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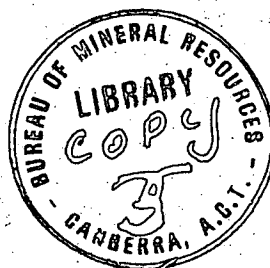
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CHEMICAL ANALYSES OF ACID IGNEOUS ROCKS FROM
NORTHEAST QUEENSLAND

by

J.W. Sheraton

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INTRODUCTION

Analytical data for 562 rock samples from the Georgetown Inlier and adjacent Hodgkinson Basin of northeast Queensland are listed. Most of the samples are intrusive or extrusive acid igneous rocks, but also included are some associated basic and intermediate igneous rocks and four siltstones. The samples were collected as part of a geochemical investigation of the mineralized granitic rocks of the area, the results of which are reported in Sheraton and Labonne (1975). Petrographic and locality data are given in Sheraton and Labonne (1974).

Major and trace element data, CIPW norm, differentiation index (DI) (i.e., the sum of normative quartz, orthoclase, and albite: Thornton and Tuttle, 1960), normative colour index (CI), Niggli k and mg values, and certain element ratios are included for each sample. Results for major oxides are given in percent; those for trace elements in parts per million. "n.d." indicates that the element was not detected.

Analytical Methods

Determination of Si, Ti, Al, Fe (total), Mn, Mg, Ca, Na, K, P, Ga, Rb, Sr, Y, Zr, Ba, La, Ce, Pb, Th, and U were carried out in the B.M.R. laboratories, using a Philips PW-1210 automatic X-ray spectrometer (analysts, J.W. Sheraton, J.C. Weekes). Major elements (except for Na_2O) were determined on fusion discs, using the technique of Norrish and Hutton (1969). Na_2O was measured on pressed powder pellets. Trace elements were also determined on powder pellets, with direct measurement of the mass absorption coefficients of each sample (Norrish and Chappell, 1967). Empirical interfering element corrections were made where necessary. Detection limits (Table 1) were calculated at the 95 percent confidence level for detection of peak above background, using the relation given by Jenkins and de Vries (1967):

Table 1. Detection limits (in percent for major oxides and ppm
for trace elements).

SiO ₂	0.02
TiO ₂	0.004
Al ₂ O ₃	0.03
Fe ₂ O ₃	0.01
MnO	0.005
MgO	0.11
CaO	0.006
Na ₂ O	0.11
K ₂ O	0.002
P ₂ O ₅	0.006
Li	1
Be	0.5
Cr	3
Co	3
Ni	3
Cu	1
Zn	1
Ga	2
Rb	1
Sr	0.5
Y	1
Zr	2
Sn	4
Ba	3
La	2
Ce	7
Pb	2
Th	2
U	2

$$\text{Detection limit} = \frac{3c}{(R_p - R_b)} \sqrt{\frac{R_b}{t}},$$

where R_p = Peak count rate (counts/sec),

R_b = Background count rate (counts/sec),

t = Background counting time (secs),

c = Concentration of element.

Li, Be, Cr, Co, Ni, Cu, Zn, and Sn were determined by atomic absorption spectroscopy in the B.M.R. laboratories (analysts, R.W. Powell, G. Willcocks).

H₂O, CO₂, F, and ferrous iron were determined by the Australian Mineral Development Laboratories.

Precision and Accuracy

Precision of the X-ray fluorescence technique is generally good. The effects of all but very short-term drift in machine conditions were practically eliminated by ratioing each measurement to a reference standard. Each determination was carried out in duplicate (using the same sample), and, in cases where significant differences occurred between duplicates, the determination was repeated. Replicate sample precision was checked by running duplicate samples, and was found to be within acceptable limits ($\pm 1\%$ for fusion discs, and considerably better for powder pellets).

Accuracy was assessed by analysing international rock standards. Comparisons of XRF and AA results with recommended values for two U.S.G.S. standard rocks (G2 and AGVI) are given in Table 2. Data for the U.S.G.S. standards are from Flanagan (1969). For several trace elements, means were recalculated after rejecting some obviously spurious values. In many cases, this was found to give a much more reasonable value than the averages given by Flanagan (1969, p.109). Thus, for Rb in G2, the very high value of 513 ppm was rejected and the mean of the remaining values was calculated. In cases

Table 2. Comparison of standard rock analyses

	G2		AGVI	
	Recommended	XRF	Recommended	XRF
SiO ₂	69.19	69.16	59.00	59.27
TiO ₂	0.53	0.50	1.08	1.09
Al ₂ O ₃	15.35	15.30	17.01	17.15
+Fe ₂ O ₃	2.77	2.68	6.80	6.86
MnO	0.04	0.03	0.10	0.10
MgO	0.78	0.80	1.49	1.61
CaO	1.99	1.93	4.98	4.98
Na ₂ O	4.16	4.18	4.33	4.10
K ₂ O	4.51	4.43	2.90	2.91
P ₂ O ₅	0.14	0.13	0.49	0.50
TOTAL	99.46	99.14	98.18	98.57
Cr	9	11*	13	
Co	5	9*	16	
Ni	6	< 3*	18	
Cu	11	13*	64	
Ga	20	22	18	20
Rb	174	168	75	65
Sr	463	492	657	661
Y	12	13	25	20
Zr	320	333	230	241
Ba	1950	1836	1340	1205
La	104	95	40	41
Ce	166	168	76	68
Pb	29	29	35	34
Th	25	31	7.0	8
U	2.0	~ 1.5	1.9	2.5

+ Total iron as Fe₂O₃

* Atomic absorption results

where individual reported values are themselves means of two or more determinations, the values were taken only once. Replicate analyses from the same laboratory are liable to the same systematic errors, and there seems no reason to weight the final average in favour of these values. The recalculated mean Rb content for G2 is 174 ppm, which compares much more favourably with the majority of the quoted values than the average of 234 ppm given by Flanagan. For AGVI, recalculated and published means for Rb are 75 and 89 ppm, respectively.

For most major elements, agreement between recommended and XRF results is good (i.e., within ± 3 percent). For Na_2O and most trace elements (except near the detection limit), accuracy is of the order of $\pm 5-10$ percent. Uncertainties in the compositions of the international standards, particularly for trace elements, means that estimates of accuracy can be only approximate, however.

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APPENDIX:
ANALYTICAL DATA

	6859 0014	6859 0015	7057 1051	7057 1052	7057 1053	7057 1054	7057 1055	7057 1057	7057 1058
SiO ₂	74.2	72.3	70.9	75.8	73.5	69.8	70.4	70.1	70.5
TiO ₂	0.22	0.27	0.38	0.05	0.12	0.41	0.37	0.51	0.48
Al ₂ O ₃	13.03	13.53	14.33	12.81	13.23	14.51	13.99	12.60	12.62
Fe ₂ O ₃	0.33	0.41	0.99	0.29	0.62	1.02	0.94	1.89	2.18
FeO	2.05	2.00	2.10	0.71	0.93	2.45	2.10	3.00	2.55
MnO	0.04	0.05	0.05	0.04	0.04	0.06	0.04	0.09	0.08
MgO	0.25	0.25	0.53	0.09	0.31	0.50	0.38	0.32	0.28
CaO	0.79	1.32	2.85	0.94	0.97	2.50	1.28	1.71	1.70
Na ₂ O	2.3	2.55	3.0	3.3	3.0	2.9	2.45	2.4	2.4
K ₂ O	5.34	5.40	3.18	4.95	5.22	3.69	5.97	4.94	4.96
P ₂ O ₅	0.15	0.13	0.13	0.01	0.06	0.14	0.13	0.15	0.15
H ₂ O	1.03	1.09	1.18	0.88	1.29	1.39	1.41	1.84	1.75
CO ₂									
TOTAL	99.73	99.30	99.62	99.87	99.29	99.37	99.45	99.55	99.65
q	37.67	33.18	34.30	35.27	33.97	32.55	29.83	32.93	33.50
or	31.96	32.46	19.04	29.53	31.47	22.25	35.95	29.86	29.92
ab	19.87	22.03	25.62	28.43	25.81	24.78	21.12	20.60	20.90
an	2.98	5.80	13.50	4.64	4.51	11.72	5.61	7.68	7.61
c	2.38	1.41	1.15	0.28	1.07	1.62	1.51	0.60	0.55
di	-	-	-	-	-	-	-	-	-
hy	3.86	3.63	3.87	1.28	1.87	4.41	3.52	4.14	2.97
mt	0.51	0.66	1.49	0.44	0.93	1.54	1.42	2.85	3.27
il	0.42	0.52	0.73	0.10	0.23	0.79	0.74	0.99	0.93
ap	0.36	0.31	0.31	0.02	0.15	0.34	0.31	0.36	0.36
DI	89.5	87.7	79.0	93.2	91.3	79.6	86.9	83.4	84.3
CI	7.5	6.5	7.6	2.1	4.3	8.7	7.5	8.9	8.1

Esmeralda granite

68590014 Biotite granite, E54/11/1.

68590015 Biotite granite, E54/11/4.

70571051 Garnetiferous biotite adamellite

70571052 Biotite-muscovite granite

70571053 Tourmaline-bearing biotite-muscovite granite

70571054 Porphyritic biotite adamellite

70571055 Biotite adamellite

70571057 Biotite adamellite

70571058 Biotite adamellite

	6895 0014	6895 0015	7057 1051	7057 1052	7057 1053	7057 1054	7057 1055	7057 1057	7057 1058
Li	37	28	25	15	31	38	37	27	26
Be	4.5	4.5	4.0	7.5	6.0	4.5	3.5	4.5	4.5
F	-	-	-	-	-	1500	-	-	-
Cr	-	-	6	n.d.	n.d.	6	4	n.d.	n.d.
Co	6	4	-	-	-	-	-	-	-
Ni	3	n.d.	3	n.d.	3	3	n.d.	n.d.	n.d.
Cu	8	5	6	1	2	7	4	12	8
Zn	71	84	65	27	34	65	65	139	133
Ga	20	20	22	17	17	24	21	21	21
Rb	317	333	173	393	384	220	273	240	261
Sr	49	80	136	36	71	149	102	74	85
Y	57	58	33	36	51	59	70	80	85
Zr	143	183	199	98	110	220	224	477	508
Sn	7	4	6	5	5	n.d.	4	6	7
Ba	540	710	620	30	375	635	855	1045	1040
La	27	29	61	18	23	62	64	89	87
Ce	63	63	132	54	60	126	141	183	182
Pb	36	51	39	58	58	40	60	61	64
Th	19	22	28	47	29	30	37	33	35
U	6	4	4	26	18	9	8	6	8
Mg/Li	41	54	130	36	61	79	62	70	65
Rb/Sr	6.5	4.2	1.27	10.9	5.4	1.48	2.7	3.2	3.1
K/Rb	140	135	153	105	113	139	181	171	158
Ba/Sr	11.0	8.9	4.6	0.83	5.3	4.3	8.4	14.1	12.2
Ba/Rb	1.70	2.1	3.6	0.076	0.98	2.9	3.1	4.4	4.0
K/Ba	82	63	43	1370	115	48	58	39	40
Ca/Sr	116	118	150	186	97	120	90	165	142
Ca/Y	100	160	620	185	135	300	130	155	140
K/Pb	1230	880	680	710	750	770	830	670	640
Th/U	3.2	5.5	7.0	1.8	1.6	3.3	4.6	5.5	4.4
K/U	7400	11000	6600	1600	2400	3400	6200	6800	5200
Al/Ga	3400	3600	3500	4000	4100	3200	3500	3200	3200
mg	0.16	0.15	0.24	0.14	0.26	0.21	0.18	0.11	0.10
k	0.60	0.58	0.41	0.49	0.53	0.46	0.62	0.58	0.57

	7057 1059	7057 1060	7057 1062	7057 1064	7057 1065	7057 1066	7057 1067	7057 1069	7057 1073
SiO ₂	69.7	70.6	73.3	74.7	74.8	73.9	73.9	72.5	70.3
TiO ₂	0.49	0.50	0.26	0.31	0.11	0.15	0.09	0.29	0.31
Al ₂ O ₃	12.59	12.57	12.59	11.75	12.59	13.13	12.65	13.21	14.70
Fe ₂ O ₃	1.83	1.82	0.95	0.67	0.49	0.49	0.71	0.73	0.99
FeO	3.05	2.95	1.57	1.60	1.19	1.23	1.53	1.60	1.64
MnO	0.08	0.09	0.04	0.04	0.03	0.03	0.08	0.04	0.05
MgO	0.35	0.31	0.27	0.23	0.09	0.18	0.12	0.21	0.33
CaO	1.75	1.75	1.18	0.66	0.50	0.78	0.51	1.32	1.77
Na ₂ O	2.5	2.45	2.65	2.2	2.6	2.75	2.6	2.35	2.85
K ₂ O	4.91	4.96	5.10	5.63	5.72	5.37	5.67	5.33	4.74
P ₂ O ₅	0.14	0.15	0.13	0.18	0.14	0.14	0.10	0.15	0.19
H ₂ O	1.71	1.65	1.61	1.55	1.23	1.41	1.37	1.56	1.70
CO ₂									
TOTAL	99.10	99.80	99.65	99.52	99.49	99.56	99.33	99.29	99.57
q	31.68	32.68	35.57	38.92	36.97	35.79	35.75	35.67	31.70
or	29.76	29.86	30.74	33.93	34.41	32.32	34.19	32.23	28.62
ab	21.86	21.12	23.04	19.15	22.22	23.61	22.53	20.26	24.63
an	7.90	7.85	5.10	2.14	1.60	3.01	1.92	5.70	7.70
c	0.32	0.36	0.86	1.26	1.61	1.76	1.57	1.59	2.17
di	-	-	-	-	-	-	-	-	-
hy	4.40	4.08	2.45	2.55	1.90	2.13	2.56	2.52	2.63
mt	2.77	2.73	1.43	1.02	0.74	0.75	1.08	1.11	1.48
il	0.95	0.93	0.50	0.60	0.21	0.29	0.17	0.56	0.62
ap	0.36	0.36	0.31	0.44	0.34	0.34	0.24	0.36	0.46
DI	83.3	83.7	89.3	92.0	93.6	91.7	92.5	88.2	85.0
CI	8.8	8.5	5.6	5.9	4.8	5.3	5.6	6.1	7.4

Esmeralda Granite

70571059 Fluorite-bearing biotite adamellite
 70571060 Biotite adamellite
 70571062 Biotite granite
 70571064 Fluorite-bearing biotite granite
 70571065 Slightly greisenized biotite-muscovite granite
 70571066 Biotite-muscovite granite
 70571067 Garnetiferous biotite granite
 70571069 Tourmaline-bearing biotite granite
 70571073 Biotite-muscovite adamellite

11.

	7057 1059	7057 1060	7057 1062	7057 1064	7057 1065	7057 1066	7057 1067	7057 1069	7057 1073
Li	27	23	29	29	46	58	40	29	49
Be	4.0	4.5	4.0	4.5	5.0	3.5	4.5	4.5	5.5
F	1000	-	-	1500	-	-	-	-	-
Cr	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	4	5
Co	-	-	-	-	-	-	-	-	-
Ni	4	3	3	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	6	11	8	3	5	5	4	5	9
Zn	128	133	70	65	93	94	65	50	77
Ga	22	21	19	17	20	21	21	21	22
Rb	248	247	275	282	367	394	370	282	286
Sr	78	78	72	47	21	40	16	75	96
Y	79	85	55	120	46	36	83	65	49
Zr	482	482	167	197	79	91	86	216	197
Sn	6	8	9	6	7	5	n.d.	4	n.d.
Ba	1035	985	775	144	45	190	46	705	590
La	88	88	32	31	11	18	14	42	40
Ce	177	177	74	78	39	45	31	100	90
Pb	45	49	47	45	87	51	51	41	44
Th	31	35	21	26	15	16	16	24	23
U	8	9	7	7	17	25	8	6	10
Mg/Li	78	83	55	48	12	19	18	45	41
Rb/Sr	3.2	3.2	3.8	6.0	18	9.9	23	3.8	3.0
K/Rb	164	167	154	166	129	113	127	157	137
Ba/Sr	13.3	12.6	10.8	3.1	2.1	4.8	2.9	9.4	6.1
Ba/Rb	4.2	4.0	2.8	0.51	0.12	0.48	0.12	2.5	2.1
K/Ba	39	42	55	320	1060	230	1020	63	67
Ca/Sr	160	160	117	100	171	140	230	125	131
Ca/Y	150	145	155	39	78	155	43	145	260
K/Pb	900	840	900	1040	550	870	920	1080	890
Th/U	3.9	3.9	3.0	3.7	0.88	0.64	2.0	4.0	2.3
K/U	5100	4600	6000	6700	2800	1800	5900	7400	3900
Al/Ga	3000	3200	3500	3700	3300	3300	3200	3300	3500
mg	0.11	0.11	0.16	0.15	0.09	0.16	0.09	0.14	0.18
k	0.56	0.57	0.56	0.63	0.59	0.56	0.59	0.60	0.52

	7057 1074	7057 1075	7057 1076	7057 1077	7057 1078	7057 1080	7057 1081	7057 1083	7057 1085
SiO ₂	76.0	71.8	72.4	72.3	72.0	74.2	73.7	71.1	66.5
TiO ₂	0.17	0.31	0.27	0.26	0.29	0.17	0.17	0.37	0.76
Al ₂ O ₃	12.02	13.63	14.13	13.92	13.77	13.52	13.41	13.78	14.42
Fe ₂ O ₃	0.64	0.77	0.81	0.86	0.94	0.61	0.59	1.15	0.91
FeO	1.16	1.87	1.64	1.42	1.87	1.19	1.12	2.10	5.20
MnO	0.03	0.05	0.04	0.04	0.05	0.03	0.03	0.06	0.09
MgO	0.25	0.25	0.35	0.26	0.32	0.21	0.20	0.31	0.68
CaO	0.51	1.34	1.65	1.61	1.73	0.99	1.00	1.67	2.43
Na ₂ O	2.35	2.85	2.75	2.75	2.6	2.7	2.6	2.7	2.35
K ₂ O	5.76	5.06	4.44	4.84	4.82	5.01	5.23	5.06	4.08
P ₂ O ₅	0.12	0.14	0.17	0.13	0.13	0.14	0.15	0.14	0.19
H ₂ O	1.13	1.48	1.60	1.66	1.50	1.57	1.37	1.49	1.28
CO ₂									
TOTAL	100.14	99.55	100.25	100.05	100.02	100.34	99.57	99.93	98.89
q	39.01	32.65	35.49	34.13	34.21	36.90	36.41	31.89	28.76
or	34.36	30.47	26.59	29.05	28.89	29.96	31.47	30.36	24.68
ab	19.98	24.48	23.49	23.71	22.22	23.37	22.66	23.10	20.35
an	1.76	5.78	7.17	7.25	7.78	4.05	4.00	7.48	11.02
c	1.31	1.43	2.26	1.55	1.51	2.17	2.02	1.20	2.25
di	-	-	-	-	-	-	-	-	-
hy	2.01	3.07	2.86	2.21	3.10	2.00	1.87	3.21	9.59
mt	0.95	1.17	1.22	1.30	1.41	0.90	0.89	1.72	1.44
il	0.33	0.60	0.52	0.50	0.56	0.33	0.33	0.71	1.46
ap	0.29	0.36	0.41	0.31	0.34	0.34	0.36	0.34	0.46
DI	93.4	87.6	85.6	86.9	85.3	90.2	90.5	85.3	73.8
CI	4.9	6.6	7.3	5.9	6.9	5.7	5.5	7.2	15.2

Esmeralda Granite

70571074 Biotite granite

70571075 Biotite granite

70571076 Tourmaline-bearing biotite-muscovite adamellite

70571077 Garnetiferous biotite adamellite

70571078 Porphyritic biotite granite

70571080 Porphyritic biotite granite

70571081 Biotite-muscovite granite

70571083 Biotite adamellite

70571085 Garnetiferous biotite adamellite

	7057 1074	7057 1075	7057 1076	7057 1077	7057 1078	7057 1080	7057 1081	7057 1083	7057 1085
Li	41	37	59	49	72	35	34	30	34
Be	3.0	4.5	5.0	5.0	5.5	3.5	3.5	4.0	3.5
F	-	-	1500	-	-	2500	-	-	1000
Cr	n.d.	5	5	4	5	n.d.	3	6	21
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	4	4	11
Cu	3	11	8	6	10	5	3	11	31
Zn	45	77	71	56	73	62	62	77	138
Ga	18	20	23	23	22	21	20	20	22
Rb	306	276	279	291	287	341	354	258	213
Sr	48	75	90	88	87	47	57	95	126
Y	29	61	47	45	58	30	30	61	55
Zr	168	212	163	173	189	116	101	259	545
Sn	6	n.d.	9	n.d.	n.d.	4	4	n.d.	4
Ba	130	720	495	525	575	215	285	1060	855
La	29	43	35	35	42	28	22	55	91
Ce	80	96	88	82	89	61	57	111	167
Pb	54	48	40	46	53	72	46	41	49
Th	28	24	23	19	23	21	18	27	33
U	8	9	6	9	9	17	4	8	6
Mg/Li	37	41	36	33	26	37	35	63	120
Rb/Sr	6.4	3.7	3.1	3.3	3.3	7.3	6.2	2.7	1.69
K/Rb	156	152	132	138	139	122	123	163	159
Ba/Sr	2.7	9.6	5.5	6.0	6.6	4.6	5.0	11.2	6.8
Ba/Rb	0.42	2.6	1.77	1.80	2.0	0.63	0.81	4.1	4.0
K/Ba	370	58	74	77	70	193	152	40	40
Ca/Sr	75	128	131	131	143	151	126	125	138
Ca/Y	125	155	250	260	210	240	240	195	320
K/Pb	890	880	920	870	750	580	940	1020	690
Th/U	3.5	2.7	3.8	2.1	2.6	1.2	4.5	3.4	5.5
K/U	6000	4700	6100	4500	4400	2400	10900	5300	5700
Al/Ga	3500	3600	3300	3200	3300	3400	3600	3700	3500
mg	0.20	0.15	0.20	0.17	0.17	0.17	0.17	0.15	0.16
k	0.62	0.54	0.52	0.54	0.55	0.55	0.57	0.55	0.53

	7057 1086	7057 1087	7057 1088	6859 0024	7057 1043	7057 1044	7057 1045	7057 1046	7057 1047
SiO ₂	69.8	70.6	72.6	69.9	76.8	80.4	74.6	74.0	74.0
TiO ₂	0.47	0.40	0.36	0.50	0.24	0.23	0.22	0.24	0.25
Al ₂ O ₃	13.55	14.19	13.27	13.38	12.45	11.58	12.51	12.46	12.20
Fe ₂ O ₃	1.71	0.89	0.61	0.98	2.30	0.57	0.84	0.95	0.85
FeO	3.35	2.45	2.00	3.60	0.11	0.26	1.31	1.38	1.57
MnO	0.08	0.06	0.03	0.08	0.11	0.02	0.05	0.05	0.05
MgO	0.34	0.34	0.24	0.38	0.63	0.17	0.11	0.14	0.19
CaO	1.36	2.01	1.11	1.66	0.02	0.00	0.67	0.66	0.74
Na ₂ O	2.35	2.7	2.5	2.2	0.04	0.08	2.2	2.0	2.15
K ₂ O	4.98	4.62	5.78	4.99	3.28	3.78	6.04	6.03	5.67
P ₂ O ₅	0.18	0.15	0.11	0.15	0.13	0.05	0.14	0.14	0.13
H ₂ O	1.70	1.14	1.12	1.21	3.36	2.40	1.25	1.17	1.24
CO ₂								0.15	
TOTAL	99.87	99.55	99.73	99.03	99.47	99.54	99.94	99.37	99.04
q	32.88	32.02	32.64	32.63	65.95	67.26	37.13	38.39	38.33
or	29.97	27.73	34.63	30.10	20.17	23.00	36.15	36.27	34.25
ab	20.25	23.03	21.61	19.17	0.35	0.70	19.10	17.39	18.59
an	5.68	9.13	4.85	7.34	0.00	0.00	2.44	1.44	2.83
c	2.30	1.51	1.13	1.73	9.48	7.70	1.44	2.13	1.55
di	-	-	-	-	-	-	-	-	-
hy	5.03	4.11	3.26	6.16	1.63	0.44	1.74	1.82	2.38
mt	2.57	1.34	0.93	1.51	0.02	0.24	1.26	1.42	1.27
il	0.91	0.77	0.69	0.97	0.47	0.45	0.40	0.46	0.49
ap	0.43	0.36	0.26	0.39	0.32	0.12	0.34	0.34	0.32
cc								0.35	
hm					2.38	0.43			
Ol	83.1	82.8	88.9	81.9	86.5	91.0	92.4	92.1	91.2
Cl	11.2	8.1	6.3	10.8	14.3	9.4	5.2	6.5	6.0

Esmeralda granite

70571086 Fluorite-bearing, garnetiferous biotite adamellite

70571087 Garnetiferous biotite adamellite

70571088 Biotite granite

Croydon Volcanics

68590024 Porphyritic rhyodacite, E54/12/17.

70571043 Porphyritic rhyolite

70571044 Porphyritic rhyolite

70571045 Porphyritic rhyolite

70571046 Porphyritic rhyolite

70571047 Porphyritic rhyolite

	7057 1086	7057 1087	7057 1088	6859 0024	7057 1043	7057 1044	7057 1045	7057 1046	7057 1047
Li	35	46	38	31	9	7	16	17	15
Be	3.5	4.0	4.0	4.0	5.0	2.5	4.5	5.0	4.5
F	500	-	-	-	-	-	1500	1000	1000
Cr	4	6	4	-	10	5	n.d.	n.d.	n.d.
Co	-	-	-	7	-	-	-	-	-
Ni	3	6	5	3	n.d.	n.d.	n.d.	n.d.	3
Cu	3	8	3	12	6	2	6	4	6
Zn	93	87	69	143	48	10	93	94	91
Ga	21	25	19	21	19	22	21	22	21
Rb	239	269	280	251	211	262	342	329	302
Sr	111	112	89	101	52	12	63	83	62
Y	70	64	58	77	278	52	87	84	77
Zr	360	232	397	513	216	201	182	203	223
Sn	n.d.	n.d.	n.d.	n.d.	-	-	9	n.d.	5
Ba	765	615	955	1120	650	425	580	745	1145
La	70	51	90	104	86	52	39	43	51
Ce	138	103	190	210	230	118	86	103	111
Pb	49	46	59	61	4	6	62	64	60
Th	33	26	46	46	27	24	24	28	29
U	6	8	7	7	12	4	10	11	8
Mg/Li	57	43	37	55	420	140	44	47	73
Rb/Sr	2.2	2.4	3.1	2.5	4.1	3.2	5.4	4.0	4.9
K/Rb	173	143	171	165	129	120	146	152	156
Ba/Sr	6.9	5.5	10.7	11.1	12.5	35	9.2	9.0	18.5
Ba/Rb	3.2	2.3	3.4	4.5	3.1	1.62	1.70	2.3	3.8
K/Ba	54	62	50	37	42	74	86	67	41
Ca/Sr	87	129	89	118	3	-	76	57	85
Ca/Y	140	225	135	155	~0.5	-	55	56	69
K/Pb	840	830	810	680	6800	5200	810	780	790
Th/U	5.5	3.3	6.6	6.6	2.3	6.0	2.4	2.5	3.6
K/U	6900	4800	6900	5900	2300	7900	5000	4500	5900
Al/Ga	3400	3000	3700	3400	3500	2800	3200	3000	3100
mg	0.11	0.15	0.14	0.13	0.33	0.27	0.08	0.10	0.12
k	0.58	0.53	0.60	0.60	0.98	0.97	0.64	0.66	0.63

	7057 1048	7057 1049	7057 1050	7057 1056	7057 1061	7057 1063	7057 1068	7057 1070	7057 1071
SiO ₂	73.3	67.5	74.3	68.3	74.2	74.2	73.8	74.1	74.2
TiO ₂	0.29	0.66	0.30	0.67	0.26	0.24	0.25	0.24	0.25
Al ₂ O ₃	12.02	13.19	12.52	12.41	12.36	12.11	12.46	12.15	12.21
Fe ₂ O ₃	1.19	2.48	1.19	2.00	0.74	0.72	0.72	0.57	0.81
FeO	1.94	4.45	2.05	3.85	1.64	1.68	1.87	1.79	1.57
MnO	0.05	0.12	0.07	0.09	0.04	0.05	0.06	0.05	0.05
MgO	0.10	0.22	0.16	0.60	0.11	0.14	0.14	0.18	0.17
CaO	0.85	1.56	1.10	1.94	0.71	0.58	0.73	0.79	0.74
Na ₂ O	2.25	1.55	1.95	2.0	2.6	2.5	2.4	2.4	2.5
K ₂ O	5.48	5.79	4.56	4.76	5.56	5.61	5.71	5.63	5.60
P ₂ O ₅	0.08	0.14	0.18	0.22	0.13	0.13	0.14	0.14	0.13
H ₂ O	1.30	1.74	1.58	2.10	1.28	1.14	1.32	1.21	1.21
CO ₂		0.2	0.1	0.35			0.1		
TOTAL	98.85	99.60	100.06	99.29	99.63	99.20	99.70	99.25	99.44
q	37.44	31.96	43.27	33.99	36.00	36.47	36.34	36.43	36.37
or	33.18	34.92	27.35	28.92	33.37	33.80	34.28	33.91	33.66
ab	19.50	13.38	16.74	17.30	22.60	21.73	20.62	20.95	21.77
an	3.79	5.61	3.64	6.14	2.72	2.57	2.11	3.06	2.87
c	1.06	2.41	3.11	1.85	1.04	0.99	1.60	0.98	0.97
di	-	-	-	-	-	-	-	-	-
hy	2.49	5.87	2.83	6.10	2.34	2.57	2.92	3.00	2.34
mt	1.80	3.76	1.80	3.06	1.12	1.09	1.09	0.87	1.22
il	0.56	1.28	0.58	1.31	0.50	0.46	0.48	0.46	0.48
ap	0.19	0.36	0.46	0.54	0.31	0.31	0.34	0.34	0.31
cc		0.46	0.23	0.82			0.23		
DI	90.1	80.3	87.4	80.2	92.0	92.0	91.3	91.3	91.8
CI	6.1	14.1	9.0	13.7	5.3	5.4	6.7	5.7	5.3

Croydon Volcanics

70571048 Porphyritic rhyolite welded tuff
 70571049 Rhyodacite
 70571050 Porphyritic rhyodacite
 70571056 Recrystallized porphyritic rhyodacite
 70571061 Porphyritic rhyodacite
 70571063 Recrystallized porphyritic rhyodacite
 70571068 Porphyritic rhyodacite
 70571070 Porphyritic rhyolite
 70571071 Recrystallized porphyritic rhyolite

	7057 1048	7057 1049	7057 1050	7057 1056	7057 1061	7057 1063	7057 1068	7057 1070	7057 1071
Li	22	22	19	26	26	31	29	25	35
Be	3.5	4.0	4.5	3.0	4.5	4.0	4.5	4.5	5.0
F	-	-	-	-	-	-	-	-	-
Cr	n.d.	4	n.d.	n.d.	n.d.	5	n.d.	4	4
Co	-	-	-	-	-	-	-	-	-
Ni	6	3	n.d.	3	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	22	8	5	14	7	6	9	7	7
Zn	99	138	119	135	94	96	100	78	86
Ga	22	22	20	22	20	20	21	19	19
Rb	300	255	268	234	302	294	315	292	280
Sr	52	77	73	85	53	41	51	59	55
Y	81	70	73	78	76	75	85	74	73
Zr	268	391	287	470	229	195	236	212	208
Sn	9	4	5	7	7	7	n.d.	9	5
Ba	955	900	965	1080	1100	975	990	1230	1145
La	72	61	64	80	49	48	52	51	49
Ce	148	124	143	157	112	106	113	112	114
Pb	59	45	53	50	66	62	66	62	62
Th	35	28	33	33	28	27	29	28	28
U	9	8	8	8	10	8	11	9	8
Mg/Li	27	59	53	140	27	26	28	44	29
Rb/Sr	5.8	3.3	3.7	2.8	5.7	7.2	6.2	5.0	5.1
K/Rb	152	188	141	169	153	158	150	160	166
Ba/Sr	18.4	11.7	13.2	12.7	21	24	19.4	21	21
Ba/Rb	3.2	3.5	3.6	4.6	3.6	3.3	3.1	4.2	4.1
K/Ba	48	53	39	37	42	48	48	38	41
Ca/Sr	117	144	107	164	96	120	102	95	96
Ca/Y	75	160	105	180	67	65	61	76	73
K/Pb	770	1070	710	790	700	750	720	750	750
Th/U	3.9	3.5	4.1	4.1	2.8	3.4	2.6	3.1	3.5
K/U	5100	6000	4700	4700	4600	5800	4300	5200	5800
Al/Ga	2900	3200	3300	3000	3300	3200	3100	3400	3400
mg	0.05	0.05	0.08	0.16	0.08	0.09	0.09	0.12	0.11
k	0.62	0.71	0.61	0.61	0.58	0.59	0.61	0.60	0.59

	7057 1072	7057 1079	7057 1082	7057 1084	7057 1089	7057 1090
SiO ₂	74.3	74.6	64.3	73.5	71.9	67.5
TiO ₂	0.24	0.25	0.92	0.24	0.43	0.73
Al ₂ O ₃	12.29	12.14	13.72	12.31	12.64	13.73
Fe ₂ O ₃	0.89	1.04	2.70	0.80	1.21	2.01
FeO	1.49	1.75	4.90	1.60	2.70	4.20
MnO	0.05	0.08	0.12	0.04	0.70	0.10
MgO	0.19	0.13	0.80	0.12	0.34	0.67
CaO	0.74	0.38	3.34	0.67	1.29	1.96
Na ₂ O	2.25	2.45	2.3	2.55	2.5	2.0
K ₂ O	5.61	5.56	3.94	5.56	5.13	4.64
P ₂ O ₅	0.13	0.13	0.25	0.14	0.15	0.20
H ₂ O	1.19	1.40	1.74	1.32	1.20	1.63
CO ₂				0.3	0.15	
TOTAL	99.34	99.91	99.03	99.15	99.71	99.37
q	38.28	38.01	26.44	36.77	34.35	32.01
or	33.70	33.27	23.90	33.56	30.75	28.05
ab	19.30	21.20	20.06	22.21	21.36	17.13
an	2.87	0.99	15.26	0.52	4.54	8.61
c	1.54	1.74	0.21	1.92	1.37	2.42
di	-	-	-	-	-	-
hy	2.18	2.43	7.61	2.29	4.29	6.83
nt	1.34	1.56	4.11	1.21	1.82	3.06
il	0.48	0.48	1.79	0.49	0.83	1.42
ap	0.31	0.34	0.63	0.34	0.36	0.49
ha				0.70	0.35	
DI	91.3	92.5	70.4	92.5	86.5	77.2
CI	5.9	6.6	14.4	7.0	9.0	14.2

Croydon Volcanics

70571072	Recrystallized porphyritic rhyodacite
70571079	Porphyritic rhyodacite
70571082	Recrystallized porphyritic rhyodacite
70571084	Porphyritic rhyodacite
70571089	Porphyritic rhyodacite
70571090	Porphyritic rhyodacite

	7057 1072	7057 1079	7057 1082	7057 1084	7057 1089	7057 1090
Li	25	32	41	20	32	50
Be	4.5	3.0	4.0	5.0	4.5	4.0
F	-	-	-	-	-	-
Cr	n.d.	4	15	3	4	15
Co	-	-	-	-	-	-
Ni	n.d.	n.d.	11	3	4	6
Cu	8	8	20	7	9	6
Zn	91	104	159	101	121	132
Ga	21	19	23	20	21	22
Rb	295	285	246	263	266	235
Sr	48	45	117	51	78	111
Y	76	75	72	78	77	64
Zr	223	220	668	215	371	435
Sn	7	5	4	4	n.d.	n.d.
Ba	1145	1195	730	1075	955	865
La	51	52	85	54	75	65
Ce	114	113	161	111	146	123
Pb	62	61	35	62	57	51
Th	27	28	31	29	32	25
U	8	8	6	11	9	7
Mg/Li	44	25	120	35	63	80
Rb/Sr	6.2	6.3	2.1	5.2	3.4	2.1
K/Rb	158	162	133	175	160	164
Ba/Sr	24	27	6.2	21	12.2	7.8
Ba/Rb	3.9	4.2	3.0	4.1	3.6	3.7
K/Ba	41	39	45	43	45	45
Ca/Sr	110	60	204	94	118	126
Ca/Y	70	36	330	62	120	220
K/Pb	750	760	930	740	750	750
Th/U	3.4	3.5	5.2	2.6	3.6	3.6
K/U	5800	5800	5400	4200	4700	5500
Al/Ga	3100	3400	3200	3300	3200	3300
mg	0.13	0.08	0.16	0.08	0.14	0.16
k	0.62	0.60	0.53	0.59	0.58	0.61

	7057 1098	7057 1099	7057 1100	7057 1101
SiO ₂	68.1	56.4	67.9	70.6
TiO ₂	0.82	0.72	0.54	0.69
Al ₂ O ₃	13.02	15.57	12.98	11.10
* Fe ₂ O ₃	3.28	5.84	6.85	3.36
MnO	0.01	0.01	0.01	0.01
MgO	0.65	0.54	0.58	0.50
CaO	0.01	0.04	0.04	0.01
Na ₂ O	0.26	0.24	0.35	0.28
K ₂ O	3.57	3.92	3.66	3.15
P ₂ O ₅	0.06	0.09	0.11	0.04
H ₂ O	2.40	4.10	2.25	1.86
C	7.8	8.0	4.2	8.1
TOTAL	99.98	95.47	99.47	99.70
q	58.00	47.19	55.05	62.78
or	23.51	27.80	23.25	20.75
Ab	2.45	2.44	3.18	2.55
an	0.00	0.00	0.00	0.00
c	9.83	13.29	9.28	8.19
hy	1.80	1.61	1.55	1.39
mt	0.00	0.00	0.00	0.00
il	0.02	0.03	0.02	0.02
ap	0.13	0.26	0.28	0.13
ha	3.66	7.01	7.37	3.75
ru	0.90	0.85	0.57	0.76

* Total iron as Fe₂O₃

Stockyard Creek Siltstone

70571098	Carbonaceous siltstone
70571099	Carbonaceous siltstone
70571100	Carbonaceous shale
70571101	Carbonaceous shale

	7057 1098	7057 1099	7057 1100	7057 1101
Li	19	11	17	14
Be	2.5	2.0	2.0	2.0
F	-	-	-	-
Cr	65	85	35	50
Co	-	-	-	-
Ni	n.d.	n.d.	n.d.	n.d.
Cu	4	8	7	7
Zn	3	3	5	5
Ga	18	23	21	16
Rb	186	159	185	169
Sr	51	122	66	47
Y	41	49	23	29
Zr	318	277	178	249
Sn	n.d.	n.d.	n.d.	n.d.
Ba	495	560	560	425
La	19	28	42	24
Ce	31	43	69	34
Pb	14	22	11	10
Th	19	34	22	13
U	6	6	4	4
Mg/Li	210	300	210	210
Rb/Sr	3.7	1.30	2.8	3.6
K/Rb	159	204	164	154
Ba/Sr	9.7	4.6	8.5	9.0
Ba/Rb	2.7	3.5	3.0	2.5
K/Ba	60	58	54	61
Ca/Sr	~ 2	~ 2	~ 4	~ 2
Ca/Y	~ 2	~ 6	~ 13	~ 3
K/Pb	2100	1480	2800	2600
Th/U	3.2	5.7	5.5	3.3
K/U	4900	5400	7600	6500
Al/Ga	3800	3600	3300	3700
mg	0.28	0.15	0.14	0.22
k	0.90	0.92	0.88	0.88

	6859 0016	6859 0017	6859 0019	6859 0020	6859 0021	6859 0417	6859 0100	6859 0101	6859 0103
SiO ₂	72.3	73.7	69.7	70.2	73.5	70.7	61.6	75.3	76.7
TiO ₂	0.13	0.21	0.28	0.45	0.19	0.31	0.81	0.04	0.04
Al ₂ O ₃	15.39	13.54	15.59	14.57	14.00	16.33	15.55	14.13	12.41
Fe ₂ O ₃	0.11	0.31	0.63	0.52	0.18	0.13	2.16	0.06	0.59
FeO	1.04	1.19	1.60	2.65	1.27	1.25	4.70	0.26	0.45
MnO	0.02	0.03	0.05	0.05	0.03	0.01	0.11	0.01	0.02
MgO	0.28	0.57	0.97	0.94	0.39	0.53	2.89	0.02	0.03
CaO	1.88	1.69	2.66	2.10	1.09	3.66	4.93	0.81	0.34
Na ₂ O	5.7	2.2	3.7	2.3	2.55	4.4	2.7	3.7	4.0
K ₂ O	2.05	5.43	2.89	4.79	5.90	1.69	2.36	4.76	4.81
P ₂ O ₅	0.02	0.06	0.09	0.20	0.09	0.07	0.28	0.04	0.08
H ₂ O	0.47	0.50	0.79	0.71	0.73	0.51	0.98	0.56	0.69
CO ₂			0.4				0.1		
TOTAL	99.39	99.43	99.35	99.48	99.92	99.59	99.17	99.69	100.16
q	26.38	35.56	30.99	31.93	32.77	29.72	21.02	34.02	34.41
or	12.25	32.42	17.33	28.67	35.14	10.08	14.20	28.36	28.56
ab	48.83	18.72	31.58	19.54	21.82	37.56	23.00	31.64	34.16
an	9.30	8.08	10.16	9.23	4.86	17.86	22.40	3.79	1.24
c	0.42	1.15	2.78	2.32	1.65	0.78	0.55	1.51	0.14
dl	-	-	-	-	-	-	-	-	-
hy	2.36	3.06	4.51	6.19	2.91	3.03	13.10	0.43	0.38
mt	0.18	0.47	0.96	0.79	0.28	0.22	3.26	0.09	0.87
il	0.25	0.40	0.54	0.87	0.36	0.59	1.57	0.08	0.08
ap	0.05	0.14	0.24	0.48	0.22	0.17	0.68	0.10	0.17
cc			0.92				0.23		
DI	87.5	86.7	79.9	80.1	89.7	77.4	58.2	94.0	97.1
CI	3.3	5.2	10.0	10.7	5.4	4.8	19.4	2.2	1.6

Forsyth Granite

68590016	Biotite granodiorite, E54/12/3
68590017	Biotite adamellite, E54/12/6
68590019	Biotite granodiorite, E54/12/10
68590020	Garnetiferous biotite adamellite, E54/12/13
68590021	Porphyritic biotite-muscovite granite, E54/12/14
68590417	Biotite granodiorite, E54/12/15
68590100	Hornblende-biotite tonalite, E55/9/1
68590101	Biotite muscovite granite, E55/9/2
68590103	Biotite adamellite, E55/9/4

	6859 0016	6859 0017	6859 0019	6859 0020	6859 0021	6859 0417	6859 0100	6859 0101	6859 0103
Li	22	14	18	20	24	4	12	5	54
Be	2.0	2.5	2.5	4.0	4.0	1.0	2.5	3.0	6.0
F	-	-	-	-	-	-	-	-	-
Cr	-	-	-	-	-	10	-	-	8
Co	4	7	8	9	3	-	20	n.d.	-
Ni	n.d.	3	1	8	n.d.	n.d.	32	n.d.	n.d.
Cu	5	2	3	9	2	3	15	3	2
Zn	31	33	44	58	39	36	113	7	16
Ga	20	14	18	19	16	22	22	17	19
Rb	154	280	84	292	298	69	93	138	431
Sr	600	222	909	158	109	955	1070	135	16
Y	5	11	12	36	23	5	24	22	96
Zr	80	130	85	292	109	110	236	15	125
Sn	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	-
Ba	980	595	1220	745	495	330	820	58	136
La	2	53	4	64	35	27	47	5	17
Ce	n.d.	99	n.d.	122	65	56	67	n.d.	50
Pb	20	35	30	33	40	27	15	54	38
Th	2	56	3	40	18	9	13	7	46
U	n.d.	2	n.d.	6	6	n.d.	n.d.	3	13
Mg/Li	77	240	320	290	96	800	1500	24	3
Rb/Sr	0.25	1.26	0.092	1.85	2.7	0.072	0.087	1.02	27
K/Rb	110	161	286	136	164	203	211	286	93
Ba/Sr	1.63	2.7	1.34	4.7	4.5	0.35	0.77	0.44	8.5
Ba/Rb	6.4	2.1	14.5	2.6	1.66	4.8	8.8	0.42	0.32
K/Ba	17.3	76	19.7	53	99	42	24	680	280
Ca/Sr	22	55	21	95	72	27	33	43	150
Ca/Y	2700	1100	1600	420	340	5200	1500	264	25
K/Pb	850	1290	800	1200	1230	520	1310	730	1050
Th/U	-	28	-	6.7	3.0	-	-	2.3	3.5
K/U	-	23000	-	6600	8200	-	-	13000	3100
Al/Ga	4100	5100	4600	4100	4600	3900	3700	4400	3500
mg	0.30	0.40	0.44	0.34	0.32	0.40	0.43	0.10	0.05
k	0.19	0.62	0.34	0.58	0.60	0.20	0.37	0.46	0.44

65

	7057 1034	7057 1035	7057 1102	7057 1110	7057 1111	7057 1112	7057 1113	7057 1114	7057 1115
SiO ₂	73.2	72.6	72.7	72.0	73.7	69.2	64.4	70.5	72.6
TiO ₂	0.21	0.25	0.16	0.16	0.18	0.39	0.69	0.41	0.29
Al ₂ O ₃	15.25	15.03	15.66	15.29	13.68	14.51	15.59	14.26	13.65
Fe ₂ O ₃	0.16	0.20	0.20	0.12	0.24	0.34	0.86	0.80	0.25
FeO	1.25	1.55	0.95	1.25	1.35	2.60	3.90	2.20	1.40
MnO	0.03	0.04	0.01	0.02	0.02	0.06	0.08	0.05	0.03
MgO	0.50	0.73	0.30	0.36	0.40	1.32	2.42	1.30	0.70
CaO	1.87	1.64	1.54	1.51	1.12	2.13	3.45	2.21	1.76
Na ₂ O	3.4	3.75	6.6	4.8	3.0	2.6	2.1	2.5	2.6
K ₂ O	3.44	3.12	2.12	3.52	5.13	5.29	4.50	5.03	5.35
P ₂ O ₅	0.06	0.07	0.04	0.05	0.09	0.21	0.41	0.25	0.15
H ₂ O	1.22	1.17	0.49	0.54	0.72	0.76	0.76	0.73	0.75
CO ₂									
TOTAL	100.59	100.15	100.77	99.62	99.63	99.41	99.16	100.24	99.53
q	34.97	33.67	21.98	26.48	33.27	26.51	23.05	29.70	32.12
or	20.44	18.62	12.49	20.99	30.64	31.69	26.96	29.86	31.92
ab	29.09	32.13	55.74	40.80	25.73	22.21	18.05	21.16	22.42
an	8.93	7.76	6.79	7.23	5.02	9.32	14.61	9.37	7.79
c	2.65	2.68	-	1.00	1.37	1.17	2.04	1.31	0.75
di	-	-	0.48	-	-	-	-	-	-
hy	3.13	4.18	1.82	2.87	3.04	7.34	11.64	6.04	3.69
mt	0.25	0.31	0.32	0.20	0.37	0.54	1.33	1.19	0.40
il	0.40	0.50	0.30	0.31	0.35	0.73	1.33	0.78	0.56
ap	0.14	0.17	0.09	0.12	0.22	0.50	1.01	0.60	0.36
DI	84.5	84.4	90.2	88.3	89.6	80.4	68.1	80.7	86.5
CI	6.6	7.8	3.0	4.5	5.4	10.3	17.4	9.9	5.8

Forsyth Granite

70571034 Fluorite-bearing biotite-muscovite adamellite

70571035 Foliated biotite-muscovite adamellite

70571102 Biotite granodiorite

70571110 Biotite-muscovite adamellite

70571111 Biotite-muscovite adamellite

70571112 Biotite adamellite

70571113 Biotite granodiorite

70571114 Biotite adamellite

70571115 Biotite-muscovite adamellite

	7057 1034	7057 1035	7057 1102	7057 1110	7057 1111	7057 1112	7057 1113	7057 1114	7057 1115
Li	38	45	13	16	31	20	17	20	7
Be	4.5	6.0	1.5	2.5	2.5	4.0	5.0	3.5	2.5
F	400	-	-	-	400	-	-	-	-
Cr	13	18	4	n.d.	4	35	85	35	13
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	4	n.d.	4	10	16	10	3
Cu	4	9	3	n.d.	n.d.	7	13	10	1
Zn	41	43	5	42	43	48	57	39	29
Ga	17	18	22	20	16	17	20	17	15
Rb	106	104	99	140	248	331	273	301	233
Sr	271	379	755	627	89	215	305	207	214
Y	15	17	5	14	26	22	23	15	10
Zr	64	80	84	108	128	182	238	183	174
Sn	-	-	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	12
Ba	985	1145	840	540	620	1035	1100	770	750
La	17	23	4	16	49	68	156	89	83
Ce	43	54	12	26	80	131	260	170	146
Pb	41	31	20	43	38	31	16	26	26
Th	9	11	2	7	26	14	40	52	28
U	2	2	n.d.	3	6	2	4	2	2
Mg/Li	79	98	140	140	77	400	860	390	600
Rb/Sr	0.39	0.27	0.131	0.22	2.8	1.54	0.90	1.45	1.09
K/Rb	269	249	178	209	172	133	137	139	191
Ba/Sr	3.6	3.0	1.11	0.86	7.0	4.8	3.6	3.7	3.5
Ba/Rb	9.3	11.0	8.5	3.9	2.5	3.1	4.0	2.6	3.2
K/Ba	29	23	21	54	69	42	34	54	59
Ca/Sr	49	31	14.6	17.2	90	71	81	76	59
Ca/Y	890	690	2200	770	310	690	1070	1050	1300
K/Pb	700	840	880	680	1120	1420	2340	1610	1710
Th/U	4.5	5.5	-	2.3	4.3	7.0	10	26	14
K/U	14000	13000	-	9800	7100	22000	9400	21000	22000
Al/Ga	4800	4400	3800	4100	4500	4500	4100	4400	4800
mg	0.38	0.42	0.32	0.31	0.31	0.44	0.47	0.44	0.43
k	0.40	0.35	0.17	0.33	0.53	0.57	0.58	0.57	0.57

	7057 1116	7057 1117	7057 1118	7057 1119	7057 1120	7057 1121	7057 1169	7057 1170	7057 1192
SiO ₂	69.3	72.8	76.0	73.4	70.5	73.5	62.5	71.4	69.7
TiO ₂	0.53	0.27	0.07	0.20	0.39	0.29	0.81	0.17	0.13
Al ₂ O ₃	14.59	14.38	13.04	13.78	14.11	13.91	15.52	15.01	16.58
Fe ₂ O ₃	1.28	0.32	0.09	0.21	0.62	0.34	2.18	1.18	0.44
FeO	2.45	1.75	0.50	1.70	2.60	1.70	4.35	1.00	0.90
MnO	0.06	0.03	0.01	0.04	0.05	0.05	0.11	0.04	0.03
MgO	1.50	0.41	0.20	0.61	1.29	0.58	2.80	0.56	0.26
CaO	2.76	1.36	1.08	1.49	2.57	1.65	4.62	2.97	3.44
Na ₂ O	2.3	2.55	3.5	2.95	2.8	3.3	2.75	3.7	4.3
K ₂ O	4.41	5.14	4.97	4.87	3.90	3.88	2.39	3.14	2.04
P ₂ O ₅	0.28	0.15	0.03	0.10	0.23	0.09	0.26	0.03	0.03
H ₂ O	0.70	0.76	0.54	0.80	0.74	0.88	0.93	0.62	1.52
CO ₂			n.d.	n.d.					
TOTAL	100.16	99.92	100.03	100.15	99.80	100.17	99.22	99.82	99.37
q	30.39	34.35	34.01	32.79	31.13	34.32	22.17	30.96	29.27
or	26.19	30.61	29.51	28.96	23.25	23.08	14.36	18.64	12.32
ab	19.89	21.74	29.67	25.11	23.90	28.27	23.57	31.29	37.25
an	11.92	5.81	5.19	6.72	11.35	7.65	21.58	14.65	17.24
c	1.63	2.53	0.03	1.22	1.17	1.48	0.66	0.26	1.13
df	-	-	-	-	-	-	-	-	-
hy	6.43	3.59	1.24	4.21	6.96	3.91	12.20	2.06	1.81
mt	1.89	0.50	0.15	0.35	0.95	0.53	3.27	1.74	0.67
il	1.01	0.52	0.13	0.38	0.75	0.55	1.56	0.33	0.25
ap	0.67	0.36	0.07	0.26	0.55	0.21	0.63	0.07	0.07
DI	76.5	86.7	93.2	86.9	78.3	85.7	60.1	80.9	78.8
CI	11.6	7.5	1.6	6.4	10.4	6.7	18.3	4.5	3.9

Forsyth Granite

70571116 Porphyritic biotite-muscovite adamellite
 70571117 Biotite-muscovite granite
 70571118 Foliated biotite-muscovite adamellite
 70571119 Foliated biotite-muscovite adamellite
 70571120 Foliated biotite-muscovite adamellite
 70571121 Foliated biotite-muscovite adamellite
 70571169 Hornblende-biotite tonalite
 70571170 Biotite-muscovite granodiorite
 70571192 Sheared biotite granodiorite

	7057 1116	7057 1117	7057 1118	7057 1119	7057 1120	7057 1121	7057 1169	7057 1170	7057 1192
Li	22	38	22	36	24	19	12	7	6
Be	5.5	3.5	5.5	5.0	4.5	4.0	3.0	2.5	1.0
F	-	-	-	-	-	-	-	-	-
Cr	39	13	4	15	44	9	70	10	6
Co	-	-	-	-	-	-	-	-	-
Ni	10	4	n.d.	5	1	n.d.	25	5	n.d.
Cu	8	14	1	1	6	2	5	3	2
Zn	62	49	10	46	39	50	114	39	43
Ga	16	18	14	15	19	19	21	18	21
Rb	296	319	313	305	252	214	87	79	55
Sr	270	116	57	118	181	124	926	830	454
Y	29	22	59	23	26	24	23	12	8
Zr	234	142	81	123	219	168	225	106	76
Sn	n.d.	n.d.	n.d.	5	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	965	575	113	445	530	390	820	1540	255
La	88	27	27	42	58	57	52	3	9
Ce	153	55	50	64	105	102	84	9	17
Pb	35	45	67	45	24	39	14	35	34
Th	35	20	25	29	46	37	10	4	2
U	5	6	19	9	11	6	n.d.	n.d.	n.d.
Mg/Li	410	66	55	100	330	180	1400	490	270
Rb/Sr	1.10	2.8	5.5	2.6	1.39	1.73	0.094	0.095	0.121
K/Rb	124	134	132	132	129	150	228	329	307
Ba/Sr	3.6	5.0	2.0	3.8	2.9	3.1	0.89	1.86	0.56
Ba/Rb	3.3	1.80	0.36	1.46	2.1	1.82	9.4	19.5	4.6
K/Ba	38	74	360	91	61	83	24	16.9	66
Ca/Sr	73	84	135	90	102	95	35	26	54
Ca/Y	680	440	130	460	710	490	1400	1800	3100
K/Pb	1050	950	610	900	1350	830	1410	740	500
Th/U	7.0	3.3	1.3	3.2	4.2	6.2	-	-	-
K/U	7300	7100	2200	4500	2900	5400	-	-	-
Al/Ga	4800	4200	4900	4900	3900	3900	3900	4400	4200
mg	0.42	0.26	0.37	0.36	0.42	0.33	0.44	0.32	0.26
k	0.55	0.57	0.48	0.52	0.48	0.43	0.36	0.36	0.24

	7057 1194	7057 1195	7057 1196	7057 1197	7057 1198	7057 1199	7057 1217	7057 1218	7057 1222
SiO ₂	68.4	69.5	72.7	76.8	75.1	72.0	74.5	68.6	73.0
TiO ₂	0.58	0.51	0.21	0.04	0.10	0.24	0.09	0.32	0.09
Al ₂ O ₃	15.05	14.45	14.16	13.24	13.63	14.37	14.62	14.94	15.36
Fe ₂ O ₃	0.65	0.20	0.01	0.00	0.01	0.41	0.19	0.80	0.16
FeO	3.70	3.25	1.45	0.19	0.70	1.45	0.75	1.50	0.70
MnO	0.06	0.04	0.01	0.01	0.02	0.03	0.02	0.05	0.06
MgO	1.39	1.12	0.41	0.06	0.19	0.51	0.31	1.01	0.28
CaO	2.24	2.25	1.58	1.66	1.49	1.44	1.91	2.17	1.40
Na ₂ O	2.95	2.85	2.7	3.2	2.8	2.5	3.75	3.2	4.4
K ₂ O	3.81	4.33	5.43	4.34	5.67	6.50	3.64	4.64	3.80
P ₂ O ₅	0.24	0.21	0.06	0.08	0.06	0.17	0.04	0.15	0.08
H ₂ O	0.75	0.68	0.47	0.35	0.46	0.62	0.67	0.97	0.78
CO ₂		0.2						0.9	
TOTAL	99.82	99.59	99.19	99.98	100.23	100.24	100.49	99.25	100.13
q	28.33	28.90	31.62	38.23	33.09	28.37	33.92	28.73	29.48
or	22.72	25.86	32.48	25.75	33.55	38.55	21.53	27.88	22.61
ab	25.10	24.53	23.29	27.09	24.14	21.31	31.76	27.53	37.31
an	9.63	8.62	7.54	7.74	7.01	6.06	9.22	4.17	6.47
c	2.62	1.94	1.10	0.47	0.24	1.00	1.14	3.21	1.70
di	-	-	-	-	-	-	-	-	-
hy	8.92	7.87	3.41	0.45	1.62	3.26	1.87	4.23	1.80
mt	1.01	0.35	0.03	0.00	0.03	0.61	0.29	1.21	0.25
il	1.11	0.98	0.40	0.08	0.19	0.46	0.17	0.62	0.19
ap	0.57	0.50	0.14	0.19	0.14	0.40	0.09	0.36	0.19
cc		0.46						2.08	
DI	76.2	79.3	87.4	91.1	90.8	88.2	87.2	84.1	89.4
CI	14.2	12.1	5.1	1.2	2.2	5.7	3.6	11.7	4.1

Forsyth Granite

70571194 Foliated biotite adamellite

70571195 Biotite adamellite

70571196 Foliated biotite granite

70571197 Foliated muscovite granite

70571198 Biotite-muscovite granite

70571199 Foliated biotite-muscovite granite

70571217 Biotite adamellite

70571218 Fluorite-bearing biotite adamellite

70571222 Biotite-muscovite granodiorite

	7057 1194	7057 1195	7057 1196	7057 1197	7057 1198	7057 1199	7057 1217	7057 1218	7057 1222
Li	21	18	10	11	10	16	5	5	20
Be	3.5	2.5	1.5	3.0	3.0	3.5	2.0	3.5	6.0
F	-	-	-	-	-	-	-	800	-
Cr	43	38	14	3	8	14	8	26	8
Co	-	-	-	-	-	-	-	-	-
Ni	11	9	n.d.	n.d.	n.d.	n.d.	n.d.	3	n.d.
Cu	6	8	3	1	1	3	3	10	2
Zn	61	56	25	8	14	27	22	34	32
Ga	23	21	15	14	13	14	15	18	16
Rb	294	268	234	193	221	300	74	130	126
Sr	133	154	140	198	218	155	476	556	438
Y	43	38	29	11	6	20	13	16	14
Zr	314	291	114	113	104	130	49	89	38
Sn	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	485	765	695	670	560	655	1430	2070	1435
La	102	82	38	2	7	35	8	17	15
Ce	180	161	69	n.d.	21	72	24	27	17
Pb	26	30	36	36	37	47	41	40	32
Th	51	47	19	4	38	29	4	5	3
U	8	6	4	3	16	6	n.d.	n.d.	n.d.
Mg/Li	400	370	250	33	110	190	380	1200	85
Rb/Sr	2.2	1.74	1.67	0.98	1.01	1.94	0.155	0.23	0.29
K/Rb	107	134	193	187	213	180	408	296	250
Ba/Sr	3.6	5.0	5.0	3.4	2.6	4.2	3.0	3.7	3.3
Ba/Rb	1.65	2.9	3.0	3.5	2.5	2.2	19.3	15.9	11.4
K/Ba	65	47	65	54	84	82	21	18.6	22
Ca/Sr	120	105	81	60	49	66	29	28	23
Ca/Y	370	420	390	1080	1800	520	1050	970	710
K/Pb	1220	1200	1250	1000	1270	1150	740	960	980
Th/U	6.4	7.8	4.8	1.3	2.4	4.8	-	-	-
K/U	4000	6000	11000	12000	2900	9000	-	-	-
Al/Ga	3500	3600	5000	5000	5600	5400	5200	4400	5100
mg	0.36	0.36	0.34	0.35	0.31	0.33	0.37	0.44	0.35
k	0.46	0.50	0.57	0.47	0.57	0.63	0.39	0.49	0.36

	7057 1223	7057 1224	7057 1225	7057 1226	7057 1232	7057 1233
SiO ₂	68.1	70.0	70.6	71.4	71.3	71.7
TiO ₂	0.34	0.28	0.24	0.23	0.27	0.24
Al ₂ O ₃	15.47	15.37	15.55	14.64	15.04	14.18
Fe ₂ O ₃	1.18	0.86	0.49	0.52	0.01	0.72
FeO	1.80	1.45	1.50	1.35	1.95	1.25
MnO	0.08	0.06	0.05	0.06	0.05	0.03
MgO	1.23	0.93	0.90	0.84	1.14	0.76
CaO	3.08	2.64	2.83	2.02	2.15	2.30
Na ₂ O	4.1	4.45	4.3	3.9	4.0	2.7
K ₂ O	2.70	2.55	2.51	3.56	3.38	5.18
P ₂ O ₅	0.14	0.09	0.09	0.08	0.09	0.17
H ₂ O	0.96	0.63	0.66	0.87	0.82	0.73
CO ₂	0.1	0.1				
TOTAL	99.28	99.41	99.72	99.47	100.20	99.96
q	25.67	27.46	28.13	29.37	27.91	30.18
or	16.22	15.25	14.97	21.33	20.09	30.82
ab	35.34	33.18	36.79	33.45	33.86	23.08
an	13.96	11.90	13.57	9.63	10.14	10.37
c	0.77	0.98	0.82	0.91	1.15	0.35
di	-	-	-	-	-	-
hy	5.05	3.96	4.31	3.87	6.09	3.26
mt	1.77	1.26	0.75	0.79	0.06	1.08
il	0.66	0.54	0.46	0.46	0.50	0.46
ap	0.34	0.24	0.22	0.19	0.21	0.41
cc	0.23	0.23				
DI	77.2	80.9	79.9	84.2	81.9	84.1
CI	8.8	7.2	6.6	6.2	8.0	5.6

Forsayth Granite

70571223 Biotite granodiorite
 70571224 Biotite granodiorite
 70571225 Biotite-muscovite granodiorite
 70571226 Biotite-muscovite granodiorite
 70571232 Biotite granodiorite
 70571233 Biotite adamellite

	7057 1223	7057 1224	7057 1225	7057 1226	7057 1232	7057 1233
Li	17	13	9	11	7	9
Be	3.0	2.0	1.5	3.0	2.5	4.5
F	-	-	-	-	-	-
Cr	40	20	20	29	26	13
Co	-	-	-	-	-	-
Ni	13	10	7	12	13	4
Cu	4	1	1	1	4	3
Zn	47	42	40	38	41	28
Ga	17	18	18	19	18	15
Rb	78	57	58	95	86	245
Sr	900	782	792	510	713	241
Y	13	15	10	24	26	10
Zr	92	78	81	73	80	150
Sn	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	785	905	1095	890	1140	950
La	19	11	12	13	12	3
Ce	32	21	28	16	19	8
Pb	20	23	33	32	33	16
Th	4	4	3	3	7	11
U	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Mg/Li	440	430	600	460	970	510
Rb/Sr	0.087	0.073	0.073	0.186	0.121	1.02
K/Rb	287	372	359	311	326	176
Ba/Sr	0.87	1.16	1.38	1.75	1.60	3.9
Ba/Rb	10.1	15.9	18.9	9.4	13.3	3.9
K/Ba	29	23	19.0	33	25	45
Ca/Sr	24	24	26	28	22	68
Ca/Y	1700	1300	2000	600	590	1600
K/Pb	1120	920	630	920	850	2690
Th/U	-	-	-	-	-	-
K/U	-	-	-	-	-	-
Al/Ga	4800	4500	4600	4100	4400	5000
mg	0.43	0.42	0.44	0.44	0.50	0.41
k	0.30	0.27	0.28	0.38	0.36	0.56

	6859 0416	6859 0018A	6859 0018B	7057 1122	7057 1123	7057 1124	7057 1125	7057 1126	7057 1128
SiO ₂	74.2	76.4	72.8	67.4	69.1	75.2	75.0	68.5	75.8
TiO ₂	0.01	0.12	0.13	0.48	0.44	0.05	0.06	0.43	0.04
Al ₂ O ₃	14.93	12.53	14.15	15.04	14.49	13.86	14.43	14.86	12.90
Fe ₂ O ₃	0.00	0.17	0.94	1.73	1.44	0.41	0.36	1.15	0.18
FeO	0.23	0.95	1.05	2.40	2.40	0.25	0.20	2.30	0.30
MnO	0.03	0.02	0.01	0.08	0.07	0.01	0.02	0.07	0.01
MgO	0.06	0.24	0.43	1.54	1.54	0.16	0.00	1.44	0.00
CaO	0.87	0.47	0.82	3.40	3.22	0.56	0.67	3.08	0.51
Na ₂ O	4.2	2.8	2.2	3.5	3.1	3.9	3.8	3.4	3.7
K ₂ O	5.31	5.92	5.85	3.29	3.16	4.30	5.11	3.34	5.10
P ₂ O ₅	0.05	0.05	0.23	0.13	0.11	0.04	0.05	0.10	0.04
H ₂ O	0.34	0.48	0.91	0.94	0.86	0.83	0.69	0.95	0.45
CO ₂									
TOTAL	100.23	100.15	99.52	99.93	99.93	99.57	100.39	99.62	99.03
q	27.20	35.47	35.76	24.68	29.36	34.93	32.10	26.85	33.95
or	31.38	35.07	35.03	19.64	18.85	25.71	30.21	19.93	30.55
ab	35.95	24.08	19.12	29.65	26.21	33.72	32.39	28.96	31.99
an	3.99	2.01	2.60	15.91	15.40	2.55	3.00	14.75	2.30
c	0.73	0.72	3.25	-	0.44	1.83	1.53	0.36	0.42
di	-	-	-	0.22	-	-	-	-	-
hy	0.60	2.03	2.04	6.08	6.49	0.45	0.01	6.35	0.36
mt	0.01	0.28	1.41	2.58	2.15	0.62	0.52	1.73	0.26
il	0.02	0.23	0.25	0.94	0.84	0.10	0.11	0.81	0.08
ap	0.12	0.12	0.55	0.31	0.26	0.10	0.12	0.26	0.10
DI	94.5	94.6	89.9	74.0	74.4	94.4	94.7	75.7	96.5
CI	1.5	3.4	7.5	10.1	10.2	3.1	2.3	9.5	1.2

Robin Hood Granite

68590416 Garnetiferous biotite-muscovite adamellite, E54/12/8

68590018A Biotite granite, E54/12/9A

68590018B Biotite-muscovite granite, E54/12/9B

70571122 Hornblende-biotite granodiorite

70571123 Hornblende-biotite granodiorite

70571124 Fluorite-bearing leucocratic adamellite

70571125 Leucocratic muscovite granite

70571126 Fluorite-bearing hornblende-biotite granodiorite

70571128 Leucocratic muscovite granite

	6859	6859	6859	7057	7057	7057	7057	7057	7057
	0416	0018A	0018B	1122	1123	1124	1125	1126	1128
Li	9	14	4	17	17	10	10	19	1
Be	3.5	5.5	2.0	2.5	2.5	3.5	3.5	3.0	5.0
F	-	-	-	-	-	300	-	700	-
Cr	3	6	10	39	39	n.d.	n.d.	30	3
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	n.d.	17	16	n.d.	n.d.	12	n.d.
Cu	2	48	3	15	18	1	1	14	1
Zn	5	11	6	62	59	9	9	54	9
Ga	13	13	15	19	20	20	22	20	17
Rb	184	427	152	94	84	214	268	104	415
Sr	151	30	49	700	657	194	115	706	45
Y	8	72	36	21	20	15	25	21	33
Zr	13	84	100	127	123	67	42	127	57
Sn	-	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	245	100	235	1060	1010	455	305	1000	84
La	n.d.	20	19	27	29	12	5	23	4
Ce	4	51	45	44	35	19	8	40	12
Pb	84	32	14	22	22	28	31	25	74
Th	2	30	16	7	6	6	5	8	8
U	2	16	8	n.d.	n.d.	n.d.	3	n.d.	61
Mg/Li	40	100	650	550	550	100	-	460	-
Rb/Sr	1.22	14	3.1	0.134	0.128	1.10	2.3	0.147	9.2
K/Rb	240	115	320	290	312	167	150	268	102
Ba/Sr	1.62	3.3	4.8	1.51	1.54	2.3	2.7	1.42	1.87
Ba/Rb	1.33	0.23	1.55	11.3	12.0	2.1	1.14	9.6	0.20
K/Ba	180	490	210	26	26	78	139	28	500
Ca/Sr	41	113	120	35	35	21	42	31	80
Ca/Y	780	47	165	1160	1150	270	190	1050	110
K/Pb	530	1530	3500	1240	1190	1280	1370	1110	570
Th/U	1	1.9	2.0	-	-	-	1.7	-	0.13
K/U	22000	3100	6100	-	-	-	14000	-	690
Al/Ga	6100	5100	5000	4200	3800	3700	3500	3900	4000
mg	0.28	0.27	0.28	0.40	0.42	0.31	0.00	0.43	0.00
k	0.45	0.58	0.63	0.38	0.40	0.42	0.47	0.39	0.47

	6859 0124	6859 0208	7057 1129	7057 1131	7057 1132	7057 1138	7057 1139	7057 1157	7057 1162
SiO ₂	71.4	70.3	75.4	74.9	73.1	74.4	75.3	73.4	61.0
TiO ₂	0.22	0.27	0.18	0.05	0.14	0.09	0.06	0.23	0.25
Al ₂ O ₃	15.27	15.53	13.45	13.65	14.85	14.96	13.92	13.44	20.19
Fe ₂ O ₃	0.80	1.18	0.51	0.09	0.39	0.27	0.22	0.50	1.38
FeO	1.01	1.45	0.55	0.40	0.85	0.30	0.35	1.10	2.15
MnO	0.05	0.03	0.03	0.02	0.06	0.02	0.02	0.05	0.07
MgO	0.49	0.73	0.07	0.01	0.40	0.11	0.05	0.31	0.99
CaO	2.57	2.48	0.48	0.92	2.03	1.36	0.82	1.40	5.82
Na ₂ O	4.5	4.3	4.6	3.4	4.05	4.55	3.8	4.05	5.4
K ₂ O	2.20	2.39	4.78	5.68	3.70	4.07	4.20	4.28	1.34
P ₂ O ₅	0.06	0.06	0.02	0.00	0.03	0.02	0.01	0.05	0.06
H ₂ O	0.63	0.66	0.50	0.50	0.83	0.36	0.71	0.50	0.11
CO ₂									
TOTAL	99.20	99.38	100.57	99.62	100.43	100.51	99.46	99.31	99.76
q	30.58	29.77	28.94	31.23	30.08	29.00	35.47	29.97	10.07
or	13.18	14.30	28.22	33.85	21.95	24.00	25.13	25.59	8.02
ab	38.86	36.75	39.22	29.26	34.48	38.67	32.71	34.83	46.27
an	12.53	12.06	1.76	4.60	9.91	6.65	4.05	5.84	27.26
c	0.92	1.54	-	0.19	0.55	0.58	1.65	-	-
di	-	-	0.41	-	-	-	-	0.72	1.32
hy	2.17	3.14	0.31	0.65	2.12	0.49	0.53	1.74	4.39
mt	1.19	1.76	0.74	0.13	0.57	0.39	0.32	0.75	2.06
il	0.42	0.52	0.34	0.10	0.27	0.17	0.12	0.44	0.48
ap	0.14	0.14	0.05	0.00	0.07	0.05	0.02	0.12	0.14
DI	82.6	80.8	96.4	94.3	86.5	91.7	93.3	90.4	64.4
CI	4.8	7.1	1.9	1.1	3.6	1.7	2.6	3.8	8.4

Dumbano Granite

68590124 Biotite granodiorite, E55/13/6
 68590208 Biotite granodiorite, F55/1/17
 70571129 Leucocratic granite
 70571131 Leucocratic granite
 70571132 Biotite adamellite
 70571138 Garnetiferous, leucocratic adamellite
 70571139 Biotite-muscovite adamellite
 70571157 Biotite adamellite
 70571162 Biotite-epidote-quartz diorite

	6859 0124	6859 0208	7057 1129	7057 1131	7057 1132	7057 1138	7057 1139	7057 1157	7057 1162
Li	10	6	8	2	13	1	3	12	5
Be	2.5	2.5	2.5	2.0	3.0	2.5	2.5	3.5	2.5
F	-	-	-	-	-	-	-	-	-
Cr	-	13	3	3	9	3	3	3	21
Co	5	-	-	-	-	-	-	-	-
Ni	n.d.	7	n.d.	n.d.	4	n.d.	n.d.	5	16
Cu	2	3	1	1	1	1	1	2	24
Zn	42	46	11	19	77	18	33	48	111
Ga	17	17	14	17	15	16	14	16	22
Rb	58	77	191	234	135	180	174	200	36
Sr	518	374	75	72	312	229	212	125	1024
Y	13	24	18	12	17	11	12	22	10
Zr	120	105	158	80	58	34	51	152	110
Sn	n.d.	-	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	725	845	1320	220	1105	630	880	690	735
La	21	32	50	9	14	3	18	33	11
Ce	38	58	90	10	33	n.d.	13	64	23
Pb	18	33	33	61	36	49	37	27	17
Th	9	17	34	5	6	n.d.	3	29	3
U	n.d.	n.d.	4	3	n.d.	n.d.	n.d.	6	n.d.
Mg/Li	300	730	53	30	190	700	100	160	1200
Rb/Sr	0.112	0.21	2.6	3.3	0.43	0.79	0.82	1.60	0.035
K/Rb	314	259	208	201	227	188	201	178	308
Ba/Sr	1.40	2.3	17.6	3.1	3.5	2.8	4.2	5.5	0.72
Ba/Rb	12.5	11.0	6.9	0.94	8.2	3.5	5.1	3.5	20
K/Ba	25	23	30	210	28	54	40	51	15.1
Ca/Sr	36	47	45	92	47	42	28	80	41
Ca/Y	1400	740	190	550	850	880	490	455	4200
K/Pb	1010	600	1200	770	850	690	940	1310	650
Th/U	-	-	8.5	1.7	-	-	-	4.8	-
K/U	-	-	9900	16000	-	-	-	5900	-
Al/Ga	4800	4800	5100	4300	5300	5000	5300	4500	4900
mg	0.33	0.34	0.11	0.03	0.36	0.26	0.14	0.26	0.34
k	0.24	0.27	0.40	0.52	0.37	0.37	0.42	0.41	0.14

	7057 1164	7057 1165	7057 1166	7057 1167	7057 1168	7057 1179	7057 1180	7057 1181	7057 1182
SiO ₂	74.7	74.6	71.6	69.4	71.3	75.3	72.6	73.5	73.5
TiO ₂	0.10	0.13	0.15	0.27	0.23	0.06	0.17	0.07	0.14
Al ₂ O ₃	14.42	14.02	16.54	16.08	15.76	14.18	14.29	15.01	14.56
Fe ₂ O ₃	0.12	0.21	0.33	0.28	0.46	0.22	0.72	0.37	0.52
FeO	0.70	0.90	0.80	1.70	1.15	0.40	1.00	0.50	0.95
MnO	0.02	0.03	0.01	0.02	0.02	0.01	0.04	0.02	0.02
MgO	0.25	0.31	0.43	0.74	0.56	0.16	0.45	0.22	0.21
CaO	1.72	1.46	4.69	4.39	4.23	1.32	2.09	1.78	2.38
Na ₂ O	3.6	2.8	4.4	4.35	4.25	4.25	4.65	4.15	4.4
K ₂ O	4.64	5.82	0.66	0.94	0.95	4.11	3.23	3.57	2.98
P ₂ O ₅	0.01	0.03	0.06	0.07	0.05	0.01	0.04	0.04	0.03
H ₂ O	0.39	0.42	0.81	0.88	0.85	0.41	0.44	0.40	0.47
CO ₂									0.1
TOTAL	100.67	100.73	100.48	99.12	99.81	100.43	99.72	99.63	100.26
q	31.36	31.83	32.80	29.59	32.96	31.45	28.03	31.59	31.16
or	27.33	34.26	3.92	5.59	5.67	24.28	19.21	21.24	17.64
ab	30.44	23.68	37.11	37.52	36.25	36.12	39.93	35.52	37.12
an	8.44	7.02	22.96	21.69	20.88	6.48	8.47	8.63	11.00
c	0.36	0.52	0.26	0.09	0.19	0.33	-	1.16	0.11
di	-	-	-	-	-	-	1.41	-	-
hy	1.66	2.08	2.05	4.38	2.80	0.87	1.47	1.08	1.63
mt	0.20	0.32	0.48	0.44	0.69	0.32	1.07	0.55	0.78
il	0.19	0.25	0.29	0.52	0.44	0.119	0.33	0.13	0.27
ap	0.02	0.07	0.14	0.17	0.12	0.02	0.10	0.10	0.07
cc									0.23
DI	89.1	89.8	73.8	72.7	74.9	91.9	87.2	88.4	85.9
CI	2.4	3.2	3.2	5.6	4.2	1.7	4.4	3.0	3.1

Dumbano Granite

70571164	Foliated, garnetiferous biotite granite
70571165	Foliated biotite granite
70571166	Biotite trondhjemite
70571167	Biotite trondhjemite
70571168	Biotite trondhjemite
70571179	Biotite adamellite
70571180	Porphyritic biotite adamellite
70571181	Biotite adamellite
70571182	Biotite-muscovite granodiorite

	7057 1164	7057 1165	7057 1166	7057 1167	7057 1168	7057 1179	7057 1180	7057 1181	7057 1182
Li	5	8	4	7	7	6	8	8	8
Be	4.5	4.0	2.0	2.5	2.0	2.5	2.5	2.0	2.0
F	-	-	-	-	-	-	-	-	-
Cr	3	3	3	6	4	3	13	5	5
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	3	n.d.	n.d.	n.d.	3	n.d.	n.d.
Cu	3	2	2	2	2	1	1	1	1
Zn	20	32	45	73	59	11	36	36	42
Ga	13	15	15	17	17	16	19	15	19
Rb	234	297	24	47	53	125	91	104	93
Sr	180	241	750	806	877	231	265	405	347
Y	8	11	1	4	4	15	26	13	15
Zr	102	174	72	128	144	46	67	60	116
Sm	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	235	645	380	495	430	795	745	1090	1100
La	16	47	n.d.	21	18	13	15	12	27
Ce	26	91	n.d.	33	38	16	28	21	44
Pb	37	32	12	17	15	26	16	30	20
Th	71	49	n.d.	6	6	4	6	5	9
U	15	3	n.d.	n.d.	n.d.	2	2	n.d.	n.d.
Mg/Li	300	240	650	640	490	170	340	160	160
Rb/Sr	1.30	1.23	0.032	0.058	0.060	0.54	0.34	0.25	0.27
K/Rb	165	163	229	166	149	273	295	285	266
Ba/Sr	1.31	2.7	0.51	0.61	0.49	3.4	2.8	2.7	3.2
Ba/Rb	1.00	2.2	15.8	10.5	8.1	6.4	8.2	10.5	11.8
K/Ba	164	75	14.5	15.8	18.4	43	36	27	22
Ca/Sr	68	43	45	39	34	41	56	31	49
Ca/Y	1500	950	34000	7800	7600	630	570	980	1100
K/Pb	1040	1510	460	460	530	1310	1680	990	1240
Th/U	4.7	16	-	-	-	2.0	3.0	-	-
K/U	2600	16000	-	-	-	17000	13000	-	-
Al/Ga	5900	5000	5800	5000	4900	4700	4000	5300	4100
mg	0.34	0.33	0.41	0.40	0.39	0.32	0.32	0.31	0.20
k	0.46	0.58	0.09	0.12	0.13	0.39	0.31	0.36	0.31

	7057 1183	6859 0127	7057 1173	7057 1174	7057 1175	7057 1176	7057 1177	7057 1178	7057 1184
SiO ₂	76.8	64.8	45.2	53.5	65.7	65.9	54.4	53.9	66.4
TiO ₂	0.11	0.41	0.33	1.11	0.46	0.45	1.01	1.07	0.41
Al ₂ O ₃	12.88	17.40	23.58	16.90	16.90	16.65	16.68	18.11	16.86
Fe ₂ O ₃	0.54	1.72	1.65	3.38	1.62	1.77	2.69	3.99	1.68
FeO	0.57	1.90	5.50	5.80	2.15	2.30	6.60	4.80	1.80
MnO	0.02	0.09	0.11	0.15	0.11	0.10	0.18	0.15	0.08
MgO	0.00	1.60	8.69	3.95	1.30	1.49	3.97	3.51	1.47
CaO	0.60	5.38	13.20	8.09	5.72	5.47	8.44	8.54	5.24
Na ₂ O	4.3	3.95	1.05	2.15	3.8	3.8	2.35	2.6	3.85
K ₂ O	4.39	1.34	0.10	2.27	1.12	1.41	1.29	1.86	1.33
P ₂ O ₅	0.00	0.16	0.03	0.45	0.17	0.18	0.39	0.38	0.16
H ₂ O	0.23	0.55	0.78	1.23	0.83	0.69	0.80	1.26	0.56
CO ₂									
TOTAL	100.44	99.30	100.22	98.98	99.88	100.21	98.90	100.17	99.84
q	33.46	22.69	-	9.35	25.20	24.35	11.20	9.12	25.60
or	25.88	8.02	0.59	13.71	6.62	8.37	7.77	11.10	7.91
ab	36.29	34.00	8.85	18.59	32.54	32.46	20.01	22.30	32.71
an	2.88	25.96	59.71	30.42	25.99	24.24	31.91	32.53	25.03
c	-	0.02	-	-	-	-	-	-	-
di	0.08	-	4.77	6.19	1.25	1.50	6.68	6.26	0.03
hy	0.41	5.59	10.07	13.42	4.71	5.20	15.46	9.83	5.06
mt	0.78	2.55	2.49	5.11	2.42	2.61	4.08	5.92	2.48
il	0.21	0.79	0.63	2.15	0.88	0.86	1.96	2.05	0.78
ap	0.00	0.38	0.07	1.09	0.41	0.43	0.97	0.91	0.41
ol			12.82						
DI	95.6	64.7	9.4	41.6	64.4	65.2	39.0	42.5	66.2
CI	1.5	9.3	30.9	28.0	9.7	10.6	29.2	25.0	8.8

Dumbano Granite

70571183 Biotite adamellite

Digo Granodiorite

68590127 Hornblende-biotite tonalite, E55/13/9

70571173 Olivine gabbro

70571174 Hornblende-biotite-quartz diorite

70571175 Hornblende-biotite tonalite

70571176 Hornblende-biotite tonalite

70571177 Hornblende-biotite-quartz diorite

70571178 Hornblende-biotite-quartz diorite

70571184 Foliated hornblende-biotite tonalite

	7057 1183	6859 0127	7057 1173	7057 1174	7057 1175	7057 1176	7057 1177	7057 1178	7057 1184
Li	2	7	1	6	7	8	4	6	8
Be	2.0	2.5	1.0	2.0	2.0	2.0	2.5	2.5	2.5
F	-	-	-	-	-	-	-	-	-
Cr	3	-	231	15	10	10	22	18	8
Co	-	11	-	-	-	-	-	-	-
Ni	n.d.	3	149	8	8	3	8	6	n.d.
Cu	1	2	50	86	2	3	154	50	3
Zn	36	55	48	100	64	66	61	91	61
Ga	18	16	13	19	18	18	18	20	19
Rb	69	38	1	77	31	39	25	61	36
Sr	64	864	588	918	784	794	909	820	806
Y	41	9	6	21	13	11	18	22	10
Zr	117	156	22	142	164	155	118	194	147
Sr	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	4	n.d.
Ba	930	450	31	670	405	500	905	595	535
La	52	31	9	39	21	27	33	35	27
Ce	90	54	n.d.	67	36	47	42	55	36
Pb	8	8	n.d.	10	7	5	4	9	8
Th	9	5	2	3	6	6	n.d.	3	5
U	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Mg/Li	-	1400	50000	4000	1100	1100	6000	3500	1100
Rb/Sr	1.08	0.044	0.002	0.084	0.040	0.049	0.028	0.074	0.045
K/Rb	528	292	800	244	300	300	428	252	306
Ba/Sr	14.5	0.52	0.053	0.73	0.52	0.63	1.00	0.73	0.66
Ba/Rb	13.5	11.8	31	8.7	13.1	12.8	36	9.8	14.9
K/Ba	39	25	26	28	23	23	11.8	26	21
Ca/Sr	67	44	160	63	52	49	66	74	46
Ca/Y	105	4300	16000	2800	3100	3600	3400	2800	3700
K/Pb	4550	1390	-	1880	1330	2300	2700	1710	1380
Th/U	-	-	-	-	-	-	-	-	-
K/U	-	-	-	-	-	-	-	-	-
Al/Ga	3800	5800	9500	4700	5000	4900	4900	4800	4700
mg	0.00	0.44	0.68	0.44	0.38	0.40	0.43	0.42	0.43
k	0.40	0.18	0.06	0.41	0.16	0.20	0.27	0.32	0.19

	7057 1185	7057 1186A	7057 1186B	7057 1187	7057 1188	7057 1189
SiO ₂	66.6	73.9	66.6	66.9	68.9	68.2
TiO ₂	0.42	0.02	0.40	0.41	0.30	0.32
Al ₂ O ₃	17.03	14.36	17.23	17.05	16.42	16.54
Fe ₂ O ₃	1.63	0.00	0.84	1.00	0.82	1.18
FeO	1.90	0.55	2.50	2.30	2.00	1.75
MnO	0.08	0.32	0.08	0.08	0.07	0.07
MgO	1.41	0.16	1.26	1.17	0.91	0.97
CaO	5.21	0.73	5.16	5.10	4.44	4.42
Na ₂ O	4.1	4.0	4.2	4.25	4.1	4.05
K ₂ O	1.24	6.07	1.40	1.65	1.55	1.52
P ₂ O ₅	0.15	0.06	0.15	0.14	0.11	0.13
H ₂ O	0.60	0.25	0.62	0.63	0.60	0.88
CO ₂						0.15
TOTAL	100.37	100.42	100.44	100.68	100.22	100.18
q	24.61	25.06	23.08	22.59	27.33	27.99
or	7.28	35.79	8.28	9.74	9.18	9.04
ab	34.83	33.76	35.40	36.09	35.03	34.58
an	24.44	3.22	24.15	22.47	21.37	20.27
c	-	0.03	-	-	0.14	0.85
dl	0.33	-	0.41	1.56	-	-
hy	4.94	1.98	6.30	4.98	4.87	4.28
mt	2.40	0.00	1.26	1.49	1.22	1.74
il	0.80	0.02	0.76	0.76	0.57	0.61
ap	0.38	0.14	0.36	0.33	0.26	0.31
cc						0.34
DI	66.7	94.6	66.8	68.4	71.6	71.6
CI	8.9	2.2	9.1	9.1	7.1	8.1

Dido Granodiorite

70571185 Hornblende-biotite tonalite
 70571186A Garnetiferous aplite
 70571186B Hornblende-biotite tonalite
 70571187 Hornblende-biotite tonalite
 70571188 Biotite tonalite
 70571189 Biotite tonalite

	7057 1185	7057 1186A	7057 1186B	7057 1187	7057 1188	7057 1189
Li	8	2	11	10	7	7
Be	2.0	8.0	2.5	2.0	2.0	2.0
F	-	-	-	-	-	-
Cr	8	3	8	6	8	6
Co	-	-	-	-	-	-
Ni	4	n.d.	n.d.	n.d.	3	n.d.
Cu	3	3	2	1	2	2
Zn	65	19	68	57	48	55
Ga	19	19	18	16	17	18
Rb	37	183	56	43	46	46
Sr	811	85	780	781	705	770
Y	10	13	11	10	6	8
Zr	179	26	167	163	169	188
Sn	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	480	205	565	550	610	630
La	22	2	22	25	21	37
Ce	29	8	37	43	40	58
Pb	8	14	8	12	10	10
Th	4	3	6	4	6	9
U	n.d.	8	n.d.	n.d.	n.d.	n.d.
Mg/Li	1100	500	690	700	790	830
Rb/Sr	0.046	2.2	0.072	0.055	0.065	0.060
K/Rb	278	275	207	319	280	274
Ba/Sr	0.59	2.4	0.72	0.70	0.87	0.82
Ba/Rb	13.0	1.12	10.1	12.8	13.3	13.7
K/Ba	21	250	21	25	21	20
Ca/Sr	45	61	47	47	45	41
Ca/Y	3700	400	3400	3600	5300	4000
K/Pb	1290	3600	1450	1140	1290	1260
Th/U	-	0.38	-	-	-	-
K/U	-	6300	-	-	-	-
Al/Ga	4700	4000	5100	5700	5100	4900
mg	0.42	0.25	0.40	0.39	0.36	0.37
k	0.16	0.50	0.18	0.20	0.20	0.20

	6859 0415	6859 0025	7057 1103	7057 1104A	7057 1104B	7057 1105	7057 1106
SiO ₂	69.4	74.5	69.4	60.4	69.0	74.6	72.8
TiO ₂	0.37	0.18	0.43	0.62	0.40	0.18	0.31
Al ₂ O ₃	15.46	13.02	15.38	14.78	16.12	12.88	13.27
Fe ₂ O ₃	0.61	0.37	0.40	2.01	0.35	0.49	0.69
FeO	1.50	1.27	1.55	4.40	1.75	1.15	1.45
MnO	0.03	0.04	0.03	0.11	0.03	0.04	0.03
MgO	1.08	0.23	0.96	5.27	1.21	0.03	0.48
CaO	2.99	0.88	3.25	6.03	3.57	0.91	1.31
Na ₂ O	4.5	3.8	4.45	3.1	4.7	3.6	3.5
K ₂ O	2.72	4.86	2.32	2.07	2.18	4.89	5.07
P ₂ O ₅	0.09	0.04	0.09	0.09	0.08	0.04	0.08
H ₂ O	1.10	0.68	0.76	1.23	0.67	0.83	0.98
CO ₂						0.15	0.15
TOTAL	99.85	99.87	99.02	100.11	100.06	99.79	100.12
q	24.66	31.15	26.34	13.59	23.43	32.57	29.52
or	16.27	28.94	13.95	12.36	12.96	29.10	30.21
ab	38.54	32.39	38.12	26.41	39.90	30.84	30.11
an	14.14	4.14	15.50	20.57	16.60	3.33	5.02
c	-	0.01	-	-	-	0.42	0.15
dl	0.23	-	0.25	7.31	0.56	-	-
hy	4.29	2.39	4.20	15.37	5.08	2.24	2.85
mt	0.92	0.56	0.60	3.02	0.53	0.73	1.02
il	0.73	0.34	0.83	1.17	0.76	0.34	0.59
ap	0.22	0.10	0.22	0.22	0.19	0.10	0.19
cc						0.34	0.34
DI	79.5	92.5	78.4	52.4	76.3	92.5	89.8
CI	6.4	3.4	6.1	27.1	7.1	4.2	5.1

Cumberland Range Cauldron Subsidence Area

68590415 Porphyritic hornblende - biotite microgranodiorite, E54/12/4.
68590025 Porphyritic biotite microadamellite, E54/12/18.
70571103 Porphyritic hornblende - biotite microgranodiorite.
70571104A Hornblende, biotite-rich xenolith in 70571104B.
70571104B Porphyritic hornblende - biotite microgranodiorite.
70571105 Porphyritic biotite microadamellite.
70571106 Porphyritic biotite microadamellite.

	6859 0415	6859 0025	7057 1103	7057 1104A	7057 1104B	7057 1105	7057 1106
Li	22	21	17	20	16	24	14
Be	3.0	5.5	2.0	2.0	2.0	5.0	2.5
F	-	-	-	-	-	-	-
Cr	21	-	10	365	21	n.d.	4
Co	-	4	-	-	-	-	-
Ni	6	n.d.	n.d.	96	6	4	3
Cu	4	3	7	533	3	n.d.	3
Zn	64	46	51	149	52	32	32
Ga	21	18	20	19	19	19	18
Rb	106	259	98	84	77	253	161
Sr	373	71	402	296	400	70	120
Y	5	45	6	13	5	47	25
Zr	109	136	118	79	112	142	176
Sn	n.d.	6	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	510	280	455	395	450	290	470
La	9	45	21	6	14	54	90
Ce	16	79	20	n.d.	25	88	164
Pb	26	35	21	17	22	34	20
Th	5	33	5	4	4	33	37
U	2	7	n.d.	n.d.	n.d.	6	4
Mg/Li	300	67	340	1600	460	8	210
Rb/Sr	0.28	3.7	0.24	0.28	0.193	3.6	1.34
K/Rb	213	156	197	205	235	160	261
Ba/Sr	1.37	3.9	1.13	1.33	1.13	4.1	3.9
Ba/Rb	4.8	1.08	4.6	4.7	5.8	1.15	2.9
K/Ba	44	144	42	44	40	140	90
Ca/Sr	57	89	58	146	64	93	78
Ca/Y	4300	140	3900	3300	5100	140	380
K/Pb	870	1150	920	1010	820	1190	2100
Th/U	2.5	4.7	-	-	-	5.5	9.3
K/U	11000	5800	-	-	-	6800	11000
Al/Ga	3900	3800	4100	4100	4500	3600	3900
mg	0.48	0.20	0.47	0.60	0.51	0.25	0.29
k	0.28	0.46	0.26	0.31	0.23	0.47	0.49

	7057 1091	7057 1092	7057 1093	7057 1094	7057 1095	7057 1097	7057 1107	7057 1108	7057 1109
SiO ₂	70.4	67.6	68.4	69.4	65.3	74.4	76.7	67.4	69.5
TiO ₂	0.23	0.29	0.30	0.23	0.63	0.20	0.04	0.36	0.34
Al ₂ O ₃	15.49	15.38	15.29	15.69	14.04	12.80	13.05	15.58	14.56
Fe ₂ O ₃	0.64	0.94	0.76	0.17	2.03	0.34	0.00	0.69	0.53
FeO	0.70	1.15	1.10	1.30	1.95	1.25	0.90	1.20	1.40
MnO	0.01	0.03	0.03	0.02	0.06	0.03	0.05	0.02	0.02
MgO	0.74	1.96	1.31	1.04	2.53	0.15	0.14	0.92	1.04
CaO	1.75	1.69	2.02	2.90	1.27	1.05	0.40	3.27	2.32
Na ₂ O	5.65	5.4	5.15	4.8	2.9	3.35	4.35	4.1	4.2
K ₂ O	2.43	2.38	2.12	2.06	4.74	4.92	4.45	2.44	2.77
P ₂ O ₅	0.05	0.09	0.07	0.06	0.10	0.04	0.01	0.08	0.08
H ₂ O	1.27	1.94	1.61	1.35	2.95	1.16	0.38	2.20	1.63
CO ₂	0.75	0.25	1.05		0.9	0.2		2.35	
TOTAL	100.11	99.10	99.21	99.02	99.40	99.89	100.44	100.61	98.39
q	25.67	21.73	27.50	25.76	27.03	33.86	32.44	32.61	28.56
or	14.53	14.48	12.84	12.46	29.02	29.42	26.26	14.64	16.92
ab	48.37	46.94	44.47	41.56	25.51	28.85	37.00	35.14	36.47
an	3.66	6.40	3.00	14.32	0.00	3.68	1.92	0.79	11.29
c	2.27	1.71	3.57	0.45	4.29	0.61	0.33	6.02	0.73
dl	-	-	-	-	-	-	-	-	-
hy	2.26	5.95	4.28	4.59	7.54	2.12	1.94	3.43	4.32
mt	0.95	1.42	1.14	0.27	3.05	0.53	0.01	1.03	0.82
ll	0.44	0.57	0.58	0.45	1.24	0.38	0.08	0.69	0.67
ap	0.12	0.22	0.17	0.15	0.25	0.10	0.02	0.22	0.22
cc	1.73	0.59	2.45		2.12	0.46		5.43	
DI	88.6	83.2	84.8	79.8	81.6	92.1	95.7	82.4	82.0
CI	7.8	10.5	12.2	5.9	18.5	4.2	2.4	16.8	6.8

Cumberland Range Cauldron Subsidence Area

70571091	Porphyritic dacite.
70571092	Porphyritic dacite.
70571093	Porphyritic dacite.
70571094	Porphyritic dacite.
70571095	Rhyodacite.
70571097	Porphyritic rhyodacite.
70571107	Porphyritic rhyodacite.
70571108	Porphyritic dacite dyke.
70571109	Porphyritic dacite dyke.

	7057 1091	7057 1092	7057 1093	7057 1094	7057 1095	7057 1097	7057 1107	7057 1108	7057 1109
Li	30	38	26	26	30	15	125	7	8
Be	2.5	4.5	2.5	2.5	3.0	4.5	15	2.0	2.0
F	-	-	-	-	-	-	-	-	-
Cr	8	60	15	15	20	3	n.d.	10	15
Co	-	-	-	-	-	-	-	-	-
Ni	7	29	10	10	11	n.d.	n.d.	5	10
Cu	5	13	3	4	8	2	n.d.	4	5
Zn	66	113	53	53	56	27	18	52	62
Ga	23	23	22	22	19	18	26	21	21
Rb	90	99	74	74	202	214	716	108	116
Sr	506	346	476	478	167	65	12	330	254
Y	3	6	5	4	42	39	153	6	5
Zr	87	100	93	77	240	143	60	110	106
Sn	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	6	n.d.	n.d.
Ba	505	705	615	520	1030	335	44	475	550
La	4	8	9	11	53	67	27	15	17
Ce	16	17	21	9	93	110	95	25	18
Pb	19	18	20	19	29	31	29	23	30
Th	3	4	3	3	20	33	21	4	4
U	n.d.	n.d.	n.d.	n.d.	6	6	19	n.d.	n.d.
Mg/Li	150	310	300	240	510	60	6	790	790
Rb/Sr	0.178	0.29	0.155	0.155	1.21	3.3	60	0.33	0.45
K/Rb	224	200	238	231	195	191	52	187	198
Ba/Sr	1.00	2.0	1.29	1.09	6.2	5.2	3.7	1.44	2.2
Ba/Rb	5.6	7.1	8.3	7.0	5.1	1.57	0.061	4.4	4.7
K/Ba	40	28	29	33	38	122	840	43	42
Ca/Sr	25	35	30	43	54	115	242	71	65
Ca/Y	4200	2000	2900	5200	220	190	19	3900	3300
K/Pb	1060	1100	880	900	1360	1320	1270	880	770
Th/U	-	-	-	-	3.3	5.5	1.1	-	-
K/U	-	-	-	-	6600	6800	1900	-	-
Al/Ga	3600	3500	3700	3800	3900	3800	2700	3900	3700
mg	0.50	0.63	0.56	0.56	0.54	0.14	0.17	0.47	0.49
k	0.22	0.23	0.21	0.22	0.52	0.49	0.40	0.28	0.30

	7057 1130	7057 1133	7057 1134	7057 1136	7057 1140	7057 1141	7057 1142	7057 1143	7057 1144
SiO ₂	65.2	76.4	71.5	77.0	59.1	76.9	71.9	61.4	68.7
TiO ₂	0.61	0.08	0.29	0.10	1.27	0.11	0.32	0.86	0.44
Al ₂ O ₃	16.91	12.71	14.92	13.02	15.42	12.79	14.17	17.06	15.77
Fe ₂ O ₃	0.91	0.00	0.49	0.15	1.92	0.98	0.73	2.14	1.08
FeO	2.65	0.79	1.50	0.85	4.75	0.30	1.35	2.75	1.65
MnO	0.05	0.02	0.05	0.04	0.10	0.02	0.05	0.09	0.06
MgO	1.49	0.16	0.46	0.00	3.06	0.19	0.61	2.10	0.94
CaO	4.01	0.68	1.73	0.72	4.89	0.08	2.15	4.68	3.08
Na ₂ O	3.8	3.95	4.65	3.75	2.65	4.05	3.95	4.0	4.0
K ₂ O	3.27	4.48	3.82	4.36	2.68	4.60	3.81	2.78	3.48
P ₂ O ₅	0.15	0.02	0.06	0.02	0.45	0.02	0.07	0.18	0.10
H ₂ O	0.79	0.56	0.77	0.53	3.45	0.62	0.50	1.52	0.64
CO ₂				0.1	n.d.				
TOTAL	99.84	99.85	100.24	100.64	99.74	100.66	99.61	99.56	99.94
q	18.90	34.34	24.92	36.66	17.90	35.31	28.75	14.52	23.99
or	19.51	26.66	22.70	25.73	16.43	27.18	22.71	16.75	20.71
ab	32.45	33.56	39.46	31.68	23.43	34.26	33.70	34.59	33.98
an	19.09	3.27	8.23	2.80	22.12	0.27	9.77	20.75	14.68
c	0.19	0.20	0.14	1.10	0.33	1.05	-	-	0.09
di	-	-	-	-	-	-	0.43	1.39	-
hy	6.95	1.75	3.12	1.34	13.26	0.47	2.76	6.71	3.87
mt	1.38	0.03	0.73	0.23	2.96	0.71	1.10	3.21	1.61
il	1.17	0.15	0.55	0.19	2.50	0.21	0.61	1.67	0.84
ap	0.36	0.05	0.14	0.05	1.11	0.05	0.17	0.44	0.24
cc				0.23					
hm						0.49			
DI	70.9	94.6	87.1	94.1	57.8	96.8	85.2	65.9	78.7
CI	10.1	2.2	4.7	3.1	20.2	3.0	5.1	13.4	6.65

Bagstone Ring Dyke Complex

70571130 Porphyritic rhyodacite.
 70571133 Spherulitic rhyolite.
 70571134 Slightly porphyritic rhyodacite.
 70571136 Spherulitic rhyolite.
 70571140 Porphyritic augite-hornblende andesite.
 70571141 Porphyritic rhyolite.
 70571142 Porphyritic hornblende-biotite microadamellite.
 70571143 Porphyritic augite-hornblende andesite.
 70571144 Porphyritic rhyodacite.

	7057 1130	7057 1133	7057 1134	7057 1136	7057 1140	7057 1141	7057 1142	7057 1143	7057 1144
Li	12	8	47	29	11	4	18	24	17
Be	3.5	3.5	3.5	3.5	3.0	2.5	3.0	3.5	3.0
F	-	-	-	-	-	-	-	-	-
Cr	13	3	3	3	85	3	11	15	9
Co	-	-	-	-	-	-	-	-	-
Ni	6	n.d.	n.d.	n.d.	27	n.d.	5	8	6
Cu	5	12	3	2	18	1	6	12	12
Zn	35	11	54	20	94	32	59	66	40
Ga	19	14	17	14	19	16	16	18	17
Rb	135	193	160	196	66	206	161	122	160
Sr	376	92	233	79	480	27	225	408	332
Y	17	4	16	18	35	24	15	22	16
Zr	198	106	224	107	506	131	133	245	206
Sn	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	725	610	765	565	1230	370	750	695	710
La	46	47	49	38	99	52	47	38	54
Ce	71	69	89	69	176	95	62	61	74
Pb	12	27	33	39	17	24	32	17	17
Th	17	26	29	25	16	31	20	17	25
U	4	18	5	5	n.d.	2	4	3	5
Mg/Li	750	130	60	-	1700	280	210	530	340
Rb/Sr	0.36	2.1	0.69	2.5	0.138	7.6	0.72	0.30	0.48
K/Rb	201	193	198	185	336	185	196	189	181
Ba/Sr	1.93	6.6	3.3	7.2	2.6	13.7	3.3	1.70	2.1
Ba/Rb	5.4	3.2	4.8	2.9	18.6	1.80	4.7	5.7	4.4
K/Ba	37.	61	41	64	18.0	103	42	33	41
Ca/Sr	76	53	53	65	73	21	68	82	66
Ca/Y	1700	1200	780	280	1000	25	1000	1500	1400
K/Pb	2260	1380	960	930	1310	1590	990	1360	1700
Th/U	4.3	1.4	5.8	5.0	-	16	5.0	5.7	5.0
K/U	6800	2100	6300	7200	-	19000	7900	7700	5800
Al/Ga	4700	4800	4700	4900	4300	4200	4700	5000	4900
mg	0.43	0.26	0.29	0.00	0.45	0.22	0.34	0.44	0.38
k	0.36	0.43	0.35	0.43	0.40	0.43	0.39	0.31	0.36

	7057 1145	7057 1146	7057 1147	7057 1148	7057 1149	7057 1150	7057 1155	7057 1156	7057 1159
SiO ₂	70.9	73.5	66.7	77.3	77.1	71.9	53.0	59.6	65.6
TiO ₂	0.38	0.28	0.59	0.14	0.10	0.33	1.98	1.53	0.72
Al ₂ O ₃	14.95	14.48	15.32	12.33	12.55	13.91	15.98	15.67	15.88
Fe ₂ O ₃	0.97	0.52	1.18	0.58	0.50	1.16	4.39	3.52	1.54
FeO	1.35	0.70	2.30	0.25	0.35	1.65	6.15	4.05	2.30
MnO	0.05	0.05	0.07	0.01	0.01	0.08	0.16	0.13	0.08
MgO	0.80	0.26	1.69	0.07	0.04	0.74	3.99	2.50	1.88
CaO	2.54	0.52	3.17	0.23	0.52	2.59	7.73	5.45	3.93
Na ₂ O	4.0	4.55	3.9	4.15	3.65	3.95	3.1	4.0	3.7
K ₂ O	3.59	5.13	3.14	4.68	4.77	3.40	1.44	2.39	2.90
P ₂ O ₅	0.08	0.03	0.13	0.02	0.00	0.09	0.25	0.23	0.16
H ₂ O	0.59	0.43	1.81	0.43	0.27	0.47	1.72	1.17	1.76
CO ₂			0.35						0.35
TOTAL	100.20	100.45	100.35	100.19	99.86	100.27	99.89	100.24	100.80
q	27.18	25.74	23.39	34.73	36.58	29.28	8.12	12.90	22.45
or	21.28	30.30	18.82	27.72	28.30	20.12	8.66	14.25	17.30
ab	33.86	38.56	33.38	35.28	30.99	33.47	26.77	34.64	31.69
an	12.12	2.33	12.73	1.01	2.59	10.21	25.84	17.64	16.35
c	0.08	0.57	0.94	0.05	0.44	-	-	-	0.72
dl	-	-	-	-	-	1.71	9.25	6.52	-
hy	3.14	1.13	6.70	0.17	0.18	2.67	10.36	5.38	6.66
mt	1.43	0.77	1.78	0.43	0.73	1.70	6.57	5.21	2.28
il	0.72	0.53	1.12	0.27	0.19	0.63	3.83	2.93	1.38
ap	0.19	0.07	0.34	0.05	0.00	0.21	0.63	0.55	0.38
cc			0.81						0.80
hm				0.28					
DI	82.3	94.6	75.6	97.7	95.9	82.9	43.5	61.8	71.4
CI	5.6	3.1	11.7	1.3	1.5	6.9	30.6	20.6	12.2

Bagstone Ring Dyke Complex

70571145	Porphyritic rhyodacite
70571146	Porphyritic rhyodacite
70571147	Porphyritic dacite
70571148	Rhyolite
70571149	Spherulitic rhyolite
70571150	Recrystallized, porphyritic rhyodacite
70571155	Hornblende-biotite-quartz diorite
70571156	Hornblende-quartz microdiorite
70571159	Porphyritic dacite

	7057 1145	7057 1146	7057 1147	7057 1148	7057 1149	7057 1150	7057 1155	7057 1156	7057 1159
Li	25	16	35	8	2	18	7	7	13
Be	3.5	3.5	2.5	3.0	3.5	2.5	2.0	2.5	2.5
F	-	-	-	-	-	-	-	-	-
Cr	9	19	n.d.	n.d.	3	19	38	9	10
Co	-	-	-	-	-	-	-	-	-
Ni	3	n.d.	8	n.d.	n.d.	8	15	9	12
Cu	6	1	18	1	5	6	30	19	12
Zn	41	25	79	14	20	55	108	83	64
Ga	17	17	17	14	13	15	20	19	17
Rb	159	234	134	198	204	149	57	86	106
Sr	297	119	350	41	59	224	322	299	344
Y	15	31	17	24	21	16	33	31	18
Zr	179	275	171	137	100	130	214	247	185
Sn	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	755	1310	630	415	560	655	385	615	575
La	50	57	37	37	35	40	36	41	36
Ce	71	104	65	81	65	65	38	58	54
Pb	27	30	26	17	38	31	5	16	20
Th	26	28	22	29	31	21	8	15	18
U	5	6	6	5	5	5	n.d.	n.d.	3
Mg/Li	190	100	290	53	120	250	3400	2200	870
Rb/Sr	0.54	1.97	0.38	4.8	3.5	0.67	0.18	0.29	0.31
K/Rb	187	182	194	196	194	189	209	230	227
Ba/Sr	2.5	11.0	1.80	10.1	9.5	2.9	1.20	2.06	1.67
Ba/Rb	4.7	5.6	4.7	2.1	2.7	4.4	6.8	7.2	5.4
K/Ba	39	33	41	94	71	43	31	32	42
Ca/Sr	61	31	65	39	63	83	171	130	82
Ca/Y	1200	120	1300	67	175	1200	1700	1300	1600
K/Pb	1100	1420	1000	2290	1040	910	2400	1240	1210
Th/U	5.2	4.7	3.7	5.8	6.2	4.2	-	-	6.0
K/U	6000	7100	4300	7800	7900	5600	-	-	8000
Al/Ga	4700	4500	4800	4700	5100	4900	4200	4400	5000
mg	0.38	0.27	0.47	0.14	0.08	0.32	0.41	0.38	0.47
k	0.37	0.43	0.35	0.43	0.46	0.36	0.23	0.28	0.34

	7057 1160	7057 1161	7057 1163	7057 1151	7057 1152	7057 1153	7057 1154	7057 1158
SiO ₂	66.4	75.1	76.8	73.7	72.6	74.5	72.4	72.7
TiO ₂	0.67	0.20	0.17	0.26	0.33	0.21	0.37	0.25
Al ₂ O ₃	15.95	13.30	12.62	13.82	14.53	13.66	14.31	14.25
Fe ₂ O ₃	2.41	1.43	0.66	0.61	0.86	0.63	0.86	0.42
FeO	1.65	0.35	0.25	1.10	1.25	0.85	0.95	1.35
MnO	0.06	0.02	0.01	0.05	0.05	0.07	0.05	0.07
MgO	1.63	0.30	0.22	0.38	0.69	0.40	0.51	0.31
CaO	3.53	0.98	0.08	1.50	2.37	1.10	1.55	1.11
Na ₂ O	3.25	3.05	3.0	4.3	3.9	4.15	4.25	4.7
K ₂ O	3.13	4.68	5.35	4.20	3.83	4.23	4.29	4.47
P ₂ O ₅	0.16	0.02	0.03	0.05	0.07	0.03	0.07	0.05
H ₂ O	1.21	0.82	0.78	0.51	0.47	0.73	0.54	0.42
CO ₂						0.15		
TOTAL	100.05	100.24	99.97	100.48	100.95	100.71	100.15	100.10
q	26.31	37.16	38.72	28.47	28.74	31.42	27.07	24.81
or	18.72	27.85	31.79	24.82	22.52	25.00	25.45	26.47
ab	27.74	26.15	25.74	36.71	32.91	35.03	36.34	40.10
an	16.66	4.76	0.20	5.83	10.74	4.31	7.20	4.47
c	1.21	1.46	1.81	-	-	0.69	-	-
dl	-	-	-	1.07	0.41	-	0.05	0.62
hy	4.14	0.75	0.55	1.58	2.62	1.81	1.77	2.30
mt	3.57	0.62	0.35	0.90	1.27	0.93	1.25	0.64
il	1.29	0.38	0.33	0.49	0.62	0.40	0.71	0.48
ap	0.38	0.05	0.07	0.12	0.17	0.07	0.17	0.12
cc						0.34		
hm		0.81	0.43					
DI	72.8	91.2	96.3	90.0	84.2	91.4	88.9	91.4
CI	10.6	4.1	3.5	4.2	5.1	4.2	4.0	4.2

Bagstowe Ring Dyke Complex

70571160	Hornblende dacite welded tuff.
70571161	Porphyritic rhyodacite welded tuff.
70571163	Porphyritic rhyolite.
70571151	Biotite adamellite.
70571152	Porphyritic biotite microadamellite.
70571153	Biotite adamellite.
70571154	Biotite adamellite.
70571158	Porphyritic biotite adamellite.

	7057 1160	7057 1161	7057 1163	7057 1151	7057 1152	7057 1153	7057 1154	7057 1158
Li	13	6	3	11	15	13	13	17
Be	3.0	2.5	2.0	3.5	3.0	4.0	2.5	2.5
F	-	-	-	-	-	-	-	-
Cr	21	4	3	3	9	3	3	3
Co	-	-	-	-	-	-	-	-
Ni	17	4	n.d.	n.d.	3	n.d.	n.d.	n.d.
Cu	5	4	3	1	10	2	2	2
Zn	62	34	18	34	40	35	45	55
Ga	19	17	14	15	15	14	15	19
Rb	131	168	152	207	176	209	160	178
Sr	378	167	36	138	241	133	202	95
Y	17	12	15	24	15	21	22	24
Zr	186	118	128	158	152	129	213	244
Sn	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	590	415	260	810	795	680	915	890
La	36	29	58	43	38	29	47	54
Ce	58	46	108	74	58	50	82	105
Pb	23	32	29	31	30	32	26	23
Th	20	32	48	31	26	30	26	25
U	4	5	5	6	5	10	2	4
Mg/Li	750	300	430	210	280	190	240	110
Rb/Sr	0.35	1.01	4.3	1.50	0.73	1.57	0.79	1.87
K/Rb	198	231	290	168	181	168	223	208
Ba/Sr	1.56	2.5	7.2	5.9	3.3	5.1	4.5	9.4
Ba/Rb	4.5	2.5	1.70	3.9	4.5	3.3	5.7	5.0
K/Ba	44	93	170	43	40	52	39	42
Ca/Sr	67	42	15.8	78	70	59	55	83
Ca/Y	1500	580	40	460	1100	380	500	330
K/Pb	1130	1210	1530	1120	1060	1100	1370	1610
Th/U	5.0	6.4	9.6	5.2	5.2	3.0	13	6.3
K/U	6500	7800	8900	5800	6400	3500	18000	9300
Al/Ga	4500	4100	4800	4900	5100	5200	5100	4000
mg	0.43	0.27	0.31	0.28	0.37	0.32	0.34	0.23
k	0.39	0.50	0.54	0.39	0.39	0.40	0.40	0.38

	6859 0026	7057 1135	7057 1137	6859 0106	6859 0128	6859 0129
SiO ₂	64.4	66.1	64.8	72.3	77.2	76.6
TiO ₂	0.62	0.61	0.63	0.32	0.04	0.05
Al ₂ O ₃	16.60	16.21	16.44	13.86	12.75	12.23
Fe ₂ O ₃	1.37	1.23	1.41	0.75	0.42	0.64
FeO	2.30	2.25	2.25	1.04	0.15	0.30
MnO	0.08	0.07	0.07	0.04	0.01	0.04
MgO	1.52	1.55	1.68	0.49	0.02	0.03
CaO	4.06	3.78	4.03	1.38	0.42	0.43
Na ₂ O	4.05	4.0	4.0	3.4	4.05	4.0
K ₂ O	3.00	3.16	2.99	4.87	4.57	4.46
P ₂ O ₅	0.16	0.14	0.16	0.06	0.00	0.00
H ₂ O	1.00	0.96	1.04	1.20	0.75	0.51
CO ₂	0.05	0.1		0.8		
TOTAL	99.21	100.16	99.50	100.51	100.38	99.29
q	18.53	20.21	18.85	32.47	35.27	35.74
or	18.04	18.82	17.92	28.98	27.10	26.68
ab	34.78	34.11	34.58	28.87	34.55	34.25
an	18.63	17.09	18.21	1.41	2.09	2.16
c	-	-	-	2.52	0.35	0.04
dl	0.39	0.17	0.82	-	-	-
hy	5.87	6.04	5.91	2.06	0.02	0.09
mt	2.07	1.84	2.12	1.11	0.40	0.94
il	1.20	1.17	1.21	0.61	0.08	0.10
ap	0.39	0.33	0.38	0.14	0.00	0.00
cc	0.12	0.23		1.83		
hm					0.14	
DI	71.4	73.1	71.4	90.3	96.9	96.7
CI	10.0	9.8	10.4	8.3	1.0	1.2

Bagstowe Ring Dyke Complex (Mount Rous Ring Dyke)

68590026 Porphyritic hornblende-biotite microgranodiorite, E54/16/7.

70571135 Porphyritic hornblende-biotite microgranodiorite.

70571137 Porphyritic hornblende-biotite microgranodiorite.

Lochaber Ring Complex

68590106 Porphyritic rhyodacite, Butlers Volcanics, E55/9/15.

68590128 Fluorite-bearing, leucocratic granite, Lochaber Granite, E55/13/11.

68590129 Fluorite-bearing, porphyritic biotite microgranite, Lochaber Granite E55/13/12.

	6859 0026	7057 1135	7057 1137	6859 0106	6859 0128	6859 C129
Li	17	22	17	7	33	32
Be	3.0	3.0	3.0	2.0	4.5	5.0
F	-	-	-	-	3000	3000
Cr	-	16	15	-	-	-
Co	11	-	-	5	4	4
Ni	7	5	8	n.d.	n.d.	n.d.
Cu	5	10	6	4	4	n.d.
Zn	66	51	52	37	53	41
Ga	19	20	19	16	21	22
Rb	127	143	128	161	412	383
Sr	374	355	374	109	9	6
Y	16	17	17	23	225	84
Zr	197	204	214	210	87	107
Sn	n.d.	n.d.	n.d.	n.d.	4	n.d.
Ba	605	650	670	635	11	n.d.
La	37	51	45	68	142	18
Ce	61	73	71	115	285	52
Pb	17	23	20	26	34	38
Th	17	21	20	40	47	51
U	3	3	2	6	6	7
Mg/Li	540	420	590	430	4	6
Rb/Sr	0.34	0.40	0.34	1.48	46	64
K/Rb	196	183	194	251	92	97
Ba/Sr	1.62	1.83	1.79	5.8	1.2	-
Ba/Rb	4.8	4.5	5.2	3.9	0.027	-
K/Ba	41	40	37	64	3400	-
Ca/Sr	78	76	77	91	330	520
Ca/Y	1800	1600	1700	430	13.3	37
K/Pb	1460	1140	1240	1550	1110	970
Th/U	5.7	7.0	10	6.7	7.8	7.3
K/U	8300	8700	12000	6700	6300	5300
Al/Ga	4600	4300	5100	4600	3200	2900
mg	0.42	0.44	0.45	0.33	0.03	0.06
k	0.33	0.34	0.33	0.49	0.42	0.42

	6749 0001	6749 0028R	6749 0028R1	6749 0029R	6749 0039R1	6749 0045R	6749 0046R	6749 0052	6749 0054R
SiO ₂	75.3	76.7	76.1	77.1	77.3	75.1	77.0	76.9	75.4
TiO ₂	0.02	0.12	0.05	0.10	0.04	0.09	0.01	0.04	0.17
Al ₂ O ₃	13.00	12.34	12.41	11.55	12.56	13.01	12.84	12.67	12.35
Fe ₂ O ₃	0.23	0.34	0.90	0.21	0.01	0.38	0.30	0.19	0.37
FeO	1.12	0.97	0.25	1.08	0.37	1.08	0.86	0.67	1.16
MnO	0.03	0.02	0.01	0.02	0.01	0.04	0.05	0.02	0.03
MgO	0.05	0.19	0.01	0.11	0.07	0.10	0.00	0.05	0.20
CaO	0.38	0.60	0.46	0.60	0.68	0.71	0.58	0.55	0.88
Na ₂ O	4.0	3.35	3.6	3.35	3.6	3.4	3.1	3.45	3.1
K ₂ O	5.01	5.29	5.19	4.71	4.65	5.01	3.90	4.99	5.09
P ₂ O ₅	0.00	0.02	0.00	0.01	0.01	0.03	0.02	0.01	0.03
H ₂ O	0.77	0.82	0.75	0.82	1.14	0.99	1.35	0.75	0.93
CO ₂									
TOTAL	99.91	100.76	99.73	99.66	100.44	99.94	100.01	100.34	99.71
q	31.57	34.83	34.67	37.90	36.82	34.23	42.73	36.29	35.42
or	29.80	31.25	30.98	28.14	27.67	29.92	23.35	29.61	30.45
ab	33.96	28.50	30.76	28.74	30.92	29.06	26.66	29.22	26.63
an	1.90	2.80	2.30	2.56	3.33	3.31	2.78	2.67	4.22
c	0.36	0.05	0.04	-	0.35	0.80	2.53	0.64	0.20
dl	-	-	-	0.34	-	-	-	-	-
hy	2.03	1.80	0.03	1.79	0.81	1.86	1.41	1.17	2.11
mt	0.34	0.51	0.70	0.32	0.00	0.57	0.47	0.29	0.57
il	0.04	0.23	0.10	0.19	0.08	0.17	0.02	0.08	0.33
ap	0.00	0.05	0.00	0.02	0.02	0.07	0.05	0.02	0.07
hm			0.43						
DI	95.3	94.6	96.4	94.8	95.4	93.2	92.7	95.1	92.5
CI	2.8	2.6	1.3	2.7	1.3	3.5	4.5	2.2	3.3

Elizabeth Creek Granite

67490001 Fluorite-and topaz-bearing greisenized granite.

67490028R Fluorite-bearing biotite granite.

67490028R1 Aplitic granite.

67490029R Fluorite-bearing leucocratic granite.

67490039R1 Fluorite-bearing aplite.

67490045R Fluorite-bearing biotite adamellite.

67490046R Fluorite-bearing aplite.

67490052 Leucocratic adamellite.

67490054R Fluorite-bearing biotite adamellite.

	6749 0001	6749 0028R	6749 0028R1	6749 0029R	6749 0039R1	6749 0045R	6749 0046R	6749 0052	6749 0054R
Li	248	33	6	29	42	56	51	15	20
Be	4.0	5.0	5.0	8.0	26	5.5	19	5.0	6.0
F	-	-	-	-	-	-	-	-	-
Cr	-	-	n.d.	-	-	-	-	-	-
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	2	3	32	16	7	4	3	12	22
Zn	156	21	12	24	16	43	24	12	32
Ga	40	17	20	16	21	18	19	17	19
Rb	1170	507	550	496	692	476	594	399	407
Sr	14	22	8	16	9	21	4	10	43
Y	205	91	120	108	261	101	86	109	77
Zr	131	137	118	112	140	89	44	68	148
Sn	6	8	-	11	10	4	12	n.d.	n.d.
Ba	19	98	24	45	14	79	23	25	195
La	52	48	55	39	33	32	20	15	55
Ce	93	115	41	96	76	84	56	48	120
Pb	44	29	29	26	23	33	41	38	38
Th	57	69	60	62	81	34	22	22	40
U	24	11	17	23	24	8	18	12	6
Mg/Li	1	33	10	23	10	11	-	20	60
Rb/Sr	84	23	69	31	77	23	150	40	95
K/Rb	36	87	78	79	56	87	55	104	104
Ba/Sr	1.4	4.5	3.0	2.8	1.6	3.8	5.8	2.5	4.5
Ba/Rb	0.016	0.193	0.044	0.091	0.020	0.166	0.039	0.063	0.48
K/Ba	2200	450	1800	870	2800	530	1400	1700	220
Ca/Sr	193	195	410	270	540	240	1030	390	147
Ca/Y	13.2	47	28	40	18.8	50	48	36	82
K/Pb	950	1510	1490	1500	1680	1260	790	1090	1110
Th/U	2.4	6.3	3.5	2.7	2.4	4.3	1.2	1.8	6.7
K/U	1700	4000	2500	1700	1600	5200	1800	3500	7000
Al/Ga	1720	3900	3300	3800	3200	3800	3600	4000	3400
mg	0.06	0.21	0.02	0.13	0.25	0.11	0.00	0.09	0.19
k	0.45	0.51	0.48	0.48	0.46	0.49	0.45	0.49	0.52

	6749 0070R	6749 0070R1	6749 0089R	6749 0089R1	6749 0097	6749 0098R1	6749 0105	6749 0111	6749 0119R
SiO ₂	77.2	76.2	76.0	76.6	76.1	76.4	76.5	77.0	76.4
TiO ₂	0.12	0.04	0.10	0.07	0.12	0.05	0.14	0.07	0.16
Al ₂ O ₃	11.62	12.36	12.25	12.18	12.28	12.34	12.21	12.15	11.87
Fe ₂ O ₃	0.41	0.56	0.31	0.33	0.13	0.24	0.39	0.26	0.45
FeO	1.04	0.48	0.97	0.75	1.27	0.82	1.64	0.93	1.31
MnO	0.04	0.02	0.02	0.03	0.03	0.02	0.04	0.02	0.03
MgO	0.12	0.03	0.07	0.00	0.03	0.07	0.06	0.03	0.21
CaO	0.58	0.66	0.87	0.60	0.72	0.67	0.55	0.53	0.82
Na ₂ O	3.3	4.3	3.35	3.65	3.35	3.85	3.55	3.65	3.2
K ₂ O	4.76	4.18	4.84	4.98	4.99	4.78	4.88	5.18	4.64
P ₂ O ₅	0.02	0.00	0.01	0.00	0.01	0.00	0.02	0.01	0.02
H ₂ O	0.78	0.69	0.56	0.45	0.85	0.67	0.87	0.60	0.87
CO ₂									
TOTAL	99.99	99.52	99.35	99.64	99.88	99.91	100.85	100.43	99.98
q	38.20	34.23	35.88	34.95	35.18	34.03	34.90	34.41	37.57
or	28.35	24.99	28.95	29.67	29.76	28.46	28.83	30.65	27.67
ab	27.97	36.80	28.69	31.33	28.86	32.90	29.94	31.00	27.23
an	2.77	2.11	4.15	2.12	3.54	2.25	2.60	1.43	3.97
c	0.07	-	-	-	0.04	-	0.16	-	0.16
di	-	0.90	0.13	0.78	-	0.96	-	1.00	-
hy	1.75	0.00	1.51	0.64	2.17	0.94	2.67	0.95	2.36
mt	0.61	0.82	0.47	0.48	0.20	0.37	0.59	0.39	0.67
il	0.23	0.08	0.19	0.13	0.23	0.10	0.27	0.13	0.31
ap	0.05	0.00	0.02	0.00	0.02	0.00	0.05	0.02	0.05
DI	94.5	96.0	93.5	95.8	93.8	95.4	93.7	96.1	92.5
CI	2.7	1.8	2.3	2.0	2.7	2.4	3.7	2.5	3.6

Elizabeth Creek Granite

67490070R	Fluorite-bearing biotite adamellite.
67490070R1	Aplite
67490089R	Porphyritic biotite microadamellite.
67490089R1	Biotite microadamellite.
67490097	Fluorite-bearing, porphyritic biotite adamellite.
67490098R1	Biotite microadamellite.
67490105	Fluorite-bearing biotite adamellite.
67490111	Fluorite-bearing, leucocratic adamellite.
67490119R	Fluorite-bearing biotite adamellite.

	6749 0070R	6749 0070R1	6749 0089R	6749 0089R1	6749 0097	6749 0098R1	6749 0105	6749 0111	6749 0119R
Li	21	11	46	44	27	44	12	22	29
Be	4.0	6.0	5.0	5.5	6.5	6.0	6.0	4.5	4.0
F	-	-	-	-	-	-	-	-	-
Cr	-	-	-	-	-	-	-	-	7
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	3	n.d.	n.d.	3	n.d.	3	n.d.
Cu	2	2	2	2	3	2	20	2	15
Zn	65	41	18	14	43	15	50	38	29
Ga	16	22	17	19	18	19	23	26	16
Rb	450	609	456	545	495	631	351	331	398
Sr	16	3	21	7	23	3	30	4	36
Y	115	167	99	125	100	187	94	128	81
Zr	120	125	141	134	137	157	259	131	146
Sn	4	7	n.d.	n.d.	n.d.	n.d.	11	n.d.	7
Ba	68	n.d.	93	10	113	4	370	25	110
La	47	23	30	29	43	21	50	21	38
Ce	113	75	76	80	98	74	124	64	93
Pb	33	35	28	38	28	41	30	32	27
Th	70	58	57	77	62	80	37	38	59
U	12	28	11	19	15	7	9	8	12
Hg/Li	34	16	9	-	7	10	30	8	45
Rb/Sr	28	200	22	78	22	210	11.7	83	11.1
K/Rb	88	57	88	76	84	63	115	130	97
Ba/Sr	4.3	-	4.4	1.4	4.9	1.3	12.3	6.3	3.1
Ba/Rb	0.151	-	0.20	0.018	0.23	0.006	1.05	0.076	0.28
K/Ba	588	-	430	4100	370	10000	109	1700	350
Ca/Sr	290	1570	300	610	220	1600	130	950	164
Ca/Y	36	28	63	34	51	26	41	30	73
K/Pb	1200	990	1440	1090	1480	970	1350	1340	1430
Th/U	5.8	2.1	5.2	4.1	4.1	11.4	4.1	4.8	4.9
K/U	3300	1200	3700	2200	2800	5700	4500	5400	3200
Al/Ga	3900	3000	3800	3400	3600	3400	2800	2500	3900
ng	0.13	0.05	0.09	0.00	0.04	0.10	0.05	0.04	0.18
k	0.49	0.39	0.49	0.47	0.49	0.45	0.48	0.48	0.49

	6749 0120R	6749 0121R	6749 0121R2	6749 0128R	6749 0128R1	6749 0132	6749 0155	6849 0001G	6849 0002G
SiO ₂	76.8	76.8	76.4	76.8	76.8	76.7	77.0	74.4	74.3
TiO ₂	0.11	0.10	0.04	0.13	0.03	0.10	0.09	0.24	0.26
Al ₂ O ₃	12.15	12.34	12.80	12.05	12.25	12.08	11.82	13.07	13.13
Fe ₂ O ₃	0.19	0.11	0.07	0.30	0.19	0.43	0.01	0.24	0.19
FeO	1.16	1.12	0.20	1.27	0.80	0.97	1.04	1.64	1.64
MnO	0.03	0.02	0.00	0.03	0.01	0.03	0.02	0.04	0.03
MgO	0.10	0.03	0.00	0.09	0.03	0.09	0.09	0.26	0.32
CaO	0.76	0.73	0.53	0.77	0.63	0.66	0.61	1.36	1.24
Na ₂ O	3.5	3.45	4.1	3.2	4.35	3.6	3.5	3.45	3.5
K ₂ O	4.68	5.02	4.88	4.89	4.13	4.70	4.92	4.52	4.84
P ₂ O ₅	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.04	0.05
H ₂ O	0.98	0.76	0.74	0.68	0.46	1.01	0.57	0.46	0.53
CO ₂									
TOTAL	100.47	100.49	99.76	100.22	99.68	100.38	99.67	99.72	100.03
q	36.23	35.15	33.07	37.06	34.28	35.78	35.95	33.08	31.62
or	27.79	29.73	29.12	29.00	24.54	27.94	29.32	26.91	28.73
ab	29.67	29.42	35.03	27.17	37.17	30.89	30.11	29.23	29.57
an	3.69	3.28	2.14	3.77	1.71	2.81	1.90	6.53	5.85
c	-	-	-	0.12	-	-	-	0.16	0.03
di	0.03	0.25	0.46	-	1.27	0.36	1.01	-	-
hy	2.06	1.78	0.00	2.14	0.69	1.34	1.49	3.15	3.28
mt	0.29	0.17	0.10	0.47	0.29	0.66	0.04	0.38	0.31
il	0.21	0.19	0.08	0.25	0.06	0.19	0.17	0.46	0.50
ap	0.02	0.02	0.00	0.02	0.00	0.02	0.00	0.10	0.12
DI	93.7	94.3	97.2	93.2	96.0	94.6	95.4	89.2	89.9
CI	2.6	2.4	0.6	3.0	2.3	2.6	2.7	4.3	4.2

Elizabeth Creek Granite

67490120R	Fluorite-bearing biotite adamellite.
67490121R	Greisen, with topaz.
67490121R2	Aplite.
67490128R	Fluorite-bearing biotite adamellite.
67490128R1	Topaz-bearing biotite microadamellite.
67490132	Fluorite-bearing biotite granite.
67490155	Fluorite-bearing biotite granite.
68490001G	Biotite adamellite, MG68/1.
68490002G	Biotite adamellite, MG68/2.

	6749 0120R	6749 0121R	6749 0121R2	6749 0128R	6749 0128R1	6749 0132	6749 0155	6849 0001G	6849 0002G
Li	33	28	8	40	31	36	14	31	30
Be	6.0	5.5	5.0	5.5	9.5	7.5	9.5	4.5	3.0
F	-	-	-	-	-	-	-	-	-
Cr	5	7	n.d.	7	n.d.	4	-	-	-
Co	-	-	-	-	-	-	3	-	-
Ni	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	3	3	10	3	1	4	5	2	2
Zn	25	21	11	24	35	33	26	45	50
Ga	18	17	23	18	23	19	18	16	16
Rb	470	542	559	550	633	604	528	231	237
Sr	23	18	7	20	4	18	15	83	80
Y	105	98	103	113	237	134	102	54	50
Zr	129	138	135	147	91	122	129	198	221
Sn	n.d.	n.d.	-	n.d.	-	n.d.	4	n.d.	n.d.
Ba	69	56	12	74	n.d.	68	51	480	525
La	42	36	18	45	37	34	77	48	66
Ce	104	90	38	114	99	95	120	95	127
Pb	31	39	35	23	47	40	35	30	25
Th	68	65	69	78	59	65	74	24	29
U	10	10	15	12	23	14	14	7	4
Mg/Li	18	6	-	14	6	15	39	52	63
Rb/Sr	20	30	80	28	160	34	35	2.8	3.0
K/Rb	83	77	72	74	54	65	77	162	170
Ba/Sr	3.0	3.1	1.7	3.7	-	3.8	3.4	5.8	6.6
Ba/Rb	0.147	0.103	0.021	0.135	-	0.113	0.097	2.1	2.2
K/Ba	560	740	3400	550	-	570	800	78	77
Ca/Sr	230	290	640	280	1100	260	290	117	111
Ca/Y	51	53	37	49	19.0	35	43	180	80
K/Pb	1250	1070	1160	1770	730	980	1170	1250	1610
Th/U	6.8	6.5	4.6	6.5	2.6	4.6	5.3	3.4	7.3
K/U	3900	4200	2700	3400	1500	2800	2900	5400	10000
Al/Ga	3600	3900	3000	3600	2800	3400	3500	4300	4400
mg	0.10	0.04	0.00	0.09	0.05	0.10	0.13	0.19	0.23
k	0.47	0.49	0.43	0.50	0.38	0.46	0.48	0.46	0.48

	6849 0003G	6849 0006G	6849 0014G	6849 0022G	6849 0025G	6849 0026G	6849 0027G	6849 0028G	6859 0023
SiO ₂	76.1	75.0	76.8	76.4	76.9	78.2	75.5	72.3	75.2
TiO ₂	0.10	0.23	0.10	0.10	0.10	0.09	0.12	0.29	0.13
Al ₂ O ₃	12.63	12.86	12.29	12.15	12.05	11.50	12.51	13.12	12.76
Fe ₂ O ₃	0.23	0.34	0.44	0.51	0.09	0.00	0.19	0.25	0.65
FeO	0.82	1.42	0.90	1.01	1.08	0.93	1.38	2.25	0.95
MnO	0.03	0.03	0.02	0.03	0.02	0.02	0.04	0.05	0.04
MgO	0.18	0.22	0.12	0.06	0.11	0.11	0.18	0.40	0.19
CaO	0.87	1.27	0.71	0.66	0.72	0.73	0.73	1.31	0.79
Na ₂ O	3.6	3.5	3.8	3.6	3.2	3.05	3.4	3.1	4.25
K ₂ O	4.75	4.63	4.87	4.97	4.93	4.79	4.97	4.93	4.17
P ₂ O ₅	0.03	0.04	0.02	0.01	0.02	0.02	0.02	0.05	0.02
H ₂ O	0.47	0.52	0.39	0.48	0.53	0.48	0.72	0.98	0.53
CO ₂									
TOTAL	99.81	100.06	100.46	99.98	99.75	99.92	99.76	99.03	99.68
q	34.68	33.40	34.22	34.47	37.16	39.91	34.43	30.95	32.33
or	28.21	27.47	28.74	29.51	29.34	28.46	29.67	29.70	24.84
ab	30.59	29.64	32.11	31.02	27.43	26.03	28.80	26.99	36.50
an	4.22	5.78	2.10	2.11	3.47	3.52	3.48	6.29	3.32
c	0.06	-	-	-	0.16	-	0.33	0.38	-
dl	-	0.24	1.07	0.98	-	0.05	-	-	0.42
hy	1.67	2.42	0.87	0.92	2.05	1.84	2.70	4.61	1.33
mt	0.34	0.52	0.65	0.76	0.16	0.00	0.32	0.40	0.96
il	0.19	0.44	0.19	0.21	0.19	0.17	0.23	0.56	0.25
ap	0.05	0.10	0.05	0.02	0.05	0.02	0.05	0.12	0.05
DI	93.5	90.5	95.1	95.0	93.9	94.4	92.9	87.6	93.7
CI	2.3	3.7	2.8	2.9	2.6	2.1	3.6	6.1	3.0

Elizabeth Creek Granite

68490003G	Biotite adamellite, MG68/3.
68490006G	Biotite adamellite, MG68/6.
68490014G	Fluorite-bearing biotite adamellite, MG68/14.
68490022G	Fluorite-bearing biotite granite, MG68/22.
68490025G	Slightly greisenized, fluorite-bearing adamellite, MG68/25.
68490026G	Fluorite-bearing, porphyritic biotite microadamellite, MG68/26.
68490027G	Fluorite-bearing biotite adamellite, MG68/27.
68490028G	Fluorite-bearing biotite adamellite, MG68/28.
68590023	Biotite granite, E5A/12/16.

	6849 00036	6849 00066	6849 00146	6849 00226	6849 00256	6849 00266	6849 00276	6849 00286	6849 0023
Li	18	32	18	21	27	29	24	45	8
Be	6.0	3.0	2.5	7.5	6.5	4.0	4.5	4.0	3.0
F	-	-	-	-	-	-	-	-	-
Cr	-	-	-	-	-	-	-	-	-
Co	-	-	-	3	n.d.	3	5	6	n.d.
Ni	n.d.	n.d.	n.d.	n.d.	n.d.	3	3	3	n.d.
Cu	2	2	16	2	2	2	10	3	1
Zn	34	45	25	47	21	21	55	34	47
Ga	16	15	21	24	17	17	17	17	16
Rb	317	236	299	302	480	368	456	468	159
Sr	35	75	32	17	20	27	30	66	80
Y	63	47	89	130	89	61	85	68	40
Zr	93	186	125	195	138	100	104	198	182
Sn	n.d.	n.d.	5	6	n.d.	6	9	9	n.d.
Ba	143	480	305	130	81	118	152	355	760
La	19	42	36	70	41	44	31	56	41
Ce	31	81	86	138	88	88	69	119	85
Pb	38	25	26	30	34	28	28	29	18
Th	30	23	26	38	66	52	43	43	23
U	6	4	6	5	15	13	14	7	2
Hg/Li	61	41	39	17	26	24	46	53	140
Rb/Sr	9.1	3.2	9.3	18	24	14	15	7.1	2.0
K/Rb	124	163	135	136	85	108	90	87	218
Ba/Sr	4.1	6.4	9.5	7.6	4.1	4.4	5.1	5.4	9.5
Ba/Rb	0.45	2.0	1.02	0.43	0.169	0.32	0.33	0.76	4.8
K/Ba	280	80	132	320	500	340	270	115	46
Ca/Sr	177	121	159	280	260	193	173	142	70
Ca/Y	98	195	57	36	57	85	61	140	140
K/Pb	1040	1540	1550	1370	1200	1420	1470	1410	1920
Th/U	5.0	5.8	4.3	7.6	4.4	4.0	3.1	6.1	11
K/U	6600	9600	6700	8200	2700	3100	2900	5800	17000
Al/Ga	4200	4500	3100	2700	3800	3600	3900	4100	4200
mg	0.23	0.18	0.13	0.06	0.14	0.17	0.17	0.22	0.18
k	0.46	0.47	0.46	0.47	0.50	0.51	0.49	0.51	0.39

	6859 0048	6859 0050	6859 0056	6859 0059	6859 0060	6859 0067	6859 0069	6859 0071	6859 0072
SiO ₂	77.8	77.4	77.9	77.3	76.9	77.0	78.6	77.6	75.6
TiO ₂	0.04	0.06	0.08	0.11	0.10	0.06	0.09	0.06	0.17
Al ₂ O ₃	12.47	12.33	11.80	11.94	12.51	12.84	11.43	12.21	13.11
Fe ₂ O ₃	0.47	0.41	0.17	0.58	0.20	0.59	0.30	0.28	0.07
FeO	0.34	0.60	0.78	0.78	0.90	0.30	0.78	0.78	1.12
MnO	0.02	0.03	0.02	0.04	0.11	0.03	0.02	0.02	0.07
MgO	0.05	0.01	0.01	0.06	0.10	0.08	0.00	0.09	0.23
CaO	0.38	0.38	0.66	0.59	0.70	0.49	0.46	0.55	0.99
Na ₂ O	2.3	3.7	3.2	3.4	4.6	3.95	3.45	3.7	3.6
K ₂ O	5.36	4.83	4.73	4.79	3.85	4.68	4.78	4.64	4.55
P ₂ O ₅	0.00	0.01	0.01	0.01	0.02	0.00	0.00	0.00	0.05
H ₂ O	0.75	0.51	0.72	0.73	0.40	0.32	0.45	0.61	0.59
CO ₂	0.05								
TOTAL	100.73	100.27	100.07	100.33	100.37	100.34	100.36	100.54	100.15
q	39.12	36.33	39.63	37.79	33.45	34.80	38.83	36.30	34.10
or	31.62	28.59	28.12	28.41	22.62	27.65	28.24	27.41	27.01
ab	25.30	31.44	27.07	28.70	38.98	33.58	29.43	31.63	30.76
an	1.57	1.82	3.29	2.87	2.14	2.43	1.46	2.73	4.61
c	1.19	0.34	0.25	0.15	-	0.36	-	0.04	0.55
di	-	-	-	-	1.05	-	0.74	-	-
hy	0.32	0.74	1.22	0.99	1.22	0.22	0.67	1.35	2.42
mt	0.70	0.61	0.26	0.86	0.33	0.86	0.46	0.42	0.12
il	0.08	0.11	0.15	0.21	0.19	0.11	0.17	0.11	0.32
ap	0.00	0.02	0.01	0.02	0.05	0.00	0.00	0.00	0.12
cc	0.11								
DI	96.0	96.4	94.8	94.9	95.1	96.0	96.5	95.4	91.9
CI	2.4	1.8	1.9	2.2	2.8	1.6	2.0	1.9	3.5

Elizabeth Creek Granite

68590048	Biotite adamellite, E55/5/1.
68590050	Biotite granite, E55/5/3.
68590056	Greisenized adamellite, E55/5/11. Contains fluorite and cassiterite.
68590059	Fluorite-bearing biotite granite, E55/5/15.
68590060	Leucocratic adamellite, E55/5/16.
68590067	Fluorite-bearing biotite adamellite, E55/5/24.
68590069	Fluorite-bearing leucocratic granite, E55/5/26.
68590071	Fluorite-bearing biotite adamellite, E55/5/28.
68590072	Fluorite-bearing biotite granite, E55/5/29.

	6859 0048	6859 0050	6859 0056	6859 0059	6859 0060	6859 0067	6859 0069	6859 0071	6859 0072
Li	13	21	18	20	6	14	27	64	17
Be	3.0	6.0	4.0	6.0	3.0	2.5	3.5	6.0	3.5
F	-	-	4500	3000	-	500	2000	3000	1000
Cr	-	-	-	-	-	-	-	-	-
Co	3	4	n.d.	n.d.	n.d.	n.d.	n.d.	3	n.d.
Ni	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	8	3	40	2	3	1	1	7	2
Zn	10	23	67	21	161	19	36	43	22
Ga	15	16	17	16	13	15	23	23	13
Rb	419	456	572	482	141	159	314	485	294
Sr	18	18	22	21	48	20	12	11	72
Y	45	103	287	105	58	34	105	177	44
Zr	78	79	116	119	125	74	114	100	100
Sn	4	n.d.	17	15	9	n.d.	6	15	9
Ba	141	51	49	57	495	405	129	48	191
La	156	240	96	49	36	28	56	33	30
Ce	42	70	178	104	64	53	114	60	51
Pb	31	34	18	24	20	22	27	41	23
Th	39	27	68	64	18	14	33	48	38
U	10	6	10	12	4	3	8	13	9
Mg/Li	23	3	3	18	100	34	-	8	82
Rb/Sr	23	25	26	23	2.9	8.0	26	44	4.1
K/Rb	106	88	69	82	227	244	126	79	129
Ba/Sr	7.8	2.8	2.2	2.7	10.3	20	10.8	4.4	2.7
Ba/Rb	0.34	0.112	0.086	0.118	3.5	2.5	0.41	0.099	0.65
K/Ba	320	790	800	700	65	96	310	800	198
Ca/Sr	150	150	210	200	104	175	280	350	99
Ca/Y	60	26	16.4	40	86	105	31	22	160
K/Pb	1430	1180	2200	1650	1600	1760	1470	940	1640
Th/U	3.9	4.5	6.8	5.3	4.5	4.7	4.1	3.7	4.2
K/U	4500	6700	3900	3300	8000	1300	5000	3000	4200
Al/Ga	4400	4100	3700	4000	5100	4500	2600	2800	5300
mg	0.10	0.02	0.02	0.07	0.13	0.14	0.00	0.13	0.24
k	0.54	0.46	0.49	0.48	0.35	0.44	0.47	0.45	0.45

	6859 0075	6859 0077	6859 0080	6859 0081	6859 0102	6859 0107	6859 0108	6859 0109	7057 1002
SiO ₂	76.2	77.6	77.3	76.0	76.8	75.5	73.8	77.1	75.7
TiO ₂	0.15	0.12	0.13	0.12	0.07	0.11	0.12	0.04	0.06
Al ₂ O ₃	12.57	11.89	11.60	12.73	12.25	13.03	13.66	12.34	12.66
Fe ₂ O ₃	0.42	0.33	0.26	0.46	0.76	0.41	0.15	0.94	1.19
FeO	1.12	0.86	1.12	0.93	0.60	0.93	1.08	0.25	0.45
MnO	0.03	0.03	0.03	0.03	0.02	0.03	0.05	0.04	0.08
MgO	0.17	0.07	0.10	0.06	0.03	0.18	0.16	0.01	0.08
CaO	0.65	0.61	0.46	0.68	0.46	0.66	0.94	0.50	0.55
Na ₂ O	3.35	3.5	2.8	3.35	3.85	4.2	3.4	3.6	3.3
K ₂ O	4.66	4.79	5.16	5.04	4.67	4.27	4.95	4.79	5.30
P ₂ O ₅	0.04	0.01	0.01	0.02	0.00	0.02	0.07	0.00	0.01
H ₂ O	0.80	0.55	0.85	0.88	0.94	0.47	0.55	0.70	0.91
CO ₂									n.d.
TOTAL	100.16	100.36	99.82	100.30	100.45	99.81	98.93	100.31	100.29
q	36.83	37.19	39.64	35.39	35.38	32.74	32.87	36.92	35.29
or	27.71	28.35	30.79	29.97	27.71	25.39	29.75	28.41	31.52
ab	28.60	29.65	24.17	28.51	32.96	35.83	29.08	30.56	27.93
an	2.98	2.60	2.24	3.26	2.23	3.16	4.28	2.49	2.68
c	0.92	-	0.55	0.58	-	0.34	1.22	0.33	0.56
dl	-	0.32	-	-	0.05	-	-	-	-
hy	1.94	1.14	1.94	1.34	0.43	1.67	2.18	0.02	0.20
at	0.63	0.51	0.40	0.67	1.12	0.61	0.24	0.82	1.55
il	0.29	0.23	0.25	0.23	0.11	0.21	0.23	0.08	0.11
ap	0.10	0.02	0.02	0.05	0.00	0.05	0.17	0.00	0.02
hm								0.38	0.14
DI	93.1	95.2	94.6	93.9	96.1	94.0	91.7	95.9	94.7
CI	3.9	2.2	3.2	2.9	1.7	2.9	4.0	1.6	2.6

Elizabeth Creek Granite

- 68590075 Fluorite-bearing biotite granite, E55/5/33.
 68590077 Fluorite-bearing biotite adamellite, E55/5/37.
 68590080 Fluorite-bearing biotite granite, E55/5/41.
 68590081 Fluorite-bearing biotite granite, E55/5/42.
 68590102 Fluorite-bearing biotite granite, E55/9/3.
 68590107 Biotite granite, E55/9/17.
 68590108 Fluorite-bearing biotite-muscovite microgranite, E55/9/19.
 68590109 Fluorite-bearing leucocratic granite, E55/9/20.
 70571002 Fluorite-bearing, slightly greisenized biotite granite.

	6859 0175	6859 0077	6859 0080	6859 0081	6859 0102	6859 0107	6859 0108	6859 0109	7057 1002
Li	42	39	12	29	83	13	44	70	29
Be	5.0	4.5	3.0	4.0	8.0	4.0	6.5	7.0	3.0
F	2000	1500	2000	3500	3000	-	3500	4000	1700
Cr	-	-	-	-	-	-	-	-	n.d.
Co	4	3	5	n.d.	n.d.	6	6	n.d.	-
Ni	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	1	1	91	1	1	2	3	6	2
Zn	27	23	39	97	21	22	32	43	17
Ga	17	19	15	18	24	17	18	24	14
Rb	353	325	405	566	535	212	489	600	426
Sr	29	25	31	23	6	38	47	6	16
Y	81	74	74	105	100	49	46	150	55
Zr	136	137	137	109	122	123	99	95	81
Sn	n.d.	6	6	6	8	n.d.	9	4	-
Ba	163	195	152	79	33	390	245	16	155
La	45	51	61	52	37	36	19	43	27
Ce	94	94	116	100	87	83	37	124	72
Pb	29	33	39	30	35	18	49	42	27
Th	45	47	70	56	70	22	25	64	36
U	12	7	11	13	5	4	8	17	8
Mg/Li	24	11	50	12	2	85	23	0.9	17
Rb/Sr	12	13	13	25	89	5.6	10.4	100	27
K/Rb	110	122	106	74	73	167	84	66	103
Ba/Sr	5.6	7.8	4.9	3.4	5.5	10.3	5.2	2.7	9.7
Ba/Rb	0.46	0.60	0.38	0.140	0.062	1.84	0.50	0.027	0.36
K/Ba	240	200	280	530	1200	91	168	2500	280
Ca/Sr	159	191	106	210	550	124	143	600	240
Ca/Y	57	59	45	47	33	96	145	24	71
K/Pb	1330	1200	1100	1390	1110	1970	840	950	1630
Th/U	3.8	6.7	6.4	4.3	14	5.5	3.1	3.8	4.5
K/U	3200	5700	3900	3200	7800	8900	5100	2300	5500
Al/Ga	3900	3300	4100	3800	2700	4100	4000	2700	4800
mg	0.16	0.09	0.11	0.07	0.03	0.18	0.18	0.02	0.08
k	0.48	0.47	0.55	0.50	0.44	0.40	0.49	0.47	0.52

	7057 1003	7057 1004	7057 1012	7057 1017	7057 1235	7057 1236	7057 1237	7057 1238	7057 1239
SiO ₂	77.1	75.1	77.7	77.2	76.9	76.6	77.0	76.9	75.0
TiO ₂	0.06	0.06	0.06	0.06	0.02	0.03	0.04	0.03	0.11
Al ₂ O ₃	12.21	13.03	12.48	12.24	12.93	12.69	12.26	12.69	12.70
Fe ₂ O ₃	0.14	0.16	0.07	0.09	0.17	0.22	0.30	0.29	0.35
FeO	0.75	0.85	0.80	0.95	0.60	0.70	0.70	0.65	1.15
MnO	0.05	0.05	0.04	0.03	0.01	0.02	0.04	0.03	0.05
MgO	0.18	0.09	0.07	0.14	0.00	0.07	0.00	0.10	0.10
CaO	0.60	0.67	0.69	0.69	0.52	0.57	0.45	0.55	0.96
Na ₂ O	3.9	4.2	3.8	3.65	4.25	4.05	4.15	4.2	3.95
K ₂ O	4.85	4.98	4.78	4.53	4.48	4.62	4.34	4.47	4.53
P ₂ O ₅	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.02
H ₂ O	0.35	0.38	0.43	0.51	0.43	0.64	0.55	0.43	0.66
CO ₂									
TOTAL	100.20	99.58	100.93	100.11	100.32	100.22	99.83	100.35	99.58
q	34.08	29.81	35.07	36.33	33.47	33.62	35.01	33.53	32.17
or	28.69	29.64	28.10	26.88	26.48	27.40	25.82	26.42	27.06
ab	33.12	36.04	31.98	31.09	36.13	34.55	35.52	35.79	34.03
an	1.45	1.88	2.84	3.31	2.51	2.73	1.94	2.45	3.45
c	-	-	-	0.11	0.14	-	-	-	-
dl	1.25	1.22	0.43	-	-	0.04	0.28	0.24	1.07
hy	1.06	1.01	1.32	1.97	0.93	1.24	0.90	1.08	1.44
mt	0.20	0.25	0.12	0.16	0.28	0.33	0.45	0.44	0.53
il	0.11	0.11	0.11	0.11	0.04	0.06	0.08	0.06	0.21
ap	0.02	0.02	0.02	0.05	0.02	0.02	0.00	0.00	0.05
DI	95.9	95.5	95.2	94.3	96.1	95.6	96.4	95.7	93.3
CI	2.6	2.6	2.0	2.4	1.4	1.7	1.7	1.8	3.3

Elizabeth Creek Granite

- 70571003 Fluorite-bearing biotite granite.
 70571004 Fluorite-bearing biotite adamellite.
 70571012 Fluorite, cassiterite-bearing biotite adamellite.
 70571017 Biotite granite.
 70571235 Biotite granite.
 70571236 Biotite granite.
 70571237 Fluorite-bearing biotite adamellite.
 70571238 Fluorite-bearing biotite adamellite.
 70571239 Biotite adamellite.

	7057 1003	7057 1004	7057 1012	7057 1017	7057 1235	7057 1236	7057 1237	7057 1238	7057 1239
Li	29	41	31	15	19	26	63	76	25
Be	2.5	3.5	3.0	3.0	6.5	5.0	7.5	6.0	8.5
F	700	-	600	-	n-	-	1500	-	-
Cr	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	2	2	2	2	1	5	1	1	1
Zn	11	13	12	9	17	36	20	20	19
Ga	12	15	13	13	20	22	20	22	18
Rb	300	332	339	326	468	520	457	565	344
Sr	23	28	24	19	4	10	7	5	35
Y	39	69	47	49	129	110	161	134	66
Zr	71	92	83	76	93	97	91	97	114
Sn	-	-	-	-	5	5	7	12	7
Ba	186	265	177	147	12	35	21	8	99
La	36	25	22	30	15	32	42	19	31
Ce	62	62	54	64	36	57	62	44	67
Pb	21	27	33	28	42	40	39	41	31
Th	35	35	42	37	41	46	43	45	41
U	7	5	4	11	26	20	24	18	10
Mg/Li	38	13	14	53	-	16	-	8	24
Rb/Sr	13	12	14	17	120	52	65	110	9.8
K/Rb	134	124	117	115	79	74	79	66	109
Ba/Sr	8.1	9.5	7.4	7.7	3.0	3.5	3.0	1.6	2.8
Ba/Rb	0.62	0.80	0.52	0.45	0.026	0.067	0.046	0.014	0.29
K/Ba	220	156	220	260	3100	1100	1700	4600	380
Ca/Sr	187	171	200	260	930	410	460	780	197
Ca/Y	110	69	105	100	29	37	19.9	29	105
K/Pb	1910	1530	1200	1340	890	960	920	900	1210
Th/U	5.0	7.0	10.5	3.4	1.6	2.3	1.8	2.5	4.1
K/U	5700	8300	9900	3400	1400	1900	1500	2100	3800
Al/Ga	5400	4600	5100	5000	3400	3100	3300	3100	3700
mg	0.26	0.13	0.12	0.19	0.00	0.12	0.00	0.16	0.10
k	0.45	0.44	0.45	0.45	0.41	0.43	0.41	0.41	0.43

	7057 1240	7057 1241	7057 1258	7057 1261	7057 1262	7057 1265	7057 1271	7057 1272	7057 1276
SiO ₂	77.4	76.3	77.2	74.7	75.7	75.3	74.0	75.7	77.3
TiO ₂	0.10	0.03	0.12	0.25	0.19	0.06	0.28	0.21	0.09
Al ₂ O ₃	12.06	12.51	12.05	11.90	12.34	13.02	12.82	12.48	12.48
Fe ₂ O ₃	0.30	0.53	0.03	0.50	0.37	0.03	0.34	0.39	0.21
FeO	0.95	0.45	1.30	1.95	1.50	0.95	1.70	1.45	0.80
MnO	0.04	0.02	0.02	0.05	0.03	0.03	0.03	0.03	0.02
MgO	0.00	0.08	0.08	0.30	0.17	0.08	0.33	0.16	0.19
CaO	0.77	0.54	0.78	0.95	0.88	0.92	1.21	1.06	0.77
Na ₂ O	3.75	4.25	3.3	3.9	3.6	4.4	3.1	3.9	3.6
K ₂ O	4.19	4.53	5.02	3.96	4.79	3.81	5.14	4.30	4.84
P ₂ O ₅	0.01	0.00	0.01	0.04	0.03	0.03	0.07	0.04	0.01
H ₂ O	0.64	0.68	0.64	0.80	0.58	0.45	0.76	0.70	0.48
CO ₂				0.2			0.1	0.1	0.1
TOTAL	100.22	99.92	100.55	99.50	100.18	99.08	99.88	100.52	100.89
q	37.43	33.15	36.12	34.32	33.67	32.66	32.99	33.65	35.48
or	24.85	26.95	29.66	23.71	28.36	22.81	30.63	25.44	28.47
ab	31.93	36.45	28.09	33.25	30.66	37.96	26.36	33.11	30.40
an	3.68	1.56	3.16	3.26	3.37	4.43	4.90	3.81	3.11
c	-	-	-	0.07	-	-	0.40	-	0.16
dl	0.08	0.96	0.57	-	0.71	-	-	0.48	-
hy	1.36	0.09	2.09	3.63	2.24	1.88	3.27	2.18	1.64
mt	0.45	0.79	0.06	0.76	0.57	0.07	0.53	0.60	0.32
il	0.19	0.06	0.23	0.48	0.36	0.12	0.54	0.40	0.17
ap	0.02	0.00	0.02	0.10	0.07	0.07	0.17	0.09	0.02
cc				0.46			0.23	0.23	0.23
DI	94.2	96.6	93.9	91.3	92.7	93.4	90.0	92.2	94.4
CI	2.1	1.9	3.0	5.5	4.0	2.1	5.1	4.0	2.5

Elizabeth Creek Granite

70571240	Fluorite-bearing biotite adamellite.
70571241	Fluorite-bearing biotite adamellite.
70571258	Fluorite-bearing biotite adamellite.
70571261	Fluorite-bearing biotite adamellite.
70571262	Biotite adamellite.
70571265	Biotite adamellite.
70571271	Biotite adamellite.
70571272	Fluorite-bearing biotite granite.
70571276	Biotite granite.

	7057 1240	7057 1241	7057 1258	7057 1261	7057 1262	7057 1265	7057 1271	7057 1272	7057 1266
Li	53	43	39	47	34	22	32	41	18
Be	6.5	4.0	5.0	6.0	6.5	6.5	4.5	5.0	3.5
F	-	2500	2400	-	-	-	1500	1700	-
Cr	n.d.	n.d.	3	3	3	3	3	3	n.d.
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	1	1	11	3	3	3	5	3	2
Zn	24	14	23	54	51	17	21	32	10
Ga	17	21	17	21	22	17	18	19	14
Rb	340	533	448	304	296	174	289	302	308
Sr	37	7	19	45	44	31	61	34	29
Y	69	92	110	90	76	39	49	84	39
Zr	109	88	120	256	212	51	219	197	80
Sn	n.d.	7	n.d.	7	4	n.d.	6	7	n.d.
Ba	123	14	66	325	400	149	375	138	66
La	28	9	43	68	49	17	84	69	21
Ce	55	26	101	144	109	35	169	144	50
Pb	35	36	26	27	28	39	30	30	29
Th	38	45	56	38	30	9	41	41	43
U	10	14	10	6	6	5	5	9	10
Mg/Li	-	11	12	38	29	22	63	24	61
Rb/Sr	9.2	76	24	6.8	6.7	5.6	4.7	8.9	10.6
K/Rb	102	71	93	108	134	182	148	118	131
Ba/Sr	3.3	2.0	3.5	7.2	9.1	4.8	6.1	4.1	2.3
Ba/Rb	0.36	0.026	0.147	1.07	1.35	0.86	1.30	0.46	0.21
K/Ba	280	2700	630	101	99	210	114	260	610
Ca/Sr	149	560	290	151	143	210	141	220	190
Ca/Y	80	42	51	76	83	170	175	90	140
K/Pb	990	1040	1600	1220	1420	810	1420	1190	1390
Th/U	3.8	3.2	5.6	6.3	5.0	1.8	8.2	4.6	4.3
K/U	3500	2700	4200	5500	6600	6300	8500	4000	4000
Al/Ga	3800	3200	3800	3000	3000	4100	3800	3500	4700
mg	0.00	0.13	0.10	0.18	0.14	0.12	0.22	0.13	0.25
k	0.42	0.41	0.50	0.40	0.47	0.36	0.52	0.42	0.47

	7057 1277	6859 0049	6859 0052	7057 1022	7057 1286	7057 1287	7057 1289
SiO ₂	76.7	74.0	61.2	74.9	74.5	72.4	74.6
TiO ₂	0.11	0.23	0.61	0.22	0.23	0.29	0.20
Al ₂ O ₃	12.56	13.05	15.18	13.30	13.29	13.67	12.82
Fe ₂ O ₃	0.51	0.68	1.55	0.35	0.36	0.94	0.65
FeO	0.35	0.90	3.75	1.35	1.25	1.25	1.00
MnO	0.03	0.04	0.13	0.05	0.04	0.06	0.03
MgO	0.23	0.49	3.43	0.43	0.49	0.59	0.34
CaO	0.71	1.36	5.23	1.59	1.62	2.03	1.48
Na ₂ O	3.4	3.2	1.8	3.35	3.35	3.6	3.35
K ₂ O	5.24	5.37	3.09	4.65	4.58	4.33	4.66
P ₂ O ₅	0.01	0.05	0.08	0.05	0.05	0.08	0.03
H ₂ O	0.37	0.72	2.43	0.55	0.53	0.62	0.44
CO ₂		0.15	0.1				
TOTAL	100.22	100.24	98.58	100.79	100.29	99.86	99.60
q	34.86	31.38	21.99	32.65	32.68	29.57	33.54
or	31.01	31.86	18.98	27.41	27.10	25.77	27.77
ab	29.06	27.52	15.65	28.43	28.55	31.10	28.83
an	3.41	5.23	25.25	7.42	7.63	8.20	6.10
c	-	-	-	-	-	-	-
dl	0.04	0.21	0.43	0.16	0.08	1.22	0.92
hy	0.65	1.90	13.65	2.89	2.86	2.03	1.42
mt	0.74	1.00	2.41	0.54	0.55	1.39	0.97
il	0.21	0.44	1.20	0.42	0.44	0.55	0.38
ap	0.02	0.12	0.20	0.09	0.12	0.17	0.07
		0.34	0.24				
DI	94.9	90.8	56.6	88.5	88.3	86.5	90.1
CI	1.7	4.0	18.1	4.1	4.1	5.4	3.8

Elizabeth Creek Granite

70571277 Biotite granite

Elizabeth Creek Granite (south of Petford)

68590049 Hornblende-biotite adamellite, E55/5/2.

68590052 Granodioritic xenolith, E55/5/5.

70571022 Fluorite-bearing biotite adamellite.

70571286 Hornblende-biotite adamellite.

70571287 Hornblende-biotite adamellite.

70571289 Biotite adamellite.

	7057 1277	6859 0049	6859 0052	7057 1022	7057 1286	7057 1287	7057 1289
Li	16	18	29	14	14	17	17
Be	4.0	2.0	1.5	2.5	2.5	3.0	3.0
F	-	500	-	600	-	-	-
Cr	3	-	-	n.d.	3	3	3
Co	-	6	18	-	-	-	-
Li	n.d.	n.d.	27	n.d.	3	n.d.	3
Cu	2	3	45	3	2	3	3
Zn	10	30	228	21	17	30	16
Ga	14	11	15	14	14	14	13
Rb	305	260	214	242	229	210	236
Sr	28	122	180	97	112	126	95
Y	49	23	35	37	31	35	31
Zr	90	118	153	104	110	138	105
Sn	n.d.	n.d.	7	-	n.d.	n.d.	n.d.
Ba	136	465	290	415	480	495	410
La	26	158	33	29	31	41	32
Ce	46	57	53	60	62	73	55
Pb	28	14	316	16	14	16	17
Th	38	31	30	31	24	29	34
U	10	2	10	4	2	4	7
Mg/Li	88	170	710	190	210	210	120
Rb/Sr	10.9	2.1	1.19	2.5	2.0	1.67	2.5
K/Rb	143	172	120	160	166	171	164
Ba/Sr	4.9	3.8	1.61	4.3	4.3	3.9	4.3
Ba/Rb	0.45	1.79	1.36	1.71	2.1	2.4	1.74
K/Ba	320	96	88	93	79	73	94
Ca/Sr	182	80	210	118	104	115	112
Ca/Y	105	420	1070	310	370	410	340
K/Pb	1550	3200	81	2410	2710	2250	2280
Th/U	3.8	16	3.0	7.8	12	7.3	4.9
K/U	4400	22000	2600	9700	19000	9000	5500
Al/Ga	4800	6300	5400	5000	5000	5200	5200
mg	0.33	0.36	0.53	0.31	0.35	0.33	0.27
k	0.50	0.52	0.53	0.48	0.47	0.44	0.48

	6749 0012R	6749 0012R1	6749 0012R2	6749 0012R3	6749 0013R	6749 0014R	6859 0066
SiO ₂	72.5	76.3	77.5	73.9	76.0	76.3	76.9
TiO ₂	0.24	0.13	0.04	0.20	0.11	0.12	0.08
Al ₂ O ₃	13.84	12.54	12.17	13.37	12.58	12.72	13.00
Fe ₂ O ₃	0.72	0.38	0.52	0.67	0.31	0.50	0.13
FeO	1.40	0.70	0.30	1.23	0.78	0.71	0.56
MnO	0.04	0.03	0.01	0.04	0.02	0.03	0.02
MgO	0.35	0.18	0.06	0.26	0.16	0.11	0.04
CaO	1.88	1.20	0.25	1.51	0.91	0.91	0.72
Na ₂ O	3.8	3.25	3.4	3.7	3.4	3.55	3.65
K ₂ O	3.88	4.59	5.21	4.30	4.97	4.74	4.60
P ₂ O ₅	0.04	0.02	0.00	0.03	0.01	0.02	0.00
H ₂ O	0.59	0.51	0.47	0.89	0.50	0.60	0.78
CO ₂							
TOTAL	99.46	99.87	99.93	100.10	99.75	100.31	100.48
q	30.81	36.98	37.22	32.15	34.94	35.04	36.02
or	23.19	27.28	30.96	25.56	29.58	28.08	27.26
ab	32.60	27.65	29.09	31.38	28.88	30.36	31.22
an	9.17	5.86	1.20	7.35	4.47	4.39	3.58
c	0.05	0.09	0.47	-	-	0.10	0.65
dl	-	-	-	-	0.01	-	-
hy	2.55	1.25	0.22	2.11	1.43	1.01	0.90
mt	1.09	0.58	0.76	0.99	0.47	0.76	0.20
il	0.44	0.25	0.08	0.38	0.21	0.23	0.15
ap	0.10	0.05	0.00	0.07	0.02	0.05	0.00
DI	86.6	91.9	97.3	89.1	93.4	93.5	94.5
CI	4.2	2.2	1.5	3.6	2.1	2.1	1.9

Heles Siding Granite

67490012R Biotite adamellite.
 67490012R1 Biotite granite.
 67490012R2 Aplite dyke.
 67490012R3 Biotite granite.
 67490013R Biotite granite.
 67490014R Biotite granite.
 68590066 Fluorite-bearing leucadamellite, E55/5/23.

73.

	5749 0012R	6749 0012R1	6749 0012R2	6749 0012R3	6749 0013R	6749 0014R	6859 0056
Li	24	17	6	23	29	30	23
Be	6.5	3.0	4.5	3.5	3.0	3.0	5.5
F	900	-	-	-	-	-	4500
Cr	4	-	n.d.	-	-	-	-
Co	-	-	-	-	-	-	n.d.
Ni	3	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	3	1	1	2	1	3	32
Zn	25	24	9	26	13	14	134
Ga	14	11	13	13	13	13	21
Rb	304	292	368	320	325	327	563
Sr	99	82	13	92	45	48	20
Y	42	31	52	40	45	59	109
Zr	115	81	96	110	106	113	87
Sn	n.d.	n.d.	-	n.d.	n.d.	n.d.	18
Ba	315	320	39	235	182	195	59
La	33	30	27	34	33	39	29
Ce	66	55	57	73	67	77	56
Pb	27	27	30	25	20	21	56
Th	30	32	51	44	46	45	53
U	6	8	13	7	10	9	20
Mg/Li	83	65	60	70	34	23	10
Rb/Sr	3.1	3.6	28	3.5	7.2	6.8	28
K/Rb	106	130	117	112	127	120	68
Ba/Sr	3.2	3.9	3.0	2.6	4.0	4.1	3.0
Ba/Rb	1.04	1.10	0.106	0.73	0.56	0.60	0.105
K/Ba	102	119	1100	152	230	200	650
Ca/Sr	135	105	138	117	144	135	260
Ca/Y	320	280	35	270	145	110	47
K/Pb	1190	1410	1440	1030	2060	1870	680
Th/U	5.0	4.0	3.9	6.3	4.6	5.0	2.7
K/U	5400	4800	3300	5100	4100	4400	1900
Al/Ga	5200	6000	5000	5500	5100	5200	3300
mg	0.23	0.23	0.12	0.20	0.21	0.14	0.07
k	0.40	0.48	0.50	0.43	0.49	0.47	0.45

	6749 0083R	6749 0083R1	6749 0084	6749 0087	6749 0015G	6749 0016G	6749 0001R	6749 0095R	6749 0099R
SiO ₂	71.4	71.3	66.8	58.9	70.9	67.8	75.6	71.3	73.3
TiO ₂	0.29	0.27	0.48	0.85	0.31	0.54	0.22	0.39	0.29
Al ₂ O ₃	14.45	14.74	15.45	16.59	14.77	15.09	12.28	13.94	13.59
Fe ₂ O ₃	1.00	0.75	1.80	2.00	1.10	1.55	0.26	0.43	0.46
FeO	1.38	1.31	2.50	4.10	1.34	2.20	1.49	2.60	2.30
MnO	0.03	0.04	0.04	0.10	0.03	0.07	0.03	0.06	0.05
MgO	0.76	0.63	1.70	3.96	0.52	1.77	0.40	0.73	0.34
CaO	2.69	2.84	3.59	6.67	2.71	3.87	1.71	2.70	2.37
Na ₂ O	4.0	4.2	3.3	2.9	4.1	2.9	2.85	2.7	3.0
K ₂ O	2.82	2.37	2.56	1.80	2.82	3.26	4.05	3.46	3.46
P ₂ O ₅	0.08	0.07	0.11	0.16	0.12	0.09	0.05	0.08	0.10
H ₂ O	1.00	0.58	1.76	1.54	0.98	1.13	0.76	1.20	0.89
CO ₂									
TOTAL	99.90	99.10	100.09	99.57	99.70	100.27	99.70	99.59	100.15
q	30.64	30.72	27.52	14.49	29.66	26.90	38.81	34.46	35.86
or	16.84	14.21	15.39	10.84	16.88	19.41	24.18	20.76	20.59
ab	33.95	36.14	28.05	25.34	35.47	25.15	24.36	23.28	25.73
an	12.96	13.83	17.38	27.27	12.82	18.43	8.24	13.07	11.18
c	0.17	0.26	1.07	-	0.27	-	0.22	1.04	0.82
di	-	-	-	4.35	-	0.26	-	-	-
hy	3.20	3.01	6.72	12.65	2.39	6.31	3.23	5.77	4.31
mt	1.50	1.13	2.70	3.03	1.83	2.29	0.41	0.68	0.72
il	0.56	0.52	0.91	1.65	0.60	1.03	0.42	0.75	0.55
ap	0.19	0.17	0.27	0.39	0.29	0.22	0.12	0.19	0.24
DI	81.4	81.1	71.0	50.7	82.0	71.5	87.4	78.5	82.2
CI	5.6	5.1	11.7	22.1	5.2	10.1	4.4	8.4	6.6

Hammonds Creek Granodiorite

67490083R Hornblende-biotite granodiorite.
 67490083R1 Hornblende-biotite granodiorite.
 67490084 Hornblende-biotite granodiorite.
 67490087 Quartz diorite.
 68490015G Hornblende-biotite granodiorite, MG68/15.
 68490016G Hornblende-biotite granodiorite, MG68/16.

Nymbool Granite

67490091R Biotite adamellite.
 67490095R Biotite adamellite.
 67490099R Biotite adamellite.

	6749 0083R	6749 0083R1	6749 0084	6749 0087	6849 0015G	6849 0016G	6749 0091R	6749 0095R	6749 0099R
Li	5	5	8	8	7	18	24	34	32
Be	2.5	2.0	2.0	2.0	1.0	1.5	2.5	3.0	2.5
F	-	-	-	-	-	-	-	-	-
Cr	-	-	-	-	-	-	-	-	-
Co	-	-	-	-	4	10	-	-	-
Ni	3	3	6	33	n.d.	9	4	5	5
Cu	54	4	5	27	2	4	8	13	7
Zn	24	25	48	78	55	51	23	85	46
Ga	17	15	16	19	15	17	15	18	16
Rb	73	69	69	65	91	150	190	192	177
Sr	307	329	333	357	295	235	83	131	148
Y	15	15	20	23	18	27	47	43	37
Zr	174	155	153	131	153	161	110	151	173
Sn	n.d.	n.d.	n.d.	n.d.	8	n.d.	n.d.	n.d.	n.d.
Ba	735	610	615	450	560	465	350	430	490
La	26	26	28	26	25	29	23	32	35
Ce	54	52	51	36	37	52	49	67	80
Pb	10	11	9	12	16	22	24	28	30
Th	10	10	8	10	12	22	20	27	20
U	n.d.	n.d.	n.d.	2	n.d.	4	6	5	4
Mg/Li	920	760	1300	3000	440	590	100	130	63
Rb/Sr	0.24	0.21	0.21	0.18	0.31	0.64	2.3	1.47	1.20
K/Rb	321	286	307	229	257	180	177	123	134
Ba/Sr	2.4	1.85	1.85	1.26	1.90	1.98	4.2	3.3	3.3
Ba/Rb	10.1	8.8	8.9	6.9	6.2	3.1	1.84	2.2	2.8
K/Ba	32	32	34	33	42	58	96	67	59
Ca/Sr	63	62	77	133	66	117	147	147	114
Ca/Y	1300	1350	1300	2100	1100	1000	260	450	460
K/Pb	2340	1790	2360	1240	1460	1230	1400	1030	960
Th/U	-	-	-	5	-	5.5	3.3	5.4	5.0
K/U	-	-	-	7500	-	6800	5600	5700	7200
Al/Ga	4500	5200	5100	4600	5200	4700	4300	4100	4500
mg	0.37	0.35	0.42	0.54	0.28	0.46	0.29	0.30	0.18
k	0.32	0.27	0.34	0.29	0.31	0.42	0.48	0.46	0.43

	6749 0100R	6749 0101R	6859 0064	6859 0065	6749 0007R	6749 0008R	6749 0009R	6749 0010R	6749 0011R
SiO ₂	74.5	73.6	68.8	74.3	66.7	67.3	66.2	74.9	67.1
TiO ₂	0.12	0.25	0.30	0.24	0.47	0.47	0.60	0.03	0.49
Al ₂ O ₃	13.13	13.59	11.58	13.25	15.53	15.35	16.18	13.48	15.27
Fe ₂ O ₃	0.12	0.31	1.66	0.11	1.44	1.39	1.69	0.03	1.34
FeO	1.38	2.10	8.30	2.40	2.65	2.70	3.15	0.30	2.60
MnO	0.03	0.05	0.05	0.04	0.09	0.08	0.10	0.10	0.08
MgO	0.15	0.44	0.65	0.29	1.32	1.38	1.76	0.04	1.31
CaO	1.12	2.27	0.64	1.91	4.16	3.94	4.64	0.67	3.77
Na ₂ O	3.5	3.1	0.46	2.6	3.35	3.3	3.35	2.95	3.2
K ₂ O	4.67	3.58	4.95	4.00	2.57	2.75	2.16	6.73	3.05
P ₂ O ₅	0.03	0.08	0.07	0.07	0.11	0.11	0.12	0.01	0.08
H ₂ O	0.78	0.91	1.89	1.05	1.36	0.91	0.98	0.44	0.79
CO ₂									
TOTAL	100.43	100.28	99.35	100.29	99.75	99.68	100.93	99.59	99.08
q	33.69	35.31	39.97	37.95	25.92	26.16	24.63	30.47	26.00
or	27.68	21.29	29.99	23.81	15.43	16.44	12.76	40.10	18.32
ab	29.78	26.38	3.90	22.24	28.79	28.42	28.34	25.25	27.69
an	5.38	10.80	2.79	9.08	20.07	19.05	22.23	3.29	18.48
c	0.34	0.69	4.60	1.36	-	0.02	0.19	0.14	0.01
dl	-	-	-	-	0.14	-	-	-	-
hy	2.64	4.39	15.39	4.73	6.35	6.67	7.93	0.62	6.35
mt	0.19	0.48	2.60	0.20	2.15	2.08	2.51	0.06	2.02
il	0.23	0.48	0.58	0.46	0.91	0.90	1.14	0.06	0.95
ap	0.07	0.19	0.17	0.17	0.27	0.26	0.28	0.02	0.19
DI	91.2	83.0	73.9	84.0	70.1	71.0	65.7	95.8	72.0
CI	3.5	6.2	23.3	6.9	9.8	9.9	12.1	0.9	9.5

Nymbool Granite

67490100R Biotite granite.

67490101R Biotite adamellite.

68590064 Altered adamellite, cut by biotite-rich veins, E55/5/20.

68590065 Tourmaline-bearing porphyritic biotite microadamellite, E55/5/21.

Bakerville Granodiorite

67490007R Hornblende-biotite granodiorite.

67490008R Hornblende-biotite granodiorite.

67490009R Hornblende-biotite granodiorite.

67490010R Aplitic granite,

67490011R Hornblende-biotite granodiorite.

	6749 0100R	6749 0101R	6859 0064	6859 0065	6749 0007R	6749 0008R	6749 0009R	6749 0010R	6749 0011R
Li	23	38	51	28	21	18	23	5	19
Be	2.5	4.0	1.0	2.5	1.5	2.0	1.5	5.0	2.0
F	-	-	900	-	-	-	-	-	-
Cr	-	-	10	-	-	-	-	-	-
Co	-	-	-	5	-	-	-	-	-
Ni	4	3	5	n.d.	n.d.	3	3	n.d.	n.d.
Cu	4	8	5	8	4	4	3	2	4
Zn	20	35	66	50	55	53	57	6	48
Ga	15	16	13	12	16	16	17	18	16
Rb	240	190	365	172	129	121	111	487	173
Sr	64	125	67	132	208	204	212	25	157
Y	54	38	25	34	28	31	26	119	35
Zr	90	126	97	158	168	174	138	32	157
Sn	n.d.	n.d.	-	6	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	320	390	1480	475	475	475	385	76	430
La	21	29	10	29	18	24	31	29	30
Ce	51	73	42	53	32	47	49	79	55
Pb	37	30	18	37	14	16	13	60	15
Th	16	17	18	20	17	16	12	24	20
U	4	4	n.d.	3	4	3	4	9	4
Mg/Li	39	71	76	61	380	460	460	48	420
Rb/Sr	3.8	1.52	5.5	1.30	0.62	0.59	0.52	20	1.10
K/Rb	162	156	113	193	165	188	161	115	146
Ba/Sr	5.0	3.1	22	3.6	2.3	2.3	1.82	3.0	2.7
Ba/Rb	1.33	2.1	4.1	2.8	3.7	3.9	3.5	0.156	2.5
K/Ba	121	76	28	70	45	48	46	730	59
Ca/Sr	125	130	69	103	143	138	157	192	171
Ca/Y	150	430	185	400	1050	910	1300	40	770
K/Pb	1050	990	2280	900	1520	1430	1380	930	1690
Th/U	4.0	4.3	-	6.7	4.3	5.3	3.0	2.7	5.0
K/U	9700	7400	-	11000	5300	7600	4500	6200	6300
Al/Ga	4600	4500	4700	5900	5100	5100	5000	4000	5100
mg	0.14	0.24	0.10	0.17	0.37	0.38	0.39	0.20	0.37
k	0.47	0.43	0.88	0.50	0.34	0.35	0.30	0.60	0.38

	6749 0025R	6749 0026R	6749 0027R	6749 0061R	6749 0062R	6749 0063R	6749 0064R	6749 0064R1	6859 0058
SiO ₂	71.4	71.2	71.1	69.7	74.2	67.9	72.1	76.1	75.7
TiO ₂	0.26	0.49	0.29	0.37	0.19	0.50	0.40	0.12	0.15
Al ₂ O ₃	14.32	13.96	14.37	14.67	13.34	14.50	13.90	12.91	12.85
Fe ₂ O ₃	0.82	0.89	0.80	1.06	0.15	0.62	0.79	0.42	0.05
FeO	1.68	2.15	1.90	2.10	1.20	2.65	1.90	0.75	1.31
MnO	0.07	0.06	0.07	0.06	0.03	0.07	0.05	0.03	0.02
MgO	0.75	0.88	0.84	1.24	0.34	0.90	0.75	0.16	0.16
CaO	2.51	2.32	2.73	3.27	1.24	2.55	2.06	0.92	0.96
Na ₂ O	3.55	3.4	3.7	3.8	3.65	3.6	3.6	4.3	2.9
K ₂ O	3.82	4.15	3.42	3.09	4.46	5.65	4.19	4.12	5.16
P ₂ O ₅	0.05	0.12	0.06	0.07	0.06	0.13	0.10	0.02	0.02
H ₂ O	0.88	0.88	0.88	1.19	0.46	0.78	0.87	0.70	0.59
CO ₂									
TOTAL	100.11	100.50	100.16	100.62	99.32	99.85	100.71	100.55	99.87
q	29.02	28.71	28.69	26.59	32.32	18.20	28.92	32.73	36.28
or	22.73	24.61	20.35	18.35	26.66	33.66	24.80	24.36	30.70
ab	30.41	28.70	31.68	32.31	31.40	31.30	30.50	36.82	24.53
an	11.86	10.71	12.50	13.92	5.83	6.47	9.42	3.54	4.66
c	-	-	-	-	0.37	-	-	-	0.84
di	0.29	0.05	0.61	1.58	-	4.57	0.14	0.76	-
hy	3.84	4.68	4.28	4.81	2.71	3.60	4.06	0.89	2.55
nt	1.23	1.32	1.20	1.57	0.23	0.94	1.18	0.62	0.10
il	0.50	0.93	0.55	0.71	0.35	0.96	0.76	0.23	0.29
ap	0.12	0.29	0.14	0.17	0.14	0.31	0.24	0.05	0.05
DI	82.2	82.0	80.7	77.3	90.4	83.2	84.2	93.9	91.5
CI	6.0	7.3	6.8	8.8	3.8	10.4	6.4	2.6	3.8

Kalunga Granodiorite

67490025R Hornblende-biotite adamellite.
67490026R Hornblende-biotite adamellite.
67490027R Hornblende-biotite granodiorite.
67490061R Hornblende-biotite granodiorite.
67490062R Biotite adamellite.
67490063R Hornblende-biotite adamellite.
67490064R Hornblende-biotite adamellite.
67490064R1 Aplite vein.
68590058 Biotite adamellite, E55/5/13.

	6749 0025R	6749 0026R	6749 0027R	6749 0061R	6749 0062R	6749 0063R	6749 0064R	6749 0064R1	6859 0058
Li	16	31	19	15	28	11	31	19	29
Be	3.0	3.5	3.5	2.5	7.0	4.0	3.0	3.5	4.0
F	-	-	-	-	-	-	-	-	3000
Cr	-	-	-	-	5	-	-	-	-
Co	-	-	-	-	-	-	-	-	4
Ni	n.d.	4	n.d.	n.d.	n.d.	5	4	n.d.	n.d.
Cu	16	5	3	43	1	6	4	2	3
Zn	39	47	40	27	27	55	46	33	15
Ga	15	18	15	16	14	18	18	19	18
Rb	271	249	177	222	348	306	258	296	418
Sr	128	106	135	143	55	114	92	24	48
Y	43	56	37	35	42	62	60	56	67
Zr	132	243	126	124	106	257	215	126	125
Sn	n.d.	n.d.	5	5	-	17	5	n.d.	4
Ba	365	480	370	360	187	525	400	104	210
La	28	41	24	21	16	40	35	6	50
Ce	48	78	49	46	35	92	76	36	95
Pb	27	27	21	17	65	38	29	34	20
Th	36	27	32	22	25	26	27	40	51
U	11	5	9	5	8	4	6	10	10
Mg/Li	280	170	270	490	71	490	150	51	33
Rb/Sr	2.1	2.4	1.31	1.55	6.3	2.7	2.8	12.3	8.7
K/Rb	117	138	160	116	106	153	135	116	102
Ba/Sr	2.9	4.5	2.7	2.5	3.4	4.6	4.3	4.3	4.4
Ba/Rb	1.35	1.93	2.1	1.62	0.54	1.72	1.55	0.35	0.50
K/Ba	87	72	77	71	198	89	87	330	200
Ca/Sr	140	157	144	164	162	160	160	280	144
Ca/Y	420	300	530	670	210	290	250	120	105
K/Pb	1170	1270	1350	1510	570	1230	1200	1010	2140
Th/U	3.3	5.4	3.6	4.4	3.1	6.5	4.5	4.0	5.1
K/U	2900	6900	3200	5100	4600	7800	5800	3400	4300
Al/Ga	5100	4100	5100	4900	5100	4300	4100	3600	3800
mg	0.35	0.34	0.36	0.41	0.31	0.32	0.33	0.20	0.17
k	0.41	0.45	0.38	0.35	0.44	0.50	0.43	0.38	0.54

	6749 0002	6749 0003R	6749 0004R	6749 0005R	6749 0005R2	6749 0006R	6749 0081	6859 0057	6749 0047R
SiO ₂	74.9	76.2	76.1	74.1	74.7	72.8	74.7	76.2	73.9
TiO ₂	0.18	0.18	0.17	0.22	0.18	0.32	0.22	0.16	0.16
Al ₂ O ₃	12.98	12.16	12.22	13.26	13.45	13.79	13.07	12.40	13.70
Fe ₂ O ₃	0.37	0.26	0.46	0.47	0.23	0.47	0.38	0.10	0.31
FeO	1.49	1.53	1.31	1.80	1.35	1.94	1.53	1.38	1.23
MnO	0.04	0.04	0.04	0.05	0.04	0.06	0.04	0.04	0.04
MgO	0.20	0.16	0.17	0.32	0.24	0.69	0.40	0.22	0.21
CaO	1.19	1.04	1.07	1.13	1.09	1.57	1.32	1.17	1.27
Na ₂ O	3.5	3.4	3.45	3.85	3.8	2.95	3.55	3.2	3.7
K ₂ O	4.53	4.50	4.34	4.38	4.48	4.40	4.44	4.26	5.11
P ₂ O ₅	0.04	0.03	0.03	0.06	0.04	0.09	0.06	0.03	0.02
H ₂ O	0.68	0.71	0.86	0.69	0.51	0.89	0.62	0.45	0.83
CO ₂									
TOTAL	100.10	100.21	100.22	100.33	100.11	99.97	100.33	99.61	100.48
q	33.47	35.88	36.44	31.06	32.14	33.81	32.72	37.67	29.24
or	26.92	26.72	25.81	25.97	26.57	26.23	26.30	25.36	30.29
ab	30.03	29.07	29.29	32.76	32.18	25.09	30.35	27.53	31.40
an	5.67	4.57	5.10	5.30	5.17	7.26	6.17	5.65	5.71
c	0.21	-	-	0.24	0.49	1.57	0.12	0.43	-
di	-	0.37	0.04	-	-	-	-	-	0.41
hy	2.70	2.58	2.22	3.44	2.66	4.49	3.19	2.81	2.11
mt	0.57	0.41	0.70	0.71	0.36	0.73	0.58	0.18	0.48
il	0.34	0.34	0.33	0.42	0.34	0.61	0.42	0.31	0.30
ap	0.10	0.07	0.07	0.12	0.10	0.22	0.14	0.07	0.05
DI	90.4	91.7	91.6	89.8	90.9	85.1	89.4	90.6	90.9
CI	3.9	3.8	3.3	4.9	4.0	7.6	4.5	3.8	3.4

Watsonville Granite

67490002 Biotite adamellite.

67490003R Fluorite-bearing biotite adamellite.

67490004R Biotite granite.

67490005R Biotite adamellite.

67490005R2 Aplite vein.

67490006R Biotite adamellite.

67490081 Biotite adamellite.

68590057 Fluorite-bearing porphyritic biotite adamellite, E55/5/12.

Atlanta Granite

67490047R Biotite granite.

	6749 C002	6749 0003R	6749 0004R	6749 0005R	6749 0005R2	6749 0006R	6749 0081	6859 0057	6749 0047R
Li	40	39	37	39	35	47	38	44	24
Be	4.0	3.0	4.0	4.5	8.5	3.0	4.0	4.0	3.0
F	-	-	-	-	-	-	-	1500	-
Cr	-	-	-	5	10	-	-	-	-
Co	-	-	-	-	-	-	-	n.d.	-
Ni	n.d.	n.d.	3	3	n.d.	6	3	n.d.	n.d.
Cu	2	3	2	4	7	7	3	9	2
Zn	53	52	46	46	32	49	44	46	19
Ga	18	16	17	17	18	16	17	16	18
Rb	251	232	242	242	337	258	251	253	316
Sr	68	65	68	42	58	103	77	71	62
Y	67	41	50	45	71	38	46	53	59
Zr	173	163	178	152	108	168	155	142	133
Sn	n.d.	n.d.	n.d.	-	-	5	n.d.	6	n.d.
Ba	470	475	505	133	255	430	420	430	184
La	42	45	45	31	24	35	34	32	35
Ce	84	75	84	61	71	63	74	62	72
Pb	32	29	29	32	42	32	31	33	20
Th	28	22	27	42	23	23	28	22	47
U	5	3	4	9	8	5	5	4	11
Mg/Li	30	25	28	49	40	89	63	30	54
Rb/Sr	3.8	3.6	3.6	5.8	5.8	2.5	3.8	3.6	5.1
K/Rb	146	161	145	150	110	141	147	140	134
Ba/Sr	6.9	7.3	7.4	3.2	4.4	4.2	5.5	6.1	3.0
Ba/Rb	1.83	2.0	2.1	0.55	0.76	1.67	1.67	1.70	0.58
K/Ba	80	79	71	270	146	85	88	82	230
Ca/Sr	125	114	113	193	134	109	122	118	147
Ca/Y	125	180	155	180	110	290	200	160	155
K/Pb	1180	1290	1240	1140	890	1140	1190	1070	2120
Th/U	5.6	7.3	6.8	4.7	2.9	4.6	5.6	5.5	4.3
K/U	7500	12000	9500	4000	4700	7300	7400	8900	3900
Al/Ga	3800	4000	3800	4100	4000	4600	4100	4100	4000
mg	0.16	0.14	0.15	0.20	0.21	0.33	0.27	0.20	0.19
k	0.46	0.46	0.45	0.43	0.44	0.50	0.45	0.46	0.48

	6849 0181A 1811	6849 0181B 1812	6849 0181C 1813	6849 0182	6749 00531
SiO ₂	67.1	73.5	67.2	66.9	56.0
TiO ₂	0.65	0.17	0.68	0.69	0.81
Al ₂ O ₃	13.75	12.93	13.42	13.71	17.94
Fe ₂ O ₃	0.89	0.63	0.80	1.48	2.00
FeO	3.35	0.65	3.60	3.00	5.55
MnO	0.08	0.04	0.08	0.08	0.13
MgO	1.01	0.43	1.11	1.11	3.77
CaO	2.19	1.73	2.58	2.31	7.64
Na ₂ O	3.65	3.9	3.25	3.45	2.4
K ₂ O	3.78	3.81	3.50	3.53	1.14
P ₂ O ₅	0.16	0.04	0.15	0.16	0.11
H ₂ O	1.74	1.21	2.10	2.41	1.39
CO ₂				1.2	
TOTAL	98.35	99.04	98.47	100.03	98.88
q	24.67	33.07	27.04	29.76	13.46
or	23.11	22.97	21.46	21.37	6.91
ab	31.68	33.48	28.35	29.73	20.81
an	10.16	6.85	12.21	2.90	35.69
c	0.11	-	0.01	3.29	-
di	-	1.34	-	-	1.99
hy	7.22	0.93	7.97	6.18	16.24
mt	1.38	0.93	1.26	2.24	3.06
il	1.28	0.33	1.34	1.34	1.58
ap	0.39	0.10	0.37	0.39	0.27
cc				2.80	
DI	79.5	89.5	76.9	80.9	41.2
CI	10.4	3.6	11.0	16.2	23.1

Unnamed granitic rocks of the Herberton area

68490181A	Propylitized, porphyritic microgranodiorite, DB181A.
68490181B	Propylitized, porphyritic microadamellite, DB181B.
68490181C	Propylitized, porphyritic microgranodiorite, DB181C.
68490182	Propylitized, porphyritic microgranodiorite, DB182.
67490053	Quartz diorite.

	6849 0181A	6849 0181B	6849 0181C	6849 0182	6749 0053
Li	46	21	59	57	11
Be	3.0	1.5	2.5	2.5	2.0
F	-	-	-	-	-
Cr	18	4	19	-	14
Co	-	-	-	-	-
Ni	6	5	7	8	6
Cu	11	4	13	13	16
Zn	65	22	65	69	73
Ga	17	12	17	18	18
Rb	194	169	163	177	57
Sr	124	96	99	107	256
Y	52	18	52	54	24
Zr	385	96	398	405	61
Sn	-	-	-	n.d.	-
Ba	540	425	565	680	210
La	39	19	38	42	17
Ce	81	37	71	83	23
Pb	29	20	20	22	19
Th	25	26	21	19	6
U	4	3	3	4	n.d.
Mg/Li	130	120	110	120	2100
Rb/Sr	1.56	1.76	1.65	1.65	0.22
K/Rb	162	187	179	166	167
Ba/Sr	4.4	4.4	5.7	6.4	0.82
Ba/Rb	2.8	2.5	3.5	3.8	3.7
K/Ba	58	74	52	43	45
Ca/Sr	126	129	186	154	210
Ca/Y	300	690	350	310	2300
K/Pb	1080	1580	1460	1330	500
Th/U	6.3	8.7	7.0	4.8	-
K/U	7900	11000	9700	7300	-
Al/Ga	4300	5700	4200	4000	5300
mg	0.30	0.38	0.31	0.31	0.47
k	0.41	0.39	0.42	0.40	0.24

	6859 0053 ₂	6859 0054	6859 0068	6859 0074	6859 0078	6859 0104	6859 0105	7057 1008	7057 1242
SiO ₂	73.7	70.7	74.3	76.1	76.1	67.1	70.9	74.4	75.9
TiO ₂	0.28	0.42	0.23	0.12	0.14	0.75	0.34	0.16	0.13
Al ₂ O ₃	13.51	14.35	13.41	12.98	12.41	15.31	14.69	12.91	11.95
Fe ₂ O ₃	0.63	1.06	0.20	0.01	0.10	0.26	0.94	0.03	0.40
FeO	1.38	1.98	1.60	1.23	1.27	3.95	1.70	1.35	1.05
MnO	0.05	0.06	0.03	0.03	0.03	0.07	0.05	0.02	0.02
MgO	0.50	1.09	0.23	0.14	0.17	1.72	0.64	0.16	0.18
CaO	1.75	2.23	1.46	0.83	1.14	3.20	2.47	1.33	1.04
Na ₂ O	3.35	3.35	3.15	3.6	3.15	2.6	4.05	3.3	3.4
K ₂ O	4.15	4.22	4.95	4.81	4.82	3.17	3.21	4.98	4.69
P ₂ O ₅	0.05	0.08	0.04	0.02	0.02	0.16	0.09	0.03	0.02
H ₂ O	0.42	0.93	0.44	0.56	0.51	1.05	0.50	0.50	0.40
CO ₂		0.15				0.2			
TOTAL	99.77	100.62	100.04	100.43	99.86	99.54	99.58	99.17	99.18
q	33.49	28.31	32.61	33.92	35.92	29.28	28.58	32.87	35.72
or	24.67	24.99	29.34	28.45	28.67	19.02	19.14	29.81	28.04
ab	28.51	28.57	26.90	30.48	26.91	22.16	34.48	28.11	29.35
an	8.40	9.61	7.00	3.99	5.49	13.77	11.77	5.88	3.41
c	0.45	0.73	0.28	0.39	-	2.71	0.30	-	-
di	-	-	-	-	0.07	-	-	0.48	1.44
hy	2.91	4.88	3.01	2.44	2.47	10.34	3.48	2.39	1.14
mt	0.93	1.58	0.32	0.04	0.16	0.44	1.40	0.07	0.60
il	0.52	0.80	0.44	0.23	0.27	1.45	0.65	0.31	0.25
ap	0.12	0.19	0.10	0.05	0.05	0.39	0.22	0.07	0.05
cc		0.34				0.46			
DI	86.7	81.9	88.9	92.9	91.5	70.5	82.2	90.8	93.1
CI	4.9	8.5	4.2	3.2	3.0	15.8	6.1	3.3	3.5

Herbert River Granite

68590053 Porphyritic hornblende-biotite adamellite, E55/5/7.
 68590054 Porphyritic hornblende-biotite granodiorite, E55/5/8.
 68590068 Fluorite-bearing porphyritic biotite adamellite, E55/5/25.
 68590074 Fluorite-bearing biotite granite, E55/5/31.
 68590078 Fluorite-bearing, porphyritic biotite adamellite, E55/5/39.
 68590104 Biotite granodiorite, E55/9/9.
 68590105 Hornblende-biotite adamellite, E55/9/12.
 70571008 Porphyritic biotite adamellite.
 70571242 Biotite adamellite.

	6859 0053	6859 0054	6859 0068	6859 0074	6859 0078	6859 0104	6859 0105	7057 1008	7057 1242
Li	28	29	34	47	24	30	10	54	16
Be	2.5	2.0	4.0	5.0	4.0	2.5	1.5	3.5	3.0
F	-	-	1500	2000	1000	-	-	-	-
Cr	-	-	-	-	-	-	3	3	3
Co	6	8	5	4	4	18	-	-	-
Ni	n.d.	n.d.	n.d.	n.d.	n.d.	14	n.d.	9	n.d.
Cu	2	2	2	1	7	16	4	2	10
Zn	25	39	27	24	27	57	42	16	20
Ga	14	15	17	18	16	17	14	16	15
Rb	210	170	297	390	323	165	83	345	209
Sr	122	131	62	30	42	150	215	81	58
Y	40	34	65	76	77	32	16	55	28
Zr	135	160	171	132	127	171	181	138	101
Sn	n.d.	4	5	n.d.	n.d.	n.d.	-	-	n.d.
Ba	520	530	360	151	136	375	1090	475	325
La	44	39	76	40	33	24	45	25	40
Ce	74	72	141	81	66	37	82	84	77
Pb	19	23	23	31	29	27	13	28	27
Th	20	27	39	42	46	9	13	31	23
U	5	4	7	9	14	3	n.d.	5	3
Mg/Li	110	230	41	18	42	350	390	18	68
Rb/Sr	1.72	1.30	4.8	13	7.7	1.10	0.39	4.3	3.6
K/Rb	164	206	138	102	124	159	320	120	186
Ba/Sr	4.3	4.0	5.8	5.0	3.2	2.5	5.1	5.9	5.6
Ba/Rb	2.5	3.1	1.21	0.39	0.42	2.3	13.1	1.38	1.56
K/Ba	66	66	114	260	290	70	24	87	120
Ca/Sr	103	121	168	197	193	153	82	117	128
Ca/Y	310	470	160	78	105	720	1100	170	260
K/Pb	1820	1520	1790	1290	1380	970	2050	1480	1440
Th/U	4.0	6.8	5.6	4.7	3.3	3.0	-	6.2	7.7
K/U	6900	8800	5900	4400	2900	8800	-	8300	13000
Al/Ga	5100	5100	4200	3800	4100	4800	5600	4300	4900
mg	0.31	0.39	0.18	0.16	0.18	0.42	0.30	0.17	0.18
k	0.45	0.45	0.51	0.47	0.50	0.45	0.34	0.50	0.47

	7057 1243	7057 1244	7057 1245	7057 1246	7057 1247	7057 1248	7057 1249	7057 1250	7057 1251
SiO ₂	75.0	76.1	74.8	72.0	71.2	70.1	73.4	73.1	76.4
TiO ₂	0.13	0.03	0.24	0.33	0.36	0.36	0.24	0.31	0.16
Al ₂ O ₃	12.98	12.67	13.33	14.52	14.79	15.01	13.09	13.79	12.50
Fe ₂ O ₃	0.32	0.37	0.68	0.90	0.58	0.79	0.52	0.51	0.02
FeO	1.05	0.45	1.20	1.60	2.02	1.75	1.40	1.75	1.50
MnO	0.02	0.07	0.04	0.05	0.06	0.05	0.05	0.05	0.05
MgO	0.16	0.17	0.20	0.60	0.77	0.69	0.41	0.54	0.36
CaO	1.14	0.48	1.71	2.35	2.52	2.63	1.45	1.95	1.00
Na ₂ O	3.4	4.2	4.0	4.2	4.1	4.6	3.5	3.4	3.6
K ₂ O	4.76	4.41	3.53	3.10	2.94	2.68	4.63	4.64	4.30
P ₂ O ₅	0.03	0.00	0.04	0.08	0.09	0.09	0.07	0.10	0.03
H ₂ O	0.37	0.40	0.38	0.48	0.48	0.62	0.47	0.44	0.43
CO ₂									
TOTAL	99.36	99.35	100.15	100.21	99.91	99.37	99.23	100.58	100.35
q	34.18	33.40	33.74	29.28	28.77	26.21	31.42	29.88	35.07
or	28.41	26.33	20.90	18.37	17.47	16.04	27.69	27.38	25.40
ab	28.97	36.16	33.90	35.63	34.87	39.24	30.05	28.64	30.78
an	5.46	2.41	8.02	11.17	11.93	12.62	6.37	8.70	4.76
c	0.27	0.07	-	0.18	0.52	-	-	-	0.11
di	-	-	0.19	-	-	-	0.38	0.26	-
hy	1.88	1.04	1.72	3.23	4.67	3.82	2.69	3.57	3.45
mt	0.48	0.54	0.99	1.34	0.87	1.17	0.79	0.75	0.06
il	0.27	0.06	0.46	0.63	0.69	0.69	0.46	0.59	0.30
ap	0.07	0.00	0.10	0.19	0.21	0.22	0.17	0.24	0.07
DI	91.6	95.9	88.5	83.3	81.1	81.5	89.2	85.9	91.3
CI	3.0	1.7	3.5	5.6	7.0	5.9	4.5	5.4	4.0

Herbert River Granite

70571243	Biotite adamellite.
70571244	Biotite adamellite.
70571245	Hornblende-biotite adamellite.
70571246	Biotite adamellite.
70571247	Hornblende-biotite granodiorite.
70571248	Biotite granodiorite.
70571249	Porphyritic biotite microadamellite.
70571250	Porphyritic biotite adamellite.
70571251	Porphyritic biotite microgranite.

	7057 1243	7057 1244	7057 1245	7057 1246	7057 1247	7057 1248	7057 1249	7057 1250	7057 1251
Li	14	23	7	10	10	11	45	31	24
Be	3.0	3.0	2.0	2.0	2.0	2.0	4.5	3.5	2.5
F	-	-	-	-	-	-	-	-	-
Cr	5	3	3	3	3	5	8	8	8
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	3	n.d.	n.d.	n.d.	n.d.	3	n.d.	n.d.
Cu	2	2	2	2	2	2	2	3	3
Zn	24	20	26	33	36	36	35	35	26
Ga	17	15	13	15	14	15	16	16	16
Rb	223	271	95	89	77	76	364	265	206
Sr	71	13	144	208	213	211	101	136	63
Y	29	56	16	17	18	19	57	35	30
Zr	97	95	149	195	190	179	129	135	114
Sn	4	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	445	133	1020	1180	1105	940	200	295	305
La	42	20	54	59	54	58	32	37	34
Ce	74	39	79	101	84	91	68	77	60
Pb	29	27	13	12	14	13	36	30	24
Th	24	34	16	12	12	16	41	32	31
U	3	10	2	n.d.	n.d.	2	10	3	4
Mg/Li	69	44	170	360	460	380	56	110	92
Rb/Sr	3.1	21	0.66	0.43	0.36	0.36	3.6	1.95	3.3
K/Rb	177	135	308	289	317	292	105	145	173
Ba/Sr	6.3	10.2	7.1	5.7	5.2	4.5	1.98	2.2	4.8
Ba/Rb	2.0	0.49	10.7	13.3	14.4	12.4	0.55	1.11	1.48
K/Ba	89	280	29	22	22	24	192	131	117
Ca/Sr	114	260	85	81	85	89	103	102	114
Ca/Y	280	61	760	990	1000	990	180	400	240
K/Pb	1360	1360	2250	2140	1740	1710	1070	1280	1490
Th/U	8.0	3.4	8	-	-	8	4.1	11	7.8
K/U	13000	3700	15000	-	-	11000	3800	13000	8900
Al/Ga	4000	4500	5400	5100	5600	5300	4300	4600	4100
mg	0.17	0.26	0.16	0.30	0.34	0.33	0.27	0.30	0.29
k	0.48	0.41	0.37	0.33	0.32	0.28	0.46	0.47	0.44

	7057 1252	7057 1253	7057 1254	7057 1255	7057 1256	7057 1257	7057 1259	7057 1260	7057 1263
SiO ₂	75.9	71.9	70.6	74.0	73.6	76.6	76.2	72.3	73.8
TiO ₂	0.13	0.36	0.53	0.35	0.22	0.14	0.19	0.30	0.13
Al ₂ O ₃	12.96	14.32	14.45	13.07	13.03	12.33	11.90	14.12	13.61
Fe ₂ O ₃	0.46	0.19	0.37	0.44	0.58	0.44	0.20	0.44	0.11
FeO	0.94	2.50	2.81	2.00	1.35	1.10	1.25	1.80	1.30
MnO	0.04	0.06	0.05	0.05	0.05	0.07	0.02	0.03	0.04
MgO	0.31	0.64	0.81	0.58	0.42	0.29	0.31	0.29	0.09
CaO	1.10	2.55	2.00	1.81	1.35	0.92	1.33	2.02	1.36
Na ₂ O	3.7	4.1	3.05	3.3	3.55	3.55	3.2	3.6	3.7
K ₂ O	3.90	2.88	4.89	3.81	4.49	4.13	4.66	4.61	4.64
P ₂ O ₅	0.03	0.10	0.16	0.09	0.08	0.04	0.04	0.06	0.04
H ₂ O	0.42	0.43	0.57	0.49	0.67	0.49	0.44	0.58	0.53
CO ₂							0.1		
TOTAL	99.89	100.03	100.25	99.99	99.39	100.10	99.84	100.15	99.35
q	36.13	29.24	27.38	34.76	32.20	37.35	36.49	28.32	30.85
or	23.15	17.08	28.95	22.62	26.86	24.50	27.70	27.35	27.82
ab	31.78	34.80	25.85	27.88	30.32	30.07	27.23	30.57	31.77
an	5.29	12.04	8.89	8.43	6.25	4.32	4.38	8.80	6.56
c	0.66	0.06	0.89	0.48	0.09	0.46	-	-	0.10
di	-	-	-	-	-	-	1.16	0.75	-
hy	1.98	5.54	6.08	4.27	2.79	2.28	2.03	2.84	2.43
mt	0.68	0.32	0.58	0.67	0.87	0.66	0.32	0.67	0.12
il	0.25	0.69	1.01	0.67	0.44	0.27	0.36	0.57	0.25
ap	0.07	0.24	0.38	0.21	0.19	0.10	0.10	0.14	0.10
cc							0.23		
DI	91.1	81.1	82.2	85.3	89.4	91.9	91.4	86.2	90.4
CI	3.6	6.9	8.9	6.3	4.4	3.8	4.2	5.0	3.0

Herbert River Granite

70571252	Biotite adamellite.
70571253	Biotite granodiorite.
70571254	Porphyritic biotite microadamellite.
70571255	Biotite adamellite.
70571256	Fluorite-bearing biotite adamellite.
70571257	Biotite granite.
70571259	Porphyritic biotite adamellite.
70571260	Porphyritic hornblende-biotite adamellite.
70571263	Biotite adamellite.

	7057 1252	7057 1253	7057 1254	7057 1255	7057 1256	7057 1257	7057 1259	7057 1260	7057 1263
Li	11	11	38	38	54	75	31	34	28
Be	5.0	2.0	3.0	4.0	9.5	7.5	4.0	4.0	3.5
F	-	-	-	-	1200	-	-	-	-
Cr	3	3	13	5	3	3	3	5	3
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	3	n.d.	n.d.	n.d.	n.d.	3	n.d.
Cu	2	2	3	2	2	2	2	2	9
Zn	22	35	51	43	35	27	17	26	38
Ga	15	14	18	18	16	18	16	18	16
Rb	260	81	257	234	381	460	278	255	211
Sr	73	213	123	88	87	45	55	79	69
Y	46	17	36	36	78	87	57	64	31
Zr	111	226	224	209	137	105	152	199	88
Sn	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	5
Ba	335	1065	565	174	182	70	285	425	330
La	35	50	61	56	37	22	55	104	24
Ce	68	88	94	109	70	62	107	196	50
Pb	26	13	27	26	33	38	20	21	33
Th	29	16	29	67	45	44	34	49	19
U	5	2	6	9	12	8	7	5	4
Mg/Li	170	350	130	92	46	23	61	50	19
Rb/Sr	3.6	0.38	2.1	2.7	4.4	10.2	5.1	3.2	3.1
K/Rb	125	295	158	135	98	75	139	150	182
Ba/Sr	4.6	5.0	4.6	1.98	2.1	1.6	5.2	5.4	4.8
Ba/Rb	1.29	13.1	2.2	0.74	0.48	0.152	1.03	1.67	1.56
K/Ba	97	22	72	182	200	490	136	90	117
Ca/Sr	108	85	116	147	111	147	173	182	141
Ca/Y	170	1100	400	360	125	76	165	225	310
K/Pb	1250	1840	1500	1220	1130	900	1940	1820	1170
Th/U	5.8	8	4.8	7.4	3.8	5.5	4.9	9.8	4.8
K/U	6500	12000	6800	3500	3100	4300	5500	7700	9600
Al/Ga	4600	5400	4300	3900	4300	3600	3900	4200	4500
mg	0.28	0.29	0.31	0.30	0.28	0.25	0.27	0.19	0.10
k	0.41	0.32	0.51	0.43	0.45	0.43	0.49	0.46	0.45

	7057 1264	7057 1266	7057 1267	7057 1268	7057 1273	7057 1274	7057 1275	7057 1278	7057 1279
SiO ₂	73.9	72.8	70.0	73.7	75.3	76.4	75.7	73.0	75.0
TiO ₂	0.11	0.26	0.36	0.11	0.11	0.06	0.11	0.21	0.26
Al ₂ O ₃	13.18	13.40	14.71	13.98	12.66	12.07	12.51	13.68	12.51
Fe ₂ O ₃	0.23	0.61	0.53	0.07	0.28	0.30	0.67	0.13	0.37
FeO	1.30	1.50	2.00	1.35	0.70	0.50	0.50	1.60	1.95
MnO	0.04	0.07	0.07	0.04	0.03	0.03	0.04	0.03	0.04
MgO	0.16	0.53	0.78	0.19	0.07	0.11	0.03	0.34	0.21
CaO	1.12	1.78	2.20	1.24	0.99	0.67	0.90	1.20	1.38
Na ₂ O	3.85	4.2	4.3	4.1	4.1	4.0	3.8	3.65	3.2
K ₂ O	4.44	3.68	3.40	4.57	4.58	4.60	4.35	4.73	4.41
P ₂ O ₅	0.04	0.06	0.10	0.02	0.01	0.01	0.01	0.12	0.05
H ₂ O	0.66	0.43	0.65	0.45	0.31	0.20	0.36	0.60	0.46
CO ₂			0.1						
TOTAL	99.03	99.32	99.20	99.82	99.14	98.95	98.98	99.29	99.84
q	31.73	29.53	25.75	28.62	32.19	34.63	35.45	30.15	35.43
or	26.67	21.98	20.33	27.17	27.37	27.53	26.05	28.30	26.21
ab	32.93	36.09	36.99	34.89	35.08	34.09	32.58	31.34	27.05
an	5.33	6.84	9.77	6.06	2.65	1.51	4.30	5.23	6.56
c	0.16	-	0.43	0.09	-	-	-	0.66	0.11
di	-	1.42	-	-	1.96	1.52	0.14	-	-
hy	2.52	2.58	4.77	2.79	0.10	0.14	0.26	3.41	3.44
mt	0.35	0.92	0.79	0.13	0.41	0.44	0.98	0.22	0.58
il	0.21	0.50	0.69	0.21	0.21	0.12	0.21	0.40	0.50
ap	0.10	0.14	0.24	0.05	0.02	0.02	0.02	0.29	0.12
DI	91.3	87.6	83.1	90.7	94.7	96.3	94.1	89.8	88.7
CI	3.3	5.6	6.9	3.3	2.7	2.2	1.6	5.0	4.8

Herbert River Granite

70571264 Fluorite-bearing biotite-muscovite adamellite.
 70571266 Porphyritic biotite adamellite.
 70571267 Biotite adamellite.
 70571268 Biotite adamellite.
 70571273 Porphyritic biotite granite.
 70571274 Biotite granite.
 70571275 Biotite adamellite.
 70571278 Biotite adamellite.
 70571279 Biotite adamellite.

	7057 1264	7507 1266	7057 1267	7057 1268	7057 1273	7057 1274	7057 1275	7057 1278	7057 1279
Li	32	17	25	20	38	19	24	48	43
Be	4.5	4.0	3.0	4.5	6.0	5.0	4.0	7.5	4.5
F	900	-	-	-	-	-	-	-	-
Cr	3	8	5	3	n.d.	n.d.	n.d.	5	5
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	3	3
Cu	6	3	2	2	2	2	2	2	3
Zn	34	20	23	28	15	11	21	13	45
Ga	17	15	14	16	14	15	15	16	18
Rb	216	197	130	197	328	369	248	317	246
Sr	63	119	225	65	40	14	39	81	67
Y	38	41	20	38	60	71	50	41	62
Zr	93	124	150	107	108	100	103	100	158
Sn	4	n.d.	n.d.	4	n.d.	n.d.	n.d.	8	4
Ba	570	255	970	460	155	43	265	330	350
La	24	24	45	29	32	18	38	26	40
Ce	63	44	74	65	53	40	62	59	90
Pb	36	17	15	33	29	37	25	55	26
Th	19	31	20	24	40	47	32	20	27
U	3	9	4	4	11	8	6	4	6
Mg/Li	30	190	190	55	11	37	8	42	30
Rb/Sr	3.4	1.66	0.58	3.0	8.2	26	6.4	3.9	3.7
K/Rb	170	155	217	192	116	104	146	124	149
Ba/Sr	9.0	2.1	4.3	7.1	3.9	3.1	6.8	4.1	5.2
Ba/Rb	2.6	1.29	7.5	2.3	0.47	0.117	1.07	1.04	1.42
K/Ba	65	120	29	82	250	890	136	119	105
Ca/Sr	127	107	70	137	178	340	164	106	148
Ca/Y	210	310	790	230	120	600	130	210	160
K/Pb	1020	1790	1880	1150	1310	1030	1440	710	1410
Th/U	6.3	3.4	5.0	6.0	3.6	5.9	5.3	5.0	4.5
K/U	12000	3400	7100	9500	3500	4800	6000	9800	6100
Al/Ga	4100	4700	5600	4600	4800	4300	4400	4500	3500
mg	0.15	0.31	0.35	0.19	0.11	0.19	0.04	0.26	0.14
k	0.43	0.36	0.34	0.42	0.42	0.43	0.43	0.46	0.48

	7057 1280	7057 1281	7057 1282	7057 1284	6859 0076	7057 1269	7057 1270
SiO ₂	70.3	75.5	71.5	76.0	72.1	73.0	71.6
TiO ₂	0.41	0.20	0.35	0.13	0.28	0.27	0.29
Al ₂ O ₃	14.17	12.76	13.76	12.28	14.14	14.02	13.94
Fe ₂ O ₃	0.93	0.51	0.69	0.48	0.31	0.52	0.66
FeO	2.15	1.25	1.90	0.85	1.72	1.35	1.50
MnO	0.06	0.05	0.06	0.03	0.04	0.03	0.04
MgO	0.69	0.26	0.72	0.16	0.52	0.59	0.64
CaO	2.47	1.24	2.41	0.95	1.95	1.93	2.03
Na ₂ O	3.9	3.6	3.55	3.55	3.55	4.0	3.8
K ₂ O	3.51	4.29	3.94	4.60	3.94	3.72	3.83
P ₂ O ₅	0.09	0.03	0.08	0.02	0.07	0.07	0.08
H ₂ O	0.74	0.60	0.55	0.29	1.09	0.71	0.81
CO ₂	n.d.						
TOTAL	99.42	100.29	99.51	99.37	99.71	100.21	99.22
q	27.37	34.54	29.25	35.52	30.80	29.98	29.21
or	21.00	25.41	23.51	27.43	23.60	22.80	22.99
ab	33.58	30.61	30.41	30.39	30.61	34.16	32.91
an	10.85	5.96	10.04	3.99	9.28	9.16	9.69
c	-	-	-	-	0.66	0.04	-
di	0.85	-	1.26	0.59	-	-	-
hy	3.93	2.25	3.64	1.10	3.84	3.10	3.43
mt	1.41	0.77	1.04	0.70	0.49	0.79	1.00
il	0.79	0.38	0.67	0.25	0.54	0.52	0.56
ap	0.22	0.07	0.19	0.05	0.19	0.17	0.19
DI	82.0	90.6	83.2	93.3	85.0	86.2	85.1
CI	7.2	3.5	6.8	2.7	5.7	4.6	5.2

Herbert River Granite

70571280 Fluorite-bearing biotite adamellite.

70571281 Biotite adamellite.

70571282 Hornblende-biotite adamellite.

70571284 Biotite adamellite.

Ixe Microgranodiorite

68590076 Porphyritic hornblende-biotite microadamellite, E55/5/34.

70571269 Porphyritic biotite adamellite.

70571270 Porphyritic biotite adamellite.

	7057 1280	7057 1281	7057 1282	7057 1284	6859 0076	7057 1269	7057 1270
Li	20	44	35	27	25	45	42
Be	3.0	6.5	3.0	3.0	4.0	5.0	4.5
F	700	-	-	-	1000	-	-
Cr	5	3	5	3	-	10	10
Co	-	-	-	-	8	-	-
Ni	n.d.	n.d.	3	n.d.	3	3	n.d.
Cu	3	2	3	2	1	3	3
Zn	34	18	23	9	36	30	30
Ga	15	14	16	13	17	17	18
Rb	144	234	190	229	210	230	222
Sr	162	82	140	58	145	138	155
Y	39	43	30	34	46	55	45
Zr	186	128	125	102	176	168	169
Sn	5	n.d.	n.d.	n.d.	6	n.d.	n.d.
Ba	630	575	495	485	610	565	620
La	44	56	39	38	45	43	39
Ce	83	108	70	70	78	69	73
Pb	15	18	14	20	23	28	30
Th	21	34	23	33	26	28	27
U	3	6	3	5	5	4	2
Mg/Li	210	36	120	36	120	80	93
Rb/Sr	0.89	2.9	1.36	4.0	1.45	1.67	1.43
K/Rb	202	152	172	167	156	134	143
Ba/Sr	3.9	7.0	3.5	8.4	4.2	4.1	4.0
Ba/Rb	4.4	2.5	2.6	2.1	2.9	2.5	2.8
K/Ba	46	62	66	79	54	55	51
Ca/Sr	109	109	123	117	96	100	94
Ca/Y	450	210	570	190	300	250	320
K/Pb	1940	1980	2340	1910	1420	1100	1060
Th/U	7.0	5.7	7.7	6.6	5.2	7.0	14
K/U	9700	5900	11000	7600	6500	7700	16000
Al/Ga	5000	4800	4600	5000	4400	4400	4100
mg	0.29	0.21	0.33	0.18	0.31	0.36	0.35
k	0.37	0.44	0.42	0.46	0.42	0.38	0.40

	6859 0030	6859 0031	6859 0043	6859 0120	7057 1023	7057 1031	7057 1032	7057 1033	7057 1036
SiO ₂	67.4	64.2	67.4	70.7	67.7	65.1	74.2	66.6	67.7
TiO ₂	0.46	0.56	0.46	0.39	0.43	0.62	0.18	0.48	0.46
Al ₂ O ₃	14.90	15.51	15.10	14.41	14.92	15.34	13.40	15.06	14.84
Fe ₂ O ₃	1.47	0.82	1.44	1.08	1.64	1.54	0.51	1.30	1.31
FeO	2.45	3.80	2.50	1.23	2.30	3.65	1.30	2.85	2.70
MnO	0.06	0.04	0.07	0.03	0.06	0.09	0.03	0.08	0.08
MgO	1.77	2.41	1.86	0.99	1.75	2.51	0.30	2.09	1.95
CaO	4.08	5.01	4.18	2.46	3.86	5.09	1.85	4.46	4.24
Na ₂ O	2.7	2.5	2.8	4.1	3.25	2.4	3.6	2.9	2.7
K ₂ O	3.33	3.01	3.21	3.17	3.32	2.99	3.85	3.26	3.38
P ₂ O ₅	0.07	0.09	0.07	0.09	0.07	0.10	0.06	0.08	0.07
H ₂ O	0.41	1.35	0.99	0.67	1.20	0.96	1.29	0.85	0.82
CO ₂					0.2	0.1		0.1	
TOTAL	99.10	99.30	100.08	99.32	100.70	100.49	100.57	100.11	100.25
q	27.18	22.56	26.49	28.16	25.37	23.86	33.89	24.15	26.46
or	19.94	18.15	19.13	18.99	19.71	17.74	22.91	19.41	20.08
ab	23.14	21.49	23.97	35.32	27.53	20.64	30.50	24.80	22.88
an	18.95	22.72	19.28	11.63	16.44	22.21	8.85	18.52	18.54
c	-	-	-	-	-	-	0.13	-	-
di	0.84	1.69	0.95	0.12	0.86	1.51	-	2.13	1.80
hy	6.71	10.82	6.98	3.21	6.22	10.08	2.48	7.71	7.26
mt	2.19	1.27	2.15	1.62	2.43	2.31	0.76	1.96	1.95
il	0.89	1.09	0.88	0.75	0.82	1.18	0.34	0.92	0.88
ap	0.17	0.22	0.17	0.22	0.17	0.24	0.14	0.19	0.14
cc					0.46	0.23		0.23	
DI	70.3	62.2	69.6	82.5	72.6	62.2	87.3	68.4	69.4
CI	10.8	15.1	11.1	5.9	11.0	15.6	3.9	13.1	12.0

Almaden Granite

68590030 Tourmaline-bearing porphyritic hornblende-biotite granodiorite, E55/1/3.

68590031 Tourmaline-bearing hornblende-biotite granodiorite, E55/1/4.

68590043 Porphyritic hornblende-biotite granodiorite, E55/1/16.

68590120 Hornblende-biotite adamellite, E55/10/11.

70571023 Hornblende-biotite granodiorite.

70571031 Hornblende-biotite granodiorite.

70571032 Biotite adamellite.

70571033 Hornblende-biotite granodiorite.

70571036 Hornblende-biotite granodiorite.

	6859 0030	6859 0031	6859 0043	6859 0120	7057 1023	7057 1031	7057 1032	7057 1033	7057 1036
Li	18	13	18	13	20	26	13	29	29
Be	2.0	2.0	2.0	3.0	1.5	2.0	2.0	2.5	2.0
F	-	-	-	-	500	400	-	400	-
Cr	-	-	-	-	16	35	3	25	23
Co	10	15	11	8	-	-	-	-	-
Ni	5	6	4	8	n.d.	4	n.d.	4	n.d.
Cu	10	5	19	2	3	5	3	10	6
Zn	38	18	52	11	42	55	24	46	44
Ga	12	16	13	17	15	13	14	14	14
Rb	179	115	160	127	171	131	172	165	168
Sr	159	202	168	292	158	190	158	154	154
Y	30	24	30	14	29	25	29	27	26
Zr	94	121	114	120	114	95	141	93	94
Sn	n.d.	4	n.d.	n.d.	-	-	-	-	-
Ba	330	505	315	430	350	445	530	290	330
La	24	23	18	26	26	32	28	24	27
Ce	43	40	30	39	49	41	55	45	61
Pb	19	8	17	9	15	21	42	19	19
Th	19	20	18	17	27	31	15	23	26
U	5	3	3	2	3	2	2	5	4
Mg/Li	590	1100	620	460	530	580	140	430	410
Rb/Sr	1.13	0.57	0.95	0.44	1.08	0.69	1.09	1.07	1.09
K/Rb	154	217	166	207	161	189	186	164	167
Ba/Sr	2.1	2.5	1.88	1.47	2.2	2.3	3.4	1.88	2.1
Ba/Rb	1.84	4.4	1.97	3.4	2.0	3.4	3.1	1.76	1.96
K/Ba	84	50	84	61	79	56	60	93	85
Ca/Sr	184	177	178	60	175	192	84	207	197
Ca/Y	970	1500	1000	1300	950	1500	460	1200	1200
K/Pb	1450	3100	1560	2900	1830	1180	760	1420	1470
Th/U	3.8	6.7	6.0	8.5	9.0	16	7.5	4.6	6.5
K/U	5500	8300	8900	13000	9200	12000	16000	5400	7000
Al/Ga	6600	5100	6200	4500	5300	6300	5100	5700	5600
mg	0.45	0.48	0.46	0.44	0.45	0.46	0.23	0.47	0.47
k	0.45	0.44	0.43	0.34	0.40	0.45	0.41	0.42	0.45

	7057 1037A	7057 1037B	7057 1283A	7057 1283B	7057 1285	7057 1018	7057 1288	7057 1290
SiO ₂	66.9	56.6	66.4	54.9	55.5	59.0	56.9	60.1
TiO ₂	0.48	0.82	0.49	0.65	1.05	0.74	0.71	0.68
Al ₂ O ₃	15.26	16.55	14.86	16.77	17.08	16.79	17.25	16.48
Fe ₂ O ₃	1.26	1.77	1.47	1.92	3.40	1.35	1.69	1.49
FeO	2.70	5.75	2.80	5.50	5.20	5.10	5.50	4.65
MnO	0.08	0.22	0.08	0.23	0.16	0.11	0.13	0.11
MgO	2.10	4.64	1.96	4.73	3.43	3.93	5.10	3.55
CaO	4.35	7.00	4.62	7.20	7.84	7.22	8.35	6.56
Na ₂ O	2.65	3.0	3.1	2.85	2.6	2.3	2.1	2.5
K ₂ O	3.40	1.74	2.91	3.20	1.60	2.09	1.71	2.42
P ₂ O ₅	0.08	0.12	0.08	0.08	0.17	0.11	0.11	0.09
H ₂ O	0.70	1.38	0.85	1.36	1.66	0.75	0.87	1.56
CO ₂								
TOTAL	99.96	99.59	99.62	99.39	99.69	99.49	100.42	100.19
q	25.18	9.03	24.53	2.80	12.21	14.80	11.28	15.79
or	20.22	10.46	17.40	19.26	9.64	12.50	10.15	14.49
ab	22.73	25.81	26.37	24.73	22.59	19.68	17.76	21.26
an	19.75	27.01	18.35	23.87	30.71	29.67	32.79	27.05
c	-	-	-	-	-	-	-	-
di	1.18	6.14	3.52	9.78	6.35	4.78	6.59	4.36
hy	7.96	16.99	6.50	15.18	10.96	14.82	17.28	13.27
mt	1.88	2.70	2.20	2.92	5.11	2.07	2.55	2.26
il	0.92	1.58	0.94	1.26	2.03	1.42	1.35	1.31
ap	0.19	0.29	0.19	0.19	0.41	0.26	0.26	0.22
DI	68.1	45.3	68.3	46.8	44.4	47.0	39.2	51.5
CI	12.1	27.7	13.4	29.3	24.9	23.4	28.0	21.4

Almaden Granite

70571037A Hornblende-biotite granodiorite.
70571037B Hornblende, biotite-rich xenolith in 70571037A.
70571283A Hornblende-biotite granodiorite.
70571283B Hornblende, biotite-rich xenolith in 70571283A.
70571285 Hornblende-biotite-quartz diorite.
70571018 Hornblende-biotite-quartz diorite.
70571288 Hypersthene-hornblende-biotite-quartz diorite.
70571290 Hypersthene-hornblende-biotite-quartz diorite.

	7057 1037A	7057 1037B	7057 1283A	7057 1283B	7057 1285	7057 1018	7057 1298	7057 1290
Li	28	38	25	15	23	11	12	13
Be	2.0	2.5	2.0	3.0	2.0	1.5	1.5	2.0
F	-	-	-	-	-	-	-	-
Cr	25	68	28	63	25	54	81	39
Co	-	-	-	-	-	-	-	-
Ni	n.d.	5	7	21	7	16	40	24
Cu	11	34	15	21	14	35	45	28
Zn	45	89	40	82	62	63	66	69
Ga	14	15	14	16	16	15	16	16
Rb	178	169	148	195	90	119	111	151
Sr	167	156	170	170	287	203	254	217
Y	27	32	27	49	25	27	30	31
Zr	101	84	128	79	94	107	88	88
Sn	-	-	5	n.d.	n.d.	-	n.d.	5
Ba	330	191	305	430	235	225	189	250
La	34	27	31	42	16	28	22	25
Ce	61	52	55	58	25	41	35	44
Pb	19	23	16	17	10	15	16	26
Th	18	10	19	10	9	12	15	18
U	5	4	4	2	n.d.	4	4	3
Mg/Li	450	740	470	1900	900	2200	2600	1600
Rb/Sr	1.07	1.08	0.87	1.15	0.31	0.59	0.44	0.70
K/Rb	158	85	163	136	148	145	128	133
Ba/Sr	1.98	1.22	1.79	2.5	0.82	1.11	0.74	1.15
Ba/Rb	1.85	1.13	2.1	2.2	2.6	1.89	1.70	1.66
K/Ba	85	75	79	62	57	77	75	80
Ca/Sr	186	320	194	302	195	254	235	216
Ca/Y	1200	1600	1200	1050	2200	1900	2000	1500
K/Pb	1480	630	1510	1560	1330	1150	890	770
Th/U	3.6	2.5	4.8	5.0	-	3.0	3.8	6.0
K/U	5600	3600	6000	13000	-	4300	3600	6700
Al/Ga	5800	5900	5600	5600	5700	5900	5700	5500
mg	0.49	0.52	0.45	0.53	0.42	0.52	0.56	0.51
k	0.46	0.28	0.38	0.42	0.29	0.37	0.35	0.39

	6859 0420	6859 0110	6859 0112	6859 0113	6859 0114	6859 0115	6859 0116	6859 0117	6859 0118
SiO ₂	76.3	75.0	76.4	77.6	73.6	73.1	67.7	71.6	76.7
TiO ₂	0.09	0.16	0.14	0.04	0.30	0.26	0.52	0.32	0.08
Al ₂ O ₃	12.39	13.43	12.43	12.24	13.34	13.04	14.95	14.53	13.39
Fe ₂ O ₃	0.12	0.28	0.34	0.09	0.91	0.44	1.52	0.84	0.26
FeO	0.35	1.12	1.12	0.90	0.82	1.75	2.30	1.27	0.26
MnO	0.02	0.04	0.04	0.02	0.04	0.04	0.08	0.04	0.04
MgO	0.09	0.23	0.09	0.03	0.39	0.25	1.42	0.83	0.09
CaO	0.38	1.22	0.57	0.44	1.08	1.24	3.53	2.79	0.27
Na ₂ O	4.4	3.7	3.3	4.3	4.5	3.6	3.2	3.55	4.5
K ₂ O	4.52	4.26	4.98	4.59	3.83	4.44	3.33	3.49	4.40
P ₂ O ₅	0.01	0.03	0.03	0.01	0.07	0.08	0.11	0.05	0.05
H ₂ O	0.38	0.47	0.54	0.33	0.52	0.71	0.47	0.42	0.52
CO ₂									
TOTAL	99.05	99.94	99.98	100.59	99.40	98.95	99.13	99.73	100.56
q	33.12	33.68	36.16	33.70	30.28	32.00	26.27	30.25	33.11
or	27.06	25.31	29.58	27.04	22.88	26.70	19.93	20.77	25.98
ab	37.54	31.55	28.32	36.17	38.49	30.74	27.58	30.16	37.95
an	0.82	5.89	2.65	0.59	4.95	5.73	16.72	13.55	1.01
c	-	0.58	0.60	-	-	0.31	-	-	0.87
dl	0.87	-	-	1.40	-	-	0.29	0.05	-
hy	0.23	2.22	1.84	0.85	1.31	3.16	5.70	3.24	0.43
mt	0.18	0.41	0.51	0.14	1.35	0.66	2.28	1.26	0.38
il	0.17	0.31	0.27	0.09	0.58	0.50	1.00	0.61	0.15
ap	0.02	0.07	0.07	0.02	0.17	0.19	0.24	0.12	0.12
DI	97.7	90.5	94.1	96.9	91.7	89.4	73.8	81.2	97.0
CI	1.5	3.6	3.3	2.5	3.4	4.8	9.5	5.3	2.0

Unnamed granitic rocks of the Ingham Sheet area

68590420	Biotite adamellite, E55/9/11
68590110	Biotite adamellite (Herbert River type), E55/10/1
68590112	Biotite granite (Elizabeth Creek type), E55/10/3
68590113	Leucocratic biotite granite (Elizabeth Creek type), E55/10/4
68590114	Fluorite-bearing biotite adamellite (Elizabeth Creek type), E55/10/5
68590115	Fluorite-bearing biotite adamellite (Elizabeth Creek type), E55/10/6
68590116	Hornblende-biotite adamellite (Almaden type), E55/10/7
68590117	Hornblende-bearing adamellite (Almaden type), E55/10/8
68590118	Leucocratic muscovite adamellite (Elizabeth Creek type), E55/10/9

	6859 0420	6859 0220	6859 0112	6859 0113	6859 0114	6859 0115	6859 0116	6859 0117	6859 0118
Li	25	16	49	35	9	52	12	18	17
Be	3.5	2.0	4.0	5.5	3.0	4.0	2.0	2.5	7.5
F	-	-	-	-	1000	1000	-	-	-
Cr	n.d.	-	-	-	-	-	-	-	-
Co	-	6	6	4	4	5	1	7	n.d.
Ni	n.d.	n.d.	3	3	n.d.	n.d.	3	3	n.d.
Cu	1	2	2	2	2	3	3	3	13
Zn	10	18	32	41	40	41	35	24	11
Ga	17	13	17	21	16	18	12	14	15
Rb	224	240	297	430	127	261	110	166	317
Sr	35	118	28	5	167	61	214	216	16
Y	21	36	55	125	26	59	21	16	24
Zr	79	116	146	109	197	200	175	72	38
Sn	-	n.d.	n.d.	n.d.	n.d.	8	n.d.	n.d.	n.d.
Ba	405	670	320	21	540	310	685	395	87
La	15	31	30	24	45	38	21	28	6
Ce	38	47	65	61	69	80	34	40	n.d.
Pb	17	31	33	38	14	27	13	14	18
Th	19	29	20	37	21	22	12	22	15
U	4	9	7	11	n.d.	4	n.d.	4	15
Mg/Li	22	88	11	5	270	29	720	280	32
Rb/Sr	6.4	2.0	10.6	86	0.76	4.3	0.51	0.77	20
K/Rb	167	148	139	89	258	141	251	175	115
Ba/Sr	11.6	5.7	11.4	4.2	3.2	5.1	3.2	1.83	5.4
Ba/Rb	1.81	2.8	1.08	0.049	4.3	1.19	6.2	2.4	0.27
K/Ba	93	53	129	1800	61	119	40	73	420
Ca/Sr	77	74	146	620	46	146	118	92	1200
Ca/Y	130	240	75	25	300	150	1200	1200	79
K/Pb	2200	1140	1250	1000	2340	1360	2120	2070	2030
Th/U	4.8	3.2	2.9	3.4	-	5.5	-	5.5	1.0
K/U	9400	3900	5900	3500	-	9200	-	7300	2400
Al/Ga	3900	5500	3900	3100	4400	3800	6600	5500	4700
mg	0.25	0.22	0.10	0.05	0.29	0.17	0.40	0.42	0.23
k	0.40	0.43	0.50	0.41	0.36	0.45	0.40	0.39	0.39

	100.			
	6859 0119	6859 0121	6859 0084	6859 0130
SiO ₂	74.0	77.3	77.7	75.1
TiO ₂	0.22	0.06	0.07	0.23
Al ₂ O ₃	13.67	11.89	12.33	12.73
Fe ₂ O ₃	0.47	0.77	0.37	0.47
FeO	0.82	0.56	0.26	1.04
MnO	0.02	0.05	0.02	0.04
MgO	0.33	0.02	0.12	0.31
CaO	1.64	0.22	0.26	0.93
Na ₂ O	3.9	4.45	4.0	3.8
K ₂ O	4.12	4.20	4.85	4.75
P ₂ O ₅	0.04	0.00	0.01	0.03
H ₂ O	0.45	0.36	0.52	0.51
CO ₂				
TOTAL	99.68	99.88	100.51	99.94
q	31.57	35.00	35.12	32.08
or	24.52	24.94	28.67	28.20
ab	33.31	37.91	33.85	32.63
an	7.64	0.03	1.22	3.49
c	-	-	0.05	-
dl	0.29	0.84	-	0.79
hy	1.47	0.00	0.39	1.58
mt	0.70	1.12	0.54	0.71
il	0.42	0.11	0.13	0.44
ap	0.07	0.00	0.02	0.07
wo		0.05		
DI	89.4	97.8	97.6	92.9
CI	3.0	2.1	1.1	3.6

Unnamed granitic rocks

68590119 Biotite adamellite (Herbert River type), E55/10/10.

68590121 Fluorite-bearing arfvedsonite granite, E55/10/12.

68590084 Aplitic granite, E55/6/3. From the Innisfail sheet area.

68590130 Fluorite-bearing porphyritic biotite granite, E55/13/13. From the Clarke River Sheet area.

	6859 0119	6859 0121	6859 0084	6859 0130
Li	9	39	7	22
Be	2.5	6.5	3.0	6.0
F	-	2500	-	2000
Cr	-	-	-	-
Co	5	n.d.	4	7
Ni	n.d.	n.d.	n.d.	n.d.
Cu	4	n.d.	3	3
Zn	11	72	11	40
Ga	13	23	12	17
Rb	187	246	270	298
Sr	133	2	13	60
Y	19	143	50	53
Zr	87	228	72	157
Sn	n.d.	n.d.	n.d.	8
Ba	490	7	93	171
La	32	71	32	42
Ce	53	104	67	89
Pb	14	42	26	24
Th	30	26	35	35
U	2	3	4	10
Mg/Li	220	3	100	86
Rb/Sr	1.41	120	21	5.0
K/Rb	183	142	149	132
Ba/Sr	3.7	3.5	7.2	2.9
Ua/Rb	2.6	0.028	0.34	0.57
K/Ba	70	5000	430	230
Ca/Sr	88	800	146	110
Ca/Y	620	11.2	38	125
K/Pb	2440	830	1550	1640
Th/U	15	8.7	8.8	3.5
K/U	17000	12000	10000	3900
Al/Ga	5600	2700	5500	4000
mg	0.32	0.03	0.26	0.27
k	0.41	0.38	0.44	0.45

	6859 0088	6859 0091	6859 0092	6859 0093	6859 0094	6859 0095	6859 0028	6859 0032	6859 0033
SiO ₂	72.1	73.5	73.5	74.1	69.4	52.9	74.5	72.7	72.8
TiO ₂	0.36	0.32	0.29	0.21	0.50	1.20	0.02	0.09	0.21
Al ₂ O ₃	13.92	13.58	13.38	13.42	14.98	16.83	14.26	15.05	14.24
Fe ₂ O ₃	0.66	0.27	0.20	0.56	0.58	1.79	0.18	0.01	0.01
FeO	2.25	2.20	2.05	1.23	2.65	6.55	0.45	0.90	1.46
MnO	0.04	0.04	0.04	0.02	0.08	0.16	0.08	0.06	0.04
MgO	0.50	0.40	0.34	0.22	1.25	6.65	0.09	0.20	0.35
CaO	2.52	2.74	2.20	1.58	3.02	9.22	0.18	0.90	1.55
Na ₂ O	3.25	3.35	2.9	3.1	2.85	1.6	5.0	3.75	3.25
K ₂ O	3.73	2.90	4.03	4.26	3.76	1.25	3.78	5.04	4.67
P ₂ O ₅	0.07	0.06	0.13	0.04	0.13	0.24	0.10	0.17	0.11
H ₂ O	0.52	0.43	0.45	0.43	0.91	1.37	0.86	0.67	0.51
CO ₂					0.05	0.1			
TOTAL	99.92	99.79	99.51	99.17	100.16	99.86	99.50	99.54	99.20
q	31.74	35.28	35.28	35.97	29.19	8.06	30.61	29.57	31.79
or	22.16	17.24	24.04	25.48	22.37	7.49	22.63	30.11	27.95
ab	27.72	28.59	24.68	26.54	24.27	13.73	43.11	31.98	27.93
an	12.11	13.28	10.16	7.67	13.84	35.55	0.24	3.39	7.06
c	0.11	0.07	0.58	0.95	1.19	-	1.83	2.25	1.29
dl	-	-	-	-	-	6.98	-	-	-
hy	4.31	4.37	4.05	2.04	6.84	22.33	1.02	2.10	3.31
mt	1.01	0.42	0.34	0.85	0.89	2.75	0.28	0.03	0.03
il	0.69	0.61	0.56	0.40	0.96	2.31	0.04	0.17	0.40
ap	0.17	0.14	0.31	0.10	0.33	0.58	0.24	0.41	0.26
cc					0.11	0.23			
DI	81.6	81.1	84.0	88.0	75.8	29.3	96.4	91.7	87.7
CI	6.3	5.6	5.8	4.3	10.3	35.2	3.4	5.0	5.3

Tully Granite Complex

68590088 Hornblende-biotite adamellite, E55/6/7.

68590091 Hornblende-biotite adamellite, E55/6/10.

68590092 Foliated, porphyritic hornblende-biotite adamellite, E55/6/11.

68590093 Quartz-feldspar-biotite gneiss, E55/6/12.

68590094 Hornblende-biotite granodiorite, E55/6/14.

68590095 Quartz diorite, E55/6/15.

Mareeba Granite

68590028 Garnetiferous tourmaline-bearing muscovite adamellite, E55/1/1.

68590032 Biotite granite, E55/1/5.

68590033 Biotite adamellite, E55/1/6.

	6859 0088	6859 0091	6859 0092	6859 0093	6859 0094	6859 0095	6859 0028	6859 0032	6859 0033
Li	8	11	11	13	20	12	103	90	56
Be	2.0	2.0	2.0	3.0	2.5	1.5	2.0	6.0	4.0
F	-	-	-	-	-	-	-	-	-
Cr	-	-	-	-	-	-	n.d.	-	-
Co	7	8	8	4	8	29	-	4	6
Ni	n.d.	n.d.	n.d.	n.d.	4	64	n.d.	n.d.	n.d.
Cu	5	3	3	5	3	35	14	5	13
Zn	43	38	31	20	49	80	49	33	35
Ga	16	15	14	17	14	17	29	17	15
Rb	110	92	118	194	154	47	1010	359	264
Sr	113	113	101	80	221	300	6	47	77
Y	98	37	40	82	27	26	20	20	26
Zr	206	189	181	154	161	122	16	45	92
Sn	n.d.	n.d.	n.d.	4	4	n.d.	-	13	10
Ba	1060	660	785	555	590	215	n.d.	147	179
La	132	47	56	75	46	23	n.d.	n.d.	11
Ce	109	88	93	87	78	28	12	15	27
Pb	18	18	18	23	20	6	8	34	37
Th	11	11	16	27	16	4	9	5	11
U	n.d.	n.d.	2	3	n.d.	n.d.	3	4	5
Mg/Li	380	220	180	100	380	3300	5	13	38
Rb/Sr	0.97	0.81	1.17	2.4	0.70	0.16	170	7.6	3.4
K/Rb	282	262	284	182	203	221	31	116	147
Ba/Sr	9.4	5.8	7.8	6.9	2.7	0.72	-	3.1	2.3
Ba/Rb	9.6	7.2	6.7	2.9	3.8	4.6	-	0.41	0.68
K/Ba	29	37	43	64	53	48	-	280	220
Ca/Sr	159	173	155	141	98	220	220	136	144
Ca/Y	185	530	390	140	800	2500	65	320	430
K/Pb	1720	1340	1860	1540	1560	1730	3900	1230	1050
Th/U	-	-	8.0	9.0	-	-	3.0	1.3	2.2
K/U	-	-	17000	12000	-	-	10000	10000	7800
Al/Ga	4600	4800	5100	4200	5700	5300	2600	4700	5000
mg	0.23	0.22	0.21	0.18	0.40	0.59	0.19	0.27	0.29
k	0.43	0.36	0.48	0.47	0.46	0.34	0.33	0.47	0.49

	6859 0034	6859 0036	6859 0037	6859 0039	6859 0041	6859 0042	6859 0044	6859 0045	6859 0046
SiO ₂	75.1	71.2	66.7	74.0	73.3	75.5	73.6	73.6	71.3
TiO ₂	0.18	0.42	0.75	0.06	0.02	0.23	0.22	0.04	0.56
Al ₂ O ₃	13.54	14.30	15.07	14.58	15.15	12.66	14.19	15.35	14.16
Fe ₂ O ₃	0.47	0.31	0.59	0.24	0.05	0.00	0.10	0.74	0.62
FeO	1.27	2.90	4.05	1.00	0.71	1.66	1.49	1.34	2.85
MnO	0.06	0.06	0.07	0.07	0.06	0.04	0.06	0.03	0.05
MgO	0.17	0.76	1.26	0.08	0.02	0.34	0.37	0.05	0.90
CaO	1.00	2.44	2.78	0.62	0.49	0.66	0.91	0.19	2.30
Na ₂ O	3.3	2.8	3.1	3.8	4.3	3.1	3.45	4.65	2.5
K ₂ O	4.46	3.90	3.39	4.11	4.41	5.06	4.11	3.58	3.59
P ₂ O ₅	0.09	0.11	0.31	0.10	0.10	0.12	0.36	0.30	0.13
H ₂ O	0.41	0.60	1.23	0.77	0.68	0.51	0.84	0.67	1.21
CO ₂									0.2
TOTAL	100.05	99.80	99.30	99.43	99.29	99.88	99.70	99.54	100.37
q	36.02	32.17	26.78	34.64	30.34	35.38	35.43	33.55	36.16
or	26.45	23.21	20.36	24.62	26.41	30.08	24.56	21.39	21.38
ab	28.02	23.86	26.56	32.67	37.03	26.55	29.77	39.86	21.40
an	4.39	11.47	11.93	2.46	1.80	2.51	2.19	0.00	9.37
c	1.69	1.31	2.10	3.02	2.66	1.15	3.26	4.23	2.76
di	-	-	-	-	-	-	-	-	-
hy	2.18	6.43	9.12	1.89	1.40	3.59	3.33	0.13	6.16
mt	0.70	0.50	0.93	0.37	0.09	0.04	0.18	1.09	0.96
il	0.34	0.80	1.45	0.12	0.04	0.44	0.44	0.08	1.05
ap	0.21	0.26	0.77	0.24	0.24	0.29	0.66	0.72	0.31
cc									0.46
DI	90.5	79.2	73.7	91.9	93.8	92.0	89.8	94.8	78.9
CI	5.1	9.3	14.4	5.6	4.4	5.5	8.1	6.2	11.7

Mareeba Granite

68590034 Tourmaline-bearing biotite adamellite, E55/1/7.

68590036 Biotite adamellite, E55/1/9.

68590037 Biotite adamellite, E55/1/10.

68590039 Garnetiferous biotite-muscovite adamellite, E55/1/12.

68590041 Leucocratic, garnetiferous muscovite adamellite, E55/1/14.

68590042 Porphyritic biotite adamellite from China Camp, E55/1/15.

68590044 Tourmaline, fluorite-bearing biotite-muscovite adamellite, E55/2/1.

68590045 Tourmaline-bearing biotite adamellite, E55/2/2.

68590046 Slightly foliated biotite adamellite, E55/2/3.

	6859 0034	6859 0036	6859 0037	6859 0039	6859 0041	6859 0042	6859 0044	6859 0045	6859 0046
Li	115	40	103	106	61	88	281	7	29
Be	4.0	3.0	3.5	6.5	7.0	3.0	1.5	1.0	2.5
F	-	-	-	-	-	-	-	-	-
Cr	-	-	24	-	-	-	-	-	-
Co	5	7	-	n.d.	n.d.	6	4	4	11
Ni	n.d.	4	6	n.d.	n.d.	3	n.d.	n.d.	8
Cu	6	17	12	2	2	6	3	2	10
Zn	38	64	82	78	67	46	61	31	69
Ga	17	16	18	25	24	16	23	24	14
Rb	371	179	225	475	530	426	627	557	177
Sr	43	130	133	21	7	28	34	2	115
Y	50	39	31	26	24	37	27	13	35
Zr	79	162	160	44	22	131	90	30	194
Sn	9	n.d.	-	8	9	8	47	4	n.d.
Ba	133	400	455	77	20	132	73	4	365
La	7	29	27	3	n.d.	9	113	147	146
Ce	28	53	57	14	n.d.	26	28	n.d.	47
Pb	33	28	22	21	25	25	21	12	24
Th	13	19	12	11	7	16	8	n.d.	17
U	7	3	3	5	12	7	7	9	3
Mg/Li	9	115	74	5	2	23	8	43	190
Rb/Sr	8.6	1.38	1.69	23	76	15	18	280	1.54
K/Rb	100	181	125	72	69	99	54	53	168
Ba/Sr	3.1	3.1	3.4	3.7	2.9	4.7	2.1	2.0	3.2
Ba/Rb	0.36	2.2	2.0	0.162	0.038	0.31	0.116	0.007	2.1
K/Ba	280	81	62	440	1800	320	470	7400	82
Ca/Sr	167	134	150	210	500	168	191	700	143
Ca/Y	145	450	640	170	145	125	240	110	470
K/Pb	1120	1160	1280	1620	1460	1680	1620	2480	1240
Th/U	1.9	6.3	4.0	2.2	0.6	2.3	1.1	-	5.7
K/U	5300	11000	9400	6800	3100	6000	4900	3300	9900
Al/Ga	4200	4700	4400	3100	3300	4200	3300	3400	5400
mg	0.15	0.30	0.32	0.10	0.04	0.26	0.28	0.06	0.31
k	0.47	0.48	0.42	0.42	0.40	0.52	0.44	0.34	0.48

	6859 0047	6859 0418	6859 0419	6859 0083	6859 0085	6859 0086	6859 0087	6859 0096	6859 0097
SiO ₂	74.1	69.6	71.8	74.3	76.1	72.3	75.3	76.8	73.1
TiO ₂	0.33	0.44	0.22	0.10	0.11	0.23	0.01	0.17	0.34
Al ₂ O ₃	12.90	14.83	15.09	14.12	13.08	15.34	14.64	11.87	13.11
Fe ₂ O ₃	0.36	0.26	0.34	0.00	0.16	0.34	0.15	0.56	0.18
FeO	1.60	2.85	2.25	1.45	1.12	2.30	0.49	0.71	0.72
MnO	0.04	0.06	0.06	0.06	0.04	0.06	0.11	0.02	0.03
MgO	0.32	0.77	0.52	0.22	0.12	0.53	0.03	0.10	0.52
CaO	0.97	1.67	3.02	1.40	0.98	3.41	0.26	0.45	1.21
Na ₂ O	3.05	2.5	3.85	3.65	3.7	3.7	1.55	3.35	2.85
K ₂ O	5.13	5.38	1.69	4.22	4.71	1.59	5.54	5.12	5.38
P ₂ O ₅	0.07	0.12	0.11	0.04	0.06	0.14	0.10	0.02	0.10
H ₂ O	0.67	0.75	0.96	0.71	0.55	0.60	1.17	0.51	0.47
CO ₂									
TOTAL	99.54	99.23	99.97	100.27	100.73	100.54	99.35	99.68	99.01
q	33.80	28.56	34.60	32.75	33.32	35.29	45.22	36.66	32.04
or	30.65	32.25	10.09	25.04	27.77	9.34	33.35	30.49	32.26
ab	26.09	21.46	33.07	30.92	31.57	31.48	13.27	28.64	24.64
an	4.40	7.61	14.41	6.71	4.46	15.96	0.58	2.12	5.43
c	0.74	2.18	1.69	1.12	0.18	1.67	6.01	0.03	0.62
di	-	-	-	-	-	-	-	-	-
hy	2.96	6.39	4.92	3.15	2.12	4.97	1.06	0.84	3.84
mt	0.56	0.43	0.54	0.03	0.25	0.54	0.22	0.83	0.29
il	0.63	0.85	0.42	0.19	0.19	0.44	0.02	0.33	0.66
ap	0.17	0.29	0.26	0.10	0.14	0.33	0.27	0.05	0.24
DI	90.5	82.3	77.8	88.7	92.7	76.1	91.9	95.8	88.9
CI	5.1	10.1	7.8	4.6	2.9	8.0	7.6	2.1	5.7

Mareeba Granite

- 68590047 Tourmaline-bearing, slightly foliated, porphyritic biotite adamellite, E55/2/4.
68590418 Biotite adamellite, E55/5/36.
68590419 Biotite microgranodiorite, E55/6/1.
68590083 Fluorite-bearing, porphyritic biotite granite E55/6/2.
68590085 Fluorite-bearing biotite adamellite, E55/6/4.
68590086 Foliated, garnetiferous biotite microadamellite, E55/6/5.
68590087 Quartz-feldspar-garnet-muscovite gneiss, E55/6/6. Probably a deformed pegmatite.
68590096 Foliated biotite granite, E55/6/16.
68590097 Foliated biotite adamellite, E55/6/17.

	6859 0047	6859 0418	6859 0419	6859 0083	6859 0085	6859 0086	6859 0087	6859 0096	6859 0097
Li	43	50	59	62	70	51	14	49	38
Be	2.5	3.0	2.5	5.0	5.5	2.5	100	3.5	2.5
F	-	-	-	1000	1000	-	-	-	-
Cr	-	-	5	-	-	-	-	-	-
Co	4	10	-	3	3	7	3	6	8
Ni	3	6	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	3
Cu	9	6	4	2	2	3	2	3	5
Zn	45	64	57	46	28	64	16	24	30
Ga	14	19	17	17	15	16	17	16	14
Rb	328	257	76	237	306	77	590	430	296
Sr	42	114	315	107	48	331	46	9	63
Y	57	51	10	42	51	10	12	66	37
Zr	207	166	150	83	83	161	11	131	137
Sn	6	5	-	n.d.	5	n.d.	18	10	n.d.
Ba	250	505	380	255	142	350	91	29	235
La	206	30	19	15	13	21	n.d.	50	41
Ce	52	58	39	36	38	30	n.d.	106	72
Pb	27	35	15	31	41	13	19	30	32
Th	13	22	6	14	19	7	n.d.	39	30
U	6	2	n.d.	3	6	2	n.d.	10	2
Mg/Li	44	92	53	21	10	63	13	12	82
Rb/Sr	7.8	2.3	0.24	2.2	6.4	0.30	12.8	48	4.7
K/Rb	130	174	184	148	128	171	78	99	151
Ba/Sr	6.0	4.4	1.21	2.4	3.0	1.06	1.98	3.2	3.7
Ba/Rb	0.76	1.96	5.0	1.08	0.46	4.5	0.154	0.067	0.79
K/Ba	170	88	37	137	280	38	510	1500	190
Ca/Sr	164	104	69	93	146	74	41	360	137
Ca/Y	120	230	2200	240	140	2400	160	48	230
K/Pb	1580	1270	930	1130	950	1020	2420	1420	1390
Th/U	2.2	11	-	4.7	3.2	3.5	-	3.9	15
K/U	7100	22000	-	12000	6500	6600	-	4300	22000
Al/Ga	4900	4100	4700	4400	4600	5100	4600	3900	5000
mg	0.22	0.30	0.26	0.20	0.14	0.26	0.07	0.13	0.32
k	0.53	0.59	0.22	0.43	0.45	0.22	0.70	0.50	0.55

	6859 0098	6859 0038	6859 0040	6859 0004	6859 0005	6859 0006	6859 0009
SiO ₂	67.4	68.9	72.4	64.6	75.6	65.3	71.4
TiO ₂	0.47	0.51	0.22	0.76	0.22	0.74	0.33
Al ₂ O ₃	16.42	15.16	14.94	14.78	12.56	15.28	14.37
Fe ₂ O ₃	0.49	0.44	0.20	0.42	0.07	0.69	0.29
FeO	2.80	2.85	1.27	4.50	1.45	4.05	2.40
MnO	0.06	0.07	0.05	0.09	0.03	0.09	0.05
MgO	0.83	1.45	0.43	3.28	0.25	2.56	0.85
CaO	1.93	2.87	1.34	4.56	0.78	4.56	2.55
Na ₂ O	3.3	2.75	3.2	2.35	3.55	2.8	2.65
K ₂ O	5.46	3.44	4.55	2.89	4.73	2.82	3.64
P ₂ O ₅	0.14	0.15	0.16	0.17	0.09	0.17	0.09
H ₂ O	0.83	0.84	0.77	0.78	0.63	0.64	0.68
CO ₂							
TOTAL	100.13	99.43	99.53	99.18	99.96	99.70	99.30
q	20.65	30.46	32.94	23.01	34.10	22.72	34.35
or	32.47	20.62	27.23	17.35	28.14	16.80	21.79
ab	28.10	23.51	27.33	20.19	30.40	24.14	22.79
an	8.72	13.45	5.67	21.59	3.30	20.84	12.22
c	1.92	2.10	2.75	-	0.37	-	1.66
dl	-	-	-	0.22	-	0.70	-
hy	6.15	7.82	2.98	15.09	2.92	11.90	5.87
mt	0.76	0.71	0.31	0.69	0.13	1.08	0.47
il	0.90	0.98	0.42	1.47	0.42	1.42	0.65
ap	0.33	0.36	0.38	0.41	0.21	0.41	0.22
DI	81.2	74.5	87.5	60.6	92.6	63.7	78.9
CI	10.1	12.0	6.8	17.9	4.1	15.5	8.9

Mareeba Granite

68590098 Biotite adamellite, E55/6/18.

68590038 Biotite adamellite, E55/1/11. From the mainly dioritic intrusions west of Curraghmore homestead.

Cannibal Creek Granite

68590040 Biotite-muscovite granite, E55/1/13.

Trevethan Granite

68590004 Actinolite-biotite granodiorite, D55/13/1.

68590005 Porphyritic rhyodacite dyke, D55/13/2.

68590006 Actinolite-biotite tonalite, D55/13/3.

Puckley Granite

68590009 Biotite adamellite, D55/13/7.

	6859 0098	6859 0038	6859 0040	6859 0004	6859 0005	6859 0006	6859 0009
Li	36	46	103	23	17	22	54
Be	4.5	3.5	8.0	2.0	5.0	3.0	3.5
F	-	-	-	-	-	-	-
Cr	15	-	-	-	-	-	-
Co	-	9	3	17	3	13	7
Ni	4	8	n.d.	20	n.d.	19	6
Cu	11	9	7	18	2	8	3
Zn	57	60	55	53	17	46	39
Ga	19	16	17	17	17	17	15
Rb	219	182	305	131	321	123	202
Sr	130	166	83	256	33	245	119
Y	35	25	21	29	44	27	33
Zr	179	139	94	180	136	154	120
Sn	-	n.d.	8	4	6	n.d.	7
Ba	570	335	250	395	65	340	385
La	29	22	7	27	16	26	24
Ce	53	38	22	47	31	46	42
Pb	39	24	30	12	24	10	30
Th	17	15	8	6	22	15	18
U	4	4	4	4	8	n.d.	3
Mg/Li	140	190	25	860	88	700	94
Rb/Sr	1.68	1.10	3.7	0.51	9.7	0.50	1.70
K/Rb	207	157	124	183	122	190	150
Ba/Sr	4.4	2.0	3.0	1.54	1.97	1.39	3.2
Ba/Rb	2.6	1.84	0.82	3.0	0.20	2.8	1.91
K/Ba	80	85	151	61	600	69	78
Ca/Sr	106	123	116	127	170	133	153
Ca/Y	390	820	460	1100	125	1200	550
K/Pb	1160	1190	1260	2000	1640	2340	1010
Th/U	4.3	3.8	2.0	1.5	2.8	-	6.0
K/U	11000	7200	9500	6000	4900	-	10000
Al/Ga	4600	5000	4700	4600	3900	4800	5100
mg	0.31	0.43	0.34	0.54	0.22	0.49	0.36
k	0.52	0.45	0.48	0.45	0.47	0.40	0.47

	6859 0414	6859 0007	6859 0008	6859 0010	6859 0011	6859 0012	6859 0001	6859 0002	6859 0003
SiO ₂	73.6	75.1	74.9	75.9	74.3	74.4	74.1	71.4	75.1
TiO ₂	0.30	0.28	0.23	0.11	0.32	0.24	0.25	0.45	0.23
Al ₂ O ₃	13.58	13.03	13.02	13.19	13.51	13.33	13.07	13.91	12.49
Fe ₂ O ₃	0.13	0.17	0.46	0.44	0.64	0.27	0.02	0.62	0.09
FeO	1.72	1.60	1.27	0.75	1.42	1.38	2.05	2.80	1.79
MnO	0.04	0.04	0.05	0.05	0.05	0.06	0.05	0.06	0.05
MgO	0.62	0.36	0.39	0.16	0.47	0.43	0.29	0.44	0.25
CaO	1.06	0.82	0.85	0.46	0.63	0.77	1.28	1.75	0.79
Na ₂ O	2.85	3.05	2.9	3.15	2.75	2.9	3.45	3.4	3.2
K ₂ O	4.98	5.09	4.53	4.90	4.43	4.82	4.48	4.49	4.65
P ₂ O ₅	0.16	0.09	0.16	0.18	0.23	0.17	0.05	0.09	0.09
H ₂ O	0.71	0.55	0.64	0.60	0.94	0.71	0.52	0.70	0.60
CO ₂									
TOTAL	99.75	100.18	99.40	99.89	99.69	99.48	99.61	100.11	99.33
q	34.35	34.85	38.69	37.94	39.78	36.63	32.49	28.80	36.10
or	29.71	30.18	27.09	29.14	26.52	28.82	26.70	26.68	27.82
ab	24.34	25.97	24.57	26.90	23.48	25.08	29.61	28.75	27.32
an	4.26	3.49	3.21	1.11	1.59	2.74	6.08	8.14	3.37
c	1.98	1.22	2.26	2.30	3.68	2.33	0.31	0.53	1.00
dl	-	-	-	-	-	-	-	-	-
hy	4.21	3.28	2.66	1.32	2.83	3.13	4.19	5.10	3.58
mt	0.20	0.28	0.69	0.66	0.97	0.41	0.03	0.95	0.16
il	0.58	0.53	0.44	0.21	0.62	0.46	0.48	0.86	0.44
ap	0.38	0.21	0.38	0.43	0.55	0.41	0.12	0.21	0.22
DI	88.4	91.0	90.4	94.0	89.8	90.5	88.8	84.2	91.2
CI	7.4	5.5	6.4	4.9	8.7	6.7	5.1	7.7	5.4

Finlayson Granite

68590414 Porphyritic biotite adamellite, D55/13/4.

68590007 Tourmaline, fluorite-bearing, porphyritic biotite microadamellite, D55/13/5.

68590008 Tourmaline-bearing, sheared, porphyritic microgranite dyke, D55/13/6.

68590010 Tourmaline-bearing, biotite granite, D55/13/8.

68590011 Tourmaline-bearing, foliated, porphyritic biotite adamellite, D55/13/9.

68590012 Tourmaline-bearing, sheared, porphyritic biotite granite, D55/13/10.

Altanmoul Granite

68590001 Biotite granite, D55/9/1.

68590002 Hornblende-biotite adamellite, D55/9/2.

68590003 Biotite granite, D55/9/3.

	6859 0414	6859 0607	6859 0008	6859 0610	6859 0011	6859 0012	6859 0001	6859 0002	6859 0003
Li	59	89	65	104	125	120	55	56	106
Be	2.0	5.5	3.5	4.0	3.0	3.0	3.5	3.0	10
F	-	1500	-	-	-	-	-	-	-
Cr	-	-	-	-	-	-	-	-	-
Co	4	3	5	n.d.	4	4	3	5	4
Ni	3	n.d.	3	3	4	4	4	3	n.d.
Cu	8	3	8	5	4	21	3	13	6
Zn	34	22	29	23	47	36	38	78	39
Ga	16	16	16	16	17	16	18	18	18
Rb	348	408	341	536	390	313	260	181	378
Sr	50	36	42	23	59	48	56	99	45
Y	36	50	35	25	30	72	64	49	53
Zr	124	163	100	53	135	113	169	387	165
Sn	9	17	16	12	26	17	7	6	18
Ba	230	119	106	73	149	148	280	895	174
La	18	15	12	n.d.	12	n.d.	36	45	19
Ce	38	46	29	7	29	26	68	91	45
Pb	25	25	20	20	23	37	33	24	30
Th	18	25	13	9	14	22	27	17	25
U	4	9	8	15	10	8	5	n.d.	5
Mg/Li	53	25	35	9	22	22	31	48	14
Rb/Sr	7.0	11.3	8.1	23	6.7	6.5	4.6	1.83	8.4
K/Rb	119	103	110	76	94	128	143	206	102
Ba/Sr	4.6	3.3	2.5	3.2	2.5	3.1	5.0	9.0	3.9
Ba/Rb	0.66	0.29	0.31	0.136	0.38	0.47	1.08	4.9	0.46
K/Ba	180	350	350	560	250	270	133	42	220
Ca/Sr	152	164	145	143	78	115	164	126	124
Ca/Y	210	120	175	290	150	76	145	255	105
K/Pb	1650	1690	1880	2040	1600	1080	1130	1550	1290
Th/U	4.5	2.8	1.6	0.6	1.4	2.8	5.4	-	5.0
K/U	10000	4700	4700	2700	3700	5000	7400	-	7700
Al/Ga	4500	4300	4300	4400	4200	4400	3900	4100	3700
mg	0.37	0.26	0.28	0.19	0.29	0.31	0.20	0.19	0.19
k	0.53	0.52	0.51	0.51	0.52	0.52	0.46	0.47	0.49

	6749 0073R	6749 0076	6749 0078	6749 0075	6749 0079R	6749 0080R	6859 0013	6859 0421
SiO ₂	44.7	44.0	44.6	62.0	74.0	70.7	53.3	74.6
TiO ₂	0.33	0.20	0.18	1.07	0.33	0.36	1.35	0.19
Al ₂ O ₃	26.06	23.15	26.32	15.11	13.91	14.14	17.39	12.91
Fe ₂ O ₃	2.74	2.82	1.47	2.67	1.35	0.94	3.80	1.14
FeO	3.65	3.90	3.45	3.55	0.60	2.15	3.90	0.60
MnO	0.10	0.11	0.08	0.09	0.01	0.09	0.11	0.03
MgO	5.11	7.67	6.28	1.91	0.18	0.52	4.47	0.13
CaO	14.73	14.35	14.08	4.00	0.26	1.86	5.08	0.67
Na ₂ O	1.0	1.0	0.95	3.05	3.4	4.6	2.4	3.65
K ₂ O	0.14	0.15	0.20	2.55	3.31	3.34	1.28	5.27
P ₂ O ₅	0.02	0.02	0.03	0.21	0.04	0.06	0.21	0.03
H ₂ O	1.26	2.26	1.58	2.70	2.17	1.23	2.08	0.59
CO ₂			0.2					
TOTAL	99.84	99.63	99.42	98.91	99.56	99.99	99.37	99.81
q	-	-	-	23.39	41.89	25.61	10.64	31.81
or	0.84	0.97	1.21	15.65	20.09	19.98	7.77	31.36
ab	8.66	8.68	8.38	26.72	29.62	39.73	20.86	31.27
an	67.08	59.74	68.32	19.19	1.01	7.97	33.81	3.15
c	-	-	-	0.60	4.48	-	-	0.03
di	5.49	10.49	1.23	-	-	0.83	8.76	-
hy	10.05	5.38	10.93	7.75	0.46	3.65	9.33	0.33
mt	4.10	4.26	2.22	4.08	1.04	1.41	5.72	1.49
il	0.64	0.41	0.35	2.11	0.64	0.69	2.61	0.36
ap	0.05	0.05	0.07	0.52	0.10	0.14	0.51	0.07
ol	3.10	10.03	6.83					
cc			0.46					
hm					0.68			0.13
DI	9.5	9.7	9.6	65.8	91.6	85.3	39.3	94.4
CI	23.4	30.6	22.1	15.1	7.4	6.7	26.9	2.4

Gurrumba Ring Complex

67490073R Olivine gabbro

67490076 Olivine gabbro

67490078 Olivine gabbro

67490075 Porphyritic andesite

67490079R Biotite microadamellite

67490080R Porphyritic rhyodacite (granophyre)

Newcastle Range Volcanics

68590013 Porphyritic augite andesite, E54/8/1

68590421 Porphyritic rhyodacite, E55/9/16

	6749 0073R	6749 0076	6749 0078	6749 0075	6749 0079R	6749 0080R	6859 0013	6859 0421
Li	3	1	2	48	4	22	12	26
Be	1.0	1.0	1.0	2.5	2.0	3.5	1.5	2.5
F	-	-	-	-	-	-	-	-
Cr	-	-	-	-	-	-	-	-
Co	-	-	-	-	-	-	28	8
Ni	13	25	35	n.d.	n.d.	n.d.	56	n.d.
Cu	10	8	7	13	7	10	48	3
Zn	40	41	41	76	22	83	72	56
Ga	15	14	15	20	17	16	18	18
Rb	6	5	8	97	167	182	39	161
Sr	411	376	411	309	103	148	298	43
Y	5	4	4	41	39	54	32	47
Zr	20	15	21	346	280	248	213	211
Sn	n.d.	n.d.	n.d.	n.d.	6	6	n.d.	n.d.
Ba	42	39	56	550	685	545	380	495
La	4	n.d.	n.d.	28	31	36	22	74
Ce	7	n.d.	n.d.	47	71	82	38	146
Pb	3	4	6	17	70	29	8	30
Th	n.d.	n.d.	n.d.	11	19	22	6	19
U	2	n.d.	n.d.	2	3	4	n.d.	2
Mg/Li	10000	50000	20000	240	280	140	2200	30
Rb/Sr	0.015	0.013	0.019	0.31	1.62	1.23	0.13	3.7
K/Rb	190	249	208	219	165	152	272	271
Ba/Sr	0.102	0.104	0.136	1.78	6.7	3.7	1.28	11.5
Ba/Rb	7	8	7	5.7	4.1	3.0	9.7	3.1
K/Ba	29	31	30	39	40	51	28	88
Ca/Sr	256	273	245	93	18.4	90	220	112
Ca/Y	21000	26000	25000	700	49	250	2000	100
K/Pb	390	310	280	1250	393	960	1330	1460
Th/U	-	-	-	5.5	6.3	5.5	-	9.5
K/U	~600	-	-	11000	9200	6900	-	22000
Al/Ga	9200	8800	9300	4000	4300	4700	5100	3800
mg	0.59	0.67	0.70	0.36	0.15	0.23	0.52	0.12
k	0.08	0.10	0.12	0.36	0.39	0.32	0.26	0.49

	7057 1171	7057 1172	7057 1193	7057 1200	7057 1201	7057 1202	7057 1203	7057 1204	7057 1205
SiO ₂	77.3	64.9	78.0	76.6	61.3	63.3	73.9	72.2	75.0
TiO ₂	0.08	0.84	0.10	0.14	0.76	0.79	0.22	0.22	0.17
Al ₂ O ₃	11.63	15.06	11.57	12.20	13.31	14.09	12.51	11.88	12.39
Fe ₂ O ₃	0.59	0.73	0.38	0.20	2.88	2.68	1.99	1.18	0.85
FeO	0.60	4.45	0.20	0.60	1.65	2.40	0.30	1.20	1.00
MnO	0.04	0.09	0.00	0.00	0.13	0.25	0.04	0.09	0.06
MgO	0.12	1.76	0.09	0.25	1.21	1.20	0.09	0.25	0.00
CaO	0.28	3.22	0.07	0.01	4.32	2.93	1.12	2.73	0.88
Na ₂ O	3.65	3.5	2.45	0.75	3.35	4.0	3.3	3.1	3.7
K ₂ O	4.88	3.52	5.39	7.87	4.09	3.47	4.70	3.13	4.57
P ₂ O ₅	0.00	0.20	0.01	0.03	0.20	0.21	0.04	0.05	0.01
H ₂ O	0.37	1.53	1.20	1.04	1.20	1.76	1.27	1.72	0.64
CO ₂					5.3	2.10	0.8	2.05	0.8
TOTAL	99.54	99.80	99.46	99.69	99.70	99.18	100.28	99.80	100.07
q	36.72	19.63	43.61	42.10	25.42	25.00	36.99	42.18	36.14
or	29.07	21.08	32.41	46.47	25.09	21.04	28.04	18.86	27.17
ab	31.21	30.18	21.09	6.34	29.24	34.81	28.01	26.56	31.40
an	0.91	14.84	0.29	0.00	0.00	0.00	0.24	0.26	0.00
c	-	0.14	1.63	3.09	3.58	3.88	1.96	3.40	1.66
di	0.42	-	-	-	-	-	-	-	-
hy	0.64	10.86	0.25	1.33	3.13	4.46	0.25	1.69	0.97
mt	0.88	1.16	0.36	0.31	3.67	3.99	0.46	1.74	1.24
il	0.15	1.62	0.19	0.27	1.50	1.54	0.42	0.43	0.32
ap	0.00	0.51	0.02	0.07	0.49	0.51	0.10	0.12	0.02
cc					7.55	4.90	1.84	4.75	1.55
hm			0.14		0.46		1.69		
DI	97.0	70.9	97.1	94.9	79.7	80.9	93.0	87.6	94.7
CI	2.1	14.3	2.6	5.1	20.4	19.3	6.7	12.1	5.7

Newcastle Range Volcanics

70571171 Porphyritic rhyolite welded tuff
 70571172 Porphyritic dacite
 70571193 Banded rhyolite
 70571200 Porphyritic rhyolite dyke
 70571201 Dacite welded tuff
 70571202 Porphyritic dacite welded tuff
 70571203 Rhyodacite welded tuff
 70571204 Rhyodacite welded tuff
 70571205 Porphyritic rhyodacite welded tuff

	7057 1171	7057 1172	7057 1193	7057 1200	7057 1201	7057 1202	7057 1203	7057 1204	7057 1205
Li	7	18	3	4	1	8	2	8	4
Be	3.5	2.5	1.5	2.0	3.0	2.0	1.5	2.0	2.5
F	-	-	-	-	-	-	-	-	-
Cr	5	40	4	3	13	13	4	4	6
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	13	n.d.	n.d.	6	6	n.d.	n.d.	n.d.
Cu	9	23	3	12	24	9	3	3	3
Zn	99	88	12	16	42	96	30	53	45
Ga	15	19	14	15	16	20	13	15	18
Rb	219	123	226	239	96	103	133	124	152
Sr	15	263	23	27	128	148	109	153	78
Y	70	38	54	40	39	41	39	39	52
Zr	147	348	198	156	311	327	193	226	263
Sn	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	109	915	570	490	810	1205	1390	960	1365
La	33	47	11	51	45	59	48	43	69
Ce	77	85	25	90	83	91	92	92	137
Pb	40	39	34	9	14	23	60	9	11
Th	27	15	19	33	21	17	16	19	19
U	5	2	n.d.	4	4	3	2	3	2
Mg/Li	100	590	180	380	7300	900	270	190	-
Rb/Sr	15	0.47	9.8	8.9	0.75	0.70	1.22	0.81	1.95
K/Rb	185	237	198	273	353	280	293	210	249
Ba/Sr	7.3	3.5	25	18	6.3	8.1	12.8	6.3	17.5
Ba/Rb	0.50	7.4	2.5	2.1	8.4	11.7	10.5	7.7	9.0
K/Ba	370	32	78	133	42	24	28	27	28
Ca/Sr	133	87	22	2.6	240	141	73	127	81
Ca/Y	29	610	9	~ 2	790	510	210	500	120
K/Pb	1010	750	1310	7300	2420	1250	650	2900	3400
Th/U	5.4	7.5	-	8.3	5.3	5.7	8	6.3	9.5
K/U	8100	15000	-	16000	8500	9600	20000	8700	19000
Al/Ga	4100	4200	4400	4300	4400	3700	5100	4200	3600
mg	0.15	0.37	0.25	0.36	0.33	0.30	0.08	0.16	0.00
k	0.47	0.40	0.59	0.87	0.45	0.36	0.49	0.40	0.45

	7057 1206	7057 1207	7057 1208	7057 1209	7057 1210	7057 1211	7057 1212	7057 1213	7057 1214
SiO ₂	75.3	77.7	76.3	66.4	66.9	67.0	62.2	65.5	76.4
TiO ₂	0.15	0.15	0.10	0.81	0.81	0.79	0.95	0.91	0.12
Al ₂ O ₃	12.06	11.88	12.03	14.35	14.29	14.24	13.79	14.57	12.29
Fe ₂ O ₃	0.14	0.31	0.97	3.72	3.24	2.90	4.05	2.21	1.36
FeO	1.60	1.10	0.20	1.35	1.70	2.10	2.60	3.20	0.20
MnO	0.08	0.02	0.04	0.06	0.12	0.10	0.07	0.10	0.00
MgO	0.14	0.00	0.04	0.92	0.89	1.07	1.20	1.28	0.03
CaO	0.34	0.29	0.08	1.85	1.55	2.48	2.71	2.39	0.12
Na ₂ O	3.6	5.3	3.0	3.25	4.35	3.85	6.8	3.3	5.55
K ₂ O	4.95	2.56	6.08	4.42	3.72	3.87	0.69	4.25	1.70
P ₂ O ₅	0.02	0.02	0.01	0.22	0.22	0.22	0.23	0.24	0.10
H ₂ O	0.66	0.53	0.64	1.74	1.42	1.39	1.31	1.96	0.77
CO ₂			0.10		0.45		3.15	0.2	
TOTAL	99.04	99.86	99.59	99.09	99.66	100.01	99.75	100.11	98.64
q	33.82	35.92	35.94	26.49	25.07	23.72	18.65	23.52	38.45
or	29.67	15.23	36.28	26.83	22.36	23.17	4.19	25.57	10.26
ab	31.04	45.38	25.80	28.33	37.43	33.25	59.39	28.34	47.95
an	1.58	0.95	0.00	7.93	3.42	10.15	0.00	9.19	0.00
c	0.21	-	0.60	1.41	1.91	-	1.89	1.28	1.37
di	-	0.38	-	-	-	0.68	-	-	-
hy	3.11	1.36	0.10	2.35	2.25	2.71	3.07	6.00	0.08
mt	0.24	0.47	0.49	2.26	3.58	4.29	6.02	3.32	0.30
il	0.29	0.29	0.19	1.58	1.57	1.52	1.85	1.76	0.23
ap	0.05	0.05	0.02	0.54	0.53	0.53	0.56	0.58	0.24
cc			0.23		1.04		4.44	0.46	
hm			0.64	2.27	0.84		0.01		1.18
DI	94.5	96.5	98.0	81.7	84.9	80.1	82.2	77.4	96.7
CI	3.9	2.6	2.3	10.4	11.7	9.7	17.8	13.4	3.4

Newcastle Range Volcanics

70571206 Porphyritic rhyodacite welded tuff
 70571207 Rhyodacite welded tuff
 70571208 Porphyritic rhyolite
 70571209 Porphyritic dacite
 70571210 Porphyritic dacite
 70571211 Porphyritic dacite
 70571212 Dacite welded tuff
 70571213 Porphyritic dacite
 70571214 Banded rhyolite

	7057 1206	7057 1207	7057 1208	7057 1209	7057 1210	7057 1211	7057 1212	7057 1213	7057 1214
Li	4	6	3	13	10	16	8	6	3
Be	3.0	2.5	10	3.0	3.0	2.5	3.0	2.5	2.5
F	-	-	-	-	-	1100	-	-	-
Cr	4	4	6	15	13	13	13	13	n.d.
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	5	n.d.	6	n.d.	4	6	n.d.
Cu	7	3	1	12	7	11	2	12	14
Zn	111	35	151	85	900	83	40	77	8
Ga	17	14	14	19	17	17	17	17	16
Rb	160	69	255	166	112	137	49	143	48
Sr	75	71	18	211	143	173	52	220	60
Y	52	48	100	43	42	45	38	44	46
Zr	232	195	113	321	327	343	303	325	207
Sn	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	13
Ba	1600	720	545	1095	1015	885	49	1290	360
La	72	72	135	63	67	53	51	51	41
Ce	145	96	97	109	122	99	82	99	100
Pb	55	15	63	28	28	23	4	12	4
Th	23	18	38	19	22	19	16	19	17
U	n.d.	n.d.	3	3	n.d.	3	2	2	2
Mg/Li	210	-	80	420	540	400	900	1300	60
Rb/Sr	2.1	0.97	14	0.79	0.78	0.79	0.94	0.65	0.80
K/Rb	257	307	198	221	276	234	116	247	294
Ba/Sr	21	10.1	30	5.2	7.1	5.1	0.94	5.9	6.0
Ba/Rb	10.0	10.4	2.1	6.6	9.1	6.5	1.0	9.0	7.5
K/Ba	26	29	93	34	30	36	116	27	39
Ca/Sr	32	30	32	63	78	102	370	78	14.3
Ca/Y	46	44	6	310	260	390	510	390	20
K/Pb	750	1410	800	1310	1100	1400	1430	2900	3500
Th/U	-	-	13	6.3	-	6.3	8	9.5	8.5
K/U	-	-	17000	12000	-	11000	2900	18000	7100
Al/Ga	3800	4500	4600	4000	4500	4400	4300	4500	4100
mg	0.12	0.00	0.06	0.26	0.25	0.28	0.25	0.30	0.04
k	0.47	0.24	0.57	0.47	0.36	0.40	0.06	0.40	0.16

	7057 1215	7057 1220	7057 1221	7057 1227	7057 1228	7057 1229	7057 1230	7057 1231
SiO ₂	74.1	72.5	71.7	66.3	69.9	76.3	76.3	76.6
TiO ₂	0.28	0.29	0.33	0.81	0.49	0.14	0.14	0.13
Al ₂ O ₃	11.97	13.58	13.75	14.49	13.73	12.20	12.04	12.12
Fe ₂ O ₃	2.55	0.97	0.36	2.40	1.71	0.82	1.61	1.13
FeO	0.35	1.35	2.18	2.40	2.00	0.90	0.25	0.85
MnO	0.01	0.07	0.05	0.09	0.08	0.04	0.02	0.02
MgO	0.40	0.22	0.43	1.16	0.64	0.16	0.07	0.04
CaO	0.18	1.41	1.92	1.83	2.67	0.56	0.22	0.31
Na ₂ O	2.65	4.0	3.3	3.7	3.2	4.1	3.9	4.1
K ₂ O	4.78	4.37	4.40	4.16	3.37	4.37	4.76	4.08
P ₂ O ₅	0.05	0.06	0.08	0.22	0.12	0.01	0.01	0.02
H ₂ O	1.93	0.71	1.00	1.54	1.43	0.44	0.61	0.60
CO ₂	0.05				0.3	0.15		
TOTAL	99.30	99.53	99.49	99.10	99.64	100.19	99.92	100.00
q	40.75	29.18	30.33	23.82	32.72	34.14	35.26	36.20
or	29.02	26.11	26.39	25.18	20.28	25.87	28.34	24.25
ab	23.03	34.21	28.07	32.15	27.56	35.17	32.98	35.20
an	0.26	6.27	9.14	7.76	10.76	1.77	1.10	1.37
c	2.41	-	0.32	1.14	0.97	-	0.13	0.38
di	-	0.34	-	-	-	-	-	-
hy	1.02	1.73	4.37	4.22	3.23	1.21	0.18	0.55
mt	0.33	1.45	0.56	3.61	2.55	1.21	0.47	1.65
il	0.55	0.56	0.64	1.58	0.95	0.27	0.25	0.25
ap	0.12	0.14	0.19	0.56	0.29	0.02	0.02	0.05
cc	0.12				0.69	0.34		
hm	2.41						1.30	
DI	92.8	89.5	84.8	81.2	80.6	95.2	96.6	95.8
CI	7.0	4.2	6.1	11.1	8.7	3.1	2.4	2.9

Newcastle Range Volcanics

70571215 Porphyritic rhyodacite

70571220 Porphyritic rhyodacite welded tuff

70571221 Rhyodacite welded tuff

70571227 Porphyritic dacite

70571228 Rhyodacite

70571229 Rhyolite welded tuff

70571230 Rhyolite welded tuff

70571231 Rhyolite welded tuff

	7057 1215	7057 1220	7057 1221	7057 1227	7057 1228	7057 1229	7057 1230	7057 1231
Li	3	11	13	17	13	2	2	4
Be	2.0	3.0	3.5	2.0	2.0	2.5	2.0	3.0
F	-	-	-	-	-	-	-	-
Cr	6	6	8	8	8	n.d.	3	n.d.
Co	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	n.d.	4	3	n.d.	n.d.	n.d.
Cu	4	4	1	9	6	1	1	1
Zn	27	51	51	69	66	58	65	52
Ga	15	17	18	18	18	18	18	18
Rb	173	130	155	158	110	143	158	133
Sr	64	147	129	309	235	75	77	109
Y	37	40	41	45	41	56	76	56
Zr	164	222	237	350	315	277	257	268
Sn	4	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ba	420	735	775	1075	960	1685	2010	1735
La	39	46	54	55	76	82	170	97
Ce	78	90	98	103	148	156	205	167
Pb	14	37	38	25	24	27	22	25
Th	42	27	26	19	19	25	22	22
U	3	n.d.	2	2	n.d.	3	n.d.	2
Mg/Li	800	120	200	410	300	500	210	45
Rb/Sr	2.7	0.88	1.20	0.51	0.47	1.91	2.10	1.22
K/Rb	229	279	235	218	255	254	250	255
Ba/Sr	6.6	5.0	6.0	3.5	4.1	22	26	15.9
Ba/Rb	2.4	5.7	5.0	6.8	8.7	11.8	12.7	13.0
K/Ba	95	49	47	32	29	22	19.7	19.5
Ca/Sr	20	69	106	42	81	53	21	20
Ca/Y	35	250	330	290	470	71	21	39
K/Pb	2840	980	960	1380	1170	1340	1800	1360
Th/U	14	-	13	9.5	-	8.3	-	11
K/U	13000	-	18000	17000	-	12000	-	17000
Al/Ga	4200	4200	4100	4300	4000	3600	3500	3600
mg	0.21	0.15	0.23	0.31	0.24	0.14	0.07	0.04
k	0.54	0.42	0.47	0.42	0.41	0.41	0.45	0.39

	6749 0030R	6749 0031R	6749 0032R	6749 0033R	6749 0034R	6749 0035R	6749 0041R	6749 0042R	6849 00188
SiO ₂	70.7	72.7	74.5	73.1	69.5	70.5	71.9	71.8	74.3
TiO ₂	0.33	0.27	0.18	0.28	0.37	0.36	0.23	0.28	0.22
Al ₂ O ₃	14.59	13.87	13.26	13.62	14.45	14.61	14.20	13.26	12.91
Fe ₂ O ₃	0.90	0.82	0.10	0.68	1.02	0.67	0.56	0.50	0.03
FeO	1.65	1.25	1.27	1.40	1.90	2.00	1.30	1.70	1.70
MnO	0.05	0.03	0.04	0.04	0.05	0.05	0.03	0.05	0.03
MgO	0.56	0.44	0.33	0.40	0.75	0.64	0.42	0.33	0.30
CaO	2.46	1.81	1.21	2.04	1.75	2.29	1.63	1.84	1.33
Na ₂ O	3.45	3.25	3.6	3.35	3.9	3.45	3.2	2.2	3.2
K ₂ O	4.24	4.44	4.33	4.28	4.00	4.13	4.63	4.52	4.52
P ₂ O ₅	0.06	0.05	0.07	0.04	0.06	0.06	0.04	0.04	0.03
H ₂ O	0.61	1.15	0.53	0.69	1.47	0.67	1.20	1.74	0.70
CO ₂									
TOTAL	99.60	100.08	99.42	99.92	99.22	99.43	99.34	98.32	99.27
q	28.02	32.27	33.49	31.99	26.28	28.07	31.20	37.69	34.32
or	25.30	26.52	25.87	25.49	24.16	24.69	27.85	27.65	27.10
ab	29.38	27.70	30.87	28.56	33.98	29.61	27.90	19.18	27.55
an	11.93	8.75	5.61	9.57	8.47	11.10	7.97	9.18	6.50
c	0.02	0.57	0.61	-	0.63	0.44	1.01	1.57	0.39
dl	-	-	-	0.27	-	-	-	-	-
hy	3.25	2.34	2.86	2.49	4.08	4.24	2.67	3.20	3.57
mt	1.33	1.22	0.18	1.02	1.53	1.01	0.84	0.87	0.07
il	0.63	0.52	0.35	0.54	0.72	0.69	0.46	0.55	0.42
ap	0.14	0.12	0.17	0.10	0.15	0.14	0.10	0.10	0.07
DI	82.7	86.5	90.2	86.0	84.4	82.4	87.0	84.5	89.0
CI	5.4	4.8	4.2	4.4	7.1	6.5	5.1	6.3	4.5

Featherbed Volcanics

67490030R Porphyritic rhyodacite welded tuff.
 67490031R Porphyritic rhyodacite welded tuff.
 67490032R Porphyritic rhyodacite welded tuff.
 67490033R Porphyritic rhyodacite welded tuff.
 67490034R Porphyritic rhyodacite.
 67490035R Slightly porphyritic rhyodacite.
 67490041R Porphyritic rhyodacite welded tuff.
 67490042R Porphyritic rhyodacite welded tuff.
 684900188 Rhyodacite, DB188.

	6749 0030R	6749 0031R	6749 0032R	6749 0033R	6749 0034R	6749 0035R	6749 0041R	6749 0042R	6849 0018B
Li	21	20	29	21	23	13	51	13	17
Be	2.5	3.0	7.5	2.5	3.0	3.0	3.0	2.5	2.0
F	-	-	-	-	-	-	-	-	-
Cr	5	5	-	n.d.	5	n.d.	n.d.	n.d.	3
Co	-	-	3	-	-	-	-	-	-
Ni	n.d.	3	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	5	5	3	4	16	5	6	7	137
Zn	32	31	33	29	31	35	31	48	26
Ga	15	15	17	15	17	17	15	18	15
Rb	213	239	349	223	212	195	248	199	260
Sr	116	105	52	101	120	133	97	91	88
Y	44	47	53	43	48	48	47	38	46
Zr	172	142	136	154	174	181	147	212	136
Sn	-	-	4	-	-	-	-	-	1000
Ba	425	385	179	400	405	430	400	785	285
La	43	44	32	40	43	43	41	45	41
Ce	78	84	50	75	82	94	85	95	89
Pb	20	21	42	21	16	22	21	16	489
Th	27	34	27	32	31	32	35	18	38
U	6	5	10	5	5	5	8	2	6
Mg/Li	160	140	69	110	200	300	49	150	110
Rb/Sr	1.84	2.3	6.7	2.2	1.77	1.47	2.6	2.2	3.0
K/Rb	165	154	103	160	157	176	155	188	144
Ba/Sr	3.7	3.7	3.4	4.0	3.4	3.2	4.1	8.6	3.2
Ba/Rb	2.0	1.61	0.51	1.79	1.91	2.2	1.61	3.9	1.10
K/Ba	83	96	200	89	82	80	96	48	132
Ca/Sr	152	123	165	145	104	123	121	144	108
Ca/Y	400	270	160	340	260	340	250	340	210
K/Pb	1760	1750	860	1700	2080	1560	1830	2340	77
Th/U	4.5	6.8	2.7	6.4	6.2	6.4	4.4	9	6.2
K/U	5900	7400	3600	7100	6600	6900	4800	19000	6300
Al/Ga	5200	4900	4100	4800	4500	4600	5000	3900	4600
mg	0.28	0.28	0.29	0.26	0.32	0.30	0.29	0.21	0.23
k	0.45	0.47	0.44	0.46	0.40	0.44	0.48	0.58	0.48

	6849 0018C	6849 0019	6849 0173	6849 0175A	6849 0175B	6849 0175C	6849 0175D	6849 0175E	6859 0070
SiO ₂	73.8	72.4	71.3	71.6	72.1	68.0	71.0	73.8	71.6
TiO ₂	0.22	0.29	0.30	0.35	0.32	0.43	0.27	0.22	0.29
Al ₂ O ₃	12.97	13.30	14.32	14.25	14.46	15.97	14.28	13.59	13.62
Fe ₂ O ₃	0.46	0.85	0.51	0.77	0.95	1.28	0.46	0.62	0.91
FeO	1.35	1.49	1.75	1.85	1.50	1.75	1.35	1.25	1.31
MnO	0.03	0.04	0.04	0.05	0.05	0.15	0.03	0.04	0.03
MgO	0.40	0.62	0.44	0.56	0.57	0.68	0.41	0.37	0.41
CaO	1.51	2.02	1.93	2.55	2.37	3.05	1.57	1.59	1.88
Na ₂ O	3.45	3.05	3.85	3.5	3.6	3.3	3.7	3.3	3.2
K ₂ O	4.45	4.03	4.24	3.82	4.11	4.40	4.56	4.59	4.47
P ₂ O ₅	0.03	0.06	0.05	0.06	0.05	0.07	0.05	0.03	0.05
H ₂ O	0.63	1.17	0.88	0.72	0.59	1.39	1.17	0.64	1.13
CO ₂		0.9							0.45
TOTAL	99.30	100.22	99.61	100.08	100.67	100.49	98.85	100.04	99.35
q	32.72	36.24	27.14	29.69	29.13	24.22	28.17	32.77	32.59
or	26.65	24.03	25.37	22.71	24.28	26.23	27.60	27.29	26.88
ab	29.57	26.04	33.23	29.87	30.18	27.99	31.88	28.00	27.63
an	6.83	3.98	9.26	11.92	11.30	14.80	7.64	7.74	6.26
c	-	2.50	-	-	-	0.44	0.57	0.40	1.27
dl	0.47	-	0.09	0.34	0.11	-	-	-	-
hy	2.58	3.18	3.45	3.50	2.88	3.43	2.78	2.40	2.27
mt	0.69	1.26	0.78	1.17	1.41	1.90	0.71	0.92	1.37
il	0.42	0.58	0.58	0.67	0.61	0.82	0.53	0.42	0.56
ap	0.07	0.14	0.12	0.14	0.12	0.17	0.12	0.07	0.12
cc		2.07							1.04
DI	88.9	86.3	85.7	82.3	83.6	78.4	87.7	88.1	87.1
CI	4.2	9.7	5.0	5.8	5.1	6.8	4.7	4.2	6.6

Featherbed Volcanics

68490018C Porphyritic rhyodacite, DB18C.
 68490019 Porphyritic rhyodacite, DB19.
 68490173 Porphyritic rhyodacite welded tuff, DB173.
 68490175A Porphyritic rhyodacite welded tuff, DB175A.
 68490175B Porphyritic rhyodacite welded tuff, DB175B.
 68490175C Porphyritic rhyodacite, DB175C.
 68490175D Slightly porphyritic rhyodacite, DB175D.
 68490175E Porphyritic rhyodacite welded tuff, DB175E.
 68590070 Porphyritic rhyodacite welded tuff, E55/5/27.

	6849 0018C	6849 0019	6849 0173	6849 0175A	6849 0175B	6849 0175C	6849 0175D	6849 0175E	6859 0070
Li	16	22	20	11	18	29	14	11	27
Be	3.0	2.5	3.0	2.5	3.5	3.5	2.5	3.5	2.0
F	-	-	-	-	-	-	-	-	-
Cr	5	-	n.d.	5	5	5	5	n.d.	-
Co	-	7	-	-	-	-	-	-	7
Ni	n.d.	3	n.d.	3	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	3	3	5	5	4	9	1	3	4
Zn	23	37	31	30	33	36	19	28	28
Ga	15	15	16	16	16	18	17	15	14
Rb	248	232	225	166	211	290	221	266	194
Sr	86	94	114	134	119	146	89	84	154
Y	45	50	50	42	46	42	48	49	39
Zr	133	161	177	175	158	196	171	137	149
Sn	-	n.d.	-	-	-	-	-	-	n.d.
Ba	320	365	410	425	410	540	385	280	465
La	42	51	45	36	38	35	42	36	42
Ce	87	79	92	79	83	84	86	88	73
Pb	16	15	26	20	21	24	14	23	14
Th	38	39	32	26	30	24	35	40	27
U	8	7	7	6	6	4	7	7	6
Mg/Li	150	170	140	310	190	140	180	200	93
Rb/Sr	2.9	2.5	1.97	1.24	1.77	1.99	2.5	3.2	1.26
K/Rb	149	144	156	191	162	126	171	143	191
Ba/Sr	3.7	3.9	3.6	3.2	3.4	3.7	4.3	3.3	3.0
Ba/Rb	1.29	1.57	1.82	2.6	1.94	1.86	1.74	1.05	2.4
K/Ba	115	92	86	75	83	68	98	136	80
Ca/Sr	126	153	121	136	142	149	126	136	87
Ca/Y	240	290	280	430	370	520	230	230	340
K/Pb	2310	2230	1350	1590	1620	1520	2710	1660	2650
Th/U	4.8	5.6	4.6	4.3	5.0	6.0	5.0	5.7	4.5
K/U	4600	4800	5000	5300	5700	9100	5400	5400	6200
Al/Ga	4600	4700	4800	4700	4800	4700	4500	4800	5200
mg	0.28	0.32	0.26	0.28	0.30	0.28	0.29	0.26	0.25
k	0.46	0.47	0.42	0.42	0.43	0.47	0.45	0.48	0.48

	6859 0073	6859 0082	7057 1000	7057 1001	7057 1005	7057 1006	7057 1007	7057 1009	7057 1010
SiO ₂	71.9	72.3	73.9	73.3	76.6	72.4	75.3	70.9	76.6
TiO ₂	0.27	0.27	0.21	0.22	0.10	0.36	0.18	0.32	0.09
Al ₂ O ₃	14.14	14.10	13.45	13.68	12.51	12.91	11.97	14.83	12.24
Fe ₂ O ₃	0.58	0.65	0.26	0.17	0.35	0.73	1.17	0.86	0.33
FeO	1.72	1.49	1.50	1.60	0.70	2.30	0.80	1.35	0.70
MnO	0.05	0.04	0.04	0.04	0.03	0.06	0.03	0.04	0.03
MgO	0.70	0.45	0.39	0.41	0.14	0.40	0.10	0.55	0.14
CaO	2.81	2.22	1.34	1.52	0.90	1.49	0.86	2.89	0.86
Na ₂ O	2.8	3.3	3.25	3.2	3.35	3.0	3.0	3.6	3.4
K ₂ O	3.95	4.29	4.75	4.75	5.02	4.96	5.38	3.40	4.94
P ₂ O ₅	0.03	0.05	0.03	0.04	0.01	0.07	0.03	0.07	0.01
H ₂ O	0.80	0.71	1.01	1.10	0.52	0.95	0.70	1.59	0.61
CO ₂			0.1	0.2	0.25		0.15	0.2	
TOTAL	99.75	99.87	100.23	100.23	100.48	99.63	99.67	100.60	99.95
q	32.66	30.94	32.95	32.53	35.97	31.34	36.24	30.29	35.81
or	23.56	25.57	28.28	28.30	29.67	29.68	32.08	20.28	29.38
ab	24.17	27.99	27.70	27.21	28.51	25.78	25.40	30.91	29.03
an	13.87	10.78	5.86	6.07	2.82	7.02	3.16	12.73	3.53
c	0.18	0.15	0.84	1.10	0.50	0.05	0.13	0.58	-
dl	-	-	-	-	-	-	-	-	0.59
hy	4.09	2.96	3.25	3.54	1.23	4.16	0.52	2.69	0.96
mt	0.88	0.98	0.41	0.28	0.52	1.12	1.72	1.29	0.50
il	0.52	0.52	0.40	0.42	0.19	0.69	0.35	0.61	0.17
ap	0.07	0.12	0.07	0.10	0.02	0.17	0.07	0.17	0.02
cc			0.23	0.46	0.57		0.34	0.46	
DI	80.4	84.5	88.9	88.0	94.2	86.8	93.7	81.5	94.2
CI	5.7	4.7	5.2	5.9	3.0	6.2	3.1	5.8	2.2

Featherbed Volcanics

68590073 Porphyritic rhyodacite welded tuff, E55/5/30.
 68590082 Porphyritic rhyodacite welded tuff, E55/5/47.
 70571000 Porphyritic rhyodacite welded tuff.
 70571001 Porphyritic rhyodacite welded tuff.
 70571005 Porphyritic rhyolite.
 70571006 Porphyritic rhyodacite.
 70571007 Porphyritic rhyolite.
 70571009 Recrystallized, porphyritic rhyodacite.
 70571010 Porphyritic rhyolite.

	6859 0073	6859 0082	7057 1000	7057 1001	7057 1005	7057 1006	7057 1007	7057 1009	7057 1010
Li	19	19	24	25	16	32	37	20	15
Be	2.0	2.0	2.5	2.5	1.5	2.5	3.0	1.5	2.5
F	-	1000	-	-	500	600	600	-	500
Cr	-	-	3	3	n.d.	8	3	3	3
Co	9	6	-	-	-	-	-	-	-
Ni	3	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	5	3	4	4	1	11	7	4	3
Zn	39	31	27	25	13	72	68	33	16
Ga	11	14	16	15	14	20	20	14	12
Rb	223	216	302	301	261	206	272	143	265
Sr	143	110	107	108	53	93	53	226	50
Y	22	44	54	53	34	52	70	21	35
Zr	105	143	138	145	86	339	227	195	89
Sn	5	n.d.	-	-	-	-	-	-	-
Ba	360	370	310	325	390	855	460	845	360
La	32	40	40	49	34	56	90	44	30
Ce	49	71	85	92	62	119	208	98	64
Pb	13	19	23	23	19	27	36	14	19
Th	39	29	41	42	37	24	36	22	37
U	9	6	8	7	6	5	5	4	5
Mg/Li	220	140	96	100	53	75	16	170	56
Rb/Sr	1.56	1.96	2.8	2.8	4.9	2.2	5.1	0.63	5.3
K/Rb	147	165	130	131	160	200	164	197	155
Ba/Sr	2.5	3.4	2.9	3.0	7.4	9.2	8.7	3.7	7.2
Ba/Rb	1.61	1.71	1.03	1.08	1.49	4.2	1.69	5.9	1.36
K/Ba	91	96	127	121	107	48	97	33	114
Ca/Sr	141	145	90	101	121	114	115	91	122
Ca/Y	910	360	180	210	190	200	87	980	175
K/Pb	2520	1870	1710	1710	2190	1530	1240	2010	2160
Th/U	4.3	4.8	5.1	6.0	6.2	4.8	7.2	5.5	7.4
K/U	3600	5900	4900	5600	7000	8200	8900	7100	8200
Al/Ga	6800	5300	4500	4800	4700	3400	3200	5600	5400
mg	0.35	0.27	0.28	0.29	0.19	0.19	0.09	0.31	0.19
k	0.48	0.46	0.49	0.49	0.50	0.52	0.54	0.38	0.49

	7057 1011	7057 1013	7057 1014	7057 1015	7057 1019	7057 1020	7057 1021	7057 1024	7057 1025
SiO ₂	63.5	73.1	66.3	70.4	72.0	71.9	71.2	74.9	74.8
TiO ₂	0.55	0.27	0.58	0.32	0.29	0.31	0.31	0.27	0.16
Al ₂ O ₃	15.55	13.51	15.30	14.55	13.54	13.35	13.56	12.13	11.97
Fe ₂ O ₃	2.88	0.76	2.58	0.86	0.82	0.74	0.83	0.98	0.33
FeO	2.75	1.75	2.40	1.65	1.60	1.65	1.55	1.40	1.20
MnO	0.09	0.06	0.11	0.05	0.13	0.05	0.04	0.05	0.02
MgO	2.65	0.66	1.59	0.80	0.50	0.57	0.58	0.08	0.03
CaO	4.98	1.90	4.95	3.13	1.24	1.78	2.08	1.12	0.81
Na ₂ O	2.65	2.8	3.0	2.9	3.45	3.4	3.5	2.75	2.35
K ₂ O	3.22	4.04	2.26	3.83	4.41	4.29	4.08	5.13	5.99
P ₂ O ₅	0.08	0.06	0.10	0.05	0.05	0.05	0.05	0.04	0.01
H ₂ O	1.72	1.30	1.00	0.84	1.10	1.25	1.10	1.23	1.05
CO ₂			0.2		0.45	0.75	0.55	0.05	0.55
TOTAL	100.62	100.21	100.37	99.38	99.58	100.09	99.43	100.13	99.27
q	21.48	35.63	27.81	30.82	32.58	32.91	31.33	36.79	37.90
or	19.23	24.11	13.43	22.95	26.44	25.65	24.50	30.63	36.01
ab	22.57	24.26	25.52	24.79	29.69	28.84	30.09	23.51	20.23
an	21.31	9.12	21.73	15.41	3.02	3.81	6.62	5.03	0.48
c	-	1.17	-	0.08	2.01	1.81	1.02	0.23	1.47
di	2.45	-	0.83	-	-	-	-	-	-
hy	7.42	3.93	5.09	3.91	3.30	3.45	3.20	1.61	1.80
mt	4.27	1.13	3.81	1.29	1.24	1.10	1.25	1.47	0.50
il	1.06	0.52	1.11	0.62	0.56	0.60	0.60	0.52	0.31
ap	0.22	0.14	0.24	0.12	0.12	0.12	0.12	0.10	0.02
cc			0.46		1.04	1.73	1.27	0.11	1.27
DI	63.3	84.0	66.8	78.6	88.7	87.4	85.9	90.9	94.1
CI	15.4	6.9	11.5	6.0	8.3	8.8	7.5	4.0	5.4

Featherbed Volcanics

70571011	Porphyritic hornblende - biotite dacite.
70571013	Porphyritic rhyodacite welded tuff.
70571014	Porphyrite arfvedsonite-biotite dacite welded tuff.
70571015	Porphyritic rhyodacite welded tuff.
70571019	Porphyritic rhyodacite welded tuff.
70571020	Porphyritic rhyodacite.
70571021	Porphyritic rhyodacite welded tuff.
70571024	Porphyritic rhyodacite welded tuff.
70571025	Porphyritic rhyodacite welded tuff.

	7057 1011	7057 1013	7057 1014	7057 1015	7057 1019	7057 1020	7057 1021	7057 1024	7057 1025
Li	13	26	11	19	19	13	20	25	23
Be	1.5	2.5	2.5	1.5	2.0	2.5	1.5	3.5	3.0
F	-	-	-	-	-	-	-	-	800
Cr	34	4	9	6	3	3	3	4	19
Co	-	-	-	-	-	-	-	-	-
Ni	9	n.d.	n.d.	4	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	4	4	15	7	5	4	4	8	7
Zn	55	43	61	31	209	50	25	67	65
Ga	14	16	16	12	14	14	15	18	20
Rb	182	224	87	197	205	217	198	224	347
Sr	171	151	188	160	180	117	160	88	63
Y	32	44	36	25	45	48	42	58	78
Zr	127	146	134	103	149	162	155	268	204
Sn	-	-	-	-	-	-	-	-	-
Ba	325	820	310	480	430	465	450	645	665
La	31	47	25	30	41	52	62	62	63
Ce	58	91	54	41	84	84	90	131	122
Pb	16	23	15	16	19	19	15	30	41
Th	25	22	19	34	30	35	28	26	39
U	5	4	6	8	4	4	6	4	9
Mg/Li	1200	160	870	250	160	260	180	19	8
Rb/Sr	1.06	1.48	0.46	1.23	1.14	1.85	1.24	2.6	5.5
K/Rb	147	150	216	161	179	164	171	190	143
Ba/Sr	1.90	5.4	1.65	3.0	2.4	4.0	2.8	7.3	10.6
Ba/Rb	1.79	3.7	3.6	2.4	2.1	2.1	2.3	2.9	1.92
K/Ba	82	41	61	66	85	77	75	66	75
Ca/Sr	208	90	188	140	49	109	93	91	92
Ca/Y	1100	310	980	900	200	260	350	140	74
K/Pb	1670	1460	1250	1990	1930	1870	2260	1420	1210
Th/U	5.0	5.5	3.2	4.3	7.5	8.8	4.7	6.5	4.3
K/U	5300	8400	3100	4000	9200	8900	5700	11000	5500
Al/Ga	5900	4500	5100	6400	5100	5100	4800	3600	3200
mg	0.46	0.32	0.37	0.36	0.26	0.30	0.30	0.06	0.03
k	0.45	0.48	0.33	0.47	0.46	0.46	0.43	0.55	0.63

	7057 1026	7057 1027	7057 1028	7057 1029	7057 1030	7057 1038	7057 1039	7057 1040
SiO ₂	77.2	76.9	76.6	73.0	73.0	69.6	77.9	80.9
TiO ₂	0.15	0.13	0.13	0.41	0.36	0.38	0.03	0.03
Al ₂ O ₃	12.84	11.40	11.53	13.23	13.05	14.30	12.98	12.11
Fe ₂ O ₃	0.30	0.61	0.97	0.50	0.55	1.08	0.29	0.84
FeO	0.25	0.60	0.55	2.55	2.40	2.45	0.35	0.35
MnO	0.00	0.02	0.02	0.05	0.06	0.19	0.03	0.04
MgO	0.04	0.03	0.23	0.39	0.41	0.58	0.13	0.08
CaO	0.06	0.86	0.80	1.44	1.36	1.95	0.07	0.03
Na ₂ O	4.55	2.4	2.9	3.1	2.95	3.15	3.4	0.13
K ₂ O	4.46	5.40	5.41	5.02	5.01	3.54	4.51	3.62
P ₂ O ₅	0.01	0.01	0.01	0.07	0.07	0.08	0.01	0.00
H ₂ O	1.05	0.94	0.71	0.93	0.98	1.83	1.17	2.15
CO ₂		0.4	0.3					
TOTAL	100.91	99.70	100.16	100.69	100.20	99.13	100.87	100.28
q	33.40	41.83	38.25	30.87	31.98	32.36	40.35	67.37
or	26.37	32.31	32.13	29.74	29.81	21.49	26.70	21.79
ab	38.77	20.56	24.40	26.03	25.22	27.29	29.07	1.12
an	0.23	1.69	2.02	6.70	6.33	9.40	0.28	0.15
c	0.40	1.01	0.22	0.30	0.46	2.01	2.36	8.07
dl	-	-	-	-	-	-	-	-
hy	0.10	0.48	0.61	4.64	4.50	4.89	0.73	0.20
mt	0.37	0.91	1.41	0.77	0.85	1.64	0.44	1.19
il	0.29	0.27	0.25	0.78	0.69	0.74	0.06	0.06
ap	0.02	0.02	0.02	0.17	0.17	0.19	0.02	0.00
cc		0.92	0.69					
hm	0.05							0.04
DI	98.5	94.7	94.8	86.6	87.0	81.1	96.1	90.3
CI	1.2	3.6	3.2	6.7	6.7	9.5	3.6	9.6

Featherbed Volcanics

- 70571026 Porphyritic rhyolite welded tuff.
 70571027 Porphyritic rhyolite.
 70571028 Porphyritic rhyolite.
 70571029 Porphyritic rhyodacite.
 70571030 Porphyritic rhyodacite.
 70571038 Porphyritic rhyodacite welded tuff.
 70571039 Porphyritic rhyolite welded tuff.
 70571040 Altered, slightly porphyritic, banded rhyolite.

	7057 1026	7057 1027	7057 1028	7057 1029	7057 1030	7057 1038	7057 1039	7057 1040
Li	7	24	38	7	30	20	29	24
Be	2.0	4.0	5.0	3.5	3.5	2.5	6.0	4.0
F	-	-	1100	-	-	-	-	-
Cr	6	3	3	10	8	3	n.d.	n.d.
Co	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	n.d.	3	n.d.	n.d.	n.d.	n.d.
Cu	7	8	6	10	10	4	8	4
Zn	29	65	68	70	67	51	61	36
Ga	16	19	21	20	20	14	23	25
Rb	213	314	315	226	210	142	567	424
Sr	43	22	25	97	93	165	11	3
Y	44	82	86	56	53	27	100	59
Zr	281	212	214	350	341	179	69	78
Sn	-	-	-	-	-	-	-	-
Ba	590	325	335	785	845	685	52	7
La	36	60	67	59	60	48	n.d.	4
Ce	64	136	145	131	131	75	17	43
Pb	13	41	43	32	30	15	57	49
Th	31	41	40	25	23	24	33	42
U	4	6	6	5	4	3	5	4
Mg/Li	34	8	37	85	83	180	27	20
Rb/Sr	5.0	14	13	2.3	2.26	0.86	52	140
K/Rb	174	143	143	185	198	207	66	71
Ba/Sr	13.7	14.8	13.4	8.1	9.1	4.2	4.7	2.3
Ba/Rb	2.8	1.04	1.06	3.5	4.0	4.8	0.092	0.017
K/Ba	63	138	134	53	49	43	720	4300
Ca/Sr	10.0	280	230	106	104	84	46	72
Ca/Y	9	74	66	185	185	510	5	3
K/Pb	2800	1090	1040	1300	1390	1960	660	610
Th/U	7.8	6.8	6.7	5.0	5.8	8.0	6.6	10.5
K/U	9300	7500	7500	8300	10000	9800	7500	7500
Al/Ga	4300	3200	2900	3500	3500	5400	3000	2600
mg	0.12	0.04	0.22	0.18	0.20	0.22	0.26	0.11
k	0.39	0.60	0.55	0.52	0.53	0.43	0.46	0.95

	6749 0055R	6749 0056R	6749 0057R	6749 0058R	6749 0059R	6749 0060R	6749 0065R	6749 0066R
SiO ₂	76.9	76.5	71.8	71.8	71.7	75.2	76.7	68.7
TiO ₂	0.10	0.09	0.23	0.19	0.22	0.02	0.11	0.61
Al ₂ O ₃	12.40	12.18	13.55	13.54	13.59	13.37	12.55	13.73
Fe ₂ O ₃	0.29	0.07	0.29	0.10	0.30	0.00	0.73	1.86
FeO	0.93	1.01	1.79	1.79	1.79	0.86	0.26	2.15
MnO	0.03	0.03	0.05	0.03	0.03	0.03	0.01	0.06
MgO	0.10	0.09	0.35	0.22	0.43	0.08	0.02	0.85
CaO	0.27	0.28	1.55	1.50	1.63	0.60	0.17	2.35
Na ₂ O	3.6	3.45	3.35	3.55	3.65	3.7	3.8	3.35
K ₂ O	4.97	5.26	4.28	4.23	4.03	4.55	4.84	3.88
P ₂ O ₅	0.01	0.01	0.05	0.04	0.06	0.01	0.01	0.13
H ₂ O	0.75	0.82	1.39	1.26	1.35	0.72	0.91	1.51
CO ₂			1.1	0.9	0.9			
TOTAL	100.35	99.79	99.78	99.15	99.68	99.14	100.11	99.36
q	35.67	35.13	34.46	33.29	32.81	34.69	36.10	28.60
or	29.47	31.41	25.71	25.53	24.20	27.30	28.82	23.43
ab	30.72	29.57	28.89	30.76	31.46	31.86	32.31	28.88
an	1.28	1.34	0.42	1.52	2.04	2.96	0.78	11.05
c	0.60	0.32	3.30	2.62	2.52	1.30	0.80	0.07
di	-	-	-	-	-	-	-	-
hy	1.60	1.92	3.67	3.55	3.84	1.82	0.05	3.70
mt	0.44	0.12	0.46	0.18	0.49	0.01	0.56	2.79
il	0.19	0.17	0.44	0.37	0.42	0.04	0.21	1.18
ap	0.02	0.02	0.12	0.10	0.14	0.02	0.02	0.32
cc			2.54	2.09	2.08			
hm							0.35	
DI	95.9	96.1	89.1	89.6	88.5	93.9	97.2	80.9
CI	2.9	2.6	10.5	8.9	9.5	3.2	2.0	8.1

Slaughter Yard Creek Volcanics

67490055R Porphyritic rhyolite.
 67490056R Rhyolite.
 67490057R Porphyritic rhyodacite.
 67490058R Porphyritic rhyodacite.
 67490059R Porphyritic rhyodacite.
 67490060R Spherulitic rhyolite.
 67490065R Porphyritic rhyolite tuff.
 67490066R Altered rhyodacite.

131.

	6749 0055R	6749 0056R	6749 0057R	6749 0058R	6749 0059R	6749 0060R	6749 0065R	6749 0066R
Li	10	14	20	14	18	14	7	16
Be	3.0	3.5	4.0	3.5	4.0	6.0	2.5	3.5
F	-	-	-	-	-	-	-	-
Cr	-	-	-	-	-	-	-	8
Co	-	-	-	-	-	-	-	-
Ni	n.d.	n.d.	4	n.d.	n.d.	n.d.	n.d.	4
Cu	4	3	4	5	4	5	5	11
Zn	55	43	34	17	24	47	33	63
Ga	14	15	19	17	18	23	15	17
Rb	235	262	232	242	221	325	214	188
Sr	26	35	105	96	107	10	37	89
Y	63	62	40	39	43	44	38	64
Zr	156	155	157	159	158	81	170	297
Sn	4	4	n.d.	7	n.d.	8	n.d.	-
Ba	475	375	355	455	340	33	540	720
La	55	49	22	29	23	15	39	48
Ce	116	111	49	66	54	40	81	109
Pb	30	29	15	16	17	40	21	23
Th	28	28	18	19	19	21	25	19
U	6	7	8	5	5	7	3	5
Mg/Li	60	39	110	93	140	34	17	320
Rb/Sr	9.0	7.5	2.2	2.5	2.1	33	5.8	2.1
K/Rb	175	167	154	145	152	116	187	171
Ba/Sr	18.3	10.7	3.4	4.7	3.2	3.3	14.6	8.1
Ba/Rb	2.0	1.43	1.54	1.88	1.54	0.102	2.5	3.8
K/Ba	87	117	100	77	99	1150	74	45
Ca/Sr	73	57	106	111	108	430	321	189
Ca/Y	30	32	280	270	270	98	32	260
K/Pb	1370	1510	2370	2190	1970	950	1910	1400
Th/U	4.7	4.0	2.3	3.8	3.8	3.0	8.3	3.8
K/U	6900	6200	4400	7000	6700	5400	13000	6400
Al/Ga	4700	4300	3800	4200	4000	3100	4400	4300
mg	0.13	0.13	0.23	0.17	0.27	0.14	0.04	0.28
k	0.47	0.50	0.46	0.44	0.42	0.45	0.46	0.43

132.

	6749 0093R	6749 0106	6749 0108	6749 0109	6749 0110R	6749 0116R	6749 0117R	6749 0118R	6849 0023G
SiO ₂	67.4	74.3	74.3	71.9	79.1	73.9	54.7	66.7	74.7
TiO ₂	0.61	0.18	0.31	0.27	0.10	0.18	1.05	0.66	0.23
Al ₂ O ₃	14.83	13.44	14.55	14.01	11.46	13.49	19.17	14.03	12.68
Fe ₂ O ₃	1.40	0.48	0.44	0.61	0.21	1.34	2.49	1.53	2.49
FeO	3.00	1.20	0.30	1.75	0.41	0.35	4.95	2.15	0.20
MnO	0.11	0.04	0.01	0.10	0.01	0.06	0.13	0.11	0.09
MgO	0.95	0.20	0.18	0.17	0.12	0.13	3.17	0.69	0.18
CaO	2.45	0.35	0.32	1.77	0.13	0.97	8.15	2.17	1.07
Na ₂ O	3.85	4.5	4.0	3.3	2.0	4.5	3.25	2.2	4.65
K ₂ O	3.35	4.61	4.65	3.57	6.24	3.20	1.26	5.98	3.27
P ₂ O ₅	0.15	0.01	0.07	0.05	0.01	0.02	0.16	0.14	0.04
H ₂ O	1.65	0.93	1.53	1.89	0.53	1.13	1.80	1.83	0.69
CO ₂				0.95	n.d.			0.9	
TOTAL	99.75	100.34	100.66	100.34	100.32	99.27	100.28	99.09	100.29
q	24.88	28.92	32.52	37.03	42.79	33.80	7.98	28.25	32.94
or	20.16	27.41	27.71	21.41	36.94	19.26	7.56	36.33	19.40
ab	33.17	38.39	34.47	28.59	17.29	38.94	27.91	19.04	39.65
an	11.31	1.68	1.14	2.49	0.58	4.77	34.52	4.21	4.00
c	0.82	0.42	2.48	3.83	1.15	0.89	-	2.51	-
di	-	-	-	-	-	-	4.46	-	0.88
hy	6.00	2.09	0.45	2.91	0.73	0.33	11.42	3.60	0.04
mt	2.11	0.72	0.10	0.91	0.31	0.82	3.75	2.31	0.27
il	1.18	0.34	0.59	0.52	0.19	0.35	2.02	1.29	0.44
ap	0.39	0.02	0.17	0.12	0.02	0.05	0.39	0.37	0.07
cc				2.19				2.10	
hm			0.37			0.80			2.31
DI	78.2	94.7	94.7	87.0	97.0	92.0	43.4	83.6	92.0
CI	10.5	3.6	4.2	10.5	2.4	3.2	22.0	12.2	4.0

Nanyeta Volcanics

67490093R Porphyritic rhyodacite
 67490106 Rhyodacite welded tuff
 67490108 Porphyritic rhyodacite welded tuff
 67490109 Rhyodacite welded tuff
 67490110R Banded rhyolite
 67490116R Porphyritic rhyodacite welded tuff
 67490117R Hornblende-augite andesite
 67490118R Altered porphyritic rhyodacite
 68490023G Porphyritic rhyodacite, MG68/23

	6749 0093R	6749 0106	6749 0108	6749 0109	6749 0110R	6749 0116R	6749 0117R	6749 0118R	6849 0023G
Li	30	11	3	15	5	8	36	24	2
Be	2.5	3.0	2.5	2.5	1.5	3.0	2.0	4.5	2.0
F	-	-	-	-	-	-	-	-	-
Cr	-	n.d.	-	-	-	n.d.	40	7	n.d.
Co	-	-	-	-	-	-	-	-	-
Ni	3	n.d.	n.d.	n.d.	n.d.	n.d.	13	3	n.d.
Cu	5	1	3	2	4	3	28	7	1
Zn	60	37	26	49	15	28	75	69	48
Ga	16	15	17	18	8	14	18	17	14
Rb	178	220	264	190	300	159	47	369	141
Sr	226	68	108	86	52	132	440	257	105
Y	47	48	50	55	37	31	26	81	46
Zr	238	205	210	236	167	174	122	164	212
Sn	n.d.	-	n.d.	n.d.	n.d.	-	n.d.	n.d.	n.d.
Ba	445	590	715	375	835	545	375	1270	445
La	31	41	38	41	24	36	20	45	38
Ce	57	77	79	83	53	70	28	73	85
Pb	19	30	11	16	9	21	16	14	17
Th	18	26	23	21	27	28	5	18	20
U	4	5	5	2	5	6	n.d.	5	2
Mg/Li	190	110	370	67	140	98	530	180	550
Rb/Sr	0.79	3.2	2.4	2.2	5.8	1.20	0.107	1.44	1.34
K/Rb	156	174	146	156	173	167	223	134	192
Ba/Sr	1.97	8.7	6.6	4.4	16.1	4.1	0.85	4.9	4.2
Ba/Rb	2.5	2.7	2.7	1.97	2.8	3.4	8.0	3.4	3.2
K/Ba	62	65	54	79	62	49	28	39	61
Ca/Sr	77	37	21	147	17.3	52	132	60	73
Ca/Y	370	52	46	230	24	220	2200	190	165
K/Pb	1460	1280	3500	1850	5800	1260	660	3500	1590
Th/U	4.5	3.2	4.6	10.5	5.4	4.7	-	3.6	10
K/U	7000	7700	7700	15000	10000	4400	-	9900	14000
Al/Ga	4900	4800	4500	4100	7600	5100	5600	4400	4800
mg	0.28	0.17	0.31	0.11	0.26	0.13	0.43	0.25	0.11
k	0.36	0.40	0.43	0.41	0.67	0.32	0.20	0.64	0.32

	6849 0024G	6859 0062	6859 0063	6749 0048R1	6749 0048R2	6749 0049R	6749 0050R	6749 0051R
SiO ₂	70.5	71.9	76.3	74.4	75.1	76.0	75.8	74.3
TiO ₂	0.26	0.29	0.11	0.15	0.12	0.07	0.07	0.14
Al ₂ O ₃	14.42	13.04	11.87	13.29	13.02	12.92	12.90	13.18
Fe ₂ O ₃	2.82	2.72	0.16	0.38	0.73	0.23	0.72	0.53
FeO	0.15	n.d.	0.85	1.23	0.63	0.82	0.67	1.12
MnO	0.11	0.36	0.04	0.04	0.03	0.02	0.02	0.04
MgO	0.18	0.15	0.12	0.16	0.11	0.05	0.00	0.21
CaO	1.35	0.04	0.56	1.09	0.64	0.63	0.38	0.91
Na ₂ O	4.9	0.18	3.4	3.95	4.1	3.5	3.8	3.3
K ₂ O	3.83	9.07	4.73	4.25	4.54	4.67	5.03	4.64
P ₂ O ₅	0.03	0.06	0.01	0.05	0.02	0.01	0.01	0.04
H ₂ O	1.13	1.27	0.68	0.90	1.01	0.80	0.91	1.17
CO ₂			0.3					
TOTAL	99.68	99.08	99.13	99.89	100.05	99.72	100.31	99.58
q	24.52	36.80	37.96	32.20	32.56	36.21	33.28	35.07
or	22.96	54.80	28.39	25.36	27.08	27.90	29.87	27.84
ab	42.39	1.56	29.12	33.82	35.01	29.94	32.81	28.43
an	5.93	0.00	0.83	5.13	3.07	3.09	1.83	4.32
c	-	3.07	0.89	0.32	0.25	1.00	0.44	1.17
di	0.52	-	-	-	-	-	-	-
hy	0.21	0.38	1.64	2.17	0.69	1.34	0.56	2.01
nt	0.06	0.34	0.25	0.59	1.07	0.35	1.05	0.80
il	0.52	0.56	0.21	0.29	0.23	0.13	0.13	0.27
ap	0.07	0.15	0.02	0.12	0.05	0.02	0.02	0.10
cc			0.69					
hm	2.82	2.55						
DI	89.9	93.2	95.5	91.4	94.6	94.1	96.0	91.3
CI	4.2	7.1	3.7	3.5	2.3	2.8	2.2	4.4

Manyeta Volcanics

68490024G Porphyritic Rhyodacite, M68/24

68590062 Lithic-vitric tuff, E55/5/18

68590063 Recrystallized rhyolite welded tuff, E55/5/19

Walsh Bluff Volcanics

67490048R1 Porphyritic rhyodacite

67490048R2 Porphyritic rhyodacite

67490049R Porphyritic rhyodacite welded tuff

67490050R Rhyodacite

67490051R Rhyodacite

	6849 0024G	6859 0062	6859 0063	6749 0048R1	6749 0048R2	6749 0049R	6749 0050R	6749 0051R
Li	2	5	15	30	24	23	17	18
Be	2.0	1.5	2.5	3.5	4.0	5.5	3.5	3.5
F	-	-	-	-	-	-	-	-
Cr	-	-	n.d.	-	-	-	-	-
Co	-	5	-	-	-	-	-	-
Ni	n.d.	7	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	2	73	5	8	8	7	18	14
Zn	50	1390	43	41	38	65	28	29
Ga	17	16	10	15	16	25	18	15
Rb	162	619	202	202	232	329	250	231
Sr	110	74	76	76	67	9	24	82
Y	64	42	38	41	51	77	52	44
Zr	238	174	155	179	136	100	126	171
Sn	n.d.	n.d.	-	n.d.	n.d.	6	6	18
Ba	510	1060	570	540	515	34	220	570
La	42	34	35	33	40	12	30	36
Ce	86	80	69	68	65	38	61	74
Pb	21	1390	25	26	25	40	19	19
Th	23	22	25	18	21	21	19	22
U	4	4	4	3	3	9	5	2
Mg/Li	550	180	48	32	28	13	-	72
Rb/Sr	1.47	8.4	2.7	2.7	3.5	3.7	10.4	2.8
K/Rb	196	122	195	175	163	118	167	167
Ba/Sr	4.6	14.3	7.5	7.1	7.7	3.8	9.2	7.0
Ba/Rb	3.2	1.71	2.8	2.7	2.2	0.103	0.88	2.5
K/Ba	62	71	69	65	73	1150	190	68
Ca/Sr	88	3.9	53	103	69	500	113	79
Ca/Y	150	7	105	190	90	58	52	150
K/Pb	1510	54	1570	1360	1510	970	2200	2030
Th/U	5.8	5.5	6.3	6.0	7.0	2.3	3.8	11
K/U	8000	19000	9800	12000	13000	4300	8300	19000
Al/Ga	4500	4300	6300	4700	4300	2700	3800	4700
mg	0.10	0.09	0.17	0.15	0.13	0.06	0.00	0.19
k	0.34	0.97	0.48	0.41	0.42	0.47	0.46	0.48

	6749 0015R	6749 0016R	6749 0017R	6749 0018R	6749 0018R1	6749 0019	6749 0024R	6849 0004G	6849 0007G
SiO ₂	62.8	71.5	72.0	60.7	69.0	70.5	80.2	76.8	73.9
TiO ₂	0.50	0.23	0.23	1.46	0.47	0.33	0.09	0.09	0.14
Al ₂ O ₃	16.41	14.04	13.64	15.36	14.20	13.71	9.83	11.96	12.78
Fe ₂ O ₃	3.14	2.51	2.40	3.48	1.51	1.66	0.53	0.56	0.55
FeO	0.40	0.71	0.75	3.85	2.30	1.83	0.30	0.86	1.27
MnO	0.09	0.05	0.05	0.12	0.08	0.07	0.01	0.03	0.04
MgO	1.93	0.11	0.13	1.74	0.60	0.27	0.06	0.01	0.10
CaO	3.58	0.67	0.79	2.58	1.73	1.81	0.10	0.59	1.19
Na ₂ O	3.25	3.8	3.7	4.1	3.7	3.75	1.2	3.7	4.25
K ₂ O	3.13	4.50	4.45	2.41	3.70	3.75	6.77	4.94	3.87
P ₂ O ₅	0.11	0.03	0.03	0.24	0.14	0.06	0.02	0.00	0.01
H ₂ O	4.20	1.40	1.46	3.07	1.65	1.40	0.84	0.59	1.28
CO ₂									0.7
TOTAL	99.54	99.55	99.63	99.11	99.08	99.14	99.95	100.13	100.08
q	22.86	31.38	32.31	20.07	28.65	30.29	47.50	35.00	33.25
or	19.39	27.09	26.79	14.82	22.43	22.66	40.35	29.29	23.25
ab	28.73	32.58	31.80	36.09	32.29	32.35	10.24	31.66	36.27
an	17.87	3.19	3.79	11.76	7.87	8.78	0.37	1.31	1.43
c	1.52	1.84	1.42	1.95	1.30	0.36	0.40	-	1.09
di	-	-	-	-	-	-	-	1.44	-
hy	5.04	0.28	0.33	6.56	3.92	2.28	0.15	0.27	1.98
mt	0.14	1.82	1.98	5.31	2.29	2.49	0.75	0.84	0.84
il	1.00	0.45	0.45	2.89	0.92	0.64	0.17	0.17	0.27
ap	0.27	0.07	0.07	0.57	0.34	0.15	0.05	0.00	0.02
cc									1.61
hm	3.20	1.31	1.07				0.02		
DI	71.0	91.1	90.9	71.0	83.4	85.3	98.1	96.0	92.8
CI	11.2	5.8	5.3	17.3	8.8	5.9	1.5	2.7	5.8

Glen Gordon Volcanics

67490015R Porphyritic dacite

67490016R Rhyodacite incipiently welded tuff

67490017R Rhyodacite tuff

67490018R Dacite

67490018R1 Rhyodacite

67490019 Rhyodacite

67490024R Rhyolite welded tuff

6849004G Porphyritic rhyodacite, MG68/4

68490007G Porphyritic rhyodacite welded tuff, MG68/7

	6749 0015R	6749 0016R	6749 0017R	6749 0018R	6749 0018R1	6749 0019	6749 0024R	6849 0004G	6849 0007G
Li	48	12	6	24	34	23	16	15	17
Be	2.5	3.0	3.0	2.0	3.5	3.5	2.0	4.0	2.0
F	-	-	-	-	-	-	-	-	-
Cr	15	-	-	-	n.d.	-	n.d.	-	-
Co	-	-	-	-	-	-	-	-	-
Ni	11	n.d.	n.d.	3	n.d.	n.d.	n.d.	n.d.	n.d.
Cu	6	18	10	22	11	10	5	6	7
Zn	62	66	66	80	62	64	37	68	59
Ga	17	20	19	19	16	17	9	18	15
Rb	135	221	229	138	209	210	268	250	176
Sr	317	87	94	268	157	133	20	25	37
Y	24	63	62	41	50	60	33	66	54
Zr	158	380	376	257	302	385	135	192	246
Sn	-	n.d.	n.d.	n.d.	-	n.d.	-	n.d.	6
Ba	440	590	585	365	425	450	380	420	800
La	20	45	46	33	31	36	45	67	62
Ce	41	87	96	58	58	91	88	108	97
Pb	16	24	27	14	24	26	21	33	23
Th	7	22	25	10	17	22	22	29	23
U	2	n.d.	2	n.d.	4	4	3	5	4
Mg/Li	220	55	130	440	110	70	23	4	35
Rb/Sr	0.43	2.5	2.4	0.52	1.33	1.58	13	10.0	4.8
K/Rb	193	169	161	145	147	148	210	164	182
Ba/Sr	1.39	6.8	6.2	1.36	2.7	3.4	19	16.8	22
Ba/Rb	3.3	2.7	2.6	2.6	2.0	2.1	1.42	1.68	4.5
K/Ba	59	63	63	55	72	69	148	98	40
Ca/Sr	81	55	60	69	79	97	36	168	230
Ca/Y	1050	76	90	450	250	220	21	64	155
K/Pb	1630	1550	1370	1430	1280	1200	2680	1240	1400
Th/U	3.5	-	12.5	-	4.3	5.5	7.3	5.8	5.8
K/U	13000	-	18000	-	7700	7800	19000	8200	8000
Al/Ga	5100	3700	3800	4300	4700	4300	5800	3500	4500
mg	0.51	0.06	0.07	0.30	0.22	0.12	0.12	0.01	0.09
k	0.39	0.44	0.44	0.28	0.40	0.40	0.79	0.47	0.38

	6849 0008G	6849 0009G	6849 0010G	6849 0011G	6849 0012G	6849 0013G	6849 0018G	6849 0019G	6849 0020G
SiO ₂	65.0	56.5	78.0	75.0	75.5	76.4	77.0	76.9	77.3
TiO ₂	0.77	1.25	0.07	0.13	0.13	0.08	0.06	0.06	0.06
Al ₂ O ₃	13.99	17.10	11.74	12.49	12.64	12.32	12.18	12.34	12.14
Fe ₂ O ₃	2.27	2.34	0.58	0.46	0.40	0.32	0.32	0.24	0.33
FeO	4.25	4.50	0.52	1.31	1.01	0.86	0.71	0.82	0.71
MnO	0.14	0.13	0.03	0.04	0.03	0.37	0.05	0.05	0.03
MgO	0.79	3.03	0.00	0.06	0.12	0.06	0.05	0.05	0.02
CaO	2.46	6.05	0.31	0.76	0.49	0.29	0.45	0.48	0.44
Na ₂ O	3.9	3.45	3.45	3.5	3.3	3.0	3.15	3.9	3.25
K ₂ O	2.39	1.81	5.01	4.80	5.36	5.43	4.87	4.52	5.06
P ₂ O ₅	0.23	0.19	0.00	0.02	0.02	0.01	0.00	0.00	0.00
H ₂ O	2.25	2.93	0.83	0.73	0.81	1.08	0.72	0.61	0.58
CO ₂									
TOTAL	98.44	99.28	100.54	99.30	99.81	99.89	99.56	99.97	99.92
q	26.08	11.52	38.09	34.10	34.42	37.46	38.95	35.46	37.76
or	14.67	11.09	29.69	28.75	31.99	32.46	29.10	26.88	30.08
ab	34.36	30.43	29.18	30.26	28.11	25.59	27.03	33.20	27.83
an	11.12	26.69	1.54	3.69	2.32	1.39	2.26	2.40	2.20
c	1.09	-	0.09	0.16	0.59	1.04	0.90	0.16	0.49
di	-	2.55	-	-	-	-	-	-	-
hy	7.11	11.21	0.41	2.05	1.67	1.41	1.16	1.43	1.04
mt	3.50	3.59	0.86	0.69	0.60	0.48	0.48	0.36	0.50
il	1.52	2.46	0.13	0.25	0.25	0.15	0.12	0.11	0.11
ap	0.57	0.47	0.00	0.05	0.05	0.02	0.00	0.00	0.00
DI	75.11	53.0	97.0	93.1	94.5	95.5	95.1	95.5	95.7
CI	13.8	20.3	1.5	4.7	3.2	3.1	2.7	2.1	2.1

Glen Gordon Volcanics

68490008G Volcanic breccia, MG68/8.

68490009G Augite andesite, MG68/9.

68490010G Porphyritic rhyolite, MG68/10.

68490011G Rhyodacite welded tuff, MG68/11.

68490012G Rhyolite welded tuff, MG68/12.

68490013G Rhyodacite, MG68/13.

68490018G Porphyritic rhyolite welded tuff, MG68/18.

68490019G Porphyritic rhyolite welded tuff, MG68/19.

68490020G Porphyritic rhyolite welded tuff, MG68/20.

	6849 0008G	6849 0009G	6849 0010G	6849 0011G	6849 0012G	6849 0013G	6849 0018G	6849 0019G	6849 0020G
Li	31	61	10	16	10	20	4	3	3
Be	3.0	2.0	3.5	3.5	4.0	4.0	1.5	1.5	2.0
F	-	-	-	-	-	-	-	-	-
Cr	-	-	-	-	-	-	-	-	-
Co	-	-	-	-	-	-	-	-	-
Ni	n.d.	7	n.d.	n.d.	n.d.	3	n.d.	n.d.	3
Cu	8	20	12	7	14	13	2	2	2
Zn	97	77	66	68	56	93	33	30	41
Ga	19	19	14	18	17	22	14	15	14
Rb	96	82	249	216	236	396	206	192	228
Sr	126	351	36	39	40	11	28	28	29
Y	58	31	72	58	54	84	55	61	55
Zr	639	197	110	207	199	125	100	106	98
Sn	n.d.	n.d.	5	n.d.	4	5	5	5	n.d.
Ba	555	285	84	810	910	62	750	730	845
La	48	34	36	56	56	43	31	43	28
Ce	75	31	50	115	116	76	62	63	64
Pb	17	9	30	37	26	44	34	28	35
Th	19	8	32	27	23	38	23	22	22
U	3	2	9	6	4	7	4	4	2
Mg/Li	160	300	-	23	72	18	75	100	40
Rb/Sr	0.76	0.23	6.9	5.5	5.9	36	7.4	6.9	7.9
K/Rb	203	183	167	184	189	114	196	195	184
Ba/Sr	4.4	0.81	2.3	21	23	5.6	27	26	29
Ba/Rb	5.8	3.5	0.34	3.8	3.9	0.157	3.6	3.8	3.7
K/Ba	36	53	500	49	49	730	54	51	50
Ca/Sr	140	123	61	138	88	191	114	121	107
Ca/Y	300	1400	31	145	65	25	58	56	56
K/Pb	1160	1670	1390	1080	1710	1030	1190	1340	1200
Th/U	6.3	4.0	3.6	4.5	5.8	5.4	5.8	5.5	11
K/U	6600	7500	4600	6600	11000	6400	10000	9400	21000
Al/Ga	3900	4800	4400	3700	3900	3000	4600	4400	4600
mg	0.18	0.44	0.00	0.06	0.13	0.08	0.08	0.08	0.03
k	0.29	0.26	0.49	0.47	0.52	0.54	0.50	0.43	0.50

	140.				
	6849 0020G2	6849 0020G3	6859 0061	6859 0027	6859 0051
SiO ₂	76.9	77.6	76.0	59.0	74.0
TiO ₂	0.06	0.06	0.13	1.55	0.22
Al ₂ O ₃	12.23	11.90	12.69	13.07	13.28
Fe ₂ O ₃	0.28	0.50	1.75	7.56	0.63
FeO	0.78	0.78	0.11	0.56	0.80
MnO	0.05	0.06	0.06	0.06	0.05
MgO	0.06	0.04	0.03	3.14	0.44
CaO	0.61	0.40	0.10	1.05	1.34
Na ₂ O	3.65	2.9	5.4	0.23	3.7
K ₂ O	4.74	4.99	2.35	9.10	4.45
P ₂ O ₅	0.00	0.00	0.00	0.53	0.05
H ₂ O	0.63	0.66	0.98	3.44	0.72
CO ₂			0.05		
TOTAL	99.99	99.89	99.65	99.29	99.68
q	35.68	40.53	35.63	18.20	32.25
or	28.17	29.70	14.07	56.07	26.56
ab	31.31	24.79	46.72	2.03	31.44
an	2.88	2.00	0.18	1.82	6.38
c	-	0.99	1.13	2.30	0.10
di	0.15	-	-	-	-
hy	1.26	1.13	0.08	8.15	1.78
mt	0.44	0.74	0.18	-	0.94
il	0.11	0.11	0.25	1.37	0.42
ap	0.00	0.00	0.00	1.31	0.12
cc			0.12		
bm			1.65	7.88	
DI	95.2	95.0	96.4	76.3	90.3
CI	2.0	3.0	3.4	21.0	3.4

Glen Gordon Volcanics

68490020G2 Porphyritic rhyolite welded tuff, MG68/20B
 68490020G3 Porphyritic rhyolite welded tuff, MG68/20C
 68590061 Porphyritic rhyolite welded tuff, E55/5/17

Agate Creek Volcanics

68590027 Amygdaloidal andesite, E54/16/9

Boxwood Volcanics

68590051 Porphyritic rhyodacite, E55/5/4

	6849 002062	6849 002063	6859 0061	6859 0027	6859 0051
Li	4	4	3	10	19
Be	2.0	2.0	1.5	3.0	2.5
F	-	-	-	-	-
Cr	-	-	-	-	n.d.
Co	-	-	n.d.	24	-
Ni	n.d.	3	n.d.	44	n.d.
Cu	2	3	1	9	3
Zn	32	35	48	98	23
Ga	16	15	15	15	13
Rb	203	201	100	286	245
Sr	32	29	62	48	82
Y	54	56	43	32	36
Zr	98	98	233	388	111
Sn	n.d.	6	n.d.	n.d.	-
Ba	775	745	660	2235	325
La	35	36	27	56	35
Ce	59	53	75	106	72
Pb	41	37	22	7	21
Th	22	20	19	10	39
U	3	5	4	n.d.	4
Mg/Li	90	60	60	1900	140
Rb/Sr	6.3	6.9	1.61	6.0	3.0
K/Rb	194	206	195	264	151
Ba/Sr	24	26	10.6	47	4.0
Ba/Rb	3.8	3.7	6.6	7.8	1.33
K/Ba	51	56	30	34	114
Ca/Sr	138	100	115	156	117
Ca/Y	81	52	16	230	270
K/Pb	960	1120	890	10800	1760
Th/U	7.3	4.0	4.8	-	9.8
K/U	13000	8300	4900	-	9200
Al/Ga	4100	4200	4500	4600	5400
mg	0.09	0.05	0.03	0.43	0.35
k	0.46	0.53	0.22	0.96	0.44

	7057 1016	7057 1041	7057 1042	7057 1219	7057 1234	6859 0035
SiO ₂	59.5	59.9	63.8	74.5	76.1	71.6
TiO ₂	1.99	1.61	1.08	0.18	0.04	0.34
Al ₂ O ₃	13.42	12.88	12.61	12.49	12.44	13.92
Fe ₂ O ₃	3.47	2.59	1.18	1.26	0.73	0.08
FeO	7.65	7.30	6.05	0.30	0.30	2.30
MnO	0.18	0.16	0.12	0.01	0.06	0.05
MgO	1.77	1.54	0.90	0.00	0.03	0.57
CaO	5.23	5.02	3.48	0.79	0.72	2.51
Na ₂ O	2.65	2.25	2.15	2.5	3.4	2.75
K ₂ O	2.44	2.90	3.75	5.75	4.77	3.97
P ₂ O ₅	0.68	0.57	0.34	0.04	0.01	0.08
H ₂ O	1.77	2.20	2.60	1.86	0.66	0.74
CO ₂	0.15		1.6			0.15
TOTAL	100.90	98.92	99.66	99.68	99.26	99.06
q	20.11	22.13	30.52	37.30	37.04	33.79
or	14.54	17.70	22.82	34.75	28.58	23.85
ab	22.95	19.48	18.65	21.46	29.17	23.56
an	17.49	17.12	5.08	3.74	3.56	11.16
c	-	-	3.32	0.87	0.41	1.11
di	2.74	4.05	-	-	-	-
hy	11.36	11.00	11.09	-	0.08	5.17
mt	5.07	4.00	1.85	0.49	1.06	0.16
il	3.81	3.16	2.11	0.35	0.08	0.66
ap	1.63	1.40	0.83	0.10	0.02	0.19
cc	0.34		3.75			0.35
hm				0.95	0.01	
DI	57.6	59.3	72.0	93.5	94.8	81.2
CI	25.0	23.6	23.0	2.8	1.7	7.6

Dykes

70571016 Augite-hornblende andesite
 70571041 Augite-quartz andesite
 70571042 Rhyodacite
 70571219 Rhyodacite
 70571234 Porphyritic rhyolite
 68590035 Porphyritic rhyodacite, E55/1/8

	7057 1016	7057 1041	7057 1042	7057 1219	7057 1234	6859 0035
Li	30	27	61	10	5	23
Be	3.0	3.5	3.5	3.0	5.0	2.0
F	-	-	-	-	-	-
Cr	3	3	56	4	n.d.	-
Co	-	-	-	-	-	5
Ni	n.d.	n.d.	n.d.	n.d.	n.d.	3
Cu	27	19	15	8	3	7
Zn	106	94	82	71	60	47
Ga	18	21	19	15	18	15
Rb	194	146	197	210	413	151
Sr	166	163	141	96	20	138
Y	59	59	57	48	77	39
Zr	379	394	393	213	94	189
Sn	-	-	-	5	9	n.d.
Ba	375	400	480	510	35	670
La	37	38	41	67	18	34
Ce	65	65	74	125	43	68
Pb	18	22	23	27	57	26
Th	16	17	21	32	45	22
U	2	2	5	3	11	2
Mg/Li	360	340	89	-	36	150
Rb/Sr	1.17	0.90	1.40	2.2	21	1.09
K/Rb	105	165	158	227	96	218
Ba/Sr	2.3	2.5	3.4	5.3	1.8	4.9
Ba/Rb	1.93	2.7	2.4	2.4	0.085	4.4
K/Ba	54	60	65	94	1150	49
Ca/Sr	225	220	177	58	260	130
Ca/Y	630	610	440	115	66	460
K/Pb	1130	1100	1350	1770	690	1270
Th/U	8	8.5	4.2	11	4.1	11
K/U	10000	12000	6200	16000	3600	16000
Al/Ga	4000	3300	3500	4400	3700	4900
mg	0.22	0.22	0.18	0.00	0.05	0.29
k	0.37	0.46	0.54	0.60	0.48	0.49