Appendix 1. Database for thermobarometric analyses.

A. Equilibria involving garnet.

Equilibria utilized

1. GABI and GASP
2. GABI and GAMI
3. GAHB and GAHP
4. GRAIL

GABI=garnet-biotite Fe-Mg exchange, Berman, 1991
GAHB=garnet-hornblende Fe-Mg exchange, Graham and Powell, 1984
GASP=garnet-aluminum silicate-plagioclase-quartz, Berman, 1991
GAMI=garnet-biotite-muscovite-plagioclase, Berman, 1991
GAHP=garnet-hornblende-plagioclase, Kohn and Spear, 1990
GRAIL=garnet-rutile-ilmenite-aluminum silicate, Bohlen and others, 1983

Sample Descriptions

Sample Number	Unit	Latitude (Degrees,	Longitude minutes)	Temp. (C)	Pres. (Kbars)	Al2SiO5	Equil.	Ref.
119-183	Cascade R. Schist	48 31.2	121 11.0	-	9.5	Ky	1	2
119-134	Cascade R. Schist	48 31.3	121 11.5	680	-		1	2
162-186	Settler Schist	49 34.0	121 36.2	679	5.4	Sil	1	3
162-192	Settler Schist	49 32.8	121 39.4	572	5.4	Ky	1	3
163-241	Settler Schist	49 24.2	121 35.2	637	4.5	Sil	1	3
164-32d	Napeequa Schist	48 36.4	121 21.3	625	9.9	-	3	1
164-37c	Napeequa Schist	48 25.7	121 22.4	565	3.3	And	1	1
164-73c	Napeequa Schist	48 26.5	121 14.5	522	6.4	-	2	1
164-191a	Settler Schist	49 19.0	121 35.5	617	4.1	And	1	4
164-191b	Settler Schist	49 19.0	121 35.5	589	3.1	And	1	4
164-191c	Settler Schist	49 19.0	121 35.5	609	4.2	And	1	4
164-193b	Settler Schist	49 25.5	121 27.7	572	6.2	Ky	1	4
164-195e	Settler Schist	49 28.4	121 28.5	581	6.8	Ky	1	4
164-197	Settler Schist	49 39.8	121 26.4	651	7.5	-	3	1
164-202a	Settler Schist	49 53.0	121 29.5	614	6.7	Ky	1	1
164-203c	Settler Schist	50 3.9	121 47.3	620	5.6	Ky	1	1
164-204c	Settler Schist	50 3.7	121 45.6	586	5.2	Ky	1	1

Sample Number	Unit	Latitude (Degrees,	Longitude minutes)	Temp. (C)	Pres. (Kbars)	Al2SiO5	Equil.	Ref.
164-231	Settler Schist	49 30.1	121 28.5	603	7.9	Ky	1	1
164-233d	Settler Schist	49 32.3	121 29.5	591	6.0	Ky	1	4
164-233f	Settler Schist	49 32.3	121 29.5	604	6.8	Ky	1	4
164-258h	Settler Schist	49 34.6	121 27.0	624	5.9	Sil	1	1
164-264	Chiwaukum Schist	47 49.1	121 2.0	629	4.3	Sil	1	1
164-335f	Chiwaukum Schist	48 20.4	121 23.9	590	7.5	-	3	1
164-470b	Banded Gneiss	48 11.0	121 18.0	571	5.6	-	3	1
164-474b	Chiwaukum Schist	48 10.7	121 14.7	597	7.5	-	3	1
164-478a	Chiwaukum Schist	48 10.3	121 13.3	652	7.8	Ky	1	1
169-HLF	Cascade R. Schist	48 29.4	121 8.6	567	8.1	Ky	1	5
171-20b	Banded Gneiss	48 21.3	121 3.7	660	7-10	-	3	6
171-23b	Banded Gneiss	48 21.4	121 4.0	740	8-11	-	3	6
172-36a	Chiwaukum Schist	47 49.1	121 2.0	596	6.3	Sil	1	16
173-19a	Tonga Formation	47 52.1	121 19.1	550	7.1	-	3	7
173-35i	Tonga Formation	47 52.8	121 19.3	539	-	-	1	7
173-60c	Tonga Formation	47 54.9	121 18.6	516	7.0	-	3	7
173-116b	Tonga Formation	47 53.1	121 19.4	-	< 5.3	-	1	7
173-169a	Chiwaukum Schist	47 56.7	121 17.4	638	7.1	-	2	7
173-171d	Chiwaukum Schist	47 55.6	121 16.3	597	5.3	-	2	7
173-180a	Chiwaukum Schist	47 49.4	121 13.5	591	3.7	Sil	1	7
173-222a	Chiwaukum Schist	48 0.1	121 17.6	635	5.8	Ky	1	7
173-227a	Chiwaukum Schist	47 52.7	121 9.6	596	3.3	Sil	1	7
173-243	Chiwaukum Schist	47 55.8	121 10.5	594	4.0	Sil	1	7
173-254i	Chiwaukum Schist	47 46.3	121 9.9	560	2.9	Sil	1	7
174-8a	Banded Gneiss	48 21.0	121 7.1	665	9.4	-	2	8
174-24	Napeequa Schist	48 20.7	121 12.2	575	7.4	-	3	8
174-33a	screen/Cyclone L.	48 25.3	120 17.8	615	3.9	-	2	8
174-36c	Banded Gneiss	48 22.7	121 7.5	640	7.4	-	3	8
174-45b	Chiwaukum Schist	48 18.5	121 10.3	579	7.0	-	2	8
174-118a	Napeequa Schist	48 27.9	121 19.0	475	5.5	-	3	8
E-B1	Chiwaukum Schist	-	-	548	4.9	Sil	1	9
E-B3	Chiwaukum Schist	-	-	559	4.0	Sil	1	9
E-B4	Chiwaukum Schist	-	-	522	3.1	And	1	9
E-B5	Chiwaukum Schist	-	-	580	6.3	Ky	1	9
GP 89-1	Napeequa Schist	48 15.0	121 10.2	601	9.6	-	3	1
JM 145-3	Banded Gneiss	47 53.8	120 53.4	548	8.5	-	3	10
JM 150-1	Banded Gneiss	47 55.4	120 53.5	633	8.7	Ky	1	10
JM 194-3	Banded Gneiss	47 54.2	120 57.7	577	7.0	Ky	1	10
JM 337-2	Banded Gneiss	47 52.7	120 59.7	579	5.9	Ky	1	10
JM 382-1	Banded Gneiss	47 54.8	120 52.8	631	8.0	Ky	1	10
JM 388-1	Banded Gneiss	47 54.4	120 52.5	645	8.9	Ky	1	10
JT 88-05	Settler Schist	49 34.0	121 36.2	667	5.0	Sil	1	4

Sample Number	Unit	Latitude (Degrees,	Longitude minutes)	Temp. (C)	Pres. (Kbars)	Al2SiO5	Equil.	Ref.
JT 88-38f	Cogburn Schist	49 39.9	121 48.8	635	6.0	-	3	1
JT 88-40c	Slollicum Group	49 38.6	121 46.8	572	5.4	-	3	1
JT 89-17	Settler Schist	49 45.3	121 49.3	689	5.9	Sil	1	1
NW 91-5	Swakane Gneiss	48 2.6	120 49.7	681	9.7	Ky	1	1
OHM 20	Chiwaukum Schist	48 17.6	121 19.7	596	6.4	Ky	1	11
ODM 22	Chiwaukum Schist	48 2.5	121 14.6	612	7.4	Ky	1	11
P-3	Settler Schist	49 32.5	121 32.7	584	5.9	Ky	1	12
RH 85-D1	Napeequa Schist	48 2.5	120 55.4	562	9.8	-	3	1
RH 85-D1	Napeequa Schist	48 1.8	120 57.0	567	8.6	-	3	1
RH 85-E1	Chiwaukum Schist	48 0.5	121 7.0	534	6.2	-	3	1
RH 85-F1	Tenpeak Pluton	48 4.0	121 1.3	651	7.6	-	3	1
RH 85-G1	Chiwaukum Schist	48 3.2	121 5.2	604	7.6	-	5	1
RT 48A5	Cascade R. Schist	48 26.6	121 1.9	547	7.5	-	2	1
SK-1	Skagit Gneiss	-	-	-	< 9.0	Sil	4	14
SK-2	Skagit Gneiss	-	-	-	< 9.0	Sil	4	14
SK-4	Skagit Gneiss	-	-	-	9.0	Ky	4	14
SPO-113	Chiwaukum Schist	48 0.4	121 17.5	625	5.9	Ky	1	13
SPO-131	Chiwaukum Schist	48 0.7	121 19.6	707	7.0	Ky	1	13

B. Aluminum-in-Hornblende (Johnson and Rutherford, 1989)

Sample Number	Pluton	Latitude	Longitude (Degrees and minutes	Al (total)	Pres. (Kbars)	Ref.
118-21a	Marble Creek	48 33.4	121 16.5	2.73	< 8.1	15
119-139b	Marble Creek	48 31.8	121 15.7	2.77	< 8.3	2
162-208	Spuzzum	48 30.8	121 35.0	1.81	4.2	3
164-35	Chaval	48 24.9	121 23.6	1.85	< 4.4	1
164-124	Black Peak	48 27.7	120 34.5	1.16	1.8	1
164-196	Scuzzy	49 44.4	121 38.8	2.06	5.2	1
164-259	Scuzzy	49 36.7	121 26.6	2.06	5.2	1
164-280	Scuzzy	50 3.4	121 44.2	2.00	5.0	1
164-282	Log Creek	50 3.5	121 44.4	1.61	3.3	1
164-290	Scuzzy	50 7.9	121 55.5	1.64	3.5	1
164-435	Scuzzy	49 34.9	121 31.1	1.52	3.0	1
164-454	Scuzzy	49 37.2'	121 39.8'	1.56	3.2	1

Sample Number	Pluton	Latitude (Degrees and minutes	Longitude	Al (total)	Pres. (Kbars)	Ref.
164-484c	Kwoiek	50 11.9'	121 49.3'	1.59	3.3	1
169-93b	Eldorado	48 31.3'	121 2.1'	1.76	4.0	5
169-219	Eldorado	48 31.3'	121 7.1'	1.81	3.7	5
169-B1	Eldorado	48 30.1	120 3.8	1.84	4.3	5
169-E4C	Eldorado	48 34.4	121 11.5	1.99	5.0	5
170-200	Seven Fing. Jack	48 10.9	120 49.6	1.99	5.0	17
170-204	Seven Fing. Jack	48 11.1	120 49.4	1.82	4.2	17
170-211	Seven Fing. Jack	48 10.3	120 49.7	1.90	4.6	17
172-14	Mt. Stuart	48 49.0	121 2.5	1.16	1.8	16
173-137b	Excelsior Mtn.	47 54.7	121 17.3	1.46	2.7	7
174-49	Bench Lake	48 21.3	121 12.3	2.53	7.3	8
174-122a	Jordan Lake	48 27.4	121 18.1	0.99	0.7	8
174-130	Jordan Lake	48 29.6	121 19.5	0.91	0.4	8
JT 89-16	Scuzzy	49 45.7	121 49.6	2.28	6.2	1
OHM 66	Chaval	48 19.6	121 19.0	2.18	< 5.8	11

C. NaM4-in-Actinolite (Brown, 1977)

Sample Number	Unit	Latitude (Degrees and minutes)	Longitude	Al(4)	NaM4	Pres. (Kbars)	Ref.
118-15e	Cascade R. Schist	48 32.4	121 19.6	0.61	0.15	3-4	15
162-35q	Slollicum Group	49 31.4	121 45.9	0.30	0.13	2-3	18

D. Reference Key

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E. Mineral compositions for equilibria involving garnet

	119-183		119-134			162-186		
	Garnet	Plag	Biot	Garnet	Plag	Biot	Garnet	Plag
Si	3.01	-	-	3.01	-	5.52	6.04	-
Al4	-	-	-	-	-	2.48	-	-
Al6	1.96	-	-	1.96	-	0.93	3.94	-
Ti	-	-	-	-	-	0.21	-	-
Fe	1.30	-	2.48	2.12	-	2.31	4.28	-
Mg	0.62	-	2.04	0.35	-	2.23	0.96	-
Mn	0.81	-	-	0.13	-	0.01	0.48	-
Ca	0.30	0.70	-	0.36	0.27	-	0.26	0.33
Na	-	0.30	-	-	0.73	0.14	-	0.64
K	-	-	-	-	-	1.53	-	-

	162-192			163-241			164-32d		
	Biot	Garnet	Plag	Biot	Garnet	Plag	Garnet	Hbl	Plag
Si	5.70	5.92	-	5.37	5.99	-	6.00	6.49	-
Al4	2.30	-	-	2.63	-	-	-	1.51	-
Al6	1.22	4.01	-	0.89	4.02	-	3.96	0.96	-
Ti	0.24	-	-	0.24	-	-	-	0.04	-
Fe	2.25	4.39	-	1.99	4.37	-	2.83	1.69	-
Mg	2.70	0.83	-	2.61	1.22	-	0.58	2.36	-
Mn	0.01	0.41	-	-	0.17	-	0.77	0.05	-
Ca		0.53	0.39	-	0.23	0.31	1.89	1.90	0.28
Na	0.06	-	0.62	0.12	-	0.70	-	0.42	0.72
K	1.69	-	-	1.68	-	-	-	0.06	-

	164-37c			164-73c				164-191a		
	Biot	Garnet	Plag	Biot	Garnet	Hbl	Plag	Biot	Garnet	Plag
Si	5.91	6.02	-	5.96	5.98	6.46	-	5.81	5.97	-
Al4	2.09	-	-	2.04	-	1.54	-	2.19	-	-
Al6	1.75	3.98	-	1.52	3.98	1.08	-	1.74	4.02	-
Ti	0.22	-	-	0.24	-	0.06	-	0.21	-	-
Fe	2.48	4.63	-	2.46	3.77	1.99	-	2.72	4.42	-
Mg	2.57	0.84	-	2.80	0.60	2.01	-	2.40	0.80	-
Mn	-	0.22	-	0.02	0.73	0.01	-	0.01	0.55	-
Ca	-	0.29	0.34	-	0.96	1.73	0.34	-	0.24	0.30
Na	0.03	-	0.64	0.02	-	0.54	0.67	0.02	-	0.70
K	1.81	-	-	1.96	-	0.04	-	1.85	-	-

	164-191b			164-191c			164-193b		
	Biot	Garnet	Plag	Biot	Garnet	Plag	Biot	Garnet	Plag
Si	5.83	5.95	-	5.86	6.03	-	5.91	5.93	-
Al4	2.17	-	-	2.14	-	-	2.09	-	-
Al6	1.71	4.00	-	1.92	3.96	-	1.61	4.00	-
Ti	0.21	-	-	0.21	-	-	0.28	-	-
Fe	2.69	4.66	-	2.55	4.41	-	2.35	4.69	-
Mg	2.43	0.79	-	2.32	0.81	-	2.78	0.89	-
Mn	-	0.39	-	0.01	0.54	-	-	0.06	-
Ca	-	0.23	0.32	-	0.24	0.30	-	0.47	0.27
Na	0.03	-	0.70	0.02	-	0.71	0.09	-	0.73
K	1.88	-	-	1.77	-	-	1.78	-	-

	164-195e			164-197			164-202a		
	Biot	Garnet	Plag	Garnet	Hbl	Plag	Biot	Garnet	Plag
Si	5.95	5.98	-	5.98	6.48	-	5.86	5.98	-
Al4	2.05	-	-	-	1.52	-	2.14	-	-
Al6	1.70	4.00	-	3.99	0.98	-	1.66	4.01	-
Ti	0.20	-	-	-	0.09	-	0.24	-	-
Fe	2.33	4.36	-	4.04	2.18	-	2.37	4.08	-
Mg	2.97	0.91	-	0.76	1.88	-	2.80	0.85	-
Mn	-	0.16	-	0.26	0.02	-	0.01	0.51	-
Ca	-	0.64	0.33	1.01	1.79	0.33	-	0.55	0.33
Na	0.08	-	0.67	-	0.42	0.67	0.08	-	0.67
K	1.70	-	-	-	0.10	-	1.89	-	-

	164-203c			164-204c			164-231		
	Biot	Garnet	Plag	Biot	Garnet	Plag	Biot	Garnet	Plag
Si	5.90	6.00	-	5.93	5.97	-	5.95	5.95	-
Al4	2.10	-	-	2.07	-	-	2.05	-	-
Al6	1.65	3.99	-	1.71	3.99	-	1.73	3.99	-
Ti	0.22	-	-	0.20	-	-	0.22	-	-
Fe	2.34	4.38	-	2.34	4.50	-	2.33	4.40	-
Mg	2.76	1.03	-	2.75	0.93	-	2.83	0.85	-
Mn	-	0.29	-	-	0.23	-	-	0.06	-
Ca	-	0.32	0.31	-	0.40	0.34	-	0.80	0.34
Na	0.08	-	0.71	0.03	-	0.66	0.05	-	0.67
K	1.90	-	-	1.89	-	-	1.59	-	-

	164-233d			164-233f			164-258h		
	Biot	Garnet	Plag	Biot	Garnet	Plag	Biot	Garnet	Plag
Si	5.86	5.99	-	5.89	5.96	-	5.86	6.00	-
Al4	2.14	-	-	2.11	-	-	2.14	-	-
Al6	1.73	3.95	-	1.74	3.97	-	1.74	4.01	-
Ti	0.25	-	-	0.22	-	-	0.28	-	-
Fe	2.27	4.43	-	2.31	4.40	-	0.30	4.40	-
Mg	2.77	0.95	-	2.81	0.93	-	2.65	1.02	-
Mn	0.01	0.26	-	0.01	0.22	-	0.01	0.20	-
Ca	-	0.44	0.30	-	0.57	0.33	-	0.36	0.31
Na	0.10	-	0.70	0.08	-	0.67	0.07	-	0.69
K	1.77	-	-	1.70	-	-	1.84	-	-

	164-264		164-335f			164-470b		
	Biot	Garnet	Garnet	Hbl	Plag	Garnet	Hbl	Plag
Si	5.48	5.94	5.92	6.29	-	5.95	6.59	-
Al4	2.16	-	-	1.71	-	-	1.41	-
Al6	1.74	4.03	3.96	1.00	-	3.96	0.80	-
Ti	0.23	-	-	0.12	-	-	0.11	-
Fe	2.44	4.55	3.73	1.78	-	3.80	1.63	-
Mg	2.59	1.03	0.88	2.19	-	1.45	2.62	-
Mn	-	0.23	0.29	0.03	-	0.19	0.02	-
Ca	-	0.28	0.12	1.86	0.44	0.72	1.78	0.45
Na	0.07	-	-	0.42	0.59	-	0.40	0.56
K	1.88	-	-	0.10	-	-	0.05	-

	164-474b			164-478a			169-HLF		
	Garnet	Hbl	Plag	Biot	Garnet	Plag	Biot	Garnet	Plag
Si	5.92	6.52	-	5.96	5.93	-	5.91	5.99	-
Al4	-	1.48	-	2.04	-	-	2.09	-	-
Al6	4.01	0.92	-	1.61	3.97	-	1.70	4.01	-
Ti	-	0.11	-	0.23	-	-	0.23	-	-
Fe	3.64	1.58	-	2.42	4.48	-	2.30	4.19	-
Mg	1.31	2.56	-	2.74	1.03	-	2.77	0.68	-
Mn	0.20	0.02	-	-	0.23	-	0.01	0.13	-
Ca	1.02	1.72	0.38	-	0.47	0.27	-	0.98	0.32
Na	-	0.45	0.63	0.06	-	0.72	0.06	-	0.68
K	-	0.06	-	1.91	-	-	1.85	-	0.01

	171-20b			171-23b			172-36a		
	Garnet	Hbl	Plag	Garnet	Hbl	Plag	Biot	Garnet	Plag
Si	5.96	6.38	-	5.98	6.29	-	5.85	5.97	-
Al4	-	1.62	-	-	1.71	-	2.15	-	-
Al6	3.96	0.53	-	3.94	0.76	-	1.77	3.99	-
Ti	-	0.18	-	-	0.14	-	0.21	-	-
Fe	3.39	2.44	-	3.32	2.61	-	2.39	4.23	-
Mg	0.43	1.82	-	0.38	1.46	-	2.62	0.81	-
Mn	0.40	0.05	-	0.18	0.02	-	0.01	0.50	-
Ca	1.89	1.95	0.28	2.25	1.93	0.33	-	0.53	0.36
Na	-	0.44	0.69	-	0.38	0.64	0.08	-	1.80
K	-	0.33	0.03	-	0.36	0.02	1.80	-	-

	173-19a			173-35i			173-60c			
	Garnet	Hbl	Plag	Biot	Garnet	Plag	Biot	Garnet	Hbl	Plag
Si	5.99	6.16	-	5.87	5.96	-	5.98	6.00	6.32	-
Al4	-	1.84	-	2.13	-	-	2.02	-	1.68	-
Al6	1.99	1.34	-	1.59	1.96	-	1.52	1.99	1.16	-
Ti	-	0.05	-	0.27	-	-	0.22	-	0.06	-
Fe	4.02	2.03	-	2.73	4.40	-	2.55	3.43	2.02	-
Mg	0.70	0.04	-	2.55	0.58	-	2.83	0.54	1.84	-
Mn	0.51	1.71	-	0.01	0.54	-	0.02	0.83	0.04	-
Ca	0.76	1.76	0.29	-	0.55	0.35	-	1.18	1.81	0.37
Na	-	0.50	0.71	0.04	-	0.64	0.02	-	0.42	0.64
K	-	0.06	-	1.66	-	0.01	1.75	-	0.09	-

	173-116b		173-169a				173-171d			
	Garnet	Plag	Biot	Garnet	Musc	Plag	Biot	Garnet	Musc	Plag
Si	5.96	-	5.81	5.91	6.65	-	5.87	6.01	6.75	-
Al4	-	-	2.19	-	1.35	-	2.13	-	1.25	-
Al6	1.96	-	1.50	1.94	4.81	-	1.68	2.01	4.84	-
Ti	-	-	0.29	-	0.07	-	0.29	-	0.11	-
Fe	4.21	-	2.76	4.45	0.11	-	2.50	4.14	0.12	-
Mg	0.57	-	2.54	0.78	0.14	-	2.49	0.76	0.15	-
Mn	0.77	-	0.01	0.32	-	-	0.01	0.64	-	-
Ca	0.49	0.42	-	0.58	-	0.33	-	0.43	-	0.34
Na	-	0.58	0.04	-	0.16	0.68	0.07	-	0.23	0.65
K	-	-	1.87	-	1.98	0.02	1.83	-	1.52	-

	173-180a			173-222a			173-227a		
	Biot	Garnet	Plag	Biot	Garnet	Plag	Biot	Garnet	Plag
Si	5.87	5.93	-	5.80	5.93	-	5.97	6.00	-
Al4	3.85	-	-	2.20	-	-	2.03	-	-
Al6	1.72	2.06	-	1.67	1.96	-	1.87	2.00	-
Ti	0.25	-	-	0.36	-	-	0.23	-	-
Fe	2.29	4.56	-	2.55	4.55	-	2.25	4.54	-
Mg	2.77	1.06	-	2.39	0.88	-	2.69	1.08	-
Mn	-	0.25	-	0.01	0.28	-	-	0.13	-
Ca	-	0.27	0.34	-	0.38	0.34	-	0.23	0.32
Na	0.15	-	0.66	0.07	-	0.67	0.01	-	0.68
K	1.70	-	-	1.76	-	0.01	1.51	-	-

	173-243			173-254i			174-8a			
	Biot	Garnet	Plag	Biot	Garnet	Plag	Biot	Garnet	Musc	Plag
Si	5.94	5.99	-	5.81	5.96	-	5.95	5.93	6.88	-
Al4	2.06	-	-	2.19	-	-	2.05	-	1.12	-
Al6	1.64	1.98	-	1.92	1.99	-	1.60	3.96	4.43	-
Ti	0.27	-	-	0.21	-	-	0.20	-	0.02	-
Fe	2.03	4.28	-	2.42	4.33	-	3.32	3.55	0.43	-
Mg	3.10	1.26	-	2.45	0.78	-	1.72	0.31	0.37	-
Mn	-	0.17	-	0.01	0.68	-	0.02	0.22	-	-
Ca	-	0.31	0.40	-	0.23	0.29	-	2.08	-	0.37
Na	0.11	-	0.60	0.09	-	0.69	0.04	-	0.09	0.63
K	1.69	-	-	1.74	-	0.01	2.06	-	2.09	0.01

	174-24			174-33a				174-36c		
	Gnt	Hblde	Plag	Biot	Gnt	Musc	Plag	Gnt	Hblde	Plag
Si	5.86	6.39	-	5.93	5.95	6.53	-	5.93	6.53	-
Al4	-	1.61	-	2.07	-	1.47	-	-	1.47	-
Al6	4.03	1.01	-	1.76	3.97	4.89	-	4.03	0.94	-
Ti	-	0.08	-	0.24	-	0.05	-	-	0.10	-
Fe	3.95	2.01	-	2.74	4.41	0.11	-	3.85	1.89	-
Mg	0.73	2.00	-	2.27	0.83	0.13	-	1.01	2.14	-
Mn	0.37	0.03	-	0.01	0.14	-	-	0.20	0.02	-
Ca	1.18	1.87	0.38	-	0.24	-	0.34	1.02	1.79	0.36
Na	-	0.34	0.65	0.11	-	0.38	0.68	-	0.49	0.64
K	-	0.10	0.01	1.68	-	1.77	-	-	0.10	-

	174-45b				174-118a				E-B1		
	Biot	Garnet	Musc	Plag	Biot	Garnet	Hbl	Plag	Biot	Garnet	Plag
Si	5.96	5.91	6.67	-	5.91	5.98	7.05	-	-	-	-
Al4	2.04	-	1.33	-	2.09	-	0.95	-	-	-	-
Al6	1.69	4.03	4.81	-	1.67	3.99	0.83	-	-	-	-
Ti	0.24	-	0.05	-	0.21	-	0.02	-	-	-	-
Fe	2.21	4.35	0.10	-	2.40	4.18	1.78	-	0.39	2.18	-
Mg	-	0.84	0.18	-	2.75	1.04	2.69	-	0.44	0.36	-
Mn	-	0.06	-	-	0.01	0.19	0.02	-	-	0.24	-
Ca	-	0.89	-	0.40	-	0.61	1.83	0.25	-	0.23	0.33
Na	0.07	-	0.40	0.59	0.03	-	0.33	0.76	-	-	0.67
K	1.71	-	1.73	-	1.91	-	0.03	-	-	-	-

	E-B3			E-B4			E-B5		
	Biot	Garnet	Plag	Biot	Garnet	Plag	Biot	Garnet	Plag
Si	-	-	-	-	-	-	-	-	-
Al4	-	-	-	-	-	-	-	-	-
Al6	-	-	-	-	-	-	-	-	-
Ti	-	-	-	-	-	-	-	-	-
Fe	0.34	2.22	-	0.42	2.07	-	0.37	2.14	-
Mg	0.49	0.51	-	0.37	0.26	-	0.46	0.43	-
Mn	-	0.08	-	-	0.50	-	-	0.19	-
Ca	-	0.19	0.39	-	0.17	0.35	-	0.25	0.25
Na	-	-	0.61	-	-	0.65	-	-	0.75
K	-	-	-	-	-	-	-	-	-

	GP 89-1				JM 145-3			JM 150-1		
	Biot	Garnet	Hbl	Plag	Garnet	Hbl	Plag	Biot	Garnet	Plag
Si	5.96	5.94	6.32	-	-	6.70	-	2.72	-	-
Al4	2.04	-	1.68	-	-	1.20	-	1.28	-	-
Al6	1.43	3.99	0.99	-	-	0.36	-	0.45	-	-
Ti	0.27	-	0.08	-	-	-	-	-	-	-
Fe	2.81	3.38	2.26	-	1.70	1.17	-	1.04	2.17	-
Mg	2.43	0.39	1.74	-	0.46	1.39	-	1.42	0.53	-
Mn	0.02	0.67	0.03	-	0.29	-	-	-	0.03	-
Ca	-	1.68	1.85	0.26	0.53	-	0.23	-	0.30	0.26
Na	0.01	-	1.47	0.74	-	-	0.77	-	-	0.74
K	2.10	-	0.17	-	-	-	-	1.03	-	-

	JM 194-3			JT 88-05			JT 88-38f		
	Biot	Garnet	Plag	Biot	Garnet	Plag	Garnet	Hbl	Plag
Si	-	-	-	5.66	5.94	-	5.97	6.09	-
Al4	-	-	-	2.34	-	-	-	1.91	-
Al6	-	-	-	1.06	4.01	-	3.94	1.11	-
Ti	-	-	-	0.28	-	-	-	0.06	-
Fe	1.10	2.24	-	2.48	4.38	-	3.72	2.19	-
Mg	1.36	0.44	-	2.58	1.03	-	0.88	1.85	-
Mn	-	0.09	-	0.02	0.42	-	0.65	0.06	-
Ca	-	0.22	0.23	-	0.28	0.33	0.89	1.81	0.53
Na	-	-	0.77	0.05	-	0.67	-	0.42	0.47
K	-	-	-	1.85	-	-	-	0.09	-

	JT 88-40c			JT 89-17			NW 91-5		
	Garnet	Hbl	Plag	Biot	Garnet	Plag	Biot	Garnet	Plag
Si	5.92	6.40	-	5.63	5.98	-	5.98	5.93	-
Al4	-	1.60	-	2.37	-	-	2.02	-	-
Al6	4.00	1.07	-	1.12	4.01	-	1.57	4.01	-
Ti	-	-	-	0.30	-	-	0.23	-	-
Fe	3.90	1.74	-	2.40	4.20	-	2.40	4.10	-
Mg	1.19	2.28	-	2.53	1.08	-	2.86	0.96	-
Mn	0.31	0.03	-	0.01	0.46	-	0.01	0.15	-
Ca	0.75	1.76	0.49	-	0.30	0.33	-	0.91	0.38
Na	-	0.38	0.51	0.08	-	0.69	0.07	-	0.62
K	-	0.08	-	1.75	-	-	1.75	-	-

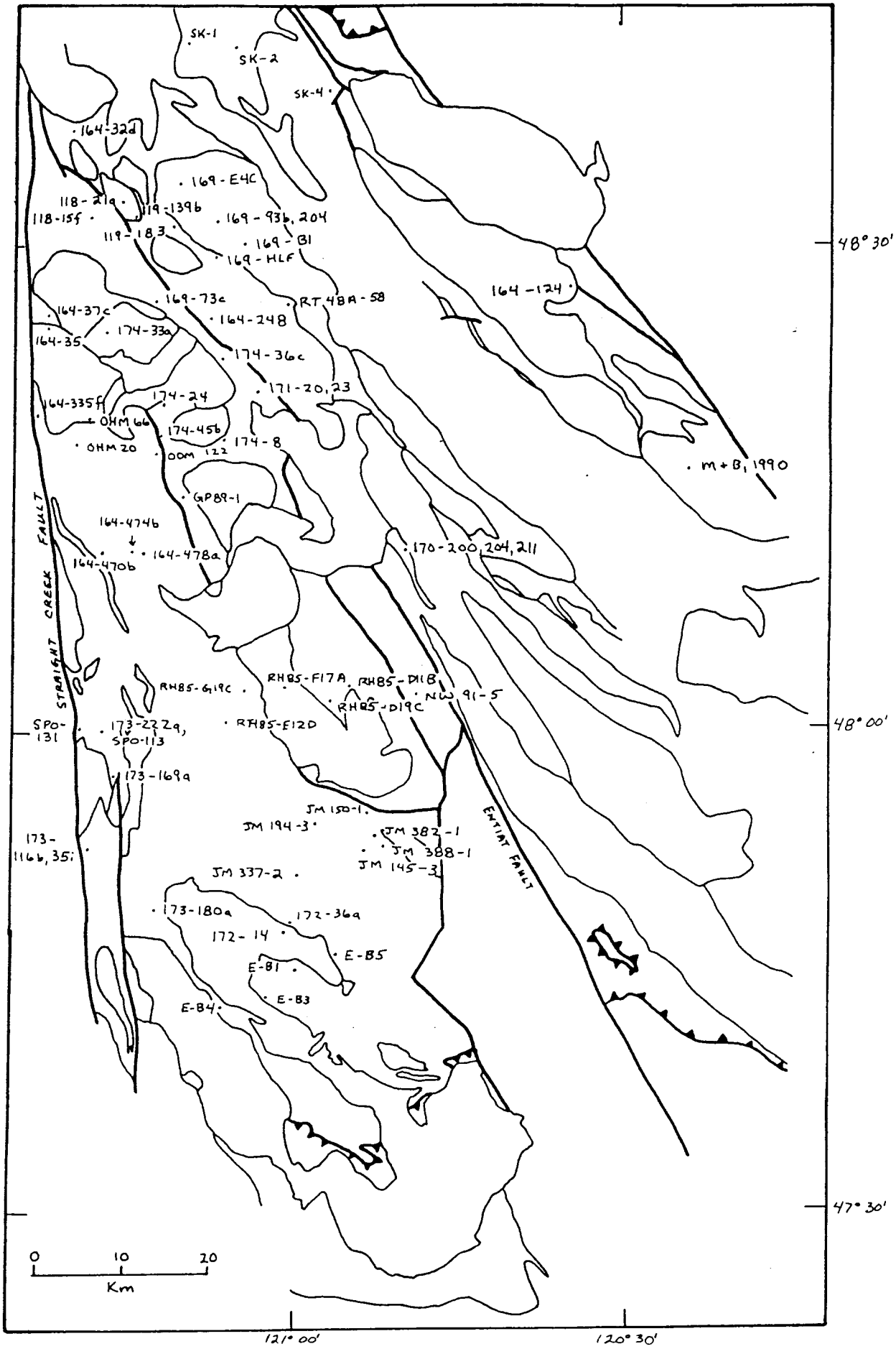
	OHM 20			ODM 22			P-3		
	Biot	Garnet	Plag	Biot	Garnet	Plag	Biot	Garnet	Plag
Si	5.47	5.98	-	5.55	6.00	-	5.44	5.90	-
Al4	2.53	-	-	2.45	-	-	2.56	-	-
Al6	0.86	3.96	-	0.89	3.95	-	0.92	4.08	-
Ti	0.24	-	-	0.14	-	-	0.20	-	-
Fe	1.97	4.22	-	1.64	4.07	-	2.15	4.48	-
Mg	2.66	0.97	-	3.08	1.29	-	2.50	0.85	-
Mn	0.01	0.44	-	0.01	0.05	-	-	0.27	-
Ca	-	0.44	0.28	-	0.66	0.38	-	0.46	0.32
Na	0.07	-	0.70	0.07	-	0.62	0.07	-	0.70
K	1.64	-	-	1.65	-	-	1.67	-	-

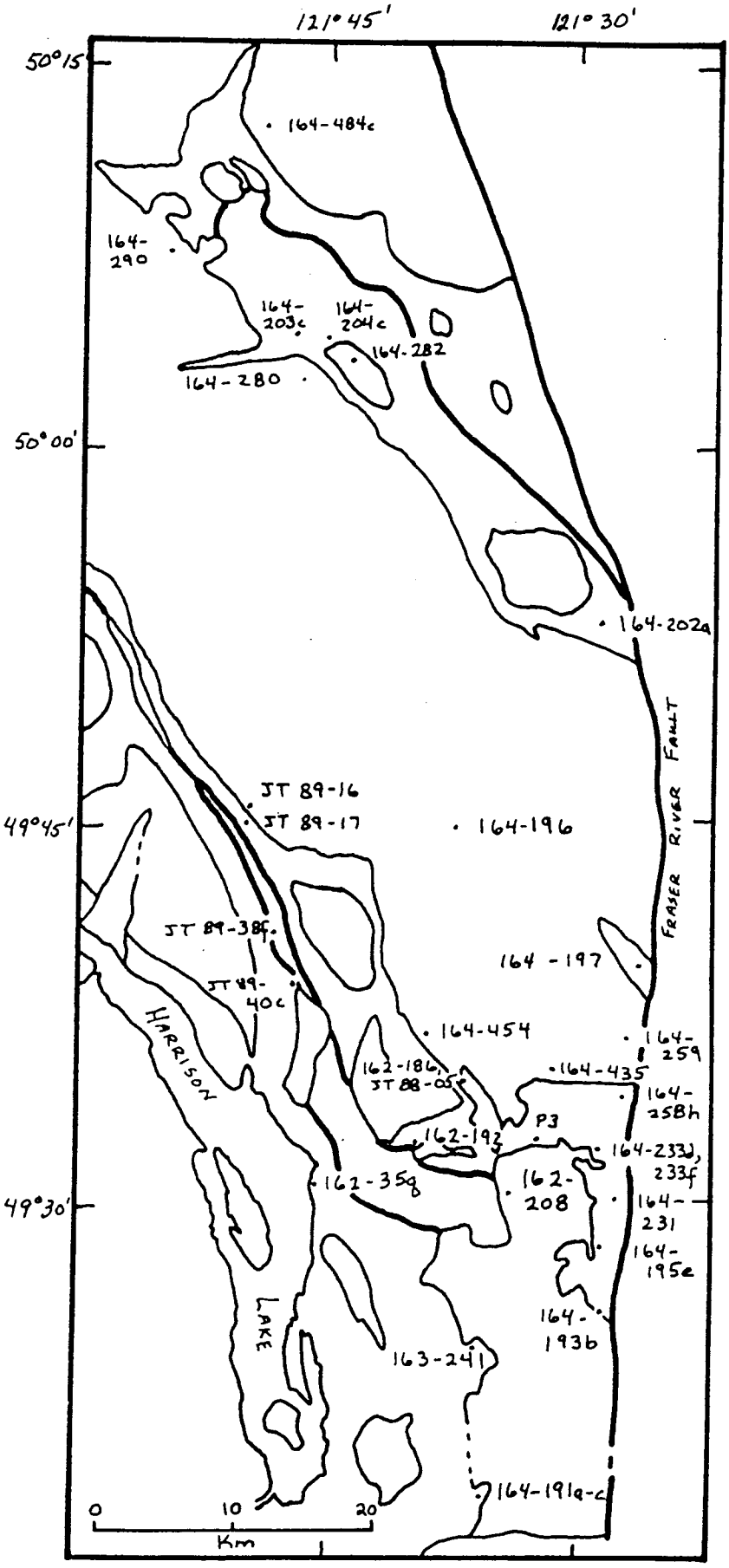
	RH 85-D11B			RH 85-D19C			RH 85-E12D		
	Garnet	Hbl	Plag	Garnet	Hbl	Plag	Garnet	Hbl	Plag
Si	5.94	6.45	-	5.96	6.37	-	5.94	6.34	-
Al4	-	1.55	-	-	1.63	-	-	1.66	-
Al6	3.97	0.88	-	3.96	1.03	-	3.98	1.22	-
Ti	-	0.06	-	-	0.09	-	-	0.06	-
Fe	3.11	2.40	-	3.37	2.14	-	4.08	1.76	-
Mg	0.28	1.73	-	0.34	1.76	-	0.89	2.08	-
Mn	1.06	0.05	-	0.75	0.03	-	0.33	0.02	-
Ca	1.67	1.81	0.19	1.77	1.84	0.29	0.82	1.74	0.40
Na	-	0.53	0.82	-	0.53	0.71	-	0.51	0.63
K	-	0.12	-	-	0.14	-	-	0.05	-

	RH 85-F17A			RH 85-G19C			RT 48A58			
	Garnet	Hbl	Plag	Garnet	Hbl	Plag	Biot	Garnet	Musc	Plag
Si	5.96	6.28	-	5.96	6.61	-	5.87	6.00	6.75	-
Al4	-	1.72	-	-	1.39	-	2.13	-	1.25	-
Al6	3.91	0.84	-	3.93	0.78	-	1.71	3.98	4.85	-
Ti	-	0.15	-	-	0.16	-	-	-	0.05	-
Fe	3.88	2.36	-	3.70	1.67	-	2.70	4.38	0.17	-
Mg	0.72	1.68	-	1.45	2.50	-	2.25	0.41	0.22	-
Mn	0.43	0.03	-	0.16	0.02	-	0.01	0.11	-	-
Ca	1.13	1.86	0.40	0.79	1.70	0.30	-	1.12	-	0.27
Na	-	0.51	0.62	-	0.55	0.72	0.08	-	0.14	0.74
K	-	0.22	-	-	-	-	1.88	-	1.59	-

	SK-1		SK-2	SK-4	
	Garnet	Ilm	Garnet	Garnet	Ilm
Si	2.56	-	5.93	5.87	-
Al4	-	-	-	-	-
Al6	1.27	-	3.97	3.98	-
Ti	-	0.99	-	0.01	1.00
Fe	0.92	1.00	4.87	4.40	0.98
Mg	0.27	0.01	0.71	0.77	0.01
Mn	0.02	0.02	0.26	0.19	0.01
Ca	0.06	-	0.33	0.92	-
Na	-	-	-	-	-
K	-	-	-	-	-

	SPO-113			SPO-131		
	Biot	Garnet	Plag	Biot	Garnet	Plag
Si	5.44	6.01	-	5.34	5.97	-
Al4	2.56	-	-	2.66	-	-
Al6	0.92	3.94	-	0.81	3.98	-
Ti	0.27	-	-	0.21	-	-
Fe	2.13	4.50	-	2.33	4.42	-
Mg	2.34	0.96	-	2.54	1.14	-
Mn	0.01	0.26	-	0.01	0.18	-
Ca	-	0.35	0.29	-	0.35	0.33
Na	0.09	-	0.68	0.05	-	0.63
K	1.70	-	-	1.75	-	-


SK-1
SK-2
SK-4
164-32d
169-E4C
118-21a
119-139b
118-15f
169-93b, 204
119-18.3
169-B1
169-HLF
48° 30'
164-124
169-73c
RT 48A-58
164-37c
164-248
174-33a
164-35
174-36c
171-20, 23
164-335f
174-24
OHM 66
174-45b
OHM 20
OOM 122
174-8
m+B, 1990
GP89-1
STRAIGHT CREEK FAULT
164-474b
164-478a
164-470b
170-200, 204, 211
RH85-G19C
RH85-F17A
RH85-D18
RH85-D19C
NW 91-5
48° 00'
SPO-131
173-222a, SPO-113
RH85-E12D
173-169a
JM 150-1
JM 194-3
JM 382-1
JM 388-1
JM 145-3
ENTIAT FAULT
173-116b, 35i
JM 337-2
173-180a
172-36a
172-14
E-B5
E-B1
E-B3
E-B4
47° 30'
0
10
20
Km
121° 00'
120° 30'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121° 30'
50°15'
50°00'
49°45'
49°30'
164-484c
164-290
164-203c
164-204c
164-282
164-280
164-202a
FRASER RIVER FAULT
JT 89-16
JT 89-17
164-196
JT 89-38f
JT 89-40c
164-197
HARRISON
164-454
164-259
162-186
JT 88-05
164-435
164-258h
P3
162-193
164-233d, 233f
162-35g
162-208
164-231
164-195e
LAKE
164-193b
163-241
164-191a-c
0
10
20
Km

Appendix 2 Description of zircon-dated samples.

Clear Creek orthogneiss. Sample JT 90-02, collected along logging road in Clear Creek drainage at elevation 1600'. Latitude = 49°40.55'; longitude = 121°47.52'. Biotite tonalite orthogneiss from 0.5 kilometer thick sill. Planar fabric appears to in part solid-state and in part metamorphic. Quartz is recrystallized into subgrains; igneous plagioclase grains are twinned, zoned, aligned and slightly bent; epidote occurs replacing plagioclase and as large grains in biotite. 5% mafics.

Spuzzum pluton. Sample 164-188, from the northwest corner of the Spuzzum pluton, collected along a spur logging road at elevation 3800'. Latitude = 49°31.93', longitude = 121°34.59'. Quartz diorite orthogneiss with variably developed solid-state fabric. Two-stage growth history evidenced by clear plagioclase overgrowths on ragged cloudy plagioclase cores with higher an-content, and green amphibole rims on cloudy brown amphibole cores. 20% mafics.

Scuzzy pluton southwest. Sample JT 89-16, collected along a logging road on the west-facing slope above Big Silver Creek at elevation 4200'. Latitude = 49°45.69', longitude = 121°49.62'. Biotite, hornblende tonalite. Well preserved igneous textures, no subgrain development or late-stage epidote. Igneous planar fabric. 10% mafics.

Scuzzy pluton southeast. Sample 164-259, collected along logging road 0.3 kilometers NE of bridge over Sawmill Creek at elevation 1900'. Latitude = 49°36.82', longitude =

121°26.58'. Hornblende, biotite quartz diorite. No fabric, no subgrain development, minor late-stage alteration of igneous minerals. 15% mafics.

Scuzzy pluton northeast. Sample NW 90-20, collected along logging road west of North Bend at elevation 4400'. Latitude = 49°52.55', longitude = 121°29.53'. Biotite tonalite with igneous textures. Little or no planar or linear fabric; no subgrain development; minor muscovite and epidote alteration of plagioclase. 7% mafics.

Synmetamorphic sill. Sample NW 90-22, collected in countryrock near margin of Scuzzy pluton, 1/4 kilometer northwest of sample NW 90-21, 100 meters west of logging road at elevation 4500'. Latitude = 49° 52.67', longitude = 121°29.68'. Well foliated, biotite, muscovite tonalite. Solid-state fabric. Quartz and plagioclase are mostly recrystallized into subgrains. 5% mafics.