NAME ARG – WHOLE ROCK ANALYSES | No.

GEOCHEMICAL DATA (PERCENT) GROUP 2

SPECIMEN ID	6064	6189	4144	4260	6176
ROCK TYPE	ARGBS	ARGBK	ARGBS	ARGBS	ARGBS
SEQUENCE NO	2082	2084	2100	2101	2102
SI O2	46.69	49.05	48.88	49.54	47.57
TI O2	1.55	1.68	1.56	1.26	2.24
AL2 O3	16.84	14.76	16.22	16.37	14.26
FE2 O3	13.74	14.25	2.39	3.46	4.94
FE O	-.01	-.01	7.90	6.77	9.17
MN O	.15	.17	.16	.18	.33
MG O	5.99	6.31	10.82	7.56	7.54
CA O	10.85	8.96	8.32	12.39	9.37
NA2 O	3.20	4.22	3.28	1.99	3.57
K2 O	.88	.46	.26	.31	.81
P2 O5	.10	.14	.21	.16	.20
S	-.01	-.01	-.01	-.01	-.01
L.O.I.	0.	0.	0.	0.	0.
TOTAL	99.99	100.00	100.00	99.99	100.00

TRACE ELEMENT CHEMISTRY (PPM)

BA	-.01	-.01	-.01	-.01	-.01
CU	-.01	-.01	-.01	-.01	-.01
PB	-.01	-.01	-.01	-.01	-.01
ZN	-.01	-.01	-.01	-.01	-.01
CO	-.01	-.01	-.01	-.01	-.01
AG	-.01	-.01	-.01	-.01	-.01
CR	-.01	-.01	-.01	-.01	-.01
V	-.01	-.01	-.01	-.01	-.01
CO	-.01	-.01	-.01	-.01	-.01
NI	-.01	-.01	-.01	-.01	-.01
MB	-.01	-.01	-.01	-.01	-.01
RB	-.01	-.01	-.01	-.01	-.01
SR	-.01	-.01	-.01	-.01	-.01
ZR	-.01	-.01	120.00	105.00	135.00
Y	-.01	-.01	7.00	0.	14.00

GEOCHEMICAL DATA (PERCENT) GROUP 2

SPECIMEN ID	6322	6123	6190	6232	6313
ROCK TYPE	ARGBS	ARGBK	ARGBK	ARGBK	ARGBK
SEQUENCE NO	2103	2104	2105	2106	2107
SI 02	49.20	45.14	50.32	43.23	44.72
TI 02	1.09	1.92	1.12	.05	.91
AL2 03	15.26	11.80	13.68	.86	20.11
FE2 03	2.23	2.95	2.86	9.65	1.98
FE 0	8.15	7.87	8.06	5.10	4.81
MN 0	.18	.16	.11	.21	.12
MG 0	9.03	14.70	8.27	33.25	5.24
CA 0	11.94	13.15	12.45	7.40	18.62
NA2 0	2.44	1.04	2.86	.11	3.05
K2 0	.36	.98	.10	.05	.27
P2 05	.13	.30	.16	.08	.17
S	-.01	-.01	-.01	-.01	-.01
L.O.I.	0.	0.	0.	0.	0.
TOTAL	100.01	100.01	99.99	99.99	100.00

TRACE ELEMENT CHEMISTRY (PPM)

BA	-.01	-.01	-.01	-.01	-.01
CU	-.01	-.01	-.01	-.01	-.01
PB	-.01	-.01	-.01	-.01	-.01
ZN	-.01	-.01	-.01	-.01	-.01
CD	-.01	-.01	-.01	-.01	-.01
AG	-.01	-.01	-.01	-.01	-.01
CR	-.01	-.01	-.01	-.01	-.01
V	-.01	-.01	-.01	-.01	-.01
CO	-.01	-.01	-.01	-.01	-.01
NI	-.01	-.01	-.01	-.01	-.01
MB	-.01	-.01	-.01	-.01	-.01
RB	-.01	-.01	-.01	-.01	-.01
SR	-.01	-.01	-.01	-.01	-.01
ZR	88.00	120.00	100.00	55.00	72.00
Y	0.	0.	0.	0.	0.

GEOCHEMICAL DATA (PERCENT) GROUP 2

SPECIMEN ID	6114	6131
ROCK TYPE	ARGBD	ARGBD
SEQUENCE NO	2110	2111
SI O2	49.92	47.21
TI O2	1.04	1.97
AL2 O3	16.64	14.84
FE2 O3	1.35	3.84
FE O	7.38	9.34
MN O	.16	.22
MG O	7.90	7.47
CA O	11.34	10.89
NA2 O	3.95	3.01
K2 O	.10	.99
P2 O5	.22	.23
S	-.01	-.01
L.O.I.	0.	0.
TOTAL	100.00	100.01

TRACE ELEMENT CHEMISTRY (PPM)

BA	-.01	-.01
CU	-.01	-.01
PB	-.01	-.01
ZN	-.01	-.01
CD	-.01	-.01
AG	-.01	-.01
CR	-.01	-.01
V	-.01	-.01
CO	-.01	-.01
NI	-.01	-.01
MB	-.01	-.01
RB	-.01	-.01
SR	-.01	-.01
ZR	100.00	120.00
Y	0.	12.00

GEOCHEMICAL DATA (PERCENT) GROUP 2

SPECIMEN ID	6064	6189	4144	4260	6176
ROCK TYPE	ARGBS	ARGBK hbl	ARGBS Actinolite	ARGBS	ARGBS
SEQUENCE NO	2082 meta volcanic no phenos	2084 metabasite	2100 diabasic	2101 pyroxene phenos	2102 subophitic plag alt altered
SI 02	45.27	48.39	47.14	47.26	46.81
TI 02	1.50	1.66	1.50	1.20	2.21
AL2 03	16.32	14.56	15.65	15.62	14.03
FE2 03	13.32	14.05	2.31	3.30	4.86
FE 0	-.01	-.01	7.62	6.46	9.02
MN 0	.15	.17	.15	.17	.32
MG 0	5.81	6.22	10.43	7.21	7.42
CA 0	10.52	8.83	8.02	11.82	9.22
NA2 0	3.10	4.17	3.16	1.90	3.51
K2 0	.85	.45	.25	.30	.80
P2 05	.10	.14	.20	.15	.20
S	-.01	-.01	-.01	-.01	-.01
L.O.I.	3.05	1.36	3.56	4.61	1.60
TOTAL	99.99	100.00	99.99	100.00	100.00

TRACE ELEMENT CHEMISTRY (PPM)

BA	-.01	-.01	-.01	-.01	-.01
CU	-.01	-.01	-.01	-.01	-.01
PB	-.01	-.01	-.01	-.01	-.01
ZN	-.01	-.01	-.01	-.01	-.01
CD	-.01	-.01	-.01	-.01	-.01
AG	-.01	-.01	-.01	-.01	-.01
CR	-.01	-.01	-.01	-.01	-.01
V	-.01	-.01	-.01	-.01	-.01
CO	-.01	-.01	-.01	-.01	-.01
NI	-.01	-.01	-.01	-.01	-.01
MB	-.01	-.01	-.01	-.01	-.01
RB	-.01	-.01	-.01	-.01	-.01
SR	-.01	-.01	-.01	-.01	-.01
ZR	-.01	-.01	120.00	105.00	135.00
Y	-.01	-.01	7.00	0.	14.00

GEOCHEMICAL DATA (PERCENT) GROUP 2

SPECIMEN ID	6322	6123 hbl diotite tremolite	6190 hbl	6232 ?? ultramafic — NOT ARG	6313 ??
ROCK TYPE	ARGBS	ARGBK	ARGBK	ARGBK	ARGBK
SEQUENCE NO	2103 no phenos metavolcanic	2104	2105 metabasalt	2106 HARZBURGITE	2107 metavolcanic graphitic abundant CO_3 =
SI O2	47.47	43.71	49.51	40.35	41.88
TI O2	1.05	1.85	1.10	.05	.85
AL2 O3	14.72	11.43	13.46	.80	18.83
FE2 O3	2.15	2.86	2.81	9.01 very high MgO	1.85
FE O	7.86	7.62	7.93	4.76	4.51
MN O	.17	.15	.11	.20	.11
MG O	8.71	14.24	8.13	31.04	4.91 high CaO
CA O	11.52	12.73	12.25	6.91	17.43
NA2 O	2.35	1.00	2.81	.10	2.86
K2 O	.35	.95	.10	.05	.25
P2 O5	.13	.29	.16	.07	.16
S	-.01	-.01	-.01	-.01	-.01
L.O.I.	3.51	3.16	1.61	6.66	6.36
TOTAL	99.99	99.99	99.98	100.00	100.00

TRACE ELEMENT CHEMISTRY (PPM)

BA	-.01	-.01	-.01	-.01	-.01
CU	-.01	-.01	-.01	-.01	-.01
PB	-.01	-.01	-.01	-.01	-.01
ZN	-.01	-.01	-.01	-.01	-.01
CD	-.01	-.01	-.01	-.01	-.01
AG	-.01	-.01	-.01	-.01	-.01
CR	-.01	-.01	-.01	-.01	-.01
V	-.01	-.01	-.01	-.01	-.01
CO	-.01	-.01	-.01	-.01	-.01
NI	-.01	-.01	-.01	-.01	-.01
MB	-.01	-.01	-.01	-.01	-.01
RB	-.01	-.01	-.01	-.01	-.01
SR	-.01	-.01	-.01	-.01	-.01
ZR	88.00	120.00	100.00	55.00	72.00
Y	0.	0.	0.	0.	0.

GEOCHEMICAL DATA (PERCENT) GROUP 2

SPECIMEN ID	6114 tremolite	6131
ROCK TYPE	ARGBD	ARGBD
SEQUENCE NO	2110 pyroxene phenos	2111 meta diabasic some sericite
SI O2	48.26	46.02
TI O2	1.01	1.92
AL2 O3	16.09	14.46
FE2 O3	1.31	3.74
FE O	7.14	9.10
MN O	.15	.21
MG O	7.64	7.28
CA O	10.96	10.62
NA2 O	3.82	2.93
K2 O	.10	.96
P2 O5	.21	.22
S	-.01	-.01
L.O.I.	3.32	2.53
TOTAL	100.01	99.99

TRACE ELEMENT CHEMISTRY (PPM)

BA	-.01	-.01
CU	-.01	-.01
PB	-.01	-.01
ZN	-.01	-.01
CD	-.01	-.01
AG	-.01	-.01
CR	-.01	-.01
V	-.01	-.01
CO	-.01	-.01
NI	-.01	-.01
MO	-.01	-.01
RB	-.01	-.01
SR	-.01	-.01
ZR	100.00	120.00
Y	0.	12.00

Simple Statistics — Anvil Range Group (Selwyn Basin)

	File #1		File #3	
Oxide	Mean	Std Dev	Mean	Std Dev.
SiO_2	46.790	0.883	48.376	1.202
TiO_2	1.492	0.446	1.540	0.439
Al_2O_3	15.268	0.896	15.790	1.030
Fe_2O_3	12.069	1.942	12.462	1.870
MnO	0.192	0.072	0.200	0.074
MgO	7.916	1.741	8.188	1.822
CaO	10.220	1.595	10.574	1.715
Na_2O	2.804	0.659	2.896	0.656
K_2O	0.510	0.290	0.524	0.296
P_2O_5	0.156	0.044	0.160	0.046
LOI	3.266	1.093	—	—
	5 analyses			
FeO (4 analyses)	7.740	1.050	7.997	0.986

Simple Statistics — Anvil Range Group (Klondike)

	File #1		File #2	
Oxide	Mean	Std Dev	Mean	Std Dev
SiO_2	47.203	3.077	48.170	2.700
TiO_2	1.537	0.390	1.573	0.411
Al_2O_3	13.150	1.588	13.413	1.498
Fe_2O_3	12.334	1.494	12.588	1.441
MnO	0.143	0.031	0.147	0.032
MgO	9.530	4.189	9.760	4.389
CaO	11.270	2.127	11.520	2.244
Na_2O	2.660	1.590	2.707	1.596
K_2O	0.500	0.427	0.513	0.442
P_2O_5	0.197	0.081	0.200	0.087
LOI	2.043	0.975	—	—
	3 analyses			
FeO (2 analyses)	7.775	0.219	7.965	0.134

Simple Statistics — Anvil Range Group (Dildo)

Oxide	File #1 Mean	File #1 Std Dev	File #3 Mean	File #3 Std Dev
SiO_2	47.140	1.584	48.565	1.916
TiO_2	1.465	0.643	1.505	0.658
Al_2O_3	15.275	1.153	15.740	1.273
Fe_2O_3	11.549	3.259	11.886	3.301
MnO	0.180	0.042	0.190	0.042
MgO	7.460	0.255	7.685	0.304
CaO	10.790	0.240	11.115	0.318
Na_2O	3.375	0.629	3.480	0.665
K_2O	0.530	0.608	0.545	0.629
P_2O_5	0.215	0.007	0.225	0.007
LOI	2.925	0.559	—	—
	2 analyses			
FeO (2 analyses)	8.120	1.386	8.360	1.386

SIMPLE STATISTICS — ARG Basalt (Dildo)

File # 3 — normalized without LOI - 'S' included

Oxide	Mean	Std Dev	Kurtosis	Skewness
SiO_2	48.565	1.916		
TiO_2	1.505	0.658		
Al_2O_3	15.740	1.273		
Fe_2O_3	11.886	3.301		
MnO	0.190	0.042		
MgO	7.685	0.304		
CaO	11.115	0.318		
Na_2O	3.480	0.665		
K_2O	0.545	0.629		
P_2O_5	0.225	0.007		

for 2 analyses

ROCK CODE TABLE

1F	1
3C	2
3G	3
5C	4
5F	5
MCV	6
5CU	7
5CG	8
STDMRG-1	9
UNK	10
KSMB	11
KSE	12
5D	13
1C	14
3E	15
3G/D	16
STD SY-2	17
3D	18
3DW	19
3DV	20
5BD	21
5B	22
5B3	23
5A	24
ARGBS	25
FLSZB	26
ARGBK	27
SFV	28
ARGBD	29
FLSZG	30
0E8	31
1CD	32
0E7	33
1C6	34
1D4	35
0E6	36
0D8	37
1C5	38
0E	39
1D	40
STD SY-3	41
2A	42
1D+1F	43

Anvil Range Group — Summary of Petrography & Analyses

12 analyses listed (11 analyses total)

Divided into 3 subgroups

Selwyn Basin

4144, 4260, 6064, 6176, 6322

Klondike

6123, 6189, 6190, 6313

Dilo

6114, 6131

analysis 6232 — not ARG - belongs to ultramafic suite along fault zone

this sample is a harzburgite

analysis 6313 — discarded because of 'extreme' alteration —

abundant carbonate present.

Petrography

Selwyn Basin

medium-grained to aphanitic

commonly massive with no phenocrysts T.S. with phenocrysts

consists of pyroxene with only minor plagioclase.

medium-grained material looks subophitic — one slide has graphic

intergrowth of plagioclase and pyroxene

Texturally part of sections often have cloudy appearance subrounded

pyroxene grains in fine matrix. may be primary — looks

more to be structural

no readily visible foliation

mineralogically — generally altered

plag → clinozoisite ± sericite

matrix commonly consists of chlorite - clinozoisite ±

tremolite/actinolite ± biotite ± carbonate

tremolite 4144, 4260, 6322

biotite 6176,

Klondike

3 samples are metabasite. definite metamorphic recrystallized

texture with developed foliation.

mineral assemblage

hbl-plagioclase ± clinozoisite ± chlorite ± sphene

6123 has 3 types of amphibole

brown hbl, tremolite, minor green hbl

also has minor biotite

clinozoisite/epidote fills fractures

1 sample is massive, aphanitic metavolcanic

recrystallized — carbonate - chlorite - clinozoisite/epidote

abundant chlorite & carbonate

Dildo

1 sample — small pyroxene phenocrysts in aphanitic massive

metavolcanic matrix

matrix presently tremolite - chlorite - plag - epidote/clinozoisite

1 sample — diabasic — subhedral pyroxene in matrix of

interstitial plagioclase matrix presently chlorite - epidote/clinozoisite

RESEARCH SAMPLE LOG

PROJECT: _____

STATION: 4/N/4

DDH: _____ DEPTH: _____

HAND SAMPLE: ARG – Basalt - Selwyn

105 K/2 SWIM LAKES

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ Whole rock + traces

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED:

OTHER:

COMMENTS:

Mass., aphanitic, structureless med green, slightly epidotized ARG_B.

Basalts unfoliated, not heavily fractured, no evidence of shearing or tectonic fabric — as fresh as on Rose Mtn.

THIN SECTION LOG

PROJECT: _____

STATION: 4144 DESCRIBED BY: LCP

DDH: _____ DEPTH: _____ DATE: Feb 29/1980

UNIT: ARG Basalt (Selwyn)

HAND SAMPLE:

PURPOSE: Whole rock analysis

Chlorite
very pale to clear
X-nicols - blue colors

Actinolite
pale green in plane light
also green & brown

Pyroxene
biaxial +
pale pinkish tint in plane light
low 1st order colors

	EST.	POINT CT.
PLAGIOCLASE	35	
(CLINO)PYROXENE	20	
CHLORITE	10	
ACTINOLITE	30	
OPAQUES	5	
EPIDOTE / CHINOZOISITE	throughout plag.	

COMMENTS:

Primary texture appears to be graphic intergrowth of euhedral to subhedral plagioclase and pyroxene. Medium coarse-grained. Interstitial skeletal opaques. Might be considered a subophitic texture. No visible foliations.

Presently altered both texturally and mineralogically. Areas have developed a clastic texture with subrounded pyroxene and plagioclase grains in a finer grained matrix. Pyroxene → hornblende/actinolite. Plagioclase shows extensive development of clinozoisite. Opaques highly altered. Plag has mottled extinction.

Actinolite as aggregates in fractures

RESEARCH SAMPLE LOG

PROJECT: _____

STATION: 4260

DDH: _____ DEPTH: _____

HAND SAMPLE: ARG - Basalt - Selwyn

105 K/3 FARO

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ Whole rock + ∀races

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED:

OTHER:

COMMENTS:

f.g. bluish green alt. basalt - massive - some epidote xtals after plag -. could easily be ARG - cut by fairly planar calcite veins

THIN SECTION LOG

PROJECT: _____

STATION: 4260 DESCRIBED BY: LCP

DDH: _____ DEPTH: _____ DATE: Feb 29, 1980

UNIT: ARG basalt - Selwyn

HAND SAMPLE:

PURPOSE: Whole rock analysis

Chlorite – pale green to bright green
X-nicols blue to brownish purple

	EST.	POINT CT.
(CLINO) PYROXENE	10	
QUARTZ	Tr	
PLAGIOCLASE	30	
CHLORITE	45	
CARBONATE	5	
TREMOLITE / ACTINOLITE	Tr	
EPIDOTE / CLINOZOISITE	10	

COMMENTS: ~10% phenocysts.

Scattered pyroxene phenocysts in a fine-grained volcanic matrix. Pyroxenes are subhedral to euhedral. Also have the odd plagioclase phenocryst. Matrix has feldspar microlite texture. Presently consists of plagioclase, chlorite, opaques. In some cases have higher relief mineral with bright green pleochroism, parallel extinction, anomalous interference colors with bright colors & purplish (pumpellyite ??)

Textually part of slide has clastic texture with pyroxene & plagioclase rounded grains in chloritic matrix. Structural or primary?

Fractures filled by carbonate + unknown mineral (→ probably epidote/clinozoisite). Irregular splotchy pattern to unknown. High to moderate relief – low 1st order colors, radiating growth.

OVER →

RESEARCH SAMPLE LOG

PROJECT: _____

STATION: 6064

DDH: _____ DEPTH: _____

HAND SAMPLE: ANVIL RANGE GROUP – BASALT – SELWYN

105 G/13 WEASEL LAKE

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ Whole rock + traces

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED:

OTHER:

COMMENTS:

lt green mass. ARG_B flows & microbxias. Non-calc.

Ocp forms cliff above underlying EG/ARG chert pkg @ 6065

THIN SECTION LOG

PROJECT: _____

STATION: 6064 DESCRIBED BY: LCP

DDH: _____ DEPTH: _____ DATE: Feb 29/1980

UNIT: ARG Basalt - Selwyn

HAND SAMPLE:

PURPOSE: Whole rock analysis

Chlorite
blue interference colors

Epidote/Clinozoisite is
biaxial —

	EST.	POINT CT.
CHLORITE	60	
EPIDOTE / CLINOZOISITE	40	
PLAGIOCLASE ?	Tr	

COMMENTS:

Fine-grained aphanitic mixture of chlorite and epidote No visible foliation. Do see primary microlite texture in places.

Minor amts of chlorite has bright green pleochroism with anomalous purplish interference colors

RESEARCH SAMPLE LOG

PROJECT: _____

STATION: 6176

DDH: _____ DEPTH: _____

HAND SAMPLE: ARG – Basalt - Selwyn

105 G/14 "LUMBERJACK LAKE"

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ Whole rock + traces

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED:

OTHER:

COMMENTS:

M. dk green, mass., finely xlline partially epidotized ARG basalts

Fabricless

THIN SECTION LOG

PROJECT: _____

STATION: 6176

DDH: _____

UNIT: ARG Basalt - Selwyn

DESCRIBED BY: LCP

DEPTH: _____

DATE: Feb 29/1980

HAND SAMPLE:

PURPOSE: Whole rock analysis

	EST.	POINT CT.
OPAQUES	5	
CHLORITE	20	
PYROXENE	50	
QUARTZ	5	
EPIDOTE / CLINOZOISITE	20	
PLAGIOCLASE	45 primary	
BIOTITE ?	Tr	

COMMENTS:

Subophitic texture. Medium-grained. Pyroxene occasionally totally or partly encloses plagioclase laths. Opaques are subhedral to interstitial - skeletal

No flow noted in major part of slide.

Plagioclase totally gone to sericite with clinozoisite. Also abundant interstitial chlorite in matrix.

Large veins cored by fine chlorite - part of which has bright green colours and anomalous interference patterns. Rimmed by suture quartz.

Then have extensive clastic section. Looks to be structural. Vague foliation. Rounded pyroxene grains in chloritic matrix. Have development of interstitial biotite (?) - brown. Smaller veins rich in chlorite

RESEARCH SAMPLE LOG

PROJECT: _____

STATION: 6322

DDH: _____ DEPTH: _____

HAND SAMPLE: ARG – Basalt – Selwyn

105 G/13 Weasel Lake

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ Whole rock + traces

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED:

OTHER:

COMMENTS: lt-green, aphanitic, foliated ARG basalts. Unit unfoliated generally fractured.

THIN SECTION LOG

PROJECT: _____

STATION: 6322 DESCRIBED BY: LCP

DDH: _____ DEPTH: _____ DATE: Feb 29/1980

UNIT: ARG Basalt - Selwyn

HAND SAMPLE:

PURPOSE: Whole rock analysis

	EST.	POINT CT.
EPIDOTE / CLINOZOISITE	30	
QUARTZ	3	
CHLORITE	40	
CARBONATE	2	
TREMOLITE	25	

COMMENTS:

Massive aphanitic matrix presently consisting of chlorite - tremolite - epidote/clinozoisite. Tremolite forms radiating fine-grained aggregates. Microlite texture (relic) sometimes preserved.

Fracture veins consist of epidote/clinozoisite - quartz - carbonate. Coarser grained than matrix. Contains angular fragments of matrix which have been only slightly misplaced. Minor chlorite in with the veins.

Incipient foliation developed locally. Generally quite massive.

RESEARCH SAMPLE LOG

PROJECT: _____

STATION: 6123

DDH: _____ DEPTH: _____

HAND SAMPLE: ARG – Basalt – Klondike

105 G/13 WEASEL LAKE

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ Whole rock + traces

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED:

OTHER:

COMMENTS:

Med xlline gar-bearing metabasite w/ relict ign texture

(measured $S_{2/1}$)

THIN SECTION LOG

PROJECT: _____

STATION: 6123 DESCRIBED BY: LCP

DDH: _____ DEPTH: _____ DATE: Feb 29/80

UNIT: ARG Basalt - Klondike

HAND SAMPLE:

PURPOSE: Whole rock analysis

Biotite
green with brown tint

Amphibole
① brown
② green with blue tint

Plag ⊥a
42-61-72

	EST.	POINT CT.
HORNBLENDE	5	
PLAGIOCLASE	Tr	
TREMOLITE	65	
BIOTITE	3	
EPIDOTE / CLINOZOISITE	15	
OPAQUES / SPHENE	2	
CHLORITE	10	
SERICITE	Tr	

COMMENTS:

In hand-sample can see relic igneous texture.

In T.S. this texture is not apparent. Have interlocking texture which is dominated by amphibole.

3 varieties of amphibole

① cores consist of brown hornblende

② these are rimmed in a complex manner by clear tremolite - both long & small needles. Some optically continuous with brn. hbl

③ get small grants of greenish hbl.

Biotite locally associated with amphibole.

Matrix contains anhedral clinozoisite, and chlorite and minor sericite.

Opaques almost totally shot to sphene.

RESEARCH SAMPLE LOG

PROJECT: _____

STATION: 6189

DDH: _____ DEPTH: _____

HAND SAMPLE: ARG – Basalt – Klondike

105 F/16 Ross River

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ Whole rock + traces

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED:

OTHER:

COMMENTS:

Mass. dk. green, non-calc, m. x/line metabasite. Prob. part of mafic volc. pkg. N of F carbonates in Trench

Identical to 2 metabasites S of Dildo Ridge

THIN SECTION LOG

PROJECT: _____

STATION: 6189 DESCRIBED BY: LUP

DDH: _____ DEPTH: _____ DATE: Feb 29/80

UNIT: ARG Basalt - Klondike

HAND SAMPLE:

PURPOSE: Whole rock analysis

Hbl pleochroism
- pale tan
- blue green
- green - yellow tint

Plag ⊥ a
- 156 - 147 - 135

	EST.	POINT CT.
OPAQUES	2	
HORNBLENDE	50	
SPHENE	6	
PLAGIOCLASE	42	
EPIDOTE / CLINOZOISITE ?	—	
QUARTZ	Tr	

COMMENTS:

Medium grained metabasite. Metamorphic recrystallized texture - definite foliation developed.

Major mineralogy hbl and plagioclase. Rounded sphene grains scattered through both minerals. Plag heavily shot with fine grained clinozoisite - i.e. extensively altered.

Epidote/clinozoisite also fills fractures cross-cutting the dominant foliation.

RESEARCH SAMPLE LOG

PROJECT: _____

STATION: 6190

DDH: _____ DEPTH: _____

HAND SAMPLE: ARG – Basalt – Klondike

105 F/16 Ross River

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ Whole rock + traces

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED:

OTHER:

COMMENTS:

Mass., fabricless, m xlline amphibolites or metabasites as 6189 & 2 stations S of Dildo ridge. Unit generally massive & unfoliated, no structure. Many bull qtz veins

THIN SECTION LOG

PROJECT: _____

STATION: 6190 DESCRIBED BY: LCP

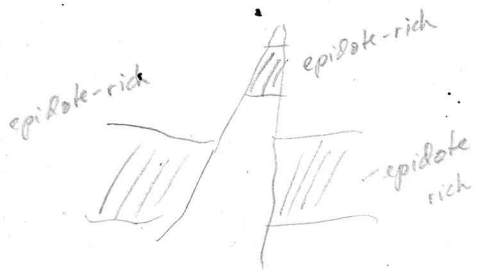
DDH: _____ DEPTH: _____ DATE: Feb 29/80

UNIT: ARG Basalt - Klondike

HAND SAMPLE:

PURPOSE: Whole rock analysis

Hbl pleochroism
pale green
green - yellowish tint



	EST.	POINT CT.
HORNBLENDE	47	
PLAGIOCLASE	30	
SPHENE	3	
EPIDOTE / CLINOZOISITE	20	
QUARTZ	Tr	

COMMENTS:

Definite metamorphic texture. Well developed foliation.

Mineralogy is hornblende - sphene - plagioclase - quartz.

Fractures & veins contain fine-grained, massive epidote. In places these have a "clastic" structural texture. Occurs with quartz.

Plagioclase has undulatory extinction. Plagioclase has not been altered.

RESEARCH SAMPLE LOG

PROJECT: _____

STATION: 6232

DDH: _____ DEPTH: _____

Ultramafic — NOT ARG

HAND SAMPLE: ~~ARG — Basalt — Klondike~~

HARZBURGITE Hoole Canyon area

105 F/16 Ross River

ultramafic body

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ Whole rock + traces

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED:

OTHER:

COMMENTS:

Med grained equigranular pyroxenite or gabbro. - dk green -

blocky fract. — strongly magnetic

THIN SECTION LOG

PROJECT: _____

STATION: 6232

DESCRIBED BY: LCP

DDH: _____ DEPTH: _____ DATE: Feb 29/80

UNIT: ARG Basalt - Klondike

HAND SAMPLE:

PURPOSE: Whole rock analysis

Biotite pleochroism
pale tan
brown

	EST.	POINT CT.
OLIVINE	65	
SERPENTINE	5	
(ORTHO?) PYROXENE	30	
BIOTITE	Tr	
OPAQUES	—	

COMMENTS:

HARZBURGITE

Rounded (Subrounded) grains of pyroxene and olivine Only trace amounts of biotite.

Extensive fracture network Serpentine alteration along fractures — abundant magnetite dust

RESEARCH SAMPLE LOG

PROJECT: _____

STATION: 6313

DDH: _____ DEPTH: _____

HAND SAMPLE: ARG – Basalt – Klondike

105 F/16 Ross River

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ Whole rock + traces

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED:

OTHER:

COMMENTS:

Lt green, blocky weathering massive, m. gray weathering finely xlline, calc., mafic metavolcanic rocks?

Weak fol^{n}

THIN SECTION LOG

PROJECT: _____

STATION: 6313 DESCRIBED BY: LCP

DDH: _____ DEPTH: _____ DATE: Feb 29/80

UNIT: ARG Basalt - Klondike

HAND SAMPLE:

PURPOSE: Whole rock analysis

Chlorite
pale to clear
blue interference colors
also greenish olive grey

	EST.	POINT CT.
CARBONATE	20	
CHLORITE	30	
EPIDOTE / CLINOZOISITE	40	
QUARTZ / PLAGIOCLASE?	5	
SPHENE??	5	

COMMENTS:

Fine-grained massive totally recrystallized metavolcanic.

Presently consists largely of chlorite - clinozoisite - carbonate.

Carbonate both in matrix and as coarser grains filling amygdules.

Original microlite texture visible.

RESEARCH SAMPLE LOG

PROJECT: _____

STATION: 6114

DDH: _____ DEPTH: _____

HAND SAMPLE: ARG — Dilo

105 G/13 WEASEL LAKE

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ Whole rock + traces

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED:

OTHER:

COMMENTS:

ARG lt green basalts in contact w/ rusty beige weathering phyllitic qtzites to metacherts. Don't know if this EG or grit unit.

(measured S_0 // S_1)

ARG$_B$/chert/qtzite contact // to this fol^n & marked by 1M thick pod of white bull qtz.

THIN SECTION LOG

PROJECT: _____

STATION: 6114

DDH: _____

UNIT: ARG Basalt - Di/Qo

DESCRIBED BY: LCP

DEPTH: _____

DATE: Feb 29/80

HAND SAMPLE:

PURPOSE: Whole rock analysis

Chlorite
X-nicols blue to grey

	EST.	POINT CT.
PYROXENE	10	
TREMOLITE / ACTINOLITE	40	
CHLORITE	20	
PLAGIOCLASE	10	
EPIDOTE / CLINOZOISITE	15	
OPAQUES	5	

COMMENTS: 5-10% phenocysts

Scattered, subhedral, small pyroxene phenocrysts in an aphanitic, massive, metavolcanic matrix. A few plagioclase phenocrysts.

Matrix now consists of tremolite - chlorite - plagioclase - epidote/clinozoisite

Plag. heavily altered - very irregular margins

Epidote/clinozoisite along fractures & veins.

Abundant fine-grained opaques scattered through

RESEARCH SAMPLE LOG

PROJECT: _____

STATION: 6131

DDH: _____ DEPTH: _____

HAND SAMPLE: ARG – Dildo

105 G/13 WEASEL LAKE

THIN SECTION: ✓

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ Whole rock + traces

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED:

OTHER:

COMMENTS:

Rusty weathering, gray tan weathering, beige to brownish gray fresh phyllitic ribbon cherts. EG/ARGc pkg? Identical to 6112, 6113, 6114

(measured S_1, S_2, S_3)

THIN SECTION LOG

PROJECT: _____

STATION: 6131

DDH: _____

DEPTH: _____

DESCRIBED BY: LCP

DATE: Feb 29/80

UNIT: ARG Basalt - Dildo

HAND SAMPLE:

PURPOSE: Whole rock analysis

Chlorite
pale green to green
X-nicols bluish colors

	EST.	POINT CT.
PYROXENE	30	
CHLORITE	30	
OPAQUES	10	
CARBONATE	Tr	
EPIDOTE / CLINOZOISITE	25	
SERICITE	5	

COMMENTS:

Originally subhedral pyroxene in matrix of interstitial plagioclase

Matrix now consists of chlorite - epidote/clinozoisite (plag. almost completely shot) Also some sericite developed

Minor interstitial carbonate as late alteration feature

Skeletal, euhedral opaques are totally shot.

Simple Statistics — ARC Basalt (Selwyn Basin)

File # 3 — normalized without LOI - '5' included

Oxide	Mean	Std Dev.	Kurtosis	Skewness
SiO_2	48.376	1.202	-1.497	-0.732
TiO_2	1.540	0.439	1.655	1.131
Al_2O_3	15.790	1.030	-0.320	-0.876
Fe_2O_3	12.462	1.870	-1.578	0.896
MnO	0.200	0.074	4.404	2.063
MgO	8.188	1.822	0.181	0.530
CaO	10.574	1.715	-1.897	-0.383
Na_2O	2.896	0.656	-1.575	-0.660
K_2O	0.524	0.296	-3.058	0.576
P_2O_5	0.160	0.046	-1.894	-0.226
TOTAL				

for 5 analyses