

Radwaste

Thermal conductivity, density, porosity and mineralogy
of core samples from Chalk River, Pinawa and Atikokan

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The Geothermal Service of Canada routinely measures thermal conductivity, density and porosity of core samples from AECL boreholes. Of these properties, thermal conductivity in particular is an important parameter in modelling the response of a rock mass to the thermal loading that would be produced by the burial within it of radioactive waste material. A number of analyses have been done by others, and the results have been summarised by Mayman et al (1980). Such analyses have used assumed values of thermal conductivity that were not necessarily representative of the rock type being modelled. For example, a series of analyses done by Acres Consulting Services Ltd. (referred to in Mayman et al, 1980) assumed a conductivity of $3.0 \text{ Wm}^{-1}\text{K}^{-1}$ for granite; a value that is probably 10-15% too low. The purpose of this report is to present the data obtained by the Geothermal Service and make it available for general distribution within the Radwaste programme. The present report brings up to date (to 1.04.81) an earlier one by Drury (1980).

Some corrections were necessary. Owing to a systematic measurement error conductivity, density and porosity of samples from holes WN-1 and WN-2, Pinawa, were originally wrongly estimated and reported. The corrected data are listed in the present report.

A different systematic error was made in the original measurements on samples from ATK-1, Atikokan. Those measurements have been done again and some further samples measured. Mineralogical data are also presented.

Mineralogical data are listed for hole CR-9 (Chalk River). Finally, the sampling of WN-4 (Pinawa) core at closely spaced intervals has been completed, and the data listed. The thickness of the disc, in mm, has been added in the table for those data in order that the data for two discs from the same depth can be differentiated.

As in Drury (1980), "length" refers to the downhole length from which a sample is obtained, and "depth" is the true vertical depth. Conductivity is given in $Wm^{-1} K^{-1}$ and density (of water-saturated samples) in $Mg m^{-3}$. The data are presented in Tables 1-6. The abbreviations used for rock type and mineral names are given in Tables 7 and 8 respectively.

Acknowledgements

The early measurements of both physical properties and mineral content, mainly of CR-1 and CR-6 samples, were done by D.C. Kamineni. Later measurements of physical properties, including all Pinawa and Atikokan samples, were made by D.V. Sharma, and of mineral content by W.F. Nuyens.

References

- Drury, M.J., 1980. Thermal conductivity of rocks from Chalk River, Pinawa and Atikokan. Geothermal Service of Canada, Internal Report 80-5, 14 pp.
- Mayman, S.A., Charlwood, R.G. and Ratigan, J.L., 1980. Long-term thermal response of a CANDU fuel disposal vault. Atomic Energy of Canada Limited, Technical Record TR-134, 20 pp.

Table 1

DATA FOR HOLE CR-1

1

LENGTH(M)	DEPTH(M)	ROCK TYPE	COND	DENS	POR	MINERALS AND PERCENT CONTENT										METHOD
2.4	2.4	BI GNSS	2.67	2.78	.002	QZ 19	KF 15	PL 13	BI 32	HB 16	GT 03	OP 01	CA 01		POINT COUNT	
3.0	2.9	BI GNSS	2.77	2.77	.004	QZ 20	KF 20	PL 20	HF 40		BI	HB	GT	OP	ESTIMATE	
6.0	5.9	FL GNSS	2.93	2.69	.003	QZ 25	KF 40	PL 10	HF 25		BI	HB	OP		ESTIMATE	
9.4	9.2	GR GNSS	3.62	2.63	.004	QZ 39	KF 31	PL 19	BI 08	GT 02	CA 01				POINT COUNT	
12.2	12.0	OMONZONIT	3.08	2.67	.003	QZ 25	KF 30	PL 25	HF 20		BI	HB	GT	OP	ESTIMATE	
15.8	15.5	FL GNSS	3.66	2.62	.003	QZ 30	KF 20	PL 35	HF 15		BI	GT	OP		ESTIMATE	
18.6	18.3	BI SCHIST	2.46	2.71	.015	QZ 10	KF 5	PL 40	HF 45		BI	AC	CL	GT	ESTIMATE	
21.9	21.5	GR GNSS	2.73	2.72	.005	QZ 20	KF 40	PL 15	HF 25		BI	GT	HB		ESTIMATE	
25.3	24.8	GT GNSS	2.43	2.83	.006	QZ 04	KF 17	PL 28	BI 29	CP 10	GT 09	OP 02	HB 01		POINT COUNT	
28.7	28.2	BI GNSS	2.40	2.80	.005	QZ 10	KF 15	PL 25	MF 50		BI	GT	OP		ESTIMATE	
31.8	31.2	GT GNSS	2.47	2.79	.004	QZ 08	KF 19	PL 31	BI 23	GT 09	CL 09	OP 01			POINT COUNT	
35.1	34.4	BI GNSS	2.49	2.79	.005	QZ 10	KF 10	PL 30	MF 50		BI	GT	OP		ESTIMATE	
37.8	37.1	GR GNSS	3.30	2.72	.002	QZ 32	KF 19	PL 27	BI 14	GT 05	HB 02	OP 01			POINT COUNT	
40.5	39.7	BI GNSS	2.39	2.76	.010	QZ 10	KF 10	PL 30	MF 50		GT	BI	AC	CL	ESTIMATE	
43.9	43.1	GR GNSS	2.79	2.72	.002	QZ 20	KF 35	PL 20	MF 25		BI	GT	OP		ESTIMATE	
46.8	45.9	GR GNSS	3.50	2.68	.002	QZ 22	KF 40	PL 12	BI 12	GT 07	HB 04	OP 01	MF 02		POINT COUNT	
50.0	49.1	GR GNSS	2.91	2.78	.004	QZ 25	KF 30	PL 15	MF 30		GT	BI	OP		ESTIMATE	
52.7	51.7	GR GNSS	2.93	2.76	.003	QZ 16	KF 44	PL 13	BI 01	GT 15	HB 06	CL 03	OP 02		POINT COUNT	
56.1	55.0	GR GNSS	2.80	2.76	.003	QZ 20	KF 40	PL 15	MF 25		GT	BI	HB		ESTIMATE	
59.1	58.0	OMONZONIT	2.64	2.79	.002	QZ 15	KF 35	PL 30	MF 20		GT	HB	BI		ESTIMATE	
62.2	61.0	GRANITE	3.37	2.74	.004	QZ 30	KF 40	PL 15	MF 25		GT	BI			ESTIMATE	
65.1	63.8	GT GNSS	2.56	2.85	.007	QZ 06	KF 39	PL 08	HB 15	GT 23	CL 06	OP 03			POINT COUNT	
68.3	67.0	GT GNSS	2.58	2.84	.005	QZ 05	KF 35	PL 15	MF 45		GT	HB	OP		ESTIMATE	
71.1	69.7	FL GNSS	3.67	2.69	.003	QZ 28	KF 48	PL 10	HB 07	GT 04	CL 03				POINT COUNT	
74.7	73.2	GR GNSS	2.94	2.79	.005	QZ 25	KF 35	PL 20	MF 20		GT	BI	OP		ESTIMATE	
78.0	76.4	FL GNSS	2.43	2.64	.003	QZ 10	KF 20	PL 35	MF 35		HB	BI	OP		ESTIMATE	
81.1	79.5	FL GNSS	2.49	2.70	.002	QZ 10	KF 15	PL 40	MF 35		HB	GT	BI		ESTIMATE	
84.1	82.4	FL GNSS	2.56	2.70	.004	QZ 10	KF 25	PL 35	MF 30		HB	GT	OP		ESTIMATE	
84.1	82.4	FL GNSS	2.65	2.59	.005	QZ 10	KF 25	PL 35	MF 30		HB	GT	OP		ESTIMATE	
87.5	85.8	FL GNSS	2.95	2.78	.002	QZ 20	KF 45	PL 15	GT 12	CP 04	OP 02	HB 01	MF 01		POINT COUNT	
90.5	88.7	FL GNSS	2.72	2.79	.005	QZ 09	KF 52	PL 07	BI 02	CL 18	GT 10	OP 02			POINT COUNT	
97.5	95.6	FL GNSS	2.54	2.87	.003	QZ 10	KF 25	PL 35	MF 30		GT	HB	OP		ESTIMATE	
101.1	99.1	FL GT GNSS	2.50	2.78	.005	QZ 09	KF 39	PL 16	CL 17	GT 17	OP 02				POINT COUNT	
104.2	102.1	FL GT GNSS	2.50	2.80	.005	QZ 06	KF 36	PL 24	GT 18	CL 15	OP 01				POINT COUNT	
107.3	105.2	FL GT GNSS	2.47	2.80	.007	QZ 04	KF 43	PL 19	CL 17	GT 16	OP 01				POINT COUNT	
110.3	108.1	FL GT GNSS	2.51	2.93	.006	QZ 03	KF 47	PL 17	GT 16	CL 15	OP 01	MF 01			POINT COUNT	
113.1	110.9	FL GT GNSS	2.43	2.84	.006	QZ 02	KF 44	PL 20	GT 19	CL 10	HB 03	OP 01	MF 01		POINT COUNT	
116.1	113.8	FL GT GNSS	2.43	2.82	.004	QZ 04	KF 40	PL 20	HB 09	GT 15	CL 10	OP 01	MF 01		POINT COUNT	
119.2	116.8	FL GT GNSS	2.46	2.83	.009	QZ 11	KF 35	PL 20	GT 19	CL 14	OP 01				POINT COUNT	
121.9	119.5	FL GT GNSS	2.52	2.75	.026	QZ 02	KF 29	PL 27	CL 21	GT 19	BI 01	OP 01			POINT COUNT	
125.0	122.5	FL GNSS	2.46	2.76	.009	QZ 09	KF 23	PL 30	GT 21	CL 15	OP 02				POINT COUNT	
131.7	129.1	FL GT GNSS	2.69	2.81	.009	QZ 05	KF 31	PL 21	GT 23	CL 17	OP 02	MF 01			POINT COUNT	
136.6	133.9	FL GNSS	2.24	2.74	.006	QZ 03	KF 34	PL 29	CL 13	GT 08	HB 06	BI 02	OP 04	MF 01	POINT COUNT	
139.7	136.9	FL GT GNSS	2.65	2.79	.009	QZ 09	KF 32	PL 20	CL 21	GT 16	OP 01	MF 01			POINT COUNT	
142.6	139.8	FL GNSS	2.54	2.86	.007	QZ 09	KF 36	PL 26	HB 14	GT 11	BI 01	OP 02	MF 01		POINT COUNT	
143.7	140.8	FL GNSS	2.50	2.85	.006	QZ 03	KF 38	PL 27	HB 11	GT 14	CL 05	OP 02			POINT COUNT	
148.7	145.7	FL GNSS	2.59	2.79	.004	QZ 10	KF 30	PL 30	MF 30		GT	AC	CL	OP	ESTIMATE	
151.7	148.7	FL GT GNSS	2.50	2.82	.005	QZ 07	KF 36	PL 25	GT 19	CL 07	OP 03	MF 03			POINT COUNT	
154.8	151.7	FL GT GNSS	2.55	2.82	.005	QZ 06	KF 33	PL 23	CL 22	GT 14	OP 01	MF 01			POINT COUNT	
157.8	154.7	FL GT GNSS	2.69	2.81	.004	QZ 11	KF 33	PL 25	GT 18	CL 09	OP 04				POINT COUNT	
161.2	158.0	FL GNSS	2.67	2.74	.013	QZ 07	KF 28	PL 21	CL 21	GT 20	BI 01	OP 01	MF 01		POINT COUNT	
162.2	159.0	FL GNSS	3.31	2.78	.003	QZ 17	KF 18	PL 26	GT 25	CP 08	HB 02	CL 02	OP 02		POINT COUNT	
166.7	163.4	FL GT GNSS	2.61	2.78	.002	QZ 11	KF 33	PL 28	GT 14	CP 09	HB 02	OP 03			POINT COUNT	

Table 1 (continued)

DATA FOR HOLE CR-1

2

LENGTH(M)	DEPTH(M)	ROCK TYPE	COND	DENS	POR	MINERALS AND PERCENT CONTENT										METHOD
168.0	164.7	FL GT GNSS	2.74	2.82	.003	OZ 16	KF 44	PL 07	GT 14	CP 11	HB 02	CL 02	BI 01	OP 03	POINT COUNT	
169.8	166.5	FL GNSS	2.74	2.74	.001	OZ 15	KF 30	PL 25	HF 30	GT	AC	CL	OP		ESTIMATE	
172.0	169.4	FL GNSS	2.55	2.68	.003	OZ 10	KF 45	PL 10	HF 35		GT	CP	HB	OP	ESTIMATE	
174.7	171.3	FL GNSS	2.77	2.77	.003	OZ 23	KF 21	PL 30	BI 14	GT 06	HB 03	CL 01	OP 01	CP 01	POINT COUNT	
178.0	174.5	GR GNSS	3.08	2.71	.003	OZ 25	KF 40	PL 15	MF 20		BI	GT	HB		ESTIMATE	
181.1	177.6	FL GNSS	2.63	2.70	.004	OZ 13	KF 28	PL 31	BI 14	GT 08	HB 04	OP 01	MF 01		POINT COUNT	
185.0	181.4	GR GNSS	3.96	2.62	.002	OZ 36	KF 28	PL 23	BI 07	GT 03	OP 01	MF 02			POINT COUNT	
187.8	184.2	GR GNSS	2.89	2.69	.002	OZ 25	KF 30	PL 20	MF 25		GT	BI	OP		ESTIMATE	
190.5	186.8	GR GNSS	3.60	2.63	.004	OZ 28	KF 30	PL 19	BI 07	HB 12	OP 03	MF 01			POINT COUNT	
193.5	189.8	FL GNSS	3.47	2.70	.002	OZ 03	KF 59	PL 07	BI 01	CP 12	HB 11	OP 03	MF 04		POINT COUNT	
196.3	192.5	GR GNSS	3.97	2.64	.003	OZ 35	KF 30	PL 17	BI 07	CL 04	GT 04	HB 02	OP 01		POINT COUNT	
199.6	195.7	BI GNSS	3.15	2.73	.003	OZ 24	KF 20	PL 16	BI 25	HB 08	OP 07				POINT COUNT	
201.8	197.9	BI GNSS	2.44	2.77	.003	OZ 14	KF 24	PL 28	BI 21	CP 07	HB 05	OP 01			POINT COUNT	
205.1	201.1	BI GNSS	2.57	2.70	.007	OZ 13	KF 22	PL 20	BI 32	GT 07	CL 04	CP 01	OP 01		POINT COUNT	
207.6	203.6	FL GNSS	2.86	2.68	.003	OZ 18	KF 26	PL 24	BI 22	HB 06	GT 02	OP 01	MF 01		POINT COUNT	
210.9	206.8	GR GNSS	2.78	2.73	.002	OZ 25	KF 40	PL 20	GT 06	BI 03	CL 03	HB 02	OP 01		POINT COUNT	
214.3	210.2	GR GNSS	3.05	2.64	.015	OZ 25	KF 45	PL 15	MF 15		GT	AC	CB		ESTIMATE	
217.3	213.1	FL GNSS	2.94	2.73	.002	OZ 20	KF 17	PL 36	BI 07	GT 08	CL 08	OP 03	HB 01		POINT COUNT	
221.3	217.0	FL GNSS	2.70	2.53	.004	OZ 20	KF 15	PL 42	GT 12	BI 06	CL 05				POINT COUNT	
225.2	220.8	FL GNSS	2.84	2.68	.007	OZ 20	KF 30	PL 20	MF 30		BI	GT	OP		ESTIMATE	
228.3	223.9	FL GNSS	2.67	2.71	.003	OZ 15	KF 30	PL 25	MF 30		BI	GT	HB		ESTIMATE	
231.0	226.5	FL GNSS	3.11	2.64	.005	OZ 25	KF 20	PL 30	MF 25		BI	GT	HB		ESTIMATE	
234.1	229.5	FL GNSS	2.90	2.74	.002	OZ 20	KF 20	PL 30	MF 30		BI	GT	OP		ESTIMATE	
236.5	231.9	FL GNSS	2.73	2.75	.003	OZ 20	KF 20	PL 30	MF 30		BI	GT	OP		ESTIMATE	
239.6	234.9	FL GNSS	2.99	2.76	.002	OZ 22	KF 12	PL 39	GT 15	BI 06	CL 04	OP 02			POINT COUNT	
242.6	237.9	GR GNSS	3.29	2.65	.002	OZ 29	KF 36	PL 22	BI 04	GT 02	HB 04	OP 01	MF 02		POINT COUNT	
246.3	241.5	FL GNSS	2.50	2.75	.003	OZ 11	KF 21	PL 46	BI 10	GT 08	CL 02	HB 01	MF 01		POINT COUNT	
248.7	243.8	BI GNSS	2.80	2.72	.002	OZ 25	KF 18	PL 23	BI 21	GT 11	OP 01	MF 01			POINT COUNT	
251.8	246.8	GR GNSS	3.78	2.62	.004	OZ 35	KF 44	PL 16	GT 03	OP 01	MF 01				POINT COUNT	
255.1	250.1	GR GNSS	4.21	2.62	.002	OZ 40	KF 38	PL 21	OP 01						POINT COUNT	
257.9	252.8	BI GNSS	3.21	2.74	.002	OZ 21	KF 19	PL 19	BI 35	GT 04	OP 02				POINT COUNT	
260.6	255.4	FL GNSS	2.65	2.73	.002	OZ 09	KF 22	PL 36	BI 18	GT 14	OP 01				POINT COUNT	
264.3	259.0	FL GNSS	2.82	2.72	.002	OZ 13	KF 23	PL 36	BI 14	GT 08	CL 04	OP 01	MF 01		POINT COUNT	
267.3	261.9	FL GNSS	2.42	2.76	.002	OZ 08	KF 22	PL 31	BI 14	GT 12	HB 08	CP 02	OP 01	MF 02	POINT COUNT	
270.1	264.7	FL GNSS	3.22	2.67	.002	OZ 30	KF 20	PL 30	MF 20		BI	GT	OP		ESTIMATE	

Table 2
DATA FOR HOLE CR-6

LENGTH(M)	DEPTH(M)	ROCK TYPE	COND	DENS	POR	MINERALS AND PERCENT CONTENT								METHOD
44.3	42.8	OZ MZ GNSS	2.62	2.72	.003	OZ 12	KF 30	PL 28	HB 11	GT 09	BI 05	CL 03	OP 02	POINT COUNT
87.3	84.3	FL GT GNSS	3.09	3.10	.001	OZ 04	KF 19	PL 30	HB 08	GT 18	CP 07	HY 12	OP 02	POINT COUNT
93.6	90.3	GR GNSS	2.21	2.73	.003	OZ 13	KF 21	PL 46	BI 07	HB 07	GT 03	CL 01	AP 01	MF 01
142.1	138.1	OZ MZ GNSS	2.18	2.75	.002	OZ 08	KF 33	PL 28	BI 02	HB 17	GT 10	OP 02		POINT COUNT
166.0	160.1	OZ MZ GNSS	2.03	2.75	.002	OZ 06	KF 37	PL 31	HB 10	CP 04	GT 09	OP 01		POINT COUNT
193.6	186.6	GR GNSS	3.05	2.62	.002	OZ 29	KF 38	PL 24	BI 05	HB 03	MF 01			POINT COUNT
227.4	218.9	CL GABBRO	2.11	3.00	.002	PL 42	CP 36	CL 14	OP 07	MF 01				POINT COUNT
237.0	228.0	CL GABBRO	2.07	3.01	.003	PL 42	CP 34	CL 15	OP 08	BI 01				POINT COUNT
245.6	236.2		2.27	2.51	.088									
288.2	275.1	GABBRO	2.16	3.01	.001	PL 37	CP 41	CL 09	OP 13					POINT COUNT
302.0	290.3	OZ MZ GNSS	2.12	2.75	.003	OZ 03	KF 33	PL 22	HB 14	CP 10	GT 14	OP 03	MF 01	POINT COUNT

DATA FOR HOLE CR-7

LENGTH(M)	DEPTH(M)	ROCK TYPE	COND	DENS	POR	MINERALS AND PERCENT CONTENT								METHOD
10.9	10.6	GR GNSS	2.73	2.68	.003	OZ 24	KF 30	PL 28	BI 10	HB 06	GT 01	CL 01		POINT COUNT
25.9	25.1	GR GNSS	2.58	2.77	.003	OZ 20	KF 22	PL 30	BI 16	HB 09	GT 01	CL 01	MF 01	POINT COUNT
67.8	65.5	PX GR GNSS	2.10	2.82	.004	OZ 15	KF 27	PL 15	BI 22	CP 09	GT 09	CL 02	OP 01	POINT COUNT
81.0	78.3	GR GNSS	2.58	2.73	.003	OZ 20	KF 31	PL 35	BI 03	HB 05	CL 03	GT 03		POINT COUNT
104.8	101.3	GR GNSS	2.48	2.74	.002	OZ 18	KF 29	PL 35	HB 08	BI 06	GT 04			POINT COUNT
132.2	127.6	GR GNSS	2.33	2.76	.001	OZ 16	KF 34	PL 23	BI 09	HB 09	GT 06	CL 01	OP 01	MF 01

DATA FOR HOLE CR-8

LENGTH(M)	DEPTH(M)	ROCK TYPE	COND	DENS	POR	MINERALS AND PERCENT CONTENT								METHOD
28.6	27.6	FL GNSS	2.34	2.88	.003	OZ 14	KF 28	PL 48	BI 06	HB 04				POINT COUNT
43.8	42.3	FL HB GNSS	1.87	2.77	.002	OZ 04	KF 11	PL 62	BI 03	HB 13	GT 04	OP 01	MF 02	POINT COUNT
50.4	48.7	GR GNSS	2.51	2.66	.003	OZ 21	KF 25	PL 38	BI 07	HB 07	GT 01	MF 01		POINT COUNT
54.4	52.5	FL GNSS	1.93	2.70	.003	OZ 12	KF 32	PL 45	BI 01	HB 05	GT 03	OP 01	MF 01	POINT COUNT
83.3	80.4	FL GNSS	2.48	2.91	.003	OZ 19	KF 19	PL 46	BI 07	HB 02	GT 04	CP 02	MF 01	POINT COUNT
144.3	139.0	FL BI GNSS	1.96	2.91	.002	OZ 12	KF 09	PL 46	BI 18	GT 08	CP 06	MF 01		POINT COUNT
185.4	178.1	FL GNSS	1.99	2.74	.004	OZ 05	KF 35	PL 42	BI 03	HB 09	GT 05	MF 01		POINT COUNT
215.3	206.5	PEGMATITE	3.38	2.60	.003									
219.4	210.4	GR GNSS	2.73	2.64	.002	OZ 20	KF 32	PL 39	BI 07	HB 01	MF 01			POINT COUNT
267.9	256.2	AMPHIBLIT	2.25	3.04	.002	OZ 01	PL 33	BI 08	HB 54	GT 02	OP 01	MF 01		POINT COUNT

Table 3

DATA FOR HOLE CP-9																1
LENGTH(M)	DEPTH(M)	ROCK TYPE	COND	DENS	POR	MINERALS AND PERCENT CONTENT										METHOD
17.6	15.1	FL GT GNSS	2.09	2.89	.003	QZ 01	KF 25	PL 47	GT 11	CP 08	HB 05	OP 02	AP 01		POINT COUNT	
68.8	59.3	GR GNSS	2.66	2.61	.005	QZ 33	KF 36	PL 29	GT 01	HF 01					POINT COUNT	
80.3	69.1	QZ MZ GNSS	2.35	2.75	.003	QZ 09	KF 26	PL 49	HB 09	GT 03	BI 02	CL 01	MF 01		POINT COUNT	
120.4	103.5	AMPHIBLIT	2.19	2.97	.002	QZ 01	PL 44	HB 40	BI 08	OP 03	GT 02	AP 01	MF 01		POINT COUNT	
166.1	142.6	GR GNSS	3.42	2.62	.004	QZ 37	KF 40	PL 21	BI 01	MF 01					POINT COUNT	
207.9	178.1	FL HB GNSS	2.63	2.73	.003	QZ 13	KF 20	PL 47	HB 13	GT 03	BI 02	OP 01	AP 01		POINT COUNT	
265.5	226.7	FL GNSS	2.54	2.73	.003	QZ 16	KF 20	PL 53	GT 04	BI 03	CP 02	CL 01	OP 01		POINT COUNT	
303.6	258.6	FL GNSS	2.10	2.75	.004	QZ 05	KF 23	PL 55	BI 08	HB 06	GT 02	MF 01			POINT COUNT	
313.6	266.9	GR GNSS	3.22	2.63	.003	QZ 31	KF 44	PL 23	BI 01	HB 01					POINT COUNT	
376.8	318.7	FL GT GNSS	2.15	2.77	.004	QZ 02	KF 48	PL 33	GT 09	CP 03	HB 02	OP 02	MF 01		POINT COUNT	
419.8	353.4	QZ MZ GNSS	2.43	2.70	.004	QZ 15	KF 35	PL 42	GT 03	HB 01	CP 01	CL 01	MF 02		POINT COUNT	
480.7	401.9	QZ MZ GNSS	2.24	2.78	.003	QZ 04	KF 22	PL 55	CL 07	GT 06	CP 03	OP 02	BI 01		POINT COUNT	
513.8	427.7	FL GT GNSS	2.53	2.90	.002	QZ 05	PL 50	CL 20	CP 11	GT 08	OP 04	EP 01	AP 01		POINT COUNT	
532.1	441.8	QZ MZ GNSS	2.22	2.80	.002	QZ 08	KF 12	PL 57	BI 12	CP 06	GT 04	AP 01			POINT COUNT	
566.7	468.4	AMPHIBLIT	2.22	3.10	.003	PL 36	HB 49	GT 07	CP 06	BI 01	OP 01				POINT COUNT	
592.8	488.4	MET GABBRO	2.30	3.17	.003	PL 38	HB 17	CP 15	OP 12	GT 08	BI 08	AP 02			POINT COUNT	
643.8	524.1	MET GABBRO	2.27	3.13	.002	PL 45	CP 20	HB 12	BI 08	OP 08	GT 03	KF 02	AP 02		POINT COUNT	
682.6	553.4	QZ MZ GNSS	2.25	2.83	.004	QZ 04	KF 41	PL 33	HB 08	GT 08	CL 04	OP 01	MF 01		POINT COUNT	
701.7	567.7	QZ MZ GNSS	2.32	2.77	.004	QZ 06	KF 42	PL 33	HB 09	GT 06	BI 01	OP 01	CP 01	MF 01	POINT COUNT	

Table 4

DATA FOR HOLE WN-1														1
LENGTH(M)	DEPTH(M)	ROCK TYPE	COND	DENS	POR	MINERALS AND PERCENT CONTENT								METHOD
138.5	133.8	GRANITE	3.32	2.62	.002	QZ 28	PL 30	KF 34	BI 05	MU 01	CL 01	MF 01		POINT COUNT
160.8	155.2	GRANITE	3.13	2.62	.002	QZ 20	PL 32	KF 41	BI 04	OP 01	MF 02			POINT COUNT
223.9	215.6	GRANITE	3.13	2.62	.001	QZ 26	PL 33	KF 34	BI 06	CL 01				POINT COUNT
245.9	236.6	GRANITE	2.89	2.62	.002	QZ 32	PL 42	KF 18	BI 05	MU 01	CL 01	OP 01		POINT COUNT
294.4	282.7	GRANITE	3.38	2.64	.002	QZ 29	PL 35	KF 29	BI 04	CL 01	OP 01	MF 01		POINT COUNT
303.4	291.2	GRANITE	3.41	2.62	.001	QZ 28	PL 32	KF 34	BI 04	MU 01	CL 01			POINT COUNT
345.4	330.8	GRANITE	3.49	2.62	.002	QZ 31	PL 37	KF 27	BI 03	CL 01	OP 01			POINT COUNT
384.7	367.6	GRANITE	3.05	2.63	.002	QZ 26	PL 37	KF 27	BI 07	MU 01	CL 01	OP 01		POINT COUNT
410.6	391.7	GRANITE	3.53	2.61	.002	QZ 25	PL 29	KF 40	BI 03	MU 02	OP 01			POINT COUNT
460.5	438.0	GRANITE	3.40	2.62	.003	QZ 27	PL 33	KF 31	BI 06	MU 01	CL 01	OP 01		POINT COUNT

DATA FOR HOLE WN-2														1
LENGTH(M)	DEPTH(M)	ROCK TYPE	COND	DENS	POR	MINERALS AND PERCENT CONTENT								METHOD
24.7	23.8	GRANITE	3.50	2.61	.003	QZ 30	PL 31	KF 30	BI 04	MU 02	CL 01	EP 01	OP 01	POINT COUNT
55.4	53.4	TONALITE	3.03	2.70	.002	QZ 26	PL 43	KF 03	BI 24	EP 03	MF 01			POINT COUNT
85.2	82.0	TONALITE	3.02	2.73	.002	QZ 25	PL 40	KF 02	BI 24	MU 01	EP 06	MF 02		POINT COUNT
98.4	94.6	GRANITE	3.45	2.63	.002	QZ 32	PL 27	KF 34	BI 03	MU 01	OP 02	MF 01		POINT COUNT
124.6	119.7	GRANITE	3.50	2.61	.003	QZ 28	PL 28	KF 37	BI 03	MU 01	EP 01	OP 01	MF 01	POINT COUNT
145.8	139.9	GRANITE	3.20	2.63	.002	QZ 23	PL 37	KF 31	BI 05	MU 01	CL 01	EP 01	OP 01	POINT COUNT

DATA FOR HOLE WN-4														1
LENGTH(M)	DEPTH(M)	ROCK TYPE	COND	DENS	POR	MINERALS AND PERCENT CONTENT								METHOD
408.9	389.6	GRANITE	3.39	2.62	.004	QZ 30	PL 32	KF 34	BI 03	MU 01				POINT COUNT
468.9	444.9	GRANITE	3.07	2.61	.004	QZ 29	PL 47	KF 18	BI 02	MU 01	CL 01	OP 01	MF 01	POINT COUNT
482.6	457.4	GRANITE	3.44	2.62	.004	QZ 28	PL 47	KF 22	BI 02	MF 01				POINT COUNT
505.8	478.4	GRANITE	3.37	2.62	.004	QZ 34	PL 33	KF 28	BI 03	MU 01	MF 01			POINT COUNT
551.2	519.2	GRANITE	3.34	2.61	.004	QZ 27	PL 28	KF 42	BI 01	MF 02				POINT COUNT
564.3	530.9	GRANITE	3.25	2.63	.003	QZ 30	PL 41	KF 24	BI 03	MU 01	MF 01			POINT COUNT
603.8	565.8	GRANITE	3.40	2.62	.004	QZ 35	PL 29	KF 31	BI 02	MU 01	CL 01	MF 01		POINT COUNT
631.4	589.9	GRANITE	3.41	2.62	.005	QZ 30	PL 36	KF 32	BI 02					POINT COUNT
660.0	614.5	GRANITE	3.14	2.61	.005	QZ 32	PL 40	KF 23	BI 02	MU 01	MF 02			POINT COUNT
692.6	642.3	GRANITE	3.14	2.62	.004	QZ 20	PL 41	KF 35	BI 03	MU 01				POINT COUNT
719.5	664.8	GRANITE	3.46	2.60	.005	QZ 34	PL 33	KF 31	BI 01	MU 01				POINT COUNT
746.9	687.5	GRANITE	3.35	2.64	.005	QZ 23	PL 39	KF 33	BI 03	MU 01	MF 01			POINT COUNT
789.6	722.5	GRANITE	3.24	2.63	.006	QZ 27	PL 40	KF 27	BI 03	MU 01	OP 01	MF 01		POINT COUNT
809.4	738.4	GRANITE	3.27	2.63	.006	QZ 29	PL 36	KF 29	BI 04	MU 01	MF 01			POINT COUNT
840.9	763.3	GRANITE	3.30	2.62	.006	QZ 32	PL 36	KF 25	BI 05	MF 02				POINT COUNT
863.1	780.6	GRANITE	2.97	2.59	.007	QZ 12	PL 24	KF 61	BI 01	MU 01	CL 01			POINT COUNT
906.5	813.6	GRANITE	3.30	2.61	.005	QZ 32	PL 34	KF 29	BI 04	MU 01				POINT COUNT
928.6	830.0	GRANITE	3.40	2.63	.006	QZ 30	PL 40	KF 20	BI 10					ESTIMATE

Table 5

DATA FOR HOLE WN-4

LENGTH(M)	DEPTH(M)	COND	DEHS	POK	SIZE
31.1	30.1	3.22	2.61	.003	13.02
31.0	30.1	3.65	2.61	.003	19.64
38.7	37.6	3.81	2.62	.004	10.17
38.7	37.6	4.15	2.62	.003	19.20
50.4	48.9	3.48	2.62	.004	19.86
50.4	48.9	3.46	2.62	.003	20.46
53.9	52.3	3.14	2.45	.003	10.45
54.0	52.4	3.08	2.73	.002	19.32
56.9	55.2	2.39	2.78	.003	20.92
57.0	55.3	2.89	2.55	.005	10.63
57.0	55.3	2.92	2.56	.004	20.26
62.8	60.8	2.64	2.68	.003	10.54
62.8	60.8	2.71	2.67	.002	19.46
69.2	67.0	3.31	2.79	.003	09.81
69.2	67.0	3.50	2.73	.003	19.05
80.4	77.9	2.27	2.74	.002	10.49
80.4	77.9	2.02	2.78	.003	16.42
86.3	83.6	2.24	2.74	.002	08.54
86.3	83.6	2.34	2.78	.002	18.15
96.6	93.6	3.21	2.70	.002	10.09
96.6	93.6	3.27	2.71	.002	19.45
103.9	100.6	3.13	2.62	.003	10.38
103.9	100.6	3.43	2.62	.003	19.46
111.1	107.5	3.08	2.61	.004	10.28
111.1	107.5	3.37	2.61	.003	17.66
122.2	118.2	3.43	2.62	.004	09.48
122.2	118.2	3.59	2.62	.003	20.10
129.9	125.6	3.50	2.61	.004	10.30
129.9	125.6	3.67	2.61	.003	20.46
136.4	131.8	3.45	2.60	.003	09.91
136.4	131.8	3.70	2.60	.003	20.15
144.8	139.9	3.20	2.63	.003	10.14
144.8	139.9	3.42	2.62	.005	20.15
149.4	144.3	3.34	2.62	.003	10.24
149.4	144.3	3.57	2.61	.003	19.59
159.5	154.0	3.53	2.61	.004	10.34
159.5	154.0	3.64	2.61	.003	19.93
168.7	162.9	3.47	2.61	.004	09.06
168.7	162.9	3.61	2.61	.004	20.04
177.0	170.8	3.52	2.60	.003	10.27
177.0	170.8	3.56	2.60	.003	19.58
186.0	179.5	3.27	2.62	.003	10.37
186.0	179.5	3.38	2.63	.003	19.57
194.5	187.6	3.45	2.62	.004	10.47
194.5	187.6	3.53	2.62	.003	19.57
201.9	194.7	3.46	2.66	.003	10.15
201.9	194.7	3.53	2.64	.003	19.37
208.0	200.5	3.29	2.65	.004	10.36
208.0	200.5	3.37	2.65	.004	19.88
220.0	212.0	3.32	2.66	.004	09.84
220.0	212.0	3.52	2.65	.003	19.43
226.5	218.2	3.43	2.68	.004	10.62
226.5	218.2	3.79	2.65	.003	20.85

Table 5 (continued)

DATA FOR HOLE WN-4

2

LENGTH (M)	DEPTH (M)	COND	DENS	POR	SIZE
231.0	222.5	3.47	2.62	.004	09.91
231.0	222.5	3.66	2.62	.004	18.40
242.3	233.2	3.09	2.62	.005	09.77
242.3	233.2	3.19	2.62	.004	18.44
250.1	240.6	3.07	2.63	.003	09.56
250.1	240.6	3.25	2.69	.003	18.87
257.8	247.9	3.45	2.62	.004	10.27
257.8	247.9	3.65	2.62	.003	18.78
266.0	255.7	3.45	2.62	.005	09.92
266.0	255.7	3.65	2.61	.004	19.16
273.8	263.1	3.50	2.61	.004	10.24
273.8	263.1	3.50	2.62	.004	19.53
279.9	268.9	3.30	2.63	.005	10.79
279.9	268.9	3.35	2.63	.003	19.44
291.5	279.8	3.27	2.74	.004	10.81
291.5	279.8	3.50	2.62	.004	18.73
297.7	285.7	3.41	2.62	.003	10.15
297.7	285.7	3.57	2.62	.003	18.73
307.0	294.5	3.21	2.62	.003	09.10
307.0	294.5	3.34	2.62	.004	20.56
314.4	301.4	3.41	2.45	.004	09.43
322.0	308.6	3.38	2.62	.003	09.31
322.0	308.6	3.40	2.62	.004	19.06
329.6	315.7	3.41	2.45	.004	09.43
329.6	315.7	3.70	2.55	.003	19.76
338.2	323.8	3.44	2.62	.003	10.32
338.2	323.8	3.64	2.62	.003	19.87
345.9	331.0	3.49	2.62	.003	10.57
345.9	331.0	3.57	2.62	.003	19.46
356.2	340.6	3.50	2.61	.005	09.80
356.2	340.6	3.07	2.61	.001	19.70
365.0	348.9	3.44	2.56	.004	19.93
365.1	348.9	3.36	2.63	.006	10.76
373.9	357.1	3.55	2.64	.005	09.88
373.9	357.1	3.63	2.63	.003	14.85
378.3	361.2	2.99	2.62	.004	10.02
378.3	361.2	3.44	2.62	.003	15.01
386.2	368.5	3.50	2.64	.006	10.04
386.2	368.5	3.42	2.63	.003	15.01
394.0	375.8	3.40	2.62	.006	09.96
394.0	375.8	3.44	2.62	.005	15.00
402.9	384.0	2.81	2.63	.005	10.01
402.9	384.0	3.31	2.63	.004	15.03
410.1	390.7	3.44	2.63	.005	10.03
410.1	390.7	3.41	2.62	.003	15.05
418.1	398.1	3.42	2.62	.004	15.04
418.2	398.2	3.62	2.65	.006	10.00
425.4	404.9	3.45	2.63	.005	10.00
425.9	405.3	3.36	2.64	.004	15.02
434.4	413.2	3.49	2.64	.006	10.06
434.4	413.2	3.37	2.62	.004	15.05
441.0	419.3	4.05	2.63	.006	10.01
441.0	419.3	3.49	2.62	.006	15.04

DATA FOR HOLE WH-4

3

LENGTH(M)	DEPTH(M)	COND	DENS	POR	SIZE
449.7	427.3	3.28	2.63	.005	10.00
449.7	427.3	3.52	2.63	.004	14.96
453.4	427.9	2.95	2.59	.006	10.03
450.4	427.9	3.37	2.56	.005	15.01
457.1	434.1	3.59	2.63	.009	09.96
457.1	434.1	3.35	2.62	.005	14.96
466.5	442.7	3.51	2.63	.004	10.03
466.5	442.7	3.52	2.63	.004	14.98
474.4	449.9	3.54	2.62	.004	10.04
474.4	449.9	3.42	2.62	.004	14.93
482.0	456.8	3.39	2.63	.006	10.01
482.0	456.8	3.50	2.62	.004	14.99
490.2	464.3	3.41	2.64	.008	10.00
490.2	464.3	3.41	2.64	.004	15.03
498.9	472.1	3.64	2.63	.006	10.04
498.9	472.1	3.57	2.62	.004	15.00
505.1	477.7	3.66	2.63	.005	10.07
505.1	477.7	3.54	2.62	.004	15.00
512.9	484.8	2.56	3.03	.005	10.06
512.9	484.8	2.49	3.03	.003	14.93
513.8	485.6	3.14	2.64	.004	10.08
513.8	485.6	3.32	2.64	.004	14.99
521.3	492.3	3.47	2.63	.006	09.95
521.3	492.3	3.43	2.64	.005	15.01
529.7	499.9	3.61	2.59	.006	10.04
529.7	499.9	3.63	2.61	.003	15.01
538.0	507.3	3.41	2.63	.006	10.02
538.0	507.3	3.60	2.60	.004	14.98
545.6	514.2	3.38	2.64	.003	10.02
545.6	514.2	3.36	2.64	.003	15.01
553.6	521.3	3.38	2.64	.007	09.92
553.6	521.3	3.40	2.64	.004	15.01
563.0	529.7	3.63	2.63	.005	09.93
563.0	529.7	3.55	2.63	.004	15.02
569.0	535.1	3.40	2.63	.008	10.03
569.0	535.1	3.37	2.63	.004	14.98
578.1	543.2	3.53	2.63	.008	10.04
578.1	543.2	3.58	2.63	.004	15.00
587.1	552.0	3.34	2.62	.008	10.05
587.1	552.0	3.46	2.61	.005	15.04
594.0	557.2	3.42	2.63	.006	09.89
594.0	557.2	3.49	2.62	.004	14.98
601.9	564.2	3.49	2.62	.004	15.00
602.0	564.3	3.49	2.63	.005	09.99
610.3	571.5	3.53	2.63	.005	10.03
610.3	571.5	3.46	2.63	.004	15.04
616.9	577.3	3.61	2.61	.005	14.93
626.4	585.6	3.67	2.62	.005	15.00
634.6	592.7	3.44	2.61	.006	14.98
641.3	598.7	3.53	2.62	.006	15.00
651.6	607.4	3.66	2.62	.005	15.00
658.0	612.8	3.69	2.61	.006	15.03
666.8	620.4	3.60	2.62	.005	15.01

Table 5 (continued)

DATA FOR HOLE HN-4

LENGTH (M)	DEPTH (M)	COND	DENS	POR	SIZE
674.4	626.8	3.58	2.61	.005	14.98
682.2	633.5	3.64	2.67	.006	15.01
689.7	639.8	3.71	2.61	.005	14.97
697.7	646.6	3.59	2.61	.005	14.99
705.0	652.6	3.56	2.61	.004	14.97
706.2	653.7	3.84	2.61	.005	14.99
715.4	661.4	3.68	2.62	.005	14.98
722.2	670.6	3.57	2.61	.006	15.00
730.6	674.1	3.59	2.62	.005	14.99
739.3	681.3	3.42	2.63	.005	14.98
746.2	687.0	3.49	2.63	.005	14.98
755.0	694.2	3.49	2.63	.006	14.98
762.3	700.2	3.44	2.63	.006	14.98
769.9	706.4	3.44	2.62	.007	15.07
777.9	713.0	3.46	2.62	.006	14.97
786.0	719.6	3.36	2.63	.006	15.02
793.9	726.0	3.34	2.64	.006	14.91
801.7	732.2	3.28	2.63	.007	14.92
810.0	738.9	3.25	2.63	.006	14.92
819.3	746.3	3.42	2.64	.006	14.84
826.1	751.7	3.30	2.64	.007	14.96
834.3	758.1	3.38	2.63	.006	14.82
842.8	764.8	3.35	2.64	.007	14.93
850.7	771.0	3.37	2.64	.005	14.97
858.2	776.8	3.44	2.64	.006	14.96
865.8	782.6	3.41	2.64	.006	14.94
874.4	789.3	3.43	2.64	.006	14.97
882.0	795.1	3.16	2.62	.007	14.97
889.7	800.9	3.27	2.63	.006	14.94
898.1	807.3	3.40	2.64	.006	14.98
906.1	813.3	3.39	2.63	.011	14.93
914.1	819.3	3.36	2.63	.005	14.95
921.5	824.8	3.37	2.63	.006	14.96
928.0	829.6	3.28	2.64	.007	14.94

Table 5 (continued)

Table 6

DATA FOR HOLE ATK-1															1									
LENGTH(M)	DEPTH(M)	ROCK TYPE	COND	DENS	POR	MINERALS AND PERCENT CONTENT									METHOD									
13.6	13.1	GRNDIORIT	3.23	2.65	.004	QZ	27	PL	54	KF	13	BI	03	SF	01	OP	01	MF	01	POINT COUNT				
40.0	38.6	GRNDIORIT	3.26	2.65	.004	QZ	27	PL	48	KF	21	BI	02	MF	02					POINT COUNT				
79.3	76.4	GRNDIORIT	3.34	2.64	.004	QZ	31	PL	46	KF	17	BI	03	HB	J1	EP	01	MF	J1	POINT COUNT				
94.0	90.5	GRNDIORIT	3.59	2.63	.004	QZ	22	PL	49	KF	21	CL	06	OP	02					POINT COUNT				
111.1	106.9	GRNDIORIT	3.35	2.64	.004	QZ	21	PL	50	KF	23	BI	03	EP	01	MF	02			POINT COUNT				
128.5	123.6	GRNDIORIT	3.38	2.65	.003	QZ	26	PL	46	KF	22	BI	03	HB	01	EP	01	MF	J1	POINT COUNT				
163.0	156.6	GRNDIORIT	3.27	2.65	.004	QZ	22	PL	49	KF	23	BI	03	HB	01	SF	01	OP	01	POINT COUNT				
174.6	167.7	GRNDIORIT	3.16	2.65	.003	QZ	22	PL	49	KF	23	BI	03	HB	01	MF	02			POINT COUNT				
238.0	227.8	GRNDIORIT	3.30	2.65	.003	QZ	24	PL	46	KF	24	BI	04	HB	01	EP	01			POINT COUNT				
283.5	270.7	GRNDIORIT	3.22	2.66	.003	QZ	28	PL	43	KF	21	BI	03	CL	01	EP	01	OP	01	HB	01	SF	01	POINT COUNT
320.1	305.0	GRNDIORIT	3.28	2.65	.006	QZ	25	PL	48	KF	20	BI	03	HB	02	EP	01	SF	01					POINT COUNT
361.3	343.3	GRANITE	3.26	2.65	.005	QZ	21	PL	47	KF	26	BI	03	HB	01	EP	01	SF	01					POINT COUNT
400.6	379.6	GRANITE	3.22	2.64	.005	QZ	25	PL	45	KF	25	BI	02	HB	02	MF	01							POINT COUNT
433.4	409.8	GRNDIORIT	3.29	2.65	.005	QZ	24	PL	46	KF	24	BI	04	HB	01	EP	01							POINT COUNT
475.4	448.1	GRNDIORIT	3.41	2.65	.004	QZ	26	PL	45	KF	23	BI	04	EP	01	MF	01							POINT COUNT
505.3	475.3	GRNDIORIT	3.30	2.65	.005	QZ	25	PL	53	KF	17	BI	03	EP	01	MF	01							POINT COUNT
540.0	506.7	GRNDIORIT	3.37	2.65	.004	QZ	29	PL	46	KF	16	BI	04	HB	01	EP	02	SF	J1	MF	01			POINT COUNT
594.1	555.6	GRNDIORIT	3.24	2.64	.007	QZ	26	PL	47	KF	22	BI	03	OP	01	HB	01							POINT COUNT
630.3	588.2	GRANITE	3.20	2.65	.007	QZ	22	PL	42	KF	33	BI	02	HB	01									POINT COUNT
671.1	624.7	GRANITE	3.31	2.65	.005	QZ	27	PL	41	KF	27	BI	03	HB	01	MF	01							POINT COUNT
715.1	663.8	GRNDIORIT	3.32	2.61	.004	QZ	21	PL	49	KF	23	BI	04	HB	01	EP	01	MF	01					POINT COUNT
747.2	692.1	GRNDIORIT	3.14	2.65	.006	QZ	27	PL	47	KF	17	BI	04	HB	01	EP	01	AP	01	SF	01	MF	01	POINT COUNT
788.2	727.9	GRNDIORIT	3.16	2.64	.007	QZ	29	PL	47	KF	18	BI	03	HB	01	EP	01	MF	01					POINT COUNT
812.4	748.9	GRNDIORIT	3.07	2.65	.006	QZ	27	PL	44	KF	20	BI	04	HB	01	EP	01	OP	01	SF	01	MF	01	POINT COUNT
848.8	780.4	GRNDIORIT	3.17	2.59	.005	QZ	25	PL	47	KF	19	BI	05	HB	01	EP	01	SF	J1	OP	01			POINT COUNT
902.0	826.0	GRNDIORIT	3.15	2.65	.006	QZ	27	PL	47	KF	20	BI	04	EP	01	MF	01							POINT COUNT
923.9	844.6	GRNDIORIT	3.35	2.65	.004	QZ	26	PL	50	KF	18	BI	03	HB	01	EP	01	MF	J1					POINT COUNT
979.8	891.5	GRNDIORIT	3.24	2.65	.005	QZ	34	PL	48	KF	14	BI	02	HB	01	EP	01							POINT COUNT
1021.3	926.0	GRNDIORIT	3.09	2.65	.007	QZ	27	PL	43	KF	21	BI	04	HB	02	EP	01	SF	01	MF	01			POINT COUNT
1034.4	936.8	GRANITE	3.60	2.63	.004	QZ	26	PL	42	KF	29	BI	01	CL	01	MF	01							POINT COUNT
1063.5	960.7	GRNDIORIT	3.14	2.65	.007	QZ	19	PL	51	KF	23	BI	03	HB	01	EP	01	MF	J2					POINT COUNT
1079.0	973.4	GRNDIORIT	3.28	2.65	.005	QZ	22	PL	52	KF	22	BI	02	HB	01	MF	01							POINT COUNT
1097.9	988.9	GRNDIORIT	3.23	2.64	.005	QZ	21	PL	53	KF	20	BI	01	EP	01	CL	02	MF	02					POINT COUNT
1120.4	1007.2	GRNDIORIT	3.43	2.64	.007	QZ	25	PL	47	KF	21	EP	02	CL	04	SF	01							POINT COUNT
1140.3	1023.4	GRNDIORIT	3.07	2.64	.010	QZ	19	PL	49	KF	25	BI	03	HB	01	EP	01	SF	J1	MF	01			POINT COUNT

Table 7

ABBREVIATIONS - ROCKS

AC SCHIST	ACTINOLITE SCHIST	GT GNSS	GARNET GNEISS
ACID VOLC	ACID VOLCANICS	GT SCHIST	GARNET SCHIST
AMPHIBLIT	AMPHIBOLITE	HA GNSS	HORNBLLENDE GNEISS
ANDESITE	ANDESITE	LIMESTONE	LIMESTONE
AND POPPH	ANDESITE PORPHYRY	MFT GABBRO	METAGABBRO
AN GABBRO	ANORTHOSITE GABBRO	MET SEDT	METASEDIMENT
ANORTHOSIT	ANORTHOSITE	MFT TUFF	METATUFF
AU GNSS	AUGITE GNEISS	MFT VOLC	METAVOLCANIC
BASALT	BASALT	MONZONITE	MONZONITE
BI GNSS	BIOTITE GNEISS	NOFITE	NOFITE
BI GR GNSS	BIOTITE GRANITE GNEISS	PEGMATITE	PEGMATITE
BI GRANIT	BIOTITE GRANITE	PERICOTIT	PERIDOTITE
BI SCHIST	BIOTITE SCHIST	PY GR GNSS	PYROXENE GRANITE GNEISS
BI SI GNSS	BIOTITE SILLIMANITE GNEISS	PX GT GNSS	PYROXENE GARNET GNEISS
CL GABBRO	CHLORITISED GABBRO	QDIOFIT	QUARTZ DICRITE
CL SCHIST	CHLORITE SCHIST	QDPERRO	QUARTZ GABBRO
DIORITE	DIORITE	QMONZONIT	QUARTZ MONZONITE
DOLCHITE	DOLCHITE	QSYENIT	QUARTZ SYENITE
FL BI GNSS	FELDSPAR BIOTITE GNEISS	QUARTZITE	QUARTZITE
FL EP VEIN	FELDSPAR EPIDOTE VEIN	Q7 BI GNSS	QUARTZ BIOTITE GNEISS
FL GNSS	FELDSPAR GNEISS	Q7 FL GNSS	QUARTZ FELDSPAR GNEISS
FL GT GNSS	FELDSPAR GARNET GNEISS	Q7 HB GNSS	QUARTZ HORNBLLENDE GNEISS
FL HA GNSS	FELDSPAR HORNBLLENDE GNEISS	Q7 GNSS	QUARTZ GNEISS
FL FORPH	FELDSPAR PORPHYRY	Q7 M7 GNSS	QUARTZ MONZONITE GNEISS
FL Q7 VEIN	FELDSPAR QUARTZ VEIN	SANDSTONE	SANDSTONE
FL VEIN	FELDSPAR VEIN	SF SCHIST	SERICITE SCHIST
GABBRO	GABBRO	SERPENT	SERPENTINITE
GR GNSS	GRANITIC GNEISS	SILTSTONE	SILTSTONE
GRANITE	GRANITE	SY GNSS	SYENITIC GNEISS
GRANOPHYR	GRANOPHYRE	SYENITE	SYENITE
GRG GNSS	GRANODIORITE GNEISS	SYCCIORIT	SYENODIORITE
GRNDIORIT	GRANODIORITE	TONALITE	TONALITE

Table 8

ABBREVIATIONS - MINERALS

AC	ACTINOLITE	AG	AGEIRINE	AL	ALLANITE
AP	APATITE				
BI	BIOTITE				
CA	CALCITE	CB	CARBONATE	CD	CORDIERITE
CL	CHLORITE	CM	CUMINGTONITE	CP	CLINOPYROXENE
EP	EPIDOTE				
FL	FELDSPAR				
GT	GARNET				
HB	HORNBLLENDE	HY	HYPERSTHENE		
KF	POTASSIUM FELDSPAR				
MF	MAFICS	MI	MICROCLINE	HU	MUSCOVITE
OL	OLIVINE	OP	OPAQUES		
PH	PHLOGOPITE	PL	PLAGIOCLASE	PX	PYROXENE
PY	PYRITE				
QZ	QUARTZ				
SE	SERICITE	SF	SPHENE	SI	SILLIMANITE
SL	SULPHIDE	SR	SERPENTINE		
ZR	ZIRCON				