0.0040	0.0045	0.0036
Radionuclides																
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polonium-210	Bq/L	-	-	0.005	<0.005	0.008	<0.005	0.010	0.030	0.010	0.020	0.009	0.008	0.020	0.010	0.009
Radium-226	Bq/L	-	-	0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	0.007	<0.005	<0.005	0.006	<0.005
Thorium-228	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	0.01	0.01	<0.01	<0.01	<0.01
Thorium-230	Bq/L	-	-	0.01	0.03	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Table X.II-6
Water Chemistry Data for Streams in the Kiggavik Project Area, Spring 2008

Parameter	Units	Guidelines		DL	Lower Lake Sub-Basin				Caribou Lake Sub-Basin						QA/QC	
					Andrew/Shack Stream	Shack/Lower Stream		Lower/Judge Sissons Stream	Ridge/Crash Stream	Cirque/Crash Stream	Crash/Fox Stream	Fox/Caribou Stream	Caribou/Calf Stream	Calf/Judge Sissons Stream	Field Blank	Trip Blank
					ANSHS-001-P08	SHLWS-001-P08	SHLWS-001-P08 (DUP 1-P08)	LWJSS-001-P08	RDCRS-001-P08	CQCRS-001-P08	CRFXS-001-P08	FXCBS-001-P08	CBCFS-001-P08	CFJSS-001-P08	FIELD BLANK-P08	TRIP BLANK-P08
		SSWQO[a]	CWQG[b]		22-Jun-08	20-Jun-08		18-Jun-08	24-Jun-08	24-Jun-08	24-Jun-08	24-Jun-08	24-Jun-08	24-Jun-08	---	---
Conventional Parameters (Field-Measured)																
Water Temperature	ºC	-	-	-	7.86	5.71	5.71	6.38	9.98	5.20	12.16	6.00	7.02	8.20	-	-
pH	pH Unit	-	6.5-9.0	-	7.21	7.47	7.47	7.20	7.45	6.93	7.06	6.83	7.59	7.36	-	-
Conventional Parameters (Laboratory-Measured)																
pH	pH Unit	-	6.5-9.0	0.07	6.95	6.93	6.94	6.97	6.72	6.62	6.84	6.84	6.79	6.82	6.18	5.63
Specific Conductivity	µS/cm	-	-	1	17	16	16	16	16	14	17	19	18	19	<1	<1
Total Alkalinity	mg $CaCO_3$/L	-	-	1	7	4	5	5	4	4	3	7	5	7	2	<1
Total Hardness	mg $CaCO_3$/L	-	-	1	8	7	7	7	7	6	8	9	8	8	<1	<1
Total Dissolved Solids	mg/L	-	-	1	16	17	18	11	14	18	19	20	19	17	<1	3
Total Suspended Solids	mg/L	-	-	1	2	2	2	2	<1	2	2	1	2	2	1	<1
Turbidity	NTU	-	-	0.1	0.5	0.8	0.5	0.4	1	0.6	0.5	0.8	0.5	0.5	0.3	0.1
Nutrients																
Ammonia as Nitrogen	mg N/L	2.68 [c]	2.68 [c]	0.01	0.02	<0.01	<0.01	0.08	0.08	0.04	0.02	0.06	0.04	0.04	<0.01	0.02
Nitrate	mg N/L	-	13	0.04	0.04	0.04	0.09	0.04	0.09	0.09	0.04	0.04	0.04	0.09	0.09	0.04
Nitrate and Nitrite as Nitrogen	mg N/L	-	-	0.01	0.01	0.01	0.02	0.01	0.02 [b]	0.02 [b]	0.01 [b]	0.01 [b]	0.01 [b]	0.02 [b]	0.02	0.01 [b]
Total Kjeldahl Nitrogen	mg N/L	-	-	0.05	0.4	0.35	0.36	0.34	0.26	0.29	0.32	0.33	0.3	0.34	0.05	<0.05
Total Nitrogen	mg/L	-	-	0.05	0.41	0.36	0.38	0.35	0.28	0.31	0.33	0.34	0.31	0.36	0.07	<0.05
Total Phosphorus	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Dissolved Phosphorus	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.04	<0.01	-	0.01
Total Carbon	mg/L	-	-	1	9	7	13	6	7	6	5	7	6	7	<1	<1
Inorganic Carbon	mg/L	-	-	1	2	1	7	1	1	1	1	2	1	2	<1	<1
Total Organic Carbon	mg/L	-	-	0.2	7.3	5.7	5.7	5.4	5.7	5.2	4.6	5.4	5	5.1	<0.2	0.3
Dissolved Organic Carbon	mg/L	-	-	0.2	7.1	5.9	5.9	5.5	4.2	5	4.6	5.5	5.1	5.1	-	0.5
Major Ions																
Bicarbonate	mg/L	-	-	1	9	5	6	6	5	5	4	9	6	9	2	<1
Calcium	mg/L	-	-	1	2	1.8	1.7	1.8	1.6	1.4	1.9	2.1	1.9	2.1	<0.1	<0.1
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	-	0.1	0.4	0.5	0.5	0.5	0.3	0.4	0.3	0.4	0.4	0.4	<0.1	<0.1
Fluoride	mg/L	-	-	0.01	0.08	0.11	0.1	0.08	<0.01	0.014	0.01	<0.01	<0.01	<0.01	0.02	<0.01
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	0.7	0.6	0.6	0.6	0.7	0.6	0.8	0.8	0.7	0.7	<0.1	<0.1
Potassium	mg/L	-	-	0.1	0.2	0.2	0.3	0.3	0.1	0.6	0.5	0.2	0.4	0.2	<0.1	0.2
Sodium	mg/L	-	-	0.1	0.4	0.2	0.3	0.2	<0.1	1.1	0.8	<0.1	<0.1	<0.1	<0.1	<0.1
Sulphate	mg/L	-	-	0.2	0.4	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.7	0.6	<0.2	<0.2
Sum of Ions	mg/L	-	-	1	13	9	10	10	8	10	9	13	10	13	2	2
Total Metals																
Aluminum	mg/L	0.005-0.1 [d]	0.005-0.1 [d]	0.0005	0.0360	0.0300	0.0310	0.0250	0.0300	0.0380	0.0330	0.0340	0.0210	0.0190	<0.0005	0.0009
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.1	0.1	0.1	0.1	<0.1	<0.1
Barium	mg/L	-	-	0.0005	0.0260	0.0230	0.0240	0.0190	0.0520	0.0560	0.0440	0.0450	0.0290	0.0290	<0.0005	<0.0005
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.000017 [e]	0.000017 [e]	0.0001	*<0.0001*	**0.0001**	*<0.0001*	**0.0001**	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*
Chromium	mg/L	-	0.0010/0.0089 [f]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.002 [g]	0.002 [g]	0.0002	0.0007	0.0006	0.0006	0.0006	0.0005	0.0007	0.0006	0.0006	0.0006	0.0006	0.0003	0.0003
Iron	mg/L	0.3	0.3	0.0005	0.0580	0.0630	0.0640	0.0680	0.0560	0.0990	0.0670	0.0830	0.0680	0.0740	0.0006	0.0008
Lead	mg/L	0.001 [h]	0.001 [h]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0001
Manganese	mg/L	-	-	0.0005	0.0018	0.0047	0.0048	0.0029	0.0075	0.0190	0.0021	0.0041	0.0050	0.0036	<0.0005	<0.0005
Mercury	µg/L	0.026 [i]	0.026 [j]	0.05	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*
Molybdenum	mg/L	-	0.073	0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Nickel	mg/L	0.025 [k]	0.025 [k]	0.0001	0.0006	0.0004	0.0005	0.0004	0.0006	0.0007	0.0007	0.0007	0.0006	0.0005	0.0001	<0.0001
Selenium	mg/L	0.001 [l]	0.001 [l]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Silver	mg/L	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.0150	0.0160	0.0160	0.0140	0.0120	0.0120	0.0110	0.0140	0.0110	0.0100	<0.0005	<0.0005
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	mg/L	-	-	0.0002	0.0002	0.0002	0.0003	0.0002	0.0003	0.0002	0.0002	0.0003	0.0002	0.0002	<0.0002	<0.0002

Table X.II-6
Water Chemistry Data for Streams in the Kiggavik Project Area, Spring 2008

Parameter	Units	Guidelines		DL	Lower Lake Sub-Basin				Caribou Lake Sub-Basin						QA/QC	
					Andrew/Shack Stream	Shack/Lower Stream		Lower/Judge Sissons Stream	Ridge/Crash Stream	Cirque/Crash Stream	Crash/Fox Stream	Fox/Caribou Stream	Caribou/Calf Stream	Calf/Judge Sissons Stream	Field Blank	Trip Blank
					ANSHS-001-P08	SHLWS-001-P08	SHLWS-001-P08 (DUP 1-P08)	LWJSS-001-P08	RDCRS-001-P08	CQCRS-001-P08	CRFXS-001-P08	FXCBS-001-P08	CBCFS-001-P08	CFJSS-001-P08	FIELD BLANK-P08	TRIP BLANK-P08
		SSWQO[a]	CWQG[b]		22-Jun-08	20-Jun-08		18-Jun-08	24-Jun-08	24-Jun-08	24-Jun-08	24-Jun-08	24-Jun-08	24-Jun-08	---	---
Uranium	µg/L	15	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001
Zinc	mg/L	0.03	0.03	0.0005	0.0032	0.0011	0.0037	0.0012	0.0029	0.0017	0.0028	0.0014	0.0010	0.0018	0.0019	0.0036
Dissolved Metals																
Aluminum	mg/L	-	-	0.0005	0.0330	0.0250	0.0250	0.0190	0.0200	0.0320	0.0270	0.0190	0.0160	0.0140	-	<0.0005
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002
Arsenic	µg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	<0.1
Barium	mg/L	-	-	0.0005	0.0260	0.0230	0.0230	0.0190	0.0490	0.0540	0.0440	0.0440	0.0290	0.0280	-	<0.0005
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
Cadmium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Chromium	mg/L	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	0.0010
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Copper	mg/L	-	-	0.0002	0.0007	0.0006	0.0006	0.0006	0.0007	0.0008	0.0007	0.0007	0.0008	0.0007	-	0.0003
Iron	mg/L	-	-	0.0005	0.0490	0.0470	0.0480	0.0540	0.0390	0.0530	0.0540	0.0550	0.0460	0.0460	-	0.0007
Lead	mg/L	-	-	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	0.0001
Manganese	mg/L	-	-	0.0005	0.0016	0.0044	0.0045	0.0026	0.0069	0.0160	0.0026	0.0041	0.0049	0.0035	-	<0.0005
Molybdenum	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Nickel	mg/L	-	-	0.0001	0.0006	0.0004	0.0005	0.0004	0.0006	0.0007	0.0007	0.0006	0.0006	0.0005	-	<0.0001
Selenium	mg/L	-	-	0.0001	0.0001	0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Silver	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Strontium	mg/L	-	-	0.0005	0.0150	0.0160	0.0160	0.0140	0.0120	0.0120	0.0110	0.0140	0.0110	0.0100	-	<0.0005
Thallium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002
Tin	mg/L	-	-	0.0001	0.0012	0.0001	0.0001	0.0002	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Titanium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002
Uranium	µg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1
Vanadium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
Zinc	mg/L	-	-	0.0005	0.0049	0.0024	0.0028	0.0043	0.0036	0.0034	0.0033	0.0025	0.0022	0.0039	-	0.0041
Radionuclides																
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polonium-210	Bq/L	-	-	0.005	<0.005	0.007	0.010	0.008	0.030	0.010	<0.005	<0.005	0.020	0.010	<0.005	<0.006
Radium-226	Bq/L	-	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005
Thorium-228	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-230	Bq/L	-	-	0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
Thorium-232	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Notes: Values that are equal to or exceed the SSWQO are bolded. Values that are equal to or exceed the CWQG are underlined. Non-detect values that are higher than one or more guideline are italized.

[a] = Saskatchewan Environment's (2006) Saskatchewan Surface Water Quality Objectives (SSWQO).

[b] = Canadian Council of Ministers of the Environment's (CCME) Canadian water quality guidelines (CWQG) for the protection of aquatic life - freshwater (CCME 2007).

[c] = The guidelines for ammonia are dependent on temperature and pH; therefore, the guideline for each station was calculated and the lowest overall value was used for screening.

[d] = The guidelines for aluminum are pH-dependent; the guideline is 0.005 mg/L at pH<6.5; 0.1 mg/L at pH≥6.5. Field pH values were used in the screening.

[e] = The guidelines for cadmium are hardness-dependent; at hardnesses ranging from 0 to 48.5 mg/L as $CaCO_3$, the guideline is 0.000017 mg/L.

[f] = The guideline for chromium is speciation-dependent; the guideline is 0.0089 mg/L for trivalent chromium and 0.0010 mg/L for hexavalent chromium.

[g] = The guidelines for copper are hardness-dependent; at hardnesses ranging from 0 to 120 mg/L as $CaCO_3$, the guideline is 0.002 mg/L.

[h] = The guidelines for lead are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.001 mg/L.

[i] = Mercury objective is for inorganic mercury only.

[j] = Mercury guidelines differ depending on mercury type: inorganic mercury = 0.026 µg/L; methylmercury = 0.004 µg/L.

[k] = The guidelines for nickel are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.025 mg/L.

[l] = Selenium guideline is based on waterborne exposure. However, selenium has a bioaccumulation pathway similar to mercury; therefore, the guideline may not be protective of effects through reproductive impairment due to maternal transfer, resulting in embryotoxicity and teratogenicity (Chapman et al. 2009).

DL = detection limit; QA/QC = quality assurance/quality control; ºC = degrees Celsius; mg/L = milligrams per litre; mg $CaCO_3$/L = milligrams of calcium carbonate per litre; µg/L = micrograms per litre; µS/cm = microSiemens per centimetre; NTU = Nephelometric Turbidity Unit; Bq/L = Becquerels per litre; < = less than; - = not applicable or not collected; Jun = June.

Table X.II-7
Water Chemistry Data for Streams in the Kiggavik Project Area, Fall 2008

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin							Lower Lake Sub-Basin				
					Northeast Inflow of Pointer Lake	Northwest Inflow of Pointer Lake		Pointer/ Rock Stream	Sik Sik/ Rock Stream	Rock/ Willow Stream	Willow/Judge Sissons Stream	Mushroom/End Grid Stream		End Grid/ Shack Stream	Cigar/ Lunch Stream	Knee/ Lunch Stream
					NEPLS-002-F08	NWPLS-002-F08	NWPLS-002-F08 (DUP 6-F08)	PRROS-002-F08	SSROS-002-F08	ROWIS-002-F08	WIJSS-002-F08	MSEGS-002-F08	MSEGS-002-F08 (DUP 4-F08)	EGSHS-002-F08	CGLUS-002-F08	KNLUS-002-F08
		SSWQO[a]	CWQG[b]		29-Aug-08	30-Aug-08		30-Aug-08	30-Aug-08	30-Aug-08	30-Aug-08	29-Aug-08		29-Aug-08	28-Aug-08	28-Aug-08
Conventional Parameters (Field-Measured)																
Water Temperature	°C	-	-	-	7.04	5.56	5.56	6.83	6.24	6.87	7.29	5.97	5.97	5.76	6.96	6.87
pH	pH Unit	-	6.5-9.0	-	6.64	6.62	6.62	6.72	6.64	6.34	7.07	6.92	6.92	6.96	7.26	7.14
Conventional Parameters (Laboratory-Measured)																
pH	pH Unit	-	6.5-9.0	0.07	6.90	7.09	7.05	6.88	7.39	7.14	7.09	7.13	7.14	7.36	7.30	7.51
Specific Conductivity	µS/cm	-	-	1	40	26	26	15	46	23	20	28	28	34	33	46
Total Alkalinity	mg $CaCO_3$/L	-	-	1	5	10	9	7	20	10	8	10	10	13	13	22
Total Hardness	mg $CaCO_3$/L	-	-	1	16	12	12	6	23	11	9	13	13	16	15	22
Total Dissolved Solids	mg/L	-	-	1	41	31	33	17	60	26	21	34	33	36	33	41
Total Suspended Solids	mg/L	-	-	1	<1	<1	<1	1	1	2	1	<1	<1	<1	<1	7
Turbidity	NTU	-	-	0.1	0.7	1.0	0.9	1.2	1.6	3.0	1.8	0.9	1.1	1.6	1.1	6.6
Nutrients																
Ammonia as Nitrogen	mg N/L	5.74 [c]	5.74 [c]	0.01	0.05	0.06	0.02	<0.01	0.02	0.04	0.03	0.04	0.01	0.03	0.07	0.07
Nitrate	mg N/L	-	13	[d]	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Nitrate and Nitrite as Nitrogen	mg N/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Kjeldahl Nitrogen	mg N/L	-	-	0.05	0.41	0.43	0.40	0.35	0.68	0.38	0.40	0.38	0.34	0.36	0.38	0.43
Total Nitrogen	mg/L	-	-	0.05	0.41	0.43	0.40	0.35	0.68	0.38	0.40	0.38	0.34	0.36	0.38	0.43
Total Phosphorus	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.02
Dissolved Phosphorus	mg/L	-	-	0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	0.02
Total Carbon	mg/L	-	-	1	10	12	12	7	23	10	8	11	11	12	10	12
Inorganic Carbon	mg/L	-	-	1	1	2	2	2	5	2	2	2	2	3	3	6
Total Organic Carbon	mg/L	-	-	0.2	8.7	9.4	9.9	4.7	18	7.4	5.6	8.4	8.8	8.2	6.9	7.5
Dissolved Organic Carbon	mg/L	-	-	0.2	10	9.6	9.5	4.4	18	6.8	5.6	9	8.8	8.4	6.5	6.5
Major Ions																
Bicarbonate	mg/L	-	-	1	6	12	11	9	24	12	10	12	12	16	16	27
Calcium	mg/L	-	-	0.1	4.1	3.0	3.0	1.6	5.8	2.6	2.3	3.3	3.3	4.2	4.1	5.9
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	-	0.1	2.1	0.3	0.3	0.3	0.8	0.4	0.4	0.7	0.7	0.6	0.4	0.5
Fluoride	mg/L	-	-	0.01	0.11	0.04	0.05	0.03	0.05	0.04	0.04	0.07	0.09	0.11	0.19	0.39
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	1.5	1.2	1.2	0.6	2.1	1.0	0.8	1.2	1.2	1.4	1.1	1.7
Potassium	mg/L	-	-	0.1	0.5	0.4	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.4
Sodium	mg/L	-	-	0.1	0.7	0.5	0.5	0.3	0.8	0.4	0.4	0.5	0.5	0.6	0.5	0.7
Sulphate	mg/L	-	-	0.2	6.9	2.2	2.2	0.5	1.8	1.0	0.9	1.3	1.3	0.8	1.4	1.1
Sum of Ions	mg/L	-	-	1	22	20	19	13	36	18	15	19	19	24	24	37
Total Metals																
Aluminum	mg/L	0.005-0.1 [e]	0.005-0.1 [e]	0.0005	0.0790	0.0570	0.0570	0.0230	0.0560	**0.0510**	0.0350	0.0560	0.0560	0.0230	0.0670	0.0570
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2
Barium	mg/L	-	-	0.0005	0.0860	0.0690	0.0680	0.0380	0.0820	0.0600	0.0480	0.0270	0.0270	0.0330	0.0630	0.0960
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.000017 [f]	0.000017 [f]	0.0001	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*
Chromium	mg/L	-	0.0010/0.0089 [g]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Copper	mg/L	0.002 [h]	0.002 [h]	0.0002	**0.0031**	0.0015	0.0015	0.0007	0.0011	0.0008	0.0008	0.0010	0.0010	0.0006	0.0014	0.0015
Iron	mg/L	0.3	0.3	0.0005	0.0480	0.1400	0.1400	0.0550	**0.4200**	0.2100	0.1100	0.1600	0.1500	0.2600	0.2100	**0.3000**
Lead	mg/L	0.001 [i]	0.001 [i]	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0002
Manganese	mg/L	-	-	0.0005	0.0031	0.0018	0.0018	0.0037	0.0057	0.0043	0.0044	0.0043	0.0057	0.0076	0.0094	0.0059
Mercury	µg/L	0.026 [j]	0.026 [k]	0.05	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*
Molybdenum	mg/L	-	0.073	0.0001	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0003
Nickel	mg/L	0.025 [l]	0.025 [l]	0.0001	0.0013	0.0011	0.0010	0.0004	0.0010	0.0005	0.0005	0.0008	0.0008	0.0006	0.0005	0.0006
Selenium	mg/L	0.001 [m]	0.001 [m]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Silver	mg/L	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.0290	0.0200	0.0200	0.0130	0.0370	0.0220	0.0190	0.0200	0.0200	0.0200	0.0870	0.0900

Table X.II-7
Water Chemistry Data for Streams in the Kiggavik Project Area, Fall 2008

Parameter	Units	Guidelines		DL	Willow Lake Sub-Basin							Lower Lake Sub-Basin				
					Northeast Inflow of Pointer Lake	Northwest Inflow of Pointer Lake		Pointer/ Rock Stream	Sik Sik/ Rock Stream	Rock/ Willow Stream	Willow/Judge Sissons Stream	Mushroom/End Grid Stream		End Grid/ Shack Stream	Cigar/ Lunch Stream	Knee/ Lunch Stream
					NEPLS-002-F08	NWPLS-002-F08	NWPLS-002-F08 (DUP 6-F08)	PRROS-002-F08	SSROS-002-F08	ROWIS-002-F08	WIJSS-002-F08	MSEGS-002-F08	MSEGS-002-F08 (DUP 4-F08)	EGSHS-002-F08	CGLUS-002-F08	KNLUS-002-F08
		SSWQO[a]	CWQG[b]		29-Aug-08	30-Aug-08		30-Aug-08	30-Aug-08	30-Aug-08	30-Aug-08	29-Aug-08		29-Aug-08	28-Aug-08	28-Aug-08
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Titanium	mg/L	-	-	0.0002	0.0008	0.0006	0.0007	0.0002	0.0005	0.0008	0.0007	0.0005	0.0006	0.0006	0.0008	0.0029
Uranium	µg/L	15	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.2
Vanadium	mg/L	-	-	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
Zinc	mg/L	0.03	0.03	0.0005	0.0087	0.0072	0.0100	0.0013	0.0046	0.0033	0.0078	0.0037	0.0086	0.0035	0.0040	0.0039
Dissolved Metals																
Aluminum	mg/L	-	-	0.0005	0.0610	0.0410	0.0400	0.0140	0.0520	0.0210	0.0130	0.0370	0.0350	0.0100	0.0410	0.0056
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	-	-	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	<0.1	0.1
Barium	mg/L	-	-	0.0005	0.0820	0.0670	0.0670	0.0360	0.0850	0.0590	0.0440	0.0270	0.0250	0.0320	0.0610	0.0930
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	0.0005	<0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001
Copper	mg/L	-	-	0.0002	0.0031	0.0015	0.0016	0.0008	0.0013	0.0008	0.0008	0.0011	0.0010	0.0006	0.0015	0.0013
Iron	mg/L	-	-	0.0005	0.0340	0.0950	0.0960	0.0190	0.3000	0.0810	0.0350	0.1200	0.1100	0.1400	0.1300	0.0580
Lead	mg/L	-	-	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001
Manganese	mg/L	-	-	0.0005	0.0013	0.0012	0.0032	0.0015	0.0048	0.0027	0.0024	0.0034	0.0031	0.0067	0.0048	0.0027
Molybdenum	mg/L	-	-	0.0001	0.0002	0.0001	0.0002	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
Nickel	mg/L	-	-	0.0001	0.0012	0.0011	0.0010	0.0004	0.0011	0.0005	0.0004	0.0008	0.0007	0.0007	0.0005	0.0006
Selenium	mg/L	-	-	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0002	0.0001	0.0001	<0.0001
Silver	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.0280	0.0200	0.0210	0.0120	0.0380	0.0220	0.0180	0.0200	0.0180	0.0200	0.0850	0.0910
Thallium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0001	<0.0001	0.0001	0.0002	0.0001	0.0003	0.0005
Titanium	mg/L	-	-	0.0002	0.0004	0.0003	0.0003	<0.0002	0.0005	0.0002	<0.0002	0.0004	0.0003	0.0002	0.0003	<0.0002
Uranium	µg/L	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.1
Vanadium	mg/L	-	-	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Zinc	mg/L	-	-	0.0005	0.0054	0.0047	0.0044	0.0043	0.0045	0.0042	0.0030	0.0023	0.0063	0.0035	0.0047	0.0039
Radionuclides																
Lead-210	Bq/L	-	-	0.02	<0.02	0.03	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polonium-210	Bq/L	-	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	0.007
Radium-226	Bq/L	-	-	0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	0.010	0.009
Thorium-228	Bq/L	-	-	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Thorium-230	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Table X.II-7
Water Chemistry Data for Streams in the Kiggavik Project Area, Fall 2008

Parameter	Units	Guidelines		DL	Lower Lake Sub-Basin				Caribou Lake Sub-Basin						QA/QC	
					Lunch/ Andrew Stream	Andrew/ Shack Stream	Shack/ Lower Stream	Lower/Judge Sissons Stream	Ridge/ Crash Stream	Cirque/ Crash Stream	Crash/ Fox Stream	Fox/ Caribou Stream	Caribou/ Calf Stream	Calf/Judge Sissons Stream	Field Blank	Trip Blank
					LUANS-002-F08	ANSHS-002-F08	SHLWS-002-F08	LWJSS-002-F08	RDCRS-002-F08	CQCRS-002-F08	CRFXS-002-F08	FXCBS-002-F08	CBCFS-002-F08	CFJSS-002-F08	FIELD BLANK-F08	TRIP BLANK-F08
		SSWQO[a]	CWQG[b]		28-Aug-08	28-Aug-08	29-Aug-08	29-Aug-08	31-Aug-08	31-Aug-08	31-Aug-08	31-Aug-08	31-Aug-08	31-Aug-08	---	---
Conventional Parameters (Field-Measured)																
Water Temperature	ºC	-	-	-	7.2	7.4	6.44	7.37	9.42	8.61	7.31	8.14	6.95	6.36	-	-
pH	pH Unit	-	6.5-9.0	-	7.10	6.94	7.03	6.93	6.80	6.60	6.83	6.90	6.84	6.84	-	-
Conventional Parameters (Laboratory-Measured)																
pH	pH Unit	-	6.5-9.0	0.07	7.32	7.19	7.28	7.27	6.83	6.43	7.00	6.73	6.98	6.90	5.54	4.68
Specific Conductivity	µS/cm	-	-	1	39	33	34	36	21	15	26	17	21	25	<1	<1
Total Alkalinity	mg $CaCO_3$/L	-	-	1	11	11	14	12	10	6	16	9	7	11	2	<1
Total Hardness	mg $CaCO_3$/L	-	-	1	17	15	16	18	10	7	12	8	10	11	<1	<1
Total Dissolved Solids	mg/L	-	-	1	33	17	36	42	24	23	29	20	20	24	1	<1
Total Suspended Solids	mg/L	-	-	1	3	8	3	2	1	3	1	2	<1	2	<1	<1
Turbidity	NTU	-	-	0.1	2.1	3.7	2.0	2.0	3.0	6.2	1.2	0.8	1.1	2.4	0.1	<0.1
Nutrients																
Ammonia as Nitrogen	mg N/L	5.74 [c]	5.74 [c]	0.01	0.03	0.02	0.07	0.06	0.05	0.04	0.04	<0.01	0.03	0.1	0.04	<0.01
Nitrate	mg N/L	-	13	[d]	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Nitrate and Nitrite as Nitrogen	mg N/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
Total Kjeldahl Nitrogen	mg N/L	-	-	0.05	0.34	0.53	0.49	0.57	0.23	0.30	0.39	0.30	0.39	0.39	0.11	<0.05
Total Nitrogen	mg/L	-	-	0.05	0.34	0.53	0.49	0.57	0.23	0.30	0.39	0.30	0.40	0.39	0.11	<0.05
Total Phosphorus	mg/L	-	-	0.01	<0.01	<0.01	<0.01	0.03	0.02	0.03	<0.01	<0.01	<0.01	0.03	0.03	0.04
Dissolved Phosphorus	mg/L	-	-	0.01	<0.01	0.02	<0.01	0.02	0.03	0.02	0.01	<0.01	<0.01	0.06	-	-
Total Carbon	mg/L	-	-	1	10	11	12	15	7	6	11	6	6	8	<1	<1
Inorganic Carbon	mg/L	-	-	1	3	3	4	3	3	2	4	2	2	3	<1	<1
Total Organic Carbon	mg/L	-	-	0.2	7.3	8.1	8.3	12	4.7	4.5	7	3.8	4	5.5	0.2	0.4
Dissolved Organic Carbon	mg/L	-	-	0.2	6.9	8.7	8.8	13	3.3	3.4	5.2	2.7	4.5	6.2	-	-
Major Ions																
Bicarbonate	mg/L	-	-	1	13	13	17	15	12	7	20	11	9	13	2	<1
Calcium	mg/L	-	-	0.1	4.4	3.9	4.1	4.6	2.4	1.6	3.0	1.9	2.5	2.8	<0.1	<0.1
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	-	0.1	3.0	1.7	1.5	1.0	0.3	0.3	0.3	0.3	0.4	0.4	<0.1	<0.1
Fluoride	mg/L	-	-	0.01	0.23	0.39	0.19	0.14	0.03	0.02	0.03	0.03	0.02	0.03	<0.01	<0.01
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	1.4	1.3	1.3	1.5	1.0	0.7	1.2	0.7	0.8	1.0	<0.1	<0.1
Potassium	mg/L	-	-	0.1	0.3	0.3	0.3	0.4	0.5	0.3	0.3	0.2	0.4	0.3	<0.1	<0.1
Sodium	mg/L	-	-	0.1	0.6	0.6	0.6	0.6	0.4	0.3	0.5	0.3	0.4	0.4	<0.1	<0.1
Sulphate	mg/L	-	-	0.2	0.7	0.7	0.9	1.6	0.7	0.7	1.1	0.3	0.7	0.8	<0.2	<0.2
Sum of Ions	mg/L	-	-	1	23	22	26	25	17	11	26	15	14	19	2	<1
Total Metals																
Aluminum	mg/L	0.005-0.1 [e]	0.005-0.1 [e]	0.0005	0.0230	0.0480	0.0260	0.0480	0.0880	**0.1900**	0.0380	0.0120	0.0160	0.0380	<0.0005	0.0007
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	<0.1	<0.1
Barium	mg/L	-	-	0.0005	0.0610	0.0540	0.0450	0.0410	0.0600	0.0500	0.0640	0.0350	0.0280	0.0370	<0.0005	<0.0005
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.000017 [f]	0.000017 [f]	0.0001	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*
Chromium	mg/L	-	0.0010/0.0089 [g]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0520	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001
Copper	mg/L	0.002 [h]	0.002 [h]	0.0002	0.0010	0.0012	0.0009	0.0014	0.0011	0.0013	0.0010	0.0006	0.0010	0.0009	0.0002	0.0002
Iron	mg/L	0.3	0.3	0.0005	0.2100	**0.4000**	0.1500	0.1500	0.0780	0.1800	0.1400	0.0450	0.0460	0.1900	0.0009	0.0016
Lead	mg/L	0.001 [i]	0.001 [i]	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001
Manganese	mg/L	-	-	0.0005	0.0044	0.0130	0.0046	0.0046	0.0029	0.0084	0.0022	0.0020	0.0025	0.0092	<0.0005	<0.0005
Mercury	µg/L	0.026 [j]	0.026 [k]	0.05	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*
Molybdenum	mg/L	-	0.073	0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0002	0.0001	<0.0001	0.0001	<0.0001	0.0002	0.0001
Nickel	mg/L	0.025 [l]	0.025 [l]	0.0001	0.0004	0.0006	0.0006	0.0011	0.0007	0.0008	0.0009	0.0004	0.0004	0.0006	<0.0001	<0.0001
Selenium	mg/L	0.001 [m]	0.001 [m]	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Silver	mg/L	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	0.0005	0.0660	0.0470	0.0390	0.0320	0.0170	0.0130	0.0190	0.0130	0.0130	0.0150	<0.0005	<0.0005

Table X.II-7
Water Chemistry Data for Streams in the Kiggavik Project Area, Fall 2008

Parameter	Units	Guidelines		DL	Lower Lake Sub-Basin				Caribou Lake Sub-Basin						QA/QC	
					Lunch/ Andrew Stream	Andrew/ Shack Stream	Shack/ Lower Stream	Lower/Judge Sissons Stream	Ridge/ Crash Stream	Cirque/ Crash Stream	Crash/ Fox Stream	Fox/ Caribou Stream	Caribou/ Calf Stream	Calf/Judge Sissons Stream	Field Blank	Trip Blank
					LUANS-002-F08	ANSHS-002-F08	SHLWS-002-F08	LWJSS-002-F08	RDCRS-002-F08	CQCRS-002-F08	CRFXS-002-F08	FXCBS-002-F08	CBCFS-002-F08	CFJSS-002-F08	FIELD BLANK-F08	TRIP BLANK-F08
		SSWQO[a]	CWQG[b]		28-Aug-08	28-Aug-08	29-Aug-08	29-Aug-08	31-Aug-08	31-Aug-08	31-Aug-08	31-Aug-08	31-Aug-08	31-Aug-08	---	---
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Titanium	mg/L	-	-	0.0002	0.0004	0.0009	0.0003	0.0005	0.0011	0.0028	0.0004	0.0002	0.0003	0.0004	<0.0002	<0.0002
Uranium	µg/L	15	-	0.1	0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001
Zinc	mg/L	0.03	0.03	0.0005	0.0034	0.0051	0.0020	0.0035	0.0059	0.0033	0.0025	0.0042	0.0014	0.0084	0.0043	0.0042
Dissolved Metals																
Aluminum	mg/L	-	-	0.0005	0.0110	0.0150	0.0150	0.0400	0.0380	0.1100	0.0240	0.0072	0.0080	0.0180	-	-
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	-
Arsenic	µg/L	-	-	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	-
Barium	mg/L	-	-	0.0005	0.0650	0.0470	0.0420	0.0430	0.0590	0.0470	0.0640	0.0350	0.0280	0.0360	-	-
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Boron	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
Cadmium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Chromium	mg/L	-	-	0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-
Cobalt	mg/L	-	-	0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	0.0001	-	-
Copper	mg/L	-	-	0.0002	0.0011	0.0010	0.0009	0.0016	0.0010	0.0013	0.0010	0.0006	0.0010	0.0009	-	-
Iron	mg/L	-	-	0.0005	0.0900	0.1100	0.0640	0.0930	0.0340	0.0960	0.0880	0.0200	0.0200	0.0890	-	-
Lead	mg/L	-	-	0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Manganese	mg/L	-	-	0.0005	0.0038	0.0086	0.0037	0.0043	0.0012	0.0043	0.0014	0.0012	0.0010	0.0064	-	-
Molybdenum	mg/L	-	-	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Nickel	mg/L	-	-	0.0001	0.0005	0.0005	0.0006	0.0012	0.0006	0.0008	0.0009	0.0004	0.0004	0.0006	-	-
Selenium	mg/L	-	-	0.0001	<0.0001	<0.0001	0.0002	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0003	-	-
Silver	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Strontium	mg/L	-	-	0.0005	0.0710	0.0430	0.0380	0.0350	0.0160	0.0130	0.0190	0.0130	0.0130	0.0150	-	-
Thallium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	-
Tin	mg/L	-	-	0.0001	0.0003	0.0003	0.0001	0.0001	0.0001	0.0003	0.0001	0.0220	0.0007	0.0260	-	-
Titanium	mg/L	-	-	0.0002	0.0002	0.0002	<0.0002	0.0003	0.0004	0.0013	0.0003	<0.0002	<0.0002	0.0002	-	-
Uranium	µg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-
Vanadium	mg/L	-	-	0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	-	-
Zinc	mg/L	-	-	0.0005	0.0110	0.0058	0.0064	0.0071	0.0080	0.0097	0.0017	0.0039	0.0035	0.0063	-	-
Radionuclides																
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polonium-210	Bq/L	-	-	0.005	0.006	0.010	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226	Bq/L	-	-	0.005	<0.005	0.007	0.005	<0.005	<0.005	0.005	0.008	0.006	0.006	0.005	0.005	<0.005
Thorium-228	Bq/L	-	-	0.01	<0.01	0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-230	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium-232	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Notes: Values that are equal to or exceed the SSWQO are bolded. Values that are equal to or exceed the CWQG are underlined. Non-detect values that are higher than one or more guideline are italized.

[a] = Saskatchewan Environment's (2006) Saskatchewan Surface Water Quality Objectives (SSWQO).

[b] = Canadian Council of Ministers of the Environment's (CCME) Canadian water quality guidelines (CWQG) for the protection of aquatic life - freshwater (CCME 2007).

[c] = The guidelines for ammonia are dependent on temperature and pH; therefore, the guideline for each station was calculated and the lowest overall value was used for screening.

[d] = Nitrate values were calculated using the equation Nitrate Concentration = Nitrate-Nitrite Concentration * 62/14; non-detect values were substituted with the detection limit in calculations.

[e] = The guidelines for aluminum are pH-dependent; the guideline is 0.005 mg/L at pH<6.5; 0.1 mg/L at pH ≥6.5. Field pH values were used in the screening.

[f] = The guidelines for cadmium are hardness-dependent; at hardnesses ranging from 0 to 48.5 mg/L as $CaCO_3$, the guideline is 0.000017 mg/L.

[g] = The guideline for chromium is speciation-dependent; the guideline is 0.0089 mg/L for trivalent chromium and 0.0010 mg/L for hexavalent chromium.

[h] = The guidelines for copper are hardness-dependent; at hardnesses ranging from 0 to 120 mg/L as $CaCO_3$, the guideline is 0.002 mg/L.

[i] = The guidelines for lead are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.001 mg/L.

[j] = Mercury objective is for inorganic mercury only.

[k] = Mercury guidelines differ depending on mercury type: inorganic mercury = 0.026 µg/L; methylmercury = 0.004 µg/L.

[l] = The guidelines for nickel are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.025 mg/L.

[m] = Selenium guideline is based on waterborne exposure. However, selenium has a bioaccumulation pathway similar to mercury; therefore, the guideline may not be protective of effects through reproductive impairment due to maternal transfer, resulting in embryotoxicity and teratogenicity (Chapman et al. 2009).

DL = detection limit; QA/QC = quality assurance/quality control; ºC = degrees Celsius; mg $CaCO_3$/L = milligrams of calcium carbonate per litre; mg/L = milligrams per litre; µg/L = micrograms per litre; µS/cm = microSiemens per centimetre; NTU = Nephelometric Turbidity Unit; Bq/L = Becquerel per litre; < = less than; - = not applicable or not collected; Aug = August.

Table X.II-8

Selected[a] Water Chemistry Results for Baker Lake, September 2008 and August 2009

Parameter	Units	CCME Guidelines	DL	2008									2009			
				Site 1		Site 2		Site 3		Site 4		Site 5	Site 1		Site 2	
				1 m depth	6 m depth	1 m depth	6.5 m depth	1 m depth	4 m depth	0.5 m depth	1.5 m depth	0.5 m depth	1 m depth	6 m depth	1 m depth	6.5 m depth
Conventional Parameters (Laboratory-Measured)																
pH	units	6.5-9	0.07	7.06	7	6.97	6.98	6.99	7	7.03	7	7.08	7.03	7.04	7.03	7.05
Conductivity	µS/cm	—	1	628	631	628	629	629	630	61	61	210	132	166	120	133
Alkalinity	mg/L	—	1	9	9	9	9	9	9	9	10	8	10	10	10	12
Hardness	mg/L	—	1	60	59	59	64	64	64	14	14	25	20	23	19	20
Total Dissolved Solids	mg/L	—	5	319	330	318	315	319	318	41	39	107	78	92	70	75
Nutrients																
Ammonia as Nitrogen	mg/L	23.1[b]	0.01	0.09	0.07	0.02	0.03	<0.01	0.06	0.06	0.02	0.03	-	-	-	-
Nitrate	mg/L	2.9	0.04	-	-	-	-	-	-	-	-	-	0.09	0.09	0.09	0.09
Nitrite-nitrate as Nitrogen	mg/L	2.96	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
Total Phosphate	mg/L	—	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.03	<0.01	-	-	-	-
Ortho Phosphate	mg/L	—	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
Total Organic Carbon	mg/L	—	0.2	2.4	3.1	2.9	2.1	2.1	2.3	3.6	3.1	2.8	2.8	2.9	3	3
Major Ions																
Bicarbonate	mg/L	—	1	11	11	11	11	11	11	11	12	10	12	12	12	15
Chloride	mg/L	—	1	164	163	165	165	166	165	10	10	52	30	40	27	31
Sulphate	mg/L	—	0.2	24	24	24	25	25	24	2	1.9	7.7	4.3	5.6	4	4.4
Total Metals																
Aluminum	mg/L	0.1[c]	0.0005	0.0079	0.0069	0.0076	0.0039	0.0076	0.0055	0.1	**0.11**	0.02	0.0054	0.0052	0.0054	0.0048
Arsenic	mg/L	0.005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001	<0.0001	0.0001	<0.0001	<0.0001
Barium	mg/L	—	0.0005	0.019	0.019	0.019	0.019	0.019	0.019	0.034	0.034	0.021	0.019	0.02	0.019	0.018
Cadmium	mg/L	0.000017	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	mg/L	—	0.1	5.8	5.7	5.7	5.8	5.8	5.8	3	3	3.4	3	3.3	3	3.1
Chromium	mg/L	0.0089[d]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper	mg/L	0.002[e]	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0005	0.0006	0.0002	<0.0002	<0.0002	0.0002	<0.0002
Iron	mg/L	0.3	0.0005	0.012	0.0078	0.0078	0.0012	0.0066	0.0081	0.14	0.16	0.012	0.009	0.0096	0.01	0.0093
Lead	mg/L	0.001[f]-0.002[g]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001
Magnesium	mg/L	—	0.1	11	11	11	12	12	12	1.7	1.7	4	3	3.7	2.8	3
Molybdenum	mg/L	0.073	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001
Nickel	mg/L	0.025[f]-0.065[g]	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Potassium	mg/L	—	0.1	3.8	3.8	3.8	3.9	3.9	3.9	0.6	0.5	1.4	1	1.1	0.9	1
Selenium	mg/L	0.001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002
Silver	mg/L	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	mg/L	—	0.1	92	92	92	93	93	94	5.8	5.8	26	16	21	14	16
Strontium	mg/L	—	0.0005	0.085	0.085	0.085	0.084	0.085	0.085	0.023	0.023	0.036	0.029	0.033	0.028	0.029
Thallium	mg/L	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Uranium	mg/L	—	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.03	0.0005	0.0063	0.0068	0.0071	0.0028	0.0074	0.0038	0.0044	0.012	0.0027	0.0006	<0.0005	<0.0005	<0.0005
Radionuclides																
Lead-210	Bq/L	—	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02
Polonium-201	Bq/L	—	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005
Radium-226	Bq/L	—	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005
Thorium-230	Bq/L	—	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01

Notes: Bold values exceeded CCME water quality guidelines for the protection of aquatic life.

Site 5 was only sampled at 0.5 m due to shallow water depth.

Arsenic and uranium results have been converted from µg/L to mg/L for comparative purposes.

Ortho-phosphate, pH, alkalinity, and conductivity parameters exceeded recommended hold times.

[a] = Selected parameters include parameters having a specific concern to the project (e.g., uranium, radionuclides) as well as those with CCME recommended maximum levels greater than ten times the detection limit.

[b] = for pH of 7.0 and water temperature of 0°C.

[c] = for pH ≥ 6.5.

[d] = for trivalent chromium (CrIII).

[e] = at a water hardness of 0 - 120 mg/L.

[f] = at a water hardness of 0 - 60 mg/L.

[g] = at a water hardness of 60-120 mg/L.

- = no data, DL = detection limit; CCME = Canadian Council of Ministers of the Environment; Bq/L = Becquerels per litre; m = metres; mg/L = milligrams per litre; µS/cm = microSiemens per centimetre; < = less than.

SRC Group: 2008-8493

SRC ANALYTICAL

422 Downey Road
Saskatoon, Saskatchewan, S7N 4N1
(306) 933-6932 or 1-800-240-8808
Fax: (306) 933-7922

Jacques Whitford Axys
4370 Dominion St.
Burnaby, BC V5G 4L7
Attn: Janine Beckett

Date Samples Received: Sep-26-2008 Client P.O.: 1038926

Analysis has been reviewed by:

Jeff Zimmer
Inorganics Supervisor

Dave Chorney
Radiochemistry and SLOWPOKE II Supervisor

* Test methods and data are validated by the laboratory's Quality Assurance Program.

* Routine methods follow recognized procedures from sources such as
  * Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF
  * Environment Canada
  * US EPA
  * CANMET

* The results reported relate only to the test samples as provided by the client.

* Samples will be kept for 30 days after the final report is sent. Please contact the lab if you have any special requirements.

* Additional information is available upon request.

SRC Group: 2008-8493

SRC ANALYTICAL

422 Downey Road
Saskatoon, Saskatchewan S7N 4N1
(306) 933-6932 1-800-240-8808

Jacques Whitford Axys
4370 Dominion St.
Burnaby, BC V5G 4L7
Attn: Janine Beckett

Oct-24-2008

Date Samples Received: Sep-26-2008 Client P.O.:

SAMPLE	CLIENT DESCRIPTION
39903	9/18/2008 2:00:00 PM 1.0 M SITE 1A *WATER*
39904	9/18/2008 2:00:00 PM 6.0 M SITE 1B *WATER*
39905	9/18/2008 11:00:00 AM SITE 2A *WATER*

ANALYTE	UNITS	39903	39904	39905
INORGANIC CHEMISTRY				
Bicarbonate	mg/L	11	11	11
Calcium	mg/L	5.8	5.7	5.7
Carbonate	mg/L	<1	<1	<1
Chloride	mg/L	164	163	165
Hydroxide	mg/L	<1	<1	<1
Magnesium	mg/L	11	11	11
pH	pH units	7.06	7.00	6.97
Potassium	mg/L	3.8	3.8	3.8
Sodium	mg/L	92	92	92
Specific conductivity	uS/cm	628	631	628
Sulfate	mg/L	24	24	24
Sum of ions	mg/L	312	311	313
Total alkalinity	mg/L	9	9	9
Total hardness	mg/L	60	59	59
Ammonia as nitrogen	mg/L	0.09	0.07	0.02
Nitrite+Nitrate nitrogen	mg/L	<0.01	<0.01	<0.01
Ortho-phosphate as P	mg/L	<0.01*	<0.01*	<0.01*
Phosphorus	mg/L	0.02	<0.01	<0.01
Phosphorus, diss.	mg/L	0.01	<0.01	<0.01
Total Kjeldahl nitrogen	mg/L	0.11	0.07	0.07
Organic carbon	mg/L	2.4	3.1	2.9
Organic carbon, dissolved	mg/L	2.6	3.3	2.5
Aluminum	mg/L	0.0079	0.0069	0.0076
Aluminum, dissolved	mg/L	0.0021	0.0014	0.0020
Antimony	mg/L	<0.0002	<0.0002	<0.0002
Antimony, dissolved	mg/L	<0.0002	<0.0002	<0.0002
Arsenic	ug/L	0.1	0.1	0.1
Arsenic, dissolved	ug/L	0.1	0.1	0.1
Barium	mg/L	0.019	0.019	0.019
Barium, dissolved	mg/L	0.019	0.019	0.019
Beryllium	mg/L	<0.0001	<0.0001	<0.0001
Beryllium, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Boron	mg/L	0.04	0.04	0.04
Boron, dissolved	mg/L	0.04	0.04	0.04

SRC ANALYTICAL

Jacques Whitford Axys

Oct-24-2008

SAMPLE	CLIENT DESCRIPTION
39903	9/18/2008 2:00:00 PM 1.0 M SITE 1A *WATER*
39904	9/18/2008 2:00:00 PM 6.0 M SITE 1B *WATER*
39905	9/18/2008 11:00:00 AM SITE 2A *WATER*

ANALYTE	UNITS	39903	39904	39905
Cadmium	mg/L	<0.0001	<0.0001	<0.0001
Cadmium, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.0005	<0.0005	<0.0005
Chromium, dissolved	mg/L	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	<0.0001	<0.0001	<0.0001
Cobalt, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.0003	0.0003	0.0003
Copper, dissolved	mg/L	0.0003	0.0003	0.0004
Iron	mg/L	0.012	0.0078	0.0078
Iron, dissolved	mg/L	<0.0005	<0.0005	<0.0005
Lead	mg/L	<0.0001	<0.0001	<0.0001
Lead, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Manganese	mg/L	0.0016	0.0016	0.0016
Manganese, dissolved	mg/L	0.0007	0.0008	0.0007
Molybdenum	mg/L	0.0001	0.0001	0.0001
Molybdenum, dissolved	mg/L	0.0002	0.0002	0.0001
Nickel	mg/L	0.0002	0.0002	0.0002
Nickel, dissolved	mg/L	0.0003	0.0002	0.0002
Selenium	mg/L	<0.0001	0.0001	<0.0001
Selenium, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Silver	mg/L	<0.0001	<0.0001	<0.0001
Silver, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Strontium	mg/L	0.085	0.085	0.085
Strontium, dissolved	mg/L	0.085	0.085	0.086
Thallium	mg/L	<0.0002	<0.0002	<0.0002
Thallium, dissolved	mg/L	<0.0002	<0.0002	<0.0002
Tin	mg/L	<0.0001	<0.0001	0.0002
Tin, dissolved	mg/L	0.0001	<0.0001	<0.0001
Titanium	mg/L	0.0003	<0.0002	<0.0002
Titanium, dissolved	mg/L	<0.0002	<0.0002	<0.0002
Uranium	ug/L	<0.1	<0.1	<0.1
Uranium, dissolved	ug/L	<0.1	<0.1	<0.1
Vanadium	mg/L	0.0001	<0.0001	<0.0001
Vanadium, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Zinc	mg/L	0.0063	0.0068	0.0071
Zinc, dissolved	mg/L	0.0073	0.0045	0.0063
Fluoride	mg/L	0.07	0.07	0.07
Total dissolved solids	mg/L	319	330	318
RADIO CHEMISTRY				
Lead-210	Bq/L	<0.02	<0.02	<0.02
Polonium-210	Bq/L	<0.005	<0.005	<0.005
Radium-226	Bq/L	<0.005	<0.005	<0.005
Thorium-230	Bq/L	<0.01	<0.01	<0.01

SRC ANALYTICAL

Jacques Whitford Axys

Oct-24-2008

SAMPLE	CLIENT DESCRIPTION
39906	9/18/2008 11:00:00 AM SITE 2B *WATER*
39907	9/18/2008 9:00:00 AM 1.0 M SITE 3A *WATER*
39908	9/18/2008 9:00:00 AM 4.0 M SITE 3B *WATER*

ANALYTE	UNITS	39906	39907	39908
INORGANIC CHEMISTRY				
Bicarbonate	mg/L	11	11	11
Calcium	mg/L	5.8	5.8	5.8
Carbonate	mg/L	<1	<1	<1
Chloride	mg/L	165	166	165
Hydroxide	mg/L	<1	<1	<1
Magnesium	mg/L	12	12	12
pH	pH units	6.98	6.99	7.00
Potassium	mg/L	3.9	3.9	3.9
Sodium	mg/L	93	93	94
Specific conductivity	uS/cm	629	629	630
Sulfate	mg/L	25	25	24
Sum of ions	mg/L	316	317	316
Total alkalinity	mg/L	9	9	9
Total hardness	mg/L	64	64	64
Ammonia as nitrogen	mg/L	0.03	<0.01	0.06
Nitrite+Nitrate nitrogen	mg/L	<0.01	<0.01	<0.01
Ortho-phosphate as P	mg/L	<0.01*	<0.01*	<0.01*
Phosphorus	mg/L	<0.01	<0.01	<0.01
Phosphorus, diss.	mg/L	0.01	0.02	<0.01
Total Kjeldahl nitrogen	mg/L	0.10	0.05	0.09
Organic carbon	mg/L	2.1	2.1	2.3
Organic carbon, dissolved	mg/L	2.2	2.1	2.4
Aluminum	mg/L	0.0039	0.0076	0.0055
Aluminum, dissolved	mg/L	0.0054	0.0018	0.0018
Antimony	mg/L	<0.0002	<0.0002	<0.0002
Antimony, dissolved	mg/L	<0.0002	<0.0002	<0.0002
Arsenic	ug/L	0.1	0.1	0.1
Arsenic, dissolved	ug/L	0.1	0.1	0.1
Barium	mg/L	0.019	0.019	0.019
Barium, dissolved	mg/L	0.018	0.019	0.019
Beryllium	mg/L	<0.0001	<0.0001	<0.0001
Beryllium, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Boron	mg/L	0.04	0.04	0.04
Boron, dissolved	mg/L	0.04	0.04	0.04
Cadmium	mg/L	<0.0001	<0.0001	<0.0001
Cadmium, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.0005	<0.0005	<0.0005
Chromium, dissolved	mg/L	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	<0.0001	<0.0001	<0.0001
Cobalt, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.0003	0.0003	0.0003
Copper, dissolved	mg/L	0.0003	0.0003	0.0004

SRC Group: 2008-8493

SRC ANALYTICAL

Jacques Whitford Axys

Oct-24-2008

SAMPLE	CLIENT DESCRIPTION
39906	9/18/2008 11:00:00 AM SITE 2B *WATER*
39907	9/18/2008 9:00:00 AM 1.0 M SITE 3A *WATER*
39908	9/18/2008 9:00:00 AM 4.0 M SITE 3B *WATER*

ANALYTE	UNITS	39906	39907	39908
Iron	mg/L	0.0012	0.0066	0.0081
Iron, dissolved	mg/L	0.0060	<0.0005	<0.0005
Lead	mg/L	<0.0001	<0.0001	<0.0001
Lead, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Manganese	mg/L	0.0006	0.0013	0.0015
Manganese, dissolved	mg/L	0.0014	0.0011	0.0005
Molybdenum	mg/L	0.0001	0.0001	0.0001
Molybdenum, dissolved	mg/L	0.0001	0.0002	0.0001
Nickel	mg/L	0.0002	0.0002	0.0002
Nickel, dissolved	mg/L	0.0002	0.0002	0.0002
Selenium	mg/L	<0.0001	0.0001	0.0001
Selenium, dissolved	mg/L	<0.0001	<0.0001	0.0001
Silver	mg/L	<0.0001	<0.0001	<0.0001
Silver, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Strontium	mg/L	0.084	0.085	0.085
Strontium, dissolved	mg/L	0.078	0.085	0.085
Thallium	mg/L	<0.0002	<0.0002	<0.0002
Thallium, dissolved	mg/L	<0.0002	<0.0002	<0.0002
Tin	mg/L	<0.0001	<0.0001	<0.0001
Tin, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Titanium	mg/L	<0.0002	<0.0002	<0.0002
Titanium, dissolved	mg/L	<0.0002	<0.0002	<0.0002
Uranium	ug/L	<0.1	<0.1	<0.1
Uranium, dissolved	ug/L	<0.1	<0.1	<0.1
Vanadium	mg/L	<0.0001	<0.0001	<0.0001
Vanadium, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Zinc	mg/L	0.0028	0.0074	0.0038
Zinc, dissolved	mg/L	0.010	0.0032	0.0090
Fluoride	mg/L	0.07	0.07	0.07
Total dissolved solids	mg/L	315	319	318
RADIO CHEMISTRY				
Lead-210	Bq/L	<0.02	<0.02	<0.02
Polonium-210	Bq/L	<0.005	<0.005	<0.005
Radium-226	Bq/L	<0.005	<0.005	<0.005
Thorium-230	Bq/L	<0.01	<0.01	<0.01

SRC ANALYTICAL

Jacques Whitford Axys

Oct-24-2008

SAMPLE	CLIENT DESCRIPTION
39909	9/21/2008 12:00:00 PM 0.5 M SITE 4A *WATER*
39910	9/21/2008 12:00:00 PM 1.5 M SITE 4B *WATER*
39911	9/18/2008 10:00:00 AM FIELD *WATER*

ANALYTE	UNITS	39909	39910	39911
INORGANIC CHEMISTRY				
Bicarbonate	mg/L	11	12	<1
Calcium	mg/L	3.0	3.0	<0.1
Carbonate	mg/L	<1	<1	<1
Chloride	mg/L	10	10	<0.1
Hydroxide	mg/L	<1	<1	<1
Magnesium	mg/L	1.7	1.7	<0.1
pH	pH units	7.03	7.00	5.65
Potassium	mg/L	0.6	0.5	<0.1
Sodium	mg/L	5.8	5.8	<0.1
Specific conductivity	uS/cm	61	61	<1
Sulfate	mg/L	2.0	1.9	<0.2
Sum of ions	mg/L	34	35	2
Total alkalinity	mg/L	9	10	<1
Total hardness	mg/L	14	14	<1
Ammonia as nitrogen	mg/L	0.06	0.02	0.04
Nitrite+Nitrate nitrogen	mg/L	<0.01	<0.01	0.39
Ortho-phosphate as P	mg/L	<0.01*	<0.01*	<0.01*
Phosphorus	mg/L	0.02	0.03	0.03
Phosphorus, diss.	mg/L	0.02	0.01	<0.01
Total Kjeldahl nitrogen	mg/L	0.14	0.17	<0.05
Organic carbon	mg/L	3.6	3.1	0.2
Organic carbon, dissolved	mg/L	3.4	3.1	0.2
Aluminum	mg/L	0.10	0.11	<0.0005
Aluminum, dissolved	mg/L	0.019	0.018	<0.0005
Antimony	mg/L	<0.0002	<0.0002	<0.0002
Antimony, dissolved	mg/L	<0.0002	<0.0002	<0.0002
Arsenic	ug/L	0.2	0.2	<0.1
Arsenic, dissolved	ug/L	0.2	0.2	<0.1
Barium	mg/L	0.034	0.034	<0.0005
Barium, dissolved	mg/L	0.032	0.034	<0.0005
Beryllium	mg/L	<0.0001	<0.0001	<0.0001
Beryllium, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Boron	mg/L	<0.01	<0.01	<0.01
Boron, dissolved	mg/L	<0.01	<0.01	<0.01
Cadmium	mg/L	<0.0001	<0.0001	<0.0001
Cadmium, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.0005	<0.0005	<0.0005
Chromium, dissolved	mg/L	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	0.0001	0.0001	<0.0001
Cobalt, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.0005	0.0006	0.0002
Copper, dissolved	mg/L	0.0009	0.0007	0.0002

SRC Group: 2008-8493

SRC ANALYTICAL

Jacques Whitford Axys

Oct-24-2008

SAMPLE	CLIENT DESCRIPTION
39909	9/21/2008 12:00:00 PM 0.5 M SITE 4A *WATER*
39910	9/21/2008 12:00:00 PM 1.5 M SITE 4B *WATER*
39911	9/18/2008 10:00:00 AM FIELD *WATER*

ANALYTE	UNITS	39909	39910	39911
Iron	mg/L	0.14	0.16	0.0016
Iron, dissolved	mg/L	0.018	0.017	<0.0005
Lead	mg/L	0.0001	0.0002	<0.0001
Lead, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Manganese	mg/L	0.0062	0.0068	0.0010
Manganese, dissolved	mg/L	0.0015	0.0015	0.0006
Molybdenum	mg/L	0.0001	0.0001	<0.0001
Molybdenum, dissolved	mg/L	0.0001	0.0002	0.0001
Nickel	mg/L	0.0003	0.0003	<0.0001
Nickel, dissolved	mg/L	0.0003	0.0003	<0.0001
Selenium	mg/L	<0.0001	0.0001	<0.0001
Selenium, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Silver	mg/L	<0.0001	<0.0001	<0.0001
Silver, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Strontium	mg/L	0.023	0.023	0.0007
Strontium, dissolved	mg/L	0.023	0.023	0.0010
Thallium	mg/L	<0.0002	<0.0002	<0.0002
Thallium, dissolved	mg/L	<0.0002	<0.0002	<0.0002
Tin	mg/L	<0.0001	<0.0001	<0.0001
Tin, dissolved	mg/L	<0.0001	<0.0001	<0.0001
Titanium	mg/L	0.0035	0.0042	<0.0002
Titanium, dissolved	mg/L	0.0003	0.0003	<0.0002
Uranium	ug/L	<0.1	<0.1	<0.1
Uranium, dissolved	ug/L	<0.1	<0.1	<0.1
Vanadium	mg/L	0.0003	0.0003	<0.0001
Vanadium, dissolved	mg/L	0.0001	0.0001	<0.0001
Zinc	mg/L	0.0044	0.012	0.0027
Zinc, dissolved	mg/L	0.0048	0.0091	0.0037
Fluoride	mg/L	0.05	0.05	0.01
Total dissolved solids	mg/L	41	39	<1
RADIO CHEMISTRY				
Lead-210	Bq/L	<0.02	<0.02	<0.02
Polonium-210	Bq/L	<0.005	<0.005	<0.005
Radium-226	Bq/L	<0.005	<0.005	<0.005
Thorium-230	Bq/L	<0.01	<0.01	<0.01

"<": not detected at level stated above

* time between sampling and receipt in lab exceeds recommended 48 hours.

RUSH

SRC Group # 2008-8473

SRC ANALYTICAL

Oct 03, 2008

422 Downey Road
Saskatoon, Saskatchewan, Canada
S7N 4N1
(306) 933-6932 or 1-800-240-8808
Fax: (306) 933-7922

Jacques Whitford Axys
4370 Dominion St.
Burnaby, BC V5G 4L7
Attn: Janine Beckett

Sample # **39776**
Date Sampled: **Sep 21, 2008**
Sample Matrix: **WATER**
Description: **0.5M SITE 5**

Client PO #: **1038926**
Date Received: **Sep 26, 2008**

Analyte	Units	Result	DL	Date Entered
Inorganic Chemistry				
Bicarbonate	mg/L	10	1	Oct 02, 2008
Calcium	mg/L	3.4	0.1	Oct 01, 2008
Carbonate	mg/L	<1	1	Oct 02, 2008
Chloride	mg/L	52	1	Sep 30, 2008
Hydroxide	mg/L	<1	1	Oct 02, 2008
Magnesium	mg/L	4.0	0.1	Oct 01, 2008
pH	pH units	7.08	0.07	Oct 01, 2008
Potassium	mg/L	1.4	0.1	Oct 01, 2008
Sodium	mg/L	26	0.1	Oct 01, 2008
Specific conductivity	uS/cm	210	1	Oct 01, 2008
Sulfate	mg/L	7.7	0.2	Oct 01, 2008
Sum of ions	mg/L	105	1	Oct 02, 2008
Total alkalinity	mg/L	8	1	Oct 01, 2008
Total hardness	mg/L	25	1	Oct 02, 2008
Ammonia as nitrogen	mg/L	0.03	0.01	Oct 01, 2008
Nitrite+Nitrate nitrogen	mg/L	<0.01	0.01	Oct 01, 2008
Ortho-phosphate as P	mg/L	<0.01*	0.01	Sep 30, 2008
Phosphorus	mg/L	<0.01	0.01	Oct 01, 2008
Phosphorus, diss.	mg/L	<0.01	0.01	Oct 01, 2008
Total Kjeldahl nitrogen	mg/L	0.18	0.05	Oct 01, 2008
Organic carbon	mg/L	2.8	0.2	Sep 30, 2008
Organic carbon, dissolved	mg/L	2.9	0.2	Sep 30, 2008
Aluminum	mg/L	0.020	0.0005	Sep 30, 2008
Aluminum, dissolved	mg/L	0.0039	0.0005	Sep 30, 2008
Antimony	mg/L	<0.0002	0.0002	Sep 30, 2008
Antimony, dissolved	mg/L	<0.0002	0.0002	Sep 30, 2008
Arsenic	ug/L	0.1	0.1	Sep 30, 2008
Arsenic, dissolved	ug/L	0.1	0.1	Sep 30, 2008
Barium	mg/L	0.021	0.0005	Sep 30, 2008
Barium, dissolved	mg/L	0.020	0.0005	Sep 30, 2008
Beryllium	mg/L	<0.0001	0.0001	Sep 30, 2008
Beryllium, dissolved	mg/L	<0.0001	0.0001	Sep 30, 2008
Boron	mg/L	0.01	0.01	Sep 30, 2008
Boron, dissolved	mg/L	0.01	0.01	Sep 30, 2008
Cadmium	mg/L	<0.0001	0.0001	Sep 30, 2008
Cadmium, dissolved	mg/L	<0.0001	0.0001	Sep 30, 2008
Chromium	mg/L	<0.0005	0.0005	Sep 30, 2008
Chromium, dissolved	mg/L	<0.0005	0.0005	Sep 30, 2008

Sample # **39776 (Continued)**
Date Sampled: **Sep 21, 2008**
Sample Matrix: **WATER**
Description: **0.5M SITE 5**

Client PO #: **1038926**
Date Received: **Sep 26, 2008**

Analyte	Units	Result	DL	Date Entered
Inorganic Chemistry				
Cobalt	mg/L	<0.0001	0.0001	Sep 30, 2008
Cobalt, dissolved	mg/L	<0.0001	0.0001	Sep 30, 2008
Copper	mg/L	0.0002	0.0002	Sep 30, 2008
Copper, dissolved	mg/L	0.0009	0.0002	Sep 30, 2008
Iron	mg/L	0.012	0.0005	Sep 30, 2008
Iron, dissolved	mg/L	0.0034	0.0005	Sep 30, 2008
Lead	mg/L	<0.0001	0.0001	Sep 30, 2008
Lead, dissolved	mg/L	<0.0001	0.0001	Sep 30, 2008
Manganese	mg/L	0.0019	0.0005	Sep 30, 2008
Manganese, dissolved	mg/L	<0.0005	0.0005	Sep 30, 2008
Molybdenum	mg/L	<0.0001	0.0001	Sep 30, 2008
Molybdenum, dissolved	mg/L	0.0001	0.0001	Sep 30, 2008
Nickel	mg/L	0.0002	0.0001	Sep 30, 2008
Nickel, dissolved	mg/L	0.0005	0.0001	Sep 30, 2008
Selenium	mg/L	<0.0001	0.0001	Sep 30, 2008
Selenium, dissolved	mg/L	<0.0001	0.0001	Sep 30, 2008
Silver	mg/L	<0.0001	0.0001	Sep 30, 2008
Silver, dissolved	mg/L	<0.0001	0.0001	Sep 30, 2008
Strontium	mg/L	0.036	0.0005	Sep 30, 2008
Strontium, dissolved	mg/L	0.036	0.0005	Sep 30, 2008
Thallium	mg/L	<0.0002	0.0002	Sep 30, 2008
Thallium, dissolved	mg/L	<0.0002	0.0002	Sep 30, 2008
Tin	mg/L	<0.0001	0.0001	Sep 30, 2008
Tin, dissolved	mg/L	0.0011	0.0001	Sep 30, 2008
Titanium	mg/L	0.0002	0.0002	Sep 30, 2008
Titanium, dissolved	mg/L	<0.0002	0.0002	Sep 30, 2008
Uranium	ug/L	<0.1	0.1	Sep 30, 2008
Uranium, dissolved	ug/L	<0.1	0.1	Sep 30, 2008
Vanadium	mg/L	0.0001	0.0001	Sep 30, 2008
Vanadium, dissolved	mg/L	<0.0001	0.0001	Sep 30, 2008
Zinc	mg/L	0.0027	0.0005	Sep 30, 2008
Zinc, dissolved	mg/L	0.012	0.0005	Sep 30, 2008
Fluoride	mg/L	<0.01	0.01	Sep 30, 2008
Total dissolved solids	mg/L	107	5	Sep 30, 2008

"<": not detected at level stated above.

* time between sampling and receipt in lab exceeds recommended 48 hours.

SRC ANALYTICAL

422 Downey Road
Saskatoon, Saskatchewan, Canada
S7N 4N1
(306) 933-6932 or 1-800-240-8808
Fax: (306) 933-7922

Sep 22, 2009

Areva Resources Canada Inc.
P.O. Box 9204
817-825 45th Street West
Saskatoon, Saskatchewan S7K 3X5
Attn: Nicola Banton

Sample # **37730**
Date Sampled: **Aug 26, 2009 14:30**
Sample Matrix: **WATER**
Description: **SITE 1A**

Client PO #: **7500000591**
Date Received: **Aug 28, 2009**

Analyte	Units	Result	DL
Inorganic Chemistry			
Bicarbonate	mg/L	12	1
Calcium	mg/L	3.0	0.1
Carbonate	mg/L	<1	1
Chloride	mg/L	30	1
Hydroxide	mg/L	<1	1
Magnesium	mg/L	3.0	0.1
pH	pH units	7.03	0.07
Potassium	mg/L	1.0	0.1
Sodium	mg/L	16	0.1
Specific conductivity	uS/cm	132	1
Sulfate	mg/L	4.3	0.2
Sum of ions	mg/L	69	1
Total alkalinity	mg/L	10	1
Total hardness	mg/L	20	1
Nitrate	mg/L	0.09	0.04
Organic carbon, dissolved	mg/L	2.8	0.2
Aluminum	mg/L	0.0054	0.0005
Aluminum, dissolved	mg/L	0.0051	0.0005
Antimony	mg/L	<0.0002	0.0002
Antimony, dissolved	mg/L	<0.0002	0.0002
Arsenic	ug/L	<0.1	0.1
Arsenic, dissolved	ug/L	0.1	0.1
Barium	mg/L	0.019	0.0005
Barium, dissolved	mg/L	0.017	0.0005
Beryllium	mg/L	<0.0001	0.0001
Beryllium, dissolved	mg/L	<0.0001	0.0001
Boron	mg/L	<0.01	0.01
Boron, dissolved	mg/L	0.01	0.01
Cadmium	mg/L	<0.0001	0.0001
Cadmium, dissolved	mg/L	<0.0001	0.0001
Chromium	mg/L	<0.0005	0.0005
Chromium, dissolved	mg/L	<0.0005	0.0005
Cobalt	mg/L	<0.0001	0.0001
Cobalt, dissolved	mg/L	<0.0001	0.0001
Copper	mg/L	<0.0002	0.0002
Copper, dissolved	mg/L	0.0005	0.0002
Iron	mg/L	0.0090	0.0005

Sample # **37730 (Continued)**
Date Sampled: **Aug 26, 2009 14:30**
Sample Matrix: **WATER**
Description: **SITE 1A**

Client PO #: **7500000591**
Date Received: **Aug 28, 2009**

Analyte	Units	Result	DL
Inorganic Chemistry			
Iron, dissolved	mg/L	0.0031	0.0005
Lead	mg/L	<0.0001	0.0001
Lead, dissolved	mg/L	<0.0001	0.0001
Manganese	mg/L	0.0021	0.0005
Manganese, dissolved	mg/L	0.0005	0.0005
Molybdenum	mg/L	0.0001	0.0001
Molybdenum, dissolved	mg/L	0.0001	0.0001
Nickel	mg/L	<0.0001	0.0001
Nickel, dissolved	mg/L	<0.0001	0.0001
Selenium	mg/L	<0.0001	0.0001
Selenium, dissolved	mg/L	0.0001	0.0001
Silver	mg/L	<0.0001	0.0001
Silver, dissolved	mg/L	<0.0001	0.0001
Strontium	mg/L	0.029	0.0005
Strontium, dissolved	mg/L	0.028	0.0005
Thallium	mg/L	<0.0002	0.0002
Thallium, dissolved	mg/L	<0.0002	0.0002
Tin	mg/L	<0.0001	0.0001
Tin, dissolved	mg/L	0.0001	0.0001
Titanium	mg/L	<0.0002	0.0002
Titanium, dissolved	mg/L	<0.0002	0.0002
Uranium	ug/L	<0.1	0.1
Uranium, dissolved	ug/L	0.1	0.1
Vanadium	mg/L	<0.0001	0.0001
Vanadium, dissolved	mg/L	<0.0001	0.0001
Zinc	mg/L	0.0006	0.0005
Zinc, dissolved	mg/L	0.0008	0.0005
Fluoride	mg/L	0.05	0.01
Total dissolved solids	mg/L	78	5
Radio Chemistry			
Lead-210	Bq/L	<0.02	0.02
Polonium-210	Bq/L	<0.005	0.005
Radium-226	Bq/L	<0.005	0.005
Thorium-230	Bq/L	<0.01	0.01

"<": not detected at level stated above.

Sample # **37731**
Date Sampled: **Aug 26, 2009 14:10**
Sample Matrix: **WATER**
Description: **SITE 1B**

Client PO #: **7500000591**
Date Received: **Aug 28, 2009**

Analyte	Units	Result	DL
Inorganic Chemistry			
Bicarbonate	mg/L	12	1
Calcium	mg/L	3.3	0.1
Carbonate	mg/L	<1	1
Chloride	mg/L	40	1
Hydroxide	mg/L	<1	1
Magnesium	mg/L	3.7	0.1
pH	pH units	7.04	0.07
Potassium	mg/L	1.1	0.1
Sodium	mg/L	21	0.1
Specific conductivity	uS/cm	166	1
Sulfate	mg/L	5.6	0.2
Sum of ions	mg/L	87	1
Total alkalinity	mg/L	10	1
Total hardness	mg/L	23	1
Nitrate	mg/L	0.09	0.04
Organic carbon, dissolved	mg/L	2.9	0.2
Aluminum	mg/L	0.0052	0.0005
Aluminum, dissolved	mg/L	0.0019	0.0005
Antimony	mg/L	<0.0002	0.0002
Antimony, dissolved	mg/L	<0.0002	0.0002
Arsenic	ug/L	0.1	0.1
Arsenic, dissolved	ug/L	<0.1	0.1
Barium	mg/L	0.020	0.0005
Barium, dissolved	mg/L	0.017	0.0005
Beryllium	mg/L	<0.0001	0.0001
Beryllium, dissolved	mg/L	<0.0001	0.0001
Boron	mg/L	0.01	0.01
Boron, dissolved	mg/L	0.01	0.01
Cadmium	mg/L	<0.0001	0.0001
Cadmium, dissolved	mg/L	<0.0001	0.0001
Chromium	mg/L	<0.0005	0.0005
Chromium, dissolved	mg/L	<0.0005	0.0005
Cobalt	mg/L	<0.0001	0.0001
Cobalt, dissolved	mg/L	<0.0001	0.0001
Copper	mg/L	<0.0002	0.0002
Copper, dissolved	mg/L	<0.0002	0.0002
Iron	mg/L	0.0096	0.0005
Iron, dissolved	mg/L	0.0020	0.0005
Lead	mg/L	0.0001	0.0001
Lead, dissolved	mg/L	<0.0001	0.0001
Manganese	mg/L	0.0021	0.0005
Manganese, dissolved	mg/L	<0.0005	0.0005
Molybdenum	mg/L	0.0001	0.0001
Molybdenum, dissolved	mg/L	<0.0001	0.0001
Nickel	mg/L	<0.0001	0.0001
Nickel, dissolved	mg/L	<0.0001	0.0001
Selenium	mg/L	<0.0001	0.0001
Selenium, dissolved	mg/L	<0.0001	0.0001

Sample # **37731 (Continued)**
Date Sampled: **Aug 26, 2009 14:10**
Sample Matrix: **WATER**
Description: **SITE 1B**

Client PO #: **7500000591**
Date Received: **Aug 28, 2009**

Analyte	Units	Result	DL
Inorganic Chemistry			
Silver	mg/L	<0.0001	0.0001
Silver, dissolved	mg/L	<0.0001	0.0001
Strontium	mg/L	0.033	0.0005
Strontium, dissolved	mg/L	0.029	0.0005
Thallium	mg/L	<0.0002	0.0002
Thallium, dissolved	mg/L	<0.0002	0.0002
Tin	mg/L	<0.0001	0.0001
Tin, dissolved	mg/L	<0.0001	0.0001
Titanium	mg/L	<0.0002	0.0002
Titanium, dissolved	mg/L	<0.0002	0.0002
Uranium	ug/L	<0.1	0.1
Uranium, dissolved	ug/L	<0.1	0.1
Vanadium	mg/L	<0.0001	0.0001
Vanadium, dissolved	mg/L	<0.0001	0.0001
Zinc	mg/L	<0.0005	0.0005
Zinc, dissolved	mg/L	<0.0005	0.0005
Fluoride	mg/L	0.05	0.01
Total dissolved solids	mg/L	92	5
Radio Chemistry			
Lead-210	Bq/L	<0.02	0.02
Polonium-210	Bq/L	<0.005	0.005
Radium-226	Bq/L	<0.005	0.005
Thorium-230	Bq/L	<0.01	0.01

"<": not detected at level stated above.

Sample # **37732** Client PO #: **7500000591**
Date Sampled: **Aug 26, 2009 11:30** Date Received: **Aug 28, 2009**
Sample Matrix: **WATER**
Description: **SITE 2A**

Analyte	Units	Result	DL
Inorganic Chemistry			
Bicarbonate	mg/L	12	1
Calcium	mg/L	3.0	0.1
Carbonate	mg/L	<1	1
Chloride	mg/L	27	1
Hydroxide	mg/L	<1	1
Magnesium	mg/L	2.8	0.1
pH	pH units	7.03	0.07
Potassium	mg/L	0.9	0.1
Sodium	mg/L	14	0.1
Specific conductivity	uS/cm	120	1
Sulfate	mg/L	4.0	0.2
Sum of ions	mg/L	64	1
Total alkalinity	mg/L	10	1
Total hardness	mg/L	19	1
Nitrate	mg/L	0.09	0.04
Organic carbon, dissolved	mg/L	3.0	0.2
Aluminum	mg/L	0.0054	0.0005
Aluminum, dissolved	mg/L	0.0023	0.0005
Antimony	mg/L	<0.0002	0.0002
Antimony, dissolved	mg/L	<0.0002	0.0002
Arsenic	ug/L	<0.1	0.1
Arsenic, dissolved	ug/L	0.1	0.1
Barium	mg/L	0.019	0.0005
Barium, dissolved	mg/L	0.017	0.0005
Beryllium	mg/L	<0.0001	0.0001
Beryllium, dissolved	mg/L	<0.0001	0.0001
Boron	mg/L	<0.01	0.01
Boron, dissolved	mg/L	<0.01	0.01
Cadmium	mg/L	<0.0001	0.0001
Cadmium, dissolved	mg/L	<0.0001	0.0001
Chromium	mg/L	<0.0005	0.0005
Chromium, dissolved	mg/L	<0.0005	0.0005
Cobalt	mg/L	<0.0001	0.0001
Cobalt, dissolved	mg/L	<0.0001	0.0001
Copper	mg/L	0.0002	0.0002
Copper, dissolved	mg/L	0.0002	0.0002
Iron	mg/L	0.010	0.0005
Iron, dissolved	mg/L	0.0022	0.0005
Lead	mg/L	<0.0001	0.0001
Lead, dissolved	mg/L	<0.0001	0.0001
Manganese	mg/L	0.0021	0.0005
Manganese, dissolved	mg/L	<0.0005	0.0005
Molybdenum	mg/L	<0.0001	0.0001
Molybdenum, dissolved	mg/L	<0.0001	0.0001
Nickel	mg/L	<0.0001	0.0001
Nickel, dissolved	mg/L	<0.0001	0.0001
Selenium	mg/L	<0.0001	0.0001
Selenium, dissolved	mg/L	<0.0001	0.0001

Sample # **37732 (Continued)**
Date Sampled: **Aug 26, 2009 11:30**
Sample Matrix: **WATER**
Description: **SITE 2A**

Client PO #: **7500000591**
Date Received: **Aug 28, 2009**

Analyte	Units	Result	DL
Inorganic Chemistry			
Silver	mg/L	<0.0001	0.0001
Silver, dissolved	mg/L	<0.0001	0.0001
Strontium	mg/L	0.028	0.0005
Strontium, dissolved	mg/L	0.026	0.0005
Thallium	mg/L	<0.0002	0.0002
Thallium, dissolved	mg/L	<0.0002	0.0002
Tin	mg/L	0.0001	0.0001
Tin, dissolved	mg/L	<0.0001	0.0001
Titanium	mg/L	0.0002	0.0002
Titanium, dissolved	mg/L	<0.0002	0.0002
Uranium	ug/L	<0.1	0.1
Uranium, dissolved	ug/L	<0.1	0.1
Vanadium	mg/L	<0.0001	0.0001
Vanadium, dissolved	mg/L	<0.0001	0.0001
Zinc	mg/L	<0.0005	0.0005
Zinc, dissolved	mg/L	0.0005	0.0005
Fluoride	mg/L	0.05	0.01
Total dissolved solids	mg/L	70	5
Radio Chemistry			
Lead-210	Bq/L	<0.02	0.02
Polonium-210	Bq/L	<0.005	0.005
Radium-226	Bq/L	0.008	0.005
Thorium-230	Bq/L	<0.01	0.01

"<": not detected at level stated above.

Sample # **37733** Client PO #: **7500000591**
Date Sampled: **Aug 26, 2009 11:10** Date Received: **Aug 28, 2009**
Sample Matrix: **WATER**
Description: **SITE 2B**

Analyte	Units	Result	DL
Inorganic Chemistry			
Bicarbonate	mg/L	15	1
Calcium	mg/L	3.1	0.1
Carbonate	mg/L	<1	1
Chloride	mg/L	31	1
Hydroxide	mg/L	<1	1
Magnesium	mg/L	3.0	0.1
pH	pH units	7.05	0.07
Potassium	mg/L	1.0	0.1
Sodium	mg/L	16	0.1
Specific conductivity	uS/cm	133	1
Sulfate	mg/L	4.4	0.2
Sum of ions	mg/L	74	1
Total alkalinity	mg/L	12	1
Total hardness	mg/L	20	1
Nitrate	mg/L	0.09	0.04
Organic carbon, dissolved	mg/L	3.0	0.2
Aluminum	mg/L	0.0048	0.0005
Aluminum, dissolved	mg/L	0.0029	0.0005
Antimony	mg/L	<0.0002	0.0002
Antimony, dissolved	mg/L	<0.0002	0.0002
Arsenic	ug/L	<0.1	0.1
Arsenic, dissolved	ug/L	<0.1	0.1
Barium	mg/L	0.019	0.0005
Barium, dissolved	mg/L	0.018	0.0005
Beryllium	mg/L	<0.0001	0.0001
Beryllium, dissolved	mg/L	<0.0001	0.0001
Boron	mg/L	<0.01	0.01
Boron, dissolved	mg/L	<0.01	0.01
Cadmium	mg/L	<0.0001	0.0001
Cadmium, dissolved	mg/L	<0.0001	0.0001
Chromium	mg/L	<0.0005	0.0005
Chromium, dissolved	mg/L	<0.0005	0.0005
Cobalt	mg/L	<0.0001	0.0001
Cobalt, dissolved	mg/L	<0.0001	0.0001
Copper	mg/L	<0.0002	0.0002
Copper, dissolved	mg/L	<0.0002	0.0002
Iron	mg/L	0.0093	0.0005
Iron, dissolved	mg/L	0.0029	0.0005
Lead	mg/L	<0.0001	0.0001
Lead, dissolved	mg/L	<0.0001	0.0001
Manganese	mg/L	0.0021	0.0005
Manganese, dissolved	mg/L	<0.0005	0.0005
Molybdenum	mg/L	<0.0001	0.0001
Molybdenum, dissolved	mg/L	<0.0001	0.0001
Nickel	mg/L	<0.0001	0.0001
Nickel, dissolved	mg/L	<0.0001	0.0001
Selenium	mg/L	0.0002	0.0001
Selenium, dissolved	mg/L	<0.0001	0.0001

Sample # **37733 (Continued)**
Date Sampled: **Aug 26, 2009 11:10**
Sample Matrix: **WATER**
Description: **SITE 2B**

Client PO #: **7500000591**
Date Received: **Aug 28, 2009**

Analyte	Units	Result	DL
Inorganic Chemistry			
Silver	mg/L	<0.0001	0.0001
Silver, dissolved	mg/L	<0.0001	0.0001
Strontium	mg/L	0.029	0.0005
Strontium, dissolved	mg/L	0.029	0.0005
Thallium	mg/L	<0.0002	0.0002
Thallium, dissolved	mg/L	<0.0002	0.0002
Tin	mg/L	<0.0001	0.0001
Tin, dissolved	mg/L	<0.0001	0.0001
Titanium	mg/L	<0.0002	0.0002
Titanium, dissolved	mg/L	<0.0002	0.0002
Uranium	ug/L	<0.1	0.1
Uranium, dissolved	ug/L	<0.1	0.1
Vanadium	mg/L	<0.0001	0.0001
Vanadium, dissolved	mg/L	<0.0001	0.0001
Zinc	mg/L	<0.0005	0.0005
Zinc, dissolved	mg/L	0.0008	0.0005
Fluoride	mg/L	0.05	0.01
Total dissolved solids	mg/L	75	5
Radio Chemistry			
Lead-210	Bq/L	<0.02	0.02
Polonium-210	Bq/L	<0.005	0.005
Radium-226	Bq/L	<0.005	0.005
Thorium-230	Bq/L	<0.01	0.01

"<": not detected at level stated above.