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REPORT ON

EXPLORATION OF E.L.2/78

DURING WINTER, 1979

79-1400

Prepared by

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Project Report No. 17

October, 1979

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C O N T E N T S

INTRODUCTION

Alcoa of Australia Limited was granted an extension of Exploration Licence E.L. 2/78 in May 1979. The new expiry date is 12th November 1979.

This report summarises exploration work carried out during the past five months and presents proposals to accompany an application for a further six-month extension of the licence. Due to the inclement season a negligible amount of field work has been carried out during the period.

Since May 1979 the Company has been engaged in the following exploration activities concerning E.L. 2/78 :

1) Separation of heavy minerals from stream sediment samples.

2) Semi-quantitative mineralogical examination of heavy mineral fractions by microscope.

3) Chemical analysis of the heavy mineral fractions by XRF and AAS techniques.

4) Preliminary interpretations of the above data.

5) Photogeological interpretation of the licence area.

These items are described in more detail in the following pages. In addition a series of comprehensive data sheets may be found in the appendix.

HEAVY MINERAL SEPARATIONS

The heavy mineral content of both coarse (-1000um + 355um) and fine (-355um) stream sediment samples was extracted using a heavy liquid technique. This is a slow and laborious method but it gives excellent objective results.

The process of separation was further slowed by a national shortage of tetrabromoethane (TBE) and an unusual call on laboratory facilities by both tin and diamond explorers.

After mineralogical examination, some 180 of the original 565 samples were submitted for repeat separations since the TBE was judged to have fallen well below its nominal specific gravity of 2.95 due to dilution by acetone. This drop in specific gravity had caused a flood of micas to be collected with the sink fractions.

For all samples the percentage of heavy minerals was calculated to allow later normalisation of analytical values.

MINERALOGY

The stream sediment heavy mineral separates were microscopically examined in a semi-quantitative manner by Dr C.I. Mathison at the University of W.A. The main objectives of this work were :

1) To detect minerals which might indicate the occurrence of tin-bearing skarns.

2) To provide information on rock types present in the catchment areas of streams.

3) To detect areas of alteration in the granite and surrounding sediments through associated accessory minerals.

In the fine-grained fractions the minerals were identified and listed in order of abundance down to trace amounts but in the coarse fractions, where identification is more difficult, only the major minerals (i.e. greater than 5% abundance) were listed.

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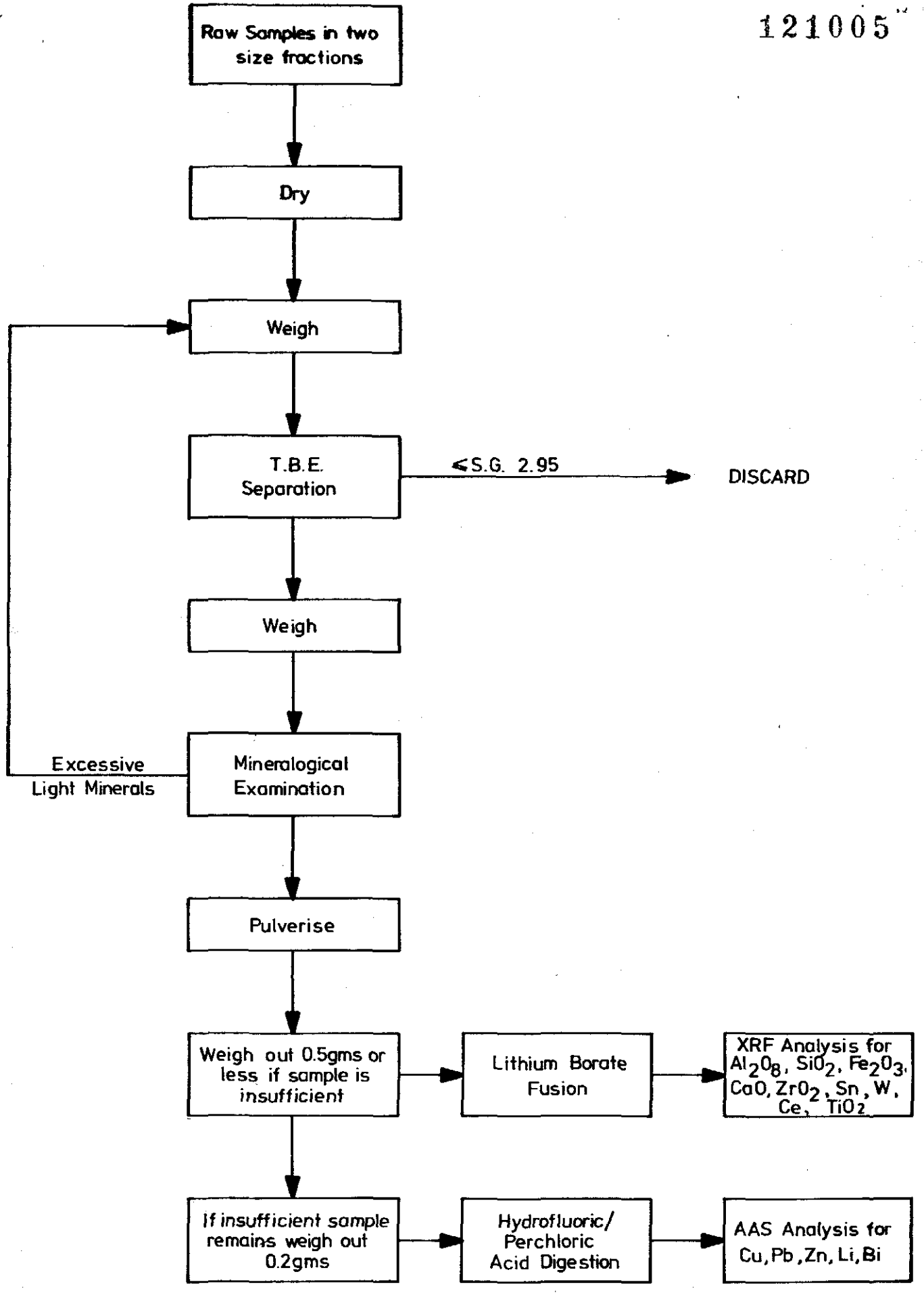

FLOWCHART FOR TREATMENT OF STREAM SEDIMENT SAMPLES

Inevitably some misidentifications have occurred; however these are often detectable through the major element chemistry. For example in sample number 17222 the lime analysis indicates that much of the andalusite may in fact be wollastonite.

A high relief deep blue mineral commonly occurs in trace amounts and has tentatively been identified as sapphirine but may in fact be a titanium mineral similar to anatase.

In the fine fraction the most common major minerals are tourmaline (in several colours), an opaque mineral (generally ilmenite) and garnet while andalusite, zircon and diopside are less common. Rutile, topaz, monazite and kyanite occasionally occur as major minerals. Probable skarn associations were detected in six samples and possible skarn minerals in a further fifteen.

In the coarse fractions the minerals recognised were dominantly garnet and tourmaline although analyses for titania indicate that ilmenite was also a common constituent. Other minerals sometimes present in major quantities were limonite, andalusite, diopside, kyanite and mica. A full list of minor and trace minerals may be found in the appendix.

CHEMICAL ANALYSES

After the stream sediment samples had been examined mineralogically they were pulverised in preparation for analysis. A 0.5gm portion of the pulp was taken to produce a lithium borate fusion disc which was subjected to x-ray fluorescence analysis for aluminium, silicon, iron, titanium, zirconium, calcium, tin, tungsten and cerium. Where material was in short supply a smaller amount was used for the fusion. In a few cases there was insufficient material for any analytical procedure at all.

Where sufficient pulp remained a 0.2gm sample was taken for digestion by a mixture of hydrofluoric and perchloric acids. This solution was then analysed by atomic absorption spectrometry for copper, lead, zinc, lithium and bismuth. The bismuth analyses were abandoned when it became apparent that most samples were below the detection limit for the method.

The various analyses are being used for the following purposes :

Tin, tungsten, bismuth - as a direct prospecting tool.

Copper, lead, zinc, lithium - used to characterise tin anomalies.

Cerium - a check on the presence of monazite.

Zirconium - a check on the zircon content.

Titanium, iron - used to identify whether a major opaque mineral is ilmenite or iron oxide.

Silicon, aluminium, calcium - required to correct the XRF counts for tin. Calcium is also useful for detecting skarns and checking the identity of diopside where it occurs in major amounts.

PHOTOGEOLOGY

A preliminary photogeological map prepared by Hunting Geology and Geophysics accompanies this report. This has been produced using 1:40 000 scale black and white photography and will be followed by more detailed work on selected areas using 1:20 000 scale colour photography.

A short field trip to the area was made in September and another is planned for December to facilitate a correct interpretation of photo features.

The main results of this work are :

1) Closer delineation of the main intrusive contact and recognition of related apophyses;

2) Delineation of separate phases in the main intrusive;

3) Discrimination between pelitic and quartzitic units in the PreCambrian;

4) Elucidation of the geological structure in the area;

5) Recognition of anomalies in the vegetation cover which may represent mineralised areas.

PRELIMINARY CONCLUSIONS

A preliminary examination of the available data has been carried out to define the areas of prime interest before the next field season. A full interpretation will not be possible until further stream sampling is carried out in the coming summer. The results from the fine fraction stream sediment samples were found to be more useful than those from the coarse fraction due to the higher heavy mineral content of the fine material.

Tin values were assessed by normalising them for the original unseparated sample and then employing a calculation of equivalent number of cassiterite grains in the sample as a reliability index (see note in appendix).

Where anomalous tin concentrations occurred their associations with other anomalous elements were noted. The calcium values were found to correlate quite well with the presence of skarn minerals, particularly diopside, and hence they have also been considered.

Three broad areas have been outlined for more detailed examination in the coming field season.

A. Bluff River area - small sluicing operations for tin have taken place here in the past. The large creek to the west follows a major fault that may be a control for tin mineralisation since anomalous concentrations occur in several minor streams crossing it. Skarn rock is known to occur in the area (see previous report) and evidence from magnetics and stream sediments indicates that it may be more extensive than previously thought.

B. North-east contact of Granite Tor Intrusive - this area contains several streams with anomalous tin and other metals. Aplite veins are known to occur and a strong magnetic anomaly remains unexplained.

C. Western contact of Granite Tor Intrusive - minor tin anomalies occur here and vegetation patterns indicate that greisens may be present.

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Areas A, B and C and a plot of stream catchments containing anomalous tin are shown on Plan XIV which is included in this report.

EXPLORATION PROPOSALS

The following work is proposed for the next six month period if a further extension is granted for E.L. 2/78 :

1) Extension of the stream sediment sampling to cover fully the intrusive contact and surrounding areas;

2) Establishment of a broad grid over area A (near Bluff River) followed by grid mapping, ground magnetics and possibly some soil sampling if warranted;

3) Cutting of access tracks, with possible gridding, in areas B and C. If gridding is undertaken, this would be accompanied by mapping, ground magnetics and possibly soil sampling;

4) Ground examination of magnetic anomalies and vegetation anomalies;

5) Field checking of photogeology.

APPENDIX

LIST OF ABBREVIATIONS

An	andalusite
CaS	calc-silicate rock fragments
Cs	cassiterite
Dp	diopside
Ep	epidote
Gt	garnet
Gt(sk)	garnet (skarn-type)
Hb	hornblende
Id	idocrase
Ky	kyanite
Lm	limonite
Mc	mica
Mz	monazite
Op	opaques (mainly ilmenite)
Py	pyrite
Rt	rutile
Sap	sapphirine
Sch	scheelite
Sp	spinel
Sr	staurolite
Tm	tourmaline
Tp	topaz
Tr	tremolite
Uk	unknown high R.I. mineral
Zc	zircon
Zs	zoisite
X	below limit of detection
-	insufficient sample
( )	minor mineral
H.M.	heavy mineral
AMG	Australian Metric Grid
XRF	X-ray fluorescence
AAS	atomic absorption spectrometry

CALCULATED GEOCHEMICAL DATA

Notes :

1) Normalised tin and tungsten values are calculated by multiplying analysis results for fine fraction (-355um) heavy mineral separates by the proportion of the original sample extracted as heavy minerals.

2) The number of cassiterite grains equivalent to the tin analysis assuming that all tin occurs as cassiterite. An average particle diameter of 150um is assumed from microscopic examination of heavy mineral separates in the -355um fraction of stream sediment.

This calculation is used as a reliability index when assessing anomalies.

Sample Number	Norm* Sn	Norm* W	Equiv** No.Cass. Grains	Sample Number	Norm. Sn	Norm. W	Equiv. No.Cass. Grains
17001				17024	23	8	1751
17002				17025	3	<.5	96
17003	1	1	27	17026	2	1	106
17004				17027	1	x	34
17005	2	<.5	60	17028	3	1	77
17006	5	<.5	17	17029			
17007	3		77	17030	3		123
17008	7	3	126	17031	8	1	241
17009	3		121	17032	2		26
17010	2		50	17033	6	2	135
17011	11	6	398	17034	10	2	380
17012	10	5	194	17035	3	2	126
17013	3	<.5	118	17036	23		237
17014	2	x	68	17037	3	x	54
17015				17038	2	1	119
17016				17039	1		10
17017	6		241	17040	2	x	48
17018	12	4	279	17041	3	1	106
17019	5		198	17042	1	1	42
17020				17043	2	x	83
17021	5		151	17044	1	1	30
17022				17045	2	1	102
17023	4	1	162	17046	1	x	19

Sample number	Norm. Sn	Norm. W	Equiv. No.Cass. Grains	Sample number	Norm. Sn	Norm. W	Equiv. No.Cass. Grains
17047	1		8	17101	9	x	332
17048	3		34	17102			
17049				17103	2	x	105
17050	4		97	17104	<.5	x	20
17051				17105	1	x	39
17052	1	<.5	50	17106	4	1	144
17053	1	x	28	17107	1	<.5	63
17054	2	2	33	17108	2	x	105
17055	1	x	17	17109	1	1	32
17056	7	x	126	17110	6	x	103
17057	6	x	130	17111	7		167
17058	4	x	171	17112			
17059	3	3	83	17113			
17060				17114			
17061	5	1	157	17115			
17062				17116	2		96
17063	52	6	2912	17117			
17064	2	<.5	82	17118	8	1	302
17065	7	2	150	17119	9	1	167
17066	1		27	17120	3	3	53
17067	6	8	383	17121			
17068	6	5	160	17122	15	7	216
17069	24	13	603	17123	3	2	199
17070	15	35	467	17124	4		119
17071	4	3	253	17125	19	12	233
17072	53	5	1412	17126	6		77
17073	24	5	507	17127	20	5	489
17074				17128	39	50	216
17075	12		318	17129	136	29	814
17076	22		909	17130	6	2	257
17077	16		410	17131	1	<.5	30
17078				17132	1		20
17079	4	16	162	17133	2	<.5	74
17080				17134	147	24	3981
17081	2		68	17135	49	2	1961
17082	11		234	17136	11	2	160
17083				17137	140	15	1958
17084	6	1	265	17138	384	50	7095
17085	3	x	208	17139	12	<.5	611
17086	2	2	39	17140	3		158
17087	5		85	17141	30	3	611
17088	48	10	1309	17142	1		59
17089	34	4	1225	17143	5	<.5	115
17090	47	2	1766	17144	4	4	117
17091	<.5	1	19	17145	21	12	668
17092	2		29	17146	2	1	76
17093	15		618	17147	21		473
17094	14		379	17148	48	9	2215
17095				17149	6	9	260
17096	8	<.5	407	17150	43	8	1260
17097	8	<.5	394	17151			
17098	6	2	136	17152	20	4	286
17099	4	1	126	17153	243		3281
17100	3	2	29	17154	16	3	202

Sample Number	Norm. Sn	Norm. W	Equiv. No.Cass. Grains	Sample Number	Norm. Sn	Norm. W	Equiv. No.Cass. Grains
17155	320	10	4794	17211			
17156	24	11	676	17212	5	1	177
17157	29	7	871	17213	2	<.5	152
17158	7	7	121	17214	5	2	128
17159	7	4	176	17215	3	2	165
17160	5	6	70	17216	10	7	286
17161	1	1	32	17217	1	11	66
17162	<.5	<.5	19	17218	2	3	51
17163	32			17219	2	<.5	81
17164	1	1	38	17220	3	<.5	168
17165	5	1	202	17221	4	x	98
17166	21	5	160	17222	2	<.5	96
17167	5	1	197	17223	18	1	574
17168	14	2	230	17224	82	6	2551
17169	250	38	11009	17225	44	1	1201
17170	131	22	8378	17226	19	2	209
17171	24	6	1139	17227	3	1	202
17172	26	3	629	17228	46	7	1670
17173	19	2	845	17229	117	1	4229
17174	2	<.5	80	17230	26	2	1139
17175	1	<.5	68	17231	6	<.5	384
17176				17232	181	13	8228
17177	3	<.5	171	17233	37	9	2227
17178	3	<.5	148	17234	3	<.5	180
17179				17235	1	<.5	52
17180	162	35	4384	17236	10	2	415
17181	226	32	1245	17237	1	2	32
17182	27	10	424	17238	1	2	30
17183	1852	109	42593	17239	<.5	1	10
17184	604	25	21146	17240	526	7	24186
17185	1196	68	43056	17241	1	<.5	67
17186	23	1	1742	17242	4	1	302
17187	97	6	6619	17243	64	3	2599
17188	300	68	9605	17244	12	1	942
17189	40	52	948	17245	14	52	806
17190	44	2	2060	17246	9	6	407
17191	38	32	1580	17247	8	6	379
17192	3	<.5	84	17248	19		1329
17193	8	<.5	440	17249	4	4	307
17194				17250	15	11	571
17195	3	<.5	143	17251	5	5	136
17196	25			17252	4	5	121
17197	2	<.5	100	17253	3	5	51
17198	3	<.5	226	17254	1	x	28
17199	2	<.5	119	17255	9	3	175
17200	10	3	586	17256	4	1	182
17201	4	1	191	17257	1	1	38
17202	110	11	1260	17258	2	1	43
17203	9	x	393	17259	4	4	170
17204	1	<.5	83	17260	5		142
17205	62	1		17261	34	9	1329
17206	38	1	1519	17262	102	56	3674
17207	83	7	5211	17263	2	2	169
17208	4	<.5	216	17264			
17209	1	1	87	17265	27	2	584
17210	1	1	70	17266			

Sample Number	Norm. Sn.	Norm. W	Equiv. No.Cass. Grains	Sample Number	Norm. Sn	Norm. W	Equiv. No.Cass. Grains
17267	47	6	942	17277	5		211
17268				17278			
17269	<.5		26	17279			
17270				17280			
17271				17281			
17272				17282			
17273				17283	33		1378
17274				17284			
17275				17285			
17276	1		22	17286	29		1544

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SAMPLE NUMBER	AMG CO-ORDS	FINE FRACTION STREAM SEDIMENT (-355 µm) Total Wgt (gms)	Percent HM	HM MINERALOGY (In order of abundance) MAJOR (>20%)	MINOR (1-20%)	TRACE (<1%)	XRF ANALYSES OF HM Al_2O_3	SiO_2	TiO_2	Fe_2O_3	CaO	ZrO_2	Sn	W	Ce	AAS ANALYSES OF HM Bi	Cu	Li	Pb	Zn
17001	9190 7280	210	0.25	Op Zc Tm	Rt An Gt Hb Ky												105	15	85	135
17002	9200 7285	128	0.28	Op Tm Gt	Ky Dp Zc An Rt	Hb Tp											85	10	75	105
17003	9215 7325	213	0.31	An Op Gt	Ky Tm Zc Mz Rt								0.042	0.022			35	20	85	160
17004	9235 7245	325	0.07	Op Tm Gt	Zn An Ky Rt	Dp														
17005	9250 7240	330	0.33	Op Tm Gt	Zc Rt		10.6	30.1	23.4	18.2	1.0	5.20	0.055	0.004	0.074		65	15	85	95
17006	9210 7230	470	0.21	Op Tm Gt	Zc Ky Dp Rt	Hb	8.7	56.3	12.1	4.9	0.6	6.10	0.238	0.017	0.035		105	15	470	65
17007	9200 7250	272	0.43	Op Tm Gt	Zc Ky An Rt		8.0	34.6	21.9	17.6	3.2	1.45	0.066		0.048		60	10	140	95
17008	9250 7290	180	1.43	Gt Op Tm	Zc Rt Ky An Tp		20.9	33.9	12.6	22.9	2.4	0.19	0.049	0.019	0.135		34	8	31	133
17009	9270 7270	430	0.33	Op Tm Gt	Zc Mz		11.0	30.1	23.2	17.5	1.1	5.40	0.085		0.135		44	3	92	137
17010	9025 7315	324	0.28	Op Zc Gt	Tm Mz Rt	Dp	3.0	65.3	13.6	4.0	0.1	8.55	0.055		0.062		45	10	70	65
17011	9010 7310	370	0.96	Op Zc Tm	Gt Ky Rt		4.6	30.7	27.5	24.7	0.3	0.96	0.112	0.063	0.257		107	3	294	561
17012	9075 7355	197	1.16	Op Gt Tm	Zc Hb Mz Rt	Dp	6.7	31.9	24.7	22.0	0.9	1.10	0.085	0.047	0.259		90	5	212	445
17013	9090 7350	340	0.31	Op An Gt Tm	Zc Sp Hb Rt		14.2	20.0	15.4	29.8	0.9	6.60	0.112	0.015	0.315		405	10	595	950
17014	9175 7320	310	0.66	An Op Gt	Hb Ky Zc Rt Dp	Zs	19.0	41.2	5.35	14.8	5.3	1.60	0.033		0.115		45	7	29	96
17015	9140 7340	160	0.32	Op Gt An	Ky Tp Zc Rt Mz												40	10	95	100
17016	9110 7390																			
17017	9125 7355	546	0.92	An Op Gt	Tm Tp Zc		29.9	33.9	13.4	9.2	0.3	2.50	0.048		1.50		16	11	43	33
17018	9245 7300	242	1.28	Gt Op Tm	Ky Rt Zc An Mz Dp	Hb Sr	17.4	28.0	20.9	17.7	1.7	4.50	0.090	0.030	0.689		57	8	72	199
17019	9275 7320	429	0.66	An Op Tm Gt	Rt Ky Zc Mz		17.6	41.9	14.3	17.2	1.9	0.61	0.070		0.207		38	8	47	110
17020	9330 7355	130	0.22	Gt Tm Tp	Op Ky An Zc Mz Rt	Dp														
17021	9330 7365	308	0.50	Gt Op Rt Tm	An Ky Zc Mz		23.9	33.4	18.5	12.3	1.8	2.80	0.098		0.187		300	10	40	105
17022	9330 7345	212	0.21	An Gt Op Tp	Zc Mz Rt Ky Dp Hb	Cs											730	25	125	180
17023	9290 7250	435	0.93	Op Tm Gt	Dp Hb An Zc Rt		9.7	28.8	24.4	23.5	1.7	0.75	0.040	0.012	0.133		35	4	63	118
17024	9360 7225	770	0.98	Tm Gt Op	Ky An Dp Hb Zc Rt	Zs	15.0	29.5	20.1	20.9	2.3	1.45	0.232	0.079	0.221		41	5	54	165
17025	9375 7205	365	0.61	Op Tm Gt	Dp Hb Zc Mz Rt	Zs	12.4	30.2	23.9	21.8	1.4	0.75	0.043	0.010	0.175		80	5	61	250
17026	9385 7200	435	1.16	Op Gt Tm	Zc Rt Mz	Ky Hb	11.6	48.9	16.1	14.5	1.5	0.36	0.021	0.005	0.065		30	6	37	120
17027	9370 7250	392	1.46	Op Zc Gt	Tm An Zc Rt Mz		13.2	30.3	19.9	20.8	2.8	1.95	0.006		0.580		31	8	38	83
17028	9405 7245	235	0.48	Op Gt Tm	An Ky Zc Mz Rt		7.4	64.1	12.9	10.4	0.2	2.00	0.068	0.016	0.280		90	20	75	205
17029	9450 7295	120	0.13	Op Tm Gt	An Tp Hb															
17030	9440 7300	360	0.29	Op Zc Mz	Rt Tm Gt	Sap Cs	9.8	23.7	25.1	21.5	0.4	4.30	0.118		1.24		50	20	90	205
17031	9545 7195	295	1.32	Op Rt Gt Tm	Zc Ky Mz		11.9	25.7	31.1	13.4	1.1	2.95	0.062	0.010	0.121		46	4	48	59
17032	9500 7245	155	0.55	Op Gt Tm	Zc Ky Tp An Rt		18.0	27.4	21.0	22.2	1.4	1.10	0.030		0.347		50	20	70	230
17033	9475 7200	230	2.66	Op An Tm	Gt Zc Dp		17.7	35.3	16.4	19.6	3.5	0.19	0.022	0.009	0.092		23	6	21	70
17034	9460 7190	400	1.94	Gt Op Tm	Ky Rt Dp Mz Zc	Zs Hb Sch	15.3	30.1	21.2	22.4	2.5	0.89	0.049	0.009	0.077		20	6	35	96
17035	9450 7195	390	2.94	Gt Op Ky	Tm An Zc Rt	Sr	18.7	31.6	19.5	19.3	2.1	0.78	0.011	0.007	0.037		32	8	39	103
17036	9535 7255	105	0.86	Gt Tm Op	Ky An		22.3	36.1	9.6	20.7	2.1	0.15	0.262		0.130					
17037	9505 7095	160	2.09	Tm Gt Rt	Ky Op Zc An	Mz Hb Cs Sap	23.4	34.5	16.9	13.7	2.5	0.16	0.016		0.059		24	4	20	58
17038	9490 7225	520	1.35	Gt An Op Tm	Ky Rt Zc Hb		16.1	34.7	19.5	15.4	4.3	0.76	0.017	0.006	0.081		29	6	30	78
17039	9495 7100	110	1.51	Gt Tm Op Ky	Hb Dp Zc Rt		19.5	39.2	9.0	20.3	3.7	0.12	0.006		0.070		25	6	25	88
17040	9485 7125	310	1.73	Gt Op Tm	Zc Ky Rt Hb Tp		10.7	43.1	11.9	16.8	5.6	0.48	0.009		0.040		30	6	25	97
17041	9510 7115	330	1.34	Op Rt Gt	Tm Zc Ky Hb	Ep	15.7	27.4	29.5	10.8	1.3	1.60	0.024	0.006	0.089		40	4	33	56
17042	9530 7020	330	2.55	Gt Tm Op	Zc Rt Ky Hb Dp		18.0	34.7	17.2	20.3	4.2	0.26	0.005	0.005	0.033		28	6	27	80
17043	9520 7015	455	4.54	Gt Op Tm	Rt Hb Ky	Ep Zs	17.7	36.4	14.7	17.4	6.9	0.31	0.004		0.055		15	7	20	65
17044	9360 7130	345	0.73	Op Tm Zc	Gt Rt Hb		14.5	33.2	22.2	18.9	2.5	0.44	0.012	0.012	0.081		40	8	31	77
17045	9380 7130	515	0.99	Op Gt Tm	An Rt Zc Ky	Hb Dp	14.1	30.8	23.3	21.0	1.9	0.56	0.020	0.013	0.075		33	6	47	98
17046	9485 7075	145	1.10	Op Gt Rt Tm	Ky Hb Zc	Dp Sr	13.3	35.5	20.7	13.5	3.1	0.59	0.012		0.206		29	5	38	75
17047	9485 7085	110	0.76	Gt Op Tm	Ky An Zc Rt		11.6	38.6	16.0	13.6	4.8	0.44	0.009		0.064					
17048	9555 7030	125	2.11	Op Gt Rt	Tm Ky Zc		18.7	30.6	25.3	11.8	1.8	0.44	0.013		0.166		20	4	31	50
17049	9605 7165	90	1.00	Tm Op Gt	Ky Rt Zc Mz	Hb														
17050	9610 7150	235	2.42	Gt Op Tm	Ky Zc Rt Mz Tp	Cs Hb	17.7	36.2	13.6	19.2	4.9	0.20	0.017		0.059		26	7	28	110

SAMPLE NUMBER	COARSE FRACTION STREAM SEDIMENT (-1000+355 µm) Total Wgt (gms)	Percent HM	MAJOR HM MINERALOGY (In order of abundance)	XRF ANALYSES OF HM Al_2O_3	SiO_2	TiO_2	Fe_2O_3	CaO	ZrO_2	Sn	W	Ce	AAS ANALYSES OF HM Li	Cu	Pb	Zn	WATER SIE Analysis F(ppb)
17001	290	0.09	An Tm Gt Mc														
17002	330	0.08	Gt Tm An Mc	10.3	48.0	4.85	15.1	5.40	0.08	0.098		0.02					41
17003	740	0.05	An Tm Gt Mc	23.5	44.8	2.20	12.5	3.90	0.03	0.012	0.010	0.02					
17004	940	0.07	Tm Gt An Lm Mc	17.0	40.2	5.35	20.7	0.64	0.21	0.028	0.006	0.02					37
17005	1030	0.09	Lm Tm	9.2	26.1	22.5	27.3	0.86	2.80	0.043	0.013	0.03					41
17006	1280	0.02	Tm Gt Mc														39
17007	1560	0.19	CaS Gt Tm Op Tr	8.0	39.4	14.6	16.3	3.90	0.69	0.011	0.009	0.03		25	95	90	37
17008	1230	0.18	Tm Gt Ky Mc	24.3	42.0	4.30	16.3	1.85	0.05	0.010		0.02	25	10	35	75	56
17009	1980	0.27	Op Tm Gt Mc An	12.2	33.3	20.8	17.1	1.50	3.55	0.052	0.013	0.13	5	25	65	85	56
17010	1180	0.02	Lm Gt Op Zc Mc														41
17011	1310	0.09	Lm Op Mc Tm Gt	5.0	30.0	15.2	26.6	1.10	0.13	0.327	0.068	0.95	5	145	1180	480	49
17012	1380	0.13	Op Tm Lm An Hb/Dp Gt	9.9	31.0	15.4	23.3	1.65	0.20	0.087	0.015	0.66	10	100	1190	390	48
17013	1220	1.66	Lm Tm	5.1	4.5	0.25	69.2	0.15	0.01	0.008	0.008	0.02		20	45	195	49
17014	1050	0.77	An Tm Gt Mc	29.0	43.4	2.10	9.5	3.90	0.21	0.010	0.007	0.03	30	15	15	90	43
17015	1040	0.11	An Gt Tm Ky Mc	16.8	38.8	8.05	12.2	3.15	0.83	0.129	0.005	1.09	15	25	155	65	43
17016																	51
17017	1690	2.40	An Gt Tm Mc	32.5	54.7	1.65	3.5	0.11	0.07	0.018		0.59	20	10	15	20	45
17018	790	0.11	Tm Gt Ky Mc	28.1	37.8	4.45	17.2	1.65	0.14	0.011	0.008	0.06	45	55	20	110	52
17019	1330	0.09	An Tm Gt Mc	28.5	33.2	11.0	13.9	1.55	0.77	0.061	0.010	0.174	30	75	40	145	47
17020	1330	0.01	Tm Gt														53
17021	1000	0.14	An Gt Tm Ky	35.6	35.4	8.60	11.2	1.45	0.48	0.046	0.007	0.039	20	20	15	70	50
17022	1200	0.03	Tm Gt														46
17023	1280	0.20	Op Tm Gt An	10.4	36.1	15.7	20.1	5.0	0.22	0.018		0.10	10	30	50	175	55
17024	1480	0.64	Tm Gt Op Ky Hb An	23.6	35.1	12.2	16.2	2.0	0.11	0.079	0.017	0.04	25	15	65	70	50
17025	1320	0.11	Dp Tm Gt	17.1	36.4	13.0	21.1	1.9	0.09	0.218	0.028	0.09	20	20	95	85	45
17026	1200	0.27	Gt Tm An Ky	19.1	36.6	11.1	24.0	1.8	0.05	0.010	0.010		25	15	25	75	46
17027	1500	0.11	An Tm Gt	33.9	32.7	10.7	12.2	0.54	0.21	0.005	0.006		65	15	30	100	59
17028	1440	0.06	Tm Gt An Ky	16.5	38.9	6.95	20.6	3.8	0.23	0.028	0.011	0.03	70	60	25	150	56
17029	1170	0.04	Tm Gt An														33
17030	1510	0.05	Tm Gt	15.2	55.2	7.95	9.6	0.43	0.79	0.046	0.028	0.14					36
17031	1590	0.37	Gt Tm Ky	19.8	25.4	29.9	12.1	1.14	1.46	0.039	0.007	0.02	5	20	45	130	30
17032	1600	0.07	Tm Gt An Ky	21.5	43.7	4.70	16.9	2.07	0.13	0.005	0.027	0.02	80	10	25	115	35
17033	1200	0.75	Gt Ky Tm An	26.2	36.3	4.85	20.0	2.00	0.06	0.007	0.012	0.03	15	5	10	50	30
17034	1160	0.76	Gt Tm Ky	26.8	39.1	3.85	17.8	2.10	0.06	0.006			25	10	15	55	34
17035	1350	0.64	Tm Gt Ky	29.6	39.7	6.10	13.9	2.00	0.11	0.011			30	10	25	60	36
17036	1410	0.13	Tm Gt An Ky	25.2	36.0	3.75	21.4	1.50	0.07	0.099			35	15	15	75	36
17037	1240	0.33	Ky Tm Gt	39.1	38.4	5.85	9.4	1.45	0.07	0.022			10	10	15	45	35
17038	1650	0.15	Tm Gt Ky Hb	22.1	38.2	9.05	14.5	4.30	0.13	0.010			20	65	20	120	34
17039	1050	0.30	Tm Gt Ky An	26.3	41.4	3.30	16.9	2.60	0.06	0.002			15	30	25	80	37
17040	1320	0.78	Ky Gt Op Tm Tr Uk An	16.5	45.7	2.70	15.9	4.80	0.04	0.006			15	10	20	85	36
17041	1230	0.23	Tm Gt Ky	23.2	31.2	23.4	10.4	1.65	0.51	0.016			10	10	25	45	37
17042	1450	0.80	Gt Tm Op Ky Uk	23.0	36.8	3.95	27.4	2.65	0.05	0.001	0.019		20	10	20	85	33
17043	1090	0.46	Gt Tm Ky Hb/Dp	24.5	39.0	5.10	22.1	4.05	0.05	0.001	0.009		15	10	15	65	35
17044	1400	0.12	Tm Gt Ky Mc	16.5	36.8	12.4	19.9	2.65	0.06	0.009	0.006		20	15	20	80	34
17045	1340	0.22	Tm Gt An	23.0	36.8	8.90	21.9	1.25	0.07	0.043			20	10	20	55	33
17046	1720	0.15	Ky Gt Tm Dp	17.4	38.7	12.4	14.3	4.00	0.18	0.006		0.10	10	20	110	75	38
17047	1640	0.11	An Tm Gt Ky	12.3	36.6	7.00	16.3	5.65	0.09	0.010	0.006	0.052	15	15	20	100	41
17048	1380	0.59	Ky (Rt inclns) Gt Tm	36.8	38.2	5.35	11.6	1.90	0.08	0.021		0.02	10	10	15	90	30
17049	1260	0.35	Ky Tm Gt Mc	45.0	36.9	7.25	4.8	0.50	0.11	0.090			5	10	15	25	32
17050	1150	0.75	Ky Gt Tm Dp Mc	44.8	37.6	5.70	8.2	1.15	0.08	0.003	0.006		10		20	40	40

019

SAMPLE NUMBER	AMG CO-ORDS	FINE FRACTION STREAM SEDIMENT (-355 µm)																					COARSE FRACTION STREAM SEDIMENT (-1000+355 µm)													WATER
		Total Wgt (gms)	Percent HM	HM MINERALOGY (In order of abundance)			XRF ANALYSES OF HM									AAS ANALYSES OF HM					Total Wgt (gms)	Percent HM	MAJOR HM MINERALOGY (In order of abundance)	XRF ANALYSES OF HM									AAS ANALYSES OF HM				SITE Analysis
				MAJOR (>20%)	MINOR (1-20%)	TRACE (<1%)	Al_2O_3	SiO_2	TiO_2	Fe_2O_3	CaO	ZrO_2	Sn	W	Ce	Bi	Cu	Li	Pb	Zn				Al_2O_3	SiO_2	TiO_2	Fe_2O_3	CaO	ZrO_2	Sn	W	Ce	Li	Cu	Pb	Zn	F(ppb)
17051	9600 7230	295	6.90	Gt Tm Ky	Op Rt Zc																1350	0.79	Gt Tm Ky Hb Mc												
17052	9610 7250	480	0.50	Op Gt Tm	Zc Rt An Tp Mz Dp	Cs	22.2	34.5	9.0	25.9	3.5	0.07	0.021	0.007	0.038		19	11	24	125	1220	0.09	Gt Tm An Mc												
17053	9560 6965	315	2.22	Gt Op Hb	Tm Ky Rt Zc		17.5	33.1	20.8	16.1	5.0	0.29	0.004		0.027		20	8	37	98	1320	0.27	Gt Tm Ky Hb/Dp Mc	25.5	37.0	7.75	17.0	3.70	0.07	0.006	0.008		10	5	25	65	41
17054	9545 6965	210	2.61	Gt Op Tm	Zc An Rt Hb Ky		18.0	34.4	15.4	23.2	3.4	0.18	0.006	0.005	0.032		30	7	20	85	1300	0.86	Gt Tm An Mc	19.2	29.5	4.15	30.8	2.55	0.03	0.004	.0013		15	5	15	85	35
17055	9530 6990	190	1.50	Gt Tm Op	Rt Zc Ky Hb		16.9	31.8	22.6	16.7	2.7	0.42	0.006		0.095		36	7	25	79	1630	0.17	Gt Ky Tm Mc	22.4	34.2	11.7	19.3	2.75	0.12	0.011		0.03	15	20	15	70	36
17056	9635 7070	170	6.74	Gt Op Tm	Rt Hb Zc Ky An		16.9	32.4	17.7	22.4	4.6	0.31	0.011		0.117		15	7	25	98	1260	0.76	Gt Tm Ky Mc	22.6	35.9	7.85	23.1	4.20	0.07	0.024		0.03	15	10	20	85	37
17057	9650 7080	230	3.33	Gt Hb Rt	Tm Zc An Ky	Dp Zs	12.9	33.6	22.0	15.2	5.0	0.64	0.017		0.066		24	5	20	64	840	0.61	Gt Tm Ky Rt An Mc Hb	20.1	33.7	8.30	18.4	4.90	0.08	0.012	0.005		10	10	10	45	35
17058	9685 7245	390	2.43	Gt Op Tm	Rt Ky Zc	Zs	15.3	30.3	22.6	22.6	3.1	0.55	0.018		0.053		23	5	26	75	1320	0.52	Gt Tm Mc Ky	20.4	38.5	11.1	20.5	3.05	0.12	0.019	0.005	0.023	15	10	15	65	39
17059	9675 7225	270	1.80	Gt Op Tm	Rt Ky Zc Hb		16.9	32.5	18.8	21.5	3.0	0.43	0.017	0.017	0.073		30	7	33	150	1590	0.31	Tm Gt Mc Ky	21.4	34.9	12.0	20.0	3.05	0.18	0.011	0.015	0.049	15	15	30	90	39
17060	9715 7295	295	0.17	Op Tm Gt Zc	Mz Rt An Dp	Sup											70	20	70	175	1360	0.05	Tm An Gt Mc	30.0	39.1	8.30	14.4	0.87	0.36	0.019		0.09					
17061	9715 7310	335	0.43	Tm Op Gt	Tp An Zc Rt Mz		13.5	23.0	23.6	19.8	1.0	5.20	0.109	0.032	1.15		50	15	90	270	1690	0.07	Tm Gt Mc An	23.8	30.5	13.5	19.9	0.87	0.90	0.020	0.015	0.18	20	10	30	135	46
17062	9720 7320	200	0.27	Op Gt Tm	Tp An Zc Mz Rt	Sap	12.3	28.0	21.6	18.5	1.0	5.15			0.825		47	8	71	255	1470	0.05	Tm Gt Mc An	27.9	36.6	2.90	24.4	0.82	0.08	0.031	0.012	0.03					50
17063	9740 7285	560	0.65	Tm Gt Op	Zc Mz Rt An Tp		17.2	28.3	13.6	23.9	0.61	2.35	0.80	0.094	1.16		35	12	69	25	1350	0.11	Gt Tm Mc	22.8	34.0	2.35	33.4	0.76	0.07	0.529	0.026	0.07	40	10	20	85	49
17064	9750 7280	435	0.31	Op Tm An Gt	Zc Rt Mz	Dp	23.1	30.4	18.2	14.3	1.0	1.50	0.061	0.014	0.317		29	8	39	95	1320	0.17	An Op Tm Gt Mc	32.8	36.5	9.05	9.8	1.20	0.17	0.083	0.017	0.437	40	15	15	35	50
17065	9755 7270	210	2.17	Gt Tm Op	Hb Rt Ky Zc	Zs	16.3	32.2	16.5	25.5	2.8	0.37	0.033	0.007	0.062		46	7	27	137	1390	9.63	Op Tm Gt Mc Ky	20.4	34.8	10.1	21.0	2.75	0.13	0.018	0.010	0.034	15	10	20	45	47
17066	9365 7530	335	0.22	An Tm Op	Zc Gt Rt		21.2	33.5	11.2	5.8	0.2	7.55	0.036		2.05						1680	0.01	Tm Gt Mc An														47
17067	9355 7525	640	0.63	Tm Gt Op	Zc Mz An Ky Rt Tp		19.8	26.4	12.0	12.2	0.3	6.85	0.095	0.122	2.40		45	16	133	440	1610	0.02	Tm Gt Mc An														44
17068	9350 7545	290	0.52	Op Mz Rm	Zc Gt Rt Tp		17.6	27.7	15.6	10.1	0.3	8.45	0.106	0.088	2.14		17	15	121	320	1530	0.05	Tm Gt An Mc	16.8	61.2	3.10	10.4	0.22	0.57	0.059	0.031	0.12					72
17069	9360 7545	255	1.30	Gt Tm Tp	Op An Mz Zc Rt		25.3	29.3	11.8	20.3	0.3	1.45	0.182	0.100	0.683		45	14	65	600	1730	0.07	Tm Gt An Mc	32.9	33.1	3.70	18.9	0.35	0.09	0.013	0.017		35	10	15	165	57
17070	9410 7535	315	0.73	Tp An Tm Gt	Zc Mz Rt	Cs	46.8	33.0	2.40	3.0	0.2	0.73	0.203	0.476	0.253		108	31	35	97	1870	0.04	Gt Op Tm	51.0	36.1	0.44	6.1	0.27	0.02	0.272	0.305						64
17071	9400 7570	600	0.36	Op Tm Gt	Tp An Ky Zc Rt Mz		21.5	26.8	14.0	13.6	0.2	6.75	0.117	0.077	1.50		103	12	99	400	1300	0.03	Tm Gt														60
17072	9395 7585	265	0.41	An Op Tp	Tm Zc Mz Rt Ky	Cs Sp Ep Dp	31.5	29.3	8.50	7.7	0.3	3.15	1.3	0.128	0.08		95	30	75	350	1750	0.02	Tm Gt An														59
17073	9380 7615	210	0.69	Tm Gt Op	Zc An Mz Rt	Cs	20.8	31.3	10.5	25.2	0.4	1.15	0.350	0.069	0.528		90	30	65	625	1920	0.27	Gt Tm	24.7	34.3	1.30	31.7	0.60	0.04	0.113	0.039		20	5	15	95	55
17074	9400 7620	300	0.16	An Op Tm	Tp Gt Zc Rt Mz												3200	20	65	1700	1490	0.02	Tm Gt Mc														73
17075	9400 7635	260	0.33	An Gt Op Tm	Zc Tp Mz Rt		23.7	33.2	11.6	10.0	0.5	5.00	0.371		1.15		60	20	95	240	1630	0.06	Tm Gt	32.8	34.2	5.20	13.8	0.84	0.44	0.148	0.109	0.15	30	10	20	115	76
17076	9455 7615	420	0.52	An Tp Op Gt	Tm Zc Mz Rt	Cs Sap	35.0	30.4	9.30	7.9	0.2	2.40	0.416		0.748		35	19	69	310	1940	0.04	Tm Gt	41.2	32.7	5.20	10.2	0.33	0.28	0.383	0.063	0.06	50	20	20	300	62
17077	9455 7605	250	0.58	Op Tm Tp Gt	Zc Mz Rt		25.0	47.2	6.20	9.6	0.1	1.20	0.283		0.491		68	17	50	300	1330	0.15	Tm Gt	38.1	32.8	2.65	14.4	0.28	0.04	0.046	0.032	0.063	35	10	15	160	54
17078	9475 7495	210	0.08	Tm Op Tp Gt	An Rt Zc	Cs															1730	0.01	Tm Gt														50
17079	9480 7500	415	0.28	Op Zr Mz	Tm Tp An Rt Dp	Cs	32.2	30.0	8.25	7.3	0.4	4.00	0.139	0.580	0.962		25	30	90	125	1420	0.04	Tm Gt	48.9	32.5	1.35	4.6	0.31	0.14	0.011	0.016	0.03					74
17080	9390 7490	170	0.05	Tm An	Tp Gt	Cs															1410	0.004	Tm														53
17081	9400 7500	315	0.33	An Op Tm Gt	Zc Rt Tp Mz	Cs	29.1	32.5	9.65	5.4	0.2	5.70	0.065		1.46		40	50	125	80	1370	0.02	Tm														53
17082	9370 7730	205	0.58	Tm Gt Op	Zc Mz Rt An Ky Tp	Sr	22.4	31.8	8.10	22.8	0.4	2.65	0.197		0.887		15	11	57	260	1340	0.07	Tm Gt Mc	25.7	43.5	1.20	18.1	0.38	0.03	0.060	0.010		175	5	30	65	46
17083	9365 7725	220	0.25	Tm Op Gt	Tp An Zc Rt	Cs Ep											80	35	100	1300	1550	0.04	Mc Tm Gt An	38.6	40.9	3.85	11.2	0.17	0.33	0.201	0.005	0.03					43
17084	9270 7580	410	0.64	An Op Tm Gt	Zc Mz Rt		39.9	35.9	9.30	10.3	0.2	1.10	0.101	0.014	0.247		43	30	32	226	1780	0.12	An Tm Gt	46.2	38.2	2.05	5.8	0.25	0.04	0.021			175	25	25	60	51
17085	9250 7580	675	1.93	An Tm Op	Zc Gt		53.4	38.7	4.45	4.1	0.0	0.23	0.016		0.072		23	35	17	77	1610	0.39	An Tm Gt Ky	51.3	32.6	1.35	1.8	0.06	0.03	0.014	0.006		150	15	10	15	52
17086	9265 7555	180	1.02	Op Gt An	Zc Tm Ky Rt Mz	Hb	12.3	19.5	27.5	23.1	0.4	3.65	0.021	0.024	0.873		50	6	87	275	1430	0.27	Op Tm Gt Ky	14.5	18.4	30.8	24.8	0.55	1.85	0.024	0.017	0.370	10	20	90	240	51
17087	9275 7560	180	0.49	Tm Gt Op	An Rt Zc Tp	Cs	29.9	31.9	10.8	18.6	0.3	0.43	0.096		0.179		150	25	35	400	1610	0.05	Mc Tm Gt An	34.2	43.7	0.83	10.2	0.18	0.03	0.034							52
17088	9390 7680	275	1.24	Tm Gt Op	Mz Zr Rt	Cs	18.6	30.4	13.1	26.6	0.4	1.30	0.384	0.080	0.652		19	11	52	630	1370	0.44	Gt Tm Mc	23.6	33.4	4.30	31.4	0.59	0.09	0.045	0.031		25	15	10	220	55
17089	9410 7695	360	0.73	Tm Gt Op	Zr Rt Ky Tp Mz An	Sap	19.5	26.4	14.9	19.5	0.3	3.85	0.466	0.058	1.44		62	11	82	975	1410	0.20	Gt Tm Mc	23.5	32.4	5.20	28.3	0.60	0.16	0.204	0.036	0.093	20	15	20	340	55
17090	9365 7705	375	0.44	Tm Op Gt	Ky An Zc Tp Mz Rt	Cs	23.9	27.1	15.5	14.5	0.3	3.85	1.07	0.045	1.03		18	8	67	1250	1670	0.08	Tm Gt	28.7	32.5	7.00	18.8	0.48	0.43	0.400	0.011	0.06	35	15	15	530	54
17091	9335 7500	490	0.21	Op Zc Gt	Tm An Rt Mz		12.5	38.0	14.8	9.9	0.8	5.45	0.018	0.060	1.93		50	20	150	135	1140	0.02	Tm														48
17092	9310 7505	155	0.44	Op Zc Gt	An Mz Tm Ky Rt	Hb	17.9	19.7	25.2	19.4	0.4	3.35	0.043		0.950						1170	0.05	Tm Gt	24.8	29.6	16.6	16.7	0.42	1.30	0.023	0.031	0.322					51
17093	9775 7315	405	0.32	Op Tm Gt	Zc An Rt Mz Hb Dp Ky	Tp Cs	20.7	28.5	18.1	14.4	0.6	5.50	0.477		0.970		51	7	43	94	1520	0.10	An Tm Gt	28.9	33.0	10.3	13.5	0.89	0.50	0.103	0.005	0.882	45	15	25	50	
17094	9785 7305	270	0.37	Tm Op An Gt	Zc Rt Mz Tp	Ep	24.9	29.2	18.4	14.8	1.3	1.10	0.379		0.555		35	20	70	110	1190	0.20	Tm An Gt	31.9	33.9	11.2	10.6	1.50	0.21	0.167	0.019	0.32	40	20	20	60	53
17095	9845 7300	200	0.29	Op Tm Gt	Hb Rt Zc Mz	Dp											75	10	85	160	1800	0.26	Tm Gt	15.0	25.5	23.9	21.3	1.50	0.70	0.218	0.018	0.257	5	20	60	75	55
17096	9845 7290	535	0.42	Op Tm Gt	Zc Mz Rt	Hb	14.1	32.8	24.2	15.2	0.3	1.30	0.181	0.006	0.170		75	3	72	116	1180	0.43	Tm Gt	23.6	32.3	16.8	10.7	0.54	0.58	0.161		0.04		30	30	30	50
17097	9775 7390	525	0.37	Op Tm Gt	An Zc Mz Rt	Hb	11.0	65.5	8.10	7.5	0.4	1.75	0.203	0.007	0.370		30	10	28	47	990	0.10	Tm Gt An	25.5	34.4	6.45	17.5	0.83	0.22	0.079	0.013	0.389	230	15	20	145	78
17098	9780 7400	230	0.50	Gt Op An	Tm Zc Mz Tp Rt	Cs	17.6	28.8	16.2	25.8	0.7	0.82	0.118	0.043	1.00		70	20	105	190	1370	0.16	Gt Tm An	23.8	35.4	2.95	29.3	0.91	0.04	0.016	0.104	0.505	65	10	15	75	60
17099	9755 7430	325	0.45	Tm Gt Op An	Zc Mz Rt	Dp Hb	23.9	40.2	5.80	16.7	0.7	1.25	0.086	0.019	9.591		18	15	37	125	1690	0.11	Tm Gt	26.7	34.2	1.55	21.6	0.81	0.06	0.015	0.099		65	10	30	75	46
17100	9770 7405	95	3.34	Op Gt Tm An	Ky Zc Rt Hb		15.9	32.8	18.9	23.6	1.4	0.21	0.009	0.007	0.024		40	9	26	140	1430	0.07	Tm Gt	27.7	37.5	0.81	20.1	0.90	0.02	0.017			95	10	130	90	51

020

021

12103

FINE FRACTION STREAM SEDIMENT (-355 µm)

SAMPLE NUMBER	AMG CO-ORDS	Total Wgt (gms)	Percent HM	HM MINERALOGY (In order of abundance) MAJOR (>20%)	MINOR (1-20%)	TRACE (<1%)	XRF ANALYSES OF HM Al_2O_3	SiO_2	TiO_2	Fe_2O_3	CaO	ZrO_2	Sn	W	Ce	AAS ANALYSES OF HM Bi	Cu	Li	Pb	Zn
17101	9825 7155	380	3.24	Gt Tm Op	Hb Rt Ky Zc	Ep Sch	15.3	29.1	22.1	23.2	3.3	0.36	0.027		0.065		22	7	28	150
17102	9830 7150	250	0.14	Tm Op An	Zc Rt															
17103	9895 7195	635	0.33	Tm Op Zc	Hb Rt		15.2	61.4	3.00	7.0	0.3	3.15	0.050		0.026		31	4	13	31
17104	9910 7205	555	0.19	Tm Op Zc	Mz Rt An Dp	Hb Ep	19.3	37.5	9.15	8.9	2.7	3.60	0.019		0.554		50	10	70	65
17105	9860 7190	405	0.54	Op Tm Gt	Zc An Rt Hb		17.2	30.5	16.3	22.1	1.3	2.40	0.018		0.034		47	6	28	78
17106	9870 7210	375	1.07	Tm Op Gt	Zc Rt Ky Mz Sr Hb Dp	An							0.036	0.007			26	7	28	145
17107	9875 7245	490	0.38	Op Tm Gt	Zc Mz An		17.5	39.2	15.6	22.0	3.2	0.44	0.034	0.005	0.118		19	5	43	80
17108	9845 7250	440	0.99	Gt Tm Op	Rt Ky Zc	Ep	10.0	35.5	22.1	19.6	1.3	0.60	0.024		0.031		22	5	23	87
17109	9810 7270	400	0.73	Op Gr Tm	Rt An Ky Zc		12.8	31.0	24.1	21.2	3.0	0.58	0.011	0.007	0.049		29	4	45	102
17110	9710 7120	165	6.25	Gt An Op	Tm Hb Ac Rt		18.0	36.8	8.25	26.2	5.0	0.06	0.010		0.034		19	8	29	120
17111	9710 7135	245	6.81	Gt Ky Tm Op	Zc Rt Mz	Sap	22.9	37.4	5.85	27.1	3.6	0.02	0.010		0.033		16	8	26	135
17112	9500 7350	155	0.12	Op Gt Tm An	Tp Zc Rt Mz Dp	Sap														
17113	9505 7345	270	0.12	Tp Op An Tm	Zc Gt Mz Rt	Cs														
17114	9650 7385	180	0.22	Tm Op Gt	An Zc Mz Rt	Sr											40	20	80	390
17115	9655 7390	100	0.32	Gt Op Tm	Tp Zc Rt															
17116	9585 7540	410	0.29	Tm Op An	Mz Gt Zc Ky Rt Tp	Sap	19.5	24.7	18.6	12.8	0.3	4.20	0.081		1.95		44	10	134	530
17117	9510 8095	245	0.07	Tm Op An	Gt Rt Hb															
17118	9475 8085	370	0.15	Gt Op Tm	An Dp Zc Mz Rt Tp	Cs	21.8	31.4	6.15	23.7	1.50	1.25	0.544	0.038	0.273					
17119	9470 7695	190	0.37	Op Gt Tm	Zc An Mz Rt	Cs	13.4	20.6	24.6	21.7	0.38	2.70	0.237	0.041	0.847		60	20	90	345
17120	9500 7725	200	0.55	Tm Op Gt	Zc An Mz Rt		24.8	32.5	8.25	22.9	0.28	0.86	0.048	0.047	0.29		40	25	55	445
17121	9505 7720	65	0.51	Op Tm Gt	Zc Mz Dp Rt	An Sap											215	15	90	775
17122	9560 7185	145	1.39	Tm Op Gt	Mz Zc An Dp Rt	Sap	24.7	32.5	8.35	21.6	0.26	0.72	0.107	0.052	0.35		65	15	60	595
17123	9465 8055	645	9.88	Gt Op Tm	Zc An Mz Rt		17.5	29.8	13.1	26.9	0.34	3.50	0.035	0.023	0.85		60	15	60	225
17124	9545 7660	285	0.16	Op Zc Tm Gt	An Mz Rt Dp	Cs Tp Ky Sap							0.262				90	10	165	925
17125	9780 7610	125	0.71	Tm Gt	Op Mz Zc Rt	Cs	27.9	36.5	3.10	16.8	0.30	0.75	0.262	0.175	0.38		45	30	50	135
17126	9770 7600	130	0.34	Gt Tm Op	Mz Zc Rt An	Sap							0.175				45	20	30	115
17127	9780 7560	245	0.86	Op Tm Zc Mz	Gt Dp Rt		17.0	32.1	9.90	19.6	1.05	3.85	0.232	0.053	1.49		35	10	85	295
17128	9800 7480	55	3.11	Tm Gt	Mz Op Zc Dp Rt	Cs Sap	24.4	33.5	3.90	16.5	0.65	1.60	0.126	0.160	1.06		60	15	65	120
17129	9795 7485	60	2.20	Tm Gt Op	Dp Zc Mz Rt An	Cs	23.6	33.6	6.05	18.4	0.83	1.35	0.617	0.131	0.059		15	20	65	155
17130	9780 7460	450	0.51	Tm Op Gt	Dp An Mz Zc Rt	Id	20.0	34.0	7.60	19.5	1.50	1.65	0.112	0.037	0.058		60	15	60	265
17131	9450 8050	330	0.27	Op Zc	Tm Mz An Gt Rt	Sap	14.4	25.0	19.7	17.9	0.22	5.35	0.034	0.012	1.32		65	10	70	415
17132	9445 8030	255	0.26	Gt Tm Op	Mz Zc An Rt	Cs Sap							0.030				80	15	60	670
17133	9430 8025	340	0.14	Tm Op Gt	An Zc Mz Rt	Cs Sp Sap	18.9	28.0	15.7	18.1	0.26	3.55	0.155	0.028	0.53					
17134	9340 8080	270	1.64	Op An	Tm Gt Dp Zc Mz		23.3	35.7	16.2	15.5	0.19	0.20	0.899	0.145	0.07		100	20	85	735
17135	9345 8055	400	0.92	An Tm Op	Gt Zc	Cs Sap Sp	38.8	38.5	7.55	8.9	0.14	1.10	0.533	0.023	0.12		65	20	30	120
17136	9355 8055	150	0.91	An Op Tm	Gt Zc Mz Rt		34.0	33.3	8.3	9.3	0.34	0.37	0.117	0.017	0.113		65	35	40	185
17137	9370 8120	140	1.51	Op An Gt Tm	Zc Rt Mz	Cs	28.9	36.2	12.0	17.0	0.29	0.38	0.926	0.100	0.14		65	20	40	350
17138	9385 8140	185	4.29	Op	An Tm Gt Zc		14.8	32.9	25.3	17.2	0.13	0.19	0.894	0.117	0.08		135	10	85	170
17139	9560 8145	505	0.11	Zc Gt Tm	Op An Mz Dp Rt	Sp	18.8	33.8	8.70	12.0	0.24	16.5	1.10	0.030	0.45					
17140	9555 8155	530	0.09	Tm Gt Op	Zc Mt Rt Dp An	Tp							0.331				50	15	35	145
17141	9520 8145	205	0.83	Op	Tm Gt Zc An Mz Rt		10.7	34.8	28.4	8.5	0.24	2.45	0.359	0.036	0.21		150	10	80	230
17142	9510 8130	480	0.11	Tm Op An	Zc Gt Rt Mz Dp	Ky Zs							0.111				75	10	80	130
17143	9495 8110	255	0.16	Tm Op Gt	An Zc Mz Rt	Sap	20.5	27.4	11.9	13.2	0.40	14.20	0.282	0.025	0.451					
17144	9950 7365	300	0.55	Op	Tm Gt An Mz Zc Rt Dp	Tp	12.5	20.9	25.4	25.7	0.49	1.40	0.071	0.069	1.39		30	15	55	180
17145	9935 7385	315	1.24	Gt Op	An Tm Dp Mz Zc Rt	Cs Tp	17.8	29.7	13.5	31.2	0.59	0.78	0.171	0.095	0.41		45	15	50	155
17146	9945 7350	455	0.43	Tm Op	An Gt Zc Rt	Tp	24.3	29.7	16.6	15.1	0.43	1.25	0.039	0.012	0.17		50	5	70	105
17147	9535 8085	230	0.14	Gt Tm An Op	Zc Mz Dp Rt	Cs							1.47				20	5	35	190
17148	0350 7710	460	0.43	Tm Op	Zc Gt Rt Dp An Tp	Cs Sap	23.6	32.9	10.2	11.4	0.21	3.25	1.12	0.220	0.11		60	50	25	60
17149	9500 8005	405	2.92	Gt Tm Op	An Mz Dp Zc	Tp	20.0	32.8	7.15	32.9	0.47	1.00	0.022	0.030	0.54		40	15	40	210
17150	9655 7640	290	0.60	Tm Op	Zc Mz Gt Dp An Tp Rt	Cs Sap	17.1	37.3	12.1	14.1	0.33	3.20	0.724	0.129	1.08		45	5	160	275

COARSE FRACTION STREAM SEDIMENT (-1000 + 355 µm) / WATER

SAMPLE NUMBER	Total Wgt (gms)	Percent HM	MAJOR HM MINERALOGY (In order of abundance)	XRF ANALYSES OF HM Al_2O_3	SiO_2	TiO_2	Fe_2O_3	CaO	ZrO_2	Sn	W	Ce	AAS ANALYSES OF HM Li	Cu	Pb	Zn	WATER SIE Analysis F(ppb)
17101	1090	0.13	Gt Tm	20.0	33.7	11.3	20.8	3.15	0.06	0.036			15	15	30	115	40
17102	1150	0.20	Tm Gt	19.9	35.0	10.6	20.6	2.20	0.06	0.025	0.009		20	30	20	75	41
17103	1140	0.07	Tm An Gt	27.0	38.5	2.85	6.5	0.80	0.75	0.083			5	20	10	45	43
17104	1180	0.07	An Tm Gt Ky	18.4	38.1	4.40	14.7	3.05	0.21	0.023		0.203	10	35	85	50	50
17105	1270	0.16	Tm Gt An	24.7	38.1	5.90	14.5	1.70	0.19	0.015	0.007		15	15	10	40	43
17106	1260	0.22	Tm	24.2	38.1	7.05	17.4	2.50	0.05	0.024	0.009	0.08	20	15	15	110	43
17107	1220	0.07	Tm Gt	13.4	31.5	15.2	20.4	3.15	0.09	0.073	0.011	0.479					50
17108	1400	0.45	Tm Gt Ky	31.2	37.9	5.45	13.9	2.40	0.08	0.007			10	15	10	60	50
17109	1430	0.10	Tm	15.8	32.8	19.6	18.7	2.85	0.22	0.014	0.014	0.032	15	30	35	110	49
17110	1830	0.24	Gt Tm An	20.1	37.6	3.65	27.6	4.20	0.03	0.012	0.007		25	10	20	90	46
17111	1750	0.52	Gt Tm Ky	28.6	38.8	2.40	24.5	2.50	0.02	0.004	0.005		25	5	15	95	47
17112	1780	0.01	Tm Gt														62
17113	2100	0.03	Mc Tm Gt	26.9	47.0	2.35	7.4	0.48	0.17	0.012							50
17114	1150	0.06	Tm Gt An	26.0	34.9	5.55	24.5	0.58	0.27	0.028	0.007	0.22	25	10	20	170	
17115	1390	0.07	Mc Tm Gt	28.3	41.1	1.35	18.7	0.37	0.07	0.034	0.014		200	10	25	95	54
17116	1540	0.04	Tm Gt Mc An	26.3	36.2	11.2	13.0	0.22	0.88	0.021	0.052	0.26					54
17117	1320	0.01	Tm Gt An														39
17118	1640	0.07	Tm Gt	27.2	35.3	0.97	25.5	0.93	0.05	0.183	0.010		85	15	20	95	40
17119	1260	0.08	Tm Gt An	23.6	28.9	10.8	25.4	0.41	0.27	0.049	0.014	0.02	20	10	10	170	45
17120	1410	0.15	Gt Tm	28.9	34.7	0.92	26.0	0.37	0.03	0.010	0.006		80	10	15	110	43
17121	1680	0.14	Tm Gt	17.7	22.8	21.1	21.4	0.26	2.35	0.163	0.021	0.72	35	30	85	620	66
17122	1720	0.09	Tm Gt	31.7	34.1	1.15	19.0	0.23	0.02	0.011			50	15	15	100	50
17123	1490	0.21	Gt Tm	22.5	34.1	2.00	34.9	0.60	0.04	0.003	0.012		15	15	15	75	44
17124	1350	0.003	Tm														62
17125	1530	0.14	Tm Gt	31.2	34.4	0.72	20.6	0.27	0.03	0.029	0.020		55	10	10	65	46
17126	1670	0.14	Tm Gt	27.9	34.5	1.30	22.1	0.63	0.25	0.011	0.031	0.14	55	10	20	80	34
17127	1510	0.21	Tm Gt	23.2	33.8	4.80	23.2	1.20	0.90	0.089	0.021	0.37	20	10	40	170	41
17128	1510	0.21	Tm Gt	26.5	34.6	1.60	27.0	0.42	0.09	0.026	0.018	0.04	50	10	50	105	39
17129	1210	0.33	Tm Gt An	25.9	33.3	1.55	23.6	0.74	0.11	0.239	0.032	0.05	45	10	90	75	50
17130	1260	0.06	Tm Gt	24.1	37.2	1.55	21.7	1.70	0.04	0.064	0.017		40	15	40	115	47
17131	1400	0.02	Tm Gt														42
17132	1260	0.05	Tm Mc Gt	25.3	44.6	1.15	14.7	0.25	0.02	0.008	0.006						43
17133	1400	0.04	Mc Tm An Gt														39
17134	1870	0.18	An Tm	39.0	39.1	3.50	11.2	0.50	0.03	0.972	0.061	0.03	95	10	35	400	43
17135	1560	0.07	An Tm Gt	41.9	40.9	1.95	9.0	0.20	0.03	0.299	0.007		60	10	30	50	
17136	1270	0.25	An Tm Gt	42.1	38.8	4.30	6.5	0.12	0.04	0.025			85	10	150	65	48
17137	1770	0.23	An Tm Gt	34.4	37.5	5.85	15.2	0.35	0.08	0.430	0.033	0.06	65	15	130	175	47
17138	1770	0.46	An Tm Gt	22.1	34.8	24.9	10.5	0.12	0.05	0.525	0.069	0.03	35	1800	85	130	46
17139	960	0.09	An Tm Gt Mc	34.5	40.9	1.80	13.5	0.20	0.19	0.062	0.068		65	5	15	60	38
17140	1670	0.05	Mc Tm Gt An	26.3	45.5	2.50	8.7	0.40	0.89	0.020	0.007		195	20	15	70	40
17141	980	0.16	Tm Gt An	14.5	35.1	31.9	10.9	0.20	0.21	0.206	0.035		25	60	25	115	44
17142	1810	0.06	An Tm Gt	38.1	36.7	4.05	8.6	0.15	1.44	0.045	0.008	0.03	25	20	10	60	39
17143	1720	0.04	Tm Gt An	33.5	32.7	4.85	16.2	0.45	1.70	0.211	0.007	0.06	30	15	1750	1750	39
17144	1890	0.08	Tm Gt An Lm	22.1	32.3	2.75	26.3	0.70	0.08	0.006	0.007	1.07	55	10	115	100	40
17145	1830	0.65	Gt Tm Mc	20.7	34.6	2.25	38.1	0.75	0.02	0.008	0.011		20	5	15	65	59
17146	1680	0.16	An Tm Gt	32.7	33.6	8.85	9.6	0.40	0.04	0.049		0.36	25	5	15	40	66
17147	1650	0.06	Tm Gt An	24.7	33.4	2.30	29.7	0.90	0.43	1.3	0.015	0.04	20		10	100	64
17148	1800	0.08	Tm	32.2	33.6	2.00	16.7	0.07	0.02	0.329	0.061		155	5	5	95	48
17149	1490	0.43	Gt Tm	22.5	33.5	0.69	37.4	0.60	0.01	0.005	0.013		30	5	10	85	49
17150	1770	0.08	Tm Gt	25.9	29.6	8.25	19.0	0.35	0.83	0.349	0.065	0.30	15	5	275	285	50

025

SAMPLE NUMBER	AMG CO-ORDS	FINE FRACTION STREAM SEDIMENT (-355 µm) Total Wgt (gms)	Percent HM	HM MINERALOGY (In order of abundance) MAJOR (>20%)	MINOR (1-20%)	TRACE (<1%)	XRF ANALYSES OF HM Al_2O_3	SiO_2	TiO_2	Fe_2O_3	CaO	ZrO_2	Sn	W	Ce	AAS ANALYSES OF HM Bi	Cu	Li	Pb	Zn	COARSE FRACTION STREAM SEDIMENT (-1000+355 µm) Total Wgt (gms)	Percent HM	MAJOR HM MINERALOGY (In order of abundance)	XRF ANALYSES OF HM Al_2O_3	SiO_2	TiO_2	Fe_2O_3	CaO	ZrO_2	Sn	W	Ce	AAS ANALYSES OF HM Li	Cu	Pb	Zn	WATER SIE Analysis F(ppb)
17151	9645 7665	80	0.13	Tm Op Gt	Zc Mz Rt Dp	Sap															1250	0.01	Tm Gt													55
17152	9645 7685	140	0.45	Op Tm	Zc Mz Gt An Dp Tp	Cs	16.5	24.3	16.6	15.9	0.35	4.55	0.454	0.082	1.91		30	5	110	1350	1680	0.04	Tm Gt	22.9	28.1	14.2	18.7	0.30	1.29	0.157	0.039	0.43					45
17153	9600 7640	135	0.30	Op Tm	Gt An Mz Mz Rt Dp	Cs							8.1				100	5	60	780	2010	0.05	Tm Gt	23.0	27.5	9.85	17.8	0.60	0.75	4.4	0.059	0.19	25	20	30	525	45
17154	9595 7650	130	0.28	Op Tm Gt	Zc Mz An	Cs	14.6	29.4	14.7	16.0	0.39	4.40	0.555	0.104	1.69						1210	0.02	Tm Gt														44
17155	9585 7630	150	0.67	Op Tm	Gt Mz Zc An Rt Dp	Cs Sap	11.8	22.4	18.0	16.7	0.34	3.90	4.77	0.148	1.37		50	5	90	3450	1650	0.13	Tm Gt	19.8	25.4	14.6	23.2	0.40	1.00	2.4	0.107	0.31	20	20	65	3150	44
17156	9685 7710	280	0.85	Tm Op Gt	Mz Zc Rt An	Sap Cs	24.0	34.5	7.70	19.9	0.34	1.45	0.284	0.127	0.84		55	10	140	425	1390	0.02	Tm Gt														39
17157	9680 7725	305	0.61	Tm Gt	Op Zc Mz Rt An	Sap	27.8	36.3	4.85	16.8	0.26	1.40	0.468	0.122	0.83		185	5	45	155	1310	0.08	Tm Gt An	25.2	34.7	0.45	28.5	0.55	0.01	0.263	0.039		20	5	10	100	38
17158	9675 7750	170	0.66	Tm Gt Op	Mz Zc Rt An	Cs Sap	28.2	34.3	4.35	19.9	0.24	0.53	0.108	0.104	0.29		70	15	125	240	1200	0.11	Tm Gt	26.4	34.1	0.63	29.0	0.55		0.143	0.029		30	5	160	100	41
17159	9665 7740	255	0.62	Tm Gt Op	Mz Zc Rt An Dp	Sap	26.0	31.3	6.35	19.9	0.26	0.96	0.111	0.059	0.51		50	5	45	190	1500	0.16	Tm Gt	29.4	35.6	0.55	25.7	0.45	0.04	0.068	0.005		25	5	10	80	38
17160	9650 7735	155	1.00	Gt Tm Op	Mz Zc An Rt		22.5	32.3	6.30	26.3	0.41	0.67	0.045	0.062	0.35		60	10	30	175	1170	0.32	Gt Tm (Mc)	24.2	36.2	0.55	30.4	0.50	0.01	0.016	0.011		25	15	85	90	36
17161	9540 8005	540	0.40	Tp Op Gt	Zc Mz Rt An	Cs Sap	23.7	29.7	9.10	18.6	0.48	3.10	0.015	0.028	0.74		95	5	50	235	1330	0.14	Tm Gt (Mc)	20.2	29.2	0.83	19.5	0.35	0.03	0.004			15	5	15	75	37
17162	9535 8015	560	0.12	Tm Zc Gt Op	An Rt Mz Dp Tp		14.7	24.0	13.7	12.4	0.33	18.3	0.028	0.036	0.39		70	5	40	130	1670	0.04	Gt Tm (An) (Mc)	30.3	36.1	3.15	20.0	0.45	0.17	0.011	0.007	0.02	20	10	25	80	35
17163	9555 8035	710	0.12	Gt Tm Op	An Zc Dp Mz Rt Tr/Hb	Tp Cs Sap											75	20	40	105	1590	0.12	Gt Tm Mc Lm An	19.9	41.2	0.92	29.8	0.90	0.06	0.406	0.005		20	10	30	85	38
17164	9505 8010	560	0.32	Gt Tm Op	Mz Zc An Rt	Sp	23.4	34.7	6.30	24.6	0.41	2.75	0.021	0.032	0.39		100	10	35	170	1170	0.42	Gt Tm (Mc) (An)	23.5	34.5	0.58	33.5	0.60	0.01	0.039	0.011		15	10	20	115	43
17165	9370 8000	395	0.71	Op Tm	An Gt Zc Mz Rt	Sp Sap	32.7	34.7	10.8	12.1	0.19	1.15	0.072	0.018	0.22		45	20	60	210	1710	0.08	Tm Gt Mc An Lm	32.4	33.1	7.40	13.4	0.20	0.35	0.075	0.015	0.09	35	10	45	190	
17166	9365 7985	75	2.07	An Op Tm.Gt	Zc Tp Mz Rt	Sap	36.0	34.2	8.95	11.6	0.25	0.30	0.103	0.026	0.086		60	35	50	155	1690	0.29	Tm An (Gt) (Mc)	33.2	50.0	4.35	6.0	0.10	0.06	0.020	0.012		80	10	70	85	49
17167	9350 7985	370	0.70	Tm Op An	Zc Gt Mz Rt	Cs Sp Sap	36.0	34.5	9.20	10.2	0.20	0.45	0.076	0.017	0.09		100	35	60	145	1750	0.15	An Mc Tm Gt Lm	21.8	65.8	1.65	3.8	0.02	0.01	0.023			105	15	35	70	53
17168	0375 7610	170	0.15	Op Tm	Gt Zc Dp Mz An Rt	Tp Cs	19.0	34.6	15.0	10.0	0.51	5.65	0.901	0.130	0.22						1560	0.23	Mc Tm (Lm)	21.7	53.6	1.85	9.6	0.06	0.16	0.365	0.023	0.03	300	15	20	60	41
17169	0320 7475	440	0.90	Tm Dp	Op Gt Mz An Rt	Cs	27.0	36.2	2.40	14.7	4.95	0.46	2.78	0.420	0.07		55	40	25	135	1460	0.41	Tm An Gt Mc	24.7	37.3	0.63	13.2	6.30	0.02	0.709	0.099		144	15	40	100	47
17170	0335 7475	640	0.70	Tm Op Gt	Zc Mz Rt An Dp Tp	Sp Sap	23.8	32.4	4.10	12.8	4.85	0.59	1.87	0.317	0.19		45	25	30	75	1200	0.54	Tm Gt An/Dp (Mc) (Lm)	21.7	34.7	0.89	19.2	8.00	0.04	1.07	0.235		80	15	15	120	63
17171	0370 7615	480	0.29	Op Tm Zc	Gt Rt Mz Dp	Cs	17.7	35.3	17.4	8.9	0.35	8.60	0.818	0.196	0.22		75	35	40	55	1370	0.24	Tm Lm (Gt) (Mc)	21.2	26.1	1.90	29.4	0.42	0.05	1.96	0.257	0.04	100	25	35	120	38
17172	0355 7820	240	0.30	Op Tm	Gt Zc Rt Tp Mz	Cs	19.7	32.9	18.5	5.6	0.19	6.45	0.874	0.084	0.19						1880	0.08	Tm Lm (Gt) (Mc)	27.7	32.1	6.70	16.4	0.12	0.13	0.919	0.153	0.06	110	30	30	105	35
17173	0345 7820	440	0.17	Tm Op	Gt Zc Tp Rt Mz	Cs	15.5	42.6	16.9	8.1	0.36	3.75	1.13	0.146	0.15		70	55	25	50	1460	0.11	Tm Lm (Gt) (An) (Mc)	19.8	24.3	3.70	28.0	0.29	0.04	0.743	0.050	0.03	100	25	40	110	35
17174	0360 7870	370	0.16	Op Gt	Tm Zc Mz Rt Tp		8.5	53.9	18.0	5.5	0.44	3.75	0.135	0.010	0.15						1690	0.18	Lm Tm (Mc) (An)	8.4	18.6	9.85	45.2	0.25	0.09	0.058	0.006	0.05	25	25	60	120	36
17175	0395 7885	480	0.29	Op Gt	Zc Tm Mz Rt		10.9	38.6	24.3	6.0	0.48	6.70	0.049	0.015	0.24		55	15	50	40	1700	0.09	Lm Tm Mc (Gt)	10.9	41.9	15.9	18.6	0.26	0.18	0.019		0.06	20	20	55	60	36
17176	0405 7885	320	0.14	Op Gt	Tm Zc Rt Mz												120	20	55	120	1350	0.09	Lm Tm (Mc) (Gt)	8.8	16.5	3.25	41.9	0.54	0.12	0.096		0.06	15	15	60	345	37
17177	0420 7810	510	0.17	Op Gt	Tm Zc Rt Mz Hb		12.7	34.4	22.9	10.3	0.84	5.50	0.197	0.011	0.28		110	20	50	125	1410	0.12	Lm Tm (Mc)	8.4	22.6	9.10	30.7	0.32	0.19	0.075		0.05	20	25	45	285	36
17178	0430 7805	480	0.22	Op Zc	Tm Gt Rt Mz	Cs	11.6	31.2	19.1	14.2	0.54	11.5	0.140	0.026	0.35						1370	0.81	Lm	5.1	5.5	0.88	58.1	0.02	0.05	0.019			5	25	65	90	35
17179	0295 7845	210	0.68	Tm Op	Zc Mz Rt	Cs															1410	0.21	Tm (Mc) (Gt)	28.6	31.2	0.63	17.9	0.04	0.01	0.292	0.118		140	10	25	85	40
17180	0300 7840	270	2.91	Tm		Op Zc	33.0	37.8	1.40	16.7	0.10	0.17	0.558	0.121	0.02		45	40	15	85	1780	0.46	Tm (Mc) (Gt)	28.8	30.5	0.28	14.4	0.05		0.156	0.009		30	5	15	70	45
17181	0265 7795	55	1.47	Tm	Op Zc Mz Rt Cs		32.4	35.1	1.55	15.5	0.08	0.23	1.54	0.217	0.02		45	65	10	90	1390	0.25	Tm (Gt) (Mc)	27.7	29.2	0.44	14.7	0.14	0.01	0.521	0.077		145	10	15	105	46
17182	0245 7790	160	1.71	Tm	Gt Op Mz	Zc	31.5	40.3	0.80	16.0	0.09	0.16	0.155	0.060	0.02		145	45	15	125	1350	0.25	Tm (Gt) (Mc)	29.0	28.9	0.24	14.7	0.02		0.014	0.006		35	5	20	60	44
17183	0265 7710	230	4.07	Tm	Cs Mz Zc Op Rt		30.5	36.1	0.55	15.4	0.14	0.05	4.55	0.269			25	40	10	80	1370	0.83	Tm (Gt)	27.1	32.2	0.17	13.9	0.06		0.739	0.075		25	5	15	55	47
17184	0250 7710	350	1.37	Tm	Cs Op Gt Zc Mz		30.2	33.4	1.05	16.6	0.18	0.17	4.41	0.182	0.06		75	30	10	105	1430	0.41	Tm (Gt) (Mc)	27.8	29.8	0.21	14.1	0.05		0.890	0.061		20	10	10	55	44
17185	0275 7740	360	3.68	Tm	Zc Cs Mz Op		32.8	34.2	0.90	16.1	0.11	0.16	3.25	0.186	0.03		20	25	10	55	1160	0.60	Tm	28.0	28.9	0.27	13.9	0.03	0.01	2.22	0.100		25	5	10	90	47
17186	0345 7565	745	0.14	Tm	Zc An Op Gt Rt Cs		21.8	37.7	8.00	6.3	1.15	8.60	1.67	0.048	0.137		60	20	30	110	1440	0.07	Tm (An) (Mc)	30.1	28.7	2.60	7.0	1.30	0.51	1.17	0.026	0.02	35	10	15	160	44
17187	0345 7570	680	0.62	Tm Dp An	Op Gt Tp Zc	Rt Hb Mz	20.4	42.3	1.75	11.2	7.05	0.90	1.57	0.103	0.04		60	25	20	80	1540	0.24	Tm Gt Mc Lm An Dp	23.1	30.6	0.45	13.9	2.40	0.01	0.658	0.064		25	10		80	47
17188	0305 7650	320	2.61	Tm	Tp Op Zc	Rt Cs Dp	31.1	37.5	0.90	15.4	0.21	0.09	1.15	0.262	0.03		30	35	20	75	1600	0.66	Tm	30.1	30.0	0.23	14.6	0.05		0.171	0.037		25	5	5	55	48
17189	0435 7665	240	0.26	Op Tm Dp	Gt Zc Mz An Rt		10.9	37.1	13.3	10.0	4.95	3.60	1.52	2.0	0.20						1760	0.14	Tm Lm An/Dp (Gt) (Mc)	11.2	28.8	1.85	21.8	4.30	0.19	0.712	0.630	0.02	150	55	70	335	42
17190	0420 7620	465	0.71	Tm	An Gt Op Zc Mz Rt Hb	Sap	30.8	34.8	2.25	15.6	0.31	0.91	0.624	0.034	0.03		190	35	15	130	2200	0.46	Tm (Gt) (An)	29.0	29.5	0.39	13.9	0.10	0.03	0.120			20	5		45	41
17191	0425 7625	415	0.27	Op Tm Dp	Zc Gt An Mz Rt Hb	Cs	17.8	33.9	10.9	12.7	3.65	3.45	1.41	1.18	0.19		65	45	45	115	2380	0.12	Tm Lm Dp An (Mc)	17.7	28.9	1.00	18.5	2.65	0.08	0.180	0.114		180	30	15	330	42
17192	0220 7350	335	0.19	Tm	Op Gt Zc Mz Rt Dp Hb	Tp	21.5	35.6	10.8	11.5	1.50	2.75	0.132	0.014	1.20						1980	0.07	Tm An (Mc) (Gt)	12.6	28.1	6.00	7.8	1.35	0.65	0.070		3.71	15	10	40	55	52
17193	0225 7355	560	0.06	Tm Op Gt	Zc Rt An	Dp	11.9	29.2	12.4	7.9	1.35	18.00	1.31	0.035	0.630						1570	0.10	Lm Tm An (Gt) (Mc)	11.2	21.0	1.90	27.1	1.25	0.07	0.152		0.72	15	20	30	100	56
17194	0225 7345	245	0.16	Tm Do Op	Zc An Mz Rt Tp	Sap											160	10	35	170	1690	0.08	Am Tm Dp (Mc) (Lm)	7.3	50.1	1.70	8.9	1.10	0.27	0.020		1.56	10	25	25	105	60
17195	0245 7315	475	0.13	Op Zc Tm	Rt Mz	Dp Sap	10.3	29.1	15.1	10.5	1.05	6.10	0.232	0.005	3.42						1560	0.09	An Tm Mc Lm (Py) (Gt) (Tr)	6.5	37.1	2.35	6.9	0.27	0.08	0.050		5.68	5	75	20	75	50
17196	0265 7330	235	0.25	Op Tm	Dp Gt Zc Tp Mz Rt An	Cs																														
17197	0170 7345	555	0.20	Zc Op Tm	Rt Mz	Tp Ky Sap	14.5	34.1	11.7	11.4	0.71	10.6	0.090	0.009	0.57		100	10	55	80	2010	0.14	Tm Dp/An (Mc) (Lm)	6.5	40.6	2.10	5.2	0.51	0.18	0.219	0.005	5.70	5	15	30	130	50
17198	0160 7340	680	0.19	Op Zc Tm	Mz Rt Tp	Cs	10.7	23.8	15.3	10.9	0.29	10.5	0.175	0.008	3.77		80	10	35	55	1390	0.03	An Tm Lm	11.9	38.8	3.90	13.2	0.63	0.41	0.011		1.90					52
17199	0145 7345	565	0.24	Op Tm Gt	Zc Dp An		11.7	27.6	19.9	19.9	1.60	5.50	0.088	0.012	0.510		50	5	55	35	1770	0.09	Tm Mc An (Gt) (Lm)	7.2	32.7	4.65	4.5	0.22	1.90	0.049	0.010	6.42	5	15	10	180	48
17200	0130 7375	610	0.49	Op	Tm Zc Gt(sk) Mz Rt	Hb	8.4	28.3	24.1	26.2	0.54	1.90	0.196	0.059	0.48		55	20	60	130	1410	0.07	Tm An/Dp Mc	12.1	31.8	7.70	14.0	1.70	1.10	0.042	0.008	0.68	25	50	130	175	50
																					1810	0.10	Gt Tm (An)	17.0	29.3	7.10	26.2	1.20	0.17	0.070	0.034	0.12	15	30	40	130	60

020

121020

028

029

030

121021

FINE FRACTION STREAM SEDIMENT (-355 μm)

SAMPLE NUMBER	AMG CO-ORDS	Total Wgt (gms)	Percent HM	HM MINERALOGY (In order of abundance) MAJOR (>20%)	MINOR (1-20%)	TRACE (<1%)	XRF ANALYSES OF HM Al_2O_3	SiO_2	TiO_2	Fe_2O_3	CaO	ZrO_2	Sn	W	Ce	AAS ANALYSES OF HM Bi	Cu	Li	Pb	Zn
17201	0135 7370	530	0.36	Op Zc Tm	Gt Rt Mz	Hb Cs	11.1	31.3	17.0	14.7	0.65	13.4	0.100	0.014	0.41		110	10	65	125
17202	0175 7730	115	0.80	Tm Zc Op	Gt(sk) Mz Rt Dp	Cs Sap	22.6	36.2	1.50	16.4	8.55	1.20	1.37	0.139	0.07		55	20	20	70
17203	0170 7720	425	2.10	Dp	Gt(sk) Op Tm Zc Hb Rt	Ep	4.7	49.5	0.65	6.4	21.0	0.56	0.044				55	20	35	70
17204	0180 7700	795	0.12	Tm Zc Gt(sk)	Rt Mz Dp Ep	Sp	18.8	34.4	5.15	12.2	5.80	7.85	0.087	0.011	0.116		190	10	35	90
17205	0210 7660	205	0.60	Tm	Op Mz Zc Gt Cs Dp An Rt	Sp Sap	27.0	32.7	3.45	14.3	0.42	1.45	4.15	0.089	0.36		55	25	30	90
17206	0190 7665	400	0.41	Tm Dp Gt(sk)	Zc An	Rt Mz Hb Cs	19.0	40.1	1.50	13.6	11.3	0.77	0.926	0.033	0.036		80	20	25	140
17207	0200 7655	630	0.47	Dp Tm	Zc Gt Op Hb Mz Rt An	Ep Cs	12.5	43.3	2.00	10.5	10.80	1.35	1.76	0.147	0.063		95	15	25	115
17208	0130 7680	585	0.38	Dp Tm	Gt(sk)Au Zc Mz Rt Op Hb	Ep Cs	16.3	47.0	1.80	10.3	8.30	1.30	0.097	0.009	0.04		85	20	20	135
17209+	0130 7670	790	0.25	Dp	Hb Tm Zc Rt Op	An	5.1	50.9	2.35	8.4	14.3	3.05	0.044	0.044			100	25	25	155
17210	0175 7670	620	0.24	Tm Gt	Op Zc Rt Tr/Hb Dp Mz Sp An		18.2	40.1	4.55	12.6	5.10	4.35	0.047	0.022	0.17		75	15	35	100
17211+	0165 7650	585	0.01	Tm Op	An Rt Zc Mz Dp															
17212	0115 7725	370	0.51	Tm Gt	Op Zc An Ky		27.4	39.6	1.75	15.9	0.57	0.30	0.094	0.011	0.058		40	20	15	90
17213	0210 7410	620	0.10	Dp	Op Tm Gt An Mz Zc Tp Rt	Ep Zs	9.1	47.5	2.15	9.7	14.7	1.65	0.245	0.020	0.54					
17214	0200 7405	240	0.32	Gt Op Tm	Zc Mz Dp Hb Rt	Ep Tp	17.5	35.8	6.45	27.5	1.95	1.10	0.167	0.056	0.35		35	20	50	85
17215	0065 7565	530	0.48	Dp Tm	Gt Op Tr Zc Mz Rt An	Sap	10.9	45.5	1.55	10.2	9.20	1.55	0.065	0.045	0.291		20	15	40	65
17216	0055 7565	300	0.38	Tm	Gt Op Zc Mz An Rt Tp	Sap	22.0	33.2	6.10	14.0	0.41	1.65	0.251	0.186	1.45		70	35	110	125
17217	0060 7535	450	0.82	Tm Gt	Op Zc Mz Rt		22.2	38.7	2.60	22.0	0.56	0.74	0.018	0.135	0.747		170	40	60	125
17218	0070 7505	320	0.79	Gt Tm	Op Mz Zc	Dp	21.6	34.2	3.55	27.3	0.56	0.68	0.020	0.037	0.691		70	30	65	125
17219	0095 7495	500	0.06	Tm Gt Op	Zc Mz Rt	Hb	13.2	38.5	4.00	14.8	9.50	3.35	0.270	0.059	0.249					
17220	9290 7640	640	0.34	Dp	Hb Tm Rt Op Zc	An	8.3	57.2	10.9	11.9	0.21	3.55	0.077	0.014	0.36		220	10	70	215
17221	0175 7555	225	1.40	Dp Op	Tm Zc Gt		4.2	45.7	0.30	1.85	3.45	0.14	0.031		0.021		10	25	30	45
17222	0180 7560	440	0.16	Op An	Tm Zc Gt Rt Dp	Cs	17.4	39.8	2.55	7.7	23.70	2.00	0.137	0.008	0.135		105	10	40	125
17223	0220 7565	320	1.76	Dp	Tm Gt Op		5.3	56.3	0.49	6.3	15.4	0.27	0.102	0.007			40	15	30	90
17224	0225 7570	310	0.39	Tm Op	Gt Zc Mz Dp Tp	Cs	26.6	32.5	1.70	15.3	4.10	0.32	2.11	0.148	0.051		120	35	25	140
17225	0235 7565	270	0.16	Tm	Op Gt Zc Tp	Cs Mz	30.0	32.6	1.55	14.6	0.70	0.71	2.78	0.041	0.144					
17226	9270 7710	110	0.40	Tm Gt	Op Zc Dp		27.1	31.4	10.3	24.8	0.60	0.76	0.475	0.047	0.252					
17227	9460 7710	620	0.34	Tm Gt Op	Zc Mz Rt An	Zs	15.7	16.7	0.56	18.9	0.45	1.55	0.096	0.035	0.526		55	15	40	260
17228	9275 7980	365	0.44	Op	An Tm Zc Dp	Tp	19.6	29.2	22.9	15.9	0.30	0.49	1.04	0.166	0.110		90	30	110	705
17229	9280 7980	360	0.89	Op An	Tm Zc Dp Mz Rt	Cs	22.8	52.1	8.35	7.5	0.12	0.60	1.32	0.015			100	20	40	120
17230	9285 7650	435	0.22	Tm Gt Op	Zc An Mz Tp Dp	Cs	12.1	38.1	15.2	18.9	0.50	2.05	1.19	0.090	0.684		55	25	60	600
17231	9775 8030	680	0.05	Gt Tm	Op Zc Mz Rt	Cs	18.3	28.5	3.35	28.8	0.45	1.50	1.13	0.072	0.135					
17232	9770 8020	455	0.66	Gt Tm Op	Mz An Zc Rt	Cs Sap	18.6	37.2	2.15	24.0	0.95	1.05	2.74	0.194	0.622		25	20	50	80
17233	9795 8005	600	0.16	Gt Tm	Mz Op Zc	Cs	18.9	27.9	3.15	23.7	0.60	1.15	2.32	0.555	1.17		50	25	95	165
17234	9665 8035	685	0.06	Gt Tm	Op Zc Mz Dp		20.1	32.6	5.45	21.3	0.50	6.25	0.437	0.058	0.747					
17235	9665 8040	700	0.04	Dp Tm Gt	Op Zc An Tp Hb		8.6	42.0	6.80	7.3	11.50	9.60	0.184	0.029	0.180					
17236	9280 7645	400	1.55	An Op	Zc Gt Tm Rt Mz	Sap	40.3	40.2	8.35	6.7	1.00	1.30	0.067	0.016	0.058					
17237	0085 7465	460	0.44	Gt	Tm Op Zc Mz Tp Rt		18.0	34.5	5.55	25.7	0.65	1.10	0.016	0.049	0.871		70	35	130	155
17238	0090 7445	380	0.17	Gt Tm Op	Zc Mz Rt An Hb Dp	Tp Cs	18.1	30.3	11.9	20.5	1.19	1.35	0.047	0.090	0.85					
17239	0145 7395	665	0.12	Gt Tm Op	Mz Zc Dp Hb		18.5	39.6	4.10	24.1	2.95	0.91	0.012	0.064	0.366		40	45	60	95
17240	0240 7545	460	0.69	Tm	Dp Zc Mz Gt Op Rt Cs An		24.6	35.3	2.05	12.9	2.30	0.80	7.62	0.097	0.16		50	25	20	75
17241	0240 7510	510	0.17	Tm Dp Op	Zc Rt Gt Mz	Sp Ep	17.3	44.5	2.80	9.3	6.40	4.15	0.077	0.025			50	5	20	35
17242	0255 7475	760	0.13	Dp Tm Op	Zc Gt(sk) Rt Mz An	Cs	12.6	43.8	3.65	8.8	9.60	4.80	0.306	0.049	0.29		55	15	25	85
17243	0275 7465	405	1.91	Tm Op	Zc Gt Mz An Tp	Cs Dp	33.2	37.4	1.10	17.3	0.23	0.39	0.336	0.014	0.05		30	30	15	95
17244	9115 7495	775	0.45	An Op Gt	Tm Zc Rt Ky Mz	Dp Cs	30.5	32.8	12.6	8.4	0.42	7.35	0.270	0.028	0.16		30	15	40	130
17245	9140 7550	560	4.80	An Op	Gt Tm Zc Ky Rt Mz Dp	Sr	44.3	38.4	8.6	7.3	0.40	0.29	0.030	0.108	0.08		40	30	25	95
17246	9135 7555	475	2.09	Op	Tm An Zc Gt Mz Tp Rt Dp	Ky	25.5	37.1	20.1	10.5	0.37	0.48	0.041	0.028	0.02		40	20	80	225
17247	9120 7550	470	2.37	Op	Tm Dp An Gt Zc Mz Rt		13.0	38.3	24.3	13.1	0.75	0.29	0.034	0.025			50	15	130	290
17248	9070 7545	690	1.69	Op	Tm An Zc Gt Mz	Zs							0.114				165	10	150	430
17249	9080 7550	700	2.44	Op	Dp Tm Zc Tm Mz Gt Rt	Hb An	6.3	37.4	28.0	17.5	0.68	0.39	0.018	0.015			50	10	110	340
17250	9320 7930	380	2.73	Tm Op	An Zc Rt Mz Dp Gt	Sap Zs	32.6	35.1	10.2	11.3	0.19	0.10	0.055	0.040			50	25	40	140

COARSE FRACTION STREAM SEDIMENT (-1000 + 355 μm) and WATER

SAMPLE NUMBER	Total Wgt (gms)	Percent HM	MAJOR HM MINERALOGY (In order of abundance)	XRF ANALYSES OF HM Al_2O_3	SiO_2	TiO_2	Fe_2O_3	CaO	ZrO_2	Sn	W	Ce	AAS ANALYSES OF HM Li	Cu	Pb	Zn	WATER SIE Analysis F(ppb)
17201	1680	0.08	Tm Mc Gt (An)	16.0	30.3	5.35	14.9	1.05	0.99	0.052	0.007	0.35	15	35	20	100	71
17202	1860	0.22	Tm An (Gt) (Mc)	19.4	31.9	0.34	14.6	9.00	0.03	0.659	0.010		25	5		70	57
17203	1490	1.01	Dp Lm Gt(sk) Tm	5.5	38.4	0.26	8.5	21.6	0.04	0.033			15	10	15	55	55
17204	2170	0.05	Tm Lm An Dp (Mc) (Gt)	19.9	32.7	1.75	18.4	7.60	0.69	0.042		0.02	25	45	50	120	50
17205	1870	0.10	Tm (Gt) (Mc)	11.0	33.4	1.45	16.1	0.58	0.11	2.01	0.057	0.05	15	5	10	105	62
17206	2100	0.18	Tm An Gt	19.1	33.1	0.39	15.7	11.6	0.02	0.372	0.039		15	5	5	85	57
17207	1900	0.22	Tm Gt Dp/An (Tr)	16.5	32.4	0.49	14.1	6.00	0.02	1.88	0.128		25	130	10	160	52
17208	1540	0.21	Tm Dp/An (Gt) (Mc) (Lm)	20.8	40.1	0.70	12.8	7.10	0.06	0.029	0.015		20	30	220	330	54
17209+	1930	0.15	Dp Hb Tm Op										25	40	30	145	66
17210	1720	0.08	Gt Tm Mc An Tr	18.5	39.6	0.99	24.2	4.25	0.04	0.489	0.032	0.04	45	30	25	150	61
17211+	1770	0.01	Tm Lm(An) (Gt) (Mc)														51
17212	1520	0.28	Tm (Gt)	31.1	35.1	0.40	17.1	0.30		0.013			15	5	15	90	52
17213	760	0.36	Dp Tm Lm (Mc) (Gt)	7.8	44.7	0.62	14.6	15.1	0.05	0.018		0.15	10	30	30	115	53
17214	1050	0.12	Gt Tm Mc	18.2	46.2	0.50	27.8	1.15	0.03	0.050	0.011		55	25	85	140	63
17215	1150	0.18	Tm Gt An Mc	13.9	54.7	0.51	15.1	4.35	0.04	0.054	0.007		55	15	25	80	57
17216	1280	0.07	Tm Gt (Mc)	24.3	40.1	0.94	22.9	0.38	0.04	0.014	0.228	0.02	80	5	25	75	66
17217	1520	0.24	Gt Tm Mc	19.5	43.1	0.41	22.4	0.42	0.02	0.001	0.030		60	15	15	130	86
17218	1450	0.25	Gt Tm (Mc) (Lm)	22.7	37.8	0.44	32.7	0.52	0.02	0.008	0.017		35	15	10	145	75
17219	1520	0.03	Tm Lm (Gt) (An/Dp)	12.4	38.8	1.10	21.4	9.2	0.04	0.056	0.006						98
17220	2040	0.31	Dp (Tm) (Gt) (Mc)	8.8	48.0	0.46	6.6	23.4	0.03	0.222		0.045	10	15	35	155	65
17221	1690	0.03	Tm Gt An	16.8	54.4	4.80	12.8	0.70	0.28	0.021	0.005	0.042					65
17222	1590	0.54	An Lm	18.1	36.2	0.68	11.8	28.9	0.04	0.048		0.032	15	35	35	140	59
17223	1610	1.25	Dp Tm (Mc)	6.3	47.2	0.22	8.1	19.8	0.01	0.059	0.009		35	10	30	130	63
17224	2150	0.18	Tm Op An Gt	26.4	34.2	0.47	18.4	2.6	0.01	0.280	0.014		55	15	100	125	64
17225	860	0.21	Tm (Gt) (An)	26.9	45.6	0.45	13.3	0.45	0.30	0.322	0.013		25		5	45	
17226	900	0.14	Gt Tm Mc	21.4	32.7	0.51	25.3	0.47	0.02	0.015	0.006		65	5	5	95	70
17227	1000	0.10	Gt Tm (Mc)	20.0	44.0	1.10	27.1	0.58	0.01	0.015	0.013		30	10	5	105	66
17228	1200	0.65	An (Tm) (Mc)	39.2	46.3	2.55	6.4	0.04	0.05	0.057	0.013		110	10	75	195	64
17229	1300	0.20	An (Tm) (Mc)	42.8	42.7	2.80	3.2	0.06	0.03	0.566	0.018	0.024	75	10	20	255	64
17230	970	0.01	Gt Tm Mc														71
17231	910	0.30	Gt Tm (Mc)	16.0	46.7	0.28	26.3	0.41		0.687	0.013		20	5	5	95	58
17232	720	0.75	Gt Tm	18.2	31.6	0.13	32.8	0.63		0.302	0.017		10	10	5	90	63
17233	400	0.62	Gt Tm	21.2	38.9	0.19	29.5	0.59	0.02	0.038	0.018		15		10	65	62
17234	1060	0.07	Gt Tm	16.6	58.1	0.33	18.4	0.32	0.03	0.113	0.005		15	5	15	50	59
17235	760	0.06	Gt Tm Dp An (Mc)	15.1	43.6	1.90	14.6	5.5	0.03	0.009	0.016						56
17236	880	0.86	An (Tm) (Gt) (Mc)	44.0	32.6	1.45	3.4	0.14	0.05	0.007			133	5	5	45	54
17237	1150	0.15	Gt Tn (Mc)	22.4	38.2	0.67	32.2	0.55	0.02	0.004	0.018	0.020	50	15	70	75	73
17238	990	0.10	Gt Tm Mc	17.9	41.0	2.55	29.9	0.62	0.04	0.016	0.015	0.035	60	15	40	115	80
17239	1810	0.22	Gt Mc Tm Lm	20.2	34.9	1.50	29.9	2.00	0.16	0.006	0.007	0.045	170	25	105	150	80
17240	1790	0.20	Tm (Gt) (Mc)	29.7	35.0	0.75	16.3	2.00	0.04	2.55	0.053	0.022	35	10	15	70	65
17241	1440	0.13	Tm Dp (Gt) (Mc) (Lm)	12.7	41.2	1.25	13.0	16.5	0.26	0.016	0.006		5	25	25	65	52
17242	1350	0.15	Tm Lm Dp Am (Mc)	12.2	36.9	0.92	19.3	8.4	0.11	1.54	0.025	0.082	70	130	20	115	52
17243	1740	0.86	Tm Lm (Mc) (Gt)	32.3	34.4	0.33	17.8	0.10		0.040	0.007		30	10	5	80	60
17244	920	0.62	An Tm Gt	41.0	37.6	2.55	7.9	0.28	0.05	0.019	0.005	0.024	25	5	10	55	50
17245	1920	2.64	An Tm	47.4	40.3	2.40	2.6	0.19	0.05	0.004	0.019	0.037	65	10	15	40	59
17246	930	0.63	An (Gt) (Tm) (Mc)	43.4	41.5	3.85	2.6	0.23	0.02	0.006	0.007	0.036	60	5	40	45	
17247	1420	0.59	Dp/An Tm (Mc) (Lm)	30.2	37.2	5.85	9.9	0.86	0.03	0.009	0.010	0.025	50	10	150	100	60
17248	960	0.16	Tm An/Dp Mc (Gt)	23.9	42.9	19.1	6.6	0.21	0.11	0.033	0.017	0.104	25	70	380	165	54
17249	1510	0.35	An Tm Mc Lm	29.3	44.7	4.35	8.7	1.65	0.04	0.026	0.011	0.218	60	20	125	125	57
17250	1890	0.55	An (Tm) (Gt) (Mc)	43.2	39.8	4.55	3.2	0.07	0.02	0.057	0.029		125	10	35	85	60

SAMPLE NUMBER	AMG CO-ORDS	FINE FRACTION STREAM SEDIMENT (-355 µm) Total Wgt (gms)	Percent HM	HM MINERALOGY (In order of abundance) MAJOR (>20%)	MINOR (1-20%)	TRACE (<1%)	XRF ANALYSES OF HM Al_2O_3	SiO_2	TiO_2	Fe_2O_3	CaO	ZrO_2	Sn	W	Ce	AAS ANALYSES OF HM Bi	Cu	Li	Pb	Zn
17251	9330 7925	285	1.22	An Tm Op	Zc Gt Mz Rt	Tp	39.2	39.9	9.80	6.9	0.18	0.30	0.039	0.039	0.04		140	70	55	140
17252	9440 7910	330	1.60	Tm Gt Op	An Mz Zc	Tp Dp Hb Sap	19.8	31.3	8.05	24.0	0.39	2.10	0.023	0.033	0.90		45	15	60	185
17253	9450 7905	175	2.09	Gt Op Mz	Tm Zc An	Tp	20.0	35.5	5.15	29.9	0.44	1.05	0.014	0.025	0.58		45	20	50	155
17254	9525 7760	205	0.45	Tm Op Gt	Mz Zc Tp An Rt		21.0	29.5	10.8	22.8	0.36	2.25	0.030		0.76		55	20	50	500
17255	9530 7750	185	0.92	Tm Op	Gt Mz Zc Rt	Tp	23.8	31.1	9.40	19.9	0.25	0.96	0.103	0.034	0.38		70	15	50	510
17256	9615 7715	495	0.29	Tm Op Gt	Zc Mz	Rt An	17.3	30.0	14.6	19.8	0.30	1.50	0.127	0.045	0.66		45	10	70	695
17257	9640 7735	550	0.12	Tm Op	Mz Gt Zc Rt	Sap	21.7	37.8	10.5	17.2	0.29	1.25	0.057	0.073	0.84					
17258	9645 7730	255	0.25	Tm Gt Op	Zc Mz	Cs	22.7	27.1	6.05	22.4	0.37	0.43	0.067	0.041	0.25					
17259	9710 7600	430	0.47	Tm Op Gt	Mz Zc Dp Rt	Sap Tp Cs	19.8	30.4	10.1	18.3	0.50	2.10	0.084	0.079	1.05		30	10	80	305
17260	9720 7600	295	0.46	Tm Gt Op	Zc Mz Rt An Dp	Cs Zs							0.105				35	10	55	815
17261	9785 7725	390	0.40	Tm Gt	Mz Zc Dp Op Rt	Sap Cs	30.2	33.3	4.65	16.8	0.30	1.15	0.852	0.228	0.64		50	15	45	135
17262	9795 7725	360	0.65	Tm Gt	Op Zc Mz An Tp Hb	Cs	27.9	33.2	3.35	16.4	0.23	1.00	1.57	0.858	0.58		40	20	45	60
17263	9500 8015	720	0.56	Gt Tm Op	Zc Mz An Rp Rt	Dp Sap	20.4	33.1	7.95	26.1	0.42	2.95	0.042	0.037	0.75		70	20	70	235
17264	9575 8015	350	0.09	Tm Gt Op	Zc Mz Rt Tp	Cs														
17265	9550 8030	220	0.32	Gt	Op Tm Zc Mz Dp Cs An		17.5	42.0	4.15	27.3	0.79	0.78	0.830	0.076	0.19		45	15	30	115
17266	9620 8015	260	0.12	Dp Tm Op	Zc Gt Mz An Tr Rt Tp															
17267	9620 8010	200	0.78	Gt Tm Op	Zc Mz	Dp	21.9	36.6	4.55	25.0	0.55	1.10	0.604	0.082	0.55		40	20	35	115
17268	9605 8005	300	0.07	Tm Gt Op	Zc Mz An Rt															
17269	9600 7930	630	0.06	An Op Gt	Zc Tm Rt Dp Mz	Sp							0.070							
17270	9615 7950	660	0.03	An Op Zc	Gt Tm Rt Mz	Sp														
17271	9685 7930	220	0.60	Tm Gt	Mz Zc Op	Rt Mc														
17272	9695 7930	128	0.44	Tm	Gt Mc Op Mz Zc	Rt														
17273	9730 7860	137	1.06	Tm	Gt Mc Mz Zc Op	Rt Cs	29.9	45.5	2.20	18.2	0.2	0.52			0.428					
17274	9740 7860	320	1.01	Tm Gt	Op Mz Zc	Mc An Zr Cs	27.0	32.3	3.40	17.3	0.2	1.20			0.952					
17275	9775 7965	572	0.08	Tm	Gt Op Mz Zc	Mc An Rt Cs Tp Sch														
17276	9780 7940	421	0.19	Tm Gt	Mc Op Mz Zc	An Rt Sch	29.2	34.9	4.70	18.1	0.2	0.50	0.027		0.297					
17277	9790 7945	387	0.41	Tm	Gt Mz Mc Zc		29.4	34.8	2.90	17.5	0.2	0.62	0.133		0.478					
17278	9920 8040	513	0.35	Tm	Gt An Mc	Mz Sp Zr Rt Cs	26.9	33.6	8.95	16.7	0.4	0.64			0.202					
17279	9905 8045	762	0.02	Gt Tm	Mc Op Mz Zc An	Tr														
17280	9190 7520	522	0.50	Op An	Gt Tm Rt	Mc Ac Sr Ky	8.9	16.0	29.7	21.6	0.3	5.00			1.04					
17281																				
17282																				
17283	9840 8015	414	0.38	Tm Gt	An Mz Zc	Mc Rt Cs Uk	20.6	31.4	5.95	27.4	0.5	1.25	0.876		0.578					
17284	9845 8025	547	0.03	Gt	Zc Tm An Mz Rt Mc Op															
17285	9905 8035	583	0.32	Tm Gt	An Op Mz Zc	Mc Tp	22.6	32.3	5.95	25.5	0.4	1.40			0.262					
17286	9910 8030	530	0.39	Tm	Gt An Mc Op	Mz Zc Rt Cs	29.7	36.6	3.15	15.0	0.5	0.61	0.747		0.961					

SAMPLE NUMBER	COARSE FRACTION STREAM SEDIMENT (-1000 + 355 µm) Total Wgt (gms)	Percent HM	MAJOR HM MINERALOGY (In order of abundance)	XRF ANALYSES OF HM Al_2O_3	SiO_2	TiO_2	Fe_2O_3	CaO	ZrO_2	Sn	W	Ce	AAS ANALYSES OF HM Li	Cu	Pb	Zn	WATER SIE Analysis F(ppb)
17251	2100	0.33	An (Tm) (Gt) (Mc)	47.3	40.8	4.30	2.7	0.05	0.03	0.005	0.012		130	10	90	60	72
17252	1670	0.20	Gt Tm Mc	26.2	33.7	2.15	27.7	0.39	0.06	0.008	0.015	0.025	20	5	15	105	73
17253	1760	0.23	Gt Tm (Mc)	22.9	34.9	0.61	36.3	0.45	0.03	0.006	0.018		35	10	20	100	66
17254	1880	0.10	Tm Gt Mc Lm	25.6	31.8	2.90	25.1	0.33	0.18	0.009	0.025	0.054	110	10	30	190	54
17255	1930	0.29	Tm Gt Mc	27.5	32.6	2.85	22.7	0.31	0.13	0.018	0.020	0.058	20	10	25	155	54
17256	940	0.09	Tm Gt (Mc)	24.1	37.0	2.05	27.9	0.63	0.04	0.018	0.018		15	10	30	120	54
17257	1580	0.13	Tm Gt Mc	30.1	31.8	3.65	18.3	0.17	0.36	0.021	0.012	0.162	15	25	180	235	53
17258	1390	0.11	Tm (Gt) (Mc)	29.1	33.3	1.05	21.7	0.26	0.01	0.004	0.019		25	10	5	85	55
17259	1410	0.12	Tm Gt (Mc)	26.6	32.8	3.40	23.5	0.48	0.20	0.012	0.046	0.078	15	15	65	170	55
17260	1490	0.24	Tm Gt (Mc)	26.4	34.3	0.90	24.2	0.44	0.04	0.048	0.040		35	10	160	100	53
17261	1520	0.09	Tm (Gt) (Mc)	29.5	34.9	0.84	18.8	0.26	0.03	0.155	0.028		45		10	65	51
17262	1690	0.21	Tm (Gt) (Mc)	29.0	33.3	0.54	21.1	0.27	0.04	0.594	0.160	0.020	35	10	5	50	50
17263	1040	0.45	Gt Tm (Mc)	23.9	35.6	0.62	34.2	0.58		0.075	0.028		30	5		95	52
17264	1430	0.06	Tm Gt	30.3	34.7	1.05	22.5	0.39	0.03	0.005	0.008	0.028	15	15	10	70	49
17265	1660	0.41	Gt Tm (Mc)	23.1	35.4	0.80	33.1	0.74	0.18	0.239	0.020	0.030	20	10	10	80	51
17266	1690	0.06	Tm Gt (Mc) (An)	21.3	36.9	1.25	22.0	3.75	0.15	0.379	0.017	0.020	45	10	10	80	55
17267	1770	0.63	Gt Tm	20.8	33.4	0.27	36.2	0.70	0.02	0.128	0.016		20	10	15	75	55
17268	1490	0.08	Gt Tm Mc An	27.2	33.7	0.77	27.6	0.41	0.04	0.009	0.007		40	5	15	75	51
17269	1850	0.01	Tm Gt An														49
17270	1850																39
17271	2100	0.07	Gt Tm	20.7	36.9	0.18	39.7	0.65	0.02	0.068	0.054		15	10	10	75	45
17272	1800	0.04	Gt Tm An	21.9	29.7	0.11	30.5	0.61		0.927	0.014		10	10	5	65	43
17273	1750	0.15	Gt Tm	23.6	32.4	0.13	31.2	0.60		0.153	0.031		15	5	5	70	47
17274	1800	0.17	Gt Tm	20.6	33.0	0.09	36.1	0.81		1.55	0.765		10	5	10	75	44
17275	1750	0.002	Gt Tm														43
17276	2150	0.07	Gt Tm														41
17277	1700	0.04	Gt Tm	22.1	30.7	0.17	28.3	0.56		0.645	0.021						41
17278	1750	0.001	Tm Gt Mc														48
17279	1700																44
17280	1750	0.004	Gt Tm														42
17281																	
17282																	
17283	1800	0.02	Gt Tm														48
17284	1500	0.04	Gt Tm Mc														49
17285	1550	0.14	Gt Tm	22.8	35.5	0.33	36.3	0.76		0.237	0.018		15	5	15	75	49
17286	1750	0.01	Tm Gt Mc														47

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ALCOA OF AUSTRALIA LIMITED

GRANITE TOR AREA

PLAN XIII

TIN ANOMALIES AND AREAS PROPOSED FOR GRIDDING IN 1979-80 SEASON

5 cm

Scale 1:40 000

0 0.5 1.0 1.5 2.0kms

- Boundary of E.L. 2/78
- Area in which gridding may be required
- Forested areas where minimal line clearing may be required for gridding
- Catchment area anomalous in tin with associated anomalous elements (Sn/Cu)

145°40'

145°50'

41°30'

41°40'00"

41°50'

Area A

Area B

Area C

Sn/W/Li

W/Li

Sn

Sn/W

Sn/Cu

Sn/Pb

Sn/Pb/Zn

Sn/Zn

Sn/W/Cu

Sn/W/Cu/Zn

degrees minutes seconds
41 40

5 cm

GRANITE TOR AREA
WESTERN TASMANIA

Undertaken on behalf of Alcoa of Australia Limited
by Hunting Geology and Geophysics Australia Pty. Limited
Canberra, October 1979
Job No. GA 55/79

This photogeological map was compiled from a study of 40 black and white aerial photographs at the nominal scale of 1:43 450. The annotation took approximately 17 days. One day was spent in the field during September 1979. The drainage base was photographically reduced to photoscale from a base map supplied by Alcoa.

145°40' 145°50' 41°40' 41°50'

SEDIMENTARY ROCKS

QUATERNARY
- Qra alluvium
- Qs old alluvium, soil, gravels
- Qg Qf fluvioglacials
- Qg Qm moraine
- Qt talus, scree

TERTIARY
- Ts soil and gravel

PERMIAN
- P Pmi Mt Inglis Sandstone
- P Pwv Waterfall Valley Siltstone
- P Pbp Benson Peak Sandstone
- P Pcc Cradle Cirque Siltstone
- P Plh Lake Holmes Coal Measures
- P Plw Lake Will Pebbly Siltstone
- Pb Pbb Barn Bluff Conglomerate
- Pb Pbr Bluff River Pebbly Siltstone

SILURIAN
- Sac siltstone (≡ Austral Creek Siltstone)
- Sk quartzite (≡ Keel Quartzite)
- Sa fossiliferous shale (≡ Amber Slate)
- Sc quartzite (≡ Crotty Quartzite)

ORDOVICIAN
- Og Gordon Limestone
- Oo Owen Conglomerate (undifferentiated)

CAMBRIAN
- Emr-s sedimentary horizons within Mt. Read Volcanics. (probable basal and peripheral unit)

PRE-CAMBRIAN
- pE -q quartzite and platy quartzite (and minor pelites)
- pE -pe pelitic phyllite and mica schist (and minor quartzite)
- pE -q/pe interbedded pelitic phyllite, mica schist and quartzite, (pE = undifferentiated)

IGNEOUS ROCKS

TERTIARY
- Tb basalt

UPPER DEVONIAN — GRANITE TOR GRANITE
- Dg Dg-g biotite-muscovite granite
- Dg Dgm microgranite, aplite
- Dg Dg-a adamellite
- Dg undifferentiated

CAMBRIAN — MURCHISON VOLCANICS
- Ep quartz porphyry, quartz feldspar porphyry extrusives; "darwin-type" rhyolite — MURCHISON VOLCANICS
- Egm Intrusive quartz and quartz-feldspar porphyry (intrusive phase of Ep) — MURCHISON GRANITE

MT. READ VOLCANICS — probably contemporaneous and equivalent to Murchison Volcanics and Granite.
- Emr undifferentiated (sediments)
- Emr-p quartz and quartz-feldspar porphyry
- Eg granite (intrusive phase of Emr-p)

vegetation anomaly

LINEWORK SYMBOLS

- geological boundary - definite
- geological boundary - probable
- geological boundary - superficial
- bedding trend
- fault showing movement
- probable fault
- fracture
- joint
- shear
- anticline with plunge
- syncline with plunge
- overturned anticline
- bedding - horizontal
- bedding - dip < 5°
- bedding - dip 5-15°
- bedding - dip 15-30°
- bedding - dip 30-60°
- bedding - dip > 60°
- bedding - vertical
- bedding - overturned
- slope of moraine - gentle
- slope of moraine - steep
- dyke
- river and creek
- sealed road
- vehicle track
- foot track
- △ 406m trig. point plus height in metres
- 5/58 photo centre, run and number (CONICAL ROCKS Series)
- mine or prospect

National Park boundary

CRADLE MT. - LAKE ST. CLAIR NATIONAL PARK

Note this fold may be an anticline. Photo evidence inconclusive

National Park boundary

CRADLE MT. - LAKE ST. CLAIR NATIONAL PARK